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ENHANCED PRELIMINARY ASSESSMENT SCREENING
(ENVIRONMENTAL BASELINE SURVEY)

LAND TRANSFER TO THE STATE OF ILLINOIS FOR INDUSTRIAL PARKS

JOLIET ARMY AMMUNITION PLANT
WILL COUNTY, ILLINOIS

Volume 1 of 2

Prepared for:

U.S. ARMY ENVIRONMENTAL CENTER
Aberdeen Proving Ground, Maryland 21010-5401

September 1997

PLEXUS scientific

AEC Form 45, 1 Feb 93 replaces THAMA Form 45 which is obsolete.

Final
Enhanced Preliminary Assessment Screening
(Environmental Baseline Survey)
Land Transfer to
State of Illinois for Industrial Parks

Joliet Army Ammunition Plant
Will County, Illinois

Prepared for:

U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland 21010-5401

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LIST OF ACRONYMS

ACM	Asbestos containing material
AEHA	Army Environmental Hygiene Agency (now CHPPM)
AFR	Acid fume recovery
AHERA	Asbestos Hazardous Emergency Response Act
AMCCOM	Armament Munitions and Chemical Command
AOP	Ammonia oxidation plant
ARAR	Applicable or relevant and appropriate requirements
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
BLU	Bomb live unit
C	Celsius
CBU	Cluster bomb unit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CHPPM	Center for Health Promotion and Preventive Medicine
DDESB	Department of Defense Explosive Safety Board
DMAS	Dimethylanaline sulfate
DNT	Dinitrotoluene
DOD	Department of Defense
DU	Depleted uranium
DWEL	Drinking water equivalent levels
EPIC	Environmental Photographic Interpretation Center
ERNS	Emergency Response Notification System
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FFA	Federal Facility Agreement
FINDS	Facility Index System
FPMR	Federal Property Management Regulations
FS	Feasibility study
ft	Foot
g	Gram
GOCO	Government owned contractor operated
gal/d	Gallons per day
gal/m	Gallons per minute
HE	High explosive
HMX	High Melting Explosive (cyclotetramethylenetetranitramine)
HRS	Hazard ranking system
IAC	Illinois Administrative Code
IEPA	Illinois Environmental Protection Agency

I&M	Illinois & Michigan
IOC	Industrial Operations Command
IR	Installation Restoration
IRDMIS	Installation Restoration Data Management Information System
IRP	Installation restoration program
JOAAP	Joliet Army Ammunition Plant
JATA	Joliet Army Training Area
kg	Kilogram
l	liter
LAP	Load-assemble-pack
LQG	Large quantity generator
MCL	Maximum Contaminant Level
MFG	Manufacturing
mg	Milligram
µg	Micrograms
Mgal/d	Million gallons per day
mm	Millimeter
msl	Mean sea level
NAC	Nitric Acid Concentrator
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHC	National Heritage Corridor
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NRDC	Natural Resources Defense Council
NS	Nitroxylenes
OSHA	Occupational Safety and Health Administration
OU	Operable unit
PAS	Preliminary Assessment Screening
PBX	Plastic bonded explosive
PCB	Polychlorinated biphenyl
pCi	Picocurries
ppm	Parts per million
PRG	Preliminary remediation goals
RAATS	RCRA Administrative Action Tracking System
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RDX	Royal demolition explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine)
RI	Remedial investigation
RME	Reasonable Maximum Exposure
RQ	Reportable quantity

RU	Remedial unit
SAR	Sulfuric acid regeneration
SARA	Superfund Amendments and Reauthorization Act
SMCL	Secondary Maximum Contaminant Level
SOC	Statement of conditions
SPCC	Spill control and countermeasures plan
SQG	Small quantity generator
STP	Sewage treatment plant
TCLP	Toxicity Characteristic Leaching Procedure
TETRYL	Trinitrophenylmethylnitramine
TNT	Trinitrotoluene
TPHC	Total Petroleum Hydrocarbon
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage and Disposal
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency (now USAEC)
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground storage tank
UXO	Unexploded ordnance

EXECUTIVE SUMMARY

This report documents a Preliminary Assessment Screening (PAS) of the Joliet Army Ammunition Plant (JOAAP) initiated by the U.S. Army Environmental Center (USAEC). The PAS involved an evaluation of the existing facility and environmental conditions on land identified for transfer to the State of Illinois. It is in compliance with Title 40 of the Code of Federal Regulations, Part 373, Section 1, and with U.S. Army Regulation 200–1, which require identification of the types of hazardous or toxic substances used, or stored in excess of one year, or disposed of or released on federal properties designated for transfer of ownership.

JOAAP is near the city of Wilmington, Will County, northeastern Illinois. The entire facility has been declared excess, and land transfer to future owners is directed by Public Law 104–106, Fiscal Year 1996 Department of Defense Authorization Act. The future owners and land uses include: USDA for establishment of a National Tallgrass Prairie; the Department of Veterans Affairs for a Veterans Cemetery; Will County for a landfill; and the State of Illinois for establishment of Industrial Parks (BILL01). Two Industrial Parks will be established, one in the Manufacturing (MFG) Area of the facility (Village of Elwood Industrial Park) and the other in the Load-Assemble-Pack (LAP) Area (City of Wilmington Industrial Park). This report evaluates portions of the State of Illinois (Industrial Parks) parcels appropriate for transfer as identified by the U.S. Environmental Protection Agency (USEPA) (RBOW01).

JOAAP operated as a government-owned, contractor operated military industrial installation and is currently considered excess. The facility, constructed in the 1940s, has two distinct operational areas divided by State Route 53: the explosives-manufacturing Area (MFG Area) west of Route 53, and encompassing approximately 14 square miles; the LAP Area east of Route 53, and comprising approximately 22 square miles. Operations in the MFG Area included production of trinitrotoluene (TNT), dinitrotoluene (DNT), trinitrophenylmethylnitramine (tetryl), lead azide, TNT demolition blocks, nitroxylenes, and explosive manufacturing process chemicals such as nitric and sulfuric acids, oleum, ammonium nitrate, and sellite (sodium sulfite). Production facilities were clustered in the

northern half of the MFG Area, and an explosives storage facility was in the southern half. The LAP Area contained facilities for the loading, assembling, and packaging of high-explosive artillery projectiles, aerial bombs, mines, and a variety of ammunition components. A variety of facilities operated in support of the principal activities at the two portions of the plant: motor pools, laundries, landfills, burn areas, hospitals, X-ray facilities, locomotive service areas, water treatment and distribution systems, and explosive storage areas, among others. Approximately 1500 buildings of either permanent or semipermanent construction remain standing on the facility.

A review of readily available records was conducted to identify documentation of potential environmental concerns relating to the excess parcel or to nearby properties whose condition could impact the excess parcel. The record search focused on review of files and records at USAEC, files in storage at JOAAP, and records contained at the National Archives in College Park, Maryland. Records, files, maps, and other documents reviewed are presented in the Bibliography (Section 6). State and federal environmental databases were also searched. It is assumed that all the documents obtained from government sources contain accurate information.

Several informal interviews of past and current JOAAP employees were conducted. These interviews concerned specific areas of interest identified from the site reconnaissance and records review. In addition, questionnaires were mailed to all current agricultural leaseholders (covering about 16,700 acres) in order to help identify any unusual conditions or potential environmental concerns.

A limited site reconnaissance involving a driving tour of the facility and its perimeter, and a random survey by vehicle and on foot through each section of the property, was conducted to field-verify information yielded by the document review and to identify potential environmental concerns. Within the land for transfer to the Industrial Parks, 110 buildings were visually inspected. These buildings were selected as a representative sample from groups of similar buildings.

Historical aerial photographs of JOAAP were reviewed by the USEPA Environmental Photographic Interpretation Center (EPIC) in 1986. Photographs from 1939 through 1979 were included in that review. This study identified areas of concern that became the IR study areas. The findings of the EPIC review were incorporated into the PAS.

An analysis of historical land use patterns was conducted to identify those uses that may have resulted in, or contributed to, environmental contamination or other environmental concerns. The analysis entailed informal interviews and a review of site plans, historical documents, and aerial photographs. Historical analysis revealed that a number of structures have been demolished. All available information on demolished buildings is included in Appendix D.

Environmental concerns at JOAAP were evaluated facility-wide, and findings were compiled into an electronic database. The information contained in the database for each study section and building is presented as profiles in Appendices B and C. The profile information is used to summarize the nature, magnitude, and extent of environmental contamination or concern, regarding use of the property considered for transfer.

A list of environmental concerns identified during the PAS, together with description of the potential for environmental contamination, is provided in Section 4. Further definition of these concerns is provided in Appendices B, C, and D.

1. INTRODUCTION

This report is one of four Preliminary Assessment Screenings (PAS) for the Joliet Army Ammunition Plant (JOAAP) initiated by the U.S. Army Environmental Center (USAEC), Aberdeen Proving Ground, Maryland 21010. The PAS involved an evaluation of existing facility and environmental conditions to determine and document whether hazardous or toxic substances were used, released, stored in excess of one year, or disposed on land designated for transfer to the State of Illinois for development of Industrial Parks.

JOAAP is in Will County near the city of Wilmington, northeastern Illinois (Figure 1–1). The entire facility has been declared excess to Army needs, and transfer of the land to other owners is directed by Public Law 104–106, Fiscal Year 1996 Department of Defense Authorization Act. The future owners and future land uses include: USDA for establishment of a National Tallgrass Prairie; the Department of Veterans Affairs for a Veterans Cemetery; Will County for a solid waste landfill; and the State of Illinois for establishment of industrial parks (BILL01).

For each of the future owners' parcels, depicted in Figure 1-2, separate PAS reports were developed. Property addressed in each report is shown in Figure 1-3.

Issues raised in this PAS and findings thereof, are discussed in Section 4 of this report. A summary of findings for the Industrial Park parcels is presented in Section 5. Required actions and specific restrictions on future use will be presented in a separate finding of suitability for transfer (FOST). All boundaries and areas discussed or depicted in this report should be considered approximate as no land survey has been conducted.

This report is submitted by Plexus Scientific Corporation, 12501 Prosperity Drive, Suite 401, Silver Spring, Maryland 20904 under Contract Number DAAM01–94—D–0020 (Delivery Order 0006).

1.1 Purpose

The PAS for the Industrial Park parcels was required for compliance with Title 40, Code of Federal Regulations, Part 373, Section 373.1 (40 CFR 373.1), and U.S. Army Regulation 200–1, *Environmental Protection and Enhancement*. The provisions of 40 CFR 373 require that a Notice accompany contracts of sale and deeds entered into for the transfer of federal property on which hazardous substances may have been stored, released or disposed of. The requirement is stipulated in of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Section 120(h) of that Act requires a Notice on condition that certain hazardous substances have been stored for one year or more, and the quantities exceed (1) 1000 kilograms or the reportable quantity (RQ) for the substances as specified in 40 CFR 302.4, whichever is greater, or (2) one kilogram for acutely hazardous waste, as defined in 40 CFR 261.30. A Notice is also required if hazardous substances have been disposed of or released on the property in an amount greater than or equal to the RQ. Army Regulation 200–1 requires that a PAS address asbestos, lead-based paint, radon, and other substances, potentially hazardous to health.

1.2 Scope and Limitations

This PAS report presents such information as is available on the environmental conditions and concerns relative to the land, facilities, and real property assets of the Industrial Park parcels at JOAAP. Its findings are based on a record search of several thousand documents, a thorough review of over 500 of these documents, and site reconnaissance of JOAAP conducted between 1995 and 1997. A complete title search was not conducted. Extensive environmental investigations and reports previously prepared for JOAAP, as well as site historical documents, were reviewed during the PAS and in support of this report. Information obtained from other studies is reflected within this PAS by a coded reference. A complete list of references by code number is provided as Section 6 of this report. Discrepancies identified during document review were reconciled where possible.

Plexus contacted and interviewed many people familiar with JOAAP during development of the PAS. Contacts included: Tom Erdman, Art Holz, Bob Zerboglio and Nancy Yates—all of the JOAAP staff; Janet Beavers, USAEC Project Officer; Norman Demarais, former Plant Manager; Bernie Kavanaugh, former Uniroyal Environmental Coordinator; John Csikos, former Uniroyal supervisor for red water, tetryl, and TNT areas; Keith Corbin, former Uniroyal employee; Henry Miller, former Uniroyal employee; Tim McHale, Alliant Techsystems, Inc.; representatives of Dames & Moore and OHM Remediation Services Corporation, project managers for other environmental studies at JOAAP; and the Industrial Operations Command (IOC) historian.

Summaries of various ongoing environmental studies and investigations at JOAAP are presented in Sections 2.2.4 and 4.1.3.

1.3 Organization of the PAS

The remainder of this report expounds on the PAS setting, method, and findings. Section 2.0 provides a description of the JOAAP environment, an overview of plant operations and history, and a summary of previous environmental investigations. Section 3.0 describes the method used to conduct the PAS. Findings of the PAS organized by relevant environmental "issues" (e.g., contaminant, contamination matrix, plant operation) are elaborated in Section 4.0 and summarized in Section 5.0. The corresponding structures (i.e., Section 4.8 presents all of the findings relating to PCBs and Section 5.1.8 provides a brief summary of the significant findings) of these two sections will make it easier for the reader to obtain all available information on a particular issue and to determine its significance. A bibliography is provided in Section 6.0.

The appendices are arranged to allow the reader to determine the full range of environmental issues relating to a portion of JOAAP (Appendix B) or an individual building (Appendix C). Appendices B and C were generated from a database developed to manage site information.

Additional information concerning the Installation Restoration Program (IRP) sites is presented in Appendix D. Appendix E contains a table intended for use in meeting CERCLA 120(h) Notice requirements. The following appendices are included in Volume 2 of this report:

- Appendix A: Questionnaire Sent to Agricultural Lessees
- Appendix B: Profiles of Industrial Park Parcel Study Sections
- Appendix C: Profiles of Buildings in Industrial Park Parcels
- Appendix D: Profiles of IRP Sites
- Appendix E: Chemicals Known to Have Been Used, Stored, Disposed or Released on the Industrial Park Parcels

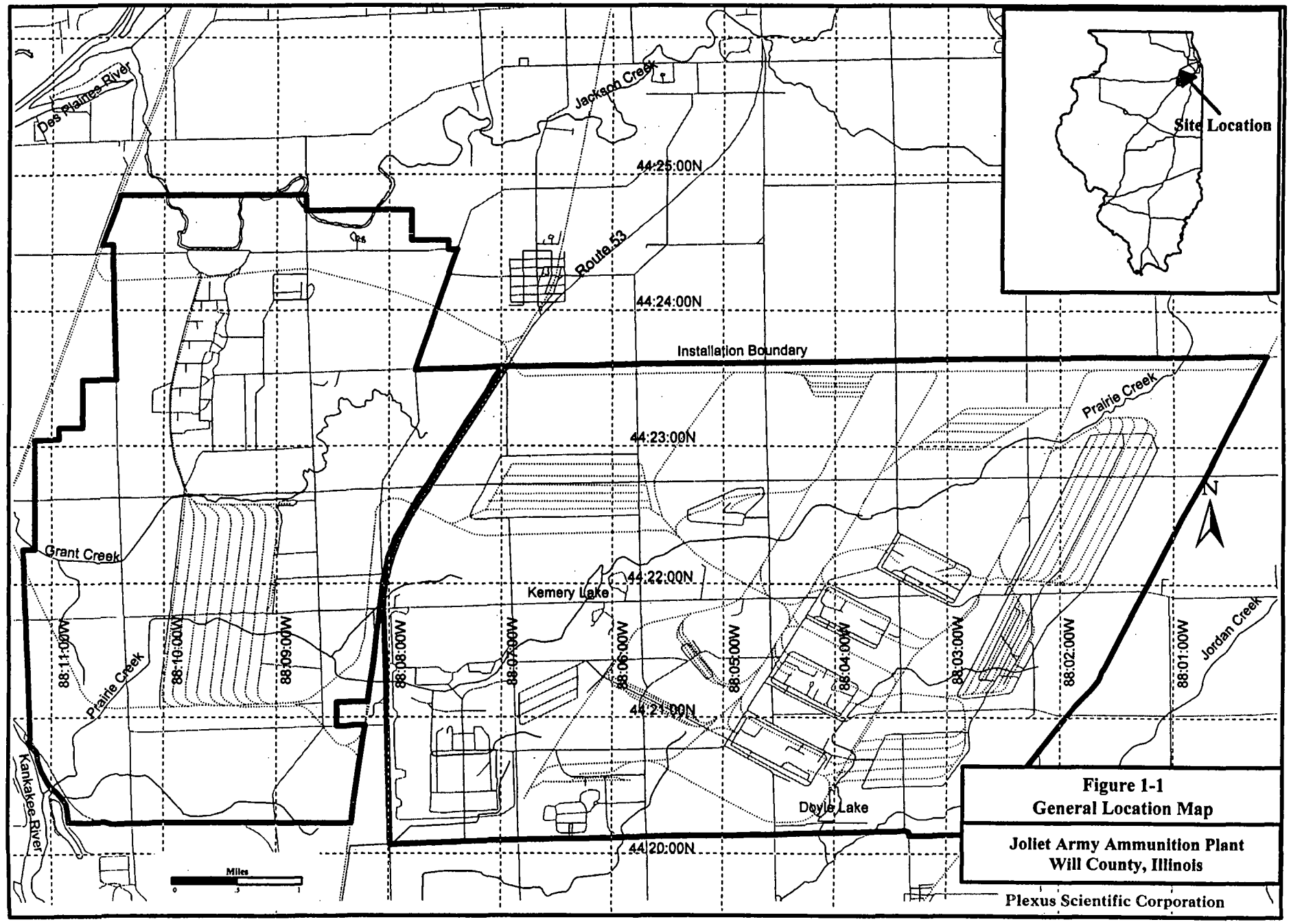

Figure 1-1
General Location Map

Joliet Army Ammunition Plant
Will County, Illinois

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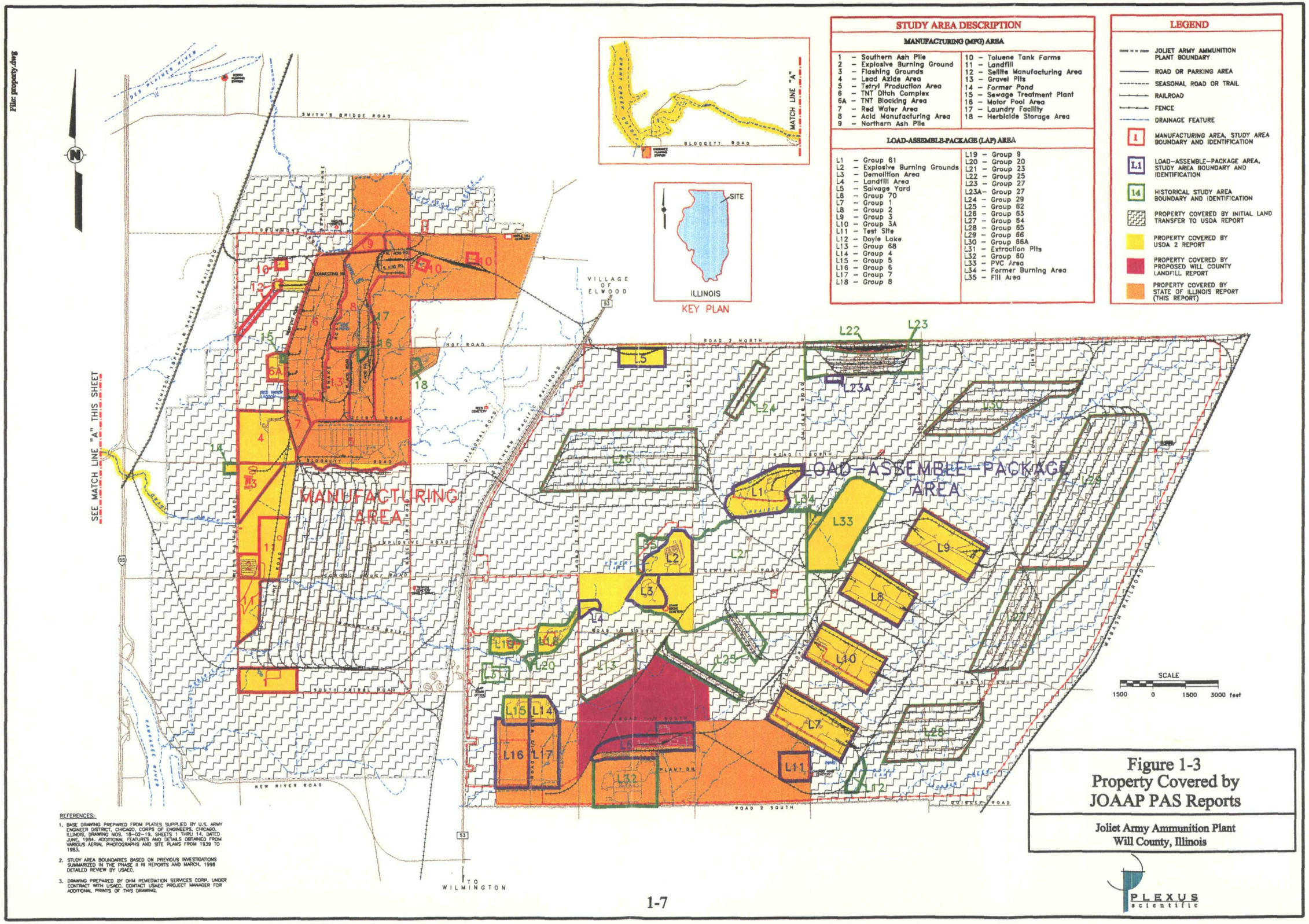
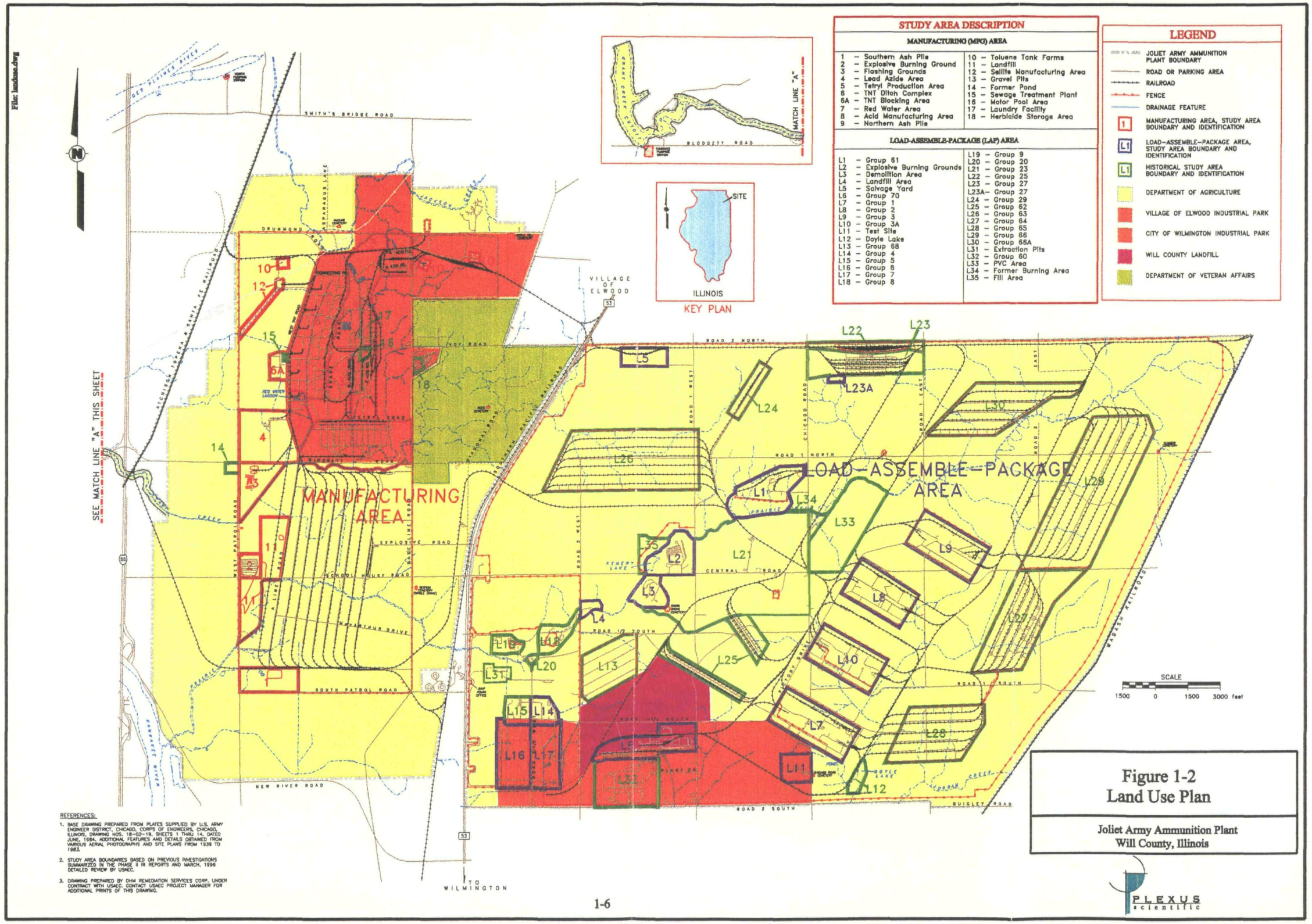


Figure 1-3
Property Covered by
JOAAP PAS Reports

Joliet Army Ammunition Plant
Will County, Illinois

File: landuse.dwg



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2. STUDY AREA BOUNDARIES BASED ON PREVIOUS INVESTIGATIONS SUMMARIZED IN THE PHASE II RI REPORTS AND MARCH, 1996 DETAILED REVIEW BY USAEC.
3. DRAWING PREPARED BY OHM REMEDIATION SERVICES CORP. UNDER CONTRACT WITH USAEC. CONTACT USAEC PROJECT MANAGER FOR ADDITIONAL PRINTS OF THIS DRAWING.

Figure 1-2
Land Use Plan

Joliet Army Ammunition Plant
Will County, Illinois

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2. SITE BACKGROUND

This section provides a description of JOAAP, including location, property, and operational history; physical environment; and biological and cultural resources. Issues pertaining specifically to the Industrial Park parcels are addressed in subsequent sections.

2.1 Plant Location and Description

JOAAP is in Will County, near Wilmington, Illinois. The facility is 10 miles south of Joliet, 22 miles northwest of Kankakee, and 57 miles southwest of Chicago. Towns adjacent to JOAAP include Elwood, and Wilmington, two miles to the south (ARMY01). The northern boundary of the manufacturing area adjoins the Joliet Army Training Area (JATA) and is within two miles of the Amoco Chemicals Superfund site (BICO01). An active Mobil Oil Refinery is located at the northwest corner of JOAAP. The Des Plains Conservation Area borders JOAAP on the west and south. Farming and grazing are conducted along other perimeter areas of JOAAP, and a large portion of the facility consists of pasture and cropland with scattered woodlands (ARMY01). The topography is flat to gently rolling (ANLA01).

JOAAP is a government-owned, contractor-operated (GOCO) military industrial installation that has been declared excess. It is part of IOC, formerly the U.S. Army Armament, Munitions and Chemical Command (AMCCOM) (ANLA01, FIEL01). JOAAP no longer has a mobilization mission, and no maintenance is required except for those sites currently leased to Alliant Techsystems, Inc. (AEST01).

The plant has two distinct operational areas divided by State Route 53: the explosives manufacturing area (MFG Area) west of Route 53, encompassing approximately 14 square miles; and the Load-Assemble-Pack area (LAP Area) east of Route 53, comprising approximately 22 square miles. The MFG Area produced trinitrotoluene (TNT), dinitrotoluene (DNT), trinitrophenylmethylnitramine (tetryl), lead azide, TNT demolition

blocks, as well as chemicals used in explosives manufacturing, such as nitric and sulfuric acids, oleum, ammonium nitrate, and sellite (sodium sulfite). The production facilities were clustered in the northern half of the MFG Area, and an explosives storage facility was in the southern half. The LAP Area contained facilities for the loading, assembling, and packaging of high-explosive (HE) artillery projectiles, aerial bombs, and a variety of ammunition components. Approximately 1500 buildings of either permanent or semi-permanent construction remain standing on JOAAP (ARMY01).

2.2 Facility History

This discussion of facility history is divided in several parts. An operational history includes an overview of the activities at the plant and descriptions of the manufacturing processes for many of the items produced. Information—some of it incomplete—on the occupancy and lease history is also provided. A regulatory history provides information concerning permits held and enforcement activities. The section concludes with brief descriptions of previous environmental investigations.

2.2.1 Operational History

JOAAP was constructed in the early 1940s on land purchased by the U.S. Government for exclusive use by the U.S. Army as an arsenal and manufacturing facility. Earlier, the entire area had been used for agricultural purposes (ARMY01). The JOAAP mission was production of munitions in support of the nation's World War II effort. JOAAP was constructed as two separate facilities with distinct production missions: the Kankakee Unit, which manufactured explosives, and the Elwood Unit, an industrial munitions–loading plant (load-assemble-pack area). These two areas became known, respectively, as the MFG Area and the LAP Area. Construction contracts for the Kankakee Unit were signed on September 12, 1940; those of the Elwood Unit, on September 19, 1940. Production operations began in September 1941 and by the end of World War II, JOAAP was the nation's largest ammunition manufacturer, producing more than 500,300 tons of explosives during the war (ANLA01).

Peak employment reached 5,000 people at the Kankakee Unit in 1942 and 14,000 at the Elwood Unit in 1945 (ACOE06).

In August 1945, both units were placed in standby status when ammunition production was halted. Standby activities focused on keeping the units prepared for any necessary reactivation of production. This included leasing areas (discussed in Section 2.2.2) such as the sulfuric acid and ammonium nitrate plants (ANLA01). In 1946 the Kankakee and Elwood Units were combined to form the Joliet Arsenal (ACOE01). From about 1946 through 1950, while the government operated the arsenal, the Elwood Unit was engaged in demilitarization of large amounts of deteriorated and obsolete ammunition items. In addition, from 1949 through 1957, Elwood Unit activities were directed primarily toward renovation and new loading of ammunition items (JAAP63). The plant was reactivated for the Korean Conflict in 1952 and remained in operation until 1957 (AAMC02, ALSI01).

In the early 1950s, the JOAAP mission was expanded to include loading of nonstandard research and development ammunition items, principally experimental bombs, which required considerable development of equipment and processing techniques (HIST01). In the 1950s, various research and development projects, together with nonstandard items assigned the arsenal, were completed, the bulk of which involved loading various kinds of bombs ranging from 100 to 42,000 pounds (JAAP63). An experimental division conducted investigations in design and manufactured product testing, development of techniques for new and unusual items, and process development. From the mid-1950s through the early 1960s, JOAAP was authorized by the Ordnance Ammunition Command to operate a production development division to gather and initiate ideas applicable industry-wide and conduct development projects in the fields of design, techniques, and process development (HIST01). A list of munitions and components manufactured or handled at JOAAP is presented as Table 2–1.

In 1963, the facility was officially renamed the Joliet Army Ammunition Plant (ACOE01). On November 19, 1965, U.S. Rubber became responsible for operation of the entire facility.

The facility was reactivated for the Vietnam Conflict in 1966 and continued operation until 1976, when it was placed in an inactive status (AAMC02, ALSI01).

The LAP Area continued to conduct various assembly activities involving bombs, projectiles, fuzes, and supplementary charges almost continuously from World War II through 1975 (DAMO06). This area contains load line groups capable of producing the standard 105-mm HE M1 cartridge, the 8-inch Howitzer HE projectile, 40-mm cartridges, M14 mines, bombs, and supplementary charges (ARMY01, AEST01). The MFG Area contains 10 of the 12 original World War II batch-type TNT lines, six newer "continuous flow" TNT lines, 6 of the 12 original tetryl lines (six have been demolished) and five DNT lines (AEST01).

During the last activation (1966–1976), the lead azide and TNT demolition block areas were declared excess and not used for production. They were subsequently demolished. Nitration of DNT also ceased during this time, since it was more convenient to purchase it commercially in crude form and purify it at the plant (ARMY01). JOAAP was placed in a nonoperating status in 1977 and was placed in Inactive-Modified Caretaker Status in 1993 (ACOE01). The facility was recently declared excess.

Alliant Techsystems, Inc., is currently producing, test firing and storing 25- and 30-millimeter (mm) cartridges and the AT–4 (84-mm M136 antiarmor weapon). In June 1989, a facilities contract was issued to Talley Defense Systems for use of Group 3 (AAMC03). Talley Defense Systems used the area for the manufacture of the 155-mm M864 Base Burner Assembly until 1994 (AEST01, DOTA04).

Disposal operations were conducted at several locations throughout the facility. These included open combustion of explosive materials and demolition debris, incineration, landfilling, and discharging of contaminated process wastewater (DAMO04). Other significant activities included: maintenance of ordnance and automotive vehicles; use of radioactive materials—i.e., depleted uranium and cobalt 60 and cesium 137 (in instrumentation); use of biomedical materials; use of photochemical materials; pesticide

application and storage; and the operation of transformers and other electrical equipment that may contain polychlorinated biphenyls (PCBs) (ARMY01). Munitions filling, maintenance and disposal operations at JOAAP may also have resulted in surface discharge of explosive materials and production byproducts (DOAS06).

2.2.1.1 TNT Manufacturing Process

Twelve production lines were originally associated with TNT manufacturing at JOAAP. During full operations, 10 lines were active, one was in active standby, and one was committed to preventive maintenance. Primary components of each line included a Mono-, a Bi-, and a Tri-Nitration House, a Wash House, and an Acid Fume Recovery House. One Packing House, administrative facilities, and raw materials storage tanks were shared between two lines (JAAP09, ARMY01). Six DNT lines served the 12 TNT lines (JAAP09).

Most TNT was manufactured using a batch-type operation that involved direct manual process control. Each batch converted 1600 pounds of toluene to 3360 pounds of purified product in a period of 40–45 minutes. Total TNT-manufacturing capacity was close to 1700 tons per month when all lines were in operation (ARMY01). TNT lines 11 and 12 were demolished and replaced with six continuous TNT lines in 1974. The continuous lines were only operated through a prove-out period; they were never used for active production (ARMY01, MEMO04).

In the batch production process, TNT was made by the successive chemical addition of three nitrite radicals to toluene using mixtures of nitric and sulfuric acids. The nitric acid acted as the nitrating agent, and sulfuric acid acted as a catalyst and dehydrant. Nitrating was done in three separate batch operations in three separate buildings. The first nitration was performed in the Mono-House with the addition of toluene to a mixture of weak nitric acid (60 percent) and waste acid from the Bi-House to produce mono-nitro-toluene ("mono-oil"). Mono-oil was transferred to the Bi-House and added to a mixture of weak nitric acid and waste acid from the Tri-House to form DNT ("Bi-oil"). Bi-oil was transferred to the Tri-House and

added to a mixture of TNT, mixed acid (nitric and sulfuric), and oleum to produce TNT ("Tri-oil"). Tri-oil was transferred to the Wash House, where it was neutralized by the addition of water, soda ash, and purified by addition of sodium sulfite solution (selliting). The TNT slurry was transferred to a filter tank, where it was washed and filtered on a screen, leaving a layer of TNT crystals. Crystallized TNT was washed with water, melted, and dried. The TNT was solidified on a water-cooled flaker drum, and the film was removed in the form of flakes by scraping with a beryllium knife. Flaked TNT was loaded into paper-lined cardboard boxes and sent, via conveyor, to the Nail House for sealing before shipment. Spent acid from the mono-nitrating step was sent to the Acid Recovery Building along with acid fumes and vapors emitted during various stages of production. There the nitric and sulfuric acids were separated for concentration and reuse (AEHA09, TRWI01).

Process cooling waters used in each production step, and during acid recovery, were discharged into a trough system which flowed into the TNT Ditch Complex. Occasionally, large volumes of highly contaminated water were discharged when, due to operational problems, a batch was drowned (flooded with water) in the large drowning tanks outside the nitrating houses. The frequency of these drowning procedures is not currently known. The drowned batch was discharged into the gutter system and subsequently to the TNT ditch. Water contaminated with nitrobodies, resulting from operation of a dust scrubber in the Wash House, was also discharged to the TNT ditch (AEHA09). Red water and wastewater from building washdowns, were collected in a sump, pumped to a settling tank, and sent to the Red Water Disposal Plant south of the TNT-manufacturing area (AEHA09, TRWI01). Sellite washwater, used to remove impurities from TNT, was concentrated by evaporation, and the remaining thick liquor was incinerated at the Red Water Plant (ARMY01). The resulting ash was deposited in one of two ash disposal areas in the MFG Area. In the evaporation process, condensate contaminated with nitrobodies was recovered and eventually discharged to the TNT ditch (AEHA09). Before installation of the incinerator in 1966, all red water waste was discharged into open drainage ditches. This red water may have contained TNT, nitrobodies, sulfates, and nitrates (AEHA09).

As of 1972, there was no treatment of wastewater entering the TNT ditch until it reached Grant Creek, where soda ash was added (AEHA09). Samples of combined cooling water and scrubber water effluent from the Wash House were collected from TNT line 10 in 1972. These samples contained TNT at levels averaging 36 mg/L (ARMY01).

2.2.1.2 DNT Production Process

In 1978, Joliet was the only Army Ammunition Plant with the capability to manufacture 2,4-DNT. As of 1978, the manufacturing capability had not been exploited for several years, and the plant had been purchasing crude DNT from commercial sources and purifying it before use (ARMY01, TRWI01).

During the manufacturing of DNT, a fractional crystallization process was used for purification. Crude DNT was charged to a "sweat" pan and heated to 75°C. The temperature was then decreased in 5°C increments. When a temperature of 25°C was reached, most of the pure DNT was in crystal form, and the liquid phase containing most of the impurities was drained off to storage. Small amounts of impurities adhering to the crystals were removed by gradually increasing the temperature and draining the "sweat." When the freeze point reached 34°C, sweating was discontinued and the charge was rapidly heated to 95°C with additional draining of impurities until tests indicated that the freezing point of the remaining charge was above 63°C. Molten, purified DNT was then transferred to a water-cooled kettle, where graining was induced by agitation as the charge cooled (ARMY01, TRWI01). Powdered DNT crystals were discharged to a hopper, screened and packaged in fiber drums for storage and shipment (ARMY01, HIST01).

Purification of DNT was essentially a pollution-free operation. Separated impurities (low-oil) were stored and reused in manufacturing of TNT. Aqueous effluent from the purification process was limited to the uncontaminated cooling water, which was discharged to the TNT ditch (ARMY01, TRWI01).

2.2.1.3 Nitroxylene Production

Production of nitroxylene (NS) was started on December 10, 1943. Original instructions were to convert TNT lines 9 to 12 to NS production. However after conversion was started, it was determined that only Lines 9 and 10 should be converted (HIST39).

The alterations to the lines were not extensive. Production involved a single-step nitration, and the spent acid was not fortified for reuse. Three nitrators were used on each line, two tri-nitrators and a mono-nitrator. Xylene and mixed acid were supplied to each nitrator, and waste acid lines delivered the spent acid from the nitrators to the acid recovery building. Crude NS was pumped to a HCI holding tank and then to the wash house. Crude NS was then washed and neutralized with soda ash in wash and slurry tanks at the wash house and dried with hot air in the TNT dryer. Purified NS was pumped from the wash house to former oleum bulk storage tanks for storage prior to tank car shipment (HIST39). A total of 1.3 million pounds of NS were produced (AMCI13).

The spent acid was denitrified, and the sulfuric acid was recovered in the acid recovery building. No attempt was made to recover the nitric acid, as quantities were small. Neither the absorption nor the acid fume recovery system was used (HIST39).

2.2.1.4 Tetryl Production

Tetryl was produced intermittently from the 1940s through July 1973 (ARMY01, DAMO04). A total of 12 tetryl production lines had a capacity of approximately 0.59 million kilograms per month. Six of these lines were razed in 1985 (ARMY01, BICO01). Each production line consisted of separate buildings for nitration and refining. Each group of six tetryl lines was served by four buildings, one each for drying, packing and shipping, sulfating, and acid and fume recovery (ARMY01, TRWI01).

Tetryl was produced at JOAAP by a batch process. In the Sulfating House, dimethylaniline was sulfated with 94 percent sulfuric acid to produce dimethylaniline sulfate (DMAS), which was destined for use as an aid in process control during nitration. The resulting dilute DMAS was transferred to the Nitrating House and mixed with nitric and sulfuric acids under controlled conditions to produce a crude tetryl. Crude tetryl mix was cooled and transferred to a stainless neutch (a container with a filter), where the free acid was separated. Crude tetryl was neutralized, washed four times and transferred to the Refining House. At the Refining House, it was washed and slurried through a tank, filtered, and transferred to a dissolving tank, where it was dissolved by acetone and washed into a still charged with 45 percent acetone. The acetone was removed by evaporation, and refined tetryl crystals were slurried, partially dried, screened to remove lumps and outsized particles, and transferred to the wet storage area (Lag Storage). Wet storage tetryl was transported by powder buggy to the Drying House, placed on screens, and dried with hot air. The tetryl was transferred from the Drying House to the Pack House for packaging prior to shipment (AEHA09, ARMY01).

Spent acid and fumes from tetryl manufacture were treated in the Acid Fume Recovery (AFR) House; dilute nitric and sulfuric acids were recovered and transported to respective concentration facilities. Major sources of concentrated wastewater in the production of tetryl included: a continuous flow of cooling water from the AFR, the Nitrating, and Refining Houses; wash water contaminated with acid and nitrobodies; and water from cleaning of acid holding tanks in the Nitrating House. Washwater from the Refining House and floor washwater from both the Nitrating and Refining Houses were also significant wastewater discharges. Cleaning of drying screens with sellite in the Drying House and general floor washing of the Drying and Pack Houses contributed smaller amounts of wastewater contaminated with tetryl particles (ARMY01, AEHA09). Catch boxes were provided in the Nitrating, Refining, and Drying Houses to allow settling of large tetryl particles, which were sent for reprocessing. Wastewater generated in the production of tetryl was discharged into the tetryl ditch through the Nitrating, Refining, and Drying House ditches (ARMY01). The majority of wastewater in the Nitrating and Refining House ditches were cooling waters discharged from the AFR, Nitrating, and Refining Houses. It was only during short periods at

the end of the nitration and refining processes that concentrated process wastewaters were discharged to these ditches. The AFR Houses discharged bubble cap water, cooling water, and washwater and sellite solution used in cleaning operations through three separate effluent lines. In the Drying Houses, wastewater containing tetryl particles was generated from sellite washing of drying screens (TRWI01). The tetryl ditch emptied into Grant Creek (ARMY01).

Wastewater was treated by settling in catch tanks. Occasionally, sellite or soda ash was added to a ditch to neutralize acid waste. Acid waste was generated from draining of waste acid storage tanks in the Nitrator Buildings and from acid wastewaters produced during crude tetryl washing (AEHA09).

A tetryl ditch neutralized with soda ash was sampled in 1972. The ditch was found to contain tetryl at an average concentration of over 400 mg/L prior to dilution with cooling water. The pH averaged 3.1 and sulfate was present at a concentration of 779 mg/L (ARMY01).

In 1957, a pilot refining unit was added to the continuous tetryl nitration unit. The equipment produced tetryl from dinitromethylanaline. The nitrification was conducted in dichloroethane with subsequent separation of the solvent and crystallization of the tetryl (HIST20).

2.2.1.5 Acid and Fume Recovery (AFR) Process

Every TNT line and each group of six tetryl lines employed an AFR House. The exhaust fumes from the three Nitrating Houses were cleaned in scrubbers and discharged to the atmosphere through stacks. Scrubbers were ring-packed towers that operated in series. Liquid wastes from the AFR operation included cooling water and water used for floor washing and spill cleanup (ARMY01). In the TNT area, these wastewaters were discharged into the TNT ditch, which empties into Grant Creek. In the tetryl area, they were discharged into tetryl and nitrating ditches, which empty into the same creek (TRWI01).

2.2.1.6 Nitric Acid Concentration

Seventeen nitric acid concentrators were in operation at JOAAP (six in Acid Area 1, five in Acid Area 2, and six in Acid Area 3) with a total rated capacity of 22.8 million pounds per month as 100 percent nitric acid. These units produced concentrated nitric acid (98 percent nitric acid) from dilute acids produced in the Ammonia Oxidation Plant (AOP) and AFR systems (ARMY01, TRWI01).

The nitric acid concentration process was a continuous process in which dilute acid from the AOP or AFR systems was distilled in the presence of sulfuric acid. Diluted sulfuric acid (75 percent) was removed and concentrated in the sulfuric acid concentration facilities (TRWI01).

Wastewaters in the nitric acid concentration process originated from occasional acid spills, floor washings, and water used for cooling (ARMY01, TRWI01). The nitric acid concentration units in Acid Areas 1 and 2 discharged wastewaters through the Acid Ditch into the Tetryl Ditch which empties into Grant Creek. Wastewater from Acid Area 3 entered Goose Creek which empties into Jackson Creek (TRWI01).

2.2.1.7 Sulfuric Acid Concentration Process

Twenty sulfuric acid concentrators were operated at JOAAP (3 in Acid Area 1, 4 in Acid Area 2, and 13 in Acid Area 3) with a total rated production capacity of 103.8 million pounds per month as 100 percent sulfuric acid. Acid Area 4 was capable of producing strong (109 percent) sulfuric acid and oleum by the sulfuric acid regeneration (SAR) method (ARMY01, TRWI01).

The original sulfuric acid concentration operation was a continuous process in which dilute acid (68–75 percent) was concentrated to 93 percent in an evaporator drum, where hot gases (650°C) from an oil-fired furnace passed countercurrent over the acid (ARMY01, TRWI01).

Wastewater originated from occasional acid spills, floor washings, and water used for cooling. Low pH and high sulfate content were major characteristics of this wastewater (ARMY01, TRWI01). The sulfuric acid concentration units in Acid Areas 1 and 2 discharged wastewater through the acid ditch into the tetryl ditch, both of which empty into Grant Creek. Wastewater from Acid Area 3 entered Goose Creek which empties into Jackson Creek (TRWI01).

2.2.1.8 Nitric Acid Production

Both TNT and tetryl manufacturing consume nitric acid. The acid recovered in the AFR process was supplemented by make-up acid from 14 AOPs (4 in Acid Area 1, 4 in Acid Area 2, and 6 in Acid Area 3) which produced weak (60 percent) nitric acid by the ammonia oxidation process. The production capacity was 37.4 million pounds per month of 100 percent nitric acid when all units were operating. Acid Area 4 had sufficient capacity to replace the AOP in the other acid areas. The new AOP and direct Strong Nitric Acid Plant added production capacities of 7.8 and 7.6 million kilograms of 100 percent nitric acid respectively per month (ARMY01, TRWI01).

In the ammonia oxidation process, a mixture of ammonia gas and air was combusted in the presence of a catalyst (90 percent platinum, 5 percent palladium, and 5 percent rhodium) to produce nitric oxide. The gas was cooled, and excess air was added to convert nitric oxide to nitrogen dioxide. Water formed in the ammonia oxidation step reacted with nitrogen dioxide, producing nitric acid and nitric oxide. Dilute nitric acid (52 percent) was formed from cooling and condensing. The acid was then sent to an absorption column for concentration. Nitric oxide produced in the last reaction was oxidized by excess air to form nitrogen dioxide. The gases were then removed by aqueous scrubbing in countercurrent absorption towers. The acid produced in the towers contained 60 percent nitric acid, which was concentrated to 98 percent in the nitric acid concentration units as needed (TRWI01).

Acid Area 4 produced weak and strong acid in a single operational sequence. The system produced 98 percent nitric acid directly from ammonia oxidation and without the use of sulfuric acid. The nitric oxide from the combustion of ammonia was cooled and compressed. It was then converted to nitrogen dioxide by oxidation with air followed by strong nitric acid. Oxidation with nitric acid produced weak nitric acid, which was removed from the process. The gas phase containing nitrogen dioxide was cooled in a brine cooler and absorbed within concentrated nitric acid. The exit gases were scrubbed and vented. Nitrogen dioxide–containing nitric acid was heated in a "bleaching" tower to distill the nitrogen dioxide, which was cooled in a brine cooler. This cooling resulted in the formation of dinitrogen tetroxide, which was distilled, liquefied, mixed with weak acid, and reacted with pure oxygen to form strong nitric acid (TRWI01).

Wastewaters from the AOP facilities in Acid Areas 1, 2, and 3 included cooling water, water used for cleanup of spills, and water from floor and equipment washing (ARMY01, TRWI01). The wastewaters in Acid Areas 1 and 2 were discharged through the acid ditch into the tetryl ditch, which empties into Grant Creek. Those from Acid Area 3 entered Goose Creek, which empties into Jackson Creek. Acid spills and drips from Acid Area 4 were routed to a sump and pumped to the product acid line. Wastewater from Acid Area 4 was generated from cooling tower and boiler blowdowns, water used for cleanup, and regenerant waste from water demineralization units. The regenerant and blowdown wastewaters were handled in the Acid Area 4 wastewater treatment facilities (TRWI01).

In 1955, several solvents were investigated as substitutes for the carbon tetrachloride used for cleaning AOP filters. Vythene, Penolene 643, Solvent M–6, and Dow Chlorethane were found to be suitable replacement solvents (HIST43).

2.2.1.9 Oleum and Sulfuric Acid Production

Oleum (a mixture of sulfuric acid, and sulfur trioxide), also known as oil of vitriol, was manufactured in Acid Area 3 until January 1974 (ARMY01, TRWI01). Three oleum

Oleum (a mixture of sulfuric acid, and sulfur trioxide) was manufactured in Acid Area 3 until January 1974 (ARMY01, TRWI01). Three oleum production units operated by Wilson Chemical Company supported TNT production lines (AEHA09, ARMY01).

Oleum was produced by melting sulfur, burning the sulfur to produce a sulfate gas, and filtering the gas to remove dirt. The gas was cooled prior to entering absorption towers. Sulfuric acid towers dried exhaust gases, which were then heated and passed over a vanadium pentoxide catalyst for conversion of the sulfur dioxide to sulfur trioxide. Oleum (109 percent sulfuric acid) exiting the absorption towers was continuously mixed with antifreeze (nitric acid) (AEHA09, TRWI01).

Wastewaters generated in this area were mostly cooling water and water from the scrubbers. Other discharges included acid spills, blowdown containing water softeners (including organophosphates), and acid tank car drainage and washout (AEHA09, TRWI01). When Acid Area 4 was operated, wastewater was sent to the Acid Area 4 wastewater treatment facilities (TRWI01).

2.2.1.10 Sellite Production

Sellite is a solution of sodium sulfite that was used to remove impurities from TNT. The Sellite Production Area is in the northwest section of the MFG Area. Two sellite production units were operated at JOAAP (ARMY01, TRWI01).

Sellite was manufactured by burning sulfur to produce sulfite, which then passed into a spiral, packed scrubber tower. Sulfite gas was cooled and countercurrent scrubbed to remove sulfur trioxide and other impurities. Cooled scrubbed gas passed into an absorption tower where the sulfite was absorbed by a solution of sodium carbonate (soda ash) in a countercurrent, packed tower. The balance of the gas stream passed through a venturi, a cyclone separator, and then a stack to the atmosphere. Liquid discharged from the tower flowed into a batch tank and was recirculated until the desired strength (16 percent sodium bisulfate) was obtained. The

finished product was then pumped into one of the four storage tanks at the plant. The soda ash solution used in the process was about 22 percent in strength and was prepared by dissolving commercial soda ash in water (ARMY01, AEHA09, TRWI01).

Wastewaters from gas scrubbing in the Sellite Area contained sulfur, ash, sulfate and impurities. Other wastes included spills of soda ash and sellite solutions, and wastewater from floor washing and spill cleanups (ARMY01, AEHA09). Sellite effluent was characterized by a widely fluctuating pH, low dissolved oxygen, and high concentrations of sulfite and sulfate (ARMY01, TRWI01). Sellite wastewater was treated by adjustment of the pH with soda ash and oxygenation by mechanical surface aeration in a small flow-through lagoon. This wastewater was then discharged to the sellite ditch that flows into Grant Creek (ARMY01, AEHA09, TRWI01).

2.2.1.11 Lead Azide Process

In preparation for lead azide production, sodium azide crystals and flaked lead acetate were dissolved in deionized water in separate tanks. In a third dissolving tank, deionized water, sodium carboxymethylcellulose, and a small amount (one percent) of sodium azide solution were mixed. Lead azide was precipitated by piping solutions from the three dissolving tanks to a precipitator containing a heel solution of deionized water, a 10 percent Empilon soap solution, and sodium carboxymethylcellulose (HIST01). Washing then purified precipitated lead azide (ARMY01). It was then placed into bags, tied, overpacked in plastic bags, and packed in drums. The bags were surrounded with a mixture of sawdust and alcohol (HIST01). In later years, lead azide was repacked into ceramic containers due to drum deterioration.

Process waste from lead azide production was neutralized in two steps: (1) waste was treated with sodium nitrite and nitric acid; and (2) this mixture was then neutralized with sodium carbonate and sodium hydroxide. Subsequently, the material was routed to a holding pond north of the facility. The waste was neutralized prior to release into Grant Creek (ARMY01).

2.2.1.12 Asbestos Putty Production

Two types of asbestos putty, Red Asbestos Putty and Blue African Asbestos Putty, were manufactured for use as a sealant in recovery towers, packing glands, and other such places (UCCI31). The putty was manufactured in Building 739-1 north of the Box Factory (MEMO13). Red Asbestos Putty was a mixture of 12.6 percent white lead with linseed oil, 3.4 percent red lead, 11 percent barium sulfate (barytes), 45 percent white asbestos fiber (36L grade), and 28 percent raw linseed oil. Blue African Asbestos Putty consisted of 17.7 percent china clay, 35.4 percent white asbestos powder 25 PM, 29.2 percent raw linseed oil, and 17.7 percent blue African asbestos fiber (UCCI34, USOP23). The putty was sealed in pails immediately following the mixing. Typical orders were 1170 pounds of Red Asbestos Putty and 900 pounds of Blue African Asbestos Putty (USOP23).

2.2.1.13 LAP Area Production Processes

Past production processes in the LAP Area included loading, assembly, and packing of 40- and 105-mm cartridges, 8-inch projectiles, cluster bomb units, fuses, supplementary charges, and M14 mines. The melt-load operations were usually carried out in Groups 1, 2, 3, 3A, and 4, the basic process and procedures being the same for all HE cast ammunition items. For example, in Group 4 where the 40-mm HE cartridge (M406) was produced, Composition B, a mixture of TNT and RDX, was melted and loaded into projectiles. The loaded projectiles were cooled, and then transferred to an assembly building for installation of end items and inspection. Acceptable rounds were packed for shipment and storage (ARMY01). Groups 4, 5, 6, 7, 8, and 9 were involved in fuze, booster, primer, or detonator loading (SPED01). Support activities in the LAP Area included maintenance shops, a laundry building, a test range, and storage facilities (TRWI01).

Wastewaters from LAP Area operations originated mainly from steam-out and washout of rejected bombs, and from washing of equipment, floors, and the ventilation system. Wastewater accumulated in concrete sumps measuring approximately 20 feet long and eight

feet deep. Sump wastewater was either trucked or pumped to a central sump/feed basin. The remaining sludge was shoveled out and transported to the Burning Grounds for disposal. Wastewater from this area, tinted pink owing to the presence of nitrobodies, is referred to as "pink water." Pink water was treated in a two-step process: (1) filtering in diatomaceous earth to remove gross and suspended solids (the filter required replacement weekly); and (2) treating water in activated-carbon columns (1000 pounds of carbon per column) to remove dissolved explosives (TNT and RDX). This water was then discharged into Prairie or Jordan Creek (ARMY01, AEHA09). Wastewater from Group 4 was hauled by truck to Group 3 for treatment (AEHA09, TRWI01).

Solid wastes generated in the LAP Area included waste explosives, propellants, spent carbon, spent diatomaceous earth, sludge from pink water treatment systems, and inert combustible wastes contaminated with explosives (ARMY01). Typically, one column of spent carbon was produced each month and disposed of at the LAP Area Burning Ground (AEHA09). The spent diatomaceous earth was also burned at the Burning Grounds (TRWI01). Solid waste processing/disposal methods used at the LAP Area included: (1) sale of excess wood as kindling, (2) sale of wire banding as metal scrap, and (3) open burning of explosives and explosives-contaminated wastes (ARMY01). There were three Burning Grounds in the LAP Area, one for burning explosives (L2), another for burning contaminated wastes (L3), and a third (L34) for burning unknown types of materials (ARMY01, DAMO06).

Effluent from the wastewater treatment plant in the LAP Area was sampled in 1972. The water contained TNT at a concentration of 3.7 mg/L and RDX at a concentration of 19.5 mg/L (ARMY01).

2.2.2 Occupancy and Lease History

The entire JOAAP facility originally encompassed approximately 36,000 acres. The LAP Area comprised 14,820 acres and the MFG Area, 21,272 acres (HIST01). Land area available for ordnance production activities was reduced over the years as various parcels were turned

over to other entities or excessed. Portions of the entire facility have been used for "agricultural purposes" since 1942. Currently, certain land tracts are included in the federal government's public outlease program, which permits farmers to lease unused land on selected military installations for agricultural activities. In 1964, the USDA held a permit to conduct crop rotation experiments on 140 acres at JOAAP (JAAP09). In 1978, there were over 80 agricultural leases associated with JOAAP (ARMY01, ANAL01). As of 1990, agricultural activities were permitted on approximately 60 percent of the entire facility. Approximately 8,740 acres of land were leased for cropland and 5,477 acres leased for grazing (ANLA01). In 1995, there were 103 agricultural tracts encompassing 17,006.5 acres (MEMO04). Other areas on JOAAP were managed as woodlands and vacant areas have been managed as wildlife habitat (JAAP09). Hunting is allowed on a restricted basis (DAMO05).

The Kankakee Ordnance Plant (MFG Area) was operated by E.I. DuPont de Nemours & Company until April, 1944 at which time U.S. Rubber (later Uniroyal) became the operating contractor. The Sanderson and Porter Company operated the Elwood Ordnance Plant (LAP Area) until November 30, 1945 (HIST01). The government then assumed operating responsibility and operated the LAP Area until 1965, when Uniroyal became the operating contractor (HIST01). A facilities contract was issued to Honeywell in June 1981 for use of lines in Groups 4, 5, 6, 7, 8, and 9 (HIST36, AAMC01). Many buildings were reconstructed or rehabilitated to meet production needs for 25- and 30-millimeter ammunition. Honeywell was also assigned storage in Groups 62, 64, and 68 for its own use (AAMC01). As of 1984, Honeywell was using Group 4 for production of the 25-mm Bushmaster, Group 5 for production of the 30-mm GAU–8, and Group 7 for production of the 30-mm lightweight HEDP (HYWL04). In 1989, Honeywell began using Group 3A, Group 64 (partially), and Group 65 for production of the AT-4 (AAMC03). Honeywell Defense Systems was purchased by Alliant Techsystems, Inc., which is still present at JOAAP.

Table 2–1 includes a thorough list of materials manufactured as complete units (either ammunition or weapons systems) at JOAAP and many of the other munitions components produced.

From May 1988 through 1990, A–Z Technology operated in Group 2 and Buildings 66–45 and 66–47 (UCCI01, MEMO09). A–Z manufactured the Lightfoot rocket system which was designed for mine clearing. The system consisted of a rocket, 1000 feet of detonating cord, and four blasting caps (MEMO09).

In 1951, the Armour Research Foundation of the Illinois Institute of Technology was contracted (CPFF DA–11–173–ORD–160) to develop a process for casting TNT (JAAP63).

Wilson Chemical Company leased the sulfuric acid production facility from 1958 to 1974 (AMMC02). In 1959, Wabash Chemical Corporation leased the oleum facilities (HIST23). In October 1962, Wabash defaulted on the lease and ceased operating (HIST31). As of 1972, the oleum facility was operated by the Central Chemical Division of Wilson Pharmaceutical and Chemical Corporation (AEHA09). From the early 1950s to 1958, Armour Company leased the ammonium nitrate facility (Group 61) in the LAP Area for the production of fertilizer (ARMY01). In 1965, U.S. Rubber was given the responsibility for maintenance of the Elwood Unit (LAP Area) (AMCI02).

In the 1950s, the Acid Areas were leased to DuPont and used to produce ammonium nitrate solution (ACOE06).

Also in the 1950s, the western portion of the MFG Area was deeded to the State of Illinois for use as a wildlife refuge (ARMY01). This property extends west to the Des Plaines and Kankakee Rivers. During the 1960s, a northern parcel of the MFG Area was deeded to the U.S. Army as JATA (ARMY01). Between 1946 and 1965, a parcel on the eastern border was also excessed (BICO01). It has been established that these areas were never used for manufacturing, and that there are no records of manufacturing activity within the property (ARMY01).

Talley Defense Systems was issued a facilities contract for Group 3 and Buildings 64–3 through 64–8 for the manufacture of the 155-mm M864 Base Burner Assembly in June 1989 (AAMC03, AEST01, DOTA04, UCCI01). Production was scheduled to start in 1991 (AAMC03). Operations by Talley ceased in November 1994 (DOTA04).

Various utility rights-of-way (e.g., a 765-kV transmission line) have been granted within the JOAAP under long-term lease agreements. Holders of other easements or permits include Tenneco Gasoline Transmission Company; Commonwealth Edison Public Service Company; the Alton Railroad Company; the Atchison, Topeka & Santa Fe Railroad Company; and the State of Illinois (JAAP09).

In the first half of 1955, the Atomic Energy Commission reconverted an existing building at the Kankakee Unit for use. In connection with that reconversion, a guard headquarters was erected, and a security fence and appurtenances were installed to provide maximum protection. The entire job was handled as an emergency (HIST43, HIST49). Argonne National Laboratory leased two buildings: 713 in May 1959, and 25,000 square feet of 814 in November 1959. The buildings were used for equipment and machinery storage under permits issued to the Atomic Energy Commission (HIST23, HIST24, HIST25). Atomic bomb components were stored in these buildings. It is unclear if the building referred to in the 1955 annual histories is one of those identified as being used for storage in 1959 (FIEL01).

Records of existing outgrants are maintained by the U.S. Army Corps of Engineers (USACE). A listing of the existing nonagricultural outgrants was obtained from the Corps and is presented as Table 2–2.

2.2.3 Regulatory History

As an industrial facility, JOAAP has been subject to various regulations. Alliant Techsystems at JOAAP is currently operating under a Resource Conservation and Recovery Act (RCRA) permit. The U.S. Environmental Protection Agency (USEPA) identifier for this facility is

IL7213820460 (JAAP16). However, the facility is identified in USEPA databases by several identification numbers and names:

• Uniroyal Chem. Co-Joliet Army Ammunition Plant	FINDS	IL0000222430
• US Army Joliet Army Ammunition Plant Uniroyal	RCRIS–LQG	IL7213820460
(a.k.a. Joliet Army Ammo Plt. MFG Area)	RCRIS–TSD	
	RAATS	
• Joliet Army Ammunition Plant	FINDS	IL0000918243
• Joliet Army Ammunition Plant Honeywell Facility	ERNS	
• Talley Defense Systems JOAAP GP3	FINDS	ILD984774463
	RCRIS–LQG	
• Talley Defense Systems JOAAP GP64	RCRIS–SQG	ILD984775510
	RCRIS–TSD	
• Alliant Techsystems, Inc.	FINDS	0000090894
• Joliet Army Ammunition Plant LAP Area	CERCLIS (NPL)	IL0210090049
(a.k.a. Alliant Techsystems, Inc., Alliant Techsystems Inc., Joliet LAP Area Facility)		

Within the RCRIS database, the types of wastes produced are identified. This information has been tabulated and is presented as Table 2–3.

Five National Pollutant Discharge Elimination Systems (NPDES) permits have been issued to JOAAP. The permits are as follows (ARMY01):

- IL0033031 LAP Area Sewage Treatment Plant
- IL0033049 Septic Tank
- IL0033057 MFG Area Sewage Treatment Plant
- IL0033065 Brown Circle Sewage Treatment Plant
- IL0002666 Industrial Waste

JOAAP was subject to 52 industrial waste effluent violations during one 3-month period in 1977. These violations included wastewater permit exceedances for chemical oxygen demand, pH, and levels of nitrates, nitrites, sulfates, iron, and suspended solids (ARMY01). Notices of Violations from the Army Compliance Tracking System are summarized in Table 2–4.

CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), addresses the cleanup of inactive hazardous waste sites. The ongoing remediation efforts at JOAAP are guided by these acts and are part of the U.S. Army's IRP. Remedial Investigations (RIs) have been completed, and Feasibility Studies (FSs) associated with several of the former operational units are currently being conducted at JOAAP.

In October 1984, the MFG Area was proposed for placement on the National Priority List (NPL) and designated as a Superfund site on the basis of a Hazard Ranking System (HRS) score of 32.08. The area was placed on the NPL in July 1987 (DAMO05, EPAV15). In April 1985, the LAP Area was also proposed for NPL placement, given a HRS score of 35.23. The LAP Area was placed on the NPL in March 1989 (DAMO06, EPAV15).

USEPA, the state, and the Army signed a Federal Facility Agreement (FFA) for cleanup activities at JOAAP in May 1989 (EPAV01).

On January 6, 1995, the State of Illinois granted clean closure for three hazardous waste storage areas: Bunkers 66–86, 66–87 and 66–88) (JAAP16). Alliant Techsystems has obtained an RCRA permit to use seven igloos in Group 68 (L13) for hazardous waste storage (MEMO05, MEMO15).

In 1972, the Citizens for a Better Environment initiated a water pollution action against JOAAP before the Illinois Pollution Control Board (ARMY01). This action was in response to observations of high concentrations of mercury in water discharges on the land used by Uniroyal, Inc. (HIST09, EPAV03). In 1973, the State of Illinois filed a complaint against JOAAP for violation of the 1970 Federal Clean Air Act. USEPA filed a similar complaint in 1977 (ARMY01), as well as a Notice of Violation that same year for water pollution. These actions were eventually settled and by 1978 there were no legal actions pending against JOAAP (ARMY01). The mercury contamination was eventually traced to tainted sodium hydroxide used for treating boiler feed water.

2.2.4 Previous Environmental Investigations

Past environmental studies at JOAAP include Installation Restoration Surveys, Phase II contamination surveys, a surface water–sampling investigation, historical aerial photographic interpretation, the Midwest Site Confirmatory Survey, soil–sampling and baseline studies, an underground storage tank (UST) investigation, outfall monitoring, and sampling of PCBs in soil (DAMO12). Summaries of the major investigations are presented below. The significant findings of the investigations are presented in Section 4 and Appendices B, C, and D of the PAS.

Installation Assessment (ARMY01). The purpose of the 1978 Installation Assessment at JOAAP was to identify and assess past operations with the potential for hazardous material/waste production and contaminant migration. This investigation, performed by the U.S. Army, included a site reconnaissance, a records search, interviews with JOAAP personnel knowledgeable about the history and operations of the installation, and contact with various Federal Government agencies. No analytical samples were collected during this investigation.

Review and analysis of information collected compelled the conclusion that a number of previous manufacturing and disposal operations at JOAAP could have resulted in contamination and migration of contaminants. These operations included open combustion, incineration, burning, landfilling, discharge to streams, and spills of process chemicals. The main contaminants of potential concern were explosives, anions, metals, and PCBs. It was recommended that a survey be performed to determine if contamination was migrating beyond JOAAP boundaries.

Installation Restoration Surveys (DOAS01, DOAS03). As recommended by the Installation Assessment team, the Installation Restoration Surveys were performed to determine if potentially hazardous materials had contaminated or could contaminate the

environment off-site through migration via surface or subsurface routes. These investigations resulted in delineation of nine study areas in the MFG Area based on the production, manufacturing, disposal, or storage operations that had been conducted in the area.

Phase II Technical Reports (DOAS04, DOAS05, DOAS06). The Phase II Technical Reports investigation conducted by Donohue & Associates, Inc., included an environmental survey to determine if industrial chemicals, explosives, or other toxic/hazardous materials had migrated beyond the boundaries of JOAAP via surface or subsurface routes. Also included was an assessment of the potential for future migration. The investigation addressed areas targeted for further investigation during the Installation Restoration Surveys, including the Explosives Burning Grounds, the TNT Ditch Complex, and the Red Water Area.

The Phase II investigation also addressed environmental conditions on six parcels of land along the western and southern boundaries of the MFG Area. The parcels were proposed for excess. As a result of the investigation, it was concluded that contaminated soils present in the TNT Ditch Complex should be remediated and that surface water and groundwater should be monitored. It was also recommended that the contaminated liquid and sediment in the Red Water Lagoon and any contaminated soils beneath the lagoon be remediated. Erosion control measures were recommended for both the TNT Ditch Complex and the Explosives Burning Ground to minimize contaminant migration.

Low concentrations of potentially TNT-related organic compounds were identified in some areas beyond the installation boundary. These results suggested that migration of contaminants was occurring or could occur. On the basis of the investigation, three of the parcels were recommended for release. However, because of uncertain water quality, retention of the other three parcels was recommended until the source of surface water contamination could be identified and remediated. Additional groundwater sampling or geologic investigations were recommended as a means of forecasting groundwater quality in the vicinity of these parcels.

Investigation of Groundwater Contamination (DAMO01). Sixteen existing monitoring wells in the MFG Area were sampled by the Army Environmental Hygiene Agency (AEHA, now known as the U.S. Army Center for Health Promotion and Preventative Medicine [CHPPM]) in 1983, 1984, and 1985. All previous groundwater monitoring included typical drinking water parameters (e.g., pH, specific conductivity). Explosive analyses were first performed in 1983, and were repeated in 1984 and 1985. Analyses for some anions and metals were also conducted on groundwater samples during these investigations.

Red Water Lagoon Sampling and Analysis: Remedial Action (DOAS07). The Phase II investigation disclosed contaminants in significant amounts in the Red Water Lagoon and determined that the lagoon was impacting surrounding areas. It was recommended that the liquid and sludge contained in the lagoon be remediated. As part of the remedial action plan for the lagoon removal, pre– and post–remedial action sampling and analysis studies were performed by Donohue & Associates, Inc., in 1983 and 1985, respectively.

Pre–remedial action sampling and analysis program focused on 30 soil core samples, four groundwater samples from existing monitoring wells, 13 surface water samples, and 13 sediment samples. The post–remedial action study involved collection and analysis of 21 soil core samples, five surface water samples, and five sediment samples. The samples in both studies were analyzed for the same parameters: explosives, anions, and metals. These studies indicated the presence of contaminants in groundwater, surface water, sediment, and soil cores. No conclusions were drawn or recommendations made in the report.

Midwest Site Confirmatory Survey (DAMO01). Although water quality data had been collected during previous investigations, the U.S. Army Toxic and Hazardous Material Agency (USATHAMA), now USAEC, determined that the database would have to be expanded. Therefore, two rounds of groundwater monitoring and surface water sampling were performed at the MFG Area in 1985 and 1986. The data from these and the earlier investigations were reviewed to assess the impact of former production and disposal operations. These data were also used to define site conditions, identify potential sources of

contamination, and to assess the potential for contaminant migration. Also evaluated were the completeness of existing data and information, and determined the necessity and feasibility of remedial actions at the sites.

The Assessment Report identified various migration pathways at JOAAP and potential receptors for any contaminated groundwater migrating from the plant. Contamination was detected in the soil, groundwater, surface water, and sediment, although conditions did not indicate the need for immediate removal/treatment. However, data gaps were identified, and it was recommended that these gaps be filled to permit an accurate assessment of existing contaminant conditions and an evaluation of potential remedial alternatives.

Phase 1 Remedial Investigations (DAMO01, DAMO06). The RI sampling performed in 1988 for the MFG Area and 1991 for the LAP Area aimed at filling the data gaps identified during previous investigations. A site reconnaissance, records search, and review of the study areas were conducted in order to develop a technical approach for the RI sampling.

The field investigation included a geophysical survey, drilling of exploratory boreholes, installation of monitoring wells, collection of environmental samples, and chemical analysis of the samples.

Environmental samples collected during the Phase 1 RI sampling programs were analyzed for explosives, anions, metals, volatile organic compounds, basic neutral acids, PCBs, pesticides and total petroleum hydrocarbons (TPHCs).

Investigation and Evaluation of Underground Storage Tanks (ACOE02). An investigation of USTs at JOAAP was performed by the USAEC. This study, conducted between July and September 1989 in accordance with 40 CFR 280, involved an inventory of all USTs in the MFG and LAP Areas of JOAAP. During this investigation, 70 USTs were identified, inventoried, and evaluated for potential leakage. Less than one-half of these tanks were in the MFG Area.

Based on the investigation, seven USTs were identified as having potential leakage, one of them in the MFG Area. This tank was a 15,000-gallon tank (Tank 21) in the Acid Manufacturing Area. The potentially leaking tanks in the LAP Area were not detailed in this report.

Phase 2 Remedial Investigations (DAMO05, DAMO11). Results of the Phase 1 RI indicated a need for additional data on various sites. Accordingly, detailed field studies involving sampling and analysis of soil, sediment, surface water, and groundwater were conducted. The reports of these studies include summaries of studies completed by other investigators.

Baseline Human Health Risk Assessments (DAMO23, DAMO26). The 1994 and 1995 risk assessments entailed quantitative assessment of the risks to human health posed by chemical contamination at each of the IRP sites. Current and likely exposure scenarios were evaluated to determine if the sites could pose a threat to human health.

Ecological Risk Assessment (AEHA10). In 1994, a study was conducted to assess the risks of chemical contamination of flora and fauna at JOAAP. That study comprised examination of existing environmental data, collection of additional samples where necessary, literature review, toxicity testing, and field surveys. Three study areas in the MFG Area (M2, M4, M6) and three in the LAP Area (L1, L2, L7) were selected for field investigation. Study area selection was based on the presence of contaminants and on habitat viability; industrial areas were not evaluated. An ecological risk assessment was also performed for each of the creeks at JOAAP.

Several additional ecological assessments have been performed at JOAAP. These include a Phase II aquatic study (CHPP01), deer tissue collection and analysis (AEHA11), and determinations of risk to the Upland Sandpiper.

Remediation Site Release and Survey (SEGI01, SEGI02, SAHC01). Cleanup of depleted uranium (DU, specifically, uranium-238) contamination was conducted by Alliant Techsystems in IRP Study Area L18 (Group 8). Sand contaminated with DU projectiles was stockpiled outside the ranges and was overlooked during decommissioning activities. The cleanup included actions necessary to survey and remediate affected facility structures and their environs. The cleanup involved excavating and removing contaminated materials in order to reduce radioactivity to U.S. Nuclear Regulatory Commission (NRC) accepted cleanup levels. NRC Region 3 completed a confirmatory survey in support of license termination. No areas above background were noted and the final site release was to be prepared. Final NRC unrestricted site release documentation was not available at the time of the PAS.

Field Screening Activities. Dames & Moore conducted field screening activities in 1995 to better characterize sites at JOAAP. Samples were collected in L1, L2, L7, L8, L9, L10, M2, M3, and M7. Test pits were dug at M11 and in the north gravel pit at M13 to characterize the wastes at these landfills. At M4, the Lead Azide Area, field screening for lead was conducted. At many of the sites, moreover, samples were collected in order to determine if the materials would be considered RCRA hazardous wastes. The results of this additional screening were incorporated into the FS.

2.3 Utilities

The following sections present information on the utilities (water, electricity, sewers, and gas) at JOAAP. Most of the utilities at the plant date from the time of construction and are generally in poor condition.

2.3.1 Water Systems

The MFG and LAP Areas have separate water systems: the MFG Area is served by river water and deep wells; the LAP Area only deep wells. Doyle and Kemery Lakes provide flood

control for the LAP Area (DOAS03). Kemery Lake also provides fire protection water (BICO01).

Naturally occurring levels of radium above USEPA Drinking Water Standards are present in groundwater at JOAAP (AEHA05). Elevated gross-alpha and radon-226 levels have been observed in northeastern Illinois (ARMY01). Further details are provided in Section 4.1.20.

Six nonfunctional water systems are situated in the MFG Area. The pump motors have been removed and placed in storage pending further disposition. Distribution piping for the systems is over 50 years old, 101.5 miles in length, and ranges in size from 4 to 42 inches in diameter. The six water systems (i.e., river, well, filtered, mixed, potable, and fire protection water) have been recognized as having no value for future nonmilitary use at the site (AEST01).

The river water system begins at two locations: the Des Plaines River and the Kankakee. During JOAAP operations, raw water from these sources was used as cooling water for various manufacturing processes and as a supply for the treatment plants. River water was also one of the supply sources for the mixed water system (AEST01).

The well water system begins at 12 deep wells in the MFG Area. In the period of plant operations, pumps were used to draw water into two elevated, 300,000-gallon tanks and two 500,000-gallon reservoirs. This water was used to supply the potable water system and was a backup for the filtered and mixed water systems (AEST01).

The potable water system is an extension of the well water system. Water from the wells was chlorinated, pumped to a booster pump, and then sent to two adjacent elevated tanks with capacities of 50,000 gallons and 100,000 gallons. The system supplied potable water to the entire MFG Area and was a backup for the fire protection water system (AEST01).

The filtered water system begins at the water treatment plant. There river water was filtered and treated, then circulated by booster pumps. This water was used as boiler feed water at the two power plants, TNT wash water, and makeup water for the cooling towers in the TNT lines and the acid plant (AEST01).

The mixed water system consisted of a combination of raw river water and well water mixed in the ratio necessary to maintain required cooling water temperatures. No pumps were used in this system (AEST01).

Another seven wells were drilled to supply water to individual farm houses occupied by plant personnel in the MFG Area. Two temporary water supply wells (363 and 500 feet in depth) were installed on the MFG Area during construction (ACOE06).

The LAP Area water treatment, storage, and distribution system is operational but is in a marginal state of repair with excessive leakage. Maintaining water quality poses significant problems. An engineering study will be required to determine the feasibility of future use of the water distribution system in the area (AEST01).

Industrial and domestic water demands of the LAP Area are served primarily by one potable water system, which includes fire protection water. Water is obtained from two deep wells, treated, and stored in a 1.2 million-gallon, aboveground, covered reservoir, then pumped to four elevated storage tanks of 150,000 gallons each. The system is in use and is operated by the LAP Area contractor, Alliant Techsystems (AEST01).

Two additional shallow wells in the LAP Area, G26 and G65, serviced the north railroad classification yard and the southeast magazine storage area. They were not connected to the distribution system and were available for operation during the summer months (AEST01).

Each of the explosives-loading lines, Groups 1, 2, 3, and 3A, is equipped with a low-capacity well, which in an emergency can be connected to the general distribution system. These wells

range in depth from 135 to 834 feet and have a combined pumping capacity of 350 gallons per minute (gal/m) (AEST01, ACOE06).

The main sources of water for distribution in the LAP Area are two deep wells about 2350 feet apart. Each well has a 1025 gal/m line shaft pump driven by an electric motor. For standby purposes, there is 1000-gal/m gasoline-engine-powered auxiliary pump (AEST01).

Water treatment and distribution piping require major upgrading; filter equipment has been removed from service. Although the treated water was rated potable while the plant was active, it was not consumed; bottled water was provided for drinking. Pumps with 500- and 1000 gal/m capacities were installed to pump water from the 1.2 million-gallon covered reservoir to four elevated storage tanks. Due to the poor condition of the water distribution system, only the 500-gal/m pump could be used, and leaks within the water distribution lines required constant repair (AEST01).

2.3.2 Sanitary Sewer

All major areas of JOAAP are served by a sanitary sewer system constructed of vitreous clay tile with hand-caulked joints (ARMY01). Individual Sewage Treatment Plants (STP) serve the MFG and LAP Areas on the western side of the respective areas. One additional STP on the north end of the MFG Area serves the Brown Circle Housing Area (HIST18). The LAP Area plant still services the area operated by Alliant Techsystems (FIEL01).

During plant operations, there was a total of 574,292 linear feet of sanitary and industrial waste lines at JOAAP (HIST18). In 1979, there were 39,000 linear feet of sanitary waste lines (HIST35, PESI01, PESI02). In many cases, isolated buildings were not connected to the sanitary sewage system; instead septic tanks and drain tile fields were used for sewage disposal (JAAP08). Septic tanks were located in both the MFG and LAP Areas (AEHA09). A plant master plan indicates that 55 septic tanks served isolated buildings in the MFG Area

(ACOE06). The MFG Area septic tanks serving residential areas were replaced by a central sewage system in 1959 (JAAP08).

Cooling water drains constructed of concrete and vitrified clay pipes served the tetryl and Acid Areas. All pipe 24 inches and larger in diameter was encased in concrete. Wastewater sewers served the TNT and Tetryl Areas for disposal of waste cooling water and wastewater from manufacturing processes. Hand-caulked, vitrified clay pipe was used throughout the system. Prior to construction of the Red Water Plant, the wastewater sewers emptied into an open flume (wooden box flume 3 by 4 by 3000 feet) constructed as a contour ditch on the west side of the ridge where the plants are located. The flume discharged into Grant Creek west of the 811 Magazine Area (ACOE06).

Detailed descriptions of all the treatment plants and the areas from which they received waste have been provided by the Army (AEHA09). The MFG Area STP lies on a 5-acre tract immediately west of the TNT ditch and is not currently active. The plant, designed as a primary treatment plant in the 1940s, was converted to secondary (modified activated sludge) treatment in 1967. The treated sludge was conveyed to drying beds. This plant includes two grit collectors and an aeration structure. The condition of the sewer lines, which are over 50 years old, is unknown. The eastern leg of the sewer line terminates at the Administration Area, 1.3 miles east of the treatment plant (AEST01, TRWI01).

The first STP for the MFG Area was shut down in 1982 after a new treatment plant had been constructed approximately 50 yards to the north. The former STP was removed from operation because it could no longer meet the NPDES requirements (AEST01). JOAAP personnel had determined that it was more economical to build a new system than to refurbish the old one (TRWI01, AEST01). The former plant received waste from the operational areas within the MFG Area and from the Administration Area. A television inspection of the sewer system in 1967 had revealed extensive groundwater infiltration in certain sections of the sanitary sewer lines throughout the installation (AEHA09).

Built in the 1940s, the first LAP Area STP used Imhoff tanks and a trickling filter to provide treatment. Its design capacity was 0.65 million gallons per day (Mgal/d). The plant received waste from several of the LAP Area groups, from the Group 60 Administration Area, and from the White Circle Housing Area in Group 60 (AEHA09). The sewer system consisted of 18 miles of sewer lines in 1959 (ACOE06). A television inspection in 1967 revealed groundwater infiltration in portions of this system due to broken and leaking pipes, especially along the line from Groups 2 and 3. Flow in excess of the design capacity bypassed the treatment plant and was discharged directly to Prairie Creek. A treatment plant to serve Groups 2 and 3 was scheduled for completion in 1973 and was to remove from service much of the damaged line (AEHA09).

A new LAP Area STP with a design capacity of 1.2 Mgal/d was built in 1984. The new STP used the Imhoff tank process, which includes a trickling filter, secondary settling, chlorine contact, and effluent pumping to adjacent Prairie Creek (ACOE03).

The Brown Circle STP, a package sewage treatment plant, received waste solely from the Brown Circle Housing Area. The plant was built in the early 1950s and used the activated sludge process for treatment. Design flow was reportedly 7500 gal/d. A 1967 television inspection of the sanitary sewer lines serving the Brown Circle Plant substantiated infiltration into the system (AEHA09). Effluent from this plant was discharged into Jackson Creek until 1986. After 1984, effluent was pumped to the new MFG Area STP (ACOE01).

2.3.3 Storm System

The storm drainage system at JOAAP consists of natural drainage features, but storm sewers and ditches used to increase the runoff rates in areas where the rapid removal of stormwater is considered essential, or in areas where the natural runoff is exceptionally slow. Sewers and ditches extend only as far as necessary to connect with adequate natural drainage features. The storm sewer systems were abandoned with the termination of explosive production

(AEST01, JAAP08, ACOE06). There are approximately 16.5 miles of clay tile sewer pipe ranging from 8 to 24 inches in diameter, and about 29 miles of ditches (ACOE06).

Surface drainage in the MFG Area is generally from the east to the west and southwest. Runoff is discharged by Jackson and Grant Creeks into the Des Plaines River and by Prairie Creek into the Kankakee River. Drainage conditions are generally good except in the Acid Areas and the lowland immediately west of the TNT Area. Ditches and drains conduct surface water from the Acid Areas to Jackson and Grant Creeks and from the western portion of the TNT Area to a point outside the MFG Area (JAAP08). An underground drain consisting of approximately 2180 feet of 36-inch corrugated metal pipe runs along the east side of the MFG Area to carry water draining from the high ground to the east along the Acid and Power Areas to Grant Creek (ACOE06).

The LAP Area uses sewer pipe and drainage ditches to accelerate natural runoff. Ditches conduct water to Prairie and Jordan Creeks. In 1989, JOAAP had eight NPDES-permitted stormwater outfalls (AEHA06). Vitrified clay pipe was used in all of the groups to collect stormwater and discharge it to the nearby drainage ditches (ACOE06).

2.3.4 Electrical System

JOAAP receives electric power from the Commonwealth Edison Power generating grid. This power is produced by Dresden Station 12, Joliet Stations 9 and 29, and Will County Station 22, Romeoville. The electrical distribution system at JOAAP is in good operating condition; however, the distribution system in the MFG Area has been shut down for several years. The main supply line to the site enters at the northwestern boundary of the property on the MFG Area side, crosses JOAAP through the northwest quarter of the Wilmington quadrangle, passes over the Mobil Oil transmission pipeline in a northeasterly direction, and crosses the Atchison, Topeka and Santa Fe Railway to the northwest boundary of the MFG Area. It then passes across Jackson Creek and into Joliet and Romeoville. The main supply line is divided and distributed to two substations: the new Acid Area Substation and the North Power

Substation. Power is transformed from 34.5 to 6.9 kilovolts (kV) at a South Power Substation for the South and North Powerhouse Station bus tie lines. The tie breaker interconnects are located at the high-tension transmission line of Commonwealth Edison. The primary line segment numbers for the transmission line are 0903 and 1210. Line 1210 also distributes power to the Mobil Oil Refinery northwest of JOAAP (AEST01).

The Public Service Company of Northern Illinois owned the main transformer bank—two 10,000 kilovoltampere (kVA) transformers—in the MFG South Substation. The transformer banks were oil-insulated and self-cooled. There were two incoming line oil circuit breakers (132 kVA/600 A) and 13 feeder oil circuit breakers. The MFG North Substation was of similar design. There were 554 distribution transformers on the system (ACOE06).

There are two electrical substations in the LAP Area, one serving the north and the other, the south. While the North Substation is no longer in service, the South Substation serves the needs of Alliant Techsystems (AEST01, MCHL01). The North Substation consisted of one 5000-kVA transformer and necessary switchgear (ACOE06). The LAP Area South Substation is currently operated by Alliant, which also operated the MFG Area North Substation until early 1995, when it was taken out of service following an electrical fire (MCHL01). Information on PCBs and PCB-containing equipment at JOAAP is presented in Section 4.1.8.

2.3.5 Natural Gas System

The natural gas distribution pipeline remains buried in place, but has been terminated and stubbed by Northern Illinois Gas in the Arsenal Gate 10 area. Its exact size is not known. Natural gas may have been used at the site for power generation, steam for manufacturing, and other purposes. One use for natural gas in the explosive and fertilizer industries is the conversion of natural gas into ammonia (AEST01). Given the age and prolonged disuse of this system, its integrity is questionable.

2.4 Demography and Land Use

As discussed in Section 2.1 of this report, JOAAP is divided into two major functional areas, the MFG Area to the west and the LAP Area to the east. The two areas are divided by Route 53 (ACOE01). The facility is about 10 miles south of Joliet, adjacent to Elwood, and 2 miles north of Wilmington (ACOE01, MAPS08). Various rights-of-way and easements have been granted within JOAAP, as discussed in Section 2.2.2.

Portions of the plant have been used for agriculture since 1942. Major crops include soybeans and corn. Areas with erodible soils are placed either in hay production or used primarily for cattle grazing and some limited use for horses. Brush control is accomplished by cutting and piling. Hunting of game species is permitted on a restricted basis (ACOE01). Fishing is not permitted on-site but is permitted off-site in the three creeks and the Kankakee and Des Plaines Rivers. Groundwater is not used for irrigation but is used for livestock.

Property north of the MFG Area Industrial Park parcel is currently known as the JATA, which is used for Army Reserve training (ACOE01). Approximately 1000 acres adjacent to the east side of the MFG Area parcel have been transferred to the Veterans Administration for development of a cemetery (PSCO01). Property west and south of the MFG Area (i.e., the Des Plaines Conservation Area) was deeded by the U.S. Government to the State of Illinois and has been used as a wildlife refuge since the 1950s. A Mobile Oil refinery lies northwest of the MFG Area (ACOE01).

The LAP Industrial Park parcel is in the southcentral portion of the LAP Area. A portion of the Industrial Park parcel (L14, L15, L16, and L17) in the LAP Area is currently operated by Alliant Techsystems, but the facility is otherwise inactive. The LAP Industrial Park parcel lies along Road 2 South and the surrounding area is rural farm land with scattered residences.

In accordance with the Illinois Land Conservation Act of 1995, excess parcels at JOAAP are allocated for the following uses: a veterans cemetery, the Midewin National Tallgrass Prairie,

two industrial parks, and a county landfill. The Midewin Tallgrass Prairie will be a national preserve with outdoor recreation areas.

2.5 Physical Environment

In this section, the physical environment (climate, topography, geology, soils, groundwater, and surface water) of the JOAAP area is considered as background for evaluating potential migration pathways for contaminants. Additional details or local variations, where relevant, are provided in the individual site discussions.

2.5.1 Meteorology

The environs of JOAAP have a predominantly continental climate characterized by relatively warm summers and cold winters. Climatic conditions are somewhat modified by Lake Michigan, which is approximately 40 miles northeast of the installation. The mean annual temperature reported at the Joliet Weather Station, 13 miles northwest of JOAAP, is about 50 degrees Fahrenheit (°F), the mean maximum being about 61°F and the mean minimum, about 40°F. The highest recorded temperature was 109°F in July 1936, and the lowest, -25°F in December, 1872. Prevailing winds are from the southwest, with an average speed of 10.2 miles per hour (DAMO04, DAMO05). Windstorms have intermittently damaged buildings and interfered with operations at JOAAP (HIST40, HIST31, HIST07).

Average annual precipitation in the vicinity of JOAAP is 33.4 inches. Between 1959 and 1988, the highest recorded monthly precipitation was 17.10 inches in August 1987, and the lowest, 0.02 inch in September 1979 (ACOE01). Seasonal floods occur in the spring during periods of heavy rainfall and have periodically caused extensive damage to fences, railroads, and buildings at JOAAP (ACOE01, HIST08, HIST09). In 1957, Prairie Creek overflowed and caused flood damage to buildings in Group 9 (ACOE01). In June 1978, flood waters entered magazines in Groups 63 and 65 (HIST34). Tornadoes are also prevalent in the installation area (ARMY01).

2.5.2 Topography

JOAAP is within the northern part of the Central Lowlands physiographic province. Elevations vary from about 520 to 650 feet above mean sea level (msl). Largely the result of relatively recent glaciations, the topography of this area is characterized by rather flat land and low relief. Figure 2–1 reflects the principal topographic subdivisions within the installation, as well as the geological units present at the surface (DAMO04, DAMO05).

An escarpment, approximately 50 feet high the most prominent topographic feature at JOAAP. It trends generally north to south through the installation (Figure 2–1), extending from north of the TNT lines in the MFG Area to the south-central boundary of the LAP Area. The land surface elevation east of the escarpment is higher than that to the west (DAMO04, DAMO05).

The land to the east of the escarpment, including part of the MFG Area and most of the LAP Area, is a till upland underlain by glacial till, a heterogeneous mixture of clay, silt, and coarser particles deposited directly from glacial ice. This surface feature is generally 610 to 650 feet above msl. Local relief in the upland till area consists of rolling hills and small stream valleys (DAMO04, DAMO05).

An outwash plain extends immediately west of the escarpment throughout most of the MFG Area. This plain is underlain by glacial outwash composed of fairly clean sands and gravel deposited by streams near the edge of a melting glacier. The outwash plain is rather level, with elevations generally between 540 and 560 feet above msl (DAMO04, DAMO05).

A low, level plain occurs west of the outwash plain beyond the MFG Area. This plain is underlain by Silurian dolomite bedrock, with a cover of 5 to 10 feet of alluvial or residual soil. Its elevations range from 520 to 540 feet above msl. The LAP Area lands are dissected and drained by four westward-flowing streams (DAMO04, DAMO05).

2.5.3 Surface Water Hydrology

JOAAP lies within the Illinois River and Mississippi River drainage basins near the confluence of the Des Plaines (west of the plant) and Kankakee Rivers (southwest of the plant) (DAMO04). The Grant Creek basin drains approximately 15 square miles, and the Prairie Creek basin, approximately 19 square miles. Together these two basins cover approximately 70 percent of the JOAAP installation (DAMO11). According to studies of historic floods in the area by the U.S. Geological Survey (USGS), as well as 100-year flood maps, portions of the LAP Area are subject to flooding. The streams at JOAAP, at least under low-flow conditions, apparently act as sources of recharge to groundwater; that is, they are losing streams. Locally however, they may be gaining streams (DAMO22).

Surface drainage at JOAAP is controlled primarily by open ditches flowing into creeks, and streams draining the facility (Figure 2–2). There are four major drainage basins at JOAAP (i.e., Grant Creek, Jackson Creek, Prairie Creek, and Jordan Creek), all of which flow east to west into the Kankakee and Des Plaines River (Figure 2–3). Discharges from the plant are monitored under a 1993 NPDES Permit (DOTA04).

Grant Creek flows through the central section of JOAAP and drains most of the MFG Area and a small portion of the LAP Area (DAMO04). During plant operation, this creek received industrial waste from Acid Areas 1 and 2, the Tetryl Area, the TNT Area, and the Sellite Plant; boiler blowdown from the power plant; and the backwash and effluent from the MFG Area STP (AEHA09). After leaving JOAAP, Grant Creek discharges into the Grant Creek cutoff, which flows into the Des Plaines River (DAMO04).

Jackson Creek flows through the northern section of the installation to the Des Plaines River (DAMO04). This creek received waste from the Brown Circle STP, the Oleum Plant (the waste included acid tank car washout and ash pile runoff); and Acid Area 3 (via Goose Creek) (ARMY01, AEHA09).

Prairie Creek and an unnamed creek, both tributaries to the Kankakee River, drain the remainder of the MFG Area and most of the LAP Area (DAMO04, DAMO22). In the operational period, Prairie Creek received wastes from the LAP Area STP and from some operations in the LAP Area. Jordan Creek received minor discharges of wastewater from operations in the LAP Area (AHEA09).

Nine areas throughout the installation have been used as holding or settling ponds. The MFG Area had two acid-holding ponds, a sellite pond, a gravel pond, and a red water pond that was removed and covered with clay. The north acid-holding pond was constructed in the late 1960s. It had a bentonite bottom and concrete sides with a 160-mil vulcanized rubber cover on sidewalls only (ARMY01, ACOE01). The south acid pond was constructed with a 20-mil polyvinylchloride (PVC) liner (ARMY01). The gravel pit (IRP Site 13) received filter water from the water treatment plant, boiler blowdown waste, and laundry waste (ARMY01). The red water pond, constructed in 1969, was lined. Lead azide was stored in a brick-lined settling pond northwest of the lead azide facility (This facility was used during three periods: 1941-1945, 1955-1957, and 1968-1970.) The LAP Area contains a holding pond (constructed in the late 1960s with a bentonite bottom), a demilitarization settling pond, and Doyle Lake. A holding pond northeast of the Group 23 Burning Ground was used until 1961 to dispose of solvents, acids, and oils (ACOE01).

The MFG Area power plants and treatment plant discharges flowed into Grant Creek. Discharges from the two steam-operating power plants on the MFG Area contained fly ash, boiler blowdown, and waste regenerated from ion exchange treatment. Filter backwash water and lime sludge were discharged from a water treatment plant into the acid and tetryl ditches, which flow into Grant Creek. Effluent from the STP flowed directly into Grant Creek (ARMY01).

Other miscellaneous discharges in the LAP Area included a laundry building with a holding basin that discharged into Forked Creek and eventually the Kankakee River. Nine oil-fired

power plants discharged blowdown high in phosphates and dissolved solids into the sewer. A motor pool discharged oily wastewater into a storm sewer emptying into the Kankakee River through Forked Creek (ARMY01). The motor pool is no longer in service.

Major sources of aqueous wastes from production operations at JOAAP were cooling water, process wastewater, chemical spills and wash water from equipment and plant cleanup. Major aqueous waste contributors were the 12 batch TNT lines, 12 batch tetryl lines, AFR systems, 14 AOPs, 17 nitric acid concentrators (NACs), three Oleum Plants, 20 sulfuric acid concentrators, two Sellite Plants and 12 red water incinerators (ACOE01).

Studies of historic floods in the area by USGS and 100-year flood maps produced by the Federal Emergency Management Agency (FEMA) indicate that portions of the JOAAP are subject to flooding. Significant portions of the MFG Area were inundated during the flood of July 1957, which local residents believe to be the worst in the last 50 years. Because no other flooding information is available, it is assumed that these particular areas are historically flooded or are within the 100-year-flood plain (DAMO04).

Kemery and Doyle Lakes in the LAP Area are used for flood control. Kemery Lake is a 27 million-gallon impoundment originally constructed in 1942 as a source of firefighting water (ANLA01, AEST01, ARMY01). Kemery Dam has sidewalls incorporating a 160-mil vulcanized rubber cover (ACOE01). Twelve-acre Doyle Lake situated on a tributary of Jordan Creek was constructed to control surface water runoff. Compounds such as TNT, RDX, and Composition B, washed out in the southeastern portion of the LAP Area may have migrated to and impacted Doyle Lake sediment (AEST01).

The area west of the TNT lines would flood from TNT ditch overflow and create a pond of 0.4 by 1.8 kilometers. This area continued to flood through 1978. It remains wet and marshy, and may be heavily contaminated (ARMY01).

The Illinois State Water Survey has determined 7-day, 10-year low flows of Illinois streams, including several creeks located within JOAAP. Grant Creek's 7-day, 10-year low flow is reported as 0.0 cubic feet per second (f^3/s) throughout its watershed. Prairie Creek has a 7-day, 10-year low flow of 0.0 f^3/s in its uppermost reaches and 0.10 f^3/s above the installation's industrial wastewater outfall. This outfall contributed 0.53 f^3/s to the creek during a 1970 low-flow period. The 7-day, 10-year low flow in Prairie Creek, just above its confluence with the Kankakee River, is reported as 0.70 f^3/s. Viewed in the context of groundwater data yielded by the Phase 2 RI, these data suggest that, at least under low flow conditions, JOAAP streams are losing streams which act as sources of groundwater recharge over much of their length. Locally, however, they may be gaining streams (DAMO11).

2.5.4 Wetlands

National Wetlands Inventory maps of JOAAP developed in 1987 reflect various wetlands areas at and in the vicinity of JOAAP. Most of these areas can be classified as palustrine forested, emergent, unconsolidated bottom or scrub-shrub; or riverine lower perennial unconsolidated bottom or intermittent streambed. The palustrine system consists of vegetated wetlands (marshes, swamps, bogs, fens, and prairies). Its flora is dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens. The riverine system includes wetlands and deepwater habitats contained within a channel, except where wetlands are dominated by the flora described above for the palustrine system (DAMO12).

2.5.5 Soils

JOAAP contains five distinct soil associations (Figure 2–4). Groups I and II are upland soils, developed over unstratified, calcareous, silty clay loam and glacial till. Groups III, IV, and V are lowland soils that developed west of the escarpment. Group III has developed over five feet of medium-textured glacial outwash; Group IV, over five feet of medium-textured outwash; and Group V, over a stringer of calcareous, porous, loamy gravel outwash. The five soil associations at JOAAP have been described as follows (DAMO12):

Elliott-Ashkum Soil Association (Group I). The surface consists of 12 to 15 inches of dark-gray silt loam to silty clay loam; the subsoil, 15 to 20 inches of firm, brown, silty clay. These soils were developed under prairie vegetation and are high in organic matter and water-holding capacity, slightly acidic to neutral, and have low permeability.

Blount Soil Association (Group II). The surface consists of nine inches of dark-gray, friable, silt loam; the subsoil, 21 inches of firm, brown, silty clay. This soil group developed under a deciduous hardwood forest and is low in organic matter, water holding capacity, pH (4.7–6.0), and permeability.

Drummer-Brenton Soil Association (Group III). The surface consists of 14 inches of black silt loam to silty clay loam; the subsoil, 21 to 27 inches of firm, dark-gray, silty clay loam. These soils developed under marsh and prairie vegetation and are high in organic matter and water-holding capacity, slightly acidic to neutral, and of moderately low permeability.

Joliet-Millsdale Soil Association (Group IV). The surface consists of 14 inches of black, friable, silty clay loam; the subsoil, 6 to 20 inches of grayish-brown, firm, silty clay loam. These soils, developed under prairie vegetation, and are high in organic matter and water-holding capacity, slightly acidic to neutral, and have moderately low permeability.

Lorenzo-Rodman Soil Association (Group V). These soils consist of 7 to 17 inches of dark-brown, friable, silty to gravely loam. They are approximately neutral, moderately high in organic matter, low in water-holding capacity, and have a high permeability.

2.5.6 Geology

Previous reports on the hydrogeology of northeastern Illinois subdivide the rock units of this area into four aquifer systems and two major confining beds. The aquifer systems, from the uppermost downward, are (1) the glacial drift (Pleistocene glacial deposits), (2) shallow bedrock (Silurian dolomites), (3) Cambrian-Ordovician (sandstone and dolomites), and (4) Mount Simon (Cambrian sandstone). Maquoketa Group shales (Ordovician) act as a confining bed between the shallow bedrock aquifer system and the Cambrian-Ordovician aquifer system. Shales of the middle and upper Eau Claire Ordovician aquifer system, and the middle and upper Eau Claire Formation divide the Cambrian-Ordovician aquifer system from the underlying Mt. Simon. Only the glacial drift and shallow bedrock aquifers are at or near the surface at JOAAP. However, water supply wells may reach lower aquifers (DAMO08).

The glacial drift aquifer system, composed of the Henry and Wedron Formations, is the uppermost aquifer throughout most of the JOAAP area (Figure 2-1). The Henry Formation, the youngest geologic unit at JOAAP, consists of 5 to 25 feet of glacial outwash. It is approximately 10 percent gravel, 40 percent sand, 35 percent silt, and 15 percent clay, with localized stringers of sand and gravel deposited from glacial braided streams. The Wedron Formation is glacial till deposited during the Late Wisconsin Stage of the Pleistocene Epoch. It is approximately 13 percent fine sand, 44 percent silt, and 43 percent clay. The Wedron Formation forms the till upland described in Section 2.5.2. Because of its low yield, the glacial till unit is considered a Class II aquifer (DAMO08).

The shallow bedrock aquifer system at JOAAP consists of undifferentiated Silurian dolomites. In the vicinity of JOAAP, this system is considered a Class I aquifer (DAMO08). Lithologic logs of monitoring wells located just west of the Henry Formation outcrop at JOAAP indicate that 5 to 10 feet of unconsolidated clays, silts, and sands overlie the dolomite. These unconsolidated materials are partly residuum, developed from weathering of the dolomite, and partly alluvium. As indicated in Figure 2–5, the thickness of the Silurian dolomite at JOAAP varies from approximately 50 feet in the west to approximately 100 feet at the eastern boundary. The Silurian dolomite thins to a feather edge a few miles west of JOAAP, where the Maquoketa Formation outcrops, and it thickens northeast to over 450 feet in the vicinity of Chicago Heights (DAMO22).

The Ordovician Maquoketa Group underlies the Silurian dolomite and acts as a confining bed between the shallow bedrock aquifer system and the Cambrian-Ordovician aquifer system. The Maquoketa Group is composed primarily of plastic shales with interbedded limestone and dolomite (Figures 2–5 and 2–6). Interbedded carbonate rocks are more common in the upper portion of the group, while shale predominates at its base. The Maquoketa Group is approximately 150 feet thick in the vicinity of JOAAP (DAMO08).

The Cambrian-Ordovician aquifer system is the most important source of groundwater in northeastern Illinois. It consists primarily of sandstone and dolomite, with some limestone

and shale. The Galena-Platteville dolomite and Glenwood-St. Peter sandstone are rock units within the Cambrian-Ordovician aquifer (Figures 2–5 and 2–6). Separating the Cambrian-Ordovician aquifer from the underlying Mt. Simon aquifer system is the Eau Claire Formation, consisting of shale and siltstones. The Eau Claire Formation and the Mt. Simon aquifer system are not shown in the figures (DAMO22, DAMO08).

Northeastern Illinois is on a structural high called the Kankakee Arch, between the Michigan Basin to the northeast and the Illinois Basin to the south. The regional dip is to the east and south at approximately 10 ft/mi. An anticlinal axis trending northeast-southwest passes through the western portion of JOAAP. This trend is opposite to that of other anticlines and synclines in the region (DAMO22).

The principal fault zone in the region, the Sandwich Fault Zone, trends northwest to southeast and passes through the eastern portion of the plant. This is a gravity fault, with the northern block being the upthrown block. Northwest along the fault, where the Sandwich Fault is known to be fully developed, a series of parallel faults are present in a zone up to 10 miles wide on either side of the main fault. Structural contour maps indicate that vertical displacement of the fault increases with depth in the vicinity of the plant. Displacement is approximately 100 feet on top of the Eau Claire Formation and approximately 50 feet at the top of the Glenwood-St. Peter sandstone. The Sandwich Fault Zone may locally restrict groundwater flow; however, potentiometric contour maps do not indicate any regional effects (DAMO22).

A review of 1939 aerial photographs showed a system of linear patterns of differing soil coloration or vegetation type and density. Near JOAAP, these lineations are believed to represent bedrock fractures. There are two major lineation trends northwest to southeast and northeast to southwest, the fractures trending northwest being more numerous than those trending northeast. The depths of the fractures are unknown; however, they probably do not extend through the plastic shales of the Maquoketa Group, because these shales reportedly seal fractures in underlying carbonate rocks. Consequently, fractures within the shales

themselves are expected to be self-sealing. The fracture traces vary from approximately 600 feet to slightly over 2.5 miles long; however, most of them are on the order of 2000 feet long (DAMO06).

2.5.7 Hydrogeology

Monitoring well locations are shown in Figure 2–7. The horizontal component of groundwater flow in the glacial drift and shallow bedrock aquifer systems is predominantly westward, toward major surface water drainage features. Locally, however, the larger streams in the area modify this flow direction (DAMO22).

The available hydrologic data was derived from studies and slug tests carried out by various Army contractors. The slug tests have been performed on 38 monitoring wells, 29 in the MFG Area and nine wells in the LAP Area (DAMO22).

Hydraulic conductivity of the bedrock and overburden at JOAAP has been calculated from various slug tests performed as part of previous studies. The hydraulic conductivity values of the overburden ranges from 1.5×10^{-6} to 1.8×10^{-2} centimeters per second (cm/s). This range demonstrates the variability of the glacial deposits at the site, which range from clays and silt deposits to gravely sands in the outwash plain. The average hydraulic conductivity of the overburden was calculated to be approximately 1.7×10^{-3} cm/s. In comparison, the hydraulic conductivity of the bedrock appeared to be less variable, ranging from 2.0×10^{-4} to 1.6×10^{-3} cm/s, with an average of approximately 4.9×10^{-4} cm/s. Slug tests were also performed on wells screened within both overburden and bedrock. The hydraulic conductivity calculated for these wells appears to be reflective of the greater variability of the overburden wells. General statements relating the average hydraulic conductivity of combined wells are not appropriate because the amount of overburden and bedrock screen varies from well to well. The hydraulic conductivity of the overburden generally appears to be greater than that of the bedrock (DAMO22).

The average porosity of soils at JOAAP, as provided by physical testing of the Wedron and Henry Formations, is 35 percent. Given a hydraulic gradient of 0.004 across the entire site and an average hydraulic conductivity of 1.7×10^{-3} cm/s, the average velocity of groundwater in the overburden is 0.06 ft/d (DAMO06).

Groundwater flow in bedrock has been calculated using the same equation, although the porosity of the bedrock has been estimated at 0.01, and the average hydraulic conductivity (from slug tests in bedrock wells) at 4.9×10^{-4} cm/s. From these data, the velocity of groundwater within the bedrock has been calculated to be approximately 0.06 ft/d (DAMO06).

This velocity calculation should be considered accurate within an order of magnitude at best. It is based on the assumption that the bedrock behaves as a classical porous medium. However, solution cavities have been observed (during well installation) in the shallow dolomite in two wells (MW401 and MW214), and fractures are known to be present. Groundwater flow along such conduits can be much faster than would be indicated by the gradient and bulk hydraulic conductivity. Furthermore, flow through conduits does not obey Darcy's Law and, therefore, is not subject to calculation on this basis. In any case, the actual porosity of bedrock at JOAAP has merely been estimated on the basis of rock type; it has not been actually measured. The value used is probably only within a factor of five of the actual value (DAMO06).

Water level measurements collected in November 1991 were used to calculate vertical gradients between the overburden and bedrock for well pairs throughout JOAAP. According to these data, a downward component of flow between the overburden and bedrock is generally present east of the outwash plain. Exceptions have been noted in well pairs adjacent to Prairie Creek in the LAP Area, indicating that this creek is an area of shallow groundwater discharge. Another exception is well pair MW166 and MW320 at the TNT ditch in the MFG Area, where the vertical gradient indicates upward flow. This well pair was observed to be under artesian conditions when the water level was measured (DAMO06).

In contrast, vertical gradients west of the outwash plain are generally considerably lower than those to the east. These western gradients indicate that groundwater tends to flow horizontally within both the overburden and the bedrock. It should be noted that west of the outwash plain, the overburden thins to less than 5 feet thick in some places, and the water table in this area is often encountered at or near the point of overburden-bedrock contact (DAMO06).

Because the Wedron Formation is composed primarily of silt and clay, this aquifer system is used by only a few wells in the area. However, local precipitation does percolate downward through the glacial deposits as recharge to the underlying shallow bedrock aquifer system. In the vicinity of JOAAP, the shallow bedrock aquifer is recharged directly by rainfall in the area west of the scarp, and by downgradient seepage from the glacial drift aquifer east of the scarp. Specific drawdown capacities of wells pumping water from the shallow bedrock aquifer system in Will County vary from 0.1 to 87.6 gallons per minute per foot (gal/min-ft) of drawdown and average 13.1 gal/min-ft. This average specific capacity amounts to a transmissivity of approximately 14,000 gallons per day per foot (gal/d-ft) (DAMO06).

The Cambrian-Ordovician aquifer is recharged directly by rainfall in north-central Illinois, where the Maquoketa shale is absent; in the vicinity of JOAAP, however, it may be recharged by vertical leakage through the Maquoketa shale. The vertical leakage is driven by the difference in vertical head between the Cambrian-Ordovician aquifer and the shallow bedrock aquifer, as indicated by the water table elevation surface on Figure 2–9 (DAMO06).

The productivity of the subdivisions of the Cambrian-Ordovician aquifer increases with depth below the Galena-Platteville dolomites. The most productive subdivision is the Ironton-Galesville sandstone, to which more than half the transmissivity of the Cambrian-Ordovician aquifer is attributed. The average transmissivity tends toward a lower value (0.00006) over a long period of pumping (DAMO06).

Use of the Cambrian-Ordovician aquifer has been intense. According to one study, the potentiometric surface in the vicinity of the plant declined by approximately 300 feet between 1864 and 1958. By 1980, it had declined by an additional 150 to 250 feet. The heavy pumping from this aquifer has also altered the natural horizontal hydraulic gradient. Groundwater in the aquifer now tends to flow northeast from JOAAP toward centers of pumping near the cities of Joliet and Chicago, rather than to the south or southeast as it did under natural conditions. By late 1980, the major pumping center in Joliet had dewatered all of the Galena-Platteville and portions of the underlying Glenwood-St. Peter sandstone. The effects of this overdrafting of the Cambrian-Ordovician aquifer are evident at JOAAP, as shown on Figure 2–9. The depression in the potentiometric surface of the Cambrian-Ordovician aquifer is apparently due to heavy local pumping at or near the installation (DAMO06).

Groundwater from the glacial till is not considered potable without prior treatment, given the high levels of naturally occurring anions and metals. This aquifer is currently not used for domestic purposes by residents in the vicinity of JOAAP. The underlying Silurian dolomite and Cambrian-Ordovician aquifer system appear to meet the yield requirements for Class I aquifers, although groundwater from the dolomite may require treatment prior to use (DAMO08).

A total of 20 wells for water production currently exist at JOAAP. Fourteen are deep (completed at 1500 to 1700 feet); six are shallow (AEST01, AEHA05). A study conducted for the State of Illinois revealed that 10 of the deep wells, all installed in 1941 and 1942, are of similar construction (AEST01).

All well borings include a surface casing (typically 22 inches in diameter) set into the uppermost bedrock unit to seal off unconsolidated deposits. Then, either one or two additional lengths of smaller-diameter casing are telescoped into the borings to seal off the upper bedrock aquifer and underlying confining layer (i.e., Maquoketa shale). The remainder

of the boring in most wells is not cased except for a short liner at a depth of approximately 900 feet. Other borings do not have the liner section (AEST01).

All of the pumps have been removed and placed in storage, except those for the east and west wells in the LAP Area. When the deep well pumps were in place, the pumping capacities ranged from 1000 to 1400 gallons per minute (gal/min) each and the pump depths ranged from 450 to 750 feet (AEST01).

2.5.7.1 Groundwater Use

Two deep water supply wells (East Well and West Well) in the LAP Area, which provide drinking water to the JOAAP facility, are completed at depths of 1649 and 1672 feet, respectively (AEHA05, DAMO08). These wells draw water from the deep Cambrian-Ordovician aquifer. During active operations, the MFG Area was also supplied with drinking water by deep wells tapping this aquifer. There are several shallower wells at JOAAP that draw (or drew) water from the Silurian dolomite for nonpotable uses. Wells 1, 2, and 3 at IR Site L5 were used for industrial water supply for a cement plant operation. Several other wells elsewhere in the LAP Area are used by farmers for livestock water. No production wells at JOAAP draw water from the glacial till (DAMO08).

In 1991, a well survey was conducted as part of the Phase 2 RI for the MFG Area. The survey area encompassed approximately a 1-mile perimeter around the JOAAP boundary. Most wells identified in the survey (165 of 214) drawe shallow groundwater from the Silurian dolomite. For the purposes of the study, wells less than 300 feet in depth were interpreted as using shallow groundwater. The glacial till did not appear to be used as a groundwater source. As part of the study, 13 of the wells were sampled for groundwater quality. The sampling results are summarized in the following section (DAMO08, DAMO16).

2.5.7.2 Groundwater Quality

In general, groundwater from the glacial till and Silurian dolomite is not potable because of extremely high concentrations of naturally occurring minerals and metals. No residential wells are known to be installed in the glacial till. Almost all of the residents with shallow wells in the dolomite purchase bottled water for drinking purposes due to the objectionable taste, odor, and potential physiological effects of this groundwater. During the well sampling, residents noted that use of the shallow groundwater results in chronic problems with clogged pipes and holding tanks, clogged coffee makers, stained laundry and fixtures. Most well water samples collected during the Phase 2 RI had a sulfur odor (DAMO08).

Table 2–5 presents the maximum concentrations of various analytes found in the background glacial till and Silurian dolomite aquifer samples during the Phase 1 and Phase 2 RIs, as well as concentrations detected during residential well sampling. All of these analytes were found to naturally exceed either the Illinois Class I Groundwater standards or Federal applicable or relevant and appropriate requirements (ARARs), or to have a negative effect on groundwater use. As indicated in Table 2–5, concentrations of many anions and metals are naturally high in groundwater from the glacial till. Detected at particularly high levels were:

- Calcium
- Iron (present at levels above the secondary maximum contaminant level)
- Magnesium
- Sodium (present at levels above the drinking water equivalent level)
- Water-soluble nitrate/nitrite (present at a concentration above the maximum contaminant level and the Illinois Class I Groundwater standard)
- Water-soluble sulfur (present at a concentration above the secondary maximum contaminant level and the Illinois Class I Groundwater standard)

These elevated concentrations of metals and anions may be considered background concentrations for JOAAP when evaluating cleanup levels for site remediation (DAMO08).

2.5.7.3 Areas Of Contaminated Groundwater

As a result of the RIs conducted at JOAAP, several areas of contaminated groundwater have been identified in the MFG and LAP Areas. The extent of contamination is limited to shallow groundwater present within either the glacial till or the upper portion of the Silurian dolomite, and in most instances the contamination is extremely localized. Table 2–6 summarizes the analytes detected at elevated levels at each of the study sites within the MFG and LAP Areas (DAMO08).

2.6 Biological Resources

JOAAP represents the ancient natural community of an Illinois tallgrass prairie. It lies within two subdivisions of the Grand Prairie Natural Division: the Grand Prairie Section and the Kankakee Sand Area Section. The latter is differentiated from the Grand Prairie Section by having sandy soils that were deposited during the Kankakee torrent. Prior to settlement approximately 86 percent of the installation was prairie, 14 percent was forested, and less than one percent was swamp. Predominately agricultural land use practices have drastically changed these proportions. Less than one percent of original prairie remains. The upland woods were removed years ago and replaced with such crops as corn, soybeans, and alfalfa. Areas less suitable for cropping due to soil type, rockiness, or drainage were committed to grazing (IDOC01).

Aquatic habitat consists primarily of the four creeks (Jackson, Grant, Prairie, and a branch of Jordan Creek), which discharge into the Des Plaines or Kankakee River. The National Wetlands Inventory (1987) identified various wetland areas at and in the vicinity of JOAAP. Most are classified as palustrine forested, emergent, unconsolidated bottom or scrub-shrub, or riverine lower perennial unconsolidated bottom or intermittent streambed. The palustrine system consists of vegetated wetlands—marshes, swamps, bogs, fens, and prairies. Its flora is dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens. The riverine

system includes wetlands and deep water habitats contained within a channel, except where wetlands are dominated by the flora described above for the palustrine system (IDOC01).

Natural resource areas of JOAAP are: Drummond Dolomite Prairie, TNT Wetland, Hof Woods, Star Grove, and Prairie Creek Woods. The Grant Creek Prairie Nature Preserve is located between the Des Plaines Wildlife Conservation Area and the western boundary of JOAAP. Its size, about 119 acres, makes it one of the largest tracts of wet prairie remaining in Illinois. It is under the control of the Illinois Nature Preserves Commission. The presence of natural areas and management of disturbed areas containing Eurasian grasses and old croplands is considered essential to the maintenance of animals species at JOAAP (IDOC01).

A total of 401 plant species have been identified at JOAAP and JATA, including 347 native to Illinois species. Although this is a large number, the inventory is not considered complete. Insects identified at JOAAP include two candidates for federal and state designation as endangered species: the Eryngium root borer moth (*Papipema eryngii*) and the red-veined leafhopper (*Aflexia rubranura*). Nineteen other insects have been identified in the JOAAP/JATA complex, and it is believed that additional surveys will identify more. A total of 32 fish and mussel species have also been identified, but none of federal or state concern. Previous studies have identified 27 mammals at JOAAP. A total of 108 avian species are known to breed at JOAAP; in fact, JOAAP provides important breeding and wintering habitat for these species. The extensive grasslands at JOAAP provide a large prey base for these species during the breeding season and winter. Few other areas in the state provide as large a foraging habitat as the JOAAP/JATA complex for breeding and wintering of raptors. The scattered pine plantations of the JOAAP provide roosting sites for some of these raptors. Cooper's hawks and great-horned owls have used these pine plantings (IDOC01).

2.7 Cultural Resources

In 1985, an archaeological overview report summarized the results of a limited reconnaissance survey at Joliet arsenal. This survey identified two known prehistoric and one historic

archaeological site, at least two and possibly five potential historic sites, and 250 potential historic resources. One known historic archaeological site, Reed Cemetery, lies in the eastern portion of the MFG Area (AEST01).

Two known prehistoric sites have been identified in the MFG Area by the Illinois Archaeological Survey. The dates of these sites are unknown, but one is from the Woodland or Mississippian Cultural Period. The Woodland Period lasted from approximately 1000 BC to AD 1000, and was characterized by the use of large burial mounds, a widespread trading network, a period of population increase, and ceramic technology improvements. The Mississippian Period was contiguous with the Woodland Period, beginning about AD 1000 and lasting until AD 1673, when the first Frenchmen visited the area. Characteristic of this period were large fortified towns, flat-topped platform mounds, and chiefdom-level sociopolitical organization (AEST01).

A second limited archaeological study performed at JOAAP in 1987 defined two additional cultural resources. One site, Plenenuk Mounds, contains not only a buried archaic component but also a late prehistoric mortuary facility with body bags and other artifacts. This site dates from the so-called Aceramic Period, which lasted from the end of the Pleistocene Era until about 1000 BC (AEST01).

The second site is from the Upper Mississippian Langford Tradition Period. This period is characterized by ceramic jars decorated with incised or trail designs with punctuation and having a distinctive black grit temper. Both of these sites are in the MFG Area (AEST01).

In a limited survey conducted by Midwest Archeological Research Services, Inc., 27 prehistoric and 11 historic sites were identified at JOAAP. The historic sites are thought to be part of Reeds Grove, the earliest pioneer settlement in Will County (ACOE01).

One of the main historical features near JOAAP is the Illinois and Michigan (I&M) Canal National Heritage Corridor (NHC). The MFG Area lies along the eastern boundary of the

NHC. This canal was the first officially designated NHC in the United States. Constructed in the 1800s to provide a link between the Great Lakes and the Illinois River, it was officially opened in 1849. The canal consisted of 15 locks, three dams, and four aqueducts, and provided transportation that was cheaper than overland horse and wagon. It was in use for two decades, until the introduction of faster railroad transportation. In 1890 the Chicago Sanitary and Ship Canal replaced the I&M Canal between Chicago and Lockport for both waste removal and barge traffic. The I&M was completely abandoned as a waterway in 1933, when the present waterway system was completed (AEST01).

USACE recently completed survey of all the historic and prehistoric sites at JOAAP.

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
Large Caliber Munitions			
240mm HE (M114)		Blueprint only	ANOM01
155mm, baseburner (M864)	L9	Talley	DOTA04, DAMO06
155 projectile	L8		DAMO22
155mm HE (M101, M101B1)		Blueprint only	ANOM01
155mm, HE Howitzer (M102)	L8		ANOM01, HIST51
155mm HE (M107, M107B1)		Blueprint only	ANOM01
155mm WP (M110, M110B1)		Blueprint only	ANOM01
155mm AP HE (M112, M112B1)		Blueprint only	ANOM01
155mm AP (M112B2)		Blueprint only	ANOM01
155mm HE (MK1)		Blueprint only	ANOM01
155mm, Shrapnel (MK1)	L2/3		ANOM01
155mm HE (MK1A1)		Blueprint only	ANOM01
155mm CHEM (HS) (MKIIA1 Mod1)		Blueprint only	ANOM01
120mm (M73) w/o fuze	L7	Demilitarized	HIST12
120mm propellant charge (M15)	L7	Demilitarized	HIST12
8" Howitzer HE projectile (M106)	L8		AEST01, HIST02
8" Howitzer HE (M106, WSC w/o fuze)	L8		UCCI04, HIST01
Medium Caliber Munitions			
106mm (M94)		Blueprint only	ANOM01
106mm (T75)		Blueprint only	ANOM01
105mm Cartridge (171, WSC without fuze)	L7		DAMO22
105mm, HE, ICM (M444)	L7, L11, L16, L21 (61-7), L27	Loaded (L16), Assembled (L7), Tested (L11), and Demilitarized (L21)	HIST34, JAAP47, MEMO22, USOP66
105mm, HE, M1 Cartridge	L7		ARMY01, JAAP63, USOP86
105mm HE (M1, WSC)	L9		DAMO06
105mm HE (M1) w/fuze PD M51A5, MTSQ M54 and M500		Blueprint only	ANOM01
105mm Cartridge, HE, M1, Dualgran with Supplementary Charge W/O fuze for Howitzer M2A1, M2A2, M103, and M137 (C445)	L7, L9		HIST02
Shell Semi-fixed Projectile (M1-W/F empty)			AMCI13, JAAP60
105mm Howitzer (M2, M2A1)	L7		FIEL01, HIST18, HIST51
105mm (M3)			FIEL01
105mm Howitzer (M4)			FIEL01
105mm HEAT (M67)		Blueprint only	ANOM01

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
105mm HEAT (M67) w/fuze BD M91		Blueprint only	ANOM01
105mm ILL (M314, M314B1)		Blueprint only	ANOM01
105mm WP (M325) w/fuze PD M51A5		Blueprint only	ANOM01
105mm HEAT (M341) w/fuze PI BD M509		Blueprint only	ANOM01
105mm Cartridge Case (M14, M14B1)		Blueprint only	ANOM01
105mm Propelling Charge		Blueprint only	ANOM01
90mm, HE (M71)	L1, L8, L9, L21, L27	Manufactured and Demilitarized	ACOE06, HIST01, JAAP47, JAAP63, USOP37, USOP38
90mm HE (M71) w/fuze M51A5		Blueprint only	ANOM01
90mm HE (M71) w/fuze MTSQ M500		Blueprint only	ANOM01
90mm, HE-T (M71E1)	L2/3		ANOM01
90mm HVAP-T (M304)		Blueprint only	ANOM01
90mm WP-T (M313E1)		Blueprint only	ANOM01
90mm HVAP-T (M332, M332B1)		Blueprint only	ANOM01
90mm HVTP-T (M333)		Blueprint only	ANOM01
90mm TP-T (M353, M353E1)	L9		ANOM01, JAAP63
90mm Cartridge Case (M19, M19B1)		Blueprint only	ANOM01
90mm Cartridge Case (M108B1)		Blueprint only	ANOM01
90mm Cartridge Case (T24, T24B1)		Blueprint only	ANOM01
90mm Cartridge TP-T (M353A1)	L9		HIST64, JAAP63
90mm Dummy w/Fuze Dummy (M80)	L27		JAAP47
90mm Cartridge Blank (M394)		Blueprint only	ANOM01
90mm Blank			HIST64
90mm Canister (M336)		Blueprint only	ANOM01
90mm Charge Propelling (T91)		Blueprint only	ANOM01
76mm HE (M42A1)		Blueprint only	ANOM01
76mm APC (M62) w/fuze BD M66A1		Blueprint only	ANOM01
76mm HE and TP (M352 w/fuze		Blueprint only	ANOM01
75mm	L1, L9	Manufactured and Demilitarized	DAMO22, HIST01, JAAP63, MEMO22
75mm HE (M48)		Blueprint only	ANOM01
75mm Shell Fixed HE (M48) w/fuze M51A4		Blueprint only	ANOM01
75mm TP (M48) w/fuze PD M48 inert		Blueprint only	ANOM01
75mm HE (M48) w/Supp Charge, w/o fuze		Blueprint only	ANOM01

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
75mm TP w/fuze PD M51A5		Blueprint only	ANOM01
75mm HEAT (M66)		Blueprint only	ANOM01
75mm APC-T (M61A1) w/Fuze BD (M66A1)	L2/3		ANOM01
75mm Shot AP-T		Blueprint only	ANOM01
75mm (M334)	L7	Demilitarized	HIST12
75mm Cartridge HE (T50E2) w/Sup Charge, w/Fuze			HIST64
75mm Cartridge case (M5A1)		Blueprint only	ANOM01
75mm Cartridge case (M18, M18B1)		Blueprint only	ANOM01
75mm Cartridge case (M31A1B1)		Blueprint only	ANOM01
75mm Cartridge case (T6E3, T6E3B1)		Blueprint only	ANOM01
75mm Canister (T30E2)		Blueprint only	ANOM01
75mm Propelling Charge		Blueprint only	ANOM01
4.7 inch Cartridge Case (M24)		Blueprint only	ANOM01
4.5 inch HE (M65)		Blueprint only	ANOM01
Small Caliber Munitions			
70 mm			AMMO04
57 mm			AMMO04
57mm TP (M76)		Blueprint only	ANOM01
57mm HE (M306A1) and M306A1B1 w/fuze M503		Blueprint only	ANOM01
57mm HEAT (M307) w/Fuze PI M90		Blueprint only	ANOM01
57mm Cartridge case (M30A1B1)		Blueprint only	ANOM01
57mm Cartridge case (T22)		Blueprint only	ANOM01
49mm HE (M406-W/F)			ANOM01, HIST01
40mm, Cartridge case (M118)	L17	Part of M406	USOP79
40mm Cartridge case (M25)		Blueprint only	ANOM01
40mm (M385)			HIST01
40mm (M397)			ANOM01
40mm HE (M397E2)	L17		DAMO25
40mm (M406)	L11, L14		AEST01,USOP82, USOP84
40mm (M407)			ANOM01
40mm (XM576E1)	L17		ANOM01, HIST01, USOP87
37mm Canister (M2)		Blueprint only	ANOM01
37mm TP (M51)		Blueprint only	ANOM01
37mm TP-T (M51A2)		Blueprint only	ANOM01
37mm HE (M54)		Blueprint only	ANOM01
37mm TP-T (M55A1) w/fuze dummy M50		Blueprint only	ANOM01
37mm Shell Fixed HE (M63)		Blueprint only	ANOM01

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
37mm, TP (M63 Mod 1)	L2/3		ANOM01
37 mm AP (M74)		Blueprint only	ANOM01
30mm (TP - PGU-15)		Alliant Techsystems	MEMO20
30mm (HE-I - PGU-14)		Alliant Techsystems	MEMO20
30mm (AP-I - PGU-13)		Alliant Techsystems	MEMO20
LW30mm (TP - M789)	L17	Alliant Techsystems	HWYL04, MEMO20
LW30mm (HEI - M788)	L17	Alliant Techsystems	HWYL04, MEMO20
25mm (M791 APDS-T)		Alliant Techsystems	MEMO20
25mm (M793 HEI-T)		Alliant Techsystems	MEMO20
25mm (M793 TP-T)		Alliant Techsystems	MEMO20
25mm (M910-TPDS-T)		Alliant Techsystems	MEMO20
25mm (MOD-210 HEI-T)		Alliant Techsystems	MEMO20
25mm (PGU-23 TP)		Alliant Techsystems	MEMO20
25mm (PGU-25 HE)		Alliant Techsystems	MEMO20
25mm (PGU-32 HEI-T)		Alliant Techsystems	MEMO20
25mm (PGU-38 HEI)		Alliant Techsystems	MEMO20
20mm Cartridge Case Hispano Gun /A/ (M21)		Blueprint only	ANOM01
3 inch HE Shells	L1	Demilitarized	ACOE06
3 inch HE (M42A1) w/fuze M43A5		Blueprint only	ANOM01
3 inch APC-T (M62A1) w/Fuze BD M66A1		Blueprint only	ANOM01
Mines			
Mine, Antitank	L8		UCCI04
Mine, Antitank (M1)	L8		WDEP01, HIST51
Mine, Antitank (M1A1, M1A2)		Blueprints only	ANOM01
Mine, Antitank (M4)	L2/3		ANOM01
Mine, Antitank, NM (M5)	L2, L3, L34		AMCI13, ANOM01, FIEL01
Mine, Chemical (AT M5)			AMCI13
Mine, Antitank Practice (M10)		Blueprints only	ANOM01
Mine, APERS, NM (M14) /integral fuze	L16		AEST01, ANOM01, DAMO11, HIST01, HIST64
Grenades			
Grenades	L8		UCCI04
Grenade, Hand, Frag (M33) w/fuze	L27		HIST67, JAAP47
Grenade (M39)			HIST66
Demolition Charges			
Chain Demolition Block (M-1)	L9		ANOM01, HIST56, HIST59
Demolition Block 1/4 pound			HIST64
Demolition Block 1/2 pound	M6A, L28 (65-4)		JAAP47, JAAP63
Demolition Block TNT Cast 10 pound			HIST64

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
Demolition Block TNT Cast 20 pound			HIST64
Demolition Block TNT Cast 100 pound			HIST64
Demolition, Shaped Charge 40 pounds (M3)		Blueprints only	ANOM01
Demolition, Shaped Charge 40 pounds (M3E2)	L9		ANOM01, HIST40, HIST68
Submunitions and Dispensers			
Cluster Container for ADU-272/B and ADU-256/B		Blueprints only	ANOM01
ADU 272A/B		6002720	HIST01
ADU 285A/B		6002850	HIST01
Dispenser and Bomb Aircraft CBU 24 (E1814)	L10		HIST02
Dispenser and Bomb Aircraft CBU 29 (E178)	L10		HIST02
Dispenser and Bomb Aircraft CBU 49 (E174)	L10		HIST02
BLU-26/B	L2/3, L10		ANOM01, HIST01, USOP31
BLU-36/B	L10		HIST01, USOP31
BLU-59/B	L10		HIST01, USOP31
BLU-91/B		Blueprints only	ANOM01
BLU-92/B (Gator)		Blueprints only	ANOM01
CBU Bomb ACFT	L10		ACOE06, HIST01, HIST18
CBU-24B/B	L10	6000220	HIST01, DAMO06
CBU-29A/B	L10		USOP31
CBU-29/B	L10	6000290	USOP31
CBU-29B/B	L10		USOP31
CBU-29C/B	L10		USOP31
CBU-49A/B	L10		USOP31
CBU-49/B	L10		USOP31
CBU-49B/B	L10	Loaded	DAMO06, USOP31
CBU-49C/B	L10		USOP31
M43 submunitions for M444	L7, L11, L16	Loaded, assembled, tested	MEMO22
PBX for M406	L10		HIST06
Fuzes and Detonators			
Fuze, MT (M43A3)	L2/3		ANOM01
Fuze, Base Practice (M38)		Blueprints only	ANOM01
Fuze, BD (M38A1)		Blueprints only	ANOM01
Fuze, MT (M43A4)	L2/3		ANOM01

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
Fuze, P.D. (M48) for 105mm Howitzer	L7, L14		ANOM01, DAMO11, HIST18, HIST51
Fuze (M48A1)			AMCI13, JAAP60
Fuze, PD (M48A3) without booster			ANOM01, USOP42
Fuze, P.D. (M51)	L14, L15		DAMO11, HIST51, JAAP60
Fuze, PD (M51A1, M51A5 Mod 3)		Blueprints only	ANOM01
Fuze, PD (M51A5)	L14	renovated	JAAP63
Fuze (M51A5) with M21A4 booster	L8		HIST67, USOP42
Fuze, PD (M52A1, M52A1B1)		Blueprints only	ANOM01
Fuze (M53A1)		Blueprints only	ANOM01
Fuze, TF (M54) for 105mm Howitzer	L7, L14		ANOM01, HIST18
Fuze (M55A1, M55A3, T13)		Blueprints only	ANOM01
Fuze T83 (M56)		Blueprints only	ANOM01
Fuze, PD (M57)		Blueprints only	ANOM01
Fuze, BD (M58)		Blueprints only	ANOM01
Fuze, BD (M60)		Blueprints only	ANOM01
Fuze, MT (M61A1, M61A2)		Blueprints only	ANOM01
Fuze, BD (M66)	L2/3		ANOM01
Fuze, BD (M66A1)	L2/3		ANOM01
Fuze, MT (M67 A1) and Booster (M21A1)		Blueprints only	ANOM01
Fuze, BD (M68)	L2/3		ANOM01
Fuze, Dummy (M73)		Blueprints only	ANOM01
Fuze, Dummy (M80)		Blueprints only	ANOM01
Fuze (M82)		Blueprints only	ANOM01
Fuze, PD (M84)		Blueprints only	ANOM01
Fuze, BD (M91)		Blueprints only	ANOM01
Fuze (M103)	L14 (4-14)	Demilitarized	DOTA11
Fuze, Dummy (T73)	L7	Demilitarized	HIST12
Fuze, Bomb, Tail (M102A2)		Blueprints only	ANOM01
Fuze, Bomb, Nose (AN-M103, AN-M103A1)		Blueprints only	ANOM01
Fuze (M103)	L16		ACOE06, JAAP08
Fuze, MTSQ (M105 A1) without booster	L21 (61-7)		USOP77
Fuze, Bomb, Tail (M106)		Blueprints only	ANOM01
Fuze, Bomb, Nose (M108)		Blueprints only	ANOM01
Fuze, Bomb, Nose (M110)		Blueprints only	ANOM01
Fuze, Bomb, Tail (M112A1)		Blueprints only	ANOM01
Fuze, Bomb, Tail (M123A1, M124A1, M125A1)		Blueprints only	ANOM01
Fuze, Bomb, Nose (AN-M126A1)		Blueprints only	ANOM01
Fuze, Bomb, Nose (M135, M136)		Blueprints only	ANOM01
Fuze, Bomb, Nose (AN- M139A1)		Blueprints only	ANOM01

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
Fuze, Bomb, Nose (AN-M140A1)		Blueprints only	ANOM01
Fuze, Bomb, Nose (AN-M146)		Blueprints only	ANOM01
Fuze, Bomb, Nose (M149)		Blueprints only	ANOM01
Fuze, Bomb, Tail (M160, M161, M162)		Blueprints only	ANOM01
Fuze, Bomb, Nose (M163, M164, M165)		Blueprints only	ANOM01
Fuze, Hand Grenade (M204A1, M205A1, M206A1, M206A1 ModA)		Blueprints only	ANOM01
Fuze (M217)			HIST67
Fuze (M219)	L10		USOP33
Fuze (M219E1)	L10		USOP33
Fuze (M421)	L28		USOP75
Fuze (M500, (M500A1)		Blueprints only	ANOM01
Fuze (M501A1)			ANOM01, HIST68
Fuze (M502, M502A1)		Blueprints only	ANOM01
Fuze, PD (M503)		Blueprints only	ANOM01
Fuze P.D. T237E1 (M508)			HIST64
Fuze, PI, BD (M509)		Blueprints only	ANOM01
Fuze VT T178 (M517) F/81mm mortar			HIST64
Fuze, MTSQ (M518) with booster (M125)	L7	Demilitarized	HIST12, USOP19, USOP49
Fuze, P.D. (M551)	L14		USOP33
Fuze, Hand Grenade (M10 series)	L10		USOP48
Fuze, Proximity (M517) arming mechanism	L2	Destroyed in popping furnace	USOP90
Fuze, Bomb, Nose MT (T7E1) and Flare MT M111		Blueprints only	ANOM01
Fuze, MTSQ with booster (T23) for 75mm			HIST64
Fuze, PD (T24)		Blueprints only	ANOM01
Fuze, Dummy (T126)		Blueprints only	ANOM01
Fuze, PD (T186E10)		Blueprints only	ANOM01
Fuze, PD (T263E8)		Blueprints only	ANOM01
Fuze, PD (T319)		Blueprints only	ANOM01
Fuze (XM218)	L10		USOP33
Fuze (XM224)	L10		HIST06, USOP33
Fuze, Antitank mine (M1)	L8		WDEP01
Fuze, Antitank Mine (M1A1)	L17		HIST53
Fuze, Antitank Mine (M1A2)	L17		AMCI13, HIST53, JAAP60
Fuze, Antitank Mine (M4)		Blueprints only	ANOM01
Fuze, Antitank Mine (M5)	L2/3		ANOM01

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
Fuze-Mine Combination (M6A1, M7A1)		Blueprints only	ANOM01
Fuze, Antitank Mine NM Practice (M12)		Blueprints only	ANOM01
Fuze, Antitank Mine (M600, M601)		Blueprints only	ANOM01
Fuze, Antitank Mine NM, Practice (T-3E1)	L2/3		ANOM01
Fuze, Bomb Nose (AN-M103)	L16		AMCI13, HIST51, JAAP60
Fuze, Inert (M48)			JAAP60
Fuze, Dummy (M73)	L5		HIST67
Detonator (M13, M15A2, M17, M18, M19A2, M20, M24, M28, M31A1, M32, M34, M35, M37, M41, M42, M45, M47)		Blueprints only	ANOM01
Detonator (M15)	L19		HIST51
Detonator for M20 Booster	L19		ACOE06, HIST18, HIST51
Detonator (M21, M22, M23, M25, M29, M30A1, M44, T34, T33E1)		Blueprints only	ANOM01
Detonator (M46)		Blueprints only	ANOM01
Detonator for M48 Fuze	L19		ACOE06, HIST18, HIST51
Detonator for M51 Fuze	L19		ACOE06, HIST18
Detonator (T34E1)		Blueprint only	ANOM01
Detonator (T36, T37)		Blueprints only	ANOM01
Relay Assembly for M48 Fuze	L19		ACOE06, HIST18, JAAP60
Primers and Boosters			
Primer (M1A2)	L2/3		AMCI13, ANOM01, JAAP60t
Primer (M1B1A1)	L18		HIST51, JAAP60
Primer (M1B1A2)	L2, L18	Destroyed in popping furnace in L2	ANOM01, ACOE06, HIST18, HIST51, UCCI41
Primer, Percussion (M22A2)	L2/3		ANOM01
Primer (M22A3)	L2	Destroyed in popping furnace	UCCI41
Primer (M28A2)	L2	Destroyed in popping furnace	ANOM01, UCCI41
Primer (M31)	L18		ACOE06, HIST18, JAAP60
Primer, Percussion (M31A1, M32, M36A1)		Blueprints only	ANOM01
Primer (M31A2)	L2	Destroyed in popping furnace	UCCI41
Primer (M40A1)	L2	Destroyed in popping furnace	UCCI41
Primer (M42)		Blueprint only	ANOM01
Primer (M46)	L2	Destroyed in popping furnace	UCCI41

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
Primer (M47)	L2	Destroyed in popping furnace	UCCI41
Primer (M48)	L2	Destroyed in popping furnace	UCCI41
Primer (M49)	L2	Destroyed in popping furnace	UCCI41
Primer (M58)	L2	Destroyed in popping furnace	UCCI41
Primer, Percussion (M61)		Blueprints only	ANOM01
Primer, Percussion (M71)	L2/3		ANOM01
Primer, Percussion (T93)		Blueprints only	ANOM01
Primer, Percussion, Federal 100	L21 (61-7)		USOP72
Primer No. 4		Blueprint only	ANOM01
Booster (M20)	L16, L17		AMCI13, HIST51, JAAP60
Booster (M20A1)	L16, L17		HIST51, JAAP60, AMCI13
Booster, Inert (M20A1)			JAAP60
Booster (M20A2)		Blueprints only	ANOM01
Booster (M21)	L17		HIST51
Booster (M21A1)			AMCI13, JAAP60
Booster (M21A4)	L2/3, L14, L17		ANOM01, JAAP63
Booster (M25)	L2/3		ANOM01
Booster 100 pound (AN-M65)			AMCI13, JAAP60
Booster (M102)	L16		ACOE06, JAAP08
Booster (M104)	L16		ACOE06, JAAP08
Booster, Adapter (M102A1)		Blueprints only	ANOM01
Booster, Adapter (M104)			AMCI13
Booster, Adapter (M115)			AMCI13, JAAP60
Booster, Adapter (T56)		Blueprints only	ANOM01
Booster, Auxiliary (M111)			ANOM01, AMCI13, JAAP60
Booster, Auxiliary (M104)	L16, L17		HIST51, JAAP60
Bombs			
100 pound Bomb			HIST64
100 pound G.P. AN Bomb (M30A1)		Blueprint only	ANOM01
115 pound Bomb CHEM (M70A1)		Blueprint only	ANOM01
100 pound TP Bomb (M75A1)		Blueprint only	ANOM01
125 pound Bomb CHEM (T3E1)		Blueprint only	ANOM01
150 pound GP Bomb (T2)		Blueprint only	ANOM01
220 pound Bomb Frag AN (M88)		Blueprint only	ANOM01
250 pound Bomb	L8		JAAP60
250 pound GP AN (M57)		Blueprint only	ANOM01
250 pound Practice Bomb (T/68)		Blueprint only	ANOM01
300 pound Demolition Bomb (M31)	L9		HIST51, JAAP60

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
500 pound Demolition (M43)		Blueprint only	ANOM01
500 pound Bomb S.A.P (M58)	L9		HIST51, JAAP60
500 pound GP AN Bomb (M64)		Blueprint only	ANOM01
600 pound AP Bomb (M62, M62A1, M62A2)		Blueprint only	ANOM01
750 pound Demolition Bomb (T54E3)		Blueprint only	ANOM01
800 pound AP Bomb (M61)		Blueprint only	ANOM01
900 pound AP Bomb (M60)		Blueprint only	ANOM01
1000 pound bomb			JAAP60
1000 pound Demolition Bomb (M44 and AN-M44)	L9		ANOM01, HIST51
1000 pound G.P. Bomb (M44)	L10		HIST51
1000 pound AP Bomb (M52, M52A1)		Blueprint only	ANOM01
1000 pound SAP AN Bomb (M59)		Blueprint only	ANOM01
1000 pound GP AN Bomb (M65A1)		Blueprint only	ANOM01
2000 pound Bomb			JAAP60
2000 pound SAP Bomb (T7)		Blueprint only	ANOM01
2000 pound G.P. AN Bomb (M66, M66A2)		Blueprint only	ANOM01
3000 pound Demolition Bomb (T55E5)		Blueprint only	ANOM01
4000 pound HE AN Demolition Bomb (M56)	L10		ANOM01, HIST51, JAAP60
10,000 pound Demolition Bomb (T56E4)		Blueprint only	ANOM01
12,000 pound Bomb	L10	Loaded with tritonal	MEMO22
14,000 pound Bomb	L10	Loaded with tritonal	MEMO22
25,000 pound SAP Bomb (T28E4)		Blueprint only	ANOM01
42,000 pound GP Bomb (T12)	L10	Loaded with tritonal	HIST64, MEMO22
Mortars and Rockets			
81mm Mortar, Cartridge HE, M362 (T28) without fuze	L2/3, L9, L13, L14	Loaded (L9), test and rework	ANOM01, HIST64, JAAP63, MEMO22, USOP43
81mm Mortar, HE (M362) w/fuze PD M519		Blueprint only	ANOM01
81mm HE (M43A1) w/fuze PD M52A2		Blueprint only	ANOM01
81mm ILL (M301A2) w/fuze PTTF M84		Blueprint only	ANOM01
81mm Increment Propelling (M1A1, M5)		Blueprint only	ANOM01
4.2 inch Mortar	L7	Assembled	MEMO22

TABLE 2-1
MUNITIONS AND COMPONENTS MANUFACTURED/HANDLED
JOAAP, WILL COUNTY, ILLINOIS

Munition/Component	Area	Comment	Reference
4.2 inch HE (M3A2)		Blueprint only	ANOM01
4.2 inch HE (M329, M329B1) w/fuzes		Blueprint only	ANOM01
4.5 inch Rocket (M16)	L2/3		ANOM01
318mm Warhead Section, HE (M146)	L28		JAAP47
318mm Warhead Section, HE (XM185)	L28		JAAP47
762mm Rocket, Head, HE (M6)	L28	Loaded, stored	MEMO22, USOP70
762mm Rocket, Warhead Section (M6E1)	L28		JAAP47
762mm Rocket, Warhead Section (XM186)	L28		JAAP47
AT-4 (84mm, M136)	L33	Alliant Techsystems	AAMC03
AT8 WEAPON, HE No known "M" number		Alliant Techsystems	MEMO20
SMAW, Cartridge, P-T No known "M" number		Alliant Techsystems	MEMO20
Lightfoot Rocket System	L8	A-Z Technology	UCCI01, MEMO09
Miscellaneous			
Supplementary Charges	L16	Manufacturing, assembly and packing	AEST01, DAMO11
Activator (M1)		Blueprint only	ANOM01
Activator Practice (M1)		Blueprint only	ANOM01
Adapter and Booster (MKIII AM2)	L2/3		ANOM01
Adapter and Booster (T3, T3E1, M118)		Blueprint only	ANOM01
Burster (T17)		Blueprint only	ANOM01
Delay Plunger (M1)		Blueprint only	ANOM01
Delay Elements (M2)			JAAP63
Demolition Kit (M37) for Block Demolition (M5E1) Assembly		Blueprint only	ANOM01
Flare, Aircraft (M8A1) container (M40A1)		Blueprint only	ANOM01
Flare (M24, M26)		Blueprint only	ANOM01
Priming Assembly (M15)		Blueprint only	ANOM01
Primer Detonator (M14A1)		Blueprint only	ANOM01
Relay (M1, M2, M3, M4, M5, M6, M7)		Blueprint only	ANOM01
Tracer (XM10)		Blueprint only	ANOM01

Note: Some of the items listed above are included solely because blueprints were found on-site. No additional information is available at this time to confirm the item was physically present at JOAAP. Areas listed are those which documentation indicates the item was located or physical evidence has been found. The areas are not a comprehensive list of locations where the item may have been located.

TABLE 2-2
NON-AGRICULTURAL OUTGRANTS
JOAAP, WILL COUNTY, ILLINOIS

Grantee's Name	Contract Number	Expiration Date	Purpose of Outgrant	Remarks
Illinois Bell	JAAP042-10	October 23, 2002	Telephone line right of way	Telephone line
Commonwealth Edison	JAAP042-14	July 26, 2006	Electric line right of way	Electric and telephone
Northern Illinois Gas Co.	042-16	October 28, 2006	Pipeline right of way	8-inch gas
State of Illinois Adjutant General	042-17		Road right of way	Road
Amoco Pipeline Company	JAAP042-3		Pipeline right of way	Gas
Public Service Co. of Northern Illinois	JAAP042-6		Electric line right of way	Electric transmission lines
State of Illinois Adjutant General	JAAP042-8		Road right of way	Extended roadway
State of Illinois Adjutant General	JAAP042-9		Road right of way	Road
Midwestern Gas	DA-11-032-ENG-7087	August 13, 2009	Pipeline right of way	Gas
State of Illinois Adjutant General	DA-11-932-ENG-7118		Road right of way	
Midwestern Gas	DA-11-032-ENG-8162	August 13, 2009	Pipeline right of way	
Northern Illinois Gas Co.	DA-11-032-ENG-8958	May 30, 2011	Pipeline right of way	Gas
Northern Illinois Gas Co.	DA-11-032-ENG-12867	July 12, 2015	Pipeline right of way	Gas pipelines
Mobil Oil Corp.	DACA2217106018		Pipeline right of way	
Will County Highway	DACA23-2-68-142		Road right of way	Road
Illinois Bell Telephone Co.	DACA45-2-71-6113	May 18, 2021	Electric line right of way	Buried cables
Natural Gas Pipeline Co.	DACA45-2-73-6026	September 7, 2022	Pipeline right of way	42-inch pipeline
Mobil Oil Corp.	DACA-45-3-71-6169		Pipeline right of way	18-inch oil pipeline
Illinois Division of Criminal Investigation	DACA27-1-85-1	November 30, 1995	Storage	Building 61-2
Mobil Pipe Line Co.	DA-11-032-ENG-1732	February 3, 2003	Pipeline right of way	Crude petroleum, oil, gas & by-products pipe line
Illinois Bell	DA-11-032-ENG-6962	March 24, 2010	Telephone line right of way	Underground cable
Arco Pipeline Co.	DA-11-032-ENG-7088	September 23, 2001	Right of way	Cathodic protection system
Arco pipe Line Co.	JAAP042-2	September 23, 2001	Pipeline right of way	Gas

TABLE 2-2
NON-AGRICULTURAL OUTGRANTS
JOAAP, WILL COUNTY, ILLINOIS

Grantee's Name	Contract Number	Expiration Date	Purpose of Outgrant	Remarks
State of Illinois Adjutant General	JAAP042-13		Road right of way	Road
Commonwealth Edison	DACA45-2-73-6063	January 10, 2024	Electric line right of way	Electric transmission lines
Commonwealth Edison	DACA45-2-74-6075	April 23, 2023	Electric line right of way	Electric transmission lines
Commonwealth Edison	DACA45-2-75-6171	December 28, 2025	Electric line right of way	Electric transmission lines
Commonwealth Edison	DACA45-2-72-6121		Electric line right of way	Electric transmission lines
Northern Illinois Gas Co.	DACA45-2-73-6009	August 14, 2022	Pipeline right of way	Gas
Department of Justice, FBI	DACA45-4-79-6244	August 31, 1994	Other	Building 27-22
Department of the Treasury Bureau of Alcohol, Tobacco, and Firearms	DACA27-4-82-4	May 31, 1992	Other	Storage, Buildings 811-1 through 4
RSIX Management Inc.	DACA27-1-88-57	June 24, 1998	Storage	Storage of empty rail cars, Groups 25, 63, and 66A
National Starch-Chem Co. Custom Farm Seed Division	DACA45-1-82-6062	April 30, 1993	Storage	SA 2 Buildings 66-81, through 84
National Starch-Chem Co.	DACA27-1-84-55	May 31, 1994	Storage	Magazines for storage (10 total)
Amoco Pipeline Company	JAAP-042-1		Other	Crude petroleum, oil, gas & by-products pipe line
Scheer James	DACA27-2-94-9	October 31, 1998	Other	Power poles for electrical line
Department of the Interior Fish and Wildlife Service	DACA27-4-87-16	September 30, 1997	Other	Building 27-3
Commonwealth Edison	DACA27-2-88-75	July 19, 2029	Electric line right of way	40 year term with 5 year renewals
U.S. Forest Service	DACA27-4-95-79			Buildings 62-9, 74-2, 74-2B, and Brown Circle Area

Source: LEAS01

TABLE 2-3
RCRA WASTES GENERATED
JOAAP, WILL COUNTY, ILLINOIS

RCRA Waste	Quantity	Information Source	RCRA Waste	Quantity	Information Source
U.S. Army Joliet Ammo Plt Uniroyal (USEPA IL7213820460)					
D002	-	Notification	D003	-	Notification
F001	-	Notification	F003	-	Notification
K044	-	Notification	K045	-	Notification
K047	-	Notification	P120	-	Notification
U002	-	Notification	U019	-	Notification
U105	-	Notification	D002	999999.999	Part A
D003	111.99	Part A	F001	27.216	Part A
K044	830.496	Part A	K045	4.314	Part A
K047	114437.836	Part A	P120	9.07200	Part A
U002	24.129	Part A	U019	46.192	Part A
U105	0.816	Part A	-	-	-
Talley Defense Systems JAAP GP3 (USEPA ILD984774463)					
D003	-	Notification	F001	-	Notification
F003	-	Notification	-	-	-
Alliant Techsystems Inc. (USEPA IL0210090049)					
D001	-	Notification	D003	-	Notification
K044	-	Notification	K045	-	Notification

Source: database searches (refer to Section 3.0 for databases searched)

Note: Units for quantities were not specified in the database records.

D001 ignitable hazardous wastes are those wastes which have a flashpoint of less than 140 degrees Fahrenheit as determined by a pensky-martens closed cup flash point tester. another method of determining the flash point of a waste is to review the material safety data sheet, which can be obtained from the manufacturer or distributor of the material. lacquer thinner is an example of a commonly used solvent which would be considered as ignitable hazardous waste.

D002 A waste which has a pH of less than 2 or greater than 12.5 is considered to be a corrosive hazardous waste. sodium hydroxide, a caustic solution with a high pH, is often used by industries to clean or degrease parts. hydrochloric acid, a solution with a low pH, is used by many industries to clean metal parts prior to painting. when these caustic or acid solutions become contaminated and must be disposed, the waste would be a corrosive hazardous waste.

D003 A material is considered to be a reactive hazardous waste if it is normally unstable, reacts violently with water, generates toxic gases when exposed to water or corrosive materials, or if it is capable of detonation or explosion when exposed to heat or a flame. one example of such waste would by waste gunpowder.

F001 The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F003 The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

K044 Wastewater treatment sludges from the manufacturing and processing of explosives

K045 Spent carbon from the treatment of wastewater containing explosives

K047 Pink/red water from TNT operations

P120 Vanadium oxide V205, vanadium pentoxide

U002 Acetone (I), 2-propanone (I)

U019 Benzene (I,T)

U105 benzene, l-methyl-2,4-dinitro-, 2,4-dinitrotoluene

TABLE 2-4
RECORDS FROM ARMY COMPLIANCE TRACKING SYSTEM
JOAAP, WILL COUNTY, ILLINOIS

Record Number	Regulatory Requirement	Date of Action	Action Type	Date of Status	Enforcement Authority	Findings	Milestones
1	CWA	8/22/88	INOV	11/29/93	Federal	Inadequate drinking water standards Raise well levels	Complete project Complete modification Receive state approval Pending Resolved
3	CWA	4/9/90	INOV	6/30/90	State	Failure to submit groundwater monitoring annual report	Resolved
8	CWA	11/19/93	INOV	4/26/94	Federal	Continued non-compliance of the NPDES permit The piping was still connected to the tanks	Disconnecting piping from tanks relieving requirement to list tanks in SPCC plan Update SPCC plan Resolved
9	CWA	5/21/92	LS	9/1/93	Other	Continued non-compliance of the NPDES permit	Turned situation over to the DOA legal office Signed settlement - resolved
13	CWA	11/25/91	LS	9/1/93	Other	Violations of NPDES permit	Notice of intent to file law suit vs. JAAP Signed settlement - resolved
7	RCRA_C	12/10/91	INOV	11/29/93	State	Storing hazardous waste not specified in Part A Part A permit not submitted for new Hazerdous Waste in storage Facility operating records do not contain closure costs Facility annual report for 1988, 1989 & 1990 not available	Attend Pre-enforcement hearing for discussion of violations Resolved
10	RCRA_C	1/19/94	INOV	2/15/94	State	Emergency equipment list not up to date Failed to have date of accumulation on waste contract Hazardous waste containers not clearly marked 1991 & 1992 manifest not available for review	Letter from Illinois EPA determining JAAP returning to compliance Comply with all state requirements Resolved
2	RCRA_D	9/21/88	INOV	7/12/90	Federal	?	Joliet contacted state and this issued in error Discussed at IAG meeting of June 1989 Now Completed...Date: 3/90 on 7/12/90
5	RCRA_D	7/2/90	WL	9/26/90	State	Inadequate depth daily cover Improper handling of waste at landfills	By July 17, 1990 - sent report to state on violations Letter from Uniroyal to COR JAAP on 6 corrections Reinspection occured and found all adequated. Completed
6	SDWA	11/12/91	INOV	11/29/93	State	Water supply does not have acceptable cross-connection End of vent pipe not downturned No records to record radioactive material removed from drinking water Chlorination equipment not completely isolated	Have licensed plumer approve cross-section control program Install a reduced pressure zone backflow Downturn vent pipes Begin keeping records of radioactive materials removed from water. Isolate chlorine equipment Resolved
4	TSCA	6/10/89	INOV	9/30/90	Federal	TSCA Violation	EPA Region V notification of needed Uniroyal letter says all corrected Resolved
14	TSCA	11/3/94	INOV	12/5/94	Federal	Failure to provide quarterly inspection reports on PCB transformers Failure to provide proof that PCB transformers registered with fire department	Provide copies of inspection reports as required Provide proof that PCB transformers were registered with fire depatment Resolved

Source: ACTS01
INOV=Inst. Notice of Violation
LS=Law Suit
WL=Warning Letter

TABLE 2-5
GROUNDWATER QUALITY PARAMETERS, μg/L
JOAAP, WILL COUNTY, ILLINOIS

	Concentrations in Area			Groundwater Quality Standards		Effects on Groundwater Use	
Analyte	Maximum Glacial Till Facility-Wide Background Concentration	Maximum Dolomite Facility-Wide Background Concentration	Maximum Residential Well Concentration	Illinois Class I Standard	Federal Standard	Concentration Range That Affects Use	Effect
Antimony	7.32	7.14	Not Detected	None	6[a]		No information available
Calcium	158,000	150,000	101,000	None	None	25,000-50,000	Principle cause of hardness, boiler scale, and deposits in hot water heaters. Inhibits sudsing.
Iron	634	532	4,590	5,000	300 [b]	>300	Stains laundry and fixtures. More than 100 μg/l precipitates upon exposure to air; causes turbidity and imparts objectionable taste and color to foods and drinks. Is objectionable in many industrial processes.
Magnesium	104,000	74,000	50,100	None	None	25,000-50,000	Principle cause of hardness, boiler scale, and deposits in hot water heaters. High concentrations have a laxative effect.
Manganese	198	13.1	89.1	150	50 [b]	>50	Stains laundry and fixtures. More than 200 μg/l precipitates upon oxidation; causes undesirable tastes, deposits on food during cooking, fosters growth in filters and water lines. Is objectionable in many industrial processes.
Sodium	71,500	81,000	394,000	None	2,000 [c]	69,000 (irrigation) 20,000-170,000 (health)	May affect persons with certain medical conditions. In combination with calcium and magnesium may be detrimental to certain irrigated crops.
Water-soluble nitrate/nitrite	178	360,000	1,900	10,000	10,000 [c]		Water with more than 100,000 μg/l is bitter tasting and may cause physiological distress. Water from shallow wells containing more than 45, 000 μg/l has been reported to cause methemoglobinemia in infants.
Water-soluble sulfate	15,000,000	8,300,000	211,000	400,000	50,000 (b)	300,000-400,000 (taste) 600,000-1,000,000 (laxative)	Gives water a bitter taste, has a laxative effect at higher concentrations. Forms hard scale in combination with calcium.

Note: Shading indicates analytes that exceeded Illinois Class I or Federal groundwater standards and/or contribute to non-potability of groundwater.

Source: DAMO08

[a] Maximum Contaminant Level

[b] Secondary Maximum Contaminant Level

[c] Drinking Water Equivalent Level

TABLE 2-6
SUMMARY OF ANALYTES DETECTED AT ELEVATED LEVELS IN SHALLOW GROUNDWATER
JOAAP, WILL COUNTY, ILLINOIS

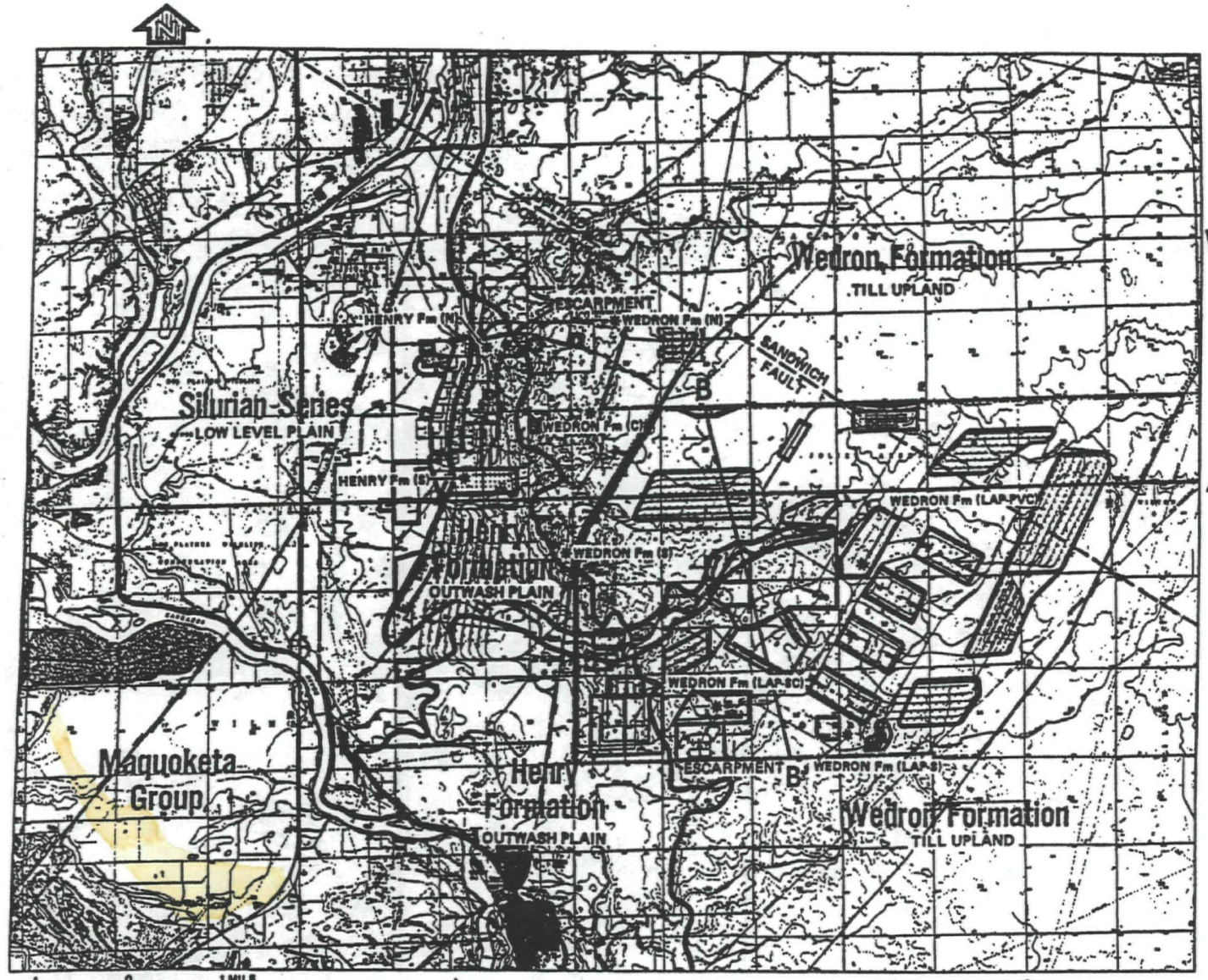
Study Area	Analyte	Maximum Value (µg/L)
M1	Antimony	31
	Magnesium	252,000
	Silver	200
	Sodium	15,000,000
	Sulfate	24,000,000
	Total Phosphorous	200
M2	Sulfate	1,600,000
M3	1,1-Dichloroethane	3.87
	1,2-Dichloroethene	0.932
	Benzene	15.8
	Toluene	392
	Benzyl alcohol	3.6
	2-Methylphenol	15.5
	4-Methylphenol	10.8
M5	1,3,5-Trinitrobenzene	1.91
	2,4,6-TNT	16.7
	2,4-DNT	0.136
	2,6-DNT	5.35
	Tetryl	67
M6		
North Plume	1,3,5-Trinitrobenzene	240
	1,3-Dinitrobenzene	8.76
	2,4,6-TNT	2,600
	2,4-DNT	3,200
	2,6-DNT	2,700
	2-Nitrotoluene	21,000
	RDX	52.7
	Tetryl	34.5
	Nitrobenzene	81.8
	Nitrate/nitrite	35,000
Middle Plume	2,4-DNT	0.701
	2,6-DNT	0.456
South Plume	2,4,6-TNT	21.6
	2,4-DNT	25
	2,6-DNT	38
	2-Nitrotoluene	5.75
	RDX	1.09
	Nitrobenzene	11.4
M7	2,4-DNT	2.05
	2,6-DNT	1.11
	RDX	21.3
	1,1,1-Trichloroethane	4.95
	1,1-Dichloroethene	1.93
	1,2-Dichloroethene	0.641
	Tetrachloroethylene	3.96
	Nitrate/nitrite	2,200
	Sulfate	1,100,000
M8	1,1,1-Trichloroethane	50
	1,1-Dichloroethane	27.5
	Nitrate/nitrite	500
M10		
West Tank Farm	Benzene	20
	Ethylbenzene	286
	Toluene	19,600
	Xylenes	4,720
East Tank Farm	Benzene	2
	Ethylbenzene	3
	Tolueene	20,000
	Xylenes	500
M11	Magnesium	290,000
	Nitrate/nitrite	1,700
	Sulfate	2,100,000
M12	Sulfate	680,000
M13	Nitrate/nitrite	1,100

Source: DAMO08

TABLE 2-6
SUMMARY OF ANALYTES DETECTED AT ELEVATED LEVELS IN SHALLOW GROUNDWATER
JOAAP, WILL COUNTY, ILLINOIS

Study Area	Analyte	Maximum Value (µg/L)
L1	1,3,5-Trinitrobenzene	1,610
	2,4,6-TNT	2,250
	2,4-DNT	2.01
	2,6-DNT	8.54
	1,3-Dinitrobenzene	5
	Tetryl	58.6
	RDX	56.5
	HMX	43.8
	Nitrate/nitrite	80,800
L2		
Burning Pad	HMX	110
	RDX	640
South Oil Pit	1,2-Dichloroethane	1.81
	Alumnium	651
	Iron	1,080
	Nitrate/nitrite	1,200
L3		
Burning Cage	RDX	22.2
	HMX	2.94
	Nitrate/nitrite	440
Bermed Area	RDX	77.9
	HMX	10.6
	Nitrate/nitrite	1,900
	Lead	9.33
L4	1,1,1-Trichloroethane	0.713
	1,1,2-Trichloroethane	1.5
	1,2-Dichloroethane	4.87
L5	1,1-Dichloroethane	2.34
	Alumnium	233
	Antimony	6.74
	Manganese	622
L6	Chlorobenzene	1.92
	Benzyl alcohol	1.28
	Butylbenzyl phthalate	6.32
	Arsenic	13.4
L7	Nitrate/nitrite	820
	Sulfate	750,000
L8	Nitrate/nitrite	1,100
	Manganese	347
	Silver	3.74
L10	1,3-Dinitortoluene	1.57
	RDX	2.27
	1,2-Dichloroethane	2.52
	Nitrate/nitrite	430
	Phosphate	5,000
	Iron	5,430
	Lead	4.77
	Manganese	2,260
	Zinc	877
L14	2,4,6-TNT	1.15
	Nitrobenzene	1.08
	HMX	130
	RDX	840
L18 & L19	Nitrate	15,300
	Chromium	14.6
	Manganese	439

Source: DAMO08



Legend:

A——A' Orientation of Cross Section

Wedron Formation — Geological Unit

TILL UPLAND — Topographic Subdivision

* Soil Sample Location for Physical Testing

1 0 1 MILE
SCALE

SOURCE: Underwood ET AL., 1983.

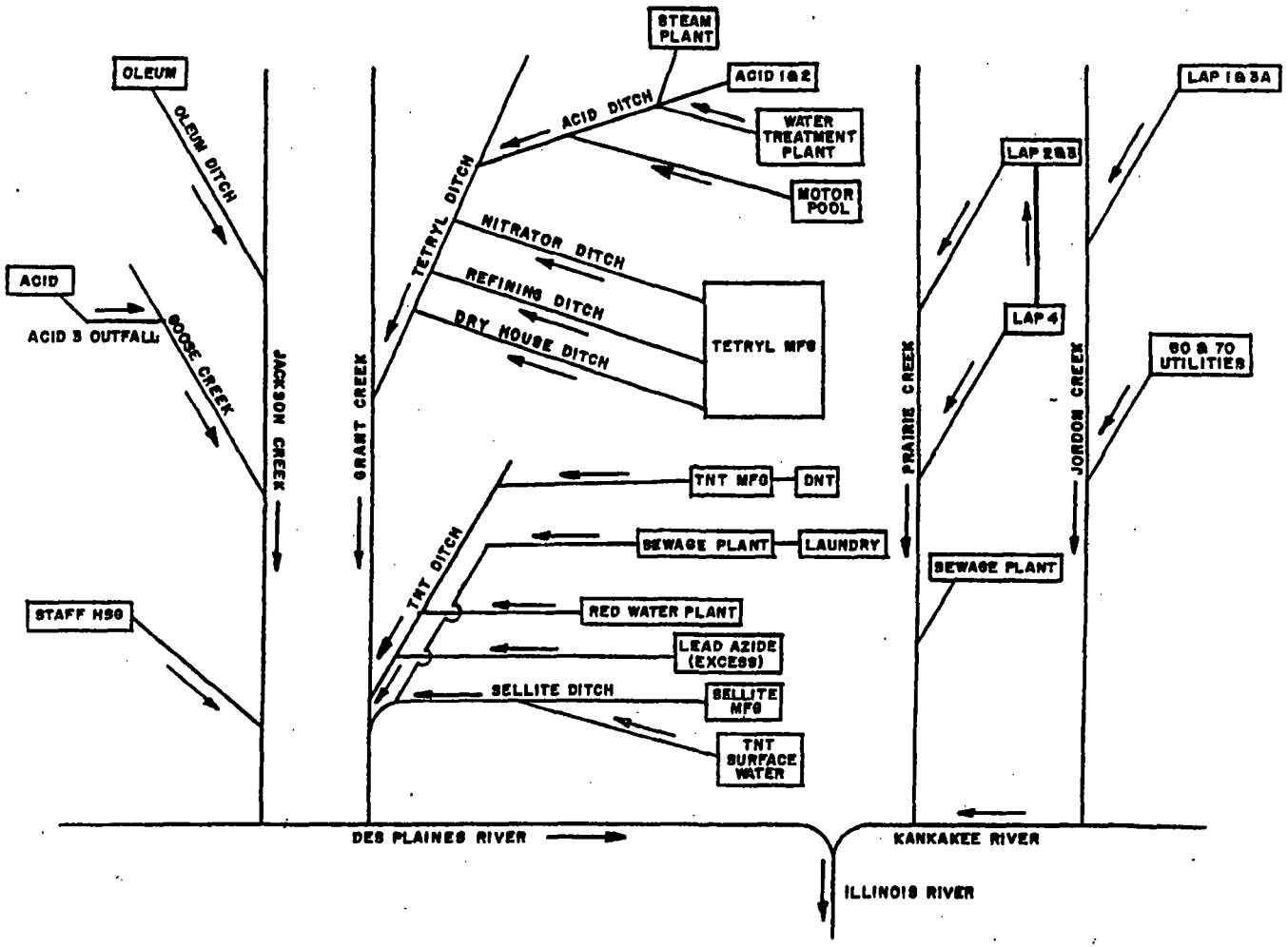
REFERENCE: U.S.G.S. 7½' Quadrangles: Channahon, IL; Elwood, IL; Wilmington, IL; and Symerton, IL.

Source: Dames & Moore

Figure 2-1
Topographic & Geologic Map

Joliet Army Ammunition Plant
Will County, Illinois

Plexus Scientific Corporation



Source: ARMY01

Figure 2-2
Schematic of Wastewater and the System of Receiving Streams

Joliet Army Ammunition Plant
Will County, Illinois

Plexus Scientific Corporation

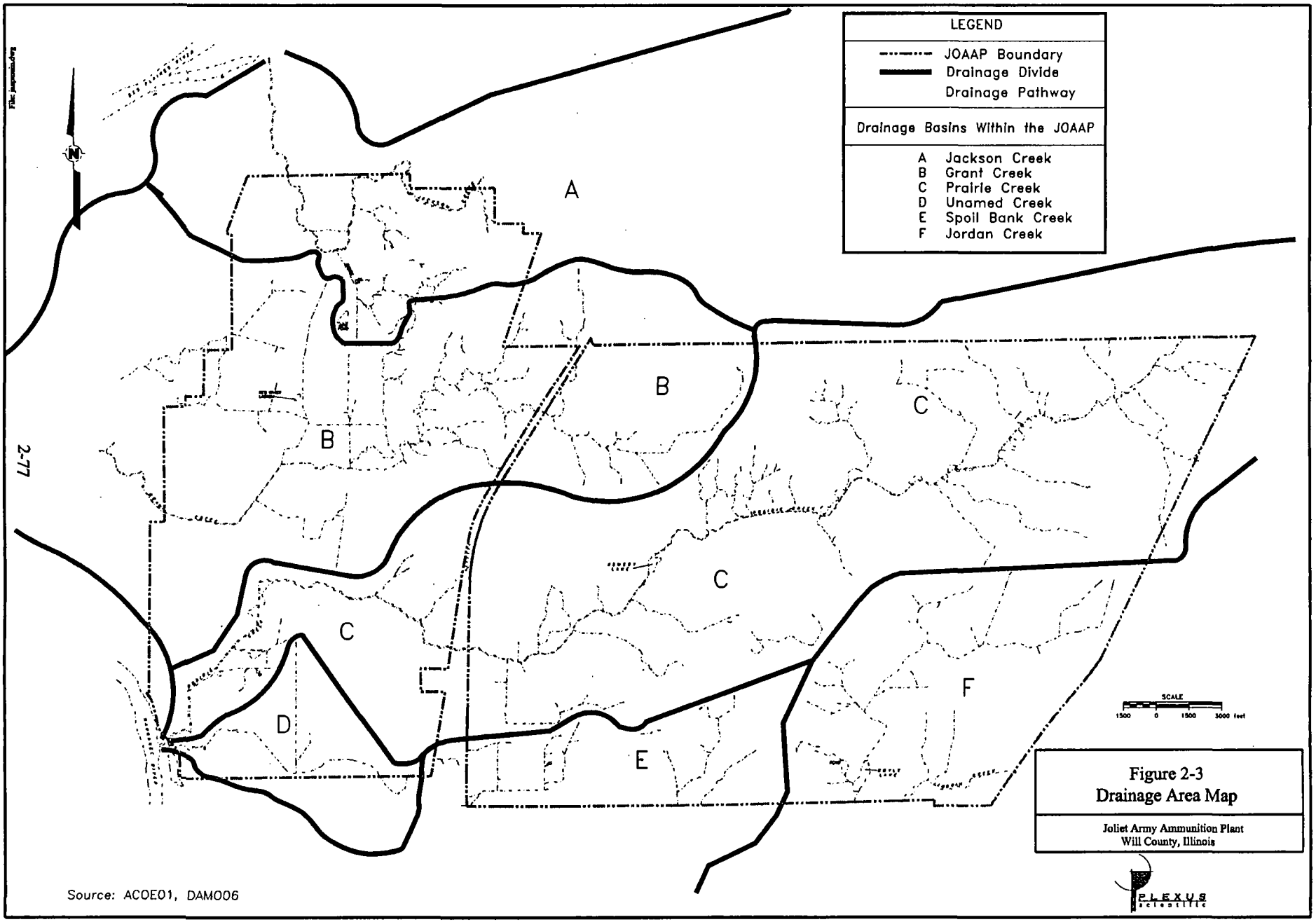


Figure 2-3
Drainage Area Map

Joliet Army Ammunition Plant
Will County, Illinois

Source: ACOE01, DAMO06

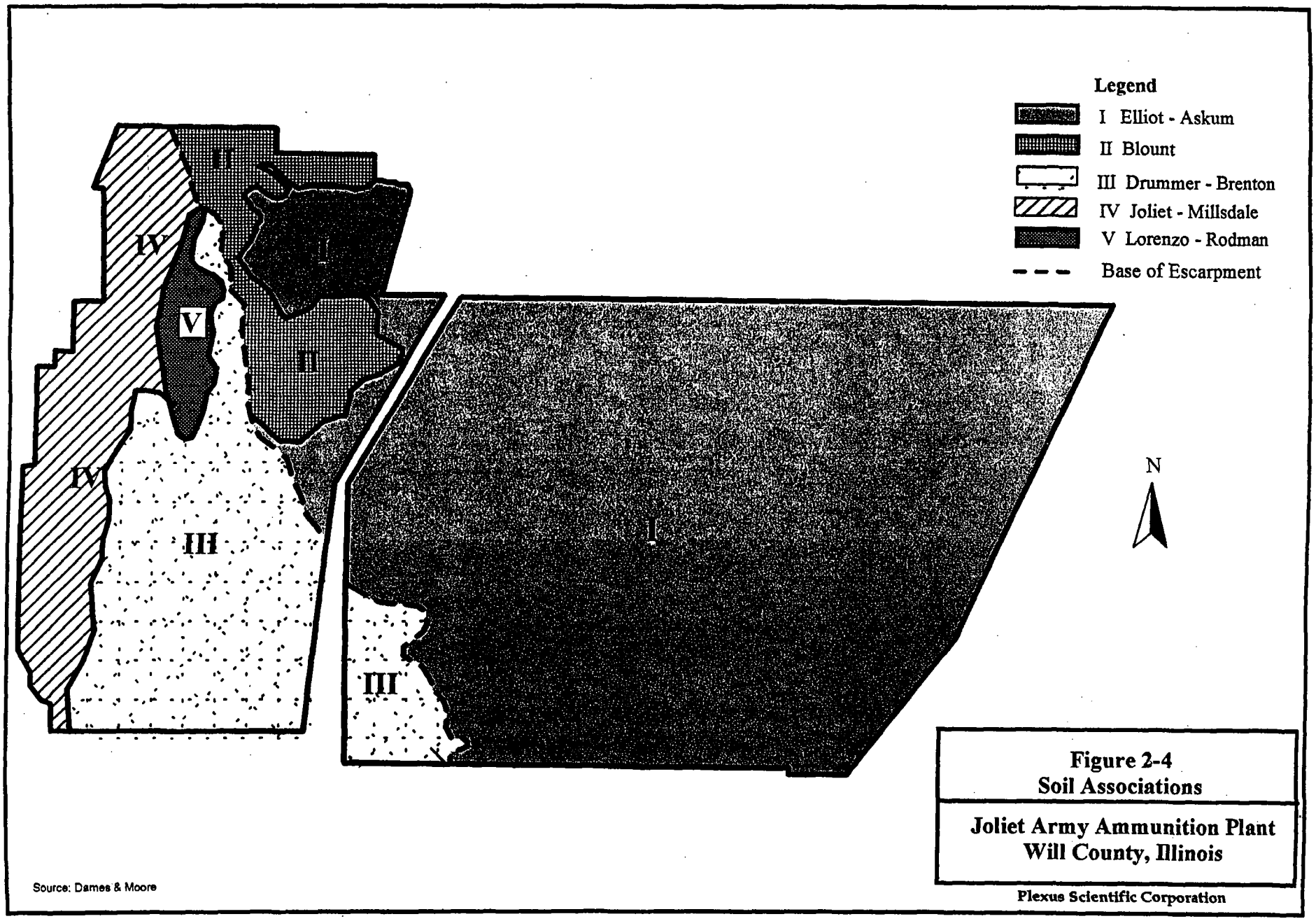
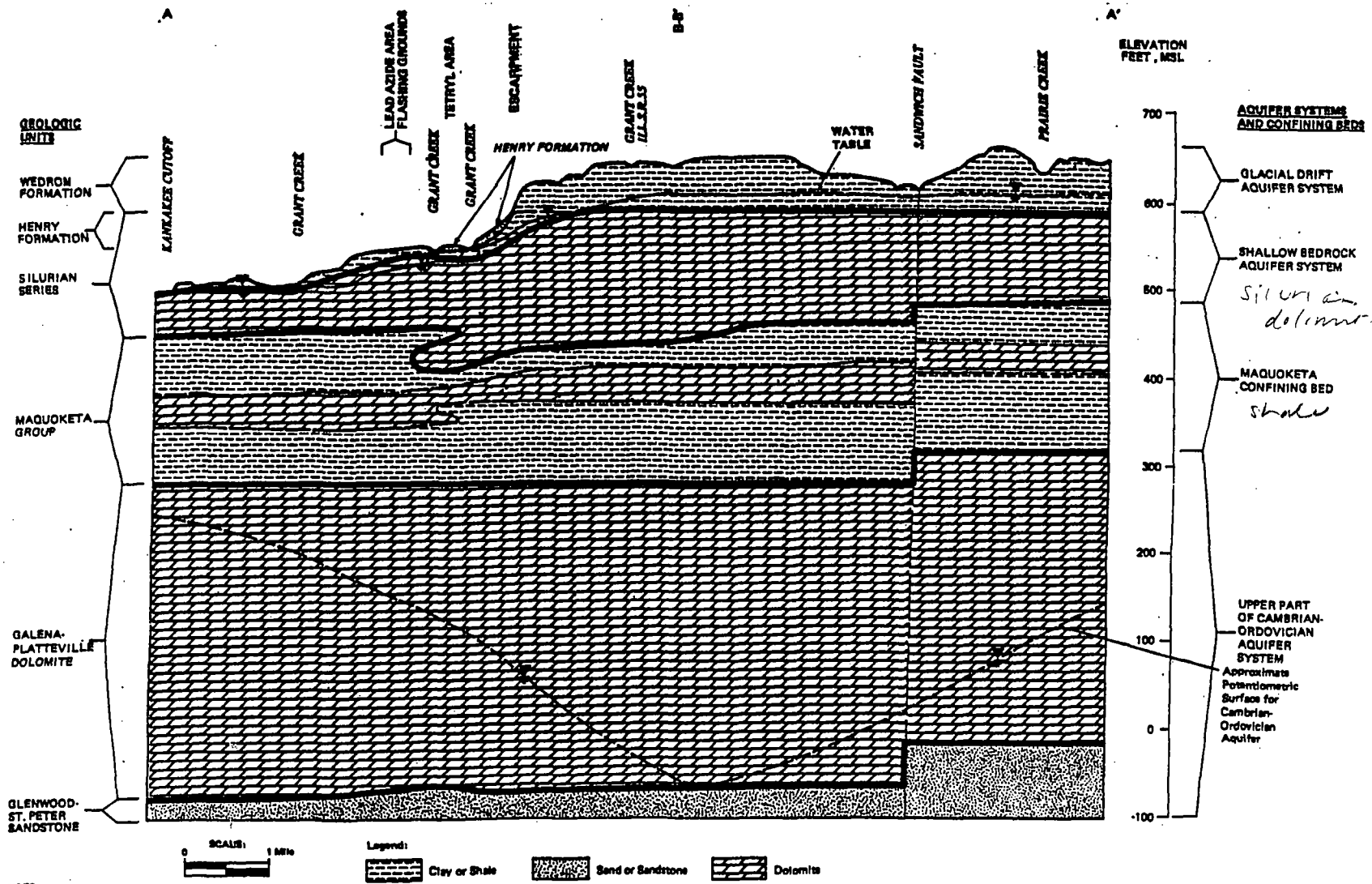


Figure 2-4
Soil Associations

Joliet Army Ammunition Plant
Will County, Illinois

Source: Dames & Moore

Plexus Scientific Corporation



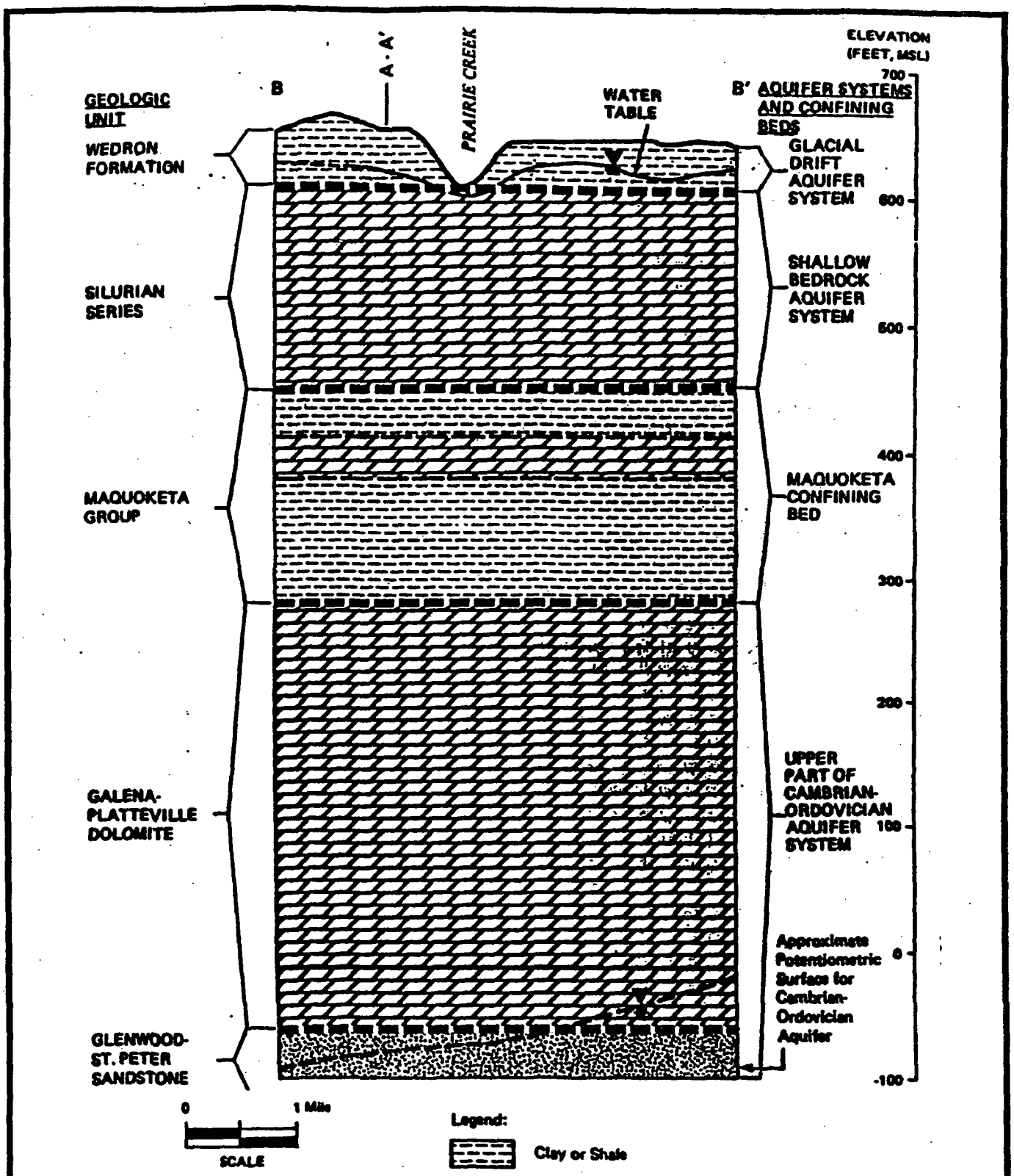
NOTE:
Cross-section prepared by reference to well logs available from the Illinois State Water Survey, Illinois State Geological Survey, information contained in various references and data collected by Dames & Moore.

Figure 2-5
Geologic Cross-Section A-A'

Joliet Army Ammunition Plant
Will County, Illinois

Source: Dames & Moore

Plexus Scientific Corporation



NOTE:

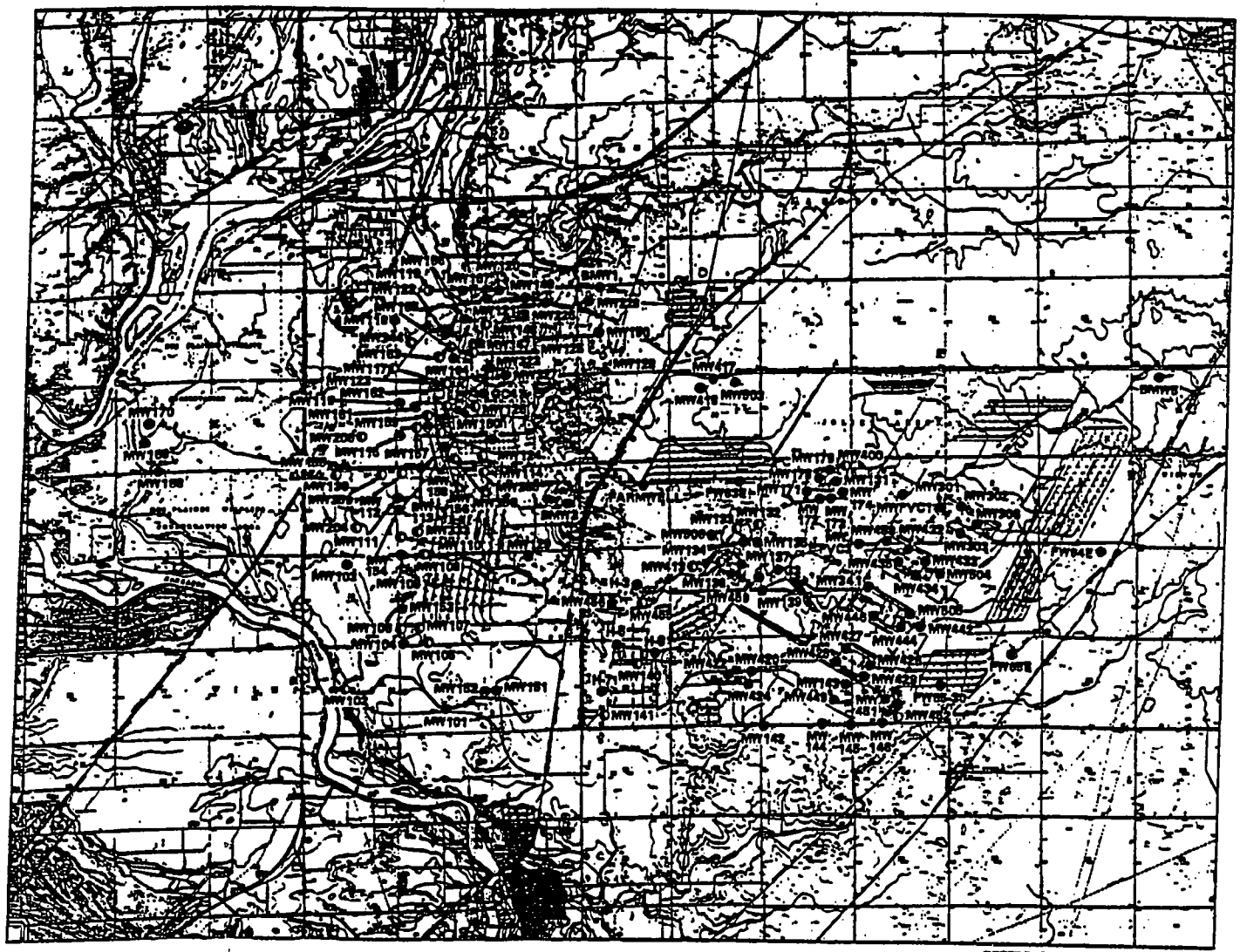
Cross-section prepared by reference to well logs available from the Illinois State Water Survey, Illinois State Geological Survey, information contained in various references and data collected by Dames & Moore.

Source: Dames & Moore

Figure 2-6
Geologic Cross-Section B-B'

Joliet Army Ammunition Plant
Will County, Illinois

Plexus Scientific Corporation



Legend

MW101 Well Number

- Well Screened in Glacial Till
- Well Screened in Shallow Bedrock only
- Well Screened in Both Soil and Shallow Bedrock

N

REFERENCE: U.S.G.S. 7½' Quadrangles: Channahon, Ill.; Elwood, Ill.; Wilmington, Ill.; and Symerton, Ill.

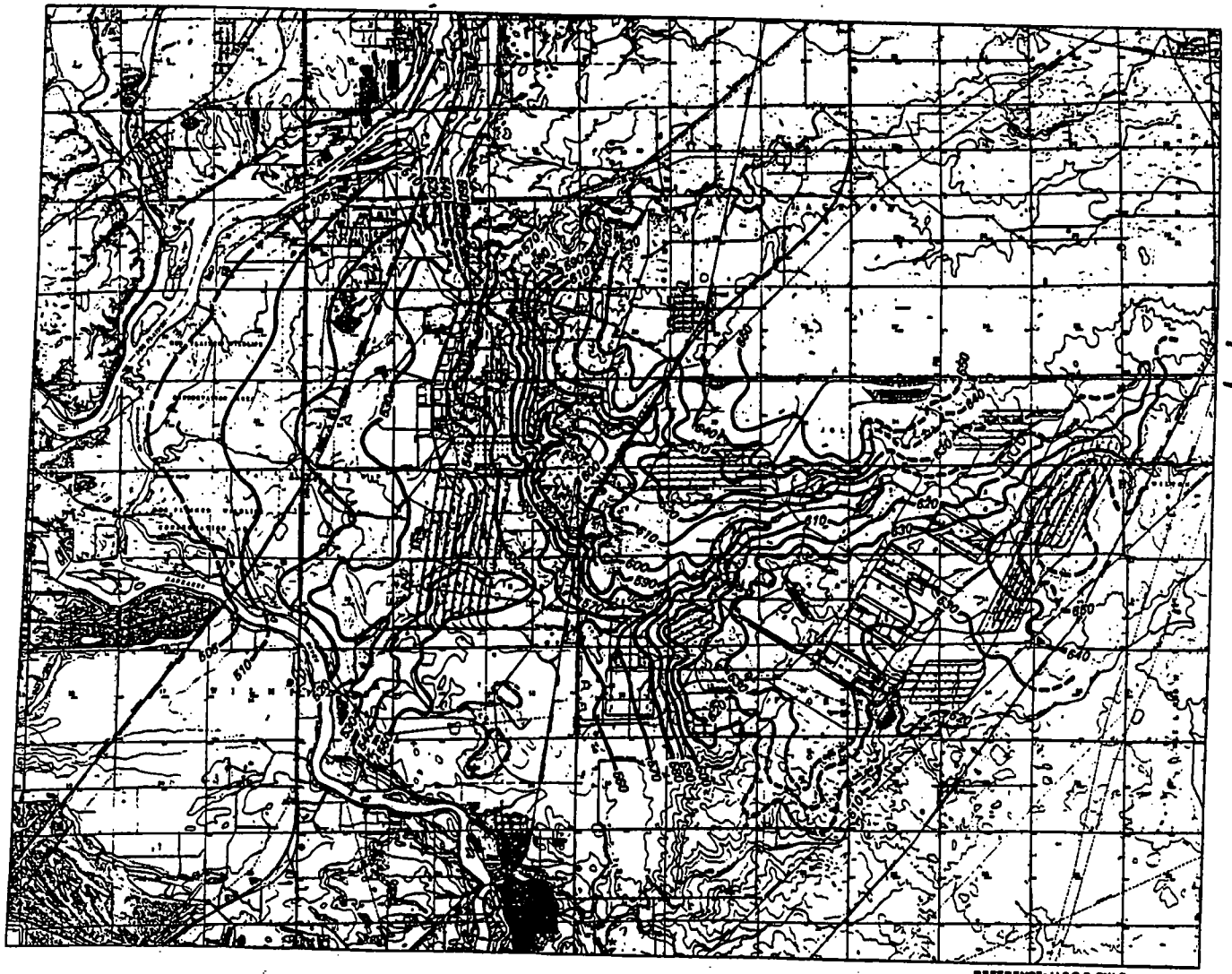
1 0 1 Mile
SCALE

Source: Dames & Moore

Figure 2-7
Locations of Monitoring Wells Used for Preparation of Water Table Map

Joliet Army Ammunition Plant
Will County, Illinois

Plexus Scientific Corporation



LEGEND:

506 — Groundwater elevation contour; dashed where inferred

630 — Contour

Groundwater contour interval 10 Feet

Elevation referenced to sea level.

Water levels measured November 18 and 19, 1991.

N

REFERENCE: U.S.G.S. 7½' Quadrangles: Channahon, Il.; Elwood, Il.; Wilmington, Il.; and Symerton, Il.

1 0 1 Mile
SCALE

Source: Dames & Moore

Figure 2-8
Water Table Contour Map

Joliet Army Ammunition Plant
Will County, Illinois

Plexus Scientific Corporation

3. SCREENING METHODOLOGY

This PAS report identifies site contamination, including the type and quantity of hazardous substances, and the period of time over which storage, release, or disposal of such hazardous substances took place on the Industrial Park parcels covered by this report, to the extent such information was available from existing records. It also describes areas of environmental concern. Methods employed during conduct of this PAS are outlined in this section.

3.1 Approach

3.1.1 Development of Study Sections

To facilitate data collection, management, and retrieval, JOAAP was divided into 97 study sections (Table 3–1 and Figure 3–1). Site information was collected and is referenced by study section. Section development was based on the following considerations:

- Boundaries had to be readily identifiable in the field.
- Boundaries had to correspond closely with future property transfers.
- Boundaries had to be of a manageable size for survey.
- All the JOAAP property had to be encompassed by a study section.
- No land area could fall into more than one section.
- Sections had to correspond with existing IRP study areas.

Therefore, section boundaries were generally designated at the center of roads or, streams, along fences, and along township section lines. In the field, it was found that many roads chosen for study boundaries on the LAP Area no longer exist. Generally, however, the location of these former roads was easily discernible from tree lines. An accurate land survey of the study areas has not been performed.

The previously identified IRP study areas and their names have been retained. PAS study sections are labeled by an initial letter—L for sections in the LAP Area and M for those in the MFG Area—and a two- or three-digit number. Sections in the LAP Area are labeled L100 to

L122; sections in the MFG Area, M99 to M119. All IRP study area designations consist of a letter followed by either one or two digits. Thus, a letter followed by three digits is a non-IRP/CERCLA parcel.

3.1.2 Records Search

A search of readily available records was conducted to identify documentation of potential environmental concerns relating to the Industrial Park parcels or to nearby properties whose conditions could impact the Industrial Park parcels. That search focused on a review of files and records at USAEC, Aberdeen Proving Ground, Maryland; files in storage at JOAAP in Buildings 61-7, 703-5, and 74-3; and records at the National Archives in College Park, Maryland. Additional records were obtained from the IOC historian in Rock Island, and from the IOC Explosive Safety Office. Records, files, maps, and other documents reviewed in detail are cited in the Bibliography (Section 6). It is assumed that all the documents obtained from government sources contain accurate information.

In accordance with *Standard Practice for Environmental Site Assessments* (E–1527–94) of the American Society for Testing and Materials (ASTM), a search was conducted of reasonably ascertainable government records on the excess parcel within the ASTM specified radii. Table 3–2 lists the state and federal databases searched, and Table 3–3, lists nearby facilities found in the databases searched.

3.1.3 Aerial Photograph Analysis

A 1986 report prepared by the USEPA Environmental Photographic Interpretation Center (EPIC) presents the findings of a review of aerial photographs of JOAAP from 1939, 1946, 1952, 1954, 1961, 1967, 1973, 1974, 1978, and 1979. In its study, EPIC identified 24 areas of concern at the site (BICO01). These areas became IR study areas, and the findings of the EPIC review were used to target IRP areas of investigation. The EPIC findings were also incorporated into the PAS.

3.1.4 Interviews and Agricultural Lessee Questionnaires

Several informal interviews of past and current JOAAP employees were conducted. These interviews concerned specific areas of interest identified from the site reconnaissance and records review.

Moreover, to expand on the site reconnaissance, questionnaires were mailed to all current agricultural leaseholders at JOAAP. (Approximately 16,700 acres of land at JOAAP are under agricultural leases for crops and grazing.) The questionnaire elicited information on any unusual conditions and lessee environmental concerns. A facsimile of the questionnaire form is presented as Appendix A.

3.1.5 Site Reconnaissance

A limited site reconnaissance involving a driving tour of the facility and its perimeter, as well as random survey by vehicle and on foot through each section of the property, was conducted to field-verify information found in the document review and to identify potential environmental concerns. Within the Industrial Park parcels, 110 buildings were visually inspected (Table 3–4). These buildings were selected as a representative sample from groups of similar buildings. Buildings currently in use by Alliant Techsystems, Inc., were generally not surveyed, as conditions within the buildings are expected to change. The areas occupied by Alliant will be inspected prior to return of the facilities to the government, and a revision of the PAS will be generated at that time. Specific findings of the site reconnaissance may be found in Appendices B, C, and D.

During the site reconnaissance, coordinates for the buildings surveyed and environmental findings were collected. A Trimble Scoutmaster global positioning system (GPS) unit was used to determine coordinates. The unit is accurate to approximately 25 meters.

A reconnaissance of the base perimeter was conducted to evaluate adjacent property uses that could contribute to environmental contamination detected on-site. Typical of such uses are dry cleaners, gas stations, and industrial plants. The findings of the perimeter survey are presented in Section 4.1.21.

3.1.6 Historical Land Use Analysis

An analysis of historical land use patterns was conducted to identify those uses that may have resulted in, or contributed to, environmental contamination or other environmental concerns. The analysis involved informal interviews and a review of site plans, historical documents, and aerial photographs. Historical analysis revealed that a number of structures have been demolished. All available information on demolished buildings is included in Appendix D.

3.2 Data Management

Environmental concerns at JOAAP were evaluated facility-wide, and findings were compiled in an electronic database. Database-derived profiles on each study section and building in the proposed landfill parcel are presented as Appendixes B and C. These profiles will prove useful in determining the environmental consequences of converting the property to industrial parks.

Environmental concerns identified during the PAS are defined in terms of their potential for environmental contamination in Section 4. Further definition of these concerns is provided in Appendixes B, C, and D.

TABLE 3-1
SURVEY SECTION FUTURE OWNERS
JOAAP, WILL COUNTY, ILLINOIS

		Future Owner		
Section	Section Description	USDA (Tallgrass Prairie)	State of Illinois (Industrial Parks)	Will County (Landfill)
L1	Group 61	•		
L2	Explosive Burning Ground	•		
L3	Demolition Area	•		
L4	Landfill Area	•		
L5	Salvage Yard	•		
L6	Group 70		•	•
L7	Group 1	•		
L8	Group 2	•		
L9	Group 3	•		
L10	Group 3A	•		
L11	Test Site		•	
L12	Doyle Lake Area	•		
L13	Group 68	•		
L14	Group 4	•	•	
L15	Group 5	•	•	
L16	Group 6		•	
L17	Group 7		•	
L18	Group 8	•		
L19	Group 9	•		
L20	Group 20	•		
L21	Group 23	•		
L22	Group 25	•		
L23	Group 27	•		
L24	Group 29	•		
L25	Group 62	•		
L26	Group 63	•		
L27	Group 64	•		
L28	Group 65	•		
L29	Group 66	•		
L30	Group 66A	•		
L31	Extraction Pits	•		
L32	Group 60		•	
L33	PVC Area	•		
L34	Former Burning Area	•		
L35	Fill Area	•		
L100	PAS Survey Section L100	•		
L101	PAS Survey Section L101	•		
L102	PAS Survey Section L102	•		
L103	PAS Survey Section L103	•		
L104	PAS Survey Section L104	•		

TABLE 3-1
SURVEY SECTION FUTURE OWNERS
JOAAP, WILL COUNTY, ILLINOIS

		Future Owner		
Section	Section Description	USDA (Tallgrass Prairie)	State of Illinois (Industrial Parks)	Will County (Landfill)
L105	PAS Survey Section L105	•		
L106	PAS Survey Section L106	•		
L107	PAS Survey Section L107	•		
L108	PAS Survey Section L108	•		
L109	PAS Survey Section L109	•		
L110	PAS Survey Section L110	•		
L111	PAS Survey Section L111	•		
L112	PAS Survey Section L112	•		
L113	PAS Survey Section L113	•		
L114	PAS Survey Section L114			•
L115	PAS Survey Section L115		•	
L116	PAS Survey Section L116	•		
L117	PAS Survey Section L117	•		
L118	PAS Survey Section L118	•		
L119	PAS Survey Section L119	•		
L120	PAS Survey Section L120	•		
L121	PAS Survey Section L121	•		
L122	PAS Survey Section L122		•	
L999	Orphan LAP area Buildings			
M1	Southern Ash Pile	•		
M2	Explosive Burning Ground	•		
M3	Flashing Grounds	•		
M4	Lead Azide Area	•		
M5	Tetryl Production Area	•	•	
M6	TNT Ditch Complex		•	
M6A	TNT Blocking Area	•		
M7	Red Water Area		•	
M8	Acid Manufacturing Area		•	
M9	Northern Ash Pile		•	
M10	Toluene Tank Farms	•	•	
M11	Landfill	•		
M12	Sellite Manufacturing Area	•		
M13	Gravel Pits		•	
M14	Former Pond Area	•		
M15	Sewage Treatment Plant	•		
M16	Motor Pool Area		•	
M17	Laundry Facility		•	
M18	Herbicide Storage Area		•	
M99	TNT Block Area (M6A)	•		

TABLE 3-1
SURVEY SECTION FUTURE OWNERS
JOAAP, WILL COUNTY, ILLINOIS

		Future Owner		
Section	Section Description	USDA (Tallgrass Prairie)	State of Illinois (Industrial Parks)	Will County (Landfill)
M100	PAS Survey Section M100	•		
M101	PAS Survey Section M101	•		
M102	PAS Survey Section M102	•		
M103	PAS Survey Section M103		•	
M104	PAS Survey Section M104		•	
M105	PAS Survey Section M105	•		
M106	PAS Survey Section M106	•		
M107	PAS Survey Section M107	•		
M108	PAS Survey Section M108	•		
M109	PAS Survey Section M109	•		
M110	PAS Survey Section M110	•		
M111	PAS Survey Section M111	•		
M112	PAS Survey Section M112	•		
M113	PAS Survey Section M113	•		
M114	PAS Survey Section M114	•		
M115	PAS Survey Section M115		•	
M116	North Pump Station		•	
M117	South Pump Station		•	
M118	Grant Creek Corridor	•		
M119	Grant Creek Corridor	•		
M999	Orphan MFG area Buildings			

Note: Sections L999 and M999 contain buildings at JOAAP for which the physical locations are not known other than what can be surmised from the numbering system. Section L6 will be divided between USDA and Will County. Sections L14, L15, and M5 will be divided between USDA and State of Illinois. Shaded sections are those covered by this report. Portions of L6, L14, L15, M5, and M10 are presented in other reports. Shading indicates sections covered in this report.

TABLE 3-2
DATABASES SEARCHED
JOAAP, WILL COUNTY, ILLINOIS

Database	Date of Government Version
STATE/LOCAL	
IEPA Leaking Underground Storage Tank Incident Reports	6/1/95
IEPA State Hazardous Waste Sites	6/1/95
IEPA Solid Waste Landfills Subject to State Surcharge	6/30/94
Illinois State Fire Marshal underground storage tank facility list	8/7/95
Northeastern Illinois Planning Commission - Solid Waste Landfill Inventory	8/1/88
FEDERAL	
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	6/30/95
Emergency Response Notification System (ERNS)	12/31/94
National Priority List	9/1/95
Resource Conservation and Recovery Information System (RCRIS)	5/31/95
Superfund Consent Decrees	varies
Corrective Action Reports (CORRACTS)	4/10/95
Facility Index System (FINDS)	7/27/94
Hazardous Materials Information Reporting System (HMIRS)	12/31/94
Materials Licensing Tracking System (nuclear materials)	8/1/95
National Priorities List Liens	10/15/91
PCB Activity Data Base System (PADS)	10/14/94
RCRA Administrative Action Tracking System (RAATS)	4/17/95
Superfund Records of Decision (ROD)	3/31/95
Toxic Chemical Release Inventory System (TRIS)	12/31/92
Toxic Substances and Control Act (Manufacturers and importers)	1/31/95
OTHER	
Former Manufactured Gas Sites	--
Federal Reporting Data System (public water supplies)	--
USGS Water Wells	--

TABLE 3-3
DATABASE RECORDS REGARDING NEARBY FACILITIES
JOAAP, WILL COUNTY, ILLINOIS

Site Name	Site Address	Zip code	Database(s)	Facility ID
Channahon				
NORTHERN ILLINOIS GAS CO	REXALL RT 66	60410	FINDS	
PITMAN MOORE INC	YOUNG RD	60410	RCRIS-SQG, FINDS	
Elwood				
ILDOT BRG NO 048 0053	TR 253 OVER I74	60421	FINDS, RCRIS-LQG	
ILDOT BRG NO 072 0032	IL 78 OVER I74	60421	FINDS. RCRIS-LQG	
ILDOT BRG NO 048 0035	CO HWY 18 OVER I74	60421	FINDS, RCRIS-LQG	
ILDOT BRG NO 048 0058 0055	174 OVER FRENCH CREEK	60421	FINDS, RCRIS-LQG	
UNIROYAL CHEMICAL CO INC	RT 53 & HOF RD	60421	FINDS	
TYLER JAMES & SONS ELEVATOR INC	RT 53 S 3MI	60421	FINDS	
ELWOOD STP	MISSISSIPPI ST PO BOX 435	60421	FINDS	
IL BELL TEL CO ELWOOD C D O	N SI MISS BETW PARK & MADISON	60421	FINDS, RCRIS-LQG	
Joliet				
PATTERSON RD I MILE WEST BRANDON RD			ERNS	
SOUTH MADISON AND BEACH STREET			ERNS	
JOLIET REFINERY I-55 AND ARSENAL ROAD			ERNS	
MOBIL OIL			ERNS	
MOBILE OIL CO I-55 ARSENAL RD			ERNS	
ILLINOIS RIVER MOBILE OIL DOCK			ERNS	
JOLIET REFINERY I-55 AND ARSENAL ROAD			ERNS	
JOLIET REFINERY I-55 AND ARSENAL ROAD			ERNS	
MOBIL DOCK			ERNS	
JOUET REFINERY I-55 AND ARSENAL ROAD			ERNS	
1415 LANGFIELD RD			ERNS	
JOLIET REFINERY I-55 AND ARSENAL ROAD			ERNS	
	I-55 & ARSENAL		HMIRS	
	I-55 & ARSENAL RD		HMIRS	
MOBIL JOLIET REFINING	I 55 & SMITH BRIDGE	60434	FINDS	
UNION CARBIDE CORP PLT 767	I 55 AND ARSENAL RD	60434	RCRIS-SQG, FINDS	

TABLE 3-3
DATABASE RECORDS REGARDING NEARBY FACILITIES
JOAAP, WILL COUNTY, ILLINOIS

Site Name	Site Address	Zip code	Database(s)	Facility ID
	300 W ALLEN ST		UST	2-016158
	1500 AMHERST CT		UST	2-013112
AT THE PLANT REFINERY	I-55 AND ARSENAL ROAD		ERNS	
	I-55 AND ARSENAL RD/ E. FRONT		HMIRS	
UNIROYAL, INC.	ATT: R. MILLER, PLANT MANAGER	60434	TSCA	
JACKSON CREEK METERING STATION	1 MI E OF IH 55 ON ARSENAL RD	60434	RCRIS-SQG	
	300 EARL ROAD		HMIRS	
ILLINOIS CANAL	OUTFALL AT PLANT		ERNS	
	UNKNOWN		UST	2-029413
Wilmington				
AMOCO FERTILIZER PLANT	RR 3	60481	RCRIS-SQG, FINDS	
SMITH OIL CO.	RT. 53 / WEST RIVER RD.	60481	LUST	901106
CAVANAUGH, FRANCIS	200 BALTIMORE ST.	60481	LUST	903271
CELOTEX CORP	CANAL & WATER STS	60481	FINDS	
MIDWESTERN GAS TRANSMISSION CO	FIRST ST IBLK FROM IL 53	60481	RCRIS-SQG, FINDS	
ILL BELL TEL CO WILMINGTON C D	N OF JACKSON E OF MAIN	60481	FINDS, RCRIS-LQG	
COMMUNITY OLDS PONTIAC	W RIVER RD S RTE 53	60481	RCRIS-SQG, FINDS	

TABLE 3-4
INDUSTRIAL PARK BUILDINGS VISUALLY SURVEYED
JOAAP, WILL COUNTY, ILLINOIS

L6 (Industrial Park Portion)*	
70-5	70-8
70-6	70-43
70-7	
L11	
1-49	
L14 (Industrial Park Portion)*	
none	
L15 (Industrial Park Portion)*	
none	
L16	
6-36	6-37
L17	
none	
L32	
60-4	60-9
60-7	60-11
60-8	60-13
L115	
60-12	
L122	
none	
M5*	
707-12	1005-10
722-8	1008-2
1002-10	1009-1-1
1003-10	1009-1-2
1004-10	1009-2-1
M6	
601-201	808-1
704-5	812-9
706-1	852-5
706-5	855-5
707-5	870-2
715-10	871-2
715-15	872-2
722-5	874-2
722-6	875-2
722-8	877-2
801-9	878-2
802-9	879-2
803-9	882-1
806-2	1011-45
806-10	TS1208
M7	
860-2	861-7
860-4	862-3
861-2	864-2
M8	
301-2	411-10
302-2-1	411-10-1
354-1-1	601-96
354-10	704-18
357-1	713-1
401-A	717
401-6	718-1
402-1	TS-1200
403-3	
M9	
411-10	
M10	
none	
M13	
503-1-1	704-20
503-1-2	704-21
503-1-3	713-2
503-1-4	713-2-1
601-A-4	
M16	
413-1	716-3
704-19	
M17	
704-8	723
707-8	
M18	
703-3	716-1
M103	
414	709-1
704-13	
M104	
354-1	403-2
354-5	411
354-5-1	411-8
354-10	411-13
401-6	
M115	
none	
M116	
412-2	
M117	
412-1	

* Portions of these sections are covered in other reports which may address additional buildings. Refer to Figure 1-3.

File: III_sect.dwg

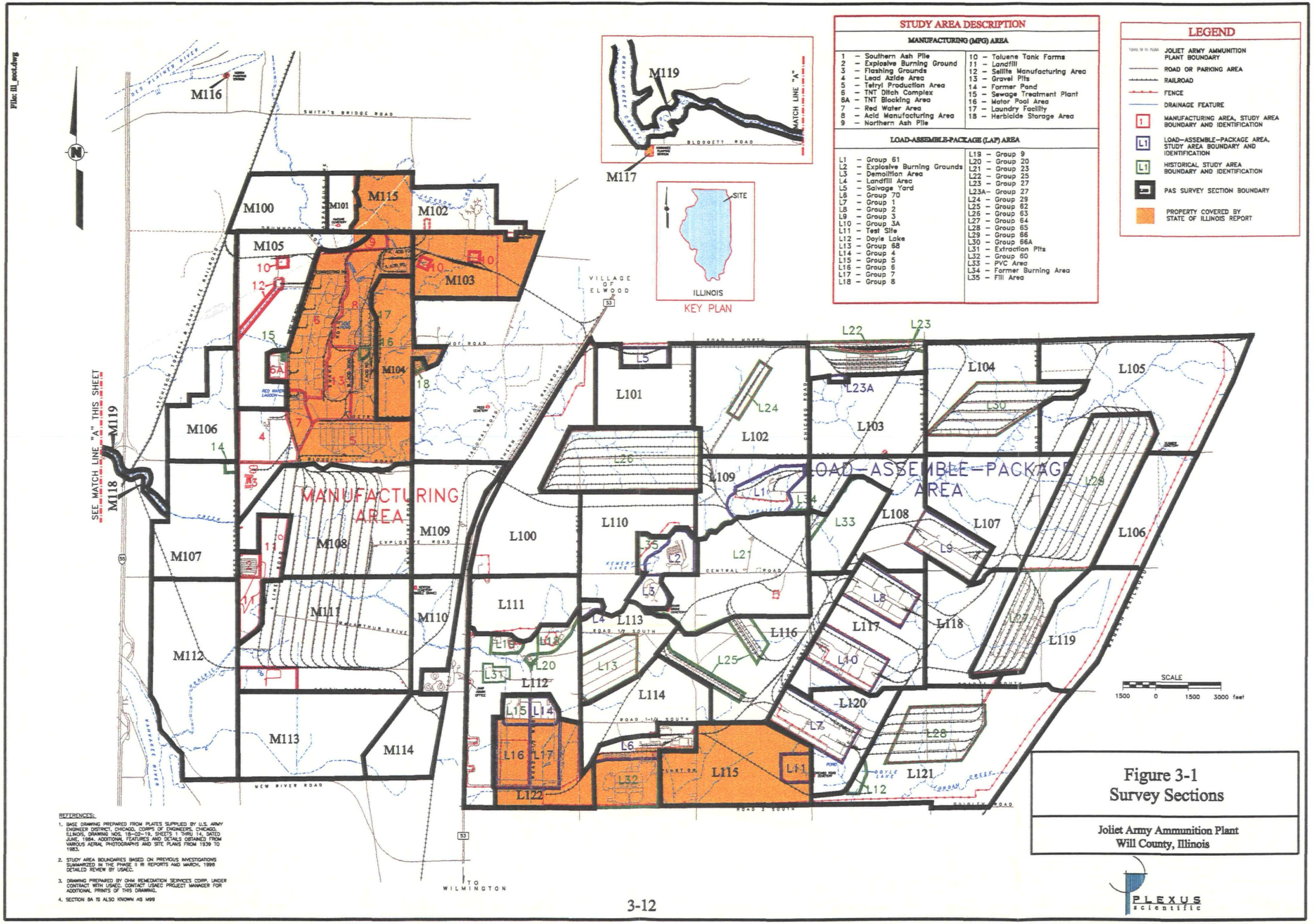


Figure 3-1
Survey Sections

Joliet Army Ammunition Plant
Will County, Illinois

PLEXUS scientific

4. ENVIRONMENTAL CONDITIONS

This chapter summarizes environmental conditions on the JOAAP Industrial Park parcels. The data presented are based on the file search, interviews with cognizant personnel, and a site survey conducted in September and November of 1996, as part of the JOAAP PAS.

Significant findings and an overview of relevant regulations are presented in the following subsections. All findings are presented by section or building number in the appendices and are summarized by finding type in tables at the end of this section. Findings in the tables are designated as "present," "absent," "suspected" or "removed." These designations are intended to provide a quick method of identifying potentially significant findings in the tables.

- Present identifies findings that do not fall into one of the other categories.
- Absent is used infrequently when there is definitive evidence that the condition is not present (e.g., when documentation indicates that a particular building has never been contaminated with explosives).
- Suspected refers to an environmental concern that may be present but cannot be confirmed or refuted based upon existing information (e.g., a transformer that is not marked as to the presence or absence of PCBs).
- Removed refers to an environmental condition that was present but has since been eliminated (e.g., a tank whose removal has been confirmed).

Drawings of each of the major areas are provided at the end of Appendix D.

4.1 Hazardous Materials and Waste Management

This section discusses the environmental conditions associated with use, storage and disposal of hazardous materials. This includes identification, to the extent possible, of the type, quantity, and location of hazardous materials and treatment and storage areas associated with hazardous materials and wastes. A summary of chemicals used, stored, disposed of, or released on the Industrial Park property is presented in Appendix E.

Historically, much of JOAAP was used for the manufacture, handling and shipping of primary and secondary explosives, propellants, munitions, and components. The plant provided infrastructure services such as water, steam, power, and sewage treatment, for manufacturing and LAP activities. The likely use, storage, or disposal of hazardous materials/wastes can be inferred from the group or area names and the types of buildings present. Table 4-1 lists the group or area name, description, and provides the PAS study section number. Chemicals used at JOAAP were documented under the Toxic Substance Disclosure to Employees Act and Written Standard Practice (WSP) Saf. 6-1. These lists documented the chemicals used at the site but not the location where they were used (UCCI33, UCCI72).

Manufacturing operations involving chemicals and explosives occurred in L14, L15, L16, L17, M5, M6, and M8. Significant storage operations occurred at M10. Eight sites (L14, L15, L16, L17, M7, M9, and M13) were involved in treatment/disposal of wastes, and munitions testing occurred at L11. Repair, maintenance and facility support activities occurred in L6, L115 (former Group 73), M16, M17, M18, M116, and M117. Issues specific to IR sites are addressed in Section 4.3.

Hazardous materials and waste management are governed by specific environmental regulations. For the purpose of the following discussion, the terms hazardous waste or hazardous materials are those substances defined as hazardous by CERCLA; 42 USC 9601-9675, as amended; and the Solid Waste Disposal Act, as amended by RCRA, 42 USC 6901-6992, as amended. In general this includes substances that because of their quantity, concentration, or physical, chemical, or infectious characteristics may present substantial danger to public health or welfare or the environment when released into the environment. A discussion of the regulatory history and permits issued to the facility and its tenants is presented in Section 2.2.3.

Although JOAAP has been declared excess, a variety of materials such as motor fuels, oils, industrial solvents, paints, and acids are used by current tenants (i.e., the agricultural lessees and Alliant Techsystems) on the facility. The 1994 *Spill Prevention Control and*

Countermeasures (SPCC) Plan and Installation Spill Contingency Plan addresses the prevention of pollutant discharge and includes contingency plans to address unauthorized releases. The plan also identifies hazardous waste storage locations (ALSI01). Hazardous wastes generated on-site are disposed of off-site through contracts with hazardous waste disposal firms.

An Alliant Techsystems representative reported that Alliant does not use any acutely toxic materials and that all of their stocks of hazardous substances/materials are consumed, rotated, or sent off-site so that nothing remains on-site for over a 1-year period. Alliant has had operations in L6, L14, L15, L16, and L17 which lie in the Industrial Park property.

During the PAS site survey, various chemical containers that were full, partially full, or empty were observed in several locations at JOAAP. Although some of the containers were labeled, the contents of these were not positively identified. Appendix B contains more information about the locations of these containers and the labeling (FIEL01). Findings relating to hazardous materials and chemicals are presented in Table 4-2.

4.1.1 LAP Industrial Park

L6/GROUP 70: Building 70-5 was utilized by Alliant Techsystems as a flammable liquid and flammable liquid waste storage area. The storage room is 760 square feet, has a capacity of 145 drums, and has secondary containment (ALSI01, DOTA04, MEMO05).

In 1955, chlorinated hydrocarbons and stoddard solvent were used for cleaning traction motors and other metal parts at Roundhouse Building 70-11 (DOTA15). This building had a gravel floor and a pit beneath the tracks.

Demolished

L16/GROUP 6: During the 1996 PAS site visit, two unlabeled drums were noted outside of Buildings 6-9 and 6-10 (FIEL01).

L17/GROUP 7: An Alliant Techsystems representative reported that Alliant does not use any acutely toxic materials and that all of their stocks of hazardous substances/materials are consumed, rotated or sent off-site so that nothing remains on-site for over a one year period. Building 7-6 is a hazardous waste satellite accumulation area utilized by Alliant (MEMO05). An unlabeled drum was noted outside of Building 7-9 (FIEL01).

L32/GROUP 60: Two drums (one of which is bloated) were found inside of the heating plant (Building 60-11) during the PAS field survey (FIEL01).

4.1.2 MFG Industrial Park

M5/TETRYL AREA: A pilot plant for continuous tetryl production was established in Building 1009-1-1 in 1957. The solvent used in the process was dichloroethane (HIST19, HIST20).

M6/TNT DITCH COMPLEX: A sign on Building TS-1208 indicates that this building was used a hazardous waste satellite collection point. Several fiber drums marked "DNT-313 lb DNT Capacity" were noted in buildings (801-9, 802-9, 803-9) in this area. Each of the drums was sealed and was at least partially full (FIEL01).

M7/RED WATER AREA: An incinerator constructed in this area in 1965 was used to treat red water waste from the TNT manufacturing area (JAAP05, DAMO12). The disposal operation consisted of six four-stage evaporators and twelve rotary kiln incinerators in the plant. The evaporators concentrated the red water form four percent solids to about 35 percent. The ash from combustion of the concentrate contained about 80 percent sodium sulfate, about 15 percent sodium carbonate, and five percent sodium sulfite and other inorganics (TRWI01). There were also three sets of storage tanks used to contain red water prior to incineration and evaporation in this area. The tanks contained raw red water and thick liquor (JAAP05, DAMO12). Any flow of red water that exceeded the capacity of the storage tanks was routed

into the Red Water Lagoon located in this area. The lagoon was excavated and capped in 1985 (DAMO24).

M8/ACID MANUFACTURING AREA: Numerous aboveground tanks were utilized for storage of chemicals throughout the Acid Manufacturing Area (DAMO12). Table 4-5 displays the materials stored in these tanks. Section 4.5 discusses storage tanks further. Building 704-7 contains lab chemicals and broken thermometers indicating possible mercury contamination. Several bloated drums and gas cylinders are present in Building 717 which burned in early 1996 (FIEL01). In 1965, dichromate inhibitors were added to cooling water at the Oleum Plant. Solvents were used in M8 for cleaning of AOP filters. It is believed that the cleaning solvents were sent to a solvent still in Acid Area 3 for distillation prior to reuse. During the September and November 1996 PAS Site Survey it was noted that Building 713-1 contained paint and other stored chemicals. Building 715-12 was used to store cans of acetone. Inspection of TS-1200 revealed signs indicating prior chemical storage and 84 55 gallon drums (most appear empty) with various labels (FIEL01).

M16/MOTOR POOL AREA: During the PAS site survey five 55-gallon drums which were partially full of vehicle fluids and a cabinet with approximately 20 gallons of paint were observed in Building 716-3 (FIEL01).

M18/HERBICIDE STORAGE: Nine drums possibly containing residues and a 30-gallon trashcan approximately 3/4 full of a white powder were observed in Building 703-3. A number of containers of cleaning solvents and maintenance supplies are scattered throughout Building 716-1 (FIEL01).

4.2 Solid Waste

Solid waste disposal and management is regulated under the Illinois Solid and Special Waste Management Regulations. Closure and postclosure requirements for disposal units are

specified in 35 IAC 811.110 and 811.111. Postclosure requirements include groundwater monitoring.

If materials are removed from the solid waste disposal sites, it should be noted that soils, sediments, or other media contaminated with hazardous substances or PCBs are special wastes pursuant to 35 IAC 808 and 809. When transported on public highways, special wastes must be manifested and the truck must be a licensed special waste hauling vehicle.

All areas identified as having been regularly used for disposal of solid waste (L32, M9, and M13) have been studied as part of the IRP. Detailed descriptions of each of these areas can be found in Appendix D and a brief overview of those on the Industrial Park property are presented below. It appears that these disposal areas had sufficient capacity for all of the facility solid waste.

Treated Wood Products: Treated wood products were used in a number of construction applications at JOAAP: buildings, earthen barricades, railroad ties, and utility poles. These items had been treated to resist decomposition by rot, decay, fungus, and insects. Typical wood treatment compounds included creosote and associated derivatives, pentachlorophenol and chromated copper arsenate. Aged treated wood products no longer in use are subject to waste classification procedures in 35 IAC 722.111 and 721.104(b)(9). The primary consideration for classification is whether the materials demonstrate characteristic hazardous waste properties, especially if prohibited levels of arsenic, chromium, cresols, benzene, or pentachlorophenol are present. This would be determined through Toxicity Characteristic Leaching Procedure (TCLP) analysis.

The Illinois Environmental Protection Agency (IEPA) has determined, in accordance with USEPA guidance, that weathered treated wood products may be disposed of as solid waste. The agency has defined weathered as follows: "treated wood that is old, it has been in obvious use, exposed to the elements for some time, has no surface globules and is not sticky to the touch, the surface is dry and the dark staining that occurs when wood is freshly treated with

these compounds is not present." The Agency has indicated that weathered treated wood products do not exhibit hazardous characteristics, so visual determination and knowledge of historical use could be used in lieu of TCLP testing. In this case, the material may be handled and disposed of as a nonspecial solid waste.

The bulk of the treated wood at JOAAP consists of railroad ties along the greater than 150 miles of tracks at the plant. The tracks have not been serviced in over ten years, so all ties would have been exposed to the weather for at least that duration. The other treated wood was used in construction, in utility poles, and in blast protection barricades that are also generally over ten years old. Although some of the wood in the blast shields is leaching black material, it is still believed that these items are appropriately classified as nonspecial solid wastes. IEPA indicates that treated wood products considered a nonspecial solid waste can be abandoned in place (MEMO06). Railroad ties, barricades, treated wood buildings, and utility poles may be left in place, however, the majority will be removed by August 1998 as part of the property liquidation.

4.2.1 LAP Industrial Park

L32/GROUP 60: Non-hazardous debris including scrap metal, wood, building debris, auto parts and concrete were observed in a pile during a site reconnaissance conducted in June, 1991. The debris pile was approximately eight feet in height and no evidence of excavations was noted. Aerial photographs from 1988 indicated that a road extended to a debris pile, which is estimated to be 0.25 acre, in the northwestern portion of the site (DAMO25). No contamination above PRGs was found at the debris pile. Building 60-91 was a waste disposal shelter (HIST09). A discussion of sampling at the debris pile is presented in Appendix D.

4.2.2 MFG Industrial Park

M9/NORTHERN ASH PILE: The Northern Ash Pile covers approximately five acres and rises 10 to 15 feet above the ground surface. The ash in this pile was generated through the

incineration of TNT byproducts between May 1966 and July 1967. The pile has been capped by covering with a plastic barrier, approximately 12 inches of clay and 6 inches of topsoil and seeded with grass (ACOE01, ARMY01). Refer to Appendix D for sampling data.

M13/GRAVEL PIT AREA: This area is located in the southwestern portion of the Acid Manufacturing Area and covers approximately 130 acres. Four potential disposal areas are located within the area, including two former gravel pits located adjacent to each other, an excavation pit to the south of the gravel pits, and an excavation area located to the west of the excavation pit (DAMO12). The northern gravel pit has been covered with clean soil and graded (DAMO26). Activities at this Area included several episodes of excavation, filling and grading (DAMO12). For further discussion of the Gravel Pit Area refer to Appendix D.

4.3 IRP Sites

JOAAP has 53 separate IRP sites, as shown in Figure 4-1. General descriptions and environmental conditions at the IRP sites are presented in Appendix D. RIs have been performed at all of the sites, and where appropriate, a risk assessment has been conducted. The risk was calculated based on a reasonable maximum exposure (RME). The RME, defined as the highest exposure that could reasonably be expected to occur, is intended to account for uncertainty in contaminant concentrations and variability in exposure parameters. It is a conservative exposure case (i.e., well above average) that is still within the range of possible exposures. A summary of the results of the risk assessment is presented in Table 4-3.

USEPA has generally defined carcinogenic risk values greater than 1×10^{-4} as unacceptable, and risks below 1×10^{-6} as acceptable for most hazardous waste facilities under CERCLA. Residual carcinogenic risks on the order of 1×10^{-6} are used as the "point of departure" or target level for site remediation, but they may be modified by regulatory requirements or site-specific considerations. The Hazard Index evaluates the potential for non-carcinogenic effects from long-term chemical exposure. A Hazard Index above one indicates that noncarcinogenic

health effects are possible. Contaminants of concern were not identified at L32, M9 and M13 and therefore, no risks were calculated (DAMO23).

FSs were completed for those areas where a risk was identified. A proposed plan is currently being developed and a Record of Decision is expected in June 1998. Interim remedial actions (capping) have been conducted at the Red Water Lagoon (M7), and Northern and Southern Ash Piles (M1 and M9) in the MFG area. A removal action will be completed in L6 in October 1997. Specific information related to the sites including analytical data can be found in the RI reports and is summarized in Appendix D of this report (DAMO05, DAMO11).

The 1994 ecological risk assessment was conducted to determine if the chemical contamination is deleterious to flora and fauna at JOAAP. This was accomplished through the examination of existing environmental data, collection of additional samples where necessary, literature review, toxicity testing, and field surveys. Three study areas in the MFG Area (M2, M4, and M6) and three in the LAP Area (L1, L2, and L7) were selected for field investigation. Only M6 is within the Industrial Park parcel. Selection was based upon presence of contaminants, and habitat viability. (Industrial areas were not evaluated.) In addition, an ecological risk evaluation was performed for each creek at JOAAP (AEHA10).

This assessment involved the evaluation of plants grown in site soils, earthworm toxicity, Microtox testing, and rodent evaluations. Effects on plant growth were noted, as were lethal and sublethal effects on earthworms in some locations. No statistical differences were found between heavy metal levels in mice collected at JOAAP and those in the control group. TNT was detected at trace levels in the tissues of three mice and at 0.300 mg/kg in the tissues of two of the 61 mice collected at M6 (AEHA10).

Soil testing identified areas of M2 (MFG Burning Ground), L2 (LAP Burning Ground) and L7 (Group 1) as the sites with the highest levels of soil toxicity. Rodents on these sites are not accumulating metals above natural levels, and no abnormal histopathological effects were seen in mice sampled. Potential plant community shifts were found at L1 (Group 61) and at

the M2 (MFG Burning Grounds). Adverse impacts on threatened and endangered species at JOAAP via terrestrial chemical exposure routes are expected to be minimal (AEHA10).

Potential ecological exposure pathways to humans include the consumption of contaminated crops, game, and fish. Crops are not grown on any contaminated sites, and therefore a complete pathway does not exist. Deer meat was collected (as an indicator of game species), and a separate report by AEHA concluded that consumption does not pose a health risk under current hunting conditions. Fish tissue analysis did not reveal the presence of explosives or PCBs. Although low levels of barium, zinc, iron, and DDE were detected, no human health risk is expected from the ingestion of fish (AEHA10).

The aquatic evaluation determined that stream health and quality (based on benthic macroinvertebrate analysis) is improved as Jackson, Prairie, and Grant Creeks exit JOAAP. The health of Jordan Creek is unaffected by JOAAP. Spoil Bank Creek quality is moderately low immediately downstream of JOAAP, and moderate about one mile off-post (AEHA10).

In summary, the Army ecological risk assessment program determined that the structure and function of the important aquatic and terrestrial components of the JOAAP ecological landscape are not vulnerable to significant reduction from adverse health effects of contamination. Fish and crayfish are not accumulating explosives, and potential food chain exposures are not occurring. For the terrestrial components, neither rodents nor deer meat are accumulating metals above natural levels or explosives. Limited (considered *de minimus)* impact on plants, earthworms, and micro-organisms has resulted from residual soil contamination (CHPM01, CHPM02, OHMC08). As the most contaminated sites were not found to have significantly impacted the ecological landscape at JOAAP, it is not likely the less contaminated areas have any significant impact.

4.3.1 LAP Industrial Park

There are 35 IRP sites located in the LAP area and all or part of seven (L6, L11, L14, L15, L16, L17 and L32) are included in the Industrial Park parcel. The FSs concluded that no further action is required under CERCLA at L15 and L32. Following completion of the non-time critical removal action in L6 in October 1997, no further remedial action will be required in that area. Regulatory concurrence with the no further action determination is expected.

For the LAP area, the IR study areas potentially requiring remediation were grouped into two operable units (OUs) one for groundwater and the other for soil. The OUs are further broken down into remedial units (RUs) based on the OU and chemicals of concern.

4.3.2 MFG Industrial Park

A total of 18 IRP study areas lie in the MFG area and all or part of ten (M5, M6, M7, M8, M9, M10, M13, M16, M17 and M18) are included in the Industrial Park parcel. The FS concluded that no further action is required at M16, M17, and M18.

For the MFG area, 13 IR study areas potentially requiring remediation were grouped into two OUs, soils and groundwater. The OUs are further broken-down into RUs based upon contaminant types.

4.4 Asbestos

Asbestos-containing material (ACM) is regulated by USEPA, the Occupational Safety and Health Administration (OSHA), and the State of Illinois. Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the Clean Air Act, which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). These standards address the demolition or renovation of buildings with ACM. Regulations of

Asbestos Hazard Emergency Response Act (AHERA) and OSHA cover protection for employees who work around ACM.

There are two primary categories of ACM. Friable ACM is any material containing more than one percent asbestos that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure (Appendix A, Subpart F, 40 CFR Part 763, Section 1, polarized light microscopy). Nonfriable ACM is any material that contains more than one percent asbestos, but does not meet the other criteria for friable ACM. Asbestos is considered a special waste if it is friable; however, if it is wetted and managed in accordance with NESHAP, it is a solid waste.

A basewide survey for ACM is required by the Federal Property Management Regulations (FPMR) disclosure law prior to base disposal. Professional Service Industries, Inc., completed a survey of all existing JOAAP facilities for asbestos in 1993. The survey report is based on the inspection of building construction, including pipes, walls and flooring. The survey identified 246,112 linear feet of asbestos insulation material on pipe of various dimensions, ranging from 1 to 18 inches in diameter, and 88,477 square feet of asbestos insulation material on various equipment items in approximately 815 buildings (ROCK01). Detailed information obtained in the survey, including locations within buildings and type of asbestos found, is maintained by JOAAP personnel in Building 74-3 (29401 South Route 53).

The personal property liquidation contract (DAAA08-96-C-0007, Section C) for JOAAP requires the liquidator to remove all friable type asbestos from the plant as identified in the base-wide asbestos survey. The liquidator will not perform asbestos removal in active buildings. The asbestos abatement is currently underway and will be completed, installation-wide, by August 1998.

Renovation or demolition of ACM-containing structures could release asbestos fibers into the air. ACM present at JOAAP is associated with pipe or boiler insulation, acoustical ceilings, asbestos cement board building materials, sprayed-on fireproofing material, and other

soundproofing or insulation. Asbestos was widely used in building construction prior to 1978. Virtually all JOAAP buildings were constructed between the early 1940s and 1978.

4.5 Storage Tanks

Storage tanks were used at JOAAP to store various raw materials, process intermediates, products, fuels and wastes. The USTs and aboveground storage tanks (ASTs) at JOAAP are constructed of steel, concrete, stainless steel and other materials. Most of the storage tanks at JOAAP were emptied and laid away as of 1993.

4.5.1 USTs

USTs are subject to federal regulations within RCRA, 40 CFR Part 289, Technical Standards and Corrective Action Requirement for Owners and Operator of USTs. These regulations were mandated by the Hazardous and Solid Waste Amendments of 1984. The State of Illinois leaking-UST program and the federal corrective action requirement is implemented by USEPA. Illinois state law and IEPA regulations are still in effect.

In 1989, the U.S. Army Corps of Engineers (USACE) completed an *Investigation and Evaluation of Underground Storage Tanks* at JOAAP. The study encompassed all known USTs, as defined in 40 CFR 280, and all heating oil tanks. Seventy tanks were identified through interviews with site personnel (ACOE02). Thirty-seven additional tanks have been identified since the USACE investigation (AEST01). Table 4-4 includes facility identification numbers; the tank location, size, and construction; substances stored; and removal date, as available. The 54 USTs on the Industrial Park parcels are shaded in Table 4-4. Specific information concerning tank condition at the time of removal and remedial actions taken is contained within tank removal reports. UST removal was conducted on an "as-funded" basis.

In cases where soils were impacted by spills or leaks associated with the tanks, affected soils were removed and disposed of in accordance with applicable regulations. Samples were

collected from the excavations to ensure that the remaining soils were below the appropriate criteria for tank excavation clean-ups. In most cases, the excavations were refilled using soils from an on-site borrow pit.

4.5.1.1 LAP Industrial Park

There were 11 USTs in the LAP Industrial Park parcel. Documentation confirms removal of all of these tanks except for tank 7-10-2 which is on an area currently being used by Alliant Techsystems (BEST01, BEST02, FIEL01, UCCI56). However, Alliant reported that no USTs are present in areas they currently operate (MEMO05).

4.5.1.2 MFG Industrial Park

There were 43 USTs on the MFG Industrial Park parcel (ACOE02, AEST01, ATEC03, ATEC08, ATEC10, BEST01, BEST02, BRAN01, MEMO22). No documentation was found on the removal of 11 of these tanks and another may have been closed in place.

M6/TNT DITCH COMPLEX: Acid blow case tanks are located at each of the ten batch TNT lines at the 803 buildings. The tanks are in concrete lined pits covered with a roof. The tanks are exposed in the pits (AEST01, FIEL01, UCCI04). These in-line process tanks remain on the site.

During the field visit, a partially buried tank was noted outside of 806-10 (FIEL01). This is believed to be a whisker oil tank and it is likely that there are similar tanks on each batch TNT line.

M16/MOTOR POOL AREA: Removal of tank 716-2-1 was not confirmed. The tank may have been closed in place (DOTA35, MEMO21).

M104: A UST may have served the generator adjacent to 401-2-1 but no vent or fill pipes were noted (FIEL01).

4.5.2 ASTs

A large number of ASTs previously used for process materials, fuel oil, gasoline, and wastes are present at JOAAP. An inventory of JOAAP ASTs compiled from historical documents is presented in Table 4-5. ASTs with any contents were visually inspected monthly by the Army until removed form service. Drains in dikes around the ASTs were kept closed, and whenever the dikes require drainage, the procedure was closely monitored to ensure that no product is released (ACOE01). Details concerning the layaway procedures for ASTs have not been identified. Some of the tanks may not be empty, and the residual materials may pose a hazard to human health or the environment.

More than 470 ASTs in various states of repair/disrepair are present on the Industrial Park parcels. Table 4-6 provides a summary of AST findings. The liquidator will remove all ASTs by August 1998.

4.5.2.1 LAP Industrial Park

Sampling beneath the two 150,000 gallon fuel oil tanks on the south side of L6 revealed petroleum hydrocarbon contamination (DAMO33). Additional information on the sampling is presented in Section 4.17 and Appendix D. The tanks were removed during the property liquidation and soils beneath the tanks are being addressed by the L6 non-time critical removal which will be completed in October 1997.

Each of the residences in L32 appeared to have a fuel oil AST with a capacity of approximately 250 gallons (FIEL01).

4.5.2.2 MFG Industrial Park

During the September and November 1996 survey reddish soil was observed underneath an AST at Building 806-10. Additionally, lack of vegetation around two of the tanks at Building 812-9 and a tank 50 yards west of Building 704-18 was observed. A former employee indicated that Tank 354-9 in Acid #4 still contains sulfur (FIEL01). Following AST removal as part of the site liquidation, soil beneath the tanks should be inspected for evidence of tank leakage.

4.6 Sumps, Dry Wells, Oil/Water Separators, and Septic Systems

Sumps, dry wells, oil/water separators, and septic systems can serve as traps for contaminants or can provide a conduit for environmental contamination. Sumps are present throughout the operational areas within the two Industrial Park parcels. Dry wells are used for disposal of waste liquids and rainwater. Oil/water separators are generally associated with shop areas and gasoline stations. Septic systems associated with latrines were found in many of the explosive storage areas. Some isolated buildings at the facility were also on septic systems as it was not economically feasible to provide sanitary sewer service. Additionally, it is likely that many of the existing farmsteads converted for military use were served by septic systems in the early years of the plant even if later connected to the sanitary sewer system. The Will County Health Department regulates septic systems.

Findings for sumps, dry wells, oil/water separators, and septic tanks on the Industrial Parks parcels are presented in Table 4-7. No information was found to indicate that any septic systems were used for disposal of industrial wastes.

4.6.1 LAP Industrial Park

A dry well is located in L115. This dry well may be associated with the guard shack and turn around at Gate 29. An oil-water separator and one to two cubic yards of contaminated soil in

the same vicinity were removed in September 1997. The separator is believed to have serviced a warehouse or shop in former Group 73. There are suspected dry wells receiving discharge from Building 6-3 and 6-5. There are two latrines in Group 6. One is located near the southwest corner of Building 6-10, and the other latrine is located to south of Building 6-32. Three sumps were observed in Group 6 during the PAS site survey. These sumps are located outside of Buildings 6-2, 6-4, and 6-32. There is also a sump at the south end of Building 7-4 (FIEL01). The sumps at Groups 6 and 7 have been sampled as part of the IR program refer to Appendix D for sampling results.

A service pit was located at Building 70-11 (round house) where some maintenance was performed on locomotives (WDEP04). The pit is being investigated concurrently with the L6 removal.

Alliant Techsystems has no knowledge of any septic systems or oil water separators in areas in which they operate (MEMO05).

Sumps in the LAP production groups were periodically cleaned out and residue was disposed of at the burning grounds. During peak production years, sumps occasionally overflowed and discharged directly into open drainages (ACOE01).

4.6.2 MFG Industrial Park

A French drain is located in the southern portion of the tetryl area, north of Blodgett Road. and another French drain is located on the east side of Building 1009-1-1. Settling boxes, sumps and possible dry wells were noted in M5. At several buildings, it appeared that condensate lines discharged to dry wells (FIEL01).

There are several dry wells or suspected dry wells in this parcel. Dry wells or suspected dry wells were observed at Buildings 704-5, 801-9, and 808-1 during the PAS site survey (FIEL01). Additional dry wells are located at Buildings 806-9, 808-2, 808-3, and 808-4

(UCCI04). Drains in fume hoods in TNT Laboratory 706-5 discharged to dry wells. A slightly elevated photoionization detector reading was obtained in one of the wells (FIEL01). It appears that many of the tanks in the TNT area and tanks at the AFR houses for both the TNT and tetryl areas had overfill or vent pipes that discharge to dry wells at the tanks.

Several sumps were observed in M7 and M13 during the PAS site visit. An oil-water separator was observed south of Building 716-3. Floor drains were noted within the building and an oil layer was seen within one of the drains (FIEL01). The sump behind the laundry (M17) has been studies as part of the IR program; refer to Appendix D.

Based on observations during the site survey, it is likely that sumps are present at each tetryl line. Several other sumps were observed in the Acid Manufacturing Area (M8), the TNT Ditch Complex (M6) and the Red Water Area (M7) during the site survey (FIEL01). Many of these sumps present a physical hazard because they are not covered or the covers have rotted.

An NPDES permit was issued for septic tanks located in Acid Area 3 (M8). It is unknown what types of waste were discharged to the sumps or where the sumps are located.

A 1959 Master Plan for JOAAP indicates that there were 55 septic tank serving isolated buildings on the MFG Area but locations were not given (ACOE06). A number of septic tanks were identified as part of the PAS associated with latrines or isolated buildings.

A UST removed from Building 716-3 contained waste oil and there was an oil/water separator located south of this building (FIEL01). Oil/water separators were also located at Buildings 883-1 and 883-2 (UCCI04).

4.7 Radon Gas

Radon gas is a colorless, odorless naturally occurring radioactive gas generated from the radioactive decay in the uranium/radium pathway. Radon gas emanating from oils, soil gas,

and groundwater can enter through cracks and other openings in building structures and become a component of breathable air within buildings. Exposure to radon is associated with an increased risk of lung cancer. USEPA suggests that remedial action be considered if the average annual radon level in the living area of a residence exceeds 4 pCi/L.

In spring of 1989, the Army conducted radon testing at 44 separate buildings at JOAAP. The radon canisters were left in place over approximately a one-year period. Twenty-eight of these samples were collected at building units in the Industrial Park parcel. These samples were collected at the former White Circle Housing area in L32. None of the samples from buildings showed radon concentrations above the USEPA level of 4.0 pCi/L. The former residences were apparently closed and unoccupied during the testing period (RADO02). Table 4-8 provides the radon sample results for the Industrial Park parcels.

4.8 PCBs

A general class of chemicals produced by chlorination of biphenyls, PCBs persist in the environment, accumulate in organisms, and concentrate in the food chain. They are used in electrical equipment, primarily in capacitors and transformers, because they are electrically nonconductive and stable at high temperatures. At JOAAP, oil filled electrical switches were used to eliminate electrical sparks in areas where there was a potential explosion hazard.

PCBs are regulated under TSCA, which banned the manufacture and distribution of PCBs with the exception of PCBs used in enclosed systems. By definition, "PCB equipment" contains 500 ppm PCBs or greater. "PCB-contaminated equipment" contains PCB concentrations of 50 ppm or greater, but less than 500 ppm (40 CFR 761.3).

TSCA (40 CFR 761.40) requires that all PCB transformers (transformers containing over 500 ppm PCBs) be clearly marked. By implication, a determination as to the PCB status of transformers is required. Those PCB transformers "in use" in a facility that is not totally enclosed must be inspected quarterly (40 CFR 761.30). Any PCB and PCB-contaminated

equipment that is out of service awaiting disposal can be stored for up to one year in a properly constructed PCB storage for disposal area (40 CFR 761.65). USEPA, under TSCA, regulates the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB equipment than for PCB-contaminated equipment. The disposal of transformers containing oil with over 50 ppm PCBs is regulated under TSCA (40 CFR 761.60). The liquidator will remove all inactive electrical equipment from JOAAP by August 1998.

USEPA has established criteria for PCB spill cleanups under TSCA (40 CFR 761.120). Cleanup levels of ten mg/kg PCBs have been established for soils of nonrestricted-access areas (provided the upper ten inches of soil contains less than one mg/kg PCBs) and 25 mg/kg PCBs for areas where access is restricted. The nonrestricted-access cleanup level of ten mg/kg was recommended for JOAAP in the *Preliminary Remediation Goals, Final Report* for the site. The report indicated that a preliminary remediation goal of one mg/kg was selected for all surface soils (upper ten inches of soil) (OHMC08).

A 1986 document indicates that all transformers at facilities used by Honeywell, Inc., (now Alliant Techsystems) were tested for PCBs. The survey determined that no PCB containing transformers remained in the Honeywell area (DOTA03).

In 1993, an extensive PCB survey was conducted at JOAAP by United Power. The survey included identifying, sampling, and analyzing equipment potentially containing PCB-contaminated fluids. Transformers, breaker boxes, and a variety of other machinery were included in the United Power survey. Some of the sampled units reflected PCB contamination (UCCI02). Personnel at JOAAP report that this PCB survey was on an "as funded" basis and may not be complete.

A 1994 ECAS indicated that a transformer oil leak at the North Power House had not been cleaned up. The leak contaminated approximately 600 square feet of soil (FAXX01). Field screening of soils at the North Power House during the September 1996 PAS site survey

indicated no PCB levels above one ppm in soil (FIEL01). Two soil samples were collected from a former 5000 kVA substation located in a fenced enclosure south of water tower 503-3-6 and west of Building 709. Field screening PCB results from the Former Substation transformer mounts indicate between 1.1-4.0 ppm while results for a sample collected in the north end of the fenced area were less than 0.5 ppm (FIEL01). No PCB concentrations above 1 ppm were found in three confirmatory samples collected the former substation in September 1997 (DAMO40). In the open storage yard (713-2-1) a sample was collected adjacent to a leaking electrical unit and results indicate 1.1-4.0 ppm PCBs. A sample was also collected at the west transformer bank at the South Power substation and results indicate PCB levels of less than 0.5 ppm (FIEL01). Laboratory analysis is necessary to confirm these results.

A lightning strike in 1995 at the North substation caused the seals on a transformer to leak. The transformer was located on the west side of the substation. Sampling in this area indicated PCB contamination outside of the spill area. Removal up to approximately one foot in depth was conducted on the west side of the substation. No sampling was conducted on the other sides of the building (MEMO05).

During November 1995, USEPA conducted a survey of oil filled switchgear boxes. The survey identified switches mainly in the TNT (M6), DNT (M6), and tetryl (M5) production areas. It is not known if or how often the fluid was changed nor is the disposition of those fluids known (EPAV14). Ecology Services, Inc removed a total of 1,119 exterior switchgear boxes from the MFG Area in August and September 1996. The interior switchgear boxes remain. The liquidator will remove all inactive boxes by August 1998. The majority of the boxes were located in the Industrial Park parcel. The boxes were believed to have contained PCBs based on the age of the facility and the type of function the switches served. Soils around the switchgear boxes were sampled and PCB contamination detected in soil was remediated (ECSI01). During the PAS field survey, additional switchgear boxes were identified inside of buildings in the LAP groups (FIEL01). Refer to Table 4-9 for the switchgear box locations.

The locations of pole and ground transformers were identified during the PAS field surveys. The locations and related information can be found on Table 4-9. The presence or absence of PCBs in these transformers was not determined as part of this PAS. The RIs and FSs identified several areas where soils are contaminated with PCBs. Refer to Appendix D for soil sampling information.

Due to the age of the rotating power generating equipment in the North and South Powerhouses, North and South Power Substations, Acid 4 Substation, and the LAP North and South Substations, PCBs may be present in transformer cooling fluid and dielectric oils, high voltage circuit breakers and capacitors (AEST01). No record of soil sampling has been found for the powerhouses or any of the substations except LAP south.

During the September and November 1996 PAS site survey, eight samples (soil and oil) were collected and analyzed for PCB concentrations using field screening methods. The oil samples were analyzed using Dexsil (Chlor-N-Oil) field screening kits while soil samples were analyzed using the EM Science (D-TECH) field screening kits (immunoassay). None of the oil samples results showed the presence of PCBs above 50 ppm (FIEL01, PSCO02). Field screening results are presented in Table 4-9.

4.9 Pesticide/Herbicide Use and Storage

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the registration and use of pesticides. Pesticide management activities are subject to federal regulations contained in 40 CFR 162, 165, 166, 170, and 171. Enacted in October 1972, the Federal Environmental Pesticide Control Act regulates the manufacture and sales of pesticides. Soils contaminated by the storage, mixing, or handling (but not application) of pesticides/herbicides are a special waste and may be a RCRA hazardous waste due to the characteristic of toxicity.

JOAAP is in a high-yielding agricultural area. Prior to 1973, only nonsurplus crops were grown, including popcorn and hay. Corn, wheat, and soybeans were grown between 1973 and

1978 (ARMY01). In 1995, there were 103 tracts totaling 17,066.5 acres in the agriculture outlease program. Prior to the 1990s, no records of pesticide use by lessees were maintained. Lessees have always been required to comply with applicable regulations concerning pesticides. Since at least 1980, lessees have been required to dispose of excess pesticides and empty containers off-site in compliance with applicable regulations. Lessees typically perform sprayer maintenance and calibration off-site (MEMO04).

Alliant Techsystems is currently operating portions of the LAP Area under contract. Pesticide use by Alliant is very limited; it is restricted to pesticides specified in that contract (MEMO05).

A 1966 document indicates that spraying of herbicides (Nalco H-174K) was conducted annually along railroad tracks. The herbicide contains eight percent 3-(3,4-dichlorophenyl)-1-1-dimethylurea, 87 percent sodium tetraborate, and five percent inerts (UCCI15).

Prior to 1972, dieldrin, aldrin, DDT, and other chlorinated hydrocarbons were used on the crops. Malathion was used for mosquito control, while Nalco and atrotol herbicides were used along railroad right-of-ways. Brulin was used in 1962 as a soil sterilant along the installation fences. Spraying of this herbicide resulted in arsenic poisoning and the death of 21 cattle over a 14 month period. Two agricultural tracts in the LAP area, tract 2 near Doyle Lake and tract 23 on the west boundary, were contaminated. Doyle Lake drains into Jordan Creek and the western boundary of the LAP area drains into Prairie Creek (ARMY01).

Pesticides were mixed, stored, or dispersed at five locations on-site (L6, M8, M16, M18, and M103); four of which are on the MFG Industrial Park parcel. Herbicides and pesticides were stored in a Quonset hut (703-3) on high ground near the MFG Area administration building (M18) and in smaller quantities in Buildings 704-19 and 714-1 (DAMO12, ARMY01, ACOE04, SOPP08). No evidence of spills was found in or around the building (DAMO12). The building was reported to be clean and dry with a concrete floor (ACOE01). In 1993, the remaining herbicides were either consumed or those that were not consumed were sent to off-

site facilities for their use (MEMO09). Stored pesticides were not found at JOAAP during the September and November, 1996 survey of the Industrial Park parcels. However, a trashcan about 3/4 full of a white powder was observed in an office at the former herbicide building (FIEL01).

An undated standard operating procedure indicates that pesticides and insecticides were kept in a storage area in TS-1230 (M103) or "other designated area." The material was poured into tanks outside the building. Following use, the machine was to be returned to the wash rack (location unspecified). Operating equipment that was in contact with herbicides was flushed with water and equipment in contact with insecticides was flushed with ammonia (USOP52). It should be noted that Building TS1230 was served by a septic tank which was located at the center of the south side of the building (MAPS02, MAPS12).

By 1978, only herbicides were used at JOAAP (ARMY01). Mixing was conducted to the rear of Building 704-19 which is located within an IRP Study area (M16) (FIEL01, MEMO04, ARMY01). Herbicides were used only along railroad right of ways and dispersed with a 5-ton lowboy sprayer in 1978. A certified-pesticide-agent license was issued to the Road and Grounds supervisor in 1973 whom, as of 1978, was still overseeing the post pesticide programs (ARMY01).

The following pesticides were in use at JOAAP between 1978 and the mid-1980s (ARMY01, SOPP08):

Atrex (atrazine)
Banavel
Chlordane
Chlorpyrifos
Counter
Cyanazine
Diazinon
Hyvar-XL
Lasso (alachlor)
Malathion
Primitol
Princep 4G (simazine)
Ramrod (propachlor)
Silvex
Slo Gro (maleic hydrazide)
Sutan (butylate)
Treflan (trifluralin)
2,4D-amine
2,4,5-T

When nonstandard herbicides were required, annual written approval was required. Empty herbicide containers were disposed of in the sanitary landfill (M13) as of 1978 (ARMY01).

No information was found relating to fertilizer usage prior to 1978. Fertilizer usage in 1978 consisted of nitrogen, potassium and phosphates. Recommendations for fertilizer usage was directed by the Land Management Office based on soil tests and crop needs (ARMY01).

4.10 Lead Based Paint

Lead was originally added to paint to increase the paint's durability and its ability to withstand the elements (DOTA05). Lead can cause permanent damage to the brain and many other organs, and causes reduced intelligence and behavioral problems. It can also cause abnormal fetal development in pregnant women. The Consumer Product Safety Commission banned the use of lead-based paint in residential applications in 1978.

To protect the public from exposure to lead from paint, dust, and soil, the Congress passed the Residential Lead Based Paint Hazard Reduction Act of 1992, also known as Title X. Section 1018 of the law directed the Department of Housing and Urban Development and USEPA to require disclosure of known information on lead-based paint an lead-based paint hazards before the sale or lease of most housing built before 1978.

The Act requires that buyers of residential property (excepting efficiencies, elderly housing, housing for the handicapped, and short-term lessees) be informed that buildings built prior to 1978 may contain lead-based paint. Notice requirements are specified in the Act. Testing is not required, nor is there a notification requirement for nonresidential properties. No buildings on the Industrial Park parcels have been identified as possible future residences.

Lead-based paint and contaminated soils or debris containing lead-based paint from nonresidential structures are a special waste and may be a may be a RCRA hazardous waste

due to the characteristic of toxicity. The Illinois Bureau of Air has requirements governing the removal of lead-based paint.

Most facilities/buildings constructed prior to the Department of Defense ban on the use of lead-based paint in 1978 are likely to contain one or more coats of such paint. In addition, some facilities constructed immediately following the ban may also contain lead-based paint, because inventories of such paints that were in the supply network were likely to have been used up on these facilities.

Virtually all structures (e.g., buildings, tanks) at JOAAP were constructed prior to 1978 (JAAP10). All painted surfaces on structures built prior to 1979 should be assumed to be painted with lead-based paint unless analytical testing indicates otherwise. Exterior surfaces that were painted with lead-based paint may have caused some localized soil contamination due to deterioration of the paint (i.e., leaching, chalking, or flaking). The levels of lead in soil from paint deterioration are generally highest along the dripline.

Lead PRGs for JOAAP were developed for recreational and industrial scenarios. A PRG of 1,000 ppm was developed for site soils (OHMC08).

Metal structures such as water towers or tanks were sandblasted and painted regularly (MEMO09). Sandblasting of structures generates fine particles of paint. Metal surfaces were often painted with paints containing heavy metals such as lead for corrosion protection. The sandblasting of an elevated structure could spread the chips generated over a fairly wide area, but the greatest concentration of chips would be expected immediately beneath the structure.

Observations were made during the PAS field surveys regarding the presence and condition of paint on various surfaces inspected. The condition of painted surfaces ranged from good to poor (FIEL01).

4.11 Explosive Ordnance/Residues

JOAAP produced, packaged, assembled and loaded explosive constituents. The explosive contamination status of buildings and equipment at JOAAP has been determined in accordance with IOC PAM 385-5 and marked for level of contamination by signs with black letters on a yellow field. The buildings and equipment are classified as having either a 0, 1X, 3X, or 5X level of contamination.

Buildings and equipment with a 0 level of contamination were never contaminated with explosives; do not pose an explosive safety hazard; and may be welded, drilled, sawed, and sold to the public.

A 5X (XXXXX) level of contamination indicates that of contaminant(s) are not present in quantities sufficient to pose an explosive safety hazard. A 5X article may be welded, drilled, sawed, and sold to the public.

A 3X (XXX) level of contamination indicates that surface contamination has been removed, but amounts sufficient to pose an explosive safety hazard may still be present in less obvious places. Although 3X articles may be safe for their intended purpose, they should not be subjected to processes that may generate enough heat to ignite residual contamination. A building or piece of equipment with 3X contamination is considered safe for routine maintenance and careful disassembly, but it may not be sold to the general public.

A 1X (X) level of contamination generally applies to articles, equipment, and buildings subjected to routine, after-use cleaning. Substantial explosive contamination may exist, and maintenance should be limited to minor adjustments.

Each time production was ceased, it was assumed that the equipment and buildings would be needed at some time in the future and should be preserved. Since the equipment and buildings were being retained for their original purpose, the simplest and most economical

course of action was to classify all items 3X even if that item was not contaminated by explosives.

Army regulation 385-64 states:

> DOD [Department of Defense] real property that is known to be contaminated with ammunition and explosives that may endanger the general public may not be released from DOD custody until the most stringent efforts have been made to ensure appropriate protection of the public. Some contamination is, however, so extensive that removal of the hazard is beyond the scope of existing technology and resources. Such properties shall be retained until rendered innocuous.

In compliance with Army Regulations, explosive classifications for many of the buildings at JOAAP were assigned by Uniroyal and were obtained from work plans for plant demolition (UCCI04). In 1996 as part of the personal property liquidation at JOAAP, equipment and buildings were classified for level of explosive contamination (DOTA32). The purpose of the classifications was to determine which buildings were safe to enter for equipment evaluation. Although both the liquidation contractor and Uniroyal utilized the same codes, the same criteria were not utilized for the evaluation and therefore the codes are not interchangeable. A building classified 3X or 0 by the liquidation contractor may still have significant contamination present in inaccessible areas. The explosive classifications assigned by the liquidation contractor have not been adopted by the Army and are not considered official.

Explosives have been detected in soil, groundwater, surface water and sediment in the Industrial Park parcels. Results of environmental sampling are summarized in Appendix D.

Media contaminated with explosives residues are a special waste and may be a RCRA hazardous waste due the to ignitability, reactivity, or toxicity. There is the possibility that the contaminated media could achieve the PRGs and still be a RCRA hazardous waste. For example, materials from backstops at the firing ranges would be a special waste if disposed and could be a RCRA hazardous waste due to the presence of lead.

Another possible source of explosive contamination is broken or abandoned waste lines. Throughout the years, waste products (i.e., red water) were discharged to open ditches via lagoons, sumps or underground waste lines. Old plant drawings indicate that broken or leaking underground waste lines were generally replaced with new lines that ran parallel to the old lines. The old lines were abandoned in place (ACOE01).

UXO or other explosive items such as fuses or primers may be present several areas. These areas include the burning grounds (L2, L3, and M2-none of which lie in an Industrial Park parcel), the test range (L11), the AT-4 test range (L33, not on an Industrial Park parcel) and Group 8 (L18, not on an Industrial Park parcel) (DAMO09, FIEL01, MEMO05). Testing also appears to have been conducted in L21 (not on an Industrial Park parcel) and L16 (FIEL01).

Findings relating to UXO and explosives on the land included in the Industrial Park parcels is presented in Table 4-10. There were numerous findings relating to explosives on the Industrial Park parcels. A selection of these findings is presented below.

4.11.1 LAP Industrial Park

L11/TEST RANGE. Reportedly, both 40-mm munitions and the M43 loads for the M444 improved conventional munition were tested on the range (MEMO22). In 1968, the test range (L11) was used to test M406 and XM576E1 (USOP80). Lead pellets and parts of sabot 40-mm rounds were observed within Building 1-49 at the backstop (L11) during the PAS site survey. A backstop constructed of railroad ties is located outside the west end of Building 1-49 and lead pellets were seen in the wall. A backstop constructed of railroad ties and chicken wire is located at the west side of the section. Parts of the M406 fuse and fragments were found embedded in the railroad ties (FIEL01).

L16/GROUP 6. Southeast of Building 6-51C there is a spiral shaped structure constructed of railroad ties. Inside the structure there is a heavy steel box which contains rusted metal components, additional metal fragments are on the ground inside the structure. The purpose

of this structure is unknown, but it is suspected that destructive testing of components occurred here (FIEL01). Additionally, Hoffman Vacuum Sweeping System Secondary Separators were observed at Buildings 6-36 and 6-37. At other locations within the LAP area, explosive contamination was noted adjacent to similar separators (FIEL01).

L17/GROUP 7. On March 13, 1942 a tetryl pellet detonated in a pelleting machine and blew the top part of the machine through the roof of the pelleting bay (HIST51). The level of explosives contamination, if any, due to the explosion is unknown and no information concerning the cleanup of the area was found.

4.11.2 MFG Industrial Park

M5/TETRYL AREA. Buildings in this area were used for production of tetryl. Refer to Section 2 and Appendix for detailed information on production in this area.

M6/TNT DITCH COMPLEX. Buildings in this area were used for production of TNT, DNT, NS, and nitrobenzene compounds. Refer to Section 2 and Appendix for detailed information on production in this area. At times, the nitration process would proceed in an uncontrolled fashion and was controlled by "drowning" the batch in an excess of water. Drowning occurred in wooden tubs in the ground adjacent to the nitration buildings. Documented drownings are discussed in Section 4.22.

Fume lines at TNT lines 16, 17, and 18 Nitration and Purification Buildings (872-4, 872-5, 872-6) and from these buildings to the settling tanks were filled with explosive laden spent acid. The fume lines between Buildings 883-1 and 872-1 may be contaminated with tetranitromethane (ROCK01).

In 1943, Building 802-1 was completely demolished by a fire and explosion. The contents of both nitrators in the buildings were drowned. The bi-oil remaining in the scale tank detonated several minutes after the initial flash (HIST39). A fire and explosion occurred in August 1942

at Building 803-1. A mono-oil gas vapor flash occurred on the first nitration run, enveloping the interior of the building in flames (HIST40). The level of explosives contamination, if any, around both of these buildings due to the explosion is unknown and the no information concerning the cleanup of the area was found.

4.12 Biomedical/Biohazardous/Chemical Warfare Materials and Wastes

Biological and chemical agents were never developed, tested, manufactured or stored at JOAAP (ARMY01). Two hospitals previously existed at JOAAP and are located in the Industrial Park parcel. The hospitals were located in Buildings 60-8 (L32) and 705 (M104) (JAAP10, SPED01). In addition, each of the major groups had a first aid station (MAPS06, MAPS11, JAAP10). Due to the period of time that the base has been closed it is unlikely that biohazardous materials remain at any of the former medical facilities.

A 1978 SOP for surveillance inspection of industrial stocks in storage states that "All lots of industrial stock (conventional and chemical ammunition (non-toxic), ... will be inspected to determine current degree of serviceability" (UCCI04). This implies that nonlethal chemical materials such as riot control agents were kept in storage at JOAAP. It is not known where this material would have been stored.

4.13 Radioactive Materials/Wastes

Several facilities at JOAAP had permits from the Nuclear Regulatory Commission (NRC) for radioactive sources. Isotopic materials were used in analysis of artillery shells or in tracer components.

4.13.1 LAP Industrial Park

The hospital in Group 60 (L32) had X-ray facilities. No information was found to indicate that any other radioactive materials were handled the LAP Industrial Park parcel. Ordnance

X-ray operations occurred in, and munitions with depleted uranium projectiles were assembled in the USDA portion of L15.

4.13.2 MFG Industrial Park

In the past, radiological sources such cesium-137 was used at the Acid 4 Direct Strong Nitric (DSN) Building in instrumentation (JAAP46). In 1974, medical x-ray operations were performed at Building 705 which was used as a hospital. Level gauge radiation equipment was located at Building 713-2 (UCCJ03). All sources have been removed from JOAAP.

In the first half of 1955, the Atomic Energy Commission reconverted an existing building at the Kankakee Unit (MFG area) for use. In addition to reconversion of the building, a guard headquarters was erected and a security fence and appurtenance were installed to provide maximum protection. The entire job was handled as an emergency (HIST49). It is not known where this building was located.

Argonne National Laboratory leased one Building (713 in M8) within the Industrial Park parcel for equipment and machinery storage sometime prior to 1959 under permits issued to the Atomic Energy Commission (HIST24, HIST25). Atomic bomb components were reportedly stored in these buildings (FIEL01). In August 1996, USEPA surveyed Buildings 713 and 814 (M105, not in the Industrial Park parcel) for the presence of radioactive materials. No widespread contamination was encountered in either building. Where elevated radiation levels were detected, they were localized and could likely be explained as naturally occurring radioactive materials (EPAV20).

4.14 Laboratory Operations

Many laboratories were operational at the plant during production years. Several laboratories operated at JOAAP to support manufacturing and environmental monitoring operations.

4.14.1 LAP Industrial Park

There were no laboratories identified in the LAP Industrial Park parcel.

4.14.2 MFG Industrial Park

An air pollution laboratory, once located near the administration area was closed prior to 1978 and its operations were combined with those of the standards laboratory in Building 704-7 (M8). By 1978, all laboratory operations were conducted in the Standards Laboratory (M8, Building 704-7). The Standards Laboratory prepared chemicals used in other JOAAP laboratories during operations, performed influent and effluent water analysis for the STP and tested plant emissions (ARMY01, UCCI04). Lab chemicals were observed in 704-7 including several large broken thermometers indicating possible mercury contamination (FIEL01).

A 1949 document about the MFG area identifies 22 laboratories, 17 of these laboratories are located in the Industrial Parks parcel (KOWS01).. There were six laboratories in the TNT area used for production control and acceptance testing of TNT, DNT and tetryl end products. One TNT laboratory, Building 706-3, was used periodically to test DNT and tetryl products. There were also four laboratories in the tetryl area, and three in the Acid Area. These laboratories were operational through the early 1970s. Wilson Chemical Company operated a laboratory at the oleum plant in Acid Area 3 from 1958 through 1974. Explosives from all the laboratories were destroyed at the burning ground, and liquid wastes were sent to the STP. Some material was reportedly washed into the drainage ditches (ARMY01, KOWS01).

4.15 Wastewater Treatment and Discharge

Discharges to the Waters of the United States are required to comply with 40 CFR 122, and discharges of treated effluent to waters of the State of Illinois must meet the requirements of 35 IAC 309.

Section 2.3.1 provides a general summary of wastewater activities at JOAAP. The NPDES permit for JOAAP was issued on September 22, 1993 (IL0002666). That permit covers 17 discharges to various receiving waters. One is the treatment discharge water from the sanitary wastewater treatment plant Group 20 (L20) and the other 16 are stormwater discharges from the facility (DOTA04). The Group 20 plant is currently the only operating wastewater treatment plant for JOAAP (FIEL01). Around February 1995 a liquid chlorination system replaced the chlorine gas system at this facility. Ultraviolet light treatment is planned to reduce chlorine concentrations in the plant effluent (JAAP16). Effluent from the secondary settling tanks is discharged directly into Prairie Creek. Sludge is collected from this tank and removed off-site by a contractor (FIEL01). This sludge had previously been disposed at the former sanitary landfill at L21 (ACOE01). Additional information concerning the LAP STP is presented in Appendix D. The LAP STP is not within the Industrial Park parcel.

Over the years, waste products were discharged to open ditches via lagoons, sumps, or underground waste lines. Old plant drawings indicate that broken or leaking underground wastewater lines were generally replaced with new lines that ran parallel to the old. The old lines were abandoned in place (ACOE01).

4.16 Surface Water Resources

A general discussion involving surface water resources and discharges to surface water at JOAAP is included in Section 2.5.3 and additional information is presented in Sections 2.3.1, 2.3.2 and 2.3.3. Water and sediment sampling has been conducted in various streams and lakes at JOAAP to determine if site-related contaminants are present. Sampling results specific to IRP sites are discussed in Appendix D. Drainage basins are depicted in Figure 2-3.

The northern portion of the MFG Industrial Park lies within the Jackson Creek drainage basin while the remainder of the Industrial Park lies within the Grant Creek drainage basin. The LAP Industrial Park lies entirely within the Spoil Bank Creek drainage basin except for a small area near L11 that lies within the Jordan Creek drainage basin. Drainage basins are depicted in Figure 2-3.

Shallow groundwater discharges to surface water at JOAAP and may impact surface water and sediment quality. For example, the groundwater FS for the LAP Area indicates that groundwater present in the overburden and within the bedrock at site L1 is discharging to Prairie Creek. Given the groundwater flow velocity at L2, it is probable that the groundwater contaminant plume extends to Prairie Creek, although explosives were not detected in soil or sediment samples from Prairie Creek or Kemery Lake. At L3, a plume of groundwater contamination is present and shallow groundwater discharges to Prairie Creek. At L14, contaminated groundwater appears to be seeping into the storm sewer, which discharges to a nearby drainage ditch (DAMO22). It has not been determined what impact groundwater discharge to surface water will have on sediment and surface water quality in the future.

The following site-related contaminants of potential concern have been identified in the LAP Area in Prairie Creek and Kemery Lake, which is considered part of the Prairie Creek system:

> Surface water: 1,3,5-trinitrobenzene, RDX, bromodichloromethane, chloroform, nitrate/nitrite, phosphate and aluminum, arsenic, barium, beryllium, copper, iron, lead, magnesium, nickel, vanadium, and zinc.
>
> Sediments: fluoranthene, phenanthrene, pyrene, DDE, DDT, dieldrin, heptachlor, TPHs, water-soluble sulfate, total phosphate, aluminum, arsenic, copper, lead, and silver (DAMO12, DAMO13).

No site-related contaminants appear to be migrating from the LAP Area or the MFG Area via Prairie Creek, although some may have in the past. No contamination was detected in Prairie Creek in the MFG Area (DAMO12).

The following site-related contaminants of potential concern have been identified for Jordan Creek and Doyle Lake:

> Surface water: 2,4,6-TNT, HMX, RDX, water soluble sulfate, iron lead, manganese, and silver.

Sediments: 2,4,6-TNT, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, 2-chloronaphthalene, naphthalene, water-soluble sulfate, lead, silver, and zinc (DAMO13).

The presence of contaminants in Grant Creek appears to be episodic and localized within specific study areas. Identified contaminants of concern in Grant Creek and tributaries are:

Surface water: 2,4,6-TNT, 2,4-dinitrotoluene and 2,6-dinitrotoluene.

Sediment: Fluoranthene, lead and mercury (DAMO26).

The presence of contaminants in Jackson Creek appears to be episodic and localized within specific study areas. Identified contaminants of concern in Jackson Creek are:

Surface water: 1,3-dinitrobenzene, arsenic and sulfate.

Sediment: 2,6-dinitrotoluene, sulfate and lead (DAMO26).

No site-related compounds appear to be present in surface water or sediment in Jackson Creek downstream from the MFG Area (DAMO12).

The baseline risk assessment evaluated the potential risks to fishermen and resident children of contact with water in Jordan, Prairie, Jackson and Grant Creeks, and Kemery Lake. The carcinogenic risks to future fishermen and resident exceeded the 1×10^{-6} criterion for Grant Creek and Kemery Lake. The assessment determined that consumption of fish from Jackson and Grant Creeks and Kemery Lake could potentially result in an unacceptable cancer risk and indicated that fish tissue samples should be collected. The assessment also determined that noncarcinogenic risks for consumers of fish from Prairie Creek and Kemery Lake could potentially result in adverse health impacts (DAMO26).

Fish tissue samples were collected and analyzed for heavy metals, PCBs, pesticides and explosives. Sampling detected barium, copper, iron and zinc in fish tissue from Grant Creek

in the MFG Area; iron and zinc in fish tissue from Prairie Creek in the MFG Area; barium, iron and zinc in fish tissue from Prairie Creek in the LAP Area; and iron and zinc in fish tissue from Doyle Lake. Neither PCBs nor explosives were detected in any of the fish tissue samples. DDE was detected, but at levels well below the Food and Drug Administrations action level. The tissue analysis indicated "no human health risk . . . from ingesting fish" (AEHA10). No compounds that would contribute the majority of risks if bioaccumulated by fish as hypothesized, were detected in the fish tissue samples.

The aquatic evaluation conducted during the ecological assessment determined that stream health and quality (based on benthic macroinvertebrate analysis) improves as Jackson, Prairie and Grant Creeks flow across JOAAP. The evaluation further concluded that the health of Jordan Creek is unaffected by JOAAP. Spoil Bank Creek quality is moderately low immediately off-post and moderate about one mile off-post (AEHA10).

If sediments contaminated with hazardous substances are excavated, it should be noted that, it should be noted that soils, sediments, or other media contaminated with hazardous substances or PCBs are considered special wastes pursuant to 35 IAC 808 and 809 and possibly even an RCRA hazardous waste due to the characteristic of toxicity. Contaminants could conceivably meet the PRGs and still exhibit characteristics of a hazardous waste. When transported on public highways, special wastes must be manifested, and the truck must be a licensed special waste-hauling vehicle.

4.17 Soils

A major concern at many of the IR sites is the presence of soil contamination. A discussion of the soil types at JOAAP is presented in Section 2.5.5 and discussions of contaminants of concern in soil at the individual IR sites are presented in Appendix D. Windborne dust, surface water runoff, or groundwater migration from the IR sites could result in secondary soil contamination. The possibility of secondary soil contamination will be reduced or eliminated once remedial measures are complete.

Abandoned wastewater lines present a potential continuing source of soil contamination as do prior leakage from leaking or broken lines. When underground waste lines (industrial, sanitary, and storm sewers) broke or started leaking, new lines were installed. Generally, the old lines were abandoned in place (ARMY01, ACOE01). Television surveys of the sanitary sewer lines in 1967 revealed leaking sewer lines connected to each of the STPs (AEHA09).

Another possible source of soil contamination is sediment excavated from ditches. Wastewater and potentially contaminated stormwater runoff was discharged to ditches throughout the facility. Periodically, sediment deposited in the ditches was removed to improve flow. The removed sediment was reportedly spread on the ground adjacent to the ditches (FIEL01).

4.17.1 LAP Industrial Park

In L6, soil samples have been collected within the spill control berms of each of the bunker fuel storage tanks on the south side of the group. TPH was detected in all of the samples and ranged from 54.9 to 199,000 mg/kg. TPH contamination appears to extend below 5.5 feet bgs (DAMO33). Remediation of soil and sediment contamination in L6 will be completed in October 1997.

In L11, arsenic, cadmium, copper, and zinc are considered potential site-related contaminants in shallow soils at the target area, which covers approximately 2.5 acres (DAMO33).

No soil samples have been collected on the portions of L14 and L15 slated for transfer to the state for use as an Industrial Park (DAMO11, DAMO33).

During the November 1996 site visit, it was noted that the ditches north and west of Group 6 (L16) were being scraped apparently to improve flow. The excavated soil was deposited on the ground adjacent to the ditch. Some red and yellow toned materials were noted in the

excavated soil. Soil containing some debris such as concrete, pipes and asphalt was being brought into the group and deposited immediately north of Building 6-10 (FIEL01).

RDX and HMX occur in soil at L16, primarily in a drainage ditch north of Building 6-32, at the outfall of the sump. Other areas of explosives contamination occur around the sump at Buildings 6-32, at entrances/exits to Building 6-2, and along the tile flume extending west from the sump at Building 6-4. Antimony, iron, sodium, and thallium were elevated in one four foot bgs sample from the area of disturbed soil near Building 6-2. These areas-primarily the Building 6-4 sump-appear to be the sources of site-related contaminants detected in surface water in the drainage ditch west of the site (DAMO33).

In L17, soil at the sump and flume near Building 7-4 is contaminated with low concentrations of explosives (RDX and tetryl). Approximately 85 cubic yards of soil is contaminated with explosives at the sump and associated terra cotta flume. Soil/sediment is contaminated with PCBs in the east end of the ditch, which receives drainage from Building 7-6. Additionally, mercury may be a site-related soil contaminant in shallow soil in the vicinity of the sump by Building 7-4 (DAMO33).

The only soils in L32 that have been sampled are at a former debris pile located in the northeast portion of the site. The potential site related contaminants at the debris pile include lead (up to 72.1 μg/g), zinc (up to 154 μg/g), and petroleum hydrocarbons (up to 539 μg/g at the surface and 163 μg/g at 2.5 feet bgs) which are all present at levels below PRGs. The Phase 2 RI concluded that the extent of contamination is limited to the debris pile (DAMO13). The FS concluded that the extent of contamination is limited to the debris pile and TPH contamination is limited to the north part of the pile (DAMO33).

In L115 at the location of the former construction headquarters (Group 73), a 30 square foot unvegetated area covered with crushed coal was noted during the PAS site reconaissance. The location is near the former group boiler house. The black material was field screened for PCBs. The test indicated less than 0.5 ppm (FIEL01, SPED01).

Summarized below are the contaminants found in IRP site soils in the LAP Industrial Park parcel. The estimated volume of soil requiring remediation is also shown (DAMO34, DAMO35).

Site	Contaminated Area	Contaminant	Volume Estimation (cubic yards)
L6	Soil beneath 150,000 gallon fuel oil tanks	TPH	Removal completed, October 1997
L11	Target Area soils	Metals	445
L14	Soils near concrete sumps north of Building 4-5	Explosives	265
	Group 4 soil piles	Explosives	145
L16	Building 6-32, 6-2 soils	Explosives	85
L17	Soils at Building 7-5 drainage ditch	PCBs	1,399

The following areas that were identified as having concentrations below the established PRGs have been proposed for no further action (DAMO37):

- L14, Group 4 soils south of building 4-5 and the sediment in the ditch south of Group 4 and south and west of Group 5;
- L16, Group 6 soils beneath the flume for Building 6-4 and soil in the ditch at the outfall of Building 6-2 sump;
- L17, Group 7 soil adjacent to the sump near Building 7-4;
- L32, Group 60 soil beneath a debris pile in the northern portion of the site

4.17.2 MFG Industrial Park

The Phase 2 RI for M5 concluded that soils in the east-west ditch were contaminated with explosives, sulfate, and metals to a depth of at least five feet. The following compounds were found in the ditch: 1,3,5-trinitrobenzene, 1,3-dinitrobenzene, 2,4,6-TNT, 2,4-DNT, 2,6-DNT, 2-nitrotoluene, tetryl, nitrobenzene, sulfate, calcium, lead, magnesium, mercury, and sodium. The highest concentrations of contaminants in the ditch are in the east portion. Contamination

along Tetryl line 5 was interpreted to be limited to areas around the production buildings where wastewater and/or washwater was discharged to sumps and drainage ditches. Detected contaminants were similar to those detected in the ditch. Since all production lines operated in a similar fashion, it is likely that areas of contaminated soil are similar from line to line (DAMO12). During the PAS site reconnaissance, numerous possible dry wells were noted throughout the area (FIEL01). The potential exists for soil contamination associated with the possible dry wells.

In M6, explosives have been detected in soils in low-lying areas west of the TNT Ditch. Along Batch TNT line 7, explosive contamination appears to be localized to the immediate vicinity of the buildings. Detected soil contaminants in M6 include: 1,3,5-trinitrobenzene, 2,4,6-TNT, 2,4-DNT, 2,6-DNT, 2-nitrotoluene, tetryl, nitrobenzene, sulfate, phosphorus, lead, mercury, and silver (DAMO12). Bulk TNT and red stained soils are present in many parts of the TNT area (DAMO12, FIEL01). During the PAS site reconnaissance, numerous possible dry wells were noted throughout the area (FIEL01). The potential exists for soil contamination associated with the possible dry wells. Drawings also show dry wells associated with tanks at the DNT buildings.

Three general areas of soil contamination have been identified in the Red Water Area (M7). These areas are the Former Red Water Lagoon, open storage tank area, and the TNT Ditch. The highest concentrations of explosives are in the open storage tank area. In some areas of M7, contaminated soils extend to the bedrock which is as shallow as five feet bgs. The following site-related contaminants have been identified in soils at M7: 2,4,6-TNT, 2,4-DNT, 2,6-DNT, 2-nitrotoluene, 1,3,5-trinitrobenzene, 1,3-DNB, HMX, RDX, nitrobenzene, sulfate, phosphorus, lead, mercury, selenium, silver, and sodium (DAMO12).

The RI for M8 concluded that contamination in the area is not widespread. Soils in Acid 2 had elevated levels of sulfate, nitrate/nitrite, lead and mercury, and soils in the Acid Storage area and Acid 3 had elevated levels of lead and mercury. Based upon the analytical data gathered during the Phase 2 RI and previous investigations at the Acid Manufacturing Area,

the site-related contaminants identified at the various media sampled include: sulfate, nitrate/nitrite, lead, and mercury (DAMO12). Numerous spills occurred in the Acid Areas and the contamination associated with these spills is unlikely to be fully delineated. Refer to Section 4.22 for information on spills.

In the Northern Ash Pile (M9), only sulfate and sodium were identified in the RI as site related soil contaminants. In the Toluene Tank Farms (M10), no site-related soil contaminants were identified. The RI indicates that no soil samples have been collected from M13, M16, M17, or M18 (DAMO12).

Extensive staining was noted in the electrical substation at the north power house. Field analysis for PCBs did not reveal widespread contamination. A former substation was identified and field screening indicated some PCB contamination in M104 south of Hof Road (FIEL01).

Summarized below are the contaminants found in IRP site soils in the MFG Industrial Park parcel. The estimated volume of soil requiring remediation is also shown (OHMC13).

Site	Contaminated Area	Contaminant	Volume Estimation (cubic yards)
M5	Nitrating ditch soils, Tetryl Production Lines 1-6 and 7-12 soils, packing and shipping houses soils	Explosives Metals	16,000
M6	TNT Ditch Complex soils	Explosives/PAHs Explosives/Metals	104,000 14,000
M7	Red Water Treatment Plant Area	Explosives	6,100
M8	Soils from Oleum Plant and Northern Acid Area runoff	Sulfur	Not applicable
M9	Northern Ash Pile, partially treated explosives sludges	Red Water Ash	124,000

4.18 Groundwater

Groundwater and geological features at JOAAP are discussed in Section 2.5 of this report. In summary, only the glacial drift aquifer and the shallow Silurian dolomite aquifers are at or near the ground surface at the plant. A deep aquifer, the Cambrian-Ordovician, is utilized at JOAAP.

The Illinois Groundwater Protection Act (Illinois Public Act 85-863) was created to protect the chemical quality of the state's groundwater. This act empowers the IEPA to set quality standards for groundwater within the state. Illinois Groundwater Quality Standards, IAC 35, Subpart D, regulate various aspects of groundwater quality. Included are criteria for groundwater classification, nondegradation provisions, standards for groundwater quality, and various procedures and protocols for the management and protection of groundwater. In accordance with Subpart B of the standards, groundwaters of the State of Illinois are designated as any of four classes of groundwaters or groundwater management zones.

Class I: Potable Resource Groundwater
Class II: General Resource Groundwater
Class III: Special Resource Groundwater
Class IV: Other Groundwater

The classification allows for determination of the appropriate level of protection and thus the appropriate groundwater quality standards. Typically, aquifers are assumed to be Class I, and any change involves a process of reclassification.

The glacial till aquifer is not utilized at JOAAP. A survey of 214 residential wells conducted by the Army as part of the Phase 2 RI indicated that this aquifer is not used in the surrounding area. Elevated concentrations of naturally occurring antimony, calcium, iron, magnesium, manganese, water-soluble nitrate/nitrite, sulfates, and sodium were found in the glacial till groundwater. This renders the water undesirable for domestic use, and in many cases, agricultural or industrial uses. All JOAAP-related groundwater contamination is found in the glacial till and portions of the Silurian dolomite aquifer. The contamination is in most cases

localized. In addition, the low yield (one gal/m) associated with the glacial till aquifer makes it undesirable for any usage. The glacial till groundwater is not considered potable and has been designated a Class II aquifer. The underlying Silurian dolomite aquifer meets the yield requirements for Class I aquifers, although groundwater from the dolomite may require treatment prior to use (DAMO08).

Groundwater contamination has been identified in the glacial till aquifer at the following IRP sites (DAMO33, OHMC12):

M1	Explosives, metals and sulfate	L1	Explosives and nitrate/nitrite
M2	Sulfate	L2	Explosives and nitrate/nitrite
M5	Explosives	L3	Explosives and nitrate/nitrite
M6	Explosives and VOCs	L4	Organics (nonexplosive)
M7	Explosives and metals	L5	Organics (nonexplosive) and metals
M8	Explosives, VOCs and sulfate	L6	Organics (nonexplosive)
M10	Toluene	L7	Nitrate/nitrite and sulfate
M11	Sulfate	L8	Nitrate/nitrite and metals
M12	Sulfate	L10	Explosives, nitrate/nitrite and metals
M13	Explosives and metals	L14	Explosives
		L18	Nitrate/nitrite and metals
		L19	Nitrate/nitrite

Groundwater contaminant plumes are depicted on Figure 4-2. The groundwater contamination at M10, L2, L5, L6, L10 and L14 is considered localized. Groundwater contaminant plumes extend beyond the IRP site boundaries at M1, and M7. The sulfate plume from M1 extends north into M111. A plume of explosive contamination extends from L3 to Prairie Creek (DAMO08, OHMC12). IRP sites which require no further action for groundwater include M2, M3, M4, M6A, M9, M11, M12, L2, L4, L5, L6, L7, L8, L10, L18 and L19 (OHMC12, DAMO33).

Background concentrations of sulfate at JOAAP are elevated and it is unlikely that the glacial till aquifer or dolomite aquifer will be used for drinking water. Therefore sulfate contamination was not included in the contaminant plumes (OHMC12). Facility-wide groundwater issues are discussed in *Determination of Class II Groundwater,* and some

descriptive information is available in the IRP site histories presented as Appendix D (DAMO08, DAMO33). IRP sites which require no further action for groundwater include L2, L4, L5, L6, L7, L8, L10, L18, and L19 (DAMO33).

The Cambrian-Ordovician (deep) aquifer, an important source of groundwater in northeastern Illinois, is considered Class I. At JOAAP this aquifer is used for drinking and industrial uses. Groundwater samples from the aquifer indicate that it has not been impacted by activities at JOAAP. Some area residents use the dolomite aquifer but most of the users obtain bottled water for drinking due to the objectionable taste and odor of water from this aquifer (DAMO08).

There are numerous wells at JOAAP: deep production wells, monitoring wells, shallow wells throughout the LAP Area for fire protection and agricultural well pits. The use, modification, and abandonment of wells are regulated under the Illinois Well Water Construction Code (Section ILCS 30/1 through 9).

4.19 Noise

Noise is not considered a major issue at JOAAP as it is located in a rural area and most facilities and operations are removed from residential areas (MAPS08). Some level of construction and demolition noise related to remedial actions is to be expected. The noise level will depend on the remedy selected.

4.20 Drinking Water

Public water systems, regulated under 40 CFR 141, are those systems that serve 15 or more connections or 25 or more people and whose water is used for drinking, cooking, bathing, or hand washing. Drinking water quality standards, Maximum Contaminant Levels (MCLs), appear in 40 CFR 143. An overview of the water systems at JOAAP was presented in Section 2.3.1.

Potable water in the MFG Area is obtained from four deep wells (Wells 6, 7, 9, and 10) ranging in depth from 1,569 to 1,649 feet. The wells completed in the Cambrian-Ordovician aquifer and are located along Base Line Road (AEHA05, DAMO08). Sampling in 1989 and 1992 found radon-222 in the MFG Area water supply at levels up to 120 +/- 20 pCi/L. However, radon levels up to 1,090 pCi/L were found in the distribution system. It is thought that the elevated radon levels may be related to deposits of naturally occurring minerals within the water system. An ion exchange system was installed to lower the high naturally occurring levels of radium-226 in the potable water (AHEA05).

Samples from the MFG Area water supply wells have been collected and analyzed for explosives, anions, and metals. No site related contaminants were detected in the samples. Slightly elevated levels of lead (1.41 μg/L in well 7) and zinc (125 μg/L in well 9) were detected but this maybe related to the well casing or the fact that the background wells used for comparison were completed in a different aquifer (DAMO12). Sampling indicates the Cambrian-Ordovician aquifer has not been impacted by current or previous activities at JOAAP (DAMO08).

Potable water in the LAP Area is obtained from two deep wells (Wells East and West) with depths of 1,649 to 1,672 feet, respectively. The wells are near the intersection of Central and Chicago Roads. Water from these wells was pumped to a treatment facility where some of it passed through an ion exchange unit to lower the hardness and the concentrations of radium-226. The water was then aerated and chlorinated prior to storage in a 1.2 million–gallon reservoir. Polyphosphate and soda ash were added for pH and corrosion control when the water was pumped into the reservoir. Sampling in 1989 and 1992 found radon-222 in the LAP Area water supplies at levels of 70–90 pCi/L. However, radon levels up to 480 pCi/L were found in the distribution system (at the wastewater treatment plant). Elevated sodium, chloride, and total dissolved solids were found within the distribution system, but are thought to be related to the water-softening process that utilizes sodium chloride (AHEA05).

Copper piping and lead-containing solder were used in general plumbing applications for many years. The construction and operation of JOAAP coincided with the period during which these materials were used. Thus, these materials are presumed to be present in buildings at JOAAP (ACOE05).

4.21 Perimeter Survey

The area surrounding JOAAP is primarily agricultural and residential with limited industry. Most industries on the JOAAP perimeter are northwest of the facility. A survey of the JOAAP perimeter was conducted as part of the December 1995 field survey. The purpose of that survey was to identify local industry that could impact environmental conditions at JOAAP. Table 4-11 summarizes the findings of this survey.

A Mobil Oil refinery is located west of section M100. During the field survey, drainage from the Mobil facility was observed to flow via a culvert and seepage through the Atchison Topeka & Santa Fe railroad tracks. The water appeared clear and no vegetative stress was noted (FIEL01).

An Industrial Park is located west of JOAAP, east of Route 55 and south of the Mobil facility. The survey team was unable to gain access to the Industrial Park. The exact nature of the operations conducted at these facilities is unknown. A sign at the entrance to this park lists the industries present (FIEL01):

Ambitech	BMW	Johnson Control
Consolidated FAB	Brieser Construction	Lindblad
PETROLITE	Chellino Crane	Meade Pritt
Port-O-Let	Conam	NTC
STARCON	Furmanite	Spike Enterprises
TEAM Inc.	Insulco	Hager
Banner Western	J.L. Manta	

Another industrial area is located west of Route 53 almost directly across from the current JOAAP administration building (74-3). There are three businesses located there on property that was formerly a large petroleum facility served by a pipeline. The businesses are Tyler Enterprises which manufactures herbicides and fertilizers, Tyler and Sons which is a grain company, and Tyler Realty (MEMO09).

4.22 Spills

During the operational life of JOAAP, numerous spills of process chemicals have occurred within the Industrial Parks parcel. Quantities of sulfuric and nitric acids, explosives, and dimethylamine (from tetryl production) were released from broken pipes, overflowing or leaking storage tanks and equipment malfunctions. These spills included release of acids into local streams. Little information on spills that occurred prior to 1968 is available. Spills occurring in the early 1970s are considered typical of spills that occurred throughout the operation of the facility (ARMY01). A majority of the recorded spills were associated with tank cleaning and maintenance in the Acid Areas (M8).

One former employee stated that he believed that tank cleaning residues were deposited on the ground near the tank and the acid was neutralized with soda ash (FIEL01). While another former employee indicated that he believed that prior to construction of Acid 4, the waste from cleaning of tanks in the acid area would have been flushed to the Acid Ditch. After Acid 4 was constructed, the waste would have been sent to one of the acid ponds (MEMO13). A summary of significant spills can be found in Table 4-12.

4.23 Miscellaneous Findings and Observations

Numerous other findings and observations were made during the field or document review. These findings are presented in Table 4-13.

Since lead was commonly used in ceramic coatings, it may be present in the ceramic coatings of sinks at JOAAP. Additionally, several of the buildings have lead floor finishes and lead piping (KOWS01, UCCI04). Asbestos putty containing a high percentage of lead was used for packing and caulking at the facility.

4.23.1 LAP Industrial Park

No significant other findings were noted.

4.23.2 MFG Industrial Park

Buildings 716-2 and 716-3 were used for vehicle maintenance (except lift truck and heavy equipment), including spray painting of vehicles in Building 716-3 (HIST08).

Lead burning and welding with cadmium rods was conducted in Building 717 (UCCI98). This building was destroyed by fire on or about January 15, 1996 (MEMO04).

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There were several areas where stressed vegetation or no vegetation were noted during the PAS site survey. On the south side of Building 855-5 there is a 3 foot diameter area where there is no vegetation. The vegetation around Building 882-1 also appears to be stressed. There is no vegetation under the conveyor belt between Buildings 1009-1-1 and 1009-1-2. Additionally, there are irregular bare spots along the southeast perimeter of the Northern Ash Pile (FIEL01).

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4.24 Responses to Agricultural Lessee Questionnaire

Questionnaires were sent to all 42 current agricultural lessees and 15 questionnaires relating to 25 tracts were completed and returned. Lessees were asked to provide information concerning

both current and past leases. Two agricultural tracts for which questionnaires were returned are within the land to be transferred for Industrial Parks, 57 (L122) and 70 (M13). Lessees of these tracts did not observe any potential problems on their tracts (LESQ04, LESQ03).

TABLE 4-1
IR AND MAJOR OPERATIONAL AREAS
JOAAP, WILL COUNTY, ILLINOIS

PAS Study Section	IR Site Number	IR Site Name	Group Number	Functional Title
MFG Area				
M1	1	Southern Ash Pile		
M2	2	Explosive Burning Ground		
M3	3	Flashing Grounds		
M4	4	Lead Azide Area		
M5	5	Tetryl Production Area		
M6	6	TNT Ditch Complex		
M7	7	Red Water Area		
M8	8	Acid Manufacturing Area		
M9	9	Northern Ash Pile		
M10	10	Toluene Tank Farms		
M11	11	Landfill		
M12	12	Sellite Manufacturing Area		
M13	13	Gravel Pits		
M14	14	Former Pond Area		
M15	15	Sewage Treatment Plant		
M16	16	Motor Pool Area		
M17	17	Laundry Facility		
M18	18	Herbicide Storage Area		
M6A/M99				TNT Block Area
M111				South Railroad Classification Yard
M108/M111				811 Magazine Area
M102				Brown Circle Residences
LAP Area				
L1	L1	Group 61	61	Shell Renovation Plant
L2	L2	Explosive Burning Ground	23	Surface Storage Reservoir Area
L3	L3	Demolition Area	23	
L4	L4	Landfill Area		
L5	L5	Salvage Yard	26	Salvage Yard
L6	L6	Group 70	70	Shop Area
L7	L7	Group 1	1	Semi-fixed & Fixed Ammunition Loading Line
L8	L8	Group 2	2	Medium Caliber Loading Line
L9	L9	Group 3	3	Demolition Bomb & Fixed Ammunition Loading Line
L10	L10	Group 3A	3A	Demolition Bomb & Experimental Loading Line
L11	L11	Test Site		
L12	L12	Doyle Lake		
L13	L13	Group 68	68	Fuse-Booster-Primer Magazine Area

TABLE 4-1
IR AND MAJOR OPERATIONAL AREAS
JOAAP, WILL COUNTY, ILLINOIS

PAS Study Section	IR Site Number	IR Site Name	Group Number	Functional Title
L14	L14	Group 4	4	Fuse Loading Line
L15	L15	Group 5	5	Fuse Loading Line
L16	L16	Group 6	6	Booster Loading Line
L17	L17	Group 7	7	Booster Loading Line
L18	L18	Group 8	8	Primer Loading Line
L19	L19	Group 9	9	Detonator Loading Line
L20	L20	Group 20	20	Sewage Treatment Area
L21	L21	Group 23	23	Surface Storage Reservoir Area/Burning Ground/ Miscellaneous Buildings
L22	L22	Group 25	25	RR Classification Yard
L23	L23	Group 27	27	Inert Storage Warehouses
L24	L24	Group 29	29	High Explosive Classification Yard
L25	L25	Group 62	62	Inert Material Storage Area
L26	L26	Group 63	63	High Explosive Magazine Area
L27	L27	Group 64	64	Standard Fixed Ammunition Storage Area
L28	L28	Group 65	65	Smokeless Powder Magazine Area
L29	L29	Group 66	66	Finished Ammunition Storage Area
L30	L30	Group 66A	66A	Finished Ammunition Storage Area
L31	L31	Extraction Pits		
L32	L32	Group 60	60	Administration Group Area
L33	L33	PVC Area	41	AT-4 Test Range
L34	L34	Former Burning Area		
L35	L35	Fill Area		
L103			21	North Transformer/Substation
L6			22	South Transformer/Substation
L21			24	Fire Station
L121			28	Pistol Range
L112			45	Auxiliary Fuse Loading Line
Various			67	Radio Transmitter/ Water Towers
Various			71	Chemical Lab/Miscellaneous Buildings
L115			73	Construction Headquarters/Residence
L100/L111/ L112			74	Residences along Route 66
Various			86	Road Bridges
Various			87	Railroad Structures

Sources: (JAAP11, SPED01, DAMO11, DAMO12)

TABLE 4-2
SUMMARY OF CHEMICAL FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L6 T		Group 70 Industrial Park Portion				
	70-5	Material Warehouse	P			The storage capacity is 760 square feet or 145 drums for this flammable liquid storage area.
			P			Flammable liquids and flammable liquid waste are stored in a flammable storage room with secondary containment in building 70-5.
			P			Alliant has flammable liquid storage in this building.
			S			Inspected Alliant flammable storage area. There were no stains noted. Area is curbed. It has no drains and no reading on PID. (4/97)
			S			As of 1991, the flammable liquid storage area in the building had a 55-gallon sump in its center for collection of spilled material. (The sump has since been filled.)
			P			Two 30 gallon drum water treatment chemicals. One is about one thirds full and is labeled "Confidence 10c."
	70-7	Machine Shop (DIPEC Storage)	S			Greases and oils were used during machining and heat treating-oil quenching. Metal and artificial abrasive dusts were generated while grinding.
	70-8	Combined Facilities Shops	S			Lead Acid batteries were charged here.
			S			Varnish and thinner vapors were used during furniture repairing.
	70-11	Roundhouse	S			Spray-painting box cars and Diesel locomotives generated paint mists and thinner vapors. A chlorinated hydrocarbon solvent was used for spray cleaning Diesel traction motors. Stoddard solvent was used for cleaning metal parts. Arc and Acetylene welding were conducted here.
L11		Test Site				
L14 T		Group 4 Industrial Park Portion				
L15 T		Group 5 Industrial Park Portion				
L16		Group 6	P	041:20:32.1	88:07:32.0	A 55 gallon black drum with no label is located at the southeast corner outside of Building 6-9. (11/96)
			P	041:20:27.6	88:07:39.6	A 55 gallon rusted drum is at the southwest corner of Building 6-10. No labels were visible. (11/96)
	6-6	Booster Assembly	S			Cementing felt pads to supplementary charge involved petroleum hydrocarbon thinner vapors.
L17		Group 7	P	041:20:36.9	88:07:03.7	A 30 gallon fiber drum with no label is at the west side of Building 7-9. The drum is full. (11/96)
	7-2	Tetryl Screen & Blend	S			Remote control blending and screening of pellet powder involved Barium stearate and graphite.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	7-4	Tetryl Pelleting	S			Barium Stearate and graphite were used in remote controlled making of booster pellets.

P=Present, R=Removed, S=Suspected. T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References are cited in the profile sheets in the Appendix.
Details on IRP site sampling are provided in Appendix D.

TABLE 4-2
SUMMARY OF CHEMICAL FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L17	7-4	Tetryl Pelleting				Specific gravity testing of tetryl pellets involved mercury.
			S			Pelleting of Tetryl occurred here.
	7-6	Booster Assembly	S			Acetone was used to clean conveyors and tables.
		Booster Assembly	P			This building is used by Alliant as a hazardous waste satellite accumulation area.
L32		Group 60				
	60-11	General Heating Plant	P			"Chromate cooling water treatment DEWT-L" "Drew Ameroid International, Dew Chemical Corporation, 6KE-141 607-40-567, 200 liters" 55-gallon drum at least part full and bloated located here. Fiber drum labeled "Betz Entec 017330-DR", partly full, was present.
L115		PAS Survey Section L115 - Ind. Park				
L122		PAS Survey Section L122				
M5		Tetryl Production Area				
	1001-2	Sulfating House	S			This building has not been contaminated with explosives; however, there may be some residual chemical hazard.
			S			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-1	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-2	Nitrating House	S			Acetone storage
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-3	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-4	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-5	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-6	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-7	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-8	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-9	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-10	Nitrating House	P	041:22:54.5	88:09:03.5	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
			P	041:22:54.5	88:09:03.5	A 1971 industrial hygiene survey indicates nitrating of DMAS took place in this building.
	1002-11	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1002-12	Nitrating House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-1	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-2	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.

P=Present, R=Removed, S=Suspected. T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References are cited in the profile sheets in the Appendix.
Details on IRP site sampling are provided in Appendix D.

TABLE 4-2
SUMMARY OF CHEMICAL FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M5	1003-3	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-4	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-5	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-6	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-7	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-8	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-9	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-10	Refinery	P	041:22:55.0	88:09:08.4	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-11	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1003-12	Refinery	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1005	Tetryl Production	S			Heavy contamination suspected.
	1008-2	Acid & Fume Recovery House	P	041:22:55.9	88:09:05.7	Acid piping
			P	041:22:55.9	88:09:05.7	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	1009-1-1	Box Packing House	P	041:22:42.4	88:09:26.3	Tetryl Project - OAC 56-162 Based on previous laboratory studies, a pilot plant for the continuous nitration of dinitromethylanine to tetryl in a dichloroethane media was designed and built. It has a capacity of ten to fifteen pounds.
M6		TNT Ditch Complex	P			4,000 pound sulfuric acid diluted with water released to sanitary sewer.
			P			11,000 pounds of acid diluted with water discharged from TNT Line #10 in 20 minutes. PH of red water ditched dropped from 7.6 to 1.6.
			P			Extensive studies were made in an attempt to determine the high melting interface material which was forming in some nitrators. It was thought that this material was an organic acid having two benzene rings linked together with a nitrogen-oxygen-nitrogen linkage.
			P			The whisker oil delivery lines between the 812 buildings and the 801 buildings were revised on all lines. The former mono mix scale tank was used for storing the whisker oil.
			S	041:24:05.2	88:09:31.7	An empty 55 gallon drum labeled "Antifreeze" is on the ground northwest of Building 875-4. (11/96)
			P			In 1975, samples were taken from TNT ditch to determine the source of fecal coliform. The TNT ditch was chlorinated; however fecal coliform was still high.
	706-1	Laboratory	S	041:23:26.0	88:09:58.3	Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.

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M6	706-2	Laboratory	S			Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
	706-3	Laboratory	S			Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
	706-6	Laboratory	S			Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
	715-15	Storage Oil & Paint	P			Contains two 5 gallon cans full "Isopropyl alcohol, technical grade, sargent-welch", 5 gallon can full "ARCO Duro-s-315", 1 gallon flammable liquid can, 1/2 gallon black liquid, 1-gallon "superstrip varnish and paint remover," 20 feet black stains on the floor.
	722-6	Area Shop	P	041:23:27.2	88:09:09.3	A metal Flammable Material Storage Cabinet contains several small cans of grease, soldering supplies, and anhydrous calcium sulfate. The cabinet on the west side of the building contains one 5 pound jar of alumina activated, one 5 gallon can of "cosmolubric", and two 5 gallon cans with faded labels. There is also one small 3 pound jar of mercury with a manometer. (11/96)
			P	041:23:27.2	88:09:09.3	On the north side of the office there is 1 pint of carbon tetrachloride, 1/4 full. (11/96)
	801-6	Mono-Nitrating House	P			According to a 1971 Industrial Hygiene Survey, nitrating of toluene occurred here. Toluene present in air at 2ppm and benzene was less than 1ppm.
	801-7	Mono-Nitrating House	S			Monitoring of toluene involved toluene vapors, nitric acid and mononitrotoluene vapors.
			S			Nitration of toluene involved toluene, nitric acids, and sulfuric acids.
	801-9	Mono-Nitrating House	P	041:23:46.1	88:09:31.0	A partially full, fiber board drum labelled "DNT - 313 lb DNT Capacity" is present in this building. (11/96)
	802-2	Tri-Nitrating House	S			On May 2, 1943 a fire occurred causing damage requiring approximately 80 hours to repair. The fire was apparently caused by leakage of tri-mix through a faulty valve into the nitrator containing bi-oil and oleum.
	802-6	Tri-Nitrating House	S			According to a 1971 Industrial Hygiene Survey, DNT was nitrated here in 1971. Toluene, benzene and nitrogen dioxide were present in air at measurable levels.
	802-7	Tri-Nitrating House	S			Nitration of Dinitrotoluene generated Nitric and Sulfuric acid mists, Mononitrotoluene, dinitrotoluene, and trinitrotoluene fumes.
			S			Nitration continued.
			S			On July 21, 1966, an excessive fuming condition associated with an uncontrollable chemical reaction developed. Charges in both nitrators were drowned, and shortly thereafter the building detonated.
	802-8	Tri-Nitrating House	S			On June 9, 1966, DNT mix for the first nitration in the Bi-House was dropped from the Tri-Nitrator. An uncontrollable chemical reaction took place resulting in a lost time injury, a fatality.

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M6	802-9	Tri-Nitrating House	P	041:23:45.3	88:09:33.8	There are 2 DNT, 313 pound capacity drums in this building. The contents are unknown. The drums have lids on them. (11/96)
	803-6	Bi-Fortifying House	S			Nitrotoluene was nitrated here in 1971. Measurable levels of DNT, toluene and nitrogen dioxide were present in air. Benzene was not detected.
	803-7	Bi-Fortifying House	S			Nitrating mononitrotoluene generated nitric acid mist, mononitrotoluene and dinitrotoluene fumes.
			S			Nitrating continued.
	803-9	Bi-Fortifying House	S	041:23:43.7	88:09:32.0	There is a DNT, 313 pound capacity drums in this building. The drum is labeled DNT. (11/96)
	803-AA	Bi-Fortifier, Line #1	P			Acid-Explosion in the building August 19, 1942.
	806-1	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-2	Wash House	P	041:23:03.4	88:09:50.3	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-3	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-4	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-5	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-6	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-7	Wash House	S			Spent acid recovery involved nitric and sulfuric acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-8	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-9	Wash House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	806-10	Wash House	P	041:23:53.1	88:09:34.0	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
			P	041:23:53.1	88:09:34.0	Two 5 gallon waste cans labeled "contaminated waste" are in this building. (11/96)
	812-1	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-2	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-3	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-4	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-5	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-6	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
			P			A 1971 industrial hygiene survey indicates recovering of sulfuric and nitric acid took place in this building.
	812-7	Acid & Fume Recovery House	S			Nitric and Sulfuric acid were present during spent acid recovery and separation.

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M6	812-7	Acid & Fume Recovery House	S			Spent acid recovery involved Nitric and Sulfuric acids.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-8	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-9	Acid & Fume Recovery House	P	041:23:52.4	88:09:36.9	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	812-10	Acid & Fume Recovery House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	852-1	Sweating & Graining House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	852-2	Sweating & Graining House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	852-3	Sweating & Graining House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	852-4	Sweating & Graining House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	852-5	Sweating & Graining House	P	041:23:49.7	88:09:27.4	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	852-6	Sweating & Graining House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	872-1	Nitration & Purification Building	P			Tanks, piping and pumps may be contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	872-2	Nitration & Purification Building	P	041:24:11.5	88:09:27.2	Tanks, piping and pumps may be contaminated with acid.
			P	041:24:11.5	88:09:27.2	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	872-3	Nitration & Purification Build	P			Tanks, piping and pumps may be contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	872-4	Nitration & Purification Build	P			Tanks, piping and pumps may be contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	872-5	Nitration & Purification Build	P			Tanks, piping and pumps may be contaminated.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	872-6	Nitration & Purification Build	P			Tanks, piping and pumps may be contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	873-1	Hydraulic Pump & Metering House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	873-2	Hydraulic Pump & Metering House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	873-3	Hydraulic Pump & metering House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	873-4	Hydraulic Pump & Metering House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.

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M6	873-5	Hydraulic Pump & Metering House	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	873-6	Hydraulic Pump & Metering Station	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	874-1	Sellite & Soda Ash Dissolve Ho	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	874-2	Sellite & Soda Ash Dissolve Ho	P	041:24:11.5	88:09:27.2	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
			S	041:24:11.5	88:09:27.2	This building contains only a 3 by 6 feet vat equipped with a mixing device and possible heat exchange pipes in its bottom. The vat is a process vessel. A few pumps are scattered on the floor. The pumps have motors. (11/96)
	874-3	Sellite & Soda Ash Dissolve Ho	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	874-4	Sellite & Soda Ash Dissolve Ho	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	874-5	Sellite & Soda Ash Dissolve Ho	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	874-6	Sellite & Soda Ash Dissolve Ho	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	875-1	Utility Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	875-2	Utility Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	875-3	Utility Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	875-4	Utility Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	875-5	Utility Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	875-6	Utility Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	876-1	Spent Acid Settling Area	P			Toluene and acid used in process.
	876-4	Spent Acid Settling Area	P			Toluene and acids used in process.
	878-1	Settling Tank Area, N & P	P			Toluene and acids used in process.
	878-4	Settling Tank Area, N & P	P			Toluene and acid used in process.
	879-1	Settling Tank Area Finishing	P			Toluene and acids used in process.
	879-4	Settling Tank Area Finishing	P			Toluene and acids used in process.
	880-1	Water Treatment Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	883-1	Recovery Building	P			Residues of waste acids and other chemicals may be present.
	883-2	Recovery Building	P			Residues of waste acids and other chemicals may be present.
	1011-45		P	041:24:08.5	88:09:39.8	A tarry resinate- like substance has leaked from the wood into the ground. (11/96)
	TS-1208	Storage Shed	P	041:23:24.8	88:09:07.1	This building contains a single, almost empty, 55 gallon metal drum electrically grounded, labeled "barrel 58" and "used LIX". (11/96)

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Section	Building	Description	Status	Latitude	Longitude	Comments
M6	TS-1208	Storage Shed	P	041:23:24.8	88:09:07.1	A sign on this building says that this was a satellite collection point for hazardous waste. (11/96)
M7		Red Water Area	P			The lead linings of the tanks used for acidification of the raw waste, subject to erosion from solid particles in the waste, were replaced with acid-proof brick.
			P			There was a rupture in the basin liner caused by subterranean pressure of gas and a high water table.
			R			The use of Calgon CL-14 Inhibitor was discontinued in 1975.
			P			Red Water facilities involved decontamination support. All of the effluents contaminated with nitrobodies were handled there. Decontamination of the Red Water and Yellow Water facilities was completed with the exception of those portions of Phase I (and supporting tankage) which were necessary to support the prove-out of Line 16.
	860-1	Evaporator Building #1	P			Contaminated with acid residues; deconned to XXX in 1975 or 1977.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	860-2	Evaporator Building #2	P			Contaminated with acid residues; deconned to XXX in 1975 or 1977.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	860-3	Evaporator Building #3	P			Contaminated with acid residues; deconned to XXX in 1975 or 1977.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	860-4	Carbon Treatment Building	P	041:23:00.8	88:09:44.8	A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	861-7	Ash Elevator Building #1	S			Red water ash residues may remain in this building. (11/96)
	867-1	Acid Storage Tank #1	P			Contaminated with acid residues; deconned to XXX in 1975 or 1977.
	867-2	Acid Storage Tank #2	P			Contaminated with acid residues; deconned to XXX in 1975 or 1977.
M8		Acid Manufacturing Area	P			In May 1992, the NRDC filed suit against JOAAP for exceeding NPDES conditions. An RI/FS was initiated at the Oleum Plant where raw sulfur on the ground may have contributed to the sulfate discharge.
			S			Tetryl, Acids - Area housed MFG, refinement, recycling, and storage facilities. Numerous AST's located in this area. Waste water discharged to Acid ditch or TNT ditch. Two lagoons used for storage and treatment of waste water. Northern Acid Pond constructed in the 1960's with Bentonite bottom and rubber-lined clay sides, now covered with a 160 mil vulcanized rubber cover. Southern Acid Pond: 20 mil

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M8		Acid Manufacturing Area				Polyethylene liner on the bottom and sides, covered with earthen mound. Disposal pit for Power Generator Fly Ash located in southern end of area. Depth to groundwater: 20 to 30 feet. Soils: silts and clays.
			S			Acid - 101,000 pounds of acid were lost due to overflow of acid tanks from June to December 1966. Recommendation was made to install level alarm.
			P			There were problems concerning the formation of ammonium nitrate in the process lines to the combuster. Construction of the DSN unit in Acid Area #4 was completed, however, startup of the facility was delayed due to the shortage of FREON 500 refrigerant used in this unit.
			P			Several solvents, including Vythene, Penolene 643, Solvent M-6, and Dow Chloroethene were found suitable and non-toxic for cleaning AOP filters and as a replacement for carbon tetrachloride.
			P			Because of the gradual failing of both Mantius Sulfuric Acid Concentrators in Acid Areas 1 and 2, it was deemed advisable to shut down those units permanently and utilize the capacity of the Chemico drum-type concentrating units in Acid Area #3, operating on Dark TNT Residual Acid on March 12, 1943.
			P			The evaluation of Ucon oil which had been carried on for one year was completed during the last six months of 1955, and all recovery compressors are now using Ucon oil on power cylinders.
			P			A new Ammonia cleaner and Air Filter cleaner was constructed. This cleaner cleans the filter with air agitation in the solvent.
			P			A washing machine and solvent still were installed in Acid Area #3 to provide more adequate cleaning of air and ammonia filters.
						Installation of five platinum recovery filters occurred at the AOP plant. These filters were installed to assure a more complete recovery of platinum dust in the ammonia oxidation process.
						Operational hazards due to the formation of ammonium nitrate made continued operation of the filters impractical. The filters were removed and are not now used.
			P			Two lagoons were located in this area which were used in the storage and/or treatment of wastewater. The north most acid pond was constructed in the late 1960's with a bentonite bottom and rubber-lined clay sides and since that time has been covered with a 160 mil vulcanized rubber cover. The southern acid pond was constructed with a 20 mil polyethylene liner on its bottom and sides and earthen mound placed around the top.
			S			Oleum was mixed with antifreeze (composed primarily of ethylene glycol) after its production.

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M8		Acid Manufacturing Area	P P P			A solvent still was located in the Northern Acid Area. The still reportedly contained tetrachloride, however, the use of the still is unknown. A 1995 soil gas survey identified two primary areas of potential VOC contamination which are both located in the Northern Acid Area. The first is along the northern side of the Ammonia Oxidation Plant (AOP), and the second is by a doorway of a workshop (Building 722-12) in the southwestern corner of the survey area. Raw sulfur is spread over much of the southern half of this site. Raw sulfur accumulations remain along the railroad spurs on the ground north, west, and south of the storage pads (but not on the pads themselves), near the sulfur melting pits and furnaces, and in the drainage ditch west of the site. Only small amount of sulfur were observed on the soil surface in the northern half of the plant. A map of this area indicated the presence of a tetrachloride still. It is assumed that the still was located inside a building, but no pipelines were observed to run into or out of the building. A 1996 Remedial Investigation indicates the presence of sulfate in the soil (38,000mg/kg), groundwater (150,000 to 3,000,000 mg/L) and surface water and a presence of low concentrations of VOCs in well MW360 at the Oleum Plant. The same VOCs were present in well MW148 located downgradient of the Oleum Plant. It is suspected that the Ammonia Oxidation Plant area may be the source of the VOCs. A soil gas survey indicated two potential VOC source areas associated with the Ammonia Oxidation Plant. The survey identified the presence of PCE, TCE, TCA, DCA, and carbon tetrachloride at the Northern Acid Area. The sampling point collected between the Ammonia Oxidation Plant and well MW148 did not indicate the presence of a plume of VOC contaminated groundwater migrating from the Northern Acid Area toward well MW148. PCE was detected in the samples collected adjacent to the well. A groundwater probe sampling indicated that the Ammonia Oxidation Plant appears to be a source for the VOCs detected at the Oleum Plant, but the source of VOCs detected in well MW148 probably originated from the Area Shop in TNT Area 6. According to a 1968 Technical Department Training Syllabus, chemical hazards in this area include: ammonia, nitrogen, nitric acid, sulfuric acid and mist, sulfur dioxide, acetone, benzene, ethyl ether, mercury, toluene and oleum.

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Section	Building	Description	Status	Latitude	Longitude	Comments
M8		Acid Manufacturing Area	P			Decontamination of all old acid facilities in Areas 1,2, and 3 were completed by September 30, 1976.
	302-1-1	Ammonia Oxidation Plant	P			Building and contained equipment contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	302-1-2	Ammonia Oxidation Plant Pump H	P			Building and contained equipment contaminated with acid.
	302-2-1	Ammonia Oxidation Plant	P			Building and contained equipment contaminated with acid.
	302-2-2	Ammonia Oxidation Plant Pump H	P			Building and contained equipment contaminated with acid.
	302-3		S			An Ammonia oxidizing process was conducted here. 60% Nitric acid was stored and produced here with periodic venting of storage tanks.
	302-3		S			Operation of an Ammonium oxidation plant to produce Nitric acid occurred here.
	302-3-1	Ammonia Oxidation Plant	P			Building and contained equipment contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	302-3-2	Ammonia Oxidation Plant Pump H	P			Building and contained equipment contaminated with acid.
	302-3-3	Ammonia Oxidation Plant Booster	P			Building and contained equipment contaminated with explosive acids.
	303-1	N.A. & S.A. Concentrator House	P			Building and contained equipment contaminated with explosive acid.
	303-2	N.A. & S.A. Concentrator House	P			Building and contained equipment contaminated with acid.
	303-3-1	N.A. Concentrator House	P			This building contained equipment contaminated with acid.
			S			Nitric Acid concentration and recovery occurred here.
			S			Operation of nitric acid concentration plant was conducted here.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	303-3-2	N.A. Concentrator Office	P			Building and contained equipment contaminated with acid.
	306-1	Acid Area Water Re-use Pump Ho	P			Building and contained equipment contaminated with acid.
	306-2	Acid Area Water Re-use Pump Ho	P			Building and contained equipment contaminated with acid.
	308-1-1	Dark Sulfuric Acid Concentration	P			Building and contained equipment contaminated with acid.
	308-1-5	Chemico Dark S.A. Concentrator	P			Building and contained equipment contaminated with acid.
			P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	308-1-6	Chemico Dark S.A. Precipitator	P			Building and contained equipment contaminated with acid.
	308-1-7	Chemico Dark S.A. Precipitator	P			Building and contained equipment contaminated with acid.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M8	308-3-1	Sulfuric Acid Concentrator Ho	P			Building and contained equipment contaminated with acid.
	308-3-2	Sulfuric Acid Precipitator Ho	P			Building and contained equipment contaminated with acid.
	308-3-3	Sulfuric Acid Precipitator Ho	P			Building and contained equipment contaminated with acid.
	308-3-4	Sulfuric Acid Precipitator Ho	P			Building and equipment contaminated with acid.
	308-3-5	Sulfuric Acid Precipitator Ho	P			Building and contained equipment contaminated with acid.
	308-3-6	Sulfuric Acid Concentrator Ho	P			Building and contained equipment contaminated with acid.
	351-1	DSN-Compressor Building	P			A 1982 energy analysis indicates corrosive atmosphere and acid spills in this building.
	402-1	Reservoir and Fire Pump House	P			This building contains 9 gallon tanks one fourth full, labeled "Laundry plastic cement". (11/96)
	505-2	Sewage Pump House	P			A one-ton cylinder of chlorine is located in this building.
	704-7	Supervisor's Office	P			There are dozens of large reagent bottles, some full. There are two 100 gallon "Potassium Bromide", one pound "Amberlite Ion Exchange Resin". Also there are very small tubes, some labeled "2,4,6-TNT". Spilled mercury noted on one counter from broken thermometer. There is a small drum of soda ash, about 20 gallons. (4/97)
	706-8	Laboratory	P			There may be remaining supplies of chemicals in this building.
	706-17	Catalyst Building	P			A 1982 energy analysis indicates acid spills in this building.
	713-1	Warehouse and Office	P			There is still alot of material including paint in this building.
			P			There are 18 drums of "Calgon Boilerguard 4520" They contain Tetrasodium Ethylenediaminetetra acetate, CAS# 64-02-8, Trisodium nitrilotriacetate monohydrate CAS#18662-53-8, 295 pounds each. There are 3 drums at 525 pounds labeled "boilerguard APG." There are two 5-gallon cans, labeled "Ether, Anhydrous." The cans are rusting and are stored next to 5 gallons of "corrosive liquid." Nine 1-gallon jugs "Calgon Phosphate reagent number 2." Three 1-gallon of "Calgon Oxygen scavenger reagent C." Four 1-pound jars of "Calgon Phosphate reagent number 1. Four 200-capsule jars of "Calgon Phosphate Reagent number 3." Two 1-pints of "Calgon Trichelock Reagent F." One 1-quart of "Calgon Chromate Reagent A." Ten 1 gallon cans "Duplicating Fluid, contains Methyl Alcohol." Twenty-two 1-quart bottles of "Nashua Electrostatic Dispersant", contains Petroleum Distillates. Six 3.6-pound of "Xerox 914 Developer."

P=Present, R=Removed, S=Suspected. T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References are cited in the profile sheets in the Appendix.
Details on IRP site sampling are provided in Appendix D.

TABLE 4-2
SUMMARY OF CHEMICAL FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M8	713-1	Warehouse and Office				Nine 61-ounces of "Xerox Fuser Oil." Two 25-pounds of Nashua Developer XD36." Six 32-ounces of "Xerox Film Remover", contains isopropanol. Ten 55-gallon drums of "Cosmoline 11 ounces", contains stoddard solvent. Two 55-gallon drums "LIX corporation Cleaner Number E-2." One 55-gallon drum of "Texaco Texayee Oil 68." Two 55-gallons of "Texaco journal Tex HD 57." One 55-gallon of "Texaco Honor Cylinder Oil 680", contains petroleum distillates. Two 55-gallons of "Texaco Preservative Oil 30." Three 55-gallons of Texaco Transformer Oil", contains Naplethenic Petroleum Distillates Cas # 64742536. (4/97)
			P			The following were in this building: one 55-gallon "Texaco Regal Oil R and O N-100, contains Naphthene distillate, cas 64741964, one 55-gallon Texaco Regal Oil R and O "150", contains paraffinic petroleum distillate, cas 64742650, one 55-gallon full with no label, one 55-gallon "Anderol 500 Synthetic Lubricant" Nuodex, inc., one 30-gallon "FS Power Fluid" Hydraulic fluid, seven 1-pound bags "Texaco crater #2 lubricant for locomotive traction motor, bags are leaking, one 21-pound can, unlabeled, five 21-pound "penwalt part 98 424901014, Halocarbono 11 series 11-145", four 1-gallon "Turpentine", leaking, three 40 pound cans of "Preservative P-11 cosmolube 2EP", one 40-pound can of "Preservative P-17 cosmolubric 270A, E.F. Houghton and Co", four 5-gallon "Cal clean", contains sodium metasilicate, two 5-gallon "Mineral Oil, Heavy", two 5-gallon "Texaco Regal AFB 2", four 5-gallon "Apexior 1", contains volatile solvents, two 35-pound "Texaco Meropa Lubricant 1", one 35-pound "Texaco Meropa Lubricant 2", three 125-pound "Allied Kellite Number 89", non-hazardous, three 5-gallon and three 1-gallon "Chemco Strippable Booth Coating." (4/97)
			P			Numerous containers of chemicals were found in this building. Refer to Appendix E for listing. (4/97)
	715-12	Storage Solvent	P			This building was used to hold cans of acetone. Building is North of 706-8.
	717	Combined Shops	S			Lead burning generated lead fumes in this building. Arc and Acetylene welding, brazing and forging, machining and metalizing were conducted here. Paint mist and thinner vapors were generated from spray painting in this building.
			S			A chlorinated hydrocarbon solvent was used for cleaning electric motors and miscellaneous assemblies in this building.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M8	717	Combined Shops				Machining and grinding involved cutting oils and coolants, and generated metal and abrasive dusts in this building.
						Arc, Acetylene, and heliarc welding was conducted here.
						Repairing lead coils generated lead fumes in this building.
			P			Lead burning and solvent cleaning of electrical parts was conducted here. The solvents used were methyl chloroform, PCE and stoddard solvent.
			P			There are several bloated drums and compressed gas cylinders in this building. (11/96)
			P			In 1979, this building was a lead burning area. Operations were moved from building 710 to building 717.
	718-1	Locomotive House	P			Spray-cleaning Diesel locomotive engine parts and traction motors involved chlorinated hydrocarbon solvent.
			P			A container filled with about 20 gallons of liquid with a strong solvent odor is located in this building. Other drums present inside are empty. but may have contained chemicals or washing additives in the past.
						There was an acetylene tank in the building. There are 6 bags labeled "black beauty slag product" in the building. (This is a sand blast medium). (11/96)
	722-12	Area Shop	P			A 1995 soil gas survey identified this area as having potential VOC contamination near the doorway of this building.
	1501	Oleum Plant (Plant #1)	P			Originally contaminated with acid or sulfur; considered in X condition.
			S			Melting of Sulfur and burning of liquid Sulfur to burn Sulfur dioxide occurred here, as well as oxidizing Sulfur dioxide to Sulfur trioxide, and producing and storing oleum.
			S			Operation of a contract Sulfur acid plant generated oxides of Sulfur and Sulfur acid.
			P			In 1965, on the Oleum Plant, Colonel McCall mentioned the use of Dichromate inhibitor in cooling water at the Oleum Plants.
	1501-1	Sulphur Storage	P			Originally contaminated with acid or sulfur; considered in X condition.
	1502	Oleum Plant (Plant #3)	P			Originally contaminated with acid or sulfur; considered in X condition.
	1502-1	Water Softening Plant	P			Originally contaminated with acid or sulfur; considered in X condition.
	1502-2	Sulphur Pit	P			Originally contaminated with acid or sulfur; considered in X condition.
	TS-1200	Storage Shed	S			Signs in shed indicate storage areas for Benzol, Transformer Oil, mineral, lubricants, solvents, grease, and Acetone. (4/97)
			P			There are eighty-four 55 gallon drums- 1 green and white, with "Spintex" hand written.

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TABLE 4-2
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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M8	TS-1200	Storage Shed				One- "Dupont chloroethene NU", 4- "Chemways safety solve zoo". Eleven of them appear to contain oil. Eight have "Lubricant for power recover, cyl." Many of the remaining are empty. (4/97)
			P			Six carboys about 20 gallons of miratic acid. (4/97)
M9		Northern Ash Pile	P			Protective cover system on the ash pile was breached causing the release of sulfate and other ash-related chemicals resulting in high sulfate levels in soil, shallow ground water, and surface water. The cover system was repaired in 1993.
M10		Toluene Tank Farms	P			Toluene, VOC's - Three tank farms each contained 4 toluene tanks. Two of the tanks in the western tank farm exploded (1970 and 1971). There are 4' high berms around each tank which are breached.
			P			In the preceding period, one of these tank farms had been utilized for the storage of xylene. Tanks at this establishment were the only available storage. Instructions were received to store xylene in a second tank farm. Forty to fifty cars of xylene were frequently on the tracks awaiting unloading.
M13		Gravel Pits	P			Nitrate/Nitrite - The Northern Gravel Pit has been filled. Contaminants of concern in the area: Nitrate/Nitrite. Remediation of groundwater necessary.
	503-1-2	Temperature Control House	P	041:23:17.1	88:09:18.5	There are two 55 gallon drums and one 5 gallon container marked "(Cosmoline 1102) rust preventive coating solvent type" in this building. (11/96)
	706-7	Laboratory	S			There may be remaining supplies of chemicals in this building.
M16		Motor Pool Area	S			Metals, SVOC's - Contamination significant enough to warrant remediation was not detected during the investigation phase. No further action planned.
	413-1	Filtration Plant	P			Dumping of lime and alum into hoppers took place here.
			P			There are numerous bottles (100-200), some with contents. Labels include: websters reagent, acetone. There is also a 5 gallon can labeled "acrylic enamel", sellite and numerous unlabeled phenolphthalien solution. (4-97)
	704-19	Transportation Area Office Building	P	041:23:37.6	88:09:08.7	There a one gallon full can of stencil ink in this building. (11/96)
	710	Lead Salvage	P			An oily discharge was emanating from the building or cooling jacket for hydraulic pump. This has the potential to impact the storm water system. Confirmation of the source by dye testing and corrective action are proposed for January 1995.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M16	710	Lead Salvage	A			In 1979, lead burning operations were moved from this building to building 717.
	716-3	Storage Garage, Heavy Equipment	P	041:23:30.0	88:09:09.5	Cleaning metal parts involved chlorinated hydrocarbon solvent and its vapors.
			P	041:23:30.0	88:09:09.5	There are five 55 gallon drums partially full of fluids for vehicles: transmission fluid and oil; four oxygen cylinders, three acetylene cylinders, one cabinet with about 20 gallons of paint, one 55 gallon drum of oil outside of the southeast door, and several portable parts washer at this building. (11/96)
M17		Laundry Facility				
M18		Herbicide Storage Area	P	041:23:24.3	88:08:40.2	A full 5 gallon ACRO-FOAM XL3 container is located at the corner of the fire station. (11/96)
	703-3	Hut, Quonset, APSA Stock Room	P	041:23:25.1	88:08:35.6	There are 9 plastic chemical drums in this building. All of them appear to be empty, but they may contain residue. There is also a 30 gallon trash can three-fourths full of white powder in this building. (11/96)
			P	041:23:25.1	88:08:35.6	Two 5-gallon cans of chlordane in room 4 of this building were found to be deteriorating from rust. If leaked, the chlordane may cause contamination. (11/80)
	716-1	EAM Building & Crypto Center	P	041:23:24.4	88:08:35.0	One unlabeled, metal can containing liquid; and one 5 gallon can, mostly full, labeled "CAUTION KEEP AWAY FROM FIRE AND HEAT- Columbia Ribbon Co." are present in this building. There is also an unlabeled, 5 gallon carboy one-third full of a clear liquid. (11/96)
			P	041:23:24.4	88:08:35.0	Present in this building are: a 5 gallon, partially full, metal can labeled "Cleansol No.1"; a 3/4 full, 5 gallon glass container filled with red liquid in the metal cabinet in the mechanical room; a 1 gallon metal container of "Ansul Refrigerate"; and a 5 gallon metal container stencilled "Diesel Engine Oil Only" in the generator room. (11/96)
M103		PAS Section				
	709-1	Forest Fire Station No. 1	P	041:24:22.9	88:08:44.6	A 5-gallon jug with 2 gallons of clear liquid, two items of laboratory ware inside, a 5-gallons can of tar, and two drums of sweeping compound are present. Evidence indicates the It appears that a chemical laboratory was located in this building.
M104		PAS Survey Section M104	P	041:23:34.3	88:08:46.4	At the base of water tower 505-3 there is a decomposing fiber drum with a black granular material inside. (11/96)
			P	041:23:33.0	88:09:58.1	There is a 55 gallon drum immediately east of substation labelled "Polaris Permanent Antifreeze". There is a empty second drum with no apparent labelling immediately south of the substation. (11/96)
	403-2	Coal Shed	P			There is a carbon disulfide MERK, 2 quart half full. Also several empty reagent bottles. (4/97)
	411	Drinking Water Chlorinator House	P	041:23:34.9	88:08:46.7	A one-ton cylinder of chlorine is located in this building.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M104	716-4	APSA Training Building	S			This building has central air conditioning which may still contain chlorohydrocarbon refrigerants.
M115		PAS Survey Section M115				
M116	412-2	North Pump Station River Pump House (North)	P	041:25:03.7	88:10:39.9	There is a 30 gallon drum which appears to be full present in this building. The drum is labeled "descicant" "activated silica". (11/96)
M117	412-1	South Pump Station River Pump House (South)	P	041:22:35.4	88:13:25.5	A 1 gallon jug hand labeled P17 is present in this building. The boiler was fuel oil fired, however no above or underground storage tank was found. (11/96)

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TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
M1						
Current	Maintenance worker	Soil	Ingestion, Inhalation		5.8E-10	1.2E-04
		Sediment	Ingestion, Inhalation		NC	1.0E-06
		Surface water	Dermal		9.5E-09	3.5E-04
		Ash	Ingestion, Inhalation		1.1E-08	6.5E-05
	Security worker	Soil	Ingestion, Inhalation		5.8E-11	1.2E-05
		Sediment	Ingestion, Inhalation		NC	1.0E-07
		Surface water	Dermal		9.5E-09	3.5E-04
		Ash	Ingestion, Inhalation		1.1E-09	6.5E-06
Future	Maintenance worker	Soil	Ingestion, Inhalation		1.1E-08	2.3E-03
		Sediment	Ingestion, Inhalation		NC	1.9E-05
		Ash	Ingestion, Inhalation		2.0E-07	1.2E-03
	Construction worker	Soil	Ingestion, Inhalation		4.2E-09	1.0E-02
		Sediment	Ingestion, Inhalation		NC	9.4E-05
		Groundwater	Ingestion		NC	8.2E-03
		Ash	Ingestion, Inhalation		7.6E-08	5.8E-03
	Residents	Soil	Ingestion, Inhalation		6.5E-08	1.2E-02
		Sediment	Ingestion, Inhalation		NC	9.7E-05
		Groundwater	Ingestion, Inhalation, Dermal	Antimony	NC	3.1E+00
		Ash	Ingestion, Inhalation	2,6-DNT	1.2E-06	6.0E-03
	Resident child	Surface water	Dermal		1.6E-07	4.7E-03
M2						
Current	Maintenance worker	Soil	Ingestion, Inhalation		3.7E-09	7.8E-04
	Security worker	Soil	Ingestion, Inhalation		3.7E-10	7.8E-05
Future	Maintenance worker	Soil	Ingestion, Inhalation		6.9E-08	1.5E-02
	Construction worker	Soil	Ingestion, Inhalation		4.5E-07	2.9E-01
		Soil (hotspot)	Ingestion, Inhalation	2,4-DNT, 2,4,6-TNT	2.4E-06	1.6E+00
		Groundwater	Ingestion		NC	NC
	Industrial worker	Soil	Ingestion, Inhalation		4.6E-08	9.8E-03
	Residents	Soil	Ingestion, Inhalation		4.1E-07	7.3E-02
		Groundwater	Ingestion, Inhalation, Dermal		NC	NC
M3						
Current	Maintenance worker	Soil	Ingestion, Inhalation, Dermal	Lead, 2,4,6-TNT	1.2E-07	7.4E-02
	Security worker	Soil	Ingestion, Inhalation, Dermal	Lead, 2,4,6-TNT	9.7E-08	6.0E-02
Future	Maintenance worker	Soil	Ingestion, Inhalation, Dermal	Lead, 2,4,6-TNT, 1,3,5-DNB	2.3E-06	1.5E+00
	Construction worker	Soil	Ingestion, Inhalation, Dermal	Cadmium, Nickel, 2,4,6-TNT, Lead	3.5E-06	2.9E+00
		Groundwater	Ingestion		9.6E-10	3.2E-05
	Industrial worker	Soil	Ingestion, Inhalation, Dermal	Lead, 1,3,5-DNB	1.5E-06	1.1E+00
	Residents	Soil	Ingestion, Inhalation, Dermal	2,4,6-TNT, 2,4-DNT, 2,6-DNT, 1,3,5-TNB, Antimony, Lead, Thallium	1.4E-05	7.2E+00
		Groundwater	Ingestion, Inhalation, Dermal	Benzene	1.4E-05	2.5E-01
M4						
Risks not calculated for this site as cancer slope factors and RfDs were not available for the COCs. Lead is a concern for both current and future receptors exposed to soil.						
M5						
Current	Maintenance worker	Soil (E-W ditch)	Ingestion, Inhalation	Lead	2.6E-07	3.5E-01
		Soil (Tetryl Line)	Ingestion, Inhalation		1.4E-07	1.1E-02
		Sediment	Ingestion, Inhalation, Dermal		2.5E-07	7.3E-05
	Security worker	Soil (E-W ditch)	Ingestion, Inhalation	Lead	2.6E-08	3.5E-02
		Soil (Tetryl Line)	Ingestion, Inhalation		1.4E-08	1.1E-03
		Sediment	Ingestion, Inhalation, Dermal		7.4E-07	7.3E-06
	Hunter	Soil (E-W ditch)	Ingestion, Inhalation	Tetryl, Lead	9.4E-07	1.1E+00
		Sediment	Ingestion, Inhalation, Dermal		8.9E-07	2.2E-04
Future	Maintenance worker	Soil (E-W ditch)	Ingestion, Inhalation	2,6-DNT, 2,4-DNT, 2,4,6-TNT, Tetryl, Lead	4.9E-06	6.6E+00
		Soil (Tetryl Line)	Ingestion, Inhalation	2,4-DNT	2.6E-06	2.1E-01
		Sediment	Ingestion, Inhalation, Dermal	PCB 1254	4.6E-06	1.4E-03

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
M5						
Future	Industrial worker	Soil (E-W ditch)	Ingestion, Inhalation	2,6,-DNT, 2,4-DNT, 2,4,6-TNT, Tetryl, Lead	3.3E-06	4.4E+00
	Industrial worker	Soil (Tetryl Line)	Ingestion, Inhalation	2,4-DNT	1.8E-06	1.4E-01
		Sediment	Ingestion, Inhalation, Dermal	PCB 1254	5.5E-06	9.1E-04
	Construction worker	Soil (E-W ditch)	Ingestion, Inhalation	2,6-DNT, 2,4-DNT, 2,4,6-TNT, Tetryl, Lead	1.1E-06	2.0E+00
		Soil (Tetryl Line)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT	4.5E-06	9.5E+00
		Sediment	Ingestion, Inhalation, Dermal		6.6E-07	1.2E-02
		Groundwater	Ingestion		9.2E-09	3.2E-03
	Resident	Soil (E-W ditch)	Ingestion, Inhalation	2,6-DNT, 2,4-DNT, 2,4,6-TNT, Tetryl, Lead	2.9E-05	3.3E+01
		Soil (Tetryl Line)	Ingestion, Inhalation	1,3-DNB, 2,4-DNT	1.5E-05	1.0E+00
		Sediment	Ingestion, Inhalation, Dermal	PCB 1254	1.4E-05	6.8E-03
		Groundwater	Ingestion, Inhalation, Dermal	2,6-DNT, 2,4,6-TNT, 2,4-DNT, 1,3,5-DNB	5.3E-05	2.4E+00
	Resident child	Surfece water	Dermal		1.7E-09	2.4E-03
M6						
Current	Maintenance worker	Soil (TNT ditch)	Ingestion, Inhalation	2,6-DNT, 2,4,6-TNT, 2,4-DNT	4.4E-05	4.9E+00
		Soil (other)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	1.4E-05	1.7E+00
		Sediment	Ingestion, Inhalation		7.7E-07	8.7E-02
		Sediment (hotspot)	Ingestion, Inhalation	2,4,6-TNT	1.6E-06	2.7E-01
	Security worker	Soil (TNT ditch)	Ingestion, Inhalation	2,6-DNT, 2,4,6-TNT, 2,4-DNT	4.4E-06	4.9E-01
		Soil (other)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	1.4E-06	1.7E-01
		Sediment	Ingestion, Inhalation		7.7E-08	8.7E-03
		Sediment (hotspot)	Ingestion, Inhalation		1.7E-07	2.7E-02
Future	Maintenance worker	Soil (TNT ditch)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	8.3E-04	9.3E+01
		Soil (other)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	2.7E-04	3.2E+01
		Sediment	Ingestion, Inhalation	2,4,6-TNT, Benzo(b)fluoranthene, Benzo(a)pyrene, Chrysene, Benzo(a)anthracene, 2,4-DNT	1.4E-05	1.6E+00
		Sediment (hotspot)	Ingestion, Inhalation		3.0E-05	5.1E+00
	Construction worker	Soil (TNT ditch)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	3.2E-04	4.4E+02
		Soil (other)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	6.5E-05	9.8E+01
		Sediment	Ingestion, Inhalation	2,4,6-TNT, Benzo(a)fluoranthene, Benzo(a)pyrene, Chrysene	5.9E-06	7.9E+00
		Sediment (hotspot)	Ingestion, Inhalation		1.1E-05	2.5E+01
		Groundwater (N plume)	Ingestion	2,4-DNT	2.1E-06	2.2E-01
		Groundwater (Ctr plume)	Ingestion		1.7E-09	5.9E-05
		Groundwater (S plume)	Ingestion		9.1E-08	1.9E-04
	Industrial worker	Soil (TNT ditch)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	5.4E-04	6.2E+01
		Soil (other)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT	1.8E-04	2.2E+01
		Sediment	Ingestion, Inhalation	2,4,6-TNT, Benzo(b)fluoranthene, Benzo(a)pyrene, Chrysene, Benzo(a)anthracene, 2,4-DNT	9.6E-06	1.1E+00
		Sediment (hotspot)	Ingestion, Inhalation		2.1E-05	3.4E+00
	Resident	Soil (TNT ditch)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT, 1,3,5-TNB	4.9E-03	4.6E+02
		Soil (other)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 2,6-DNT, 1,3,5-TNB	1.6E-03	1.6E+02
		Sediment	Ingestion, Inhalation	2,4,6-TNT, Benzo(b)fluoranthene, Benzo(a)anthracecene, 2,4-DNT, Benzo(a)Pyrene, Chrysene	8.6E-05	8.1E+00
		Sediment (hotspot)	Ingestion, Inhalation		1.8E-04	2.5E+01
		Groundwater (N plume)	Ingestion, Inhalation, Dermal	2,4-DNT, 2,6-DNT, 2,4,6-TNT, RDX, 1,3,5-TNB	1.3E-02	1.3E+02
		Groundwater (Ctr plume)	Ingestion, Inhalation, Dermal	2,4-DNT, 2,6-DNT	9.7E-06	2.3E-02
		Groundwater (S plume)	Ingestion, Inhalation, Dermal	2,6-DNT, 2,4-DNT, 2,4,6-TNT, RDX, Nitrobenzene	5.3E-04	3.5E+00
	Resident child	Surface water	Dermal	2,6-DNT, 2,4-DNT	6.3E-06	2.9E-01

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
M7						
Current	Maintenance worker	Soil (TNT ditch)	Ingestion, Inhalation		1.5E-08	1.9E-03
		Soil (open tank area)	Ingestion, Inhalation	2,4,6-TNT	1.4E-05	2.6E+00
		Sediment	Ingestion, Inhalation		1.7E-08	3.0E-04
		Surface water (small intermittent pond)	Ingestion, Inhalation	2,4-DNT	9.3E-06	2.2E-02
	Security worker	Soil (TNT ditch)	Ingestion, Inhalation		1.5E-09	1.9E-04
		Soil (open tank area)	Ingestion, Inhalation	2,4,6-TNT	1.4E-06	2.6E-01
		Sediment	Ingestion, Inhalation		1.7E-09	3.0E-05
Future	Maintenance worker	Soil (TNT ditch)	Ingestion, Inhalation		2.9E-07	3.5E-02
		Soil (open tank area)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, 1,3,5-TNB	2.7E-04	4.8E+01
		Sediment	Ingestion, Inhalation		3.2E-07	5.6E-03
	Construction worker	Soil (TNT ditch)	Ingestion, Inhalation		1.5E-07	7.3E-02
		Soil (TNT ditch hotspot)	Ingestion, Inhalation		2.5E-07	6.1E-01
		Soil (open tank area)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT	7.4E-05	1.6E+02
		Sediment	Ingestion, Inhalation		1.2E-07	3.2E-02
		Groundwater	Ingestion		3.8E-08	1.6E-03
	Industrial worker	Soil (TNT ditch)	Ingestion, Inhalation		1.9E-07	2.3E-02
		Soil (open tank area)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT	1.8E-04	3.2E+01
		Sediment	Ingestion, Inhalation		2.1E-07	3.7E-03
	Resident	Soil (TNT ditch)	Ingestion, Inhalation	2,6-DNT	1.7E-06	1.8E-01
		Soil (open tank area)	Ingestion, Inhalation	2,4,6-TNT, 2,4-DNT, RDX, 1,3,5-TNB	1.6E-03	2.4E+02
		Sediment	Ingestion, Inhalation	2,4-DNT	1.9E-06	2.8E-02
		Groundwater	Ingestion, Inhalation, Dermal	2,4-DNT, 2,6-DNT, PCE, RDX, 1,3-DNB	2.3E-04	1.2E+00
	Resident child	Surface water (small intermittent pond)	Dermal	2,4-DNT	3.5E-04	9.4E-01
M8						
Current	Maintenance worker	Soil	Ingestion, Inhalation	Lead	NC	9.3E-04
		Sediment (S acid ditch)	Ingestion, Inhalation	Chrysene, Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoanthene	4.9E-06	1.0E-03
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	2.2E-02
		Sediment (Jackson Creek tributaries)	Ingestion, Inhalation		NC	3.0E-04
		Surface water (South acid ditch)	Dermal		2.0E-08	1.1E-04
		Surface water (N acid ditch acid and pond	Dermal		4.5E-09	2.3E-05
		Surface water (Jackson Creek tributaries)	Dermal		NC	6.4E-07
	Security worker	Soil	Ingestion, Inhalation	Lead	NC	4.9E-06
		Sediment (S acid ditch)	Ingestion, Inhalation		2.6E-08	5.4E-06
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	1.2E-04
	Hunter	Soil	Ingestion, Inhalation	Lead	NC	1.5E-04
		Sediment (S acid ditch)	Ingestion, Inhalation	Chrysene	9.4E-07	1.6E-04
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	3.5E-03
		Sediment (Jackson Creek tributaries)	Ingestion, Inhalation		NC	4.8E-05
Future	Maintenance worker	Soil	Ingestion, Inhalation	Lead	NC	9.3E-04
		Sediment (S acid ditch)	Ingestion, Inhalation	Chrysene, Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene	4.9E-06	1.0E-03
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	2.2E-02
	Maintenance worker	Sediment (Jackson Creek tributaries)	Ingestion, Inhalation		NC	3.0E-03

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
M8						
Future	Construction worker	Soil	Ingestion, Inhalation	Lead	NC	8.1E-03
		Sediment (S acid ditch)	Ingestion, Inhalation	Chrysene, Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene	2.3E-06	6.9E-03
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	1.9E-01
		Sediment (Jackson Creek tributaries)	Ingestion, Inhalation		NC	2.6E-03
		Groundwater	Ingestion		NC	2.3E-05
	Industrial worker	Soil	Ingestion, Inhalation	Lead	NC	6.2E-04
		Sediment (S acid ditch)	Ingestion, Inhalation	Chrysene, Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene	3.3E-06	6.8E-04
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	1.4E-02
	Resident	Soil	Ingestion, Inhalation	Lead	NC	4.6E-03
		Sediment (S acid ditch)	Ingestion, Inhalation	Chrysene, Benzo(b)fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene	2.9E-05	5.1E-03
		Sediment (N acid ditch and acid ponds)	Ingestion, Inhalation		NC	1.1E-01
		Sediment (Jackson Creek tributaries)	Ingestion, Inhalation		NC	1.5E-03
		Groundwater	Ingestion, Inhalation, Dermal		NC	4.8E-02
	Resident child	Surface water (South acid ditch)	Dermal		3.4E-07	1.6E-03
		Surface water (N acid ditch acid and pond	Dermal		7.5E-08	8.0E-04
		Surface water (Jackson Creek tributaries)	Dermal		NC	8.9E-06
M9						
Current	Maintenance worker	Surface water	Dermal		NC	5.4E-06
Future	Resident child	Surface water	Dermal		NC	7.4E-05
Soil/ash exposure was considered for maintenance/security workers and residents but cancer slope factors and RfDs were not available for COCs and risks could not be calculated.						
M10						
Future	Construction worker	Groundwater (west farm)	Ingestion		1.2E-09	6.0E-04
		Groundwater (Ctr farm)	Ingestion		1.2E-10	7.5E-04
	Resident	Groundwater (west farm)	Ingestion, Inhalation, Dermal	Benzene, Toluene	1.8E-05	8.9E+00
		Groundwater (Ctr farm)	Ingestion, Inhalation, Dermal	Benzene, Toluene	1.8E-06	1.2E+01
M11						
Current	Maintenance worker	Sediment	Ingestion, Inhalation		4.3E-11	1.5E-04
	Security worker	Sediment	Ingestion, Inhalation		4.3E-12	1.5E-05
Future	Maintenance worker	Sediment	Ingestion, Inhalation		8.1E-10	2.9E-03
	Construction worker	Groundwater	Ingestion		NC	6.6E-05
		Sediment	Ingestion, Inhalation		7.1E-07	1.4E-01
	Resident	Groundwater	Ingestion, Inhalation, Dermal		NC	2.5E-02
		Sediment	Ingestion, Inhalation		1.5E-09	1.4E-02
	Resident child	Surface water	Dermal		NC	1.8E-03
M12						
Current	Maintenance worker	Soil	Ingestion, Inhalation		NC	1.1E-04
		Sediment	Ingestion, Inhalation	Lead	NC	9.2E-04
	Security worker	Soil	Ingestion, Inhalation		NC	1.1E-05
		Sediment	Ingestion, Inhalation	Lead	NC	9.2E-04
Future	Maintenance worker	Soil	Ingestion, Inhalation		NC	2.0E-03
		Sediment	Ingestion, Inhalation	Lead	NC	1.7E-02
	Construction worker	Soil	Ingestion, Inhalation		NC	8.2E-03
		Sediment	Ingestion, Inhalation	Lead	NC	2.6E-01
		Groundwater	Ingestion		NC	NC
	Industrial worker	Soil	Ingestion, Inhalation		NC	1.4E-03
		Sediment	Ingestion, Inhalation	Lead	NC	1.2E-02

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
M12						
Future	Resident	Soil	Ingestion, Inhalation		NC	1.0E-02
		Sediment	Ingestion, Inhalation	Lead	NC	8.5E-02
		Groundwater	Ingestion, Inhalation, Dermal		NC	NC
	Resident child	Surface water	Dermal		1.0E-07	1.0E-03
M13						
Future	Construction worker	Groundwater	Ingestion		NC	5.1E-05
	Resident	Groundwater	Ingestion, Inhalation, Dermal		NC	1.9E-02
M14						
Current	Maintenance worker	Soil	Ingestion, Inhalation		NC	1.6E-05
	Security worker	Soil	Ingestion, Inhalation		NC	1.6E-06
Future	Maintenance worker	Soil	Ingestion, Inhalation		NC	3.1E-04
	Construction worker	Soil	Ingestion, Inhalation		NC	1 4E-03
	Resident	Soil	Ingestion, Inhalation		NC	1.5E-03
M15						
Current	Maintenance worker	Soil	Ingestion, Inhalation	Chrysene	8.4E-09	7.9E-03
		Sediment (north ditch)	Ingestion, Inhalation		NC	1.0E-03
		Sediment (south ditch)	Ingestion, Inhalation	Beryllium	8.7E-06	5.7E-02
		Surface water (N ditch)	Dermal		2.2E-09	1.4E-05
		Surface water (S ditch)	Dermal		3.1E-09	1.1E-05
	Security worker	Soil	Ingestion, Inhalation		1.1E-08	4.2E-05
		Sediment (north ditch)	Ingestion, Inhalation		NC	5.5E-06
		Sediment (south ditch)	Ingestion, Inhalation		4.6E-08	3.0E-04
Future	Maintenance worker	Soil	Ingestion, Inhalation	Chrysene	8.4E-09	7.9E-03
		Sediment (north ditch)	Ingestion, Inhalation		NC	1.0E-03
		Sediment (south ditch)	Ingestion, Inhalation	Beryllium	8.7E-06	5.7E-02
	Construction worker	Soil	Ingestion, Inhalation	Chrysene	9.8E-07	6.7E-02
		Sediment (north ditch)	Ingestion, Inhalation		NC	7.8E-03
		Sediment (south ditch)	Ingestion, Inhalation	Beryllium	5.0E-06	5.6E-01
	Industrial worker	Soil	Ingestion, Inhalation	Chrysene	6.0E-09	5.3E-05
		Sediment (north ditch)	Ingestion, Inhalation		NC	6.9E-04
		Sediment (south ditch)	Ingestion, Inhalation	Beryllium	5.8E-06	3.8E-02
	Resident	Soil	Ingestion, Inhalation	Chrysene	5.0E-08	3.9E-02
		Sediment (north ditch)	Ingestion, Inhalation		NC	5.1E-03
		Sediment (south ditch)	Ingestion, Inhalation	Beryllium	5.2E-05	2.8E-01
	Resident child	Surface water (N ditch)	Dermal		8.5E-08	3.3E-04
		Surface water (S ditch)	Dermal		1.2E-07	3.2E-04
Jackson Creek (MFG area)						
Current	Fish consumer	Surface water	Ingestion	Arsenic	6.1E-05	3.2E-01
Future	Fisherman	Surface water	Dermal		1.5E-07	4.1E-03
	Resident child	Surface water	Dermal		5.3E-07	3.3E-03
Grant Creek (MFG area)						
Current	Fish consumer	Surface water	Ingestion	2,6-DNT,2,4-DNT	6.6E-06	3.6E-02
Future	Fisherman	Surface water	Dermal	2,4,6-TNT	7.9E-06	1.8E-03
	Resident child	Surface water	Dermal	2,4,6-TNT	8.3E-06	8.0E-04
L1						
Current	Security worker	Soil	Inhalation, ingestion, dermal		1.0E-07	4.0E-02
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	2,4,6-TNT, Cadmium	1.0E-05	7.0E+00
	Construction worker	Soil	Inhalation, ingestion, dermal	PCB 1260, 2,4,6-TNT	1.0E-05	8.0E+00
	Resident	Soil	Inhalation, ingestion, dermal	2,4,6-TNT, Cadmium	1.0E-04	2.0E+01
	Hunter	Soil	Inhalation, ingestion, dermal	2,4,6-TNT, Cadmium	4.0E-06	1.0E+00
	Resident	Groundwater	Inhalation, ingestion, dermal	2,4,6-TNT, 1,3,5-TNB	4.0E-04	4.0E+02

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
L2						
Current	Security worker	Soil (burning pad)	Inhalation, ingestion, dermal		2.0E-07	2.0E-02
		Soil (popping furnace)	Inhalation, ingestion, dermal		2.0E-07	1.0E-03
		Soil (oils pits)	Inhalation, ingestion, dermal	PCBs	3.0E-04	4.0E-02
	Hunter	Soil (burning pad)	Inhalation, ingestion, dermal	2,4,6-TNT	6.0E-06	6.0E-01
		Soil (popping furnace)	Inhalation, ingestion, dermal		6.0E-06	3.0E-02
		Soil (oils pits)	Inhalation, ingestion, dermal	PCBs	1.0E-02	1.0E+00
Future	Industrial worker	Soil (burning pad)	Inhalation, ingestion, dermal	2,4,6-TNT	2.0E-05	3.0E+00
		Soil (popping furnace)	Inhalation, ingestion, dermal		2.0E-05	7.0E-01
		Soil (oils pits)	Inhalation, ingestion, dermal	PCBs, Heptachlor epoxide	6.0E-02	5.0E+00
	Construction worker	Soil (burning pad)	Inhalation, ingestion, dermal	2,4,6-TNT	2.0E-05	6.0E+00
		Soil (popping furnace)	Inhalation, ingestion, dermal	Cadmium	4.0E-05	1.0E-01
		Soil (oils pits)	Inhalation, ingestion, dermal	PCBs, Heptachlor epoxide	2.0E-03	2.0E+01
	Resident	Soil (burning pad)	Inhalation, ingestion, dermal	2,4,6-TNT	2.0E-04	2.0E+01
		Soil (popping furnace)	Inhalation, ingestion, dermal		2.0E-04	1.0E+00
		Soil (oils pits)	Inhalation, ingestion, dermal	PCBs, Heptachlor epoxide	2.0E-01	3.0E+01
	Resident	Groundwater (burning pad)	Inhalation, ingestion, dermal	RDX	8.0E-04	6.0E+00
		Groundwater (oil pits)	Inhalation, ingestion, dermal	1,2-Dichloroethane	5.0E-06	6.0E-02
	Resident (child)	Surface water	Dermal	PCBs	3.0E-02	7.0E-02
L3						
Current	Security worker	Soil	Inhalation, ingestion, dermal		1.0E-07	3.0E-03
		Soil (northeast area)	Inhalation, ingestion, dermal		8.0E-08	5.0E-03
		Soil (bermed area)	Inhalation, ingestion, dermal		3.0E-07	7.0E-03
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	Arsenic, RDX	2.0E-05	5.0E-01
		Soil (northeast area)	Inhalation, ingestion, dermal	Arsenic, 2,6-DNT	9.0E-06	8.0E-01
		Soil (bermed area)	Inhalation, ingestion, dermal	RDX	4.0E-05	1.0E+00
	Construction worker	Soil	Inhalation, ingestion, dermal	Arsenic, RDX	2.0E-05	1.0E+00
	Resident	Soil	Inhalation, ingestion, dermal	Arsenic, RDX	1.0E-04	3.0E+00
		Soil (northeast area)	Inhalation, ingestion, dermal	Arsenic, 2,6,-DNT, Thallium, 1,3,5-TNB	8.0E-05	5.0E+00
		Soil (bermed area)	Inhalation, ingestion, dermal	RDX	3.0E-04	6.0E+00
	Hunter	Soil	Inhalation, ingestion, dermal	Arsenic, RDX	5.0E-06	1.0E-01
		Soil (northeast area)	Inhalation, ingestion, dermal	Arsenic, 2,6-DNT	3.0E-06	2.0E-01
		Soil (bermed area)	Inhalation, ingestion, dermal	RDX	1.0E-05	2.0E-01
	Resident	Groundwater (bermed area)	Inhalation, ingestion, dermal	RDX	1.0E-04	8.0E-01
		Groundwater (burn cage plume)	Inhalation, ingestion, dermal	RDX	3.0E-05	2.0E-01
L4						
Current	Security worker	Soil	Inhalation, ingestion, dermal		2.0E-08	4.0E-04
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	PAHs, PCB 1260	3.0E-06	8.0E-02
	Construction worker	Soil	Inhalation, ingestion, dermal		2.0E-06	2.0E-01
	Resident	Soil	Inhalation, ingestion, dermal	PAHs, PCB 1260	2.0E-05	2.0E-01
	Hunter	Soil	Inhalation, ingestion, dermal		7.0E-07	1.0E-02
	Resident	Groundwater	Inhalation, ingestion, dermal	1,2-Dichlorethane	2.0E-05	1.0E-04
L5						
Current	Security worker	Soil	Inhalation, ingestion, dermal	PCBs	7.0E-04	1.0E-02
		Soil (junk pile)	Inhalation, ingestion, dermal	PCBs	1.0E-03	3.0E-02
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	PCBs,Cadmium	1.0E-01	3.0E+00
		Soil (junk pile)	Inhalation, ingestion, dermal	PCBs.Cadmium	3.0E-01	6.0E+00
	Construction worker	Soil	Inhalation, ingestion, dermal	PCBs	8.0E-03	2.0E+00
	Resident	Soil	Inhalation, ingestion, dermal	PCBs,Cadmium	3.0E-01	7.0E+00
		Soil (junk pile)	Inhalation, ingestion, dermal	PCBs,Cadmium	6.0E-01	1.0E+01
	Hunter	Soil	Inhalation, ingestion, dermal	PCBs	2.0E-02	4.0E-01
		Soil (junk pile)	Inhalation, ingestion, dermal	PCBs	5.0E-02	9.0E-01
	Resident	Grounwater	Inhalation, ingestion, dermal	Manganese	NC	3.0E+00

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
L6						
Current	Security worker	Soil	Inhalation, ingestion, dermal		2.0E-06	2.0E-04
		Soil (PCB spill area)	Inhalation, ingestion, dermal		2.0E-06	3.0E-04
	Industrial worker	Soil	Inhalation, ingestion, dermal	PCBs, PAHs	3.0E-04	2.0E-02
		Soil (PCB spill area)	Inhalation, ingestion, dermal	PCBs, PAHs	4.0E-04	3.0E-02
	Construction worker	Soil	Inhalation, ingestion, dermal	PAHs, PCBs	9.0E-05	2.0E-01
	Resident	Soil	Inhalation, ingestion, dermal	PCBs, PAHs	1.0E-03	1.0E-01
		Soil (PCB spill area)	Inhalation, ingestion, dermal	PCBs, PAHs	2.0E-03	2.0E-01
	Hunter	Soil	Inhalation, ingestion, dermal	PCBs, PAHs	6.0E-05	5.0E-03
		Soil (PCB spill area)	Inhalation, ingestion, dermal	PCBs, PAHs	7.0E-05	8.0E-03
	Resident	Groundwater	Inhalation, ingestion, dermal	Arsenic	3.0E-04	1.0E+00
	Resident (child)	Surface water	Dermal		6.0E-09	8.0E-05
L7						
Current	Security worker	Soil	Inhalation, ingestion, dermal	PCBs	4.0E-06	3.0E-05
	Construction worker	Soil	Inhalation, ingestion, dermal	PCBs	8.0E-05	3.0E-02
	Resident	Soil	Inhalation, ingestion, dermal	PCBs	2.0E-03	3.0E-02
	Hunter	Soil	Inhalation, ingestion, dermal	PCBs	1.0E-04	8.0E-04
	Resident	Groundwater	Inhalation, ingestion, dermal		NC	1.0E-02
	Resident (child)	Surface water	Dermal		1.0E-07	3.0E-02
L8						
Current	Security worker	Soil	Inhalation, ingestion, dermal		4.0E-07	4.0E-05
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	PCBs	1.0E-04	5.0E-03
	Construction worker	Soil	Inhalation, ingestion, dermal	PCBs	1.0E-05	1.0E-02
	Resident	Soil	Inhalation, ingestion, dermal	PCBs	2.0E-04	4.0E-02
	Hunter	Soil	Inhalation, ingestion, dermal	PCBs	2.0E-05	1.0E-03
	Resident	Groundwater	Inhalation, ingestion, dermal		NC	2.0E+00
	Resident (child)	Surface water	Dermal		7.0E-08	3.0E-02
L9						
Current	Security worker	Soil	Inhalation, ingestion		6.0E-07	8.0E-02
		Soil (building 3-4)	Inhalation, ingestion	RDX	1.0E-06	5.0E-02
		Soil (building 3-5A)	Inhalation, ingestion	2,4,6-TNT	1.0E-06	3.0E-01
Future	Industrial Worker	Soil	Inhalation, ingestion	2,4,6-TNT, RDX	8.0E-05	9.0E+00
		Soil (building 3-4)	Inhalation, ingestion	2,4,6-TNT, RDX	2.0E-04	6.0E+00
		Soil (building 3-5A)	Inhalation, ingestion	2,4,6-TNT	2.0E-04	3.0E+01
	Construction worker	Soil	Inhalation, ingestion	2,4,6-TNT, RDX	2.0E-05	4.0E+01
	Resident	Soil	Inhalation, ingestion	2,4,6-TNT, RDX	7.0E-04	7.0E+01
		Soil (building 3-4)	Inhalation, ingestion	RDX, 2,4,6-TNT	2.0E-03	5.0E+01
		Soil (building 3-5A)	Inhalation, ingestion	2,4,6-TNT	2.0E-03	2.0E+02
	Hunter	Soil	Inhalation, ingestion	2,4,6-TNT, RDX	2.0E-05	2.0E+00
		Soil (building 3-4)	Inhalation, ingestion	2,4,6-TNT, RDX	5.0E-05	1.0E+00
		Soil (building 3-5A)	Inhalation, ingestion	2,4,6-TNT	5.0E-05	8.0E+00
	Resident (child)	Surface water	Dermal		3.0E-07	1.0E-01
	Hunter	Sediment	Inhalation, ingestion		2.0E-08	3.0E-03
L10						
Current	Security worker	Soil	Inhalation, ingestion, dermal	PCBs, RDX	1.0E-05	2.0E-02
		Soil (Hotspot)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	4.0E-06	1.0E-01
	Industrial worker	Soil	Inhalation, ingestion, dermal	PCBs, RDX, 2,4,6-TNT	2.0E-03	2.0E+00
		Soil (Hotspot)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	5.0E-04	1.0E+01
Furture	Construction worker	Soil	Inhalation, ingestion, dermal	PCBs, RDX, 2,4,6-TNT	2.0E-04	5.0E+00
	Resident	Soil	Inhalation, ingestion, dermal	PCBs, RDX, 2,4,6-TNT	6.0E-03	1.0E+01
		Soil (Hotspot)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	5.0E-03	1.0E+02
		Groundwater	Inhalation, ingestion, dermal	1,2-Dichloroethane, RDX, Manganese	1.0E-05	9.0E+00
	Hunter	Soil	Inhalation, ingestion, dermal	PCBs, RDX	3.0E-04	5.0E-01
		Soil (Hotspot)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	2.0E-04	4.0E+00
	Resident (child)	Surface water	Dermal		2.0E-07	7.0E-03

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
L11						
Current	Security worker	Soil	Inhalation, ingestion, dermal		7.0E-08	9.0E-04
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	Arsenic	9.0E-06	2.0E-01
	Construction worker	Soil	Inhalation, ingestion, dermal	Arsenic	1.0E-05	4.0E-01
	Resident	Soil	Inhalation, ingestion, dermal	Arsenic	8.0E-05	5.0E-01
	Hunter	Soil	Inhalation, ingestion, dermal	Arsenic	2.0E-06	3.0E-02
L13						
Current	Security worker	Soil	Inhalation, ingestion		7.0E-10	1.0E-05
Future	Industrial worker	Soil	Inhalation, ingestion		8.0E-08	1.0E-03
	Construction worker	Soil	Inhalation, ingestion		3.0E-08	6.0E-03
	Resident	Soil	Inhalation, ingestion		7.0E-07	9.0E-03
	Hunter	Soil	Inhalation, ingestion		2.0E-08	3.0E-04
L14						
Current	Security worker	Soil	Inhalation, ingestion, dermal	RDX	1.0E-06	4.0E-02
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX	7.0E-06	2.0E-01
Future	Industrial worker	Soil	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	1.0E-04	5.0E+00
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	9.0E-04	3.0E+01
	Construction worker	Soil	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	4.0E-05	2.0E+01
	Resident	Soil	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	1.0E-03	3.0E+01
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	8.0E-03	2.0E+02
	Hunter	Soil	Inhalation, ingestion, dermal	RDX,2,4,6-TNT	4.0E-05	1.0E+00
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX, 2,4,6-TNT	3.0E-04	7.0E+00
	Resident	Groundwater	Inhalation, ingestion, dermal	RDX	1.0E-03	8.0E+00
	Resident (child)	Surface water	Dermal		2.0E-08	4.0E-03
L15						
Current	Security worker	Soil	Inhalation, ingestion		4.0E-10	4.0E-05
Future	Industrial worker	Soil	Inhalation, ingestion		5.0E-08	5.0E-03
L15						
Future	Construction worker	Soil	Inhalation, ingestion		2.0E-08	2.0E-02
	Resident	Soil	Inhalation, ingestion		4.0E-07	4.0E-02
	Hunter	Soil	Inhalation, ingestion		1.0E-08	1.0E-03
L16						
Current	Security worker	Soil	Inhalation, ingestion, dermal	RDX	2.0E-06	2.0E-02
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX	1.0E-05	9.0E-02
	Industrial worker	Soil	Inhalation, ingestion, dermal	RDX	3.0E-04	3.0E+00
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX	1.0E-03	1.0E+01
Future	Construction worker	Soil	Inhalation, ingestion, dermal	RDX	9.0E-05	1.0E+01
	Resident	Soil	Inhalation, ingestion, dermal	RDX	3.0E-03	2.0E+01
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX	1.0E-02	8.0E+01
	Hunter	Soil	Inhalation, ingestion, dermal	RDX	8.0E-05	6.0E-01
		Soil (hotspots)	Inhalation, ingestion, dermal	RDX	4.0E-04	3.0E+00
	Resident (child)	Surface water	Dermal		4.0E-08	1.0E-03
L17						
Current	Security worker	Soil	Inhalation, ingestion, dermal	PCBs	5.0E-06	7.0E-05
		Soil (hotspots)	Inhalation, ingestion, dermal	PCBs	7.0E-05	4.0E-04
	Industrial worker	Soil	Inhalation, ingestion, dermal	PCBs	1.0E-03	2.0E-02
		Soil (hotspots)	Inhalation, ingestion, dermal	PCBs	2.0E-02	9.0E-02
Future	Construction worker	Soil	Inhalation, ingestion, dermal	PCBs	3.0E-04	3.0E-02
	Resident	Soil	Inhalation, ingestion, dermal	PCBs	3.0E-03	3.0E-02
		Soil (hotspots)	Inhalation, ingestion, dermal	PCBs	4.0E-02	1.0E-01
	Hunter	Soil	Inhalation, ingestion, dermal	PCBs	2.0E-04	2.0E-03
		Soil (hotspots)	Inhalation, ingestion, dermal	PCBs	3.0E-03	1.0E-02
	Resident (child)	Surface water	Dermal		NC	4.0E-04
L18 & L19						
Future	Resident	Groundwater	Inhalation, ingestion, dermal	Manganese	NC	3.0E+00

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-3
SUMMARY OF REASONABLE MAXIMUM EXPOSURE RISK CHARACTERIZATION
JOAAP, WILL COUNTY, ILLINOIS

Land Use	Receptor	Media	Pathway	Major Chemicals Contributing to Exceedences	Total Carcinogenic Risk	Hazard Index
L23						
Current	Security worker	Soil	Inhalation, ingestion		4.0E-10	4.0E-03
Future	Industrial worker	Soil	Inhalation, ingestion		9.0E-08	7.0E-01
	Construction worker	Soil	Inhalation, ingestion	Cadmium, Nickel, Manganese, Antimony	5.0E-06	9.0E+00
	Resident	Soil	Inhalation, ingestion	Antimony	3.0E-07	3.0E+00
	Hunter	Soil	Inhalation, ingestion		2.0E-08	1.0E-01
L32						
Current	Security worker	Soil	Inhalation, ingestion		NC	2.0E-06
Future	Industrial worker	Soil	Inhalation, ingestion		NC	2.0E-04
	Construction worker	Soil	Inhalation, ingestion		NC	1.0E-03
	Resident	Soil	Inhalation, ingestion		NC	1.0E-03
	Hunter	Soil	Inhalation, ingestion		NC	5.0E-05
L33						
Current	Security worker	Soil	Inhalation, ingestion		2.0E-10	9.0E-06
Future	Industrial worker	Soil	Inhalation, ingestion		2.0E-08	1.0E-03
	Construction worker	Soil	Inhalation, ingestion		1.0E-08	7.0E-03
	Resident	Soil	Inhalation, ingestion		2.0E-07	9.0E-03
	Hunter	Soil	Inhalation, ingestion		6.0E-09	3.0E-04
L34						
Current	Security worker	Soil	Inhalation, ingestion		NC	2.0E-06
Future	Industrial worker	Soil	Inhalation, ingestion		NC	2.0E-04
	Construction worker	Soil	Inhalation, ingestion		NC	2.0E-03
	Resident	Soil	Inhalation, ingestion		NC	2.0E-03
	Hunter	Soil	Inhalation, ingestion		NC	6.0E-05
Jordan Creek (LAP area)						
Current	Fishermen	Surface water	Ingestion, dermal		2.0E-07	8.0E-02
	Fish consumer	Surface water	Ingestion		5.0E-07	1.0E-01
Future	Resident child	Surface water	Ingestion, dermal		9.0E-08	1.0E-01
Prairie Creek (LAP area)						
Current	Fishermen	Surface water	Ingestion, dermal		6.0E-08	7.0E-01
	Fish consumer	Surface water	Ingestion	1,3,5-TNB	2.0E-07	2.0E+00
Future	Resident child	Surface water	Ingestion, dermal		2.0E-08	9.0E-01
Kemery Lake (LAP area)						
Current	Fishermen	Surface water	Ingestion, dermal	Beryllium, Arsenic	2.0E-05	6.0E-01
	Fish consumer	Surface water	Ingestion	Beryllium, Arsenic	3.0E-04	2.0E+00
Future	Resident child	Surface water	Ingestion, dermal	Beryllium, Arsenic	6.0E-06	8.0E-01

NC- Not caculated as the cancer slope factors and/or RfDs are not available.
Shaded values exceed acceptable risks levels.
Source: DAMO23, DAMO26.

TABLE 4-4
INVENTORY OF UNDERGROUND STORAGE TANKS
JOAAP, WILL COUNTY, ILLINOIS

USACE UST Survey Tank Number (JAAP-)	Facility Tank Identification Number	Year Installed	Capacity (gallons)	Location (PAS Section)	Substance Stored	Construction Material		Removal Date
						Tank	Piping	
1	1-1-1	1941	20,000	L7	Fuel Oil	Steel	Bare steel	September, 1991[1]
2	1-1-2	1942	20,000	L7	Fuel Oil	Steel	Bare steel	September, 1991[1]
3	2-1-1	1941	20,000	L8	Fuel Oil	Steel	Bare steel	October, 1991[1]
4	2-1-2	1942	20,000	L8	Fuel Oil	Steel	Bare steel	October, 1991[1]
5	2-1-3	1941	260	L8	Diesel	Steel	Bare steel	October, 1991[1]
6	3-1-1	1941	20,000	L9	Fuel Oil	Steel	Bare steel	November, 1991[1]
7	3-1-2	1942	20,000	L9	Fuel Oil	Steel	Bare steel	November, 1991[1]
8	3-1-3	1954	20,000	L9	Fuel Oil	Steel	Bare steel	November, 1991[1]
9	3-1-4	1954	20,000	L9	Fuel Oil	Steel	Bare steel	November, 1991[1]
10	3A-1-1	1942	20,000	L10	Fuel Oil	Steel	Bare steel	October, 1991[1]
11	3A-1-2	1943	20,000	L10	Fuel Oil	Steel	Bare steel	October, 1991[1]
12	20-19-1	1984	4,000	L20	Diesel	Fiberglass	Bare steel	September, 1993[2]
13	23-35-1	1952	8,000	L2	Fuel Oil	Steel	Bare steel	August, 1991[1]
14	23-39-1	1979	250	L3	Fuel Oil	Steel	Bare steel	August, 1991[1]
15	23-40-1	1976	2,000	L2	Fuel Oil	Steel	Bare steel	September, 1993[2]
16	26-7-1	1952	10,000	L5	Waste Oil	Steel	Bare steel	December, 1990[4]
17	60-11-2	1943	280	L32	Diesel	Steel	Bare steel	September, 1991[1]
18	70-16-1	1966?	1,500	L6	Gasoline	Steel	Bare steel	March, 1994[12]
19	308-1-3-1	1941	1,000	M8	Diesel	Steel	Bare steel	September, 1991[1]
20	401-1-1	1941	15,000	M8	Fuel Oil	Steel	Bare steel	September, 1991[1]
21	401-2-1	1941	15,000	M104	Fuel Oil	Steel	Bare steel	September, 1991[1]
22	505-12-2	1984	560	M105	Diesel	Steel	Bare steel	
23	601-96-1	1964	7,500	M8	Acetone	Steel	Bare steel	December, 1990[4]
24	601-96-2	1964	7,500	M8	Acetone	Steel	Bare steel	December, 1990[4]
25	716-1-2	1968	8,000	M18	Diesel	Steel	Bare steel	September, 1991[1]
26	716-1-3	1969	3,000	M18	Fuel Oil	Steel	Bare steel	September, 1991[1]
27	718-1-1	1943	10,000	M8	Diesel	Steel	Bare steel	Removed[5]

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TABLE 4-4
INVENTORY OF UNDERGROUND STORAGE TANKS
JOAAP, WILL COUNTY, ILLINOIS

USACE UST Survey Tank Number (JAAP-)	Facility Tank Identification Number	Year Installed	Capacity (gallons)	Location (PAS Section)	Substance Stored	Construction Material		Removal Date
						Tank	Piping	
28	718-2-1	1943	8,000	M108	Diesel	Steel	Bare steel	December, 1990[4]
29	718-2-2	1943	8,000	M108	Diesel	Steel	Bare steel	December, 1990[4]
30	861-1	1966	16,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
31	861-2	1966	16,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
32	861-3	1966	16,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
33	861-4	1966	26,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
34	861-5	1966	21,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
35	861-6	1966	21,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
36	861-7	1966	21,000	M7	Fuel Oil	Steel	Bare steel	August, 1991[1]
37	1181-1	1972	8,000	M8	Gasoline	Steel	Bare steel	Removed[5]
38	1181-2	1972	8,000	M8	Gasoline	Steel	Bare steel	Removed[5]
39	TNT 3-1-1	1943	1,000	M6	Sulfuric Acid	Steel	Bare steel	September, 1993[2]
40	TNT 6 A&B-1	1943	1,000	M6	Sulfuric Acid	Steel	Bare steel	September, 1993[2]
41	23-2	1942	2,000	L21	Fuel Oil	Steel	Bare steel	Removed[19]
42	23-34	1941	565	L21	Fuel Oil	Steel	Bare steel	August, 1991[1]
43	60-7-1	1941	1,000	L32	Fuel Oil	Steel	Bare steel	September, 1991[1]
44	60-11-1	1941	17,000	L32	Fuel Oil	Steel	Bare steel	September, 1991[1]
45	61-11	1941	4,000	L21	Fuel Oil	Steel	Bare steel	September, 1993[2]
46	64-36	1978	2,000	L118	Fuel Oil	Unknown	Unknown	September, 1993[2]
47	70-43-1	1941	20,000	L6	Fuel Oil	Steel	Bare steel	August, 1991[1]
48	70-43-2	1941	20,000	L6	Fuel Oil	Steel	Bare steel	August, 1991[1]
49	70-43-3	1941	20,000	L6	Fuel Oil	Steel	Bare steel	August, 1991[1]
50	412-1	1941	1,000	M117	Fuel Oil	Steel	Bare steel	August, 1991[1]
51	412-2	1941	1,000	M116	Fuel Oil	Steel	Bare steel	August, 1991[1]
52	505-12-1	1984	3,000	M105	Fuel Oil	Unknown	Unknown	

TABLE 4-4
INVENTORY OF UNDERGROUND STORAGE TANKS
JOAAP, WILL COUNTY, ILLINOIS

USACE UST Survey Tank Number (JAAP-)	Facility Tank Identification Number	Year Installed	Capacity (gallons)	Location (PAS Section)	Substance Stored	Construction Material		Removal Date
						Tank	Piping	
53	707-13	1941	1,000	M108	Fuel Oil	Unknown	Bare steel	September, 1991[1]
54	709-1	1942	750	M104	Fuel Oil	Steel	Bare steel	March, 1994[7]
55	716-1-1	1941	8,000	M18	Fuel Oil	Steel	Bare steel	September, 1991[1]
56	716-2-1	unknown	unknown	M16	Waste Oil	Steel	Bare steel	Closed in place?[18, 19]
57	716-3	unknown	unknown	M16	Gasoline	Steel	Bare steel	Not found[18]
58	308-2-3-1	1941	1,000	M8	Fuel Oil	Steel	Bare steel	September, 1991[1]
59	6-10-1	1942	15,000	L16	Fuel Oil	Steel	Bare steel	August, 1991[1]
60	6-10-2	1942	15,000	L16	Fuel Oil	Steel	Bare steel	August, 1991[1]
61	5-7-1	1941	15,000	L15	Fuel Oil	Steel	Bare steel	September, 1993[2]
62	4-7-1	1942	15,000	L14	Fuel Oil	Steel	Bare steel	September, 1993[2]
63	4-7-2	1941	unknown	L14	Diesel	Steel	Bare steel	
64	7-10-1	1942	15,000	L17	Fuel Oil	Steel	Bare steel	September, 1993[2]
65	8-12-1	1942	15,000	L18	Fuel Oil	Steel	Bare steel	August, 1991[1]
66	8-11-1	1941	unknown	L18	Fuel Oil	Steel	Bare steel	August, 1991[1]
67	9-16-1	1941	20,000	L19	Fuel Oil	Steel	Bare steel	August, 1991[1]
68	4-21-1	1941	20,000	L14	Fuel Oil	Steel	Bare steel	March, 1994[14]
69	3A-1-3	1941	2,500	L10	Diesel	Steel	Bare steel	October, 1991[1]
70	100-1	1941	3,000	M104[17]	Fuel Oil	Steel	Bare steel	March, 1994[15]
71	716-3-2		4,000	M16	Waste Oil			March, 1994[18]
72	716-3-3		1,500	M16	Waste Oil	Concrete		March, 1994[8]
73	70-13-1		6,000	L6	Waste Oil			March, 1994[19]
74	70-13-2		1,500	L6	Waste Oil	Steel		March, 1994[9]
75	718-2-3		1,000	M108	Fuel Oil	Steel		March, 1994[10]
76	1101-1		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
77	1101-2		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
78	1101-3		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
79	1101-4		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]

TABLE 4-4
INVENTORY OF UNDERGROUND STORAGE TANKS
JOAAP, WILL COUNTY, ILLINOIS

USACE UST Survey Tank Number (JAAP-)	Facility Tank Identification Number	Year Installed	Capacity (gallons)	Location (PAS Section)	Substance Stored	Construction Material		Removal Date
						Tank	Piping	
80	1101-5		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
81	1101-6		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
82	1101-7		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
83	1101-8		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
84	1101-9		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
85	1101-10		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
86	1101-11		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
87	1101-12		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
88	1101-13		1,000	M102	Fuel Oil	Steel	Galvanized steel	December, 1993[3]
89	721-4-1		2,000	M102	Fuel Oil	Steel		December, 1994[11]
90	803-1-1			M6				
91	803-2-1			M6				
92	803-3-1			M6				
93	803-4-1			M6				
94	803-5-1			M6				
95	803-6-1			M6				
96	803-7-1			M6				
97	803-8-1			M6				
98	803-9-1			M6				
99	803-10-1			M6				
100	OL-1			M102				Removed[16]
101	713-1-1			M8	Gasoline			Not found[18]
102	713-1-2			M8	Gasoline			Not found[18]
103	722-4-1		1,300	M6	Sodium Sulfate	Steel		March, 1994[13]
104	722-4-2		2,500	M6	Sodium Sulfate	Steel		March, 1994[13]

TABLE 4-4
INVENTORY OF UNDERGROUND STORAGE TANKS
JOAAP, WILL COUNTY, ILLINOIS

USACE UST Survey Tank Number (JAAP-)	Facility Tank Identification Number	Year Installed	Capacity (gallons)	Location (PAS Section)	Substance Stored	Construction Material		Removal Date
						Tank	Piping	
105	1101-14		1,000	M102	Fuel Oil			Removed[19]
106	7-10-2		15,000	L17	Fuel Oil			
107	70-5-1			L6	Fuel Oil			June, 1993[16]
	70-10-2		200	L6				September, 1993[6]
	70-10-1		15,000	L6				September, 1993[6]
	24-1-1[16]			L116				

Source: ACOE02, AEST01, JAAP01, ACOE04, UCCI69

Note: Empty cells in the table indicate that the information was not available at the time of this report. Some tanks were in poor condition at the time of removal. Refer to the tank removal reports for remedial actions taken. "Not found" listed above indicates that the tank was not located when removal was attempted and prior removal is likely. "Removed" listed above indicates that the tank was removed but documentation of the removal did not specify a removal date.

Tanks 90 to 99 are blow tanks (in line process tanks) associated with the DNT houses.

Shaded rows represent tanks in the Industrial Park parcels.

1	BEST02	9	ATEC04	17	Located about 25 feet west of road west of building 709, along fence line (ACOE02).
2	BEST01	10	ATEC05	18	MEMO21
3	ATEC13	11	ATEC06	19	DOTA35
4	BRAN01	12	ATEC07		
5	UCCI56	13	ATEC08		
6	DOTA10	14	ATEC09		
7	ATEC02	15	ATEC10		
8	ATEC03	16	FIEL01		

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
Acid Area 1			
M8	101	Ammonia	64,714
M8	102	Ammonia	64,714
M8	103	Ammonia	64,714
M8	104	Ammonia	64,714
M8	105	Ammonia	64,714
M8	106	Ammonia	64,714
M8	107	Ammonia	64,714
M8	108	Ammonia	64,714
M8	109	Ammonia	64,714
M8	110	Ammonia	64,714
M8	111	Ammonia	64,714
M8	112	Ammonia	64,714
M8	113	Ammonia	64,714
M8	114	Ammonia	64,714
M8	115	Ammonia	64,714
M8	116	Ammonia	64,714
M8	117	Ammonia	64,714
M8	118	Ammonia	64,714
M8	119	Ammonia	64,714
M8	120	Ammonia	64,714
M8	201	60 Percent Nitric Acid	83,000
M8	202	60 Percent Nitric Acid	83,000
M8	203	60 Percent Nitric Acid	83,000
M8	204	60 Percent Nitric Acid	83,000
M8	205	60 Percent Nitric Acid	83,000
M8	206	60 Percent Nitric Acid	83,000
M8	207	60 Percent Nitric Acid	83,000
M8	208	60 Percent Nitric Acid	83,000
M8	209	55 Percent Nitric Acid	21,000
M8	210	55 Percent Nitric Acid	21,000
M8	300	98 Percent Nitric Acid	93,000
M8	301	98 Percent Nitric Acid	93,000
M8	302	98 Percent Nitric Acid	93,000
M8	303	Strong Nitric	93,000
M8	304	98 Percent Nitric Acid	93,000
M8	401	93 Percent Sulfuric Acid	974,000
M8	402	93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	403	93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	404	93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	405	93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	406	Sulfuric Acid/Oleum/Con Mix Circulator	129,000
M8	407	Sulfuric Acid/Oleum/Con Mix Circulator	129,000
M8	408	Sulfuric Acid/Oleum/Con Mix Circulator	129,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	409	Sulfuric Acid/Oleum/Con Mix Circulator	129,000
M8	410	Sulfuric Acid/Oleum/Con Mix Circulator	129,000
M8	501	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	502	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	503	Light Sulfuric Acid (93 Percent) Sulfuric Acid Make Tank	40,000
M8	504	Light Sulfuric Acid (93 Percent)Sulfuric Acid Make Tank	40,000
M8	505	75 Percent Sulfuric Acid/ NAC Residual Sulfuric Acid	57,000
M8	506	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	507	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	550	Light Sulfuric Acid (93 Percent)	387,000
M8	551	Strong Nitric/93 Percent Sulfuric Acid	387,000
M8	552	Strong Nitric/93 Percent Sulfuric Acid	387,000
M8	553	93 Percent Sulfuric Acid	40,000
M8	554	93 Percent Sulfuric Acid	40,000
M8	556	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	110,000
M8	601	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	602	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	603	75 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	116,000
M8	604	75 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	116,000
M8	605	75 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	116,000
M8	606	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	352,000
M8	607	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	352,000
M8	608	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	352,000
M8	610	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	110,000
M8	611	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	55,000
M8	700	Strong Nitric/Strong Mix Circulator	113,000
M8	701	Strong Acid Mix/Strong Mix Circulator	113,000
M8	702	Strong Acid Mix/Strong Mix Circulator	113,000
M8	703	Tetryl Mix Acid	119,000
M8	704	Tetryl Mix Acid	119,000
M8	705	Tetryl Mix Acid	119,000
M8	706	Tetryl Mix Acid	119,000
M8	707	Tetryl Mix Acid	119,000
M8	708	Tetryl Mix Acid	119,000
M8	709	Tetryl Mix Acid	119,000
M8	710	Tetryl Mix/TNT Mix Acid	239,000
M8	711	Tetryl Mix/TNT Mix Acid	239,000
M8	712	Tetryl Mix/TNT Mix Acid	239,000
M8	713	Tetryl Mix/TNT Mix Acid	239,000
M8	801	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Sales	974,000
M8	802	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Sales	974,000
M8	803	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Sales	974,000
M8	804	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Sales	974,000
M8	805	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Sales	974,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	806	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Sales	974,000
M8	807	TNT Mix Acid	975,000
M8	808	TNT Mix Acid	975,000
M8	809	Oleum	1,057,000
M8	810	Oleum	1,057,000
M8	901	AOP Nitrate/Water Condensate	43,000
M8	902	Bunker C	61,497
M8	903	Bunker C	61,497
M8	904	Oil Circulating	2,000 gallons
M8	905	Fuel Oil #2	60,000 gallons
M8	906	Fuel Oil #2	185,000 gallons
Acid Area 2			
M8	101	Ammonia	714,000 (pounds water)
M8	102	Ammonia	714,000 (pounds water)
M8	103	Ammonia	64,714
M8	104	Ammonia	64,714
M8	105	Ammonia	64,714
M8	106	Ammonia	64,714
M8	107	Ammonia	64,714
M8	108	Ammonia	64,714
M8	109	Ammonia	64,714
M8	110	Ammonia	64,714
M8	111	Ammonia	64,714
M8	112	Ammonia	64,714
M8	113	Ammonia	64,714
M8	114	Ammonia	64,714
M8	115	Ammonia	64,714
M8	116	Ammonia	64,714
M8	117	Ammonia	64,714
M8	118	Ammonia	64,714
M8	119	Ammonia	64,714
M8	120	Ammonia	64,714
M8	201	60 Percent Nitric Acid	83,000
M8	202	60 Percent Nitric Acid	83,000
M8	203	60 Percent Nitric Acid	83,000
M8	204	60 Percent Nitric Acid	83,000
M8	205	60 Percent Nitric Acid	83,000
M8	206	60 Percent Nitric Acid	83,000
M8	207	60 Percent Nitric Acid	83,000
M8	208	60 Percent Nitric Acid	83,000
M8	209	60 Percent Nitric Acid	91,000
M8	210	60 Percent Nitric Acid	91,000
M8	300	98 Percent Nitric Acid	93,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	301	98 Percent Nitric Acid	93,000
M8	302	98 Percent Nitric Acid	93,000
M8	303	98 Percent Nitric Acid	93,000
M8	304	98 Percent Nitric Acid	93,000
M8	401	93 Percent Sulfuric Acid	974,000
M8	402	93 Percent Sulfuric Acid	974,000
M8	403	93 Percent Sulfuric Acid	974,000
M8	404	93 Percent Sulfuric Acid	974,000
M8	405	93 Percent Sulfuric Acid	974,000
M8	406	Sulfuric Acid/Oleum/Con Mix Circulators	129,000
M8	407	Sulfuric Acid/Oleum/Con Mix Circulators	129,000
M8	408	Sulfuric Acid/Oleum/Con Mix Circulators	129,000
M8	409	Sulfuric Acid/Oleum/Con Mix Circulators	129,000
M8	410	Sulfuric Acid/Oleum/Con Mix Circulators	129,000
M8	501	93 Percent Sulfuric Acid/Oleum/Dark Sulfuric Acid	974,000
M8	502	93 Percent Sulfuric Acid/Oleum/Dark Sulfuric Acid	974,000
M8	503	93 Percent Sulfuric Acid/Sulfuric Acid Make Tank	40,000
M8	504	93 Percent Sulfuric Acid/Sulfuric Acid Make Tank	40,000
M8	550	Light Sulfuric Acid\Tetryl Mix Acid	330,000
M8	551	Light Sulfuric Acid\Tetryl Mix Acid	330,000
M8	552	Light Sulfuric Acid\Tetryl Mix Acid	330,000
M8	553	93 Percent Sulfuric Acid/Sulfuric Acid Make Tank	40,000
M8	554	93 Percent Sulfuric Acid/Sulfuric Acid Make Tank	40,000
M8	601	63 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	602	63 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	603	74 Percent Residual Sulfuric Acid (NAC)	116,000
M8	604	74 Percent Residual Sulfuric Acid (NAC)	116,000
M8	605	74 Percent Residual Sulfuric Acid (NAC)	116,000
M8	606	74 Percent Residual Sulfuric Acid (NAC)	352,000
M8	607	74 Percent Residual Sulfuric Acid (NAC)	352,000
M8	608	74 Percent Residual Sulfuric Acid (NAC)	352,000
M8	700	Strong Nitric/Strong Mix Acid/Strong Mix Circulator	113,000
M8	701	Strong Nitric/Strong Mix Acid/Strong Mix Circulator	113,000
M8	702	Strong Nitric/Strong Mix Acid/Strong Mix Circulator	113,000
M8	703	TNT Mix Acid	239,000
M8	704	TNT Mix Acid	239,000
M8	705	TNT Mix Acid	239,000
M8	706	TNT Mix Acid	239,000
M8	707	TNT Mix Acid	239,000
M8	708	TNT Mix Acid	239,000
M8	709	TNT Mix Acid	239,000
M8	710	DNT Mix/TNT Mix Acid	239,000
M8	711	DNT Mix/TNT Mix Acid	239,000
M8	712	DNT Mix/TNT Mix Acid	239,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	713	DNT Mix/TNT Mix Acid	239,000
M8	801	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	802	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	803	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	804	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	805	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	806	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	807	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	808	TNT Mix/93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	809	Oleum	1,057,000
M8	810	Oleum	1,057,000
M8	811	F80 Acid Mix	212,000
M8	901	AOP Nitric/Water Condensate	47,378
M8	902	Bunker C	61,497
M8	903	Bunker C	61,497
M8	904	Oil Circulating	2,000 gallons
Acid Area 3			
M8	101	Anhydrous Ammonia	714,000 (pounds water)
M8	102	Anhydrous Ammonia	714,000 (pounds water)
M8	103	Anhydrous Ammonia	64,714
M8	104	Anhydrous Ammonia	64,714
M8	105	Anhydrous Ammonia	64,714
M8	106	Anhydrous Ammonia	64,714
M8	107	Anhydrous Ammonia	64,714
M8	108	Anhydrous Ammonia	64,714
M8	109	Anhydrous Ammonia	64,714
M8	110	Anhydrous Ammonia	64,714
M8	111	Anhydrous Ammonia	64,714
M8	112	Anhydrous Ammonia	64,714
M8	201	60 Percent Nitric Acid	83,000
M8	202	60 Percent Nitric Acid	83,000
M8	203	60 Percent Nitric Acid	83,000
M8	204	60 Percent Nitric Acid	83,000
M8	205	60 Percent Nitric Acid	83,000
M8	206	60 Percent Nitric Acid	83,000
M8	207	60 Percent Nitric Acid	83,000
M8	208	60 Percent Nitric Acid	83,000
M8	209	60 Percent Nitric Acid	83,000
M8	210	60 Percent Nitric Acid	83,000
M8	211	60 Percent Nitric Acid	83,000
M8	212	60 Percent Nitric Acid	83,000
M8	220	60 Percent Nitric	15,593
M8	221	60 Percent Nitric	15,593

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	300	98 Percent Nitric Acid	93,000
M8	301	98 Percent Nitric Acid	93,000
M8	302	98 Percent Nitric Acid	93,000
M8	303	98 Percent Nitric Acid	93,000
M8	401	Nitric Acid/Sulfuric Acid/Oleum/Con Mix Circulator	254,000
M8	402	Nitric Acid/Sulfuric Acid/Oleum/Con Mix Circulator	254,000
M8	403	Oleum/Con Mix Circulator	254,000
M8	404	Oleum/Con Mix Circulator	254,000
M8	405	Nitric Acid/93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	406	Nitric Acid/93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	407	Nitric Acid/93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	408	Nitric Acid/93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	409	Nitric Acid/93 Percent Sulfuric Acid/Con Mix Storage	974,000
M8	501	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	502	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	503	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	504	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	505	93 Percent Sulfuric Acid/Dark Sulfuric Acid	974,000
M8	506	93 Percent Sulfuric Acid/Dark Sulfuric Acid	
M8	511	Light SAC/93 Percent Sulfuric Acid	974,000
M8	512	Light SAC/93 Percent Sulfuric Acid	974,000
M8	513	Light SAC/93 Percent Sulfuric Acid	974,000
M8	514	Light SAC/93 Percent Sulfuric Acid	974,000
M8	515	Light SAC/93 Percent Sulfuric Acid	974,000
M8	516	Dark SAC/93 Percent Sulfuric Acid	974,000
M8	517	Dark SAC/93 Percent Sulfuric Acid	974,000
M8	518	Dark SAC/93 Percent Sulfuric Acid	974,000
M8	519	Dark SAC/93 Percent Sulfuric Acid	974,000
M8	520	Dark SAC/93 Percent Sulfuric Acid	974,000
M8	550	93 Percent Sulfuric Acid	387,000
M8	551	Antifreeze/75 Percent Sulfuric Acid/NAC Residual Sulfuric	352,000
M8	552	93 Percent Sulfuric Acid	387,000
M8	553	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	554	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	555	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	556	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	560	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	561	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	562	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	563	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	564	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	565	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	566	93 Percent Sulfuric Acid/Oleum Drip Sulfuric Acid	974,000
M8	601	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	602	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	603	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	604	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	605	74 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	116,000
M8	606	74 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	116,000
M8	607	74 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	116,000
M8	608	74 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	886,000
M8	609	74 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	886,000
M8	610	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	105,000
M8	611	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	101,000
M8	612	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	101,000
M8	613	75 Percent Sulfuric Acid/NAC Residual Sulfuric Acid	105,000
M8	615	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	616	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	617	74 Percent Sulfuric Acid	886,000
M8	618	74 Percent Sulfuric Acid	886,000
M8	619	74 Percent Sulfuric Acid	886,000
M8	620	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	621	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	622	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	623	93 Percent Sulfuric Acid/Sulfuric Make Tank	63,000
M8	624	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	625	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	626	68 Percent Sulfuric Acid/DNT-TNT Residual Sulfuric Acid	846,000
M8	701	Strong Mix Acid/Strong Mix Circulators	239,000
M8	702	Strong Mix Acid/Strong Mix Circulators	239,000
M8	703	Strong Mix Acid/Strong Mix Circulators	239,000
M8	704	TNT Mix Acid	239,000
M8	705	TNT Mix Acid	239,000
M8	706	TNT Mix Acid	239,000
M8	707	TNT Mix Acid	239,000
M8	708	TNT Mix Acid	239,000
M8	709	TNT Mix Acid	239,000
M8	710	TNT Mix Acid	239,000
M8	711	TNT Mix Acid	239,000
M8	712	TNT Mix Acid	239,000
M8	713	TNT Mix Acid	239,000
M8	714	F-60 Mix Acid	228,000
M8	715	F-60 Mix Acid	228,000
M8	716	F-60 Mix Acid	228,000
M8	717	F-60 Mix Acid	228,000
M8	718	F-60 Mix Acid	228,000
M8	750	TNT Mix Acid	239,000
M8	751	TNT Mix Acid	239,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	752	TNT Mix Acid	239,000
M8	753	TNT Mix Acid	239,000
M8	754	TNT Mix/DNT Mix Acid	232,000
M8	755	TNT Mix/DNT Mix Acid	232,000
M8	801	93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	802	93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	803	93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	804	93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	805	93 Percent Sulfuric Acid/Sulfuric Acid Sales	974,000
M8	809	40 Percent Oleum	1,057,000
M8	810	40 Percent Oleum	1,057,000
M8	811	40 Percent Oleum	3,581,000
M8	812	40 Percent Oleum	3,581,000
M8	813	40 Percent Oleum	1,057,000
M8	814	40 Percent Oleum	1,057,000
M8	815	40 Percent Oleum	1,057,000
M8	850	Oleum/Oleum Circulator Tank	76,000
M8	851	Oleum/Oleum Circulator Tank	76,000
M8	852	Oleum/Oleum Circulator Tank	76,000
M8	853	Oleum/Oleum Circulator Tank	76,000
M8	854	Oleum/Oleum Circulator Tank	52,000
M8	855	Oleum/Oleum Circulator Tank	52,000
M8	856	Oleum/Oleum Circulator Tank	48,000
M8	857	Oleum/Oleum Circulator Tank	48,000
M8	858	Oleum/Oleum Circulator Tank	48,000
M8	859	Oleum/Oleum Circulator Tank	48,000
M8	860	Oleum/Oleum Circulator Tank	52,000
M8	861	Oleum/Oleum Circulator Tank	52,000
M8	900	Fuel Oil #1	2,000 gallons
M8	901	Condensed Water	47,378
M8	902	Fuel Oil #2	115,000 gallons
M8	903	Fuel Oil	204,680 gallons
M8	904	Fuel Oil	1,791 gallons
M8	905	Fuel Oil #2	214,000 gallons
M8	906	Oil	
M8	907	Oil	1,791 gallons
M8	908	Soft Water	16,080
Several gas coolers, oleum coolers, and possible unnumbered tanks near buildings 1501-2 and 1501.			
Acid Area 4 (most of these were removed during liquidation of the Acid 4 plant)			
M8	200	60 Percent Nitric Acid	3,556,000
M8	201	60 Percent Nitric Acid	3,556,000
M8	202	60 Percent Nitric Acid	3,556,000
M8	203	60 Percent Nitric Acid	3,556,000
M8	300	98 Percent Nitric Acid	2,858,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M8	301	98 Percent Nitric Acid	2,858,000
M8	500	93 Percent Sulfuric Acid	1,030,000
M8	501	93 Percent Sulfuric Acid	1,030,000
M8	600	68 Percent Residue Sulfuric Acid	12,306,000
M8	601	68 Percent Residue Sulfuric Acid	12,306,000
M8	800	109 Percent Sulfuric Acid	6,707,000
M8	801	109 Percent Sulfuric Acid	6,707,000
M8		98 Percent Nitric Acid	42,000
M8	900	Fuel Oil #2	250,000 gallons
M8	901	Fuel Oil #2	250,000 gallons
Red Water Plant			
M7	864-1	Neutral Waste/Red Water	2,500,000
M7	864-2	Neutral Waste/Red Water	2,500,000
M7	864-3	Neutral Waste/Red Water	2,500,000
M7	865-1	Raw Waste/Red Water	2,500,000
M7	865-2	Raw Waste/Red Water	2,500,000
M7	865-3	Raw Waste/Red Water	2,500,000
M7	866-1	Condensate	
M7	866-2	Condensate	
M7	866-3	Condensate	
M7	867-1	Acid/74 percent Sulfuric Acid	220,000
M7	867-2	Acid/74 percent Sulfuric Acid	110,000
M7	868-1	Thick Liquor	625,000
M7	868-2	Thick Liquor	625,000
M7	868-3	Thick Liquor	625,000
M7	868-4	Thick Liquor	625,000
M7	868-5	Thick Liquor	625,000
M7	868-6	Thick Liquor	625,000
Sellite Area		(Not in Industrial Park Parcel)	
M12	3	Sellite	265,000
M12	4	Sellite	265,000
M12	5	Sellite	265,000
M12	6	Sellite/Soda Ash	265,000
M12	7	Soda Ash	265,000
M12	8	Soda Ash/Sellite	265,000
M12	9	Sellite	668,000
M12	10	Fuel Oil #2 (a.k.a. tank 900)	2,200 gallons
M12	11	Liquor Sulfur	
TNT Areas Batch TNT			
M6		Mixed Acid	1,023,000
M6		Mixed Acid	1,023,000
M6		Mixed Acid	1,023,000
M6		Residual Acid	902,000
M6		Residual Acid	902,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
M6		Residual Acid	902,000
M6		Residual Acid	902,000
M6		109 Percent Sulfuric Acid (10 Separate Tanks)	1,125,000
M6		Residual Acid (20 Separate Tanks)	105,000
M6		Weak Nitric (10 Separate Tanks)	93,000
M6		Waste Acid (10 Separate Tanks)	112,000
M6		60 Percent Nitric (10 Separate Tanks)	17,000
M6		Mixed Acid (10 Separate Tanks)	100,000
M6		109 Percent Sulfuric Acid (10 Separate Tanks)	125,000
M6		Sellite (10 Separate Tanks)	41,000
Area 1			
M6	1	Toluene	11,000 gallons
Area 2			
M6	1	Toluene	11,000 gallons
Area 3			
M6	1	Toluene	11,000 gallons
Area 4			
M6	1	Toluene	11,000 gallons
Area 5			
M6	1	Toluene	11,000 gallons
Area 7			
M6	1	Toluene	32,000 gallons
M6	2	Toluene	32,000 gallons
M6	3	68 Percent Sulfuric Acid	939,000
M6	4	68 Percent Sulfuric Acid	939,000
M6	5	109 Percent Sulfuric Acid	1,118,000
M6	6	109 Percent Sulfuric Acid	1,118,000
M6	7	Waste Acid	1,069,000
M6	8	Waste Acid	1,069,000
M6	9	Waste Acid	1,069,000
M6	10	98 Percent Nitric Acid	244,000
M6	11	98 Percent Nitric Acid	244,000
M6	12	60 Percent Nitric Acid	250,000
M6	13	60 Percent Nitric Acid	250,000
M6	14	Toluene	500,000 gallons
M6	15	Toluene	500,000 gallons
M6	16	Toluene	500,000 gallons
Area 7 Day Tanks			
Line 13			
M6		60 Percent Nitric Acid	112,000
M6		98 Percent Nitric Acid	77,000
M6		109 Percent Sulfuric Acid	272,000

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
Line 14			
M6		60 Percent Nitric Acid	112,000
M6		98 Percent Nitric Acid	77,000
M6		109 Percent Sulfuric Acid	272,000
Line 15			
M6		60 Percent Nitric Acid	112,000
M6		98 Percent Nitric Acid	77,000
M6		109 Percent Sulfuric Acid	272,000
Area 8			
M6	3	Toluene	32,000 gallons
M6	4	Toluene	32,000 gallons
M6	5	68 Percent Sulfuric Acid	939,000
M6	6	68 Percent Sulfuric Acid	939,000
M6	7	109 Percent Sulfuric Acid	1,118,000
M6	8	109 Percent Sulfuric Acid	1,118,000
M6	9	98 Percent Nitric Acid	244,000
M6	10	98 Percent Nitric Acid	244,000
M6	11	60 Percent Nitric Acid	250,000
M6	12	Waste Acid	1,069,000
M6	13	Waste Acid	1,069,000
M6	14	Waste Acid	1,069,000
M6	15	Mono Oil Separator	104,000
M6	17	60 Percent Nitric Acid	250,000
M6	18	Toluene	500,000 gallons
M6	19	Toluene	500,000 gallons
M6	20	Toluene	500,000 gallons
Area 8 Day Tanks			
Line 16			
M6		60 Percent Nitric Acid	112,000
M6		98 Percent Nitric Acid	77,000
M6		109 Percent Sulfuric Acid	272,000
Line 17			
M6		60 Percent Nitric Acid	112,000
M6		98 Percent Nitric Acid	77,000
M6		109 Percent Sulfuric Acid	272,000
Line 18			
M6		60 Percent Nitric Acid	112,000
M6		98 Percent Nitric Acid	77,000
M6		109 Percent Sulfuric Acid	272,000
Toluene Tank Farms			
West Farm			
M10	1	Toluene (Destroyed)	268,000 gallons
M10	2	Toluene	268,000 gallons
M10	3	Toluene (Destroyed)	268,000gallons
M10	°4	Toluene	268,000 gallons

TABLE 4-5
INVENTORY OF ABOVEGROUND STORAGE TANKS
JOAAP, WILMINGTON, ILLINOIS

Location	Tank Number	Substance Stored	Capacity (pounds unless otherwise noted)
Center Farm			
M10	5	Toluene	268,000 gallons
M10	6	Toluene	268,000 gallons
M10	7	Toluene	268,000 gallons
M10	8	Toluene	268,000 gallons
East Farm			
M10	9	Toluene	268,000 gallons
M10	10	Toluene	268,000 gallons
M10	11	Toluene	268,000 gallons
M10	12	Toluene	268,000 gallons
Tetryl Area			
M5		93 Percent Sulfuric Acid	265,000
M5		Dimethylanaline	112,000
M5		Dimethylanaline	112,000
M5		60 Percent Nitric	88,000
M5		Mixed Acid	100,000
M5		Waste Acid	116,000
M5		Waste Acid	116,000
M5		Residual Acid	14,000
M5		Residual Acid	14,000
Power			
M104	401-2-1	Fuel Oil #6 (North Power)	420,000 gallons
M8	401-1	Fuel Oil #2 (South Power)	420,000 gallons
M8		Fuel Oil #6 (South Power)	15,000 gallons
Group 24			
L21		Fuel Oil	3,000 gallons
Group 70		(not in Industrial Park parcel except where noted)	
L6	70-51	Fuel Oil (removed)	20,000 gallons
L6	70-52	Fuel Oil (removed)	20,000 gallons
L6	70-53	Diesel (removed)	20,000 gallons
L6	70-54	Diesel (removed)	20,000 gallons
L6		Gasoline (removed)	20,000 gallons
L6		Bunker Oil #6 (removed) (Industrial Park Parcel)	150,000 gallons
L6		Bunker Oil #6 (removed) (Industrial Park Parcel)	150,000 gallons
L6		Fuel	250 gallons
L6		Fuel (removed?)	550 gallons
L6		Fuel (removed?)	550 gallons
L6		Fuel (removed?)	550 gallons

Source: ACOE04, ALSI01, DOTA04, JAAP07, UCCI01, UCCI59, and USRC01

All tanks in this table are on the Industrial Park parcels except for those in the Sellite Area and Group 70. All ASTs will be removed by August 1998 as part of the site liquidation.

TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L6 T		Group 70 Industrial Park Portion	P	041:20:32.4	088:06:13.1	There is a 250 gallon above ground storage tank located about 100 feet south of building 70-8. (on-site, slated for Industrial Park)
			P			Three elevated 550-gallon fuel tanks are located west of Building 70-5 in a concrete containment structure. The fuel storage and dispensing facility was covered in October 1994.
			P	041:20:31.2	088:06:12.1	There are two above ground storage tanks (150,000 gallon) located south of Building 70-43. The pipes seem to feed the boiler plant. South of the tank is an area with crushed coal. The west tank has some evidence of minor spillage. The tanks and the soil beneath them were removed during the summer of 1997
			R			As of 1991, Alliant Techsystems had two 550-gallon gasoline tanks and a 550 gallon #2 diesel tank in a containment area adjacent to 70-5.
	70-5	Material Warehouse (In use by	R			There is a curbed area outside west end of building, about 8 by 15 feet with small sump. Formerly had AST's for gas and diesel. Eighteen square feet of staining on pad. There is a two by three foot sump with water and no sheen. (4/97)
L11		Test Site				
L14 T		Group 4 Industrial Park Portion				
L15 T		Group 5 Industrial Park Portion				
L16		Group 6	P	041:20:28.9	088:07:33.0	There are three 1,000 gallon fuel tanks in curbed area west of Building 6-6. In the center there is a 2 by 2 feet sump with gravel in it. The depth of the pit is unknown. The tanks are apparently still active. (11/96)
L17		Group 7				
L32		Group 60	P			Each of the residential units in this area has an above ground storage tank.
	60-7	Fire Station	P			There is a 200 gallon aboveground storage tank on the east side of the building and another on the north side.
L115		PAS Survey Section L115 - Ind. Park	R	041:20:31.4	088:05:55.0	Cradle for 2 large AST's adjacent to railroad track south of Group 70.
	60-12	Sewage Pumping Station	P	041:21:06.0	088:06:02.1	A 200-gallon tank marked No.2 Diesel was observed directly south of the building. There was also a drainage system around the tank, leading to a pipe and then to an drainage ditch.
L122		PAS Survey Section L122				
M5		Tetryl Production Area				
	1002-10	Nitrating House	P	041:22:54.5	088:09:03.5	There is a 4 by 9 feet aboveground storage tank at this building. There is also a 6 foot diameter 6 foot tall "Mixed Acid Storage" tank, and a large wooden tank with some unknown dry material inside and 5 processing tanks inside this building. (11/96)

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References for each finding are cited in the profile sheets in the Appendix.

TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M5	1008-2	Acid & Fume Recovery House	P	041:22:55.9	088:09:05.7	There are 5 aboveground storage tank at the west side of this building, labeled "Nitric Acid" (1 about 20,000 gallons); "Residual Storage" (2 about 20,000 gallons each); and "Waste Acid" (2 about 15 by 10 feet). There are 2 aboveground storage tank at the north side of this building, labeled "Mixed Acid". And there are two, 5 foot tall 5 foot diameter, tanks and one, 6 foot tall 4 foot diameter, tank on the south side of the building. (11/96)
M6		TNT Ditch Complex	P	041:23:46.7	088:09:30.0	There is a large tank at this site; 15 feet tall, 15 feet diameter. The discharge is piped to the ground. "OV-9" is on the outside of the tank. (11/96)
	715-10	Storage Solvent	P	041:23:59.1	088:10:04.0	There was a tank marked XXX outside this building. This tank was insulated with what appeared to be asbestos. (11/96)
	801-1	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-2	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-3	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-4	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-5	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-6	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-7	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	801-8	Mono-Nitrating House	P			Decontaminated to XXX when operations ceased in 1975.
	801-9	Mono-Nitrating House	P	041:23:46.1	088:09:31.0	There is a wooden tank located outside the building.
			P	041:23:46.1	088:09:31.0	There is a 7 foot diameter, 6 foot long aboveground storage tank at this building. (11/96)
	801-10	Mono-Nitrating House	P			There is a wooden tank located outside the building.
	802-1	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-2	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-3	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-4	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-5	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-6	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-7	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References for each finding are cited in the profile sheets in the Appendix.

TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	802-8	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	802-9	Tri-Nitrating House	P	041:23:45.3	088:09:33.8	There is a wooden tank west of the building and two horizontal steel tanks north of the building.
			P	041:23:45.3	088:09:33.8	There is a 8 foot tall, 8 foot diameter aboveground storage tank at the west end of this building. There are also two 6 foot diameter, 15 foot long aboveground storage tanks north of the building. On end pipes are between the tanks. (11/96)
	802-10	Tri-Nitrating House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building.
	803-1	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-2	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-3	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-4	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-5	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-6	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-7	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-8	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
	803-9	Bi-Fortifying House	P	041:23:43.7	088:09:32.0	There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building
			P	041:23:43.7	088:09:32.0	There is a 14 foot tall 8 foot diameter aboveground storage tank at this building. A clay end up pipe is on the northwest side of the tank. (11/96)
	803-10	Bi-Fortifying House	P			There is a wooden tank west of the building and two horizontal steel tanks north of the building. An A.O.P. nitric storage tank is located approximately 10 feet northwest of the building

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
Blanks in the comment column indicate no findings.
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TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	806-1	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-2	Wash House	P	041:23:03.4	088:09:50.3	There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-3	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-4	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-5	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-6	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-7	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-8	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-9	Wash House	P			There are two horizontal steel tanks outside each building, one to the north and one to the south.
	806-10	Wash House	P	041:23:53.1	088:09:34.0	There are two horizontal steel tanks outside each building, one to the north and one to the south.
			P	041:23:53.1	088:09:34.0	There is a 4 foot diameter 8 feet long aboveground storage tank on the north side of this building and a 4 foot diameter 15 feet long aboveground storage tank on the south side of this building. There is reddish soil beneath the tanks. (11/96)
	812-1	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	812-2	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	812-3	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	812-4	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	812-5	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	812-6	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	812-7	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
			P			On December 21, 1952, a violent explosion occurred as a worker rodded the weak nitric acid storage tank. According to the investigation, this explosion was due to a collection of tetranitromethane in an acid storage tank.
	812-8	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References for each finding are cited in the profile sheets in the Appendix.

TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	812-9	Acid & Fume Recovery House	P	041:23:52.4	088:09:36.9	Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
			P	041:23:52.4	088:09:36.9	One unlabeled, metal can containing liquid; and one 5 gallon can, mostly full, labeled "CAUTION KEEP AWAY FROM FIRE AND HEAT- Columbia Ribbon Co." are present in this building. There is also an unlabeled, 5 gallon carboy one-third full of a clear liquid. (11/96)
	812-10	Acid & Fume Recovery House	P			Storage tanks for waste acid, nitric, and residual, and the residual coolers are located outside in front of the building.
	852-1	Sweating & Graining House	P			To the west of the building are two horizontal steel tanks.
	852-2	Sweating & Graining House	P			To the west of the building are two horizontal steel tanks.
	852-3	Sweating & Graining House	P			To the west of the building are four steel tanks.
	852-4	Sweating & Graining House	P			To the west of the building are four steel tanks.
	852-5	Sweating & Graining House	P	041:23:49.7	088:09:27.4	To the west of the building are four steel tanks.
			P	041:23:49.7	088:09:27.4	There are 4 aboveground storage tanks on a concrete pad at the west end of this building. Three of the four tanks go into the building. One tank is 24 feet outside of building, 6 foot diameter, one tank is 2 feet outside of the building; and one tank is 8 feet outside of the building. One 8 foot by 2 foot tank is on the concrete pad. (11/96)
	852-6	Sweating & Graining House	P			Decontaminated to XXX after shutdown in 1974; residues must be tested.
	855-1	DNT Nitrating House	P			To the south of the building are two horizontal steel tanks.
	855-2	DNT Nitrating House	P			To the south of the building are two horizontal steel tanks.
	855-3	DNT Nitrating House	P			To the south of the building is one horizontal steel tank.
	855-4	DNT Nitrating House	P			To the south of the building are one steel tank and one wooden tank.
	855-5	DNT Nitrating House	P	041:23:46.4	088:09:29.9	To the south of the building are seven steel tanks and one wooden tank.
			P	041:23:46.4	088:09:29.9	There is a 4 by 15 foot aboveground storage tank at the north end of this building. Two aboveground storage tanks are located on the south side of the building. One has a 4 foot diameter, 15 feet long; one has a 7 foot diameter, 15 feet long. Both tanks have overflow pipes discharging to on end pipes in ground. There is no secondary containment. (11/96)
	855-6	DNT Nitrating House	P			To the south of the building are seven steel tanks.
	872-1	Nitration & Purification Building	P			Toluene and acid tanks present.

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
Blanks in the comment column indicate no findings.
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TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	872-2	Nitration & Purification Building	P	041:24:11.5	088:09:27.2	Toluene and acid tanks present.
	872-3	Nitration & Purification Building	P			Toluene and acid tanks present.
	872-4	Nitration & Purification Building	P			Toluene and acid tanks present.
	872-5	Nitration & Purification Building	P			Toluene and acid tanks present.
	872-6	Nitration & Purification Building	P			Toluene and acid tanks present.
	874-2	Sellite & Soda Ash Dissolve House	P	041:24:11.5	088:09:27.2	An aboveground storage tank is connected to this building and possibly to the vat. (11/96)
	876-1	Spent Acid Settling Area	P			Processing tanks with pumps and piping.
	876-4	Spent Acid Settling Area	P			Processing tanks with pumps and piping.
	878-1	Settling Tank Area, N & P	P			Processing tanks with pumps and piping.
	878-2	Settling Tank Area, N & P	P	041:24:14.1	088:09:24.0	This is a set of 3 by 15 feet tall storage/processing tanks surrounded by a 5 foot concrete wall. (11/96)
	878-4	Settling Tank Area, N & P	P			Processing tanks with pumps and piping.
	879-1	Settling Tank Area Finishing	P			To the south of the building are seven steel tanks.
	879-4	Settling Tank Area Finishing	P			Processing tanks with pumps and piping.
	883-1	Recovery Building	P			Processing tanks with pumps and piping.
	883-2	Recovery Building	P			Processing tanks with pumps and piping.
M7		Red Water Area				
	860-2	Evaporator Building #2	P			There are 9 aboveground storage tanks (vats) surrounding this building. All of them have open tops with some level of water in them. (11/96)
	864-1	Neutral Waste Storage Tank #1	P			This building is an above ground storage tank.
	864-2	Neutral Waste Storage Tank #2	P	041:23:03.6	088:09:53.8	This building is an above ground storage tank.
	864-3	Neutral Waste Storage Tank #3	P			This building is an above ground storage tank.
	865-1	Raw Waste Storage Tank #1	P			This building is an above ground storage tank.
	865-2	Raw Waste Storage Tank #2	P			This building is an above ground storage tank.
	865-3	Raw Waste Storage Tank #3	P			This building is an above ground storage tank.
	866-1	Condensate Storage Tank #1	P			This building is an above ground storage tank.
	866-2	Condensate Storage Tank #2	P			This building is an above ground storage tank.
	866-3	Condensate Storage Tank #3	P			This building is an above ground storage tank.
	868-1	Thick Liquor Storage Tank #1	P			This building is an above ground storage tank.
	868-2	Thick Liquor Storage Tank #2	P			This building is an above ground storage tank.
	868-3	Thick Liquor Storage Tank #3	P			This building is an above ground storage tank.
	868-4	Thick Liquor Storage Tank #4	P			This building is an above ground storage tank.

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
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References for each finding are cited in the profile sheets in the Appendix.

TABLE 4-6
SUMMARY OF AST FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M7	868-5	Thick Liquor Storage Tank #5	P			This building is an above ground storage tank.
	868-6	Thick Liquor Storage Tank #6	P			This building is an above ground storage tank.
M8		Acid Manufacturing Area	P			There are two asbestos covered ASTs about 10 by 30 feet. Area underneath the tanks is bare. They are 50 yards west of warehouse 704-18. (11/96)
	302-2-1	Ammonia Oxidation Plant	P			South of this building, there are aboveground storage tanks 201 to 208 with 3X labels. All of the tanks are marked "danger acid". (11/96)
	354-9	OBL Sulfuric Storage Area	P			According to a former employee this tank was left in place at the time of the Acid 4 liquidation as there was still a significant amount of sulfur in the tank.
	401-1	Power House & Coal Conveyor	P			There is an aboveground storage tank outside of the flooded coal loading/unloading area adjacent to this building. (11/96)
	713-1	Warehouse and Office	P			Five hundred gallon AST on west side of the building. (4/97)
M9		Northern Ash Pile				
M10		Toluene Tank Farms	P			There are three 270,000-gallon tanks used to store fuel oil in this area.
M13		Gravel Pits				
	713-2-1	Open Storage Area	P	041:23:29.1	088:09:22.3	This is an open fenced-in yard with aboveground storage tanks of multiple sizes. (11/96)
M16		Motor Pool Area				
M17		Laundry Facility				
M18		Herbicide Storage Area	P	041:23:22.5	088:08:33.4	A 250 gallon above ground storage tank is present here. (11/96)
			P	041:23:23.8	088:08:35.3	A 100 gallon above ground storage tank is located south of Building 702.
	716-1	EAM Building & Crypto Center	P	041:23:24.4	088:08:35.0	There are two 250 gallon storage tanks in the generator room. (11/96)
			P	041:23:24.4	088:08:35.0	There is a 250 gallon aboveground storage tank at the west end of this building. (11/96)
M103		PAS Section				
	704-13	Yardmaster's Office	P	041:24:11.7	088:08:12.5	Above ground Storage Tank for #2 fuel oil was present in the building. A 2,500 gallon Above ground Storage Tank was empty.
M104		PAS Survey Section M104	P	041:23:59.3	088:08:42.4	There is a rusted 500 gallon aboveground storage tank north of Tetryl Road. (11/96)
			P	041:23:03.3	088:08:41.5	There is a 1000 gallon aboveground storage tank north of Tetryl Road, west of East Patrol Road. (11/96)
			P	041:23:34.9	088:08:58.3	There is a large aboveground storage tank, about 30 feet tall 30 feet diameter, in this area. (11/96)
	401-6	House, Oil - Pump	P			There is a large multi-thousand gallon aboveground storage tank 10 yards this from building. It appears that fuel oil could have been stored here. (11/96)
M115		PAS Survey Section M115				
M116		North Pump Station				
M117		South Pump Station				

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L6 T		Group 70 Industrial Park Portion				
L11		Test Site				
L32		Group 60				
L14 T		Group 4 Industrial Park Portion				
L15 T		Group 5 Industrial Park Portion				
L16		Group 6	P	041:20:27.4	88:07:39.6	A latrine is present in southwest corner of Building 6-10. (11/96)
			P	041:20:22.3	88:07:33.2	There is a 8 by 4 feet sump on the north side of Building 6-2 that receives discharge from the building. Sump discharges to ground on north end. Drainage heads west parallel to building. (11/96)
			S	041:20:22.8	88:07:30.6	Suspected dry well receiving discharge from Building 6-3 is present on the west side. There is also a 12 inch stickup and a 24 inch clay pipe. (11/96)
			P	041:20:24.2	88:07:32.1	There is a 1/2 clay tile on the south end of Building 6-4 discharging to the west. (11/96)
			S	041:20:25.7	88:07:32.8	Suspected dry well receiving discharge from Building 6-5 is present on the east side. There is also a 12 inch stickup and 24 inch clay pipe. (11/96)
			P	041:20:22.8	88:07:34.8	There is a concrete trough on the east side of Building 6-4 discharges to sump at the south end of the building. The sump is 6 by 10 feet and discharges to clay tile drain. The concrete trough is covered with metal grating. (11/96)
			P	041:20:17.6	88:07:27.3	The sump on south side of Building 6-32 receives discharge from the building. The sump is 10 by 5 feet. (11/96)
			P	041:20:17.6	88:07:27.3	A concrete trough running east to west receives discharge from sump 100 feet away then turns and goes under Building 6-32. Sump discharges to shallow box on the north side of the building and then to drainage ditch. (11/96)
			P	041:20:17.6	88:07:27.0	There is a latrine south of Building 6-32. (11/96)
L17		Group 7	P	041:20:25.7	88:07:07.5	A 5 by 10 feet sump is located at the south end of Building 7-4. The sump has gravel in it and is overgrown. Discharge came from Building 7-4 and the sump discharged to west running clay tile drainage. (11/96)
			P	041:20:28.1	88:07:09.9	A 12 inch clay pipe originates at south end of Building 7-37 and discharges to drainage ditch. (11/96)
			P	041:20:25.4	88:07:03.9	Drainage from trough made of 1/2 clay tile runs west. Discharge is from Building 7-4. (11/96)
L115		PAS Survey Section L115 - Ind. Park	P	041:20:06.3	88:05:41.0	Dry Well, possibly related to guard shack and turnaround at Gate 29.

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L115		PAS Survey Section L115 - Ind. Park	P			Possible oil water separator about 30 feet east of pole 727.
			R			The oil water separator identified in this group has been removed, a result of 1997 removal action in this area. One or two cubic yards of soil were also removed.
			P			Sediments in the drainage within this group which originate from L6 runoff had some semivolatile levels above PRGs. Contaminated sediments will be excavated, as part of 1997 removal action in this area.
L122		PAS Survey Section L122				
M5		Tetryl Production Area	P			There is a french drain located in the south of section M5, north of Blodgett road, midway between the first and sixth tetryl line.
			P	041:22:44.6	88:09:04.1	There are 2 sumps, one southeast and one west of Building 1005-9. Based on observations at 2 lines, it is likely that sumps are present at each tetryl line.
	1002-10	Nitrating House	P	041:22:54.5	88:09:03.5	There is a clay lined drain on the west side of this building with a stainless steel settling basin (3 feet by 5 feet) 30 feet west of this building. (11/96)
			S	041:22:54.5	88:09:03.5	There are pipes, end up, on the north side of this building. They are possibly dry wells. (11/96)
			P	041:22:54.5	88:09:03.5	Floor drains discharge on west side of building. (11/96)
	1004-10	Lag Storage	P	041:22:48.1	88:09:02.8	There is a condensate drain on the north side of this building. (11/96)
	1005-10	Dry Storage	P	041:22:54.6	88:09:02.2	There is a condensate drain on the west side of this building and a 6 foot by 4 foot sump on the southeast side. There is also a sump between buildings. The sump drains the upper house to clay tile drain on the west side of the sump. (11/96)
	1008-2	Acid & Fume Recovery House	S	041:22:55.9	88:09:05.7	There is a pipe at the end of each storage tank. They are possibly dry wells. (11/96)
			P	041:22:55.9	88:09:05.7	There are sumps in this building. There is also a 48 inch clay pipe on end with a drain on top. It is possibly an oil/water separator. (11/96)
	1009-1-1	Box Packing House	P	041:22:42.4	88:09:26.3	There is a French drain along the east side of the building consisting of 1/2 clay tiles. The floor drains in this building discharge to sump east of building. There are possibly baffles in the sump. (11/96)
	1009-1-2	Shipping House	P	041:22:37.4	88:09:21.0	There is a 18 inch pipe about 3 feet deep at the northeast and northwest corner outside of this building. No outlet pipe was noted. Pipes are possibly dry wells, maybe for condensate. (11/96)

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M5	1009-2-1	Box Packing House	P	041:22:39.8	88:09:01.1	There is a 6 by 9 foot sump, several feet deep, on the west side of the building. The floor drains discharge to the sump. There is a 1/2 clay tile on the west side of the building. (11/96)
M6		TNT Ditch Complex	P			DNT lines were retro fitted to discharge to sanitary system. The sanitary sewer was broken at the TNT ditch.
	704-5	Supervisor's Office	P	041:23:46.6	88:09:26.1	There is a 18 inch end up pipe on the west side of this building. It is possibly a dry well. (11/96)
	706-5	Laboratory	P	041:23:43.5	88:09:25.8	There is an open drain with grating on the north side, west side and east side of this building. The drains are possibly dry wells. The drain on the east side had a PID 0.8 ppm over background. There is also a 18 inch end up pipe on the west side of the building with discharge pipe from this building. (11/96)
	707-5	Change House	P	041:23:51.7	88:09:24.8	There are drains on the south side and west side of the building. There are also floor drains in this building. (11/96)
	722-5	Area Shop	P			There is a drain on the north side of this building. (11/96)
	801-1	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-2	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-3	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-4	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-5	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-6	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-7	Mono-Nitrating House	S			There is storm sewer line from the building.
	801-8	Mono-Nitrating House	S			There is a storm sewer line from the building.
	801-9	Mono-Nitrating House	P	041:23:46.1	88:09:31.0	There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
			S	041:23:46.1	88:09:31.0	There are 6 on end pipes around this building. They are possibly dry wells. (11/96)
	801-10	Mono-Nitrating House	S			There is a storm sewer line from the building.
	802-1	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-2	Tri-Nitrating House	S			There is a half tile running from each building to storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-3	Tri-Nitrating House	S			There is a half tile running from each building to storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	802-4	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-5	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-6	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-7	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-8	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	802-9	Tri-Nitrating House	S	041:23:45.3	88:09:33.8	There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
			P	041:23:45.3	88:09:33.8	A wooden drain pipe runs to clay tile, discharge is from building. (11/96)
	802-10	Tri-Nitrating House	S			There is a half tile running from each building to a storm sewer manhole northwest of each building. There is also an abandoned open ditch running to this manhole.
	803-1	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-2	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-3	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-4	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-5	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-6	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-7	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	803-8	Bi-Fortifying House	S			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	803-9	Bi-Fortifying House	S	041:23:43.7	88:09:32.0	There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
			S	041:23:43.7	88:09:32.0	The clay end up pipe on the northwest side of the building is possibly a dry well. (11/96)
	803-10	Bi-Fortifying House	P			There is an abandoned storm sewer line from each building and a half tile running north to a storm sewer manhole.
	806-1	Wash House	S			There are two wooden catch basins to the north of the building. There are no sewer line from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-2	Wash House	S	041:23:03.4	88:09:50.3	There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-3	Wash House	S			There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-4	Wash House	S			There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-5	Wash House	S			There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-6	Wash House	S			There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	806-7	Wash House	S			There are two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-8	Wash House	P			There are.two wooden catch basins to the north of the building. There are no sewer lines from the building; however, there is a wooden flume running west from the catch basins and a half tile running north from the catch basins, then turning west to the TNT ditch.
	806-9	Wash House	S			Dry well and trough at southeast and northeast corners of building.
	806-10	Wash House	S	041:23:53.1	88:09:34.0	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	041:23:53.1	88:09:34.0	Floor drains are present in this building. There is also a sump north of the building. Discharge is from building into the sump. (11/96)
	808-1	Nailing House	S	041:23:12.1	88:09:52.2	Dry well and trough at southeast and northeast corners of building.
			S	041:23:12.1	88:09:52.2	An on end pipe is located on the west side of the building. The discharge is from the building. The pipe is possibly a dry well. (11/96)
	808-2	Nailing House	S			Dry well and trough at southeast and northeast corners of building.
	808-3	Nailing House	S			Dry well and trough at southeast and northeast corners of building.
	808-4	Nailing House	S			Dry well and trough at southeast and northeast corners of building.
	808-5	Nailing House	S			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	812-1	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	812-2	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath the ground an old abandoned sewer exists.
	812-3	Acid & Fume Recovery House	P			There is half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	812-4	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	812-5	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	812-6	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	812-7	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	812-8	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume duct. Beneath ground an old abandoned sewer exists.
	812-9	Acid & Fume Recovery House	P	041:23:52.4	88:09:36.9	There is half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
			P	041:23:52.4	88:09:36.9	There are floor drains in this building. (11/96)
	812-10	Acid & Fume Recovery House	P			There is a half tile ditch running north from the northeast corner of the building. This has carried TNM (Tetranitromethane) from nitrator building fume ducts. Beneath ground an old abandoned sewer exists.
	852-1	Sweating & Graining House	P			There is a storm sewer from the building.
	852-2	Sweating & Graining House	P			There is a storm sewer from the building.
	852-3	Sweating & Graining House	P			There is a storm sewer from the building.
	852-4	Sweating & Graining House	P			There is a storm sewer from the building.
	852-5	Sweating & Graining House	P	041:23:49.7	88:09:27.4	There is a storm sewer from the building.
	852-5	Sweating & Graining House	P	041:23:49.7	88:09:27.4	There is a tile drain and a floor drain on the west side of this building. (11/96)
	852-6	Sweating & Graining House	P			There is a storm sewer from the building, as well as an open ditch running to the southwest.
	855-1	DNT Nitrating House	P			There is a storm sewer from the building, as well as an open ditch running to the southwest.

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6	855-2	DNT Nitrating House	P			There is a storm sewer from the building, as well as an open ditch running to the southwest.
	855-3	DNT Nitrating House	P			There is a storm sewer from the building, as well as an open ditch running to the southwest.
	855-4	DNT Nitrating House	P			There is a storm sewer from the building, as well as an open ditch running to the southwest.
	855-5	DNT Nitrating House	P	041:23:46.4	88:09:29.9	There is a storm sewer from the building, as well as an open ditch running to the southwest.
			P	041:23:46.4	88:09:29.9	There is a tile drain on the west side and north side of this building. (11/96)
	855-6	DNT Nitrating House	P			Sumps and sewer drainage may be contaminated.
	874-2	Sellite & Soda Ash Dissolve Ho	P	041:24:11.5	88:09:27.2	A drainage trough connects to the vat. (11/96)
	877-2	Working Storage Tank Farm	P			This is a set of three settling vats, 20 feet in the ground. All of them have open tops with rusted bottoms, and are surrounded by a 5 feet concrete wall. Around this area are troughs that originate from building 872-2 and discharge into this building. A pipeline 20 feet high, above the ground, connects this structure to building 872-1. The bottom of this building is criss-crossed by floor drains. (11/96)
	879-2	Settling Tank Area Finishing	P	041:24:17.8	88:09:28.7	This is a concrete pit, 20 by 20 by 10 feet, that contains 3 metal, 10 by 4 by 5 feet, processing vats. The vats are in good condition. A pipeline and trough connects this building to building 870-2. (11/96)
	883-1	Recovery Building	P			Oil separators present.
	883-2	Recovery Building	P			Oil separators present.
M7		Red Water Area				
	707-21	Change House	P			Sumps and sewer drainage may be contaminated.
	860-1	Evaporator Building #1	P			Sumps and sewer drainage may be contaminated.
	860-2	Evaporator Building #2	P			Sumps and sewer drainage may be contaminated.
	860-3	Evaporator Building #3	P			Sumps and sewer drainage may be contaminated.
	860-4	Carbon Treatment Building	P	041:23:00.8	88:09:44.8	In the rear of this building there is a depression in the ground fed by a culvert. This depression appears to discharge water into a nearby stream, 100 feet away. (11/96)
	861-2	Incinerator Building #2	P	041:23:01.5	88:09:49.7	A trough connects this building to building 861-7 which contains a sump 20 feet deep. The floor of this building is criss-crossed by troughs that discharge into building 861-7. (11/96)
	861-7	Ash Elevator Building #1	S			Sumps from the outside of this building empty into the building. The subterranean level of this building is flooded. This constitutes a physical hazard. (11/96)

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M7	864-2	Neutral Waste Storage Tank #2	P	041:23:03.6	88:09:53.8	There is 1 large not securely covered sump present. (11/96)
	867-1	Acid Storage Tank #1	P			Sumps and sewer drainage may be contaminated.
	867-2	Acid Storage Tank #2	P			Sumps and sewer drainage may be contaminated.
M8		Acid Manufacturing Area	P			Wastewater discharge from this area were directed via sewer lines to Goose Creek, and discharged at Acid Outfall 3. Liquid waste reportedly generated include cooling water and water used for cleanup of spills. An inspection revealed the presence of extensive shallow floor drains that appeared to drain into a sewer system that eventually discharged at Acid Outfall 3. No sumps were observed.
	302-2-1	Ammonia Oxidation Plant	P			Multiple sumps surround this building with unknown outlets. Sumps were also observed inside the building. (11/96)
	354-5-1	Cooling Tower	P	041:23:44.7	88:09:04.7	There is a large underground sump along the width of the building on the north entrance. The sump is 15 feet deep. (11/96)
	402-1	Reservoir and Fire Pump House	P			There is a large, 30 by 30 by 30 yards, settling basin that seems to have received water from this building. This settling basin appears to be about one fourth full of water. Large flow pipes lead from the building into the basin. The basin is surrounded by a retaining fence that has been weakened on some sections of it. The building itself contains a large sump 3 stories deep with pipes going in and out. The sump is half full of water. (11/96)
	704-18	Track Scale and Shelter Office	P			There is a ditch in front of this building that discharges to the field. (11/96)
	718-1	Locomotive House	P			Two large sumps with cracked mud on the bottom are present in this building. (11/96)
	1501	Oleum Plant (Plant #1)	S			Sanitary sewer may be present.
	1501-1	Sulphur Storage	S			Sanitary sewer may be present.
M9		Northern Ash Pile				
	411-10	Well Water Pump House	P			There is a sump or well full of water underneath this building. (11/96)
M10		Toluene Tank Farms				
M13		Gravel Pits				
	503-1-2	Temperature Control House	P	041:23:17.1	88:09:18.5	Two sumps were observed outside this building with deteriorating tops which pose a physical hazard. (11/96)
	503-1-3	Temperature Control House	P	041:23:17.1	88:09:18.5	Three access pits were observed outside this building. (11/96)
M16		Motor Pool Area	P	041:23:30.0	88:09:09.5	There is an oil/water separator south of Building 716-3. (11/96)
	413-1	Filtration Plant	P			Sumps in building for water treatment. (4/97)

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TABLE 4-7
SUMMARY OF SUMP/DRY WELL/FLOOR DRAIN/OIL-WATER SEPARATOR FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M16	716-3	Storage Garage, Heavy Equipment	P	041:23:30.0	88:09:09.5	According to a 1970 Standard Operating Procedures, this building is north of the east end of the Box Factory Building and contains the necessary equipment to manufacture two types of asbestos putty and is known as the Putty Factory. Two types of putty were used by the Maintenance Department to seal various types of joints and sections of equipment. The Putty Factory manufactured approximately 2000 pounds of putty per month.
M17		Laundry Facility				
	707-8	Change House (Guards)	P			There is a sump outside of this building. (11/96)
	723	Laundry	P			There is a sump with a screen on the south end of this building. The sump is covered with what appear to be a lint filter. There is a large uncovered sump inside. The drain runs in back of the building. (11/96)
M18		Herbicide Storage Area				
M103		PAS Section	P			There is a septic tank located south of 709-1 on Baseline Road south of the intersection with Drummond Road. Another septic tank is located south of Drummond Road south of the foundation from TS-1230 (former storage building and dispensary for pesticides).
M104		PAS Survey Section M104				
	354-5	OBL - Cooling Water Pump House	P	041:23:44.7	88:09:04.7	There is a large 30 by 6 by 20 feet deep sump outside this building. (11/96)
	411	Drinking Water Chlorinator House	P	041:23:34.9	88:08:46.7	There are 3 sumps outside of this building. Underneath this building there is a big sump that leads to another sump outside. (11/96)
	716-4	APSA Training Building	P			Floor drains are believed to flow to the storm sewer system in the administrative area. Restroom facilities exhaust to the MFG Sanitary Sewer System.
M115		PAS Survey Section M115				
M116		North Pump Station				
M117		South Pump Station				

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TABLE 4-8
SUMMARY OF RADON FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Comments
L6 T		Group 70 Industrial Park Portion		
	70-5	Material Warehouse (In use by	S	Radon level is 0.00
L11		Test Site		
L32		Group 60		
	60-5	B.O.Q. Building	A	Radon level is 0.50
	60-50	Staff House w/Attached Double	A	Radon level is 0.50
	60-51	Staff House w/Attached Double	A	Radon level is 0.90
	60-52	Staff House w/Attached Double	A	Radon level is 0.80
	60-53	Staff House w/Attached Double	A	Radon level is 1.30
	60-54	Staff House w/Attached Double	A	Radon level is 0.90
	60-55	Staff House w/Attached Double	A	Radon level is 0.80
	60-56	Staff House w/Attached Double	A	Radon level is 0.80
	60-57	Staff House w/Attached Double	A	Radon level is 1.10
	60-58	Staff House w/Attached Double	A	Radon level is 1.10
	60-59	Staff House w/Attached Double	A	Radon level is 1.00
	60-60	Staff House w/Attached Double	A	Radon level is 0.50
	60-62	Staff House	A	Radon level is 1.60
	60-63	Staff House	A	Radon level is 1.20
	60-64	Staff House	A	Radon level is 0.50
	60-65	Staff House	A	Radon level is 0.80
	60-66	Staff House	A	Radon level is 0.70
	60-67	Staff House	A	Radon level is 0.50
	60-69	Staff House	A	Radon level is 0.90
	60-70	Staff House w/Double Garage (P	A	Radon level is 1.00
	60-71	Staff House wDouble Garage, (P	A	Radon level is 1.10
	60-72	Staff House w/Double Garage (P	A	Radon level is 1.20
	60-73	Staff House w/Double Garage (P	A	Radon level is 1.80
	60-74	Staff House w/Double Garage (P	A	Radon level is 1.80
	60-75	Staff House w/Double Garage	A	Radon level is 1.80
	60-76	Staff House w/Double Garage (P	A	Radon level is 1.70
	60-78	Staff House w/Double Garage (P	A	Radon level is 1.90
	60-79	Staff House w/Double Garage (P	A	Radon level is 1.10
L14 T		Group 4 Industrial Park Portion		
L15 T		Group 5 Industrial Park Portion		
L16		Group 6		
L17		Group 7		
L115		PAS Survey Section L115 - Ind. Park		
L122		PAS Survey Section L122		
M5		Tetryl Production Area		
M6		TNT Ditch Complex		
M7		Red Water Area		
M8		Acid Manufacturing Area		
M9		Northern Ash Pile		
M10		Toluene Tank Farms		
M13		Gravel Pits		
M103		PAS Section		
M104		PAS Survey Section M104		
M16		Motor Pool Area		
M17		Laundry Facility		
M18		Herbicide Storage Area		
M115		PAS Survey Section M115		
M116		North Pump Station		
M117		South Pump Station		

P=Present, R=Removed, S=Suspected.
T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References for each finding are cited in the profile sheets in the Appendix.

TABLE 4-9
SUMMARY OF PCB FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L6 T		Group 70 Industrial Park Portion	S	041:20:34.6	088:06:27.1	Poles 658 and 659 - 3 transformers that may be active, located north east of building 70-5. (on-site, slated for Industrial Park)
			S	041:20:35.9	088:06:10.9	Poles 648 and 686 - 3 transformers that may be active are located near the northwest corner of building 70-43. (on-site, slated for Industrial Park)
			S	041:20:33.7	088:05:57.4	Poles 688 and 689 - 3 transformers that may be active are located near the northwest corner of building 70-7. (on-site, slated for Industrial Park)
			S	041:20:31.0	088:06:12.1	Pole 663 - 1 transformer is located south of the southwest corner of building 70-8. (on-site, slated for Industrial Park)
L11		Test Site	S			Pole mounted transformer adjacent to entrance. (11/96)
L14 T		Group 4 Industrial Park Portion				
L15 T		Group 5 Industrial Park Portion				
L16		Group 6	R			3 transformers were tested and found to contain PCB's. They were also leaking, and were removed from service.
			S	041:20:27.4	088:07:39.6	Pole #400- 3 transformers southwest of Building 6 10. No stickers were present. (11/96)
			S	041:20:24.5	088:07:36.4	Pole #415- 3 transformers west of Building 6-4, adjacent to west fence. No stickers were present. (11/96)
			S	041:20:40.4	088:07:19.0	Pole #620- 1 transformer west of Building 4-25. There is no sticker visible. (11/96)
			S	041:20:27.7	088:07:35.4	Pole #422- 3 transformers on west side of Building 6-6. There were no stickers present. (11/96)
			S	041:20:15.7	088:07:34.2	Pole #455- 1 transformer with no sticker south of Building 6-33. (11/96)
			S	041:20:17.6	088:07:27.0	Pole #451- 4 transformers south of Building 6-32. No stickers were visible. (11/96)
L17		Group 7	S			Media of concern: Groundwater, sediment. Contamination significant enough to warrant remediation was not detected during the investigation phase. No further action planned.
			S	041:20:32.2	088:07:12.5	Pole #615- 3 transformers northeast of Building 6-26. (11/96)
			S	041:20:31.9	088:07:00.7	Poles #578/579 - 3 transformers and one ground mounted transformer south of Building 7-8. Ground mounted transformer has a "no PCBs" sticker on it. (11/96)
			S	041:20:24.3	088:06:59.0	Pole #595- 3 transformers east of Building 7-4. No stickers were visible. (11/96)
			S	041:20:31.5	088:06:58.3	Poles #581/582 - 3 transformer southeast of Building 7-10. No stickers were visible. (11/96)
			S	041:20:31.9	088:07:00.7	Pole #577- 1 transformer southeast of Building 7-8. No stickers were visible. (11/96)
			S	041:20:16.8	088:07:17.8	Pole #18 - 1 transformer west of Alliant gate 4. (11/96)

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TABLE 4-9
SUMMARY OF PCB FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
L32		Group 60	S	041:20:16.5	088:06:17.6	Pole 966 - 1 transformer (9/96)
			A	041:20:15.3	088:06:15.7	Poles 633 and 634-3 - 3 transformers with "NO PCBs" stickers are located near the southeast corner of building 60-4. (9/96)
			A	041:22:27.6	088:06:13.1	Poles 644 and 645 - 2 transformers with "NO PCBs" stickers are located southwest of building 60-62. (9/96)
			S	041:20:22.8	088:06:21.3	Pole 778 - 4 transformers are located at the southwest corner of building 60-8. (9/96)
			S	041:20:22.5	088:06:21.9	Poles 668 and 669 - 3 transformers are located south of building 60-8. (9/96)
			S	041:20:13.0	088:06:32.7	There is a pole mounted transformer at the swimming pool. (9/96)
			S	041:20:10.6	088:06:30.2	Poles 788 and 789 - 3 transformers, adjacent platform has 2 transformers, one has a "NO PCBs" sticker. Located northwest of building 60-5. (9/96)
			S	041:20:17.3	088:06:22.5	Poles 688 and 689 - 3 transformers. (9/96)
			A	041:20:15.6	088:06:07.5	Ground mount transformer sticker indicates less than 50 ppm PCBs. The transformer is still active. (9/96)
L115		PAS Survey Section L115 - Ind. Park	S	041:20:04.0	088:06:07.3	Pole 610: 3 transformers
			P	041:20:18.4	088:06:02.7	Ground transformer labeled "50 -500 ppm PCB".
			S	041:20:15.0	088:05:43.4	Pole 727: transformer
L122		PAS Survey Section L122				
M5		Tetryl Production Area	A	041:22:43.8	088:08:43.8	Pole #T1088 - 1 pad mounted transformer with "No PCBs" sticker adjacent to Building 411-6. (11/96)
			S	041:22:56.8	088:09:02.0	Pole #1422 - 1 transformer southeast of Building 707-12. (11/96)
			S	041:22:58.4	088:09:10.9	Poles #1457S/1457A - 4 transformers west of Building 1008-2. Switch boxes have been removed from poles. (11/96)
			A	041:22:58.2	088:09:24.9	Pole #1759- 1 transformer east of Building 707-11 with "No PCBs" sticker. (11/96)
			S	041:22:39.2	088:09:42.9	Pole #1596 - 1 transformer 150 feet north of Blodgett Road. (11/96)
			S	041:22:43.5	088:09:30.7	Pole #1604 - 1 transformer southwest of Building 1009-1-1. (11/96)
			S	041:22:42.1	088:09:25.7	Pole #16198 - 3 transformers southeast of Building 1009-1-1. (11/96)
			S	041:22:42.0	088:09:24.7	Pole #1620 - 1 transformer southeast of Building 1009-1-1. (11/96)
			S	041:22:43.0	088:09:03.5	Pole #1542 - 1 transformer southeast of Building 1009-2-1. (11/96)
			S	041:22:43.1	088:09:04.8	Pole #1551 - 1 transformer southwest of Building 1009-2-1. (11/96)
			S	041:22:43.1	088:09:05.1	Pole #1550 - 1 transformer south of Building 1009 2-2. (11/96)
			S			Pole #1420- 1 transformer east of Building 1002-10. Pole #1422- 1 transformer east of Building 1003-10. (11/96)

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M5		Tetryl Production Area	S	041:22:54.4	088:09:06.8	Pole #1431- 1 transformer. (11/96)
			S	041:22:53.8	088:09:05.4	Pole #14285 - 1 transformer. (11/96)
			S	041:22:54.4	088:08:56.5	Pole #1404- 1 transformer. (11/96)
			S	041:22:54.4	088:08:58.1	Pole #1402- 1 transformer east of Building 1002-12. Pole #1410- 3 transformers south of Building 1002-12. (11/96)
			S			Pole #1411- 1 transformer east of Building 1002-11. (11/96)
			S			Pole #1413- 1 transformer east of Building 1003-11. (11/96)
			S	041:22:56.4	088:09:02.0	Pole #1419 - 1 transformer. (11/96)
			S			Pole #1440- 1 transformer east of Building 1002-8. (11/96)
			S			Pole #1442- 1 transformer east of Building 1003-8. (11/96)
			S	041:22:56.1	088:09:12.8	Pole #1448 - 3 transformers. (11/96)
			S			Pole #1449 - 1 transformer east of Building 1002-7. (11/96)
			S			Pole #1451 - 1 transformer east of Building 1003-7. (11/96)
	411-6	Well Water Pump House	A			Adjacent to this building is a transformer T1088 with a "no PCB" label. The electrical switch inside this building does not have a PCB sticker. There were also two vents in front of this building.
	1001-2	Sulphating House	S			PCB's may be present in any electrical equipment.
	1002-2	Nitrating House	S			PCB's may be present in electrical equipment.
	1002-7	Nitrating House	S			PCB's may be present in any electrical equipment.
	1002-8	Nitrating House	S			PCB's may be present in any electrical equipment.
	1002-9	Nitrating House	S			PCB's may be present in any electrical equipment.
	1002-10	Nitrating House	S	041:22:54.5	088:09:03.5	PCB's may be present in any electrical equipment.
	1002-11	Nitrating House	S			PCB's may be present in any electrical equipment.
	1002-12	Nitrating House	S			PCB's may be present in any electrical equipment.
	1003-7	Refinery	S			PCB's may be present in any electrical equipment.
	1003-8	Refinery	S			PCB's may be present in any electrical equipment.
	1003-9	Refinery	S			PCB's may be present in any electrical equipment.
	1003-10	Refinery	S	041:22:55.0	088:09:08.4	PCB's may be present in any electrical equipment.

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TABLE 4-9
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PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M5	1003-11	Refinery	S			PCB's may be present in any electrical equipment.
	1003-12	Refinery	S			PCB's may be present in any electrical equipment.
	1004-10	Lag Storage	S	041:22:48.1	088:09:02.8	PCB's may be present in electrical equipment.
	1004-7	Lag Storage	S			PCB's may be present in any electrical equipment.
	1004-8	Lag Storage	S			PCB's may be present in any electrical equipment.
	1004-9	Lag Storage	S			PCB's may be present in any electrical equipment.
	1004-11	Lag Storage	S			PCB's may be present in any electrical equipment.
	1004-12	Lag Storage	S			PCB's may be present in any electrical equipment.
	1005-7	Dry Storage	S			PCB's may be present in any electrical equipment.
	1005-8	Dry Storage	S			PCB's may be present in any electrical equipment.
	1005-9	Dry Storage	S			PCB's may be present in electrical equipment.
	1005-10	Dry Storage	S	041:22:54.6	088:09:02.2	PCB's may be present in any electrical equipment.
	1005-11	Dry Storage	S			PCB's may be present in any electrical equipment.
	1005-12	Dry Storage	S			PCB's may be present in any electrical equipment.
	1008-2	Acid & Fume Recovery House	S	041:22:55.9	088:09:05.7	PCB's may be present in electrical equipment.
	1009-1-1	Box Packing House	S	041:22:42.4	088:09:26.3	PCB's may be present in electrical equipment.
	1009-1-2	Shipping House	S	041:22:37.4	088:09:21.0	PCB's may be present in electrical equipment.
	1009-2-1	Box Packing House	S	041:22:39.8	088:09:01.1	PCB's may be present in electrical equipment.
	1009-2-2	Shipping House	S			PCB's may be present in electrical equipment.
M6		TNT Ditch Complex	A	041:23:39.0	088:09:34.1	Pole #1215 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:41.7	088:09:35.6	Poles #1217/1217A - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:41.9	088:09:33.9	Pole #1216 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:92.4	088:09:31.9	Pole #1209 - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:55.9	088:09:32.6	Large ground mounted transformer west of Building 875-6 with "no PCBs" sticker. (11/96)
			P	041:24:02.0	088:09:26.2	GE AKD-5 Switchgear/Breakmaster Switchgear with "CAUTION PCBs" sticker east of Building 871-2. No stains were present. (11/96)
			A	041:24:06.0	088:09:29.3	Ground mounted transformer with "No PCBs" sticker west of Building 822-1. (11/96)
			A	041:23:50.8	088:09:21.1	Pole #1244 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:58.1	088:09:21.1	Pole #1290 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:24:01.4	088:09:21.3	Pole #1300 - 3 transformers with "No PCBs" sticker. (11/96)

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TABLE 4-9
SUMMARY OF PCB FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6		TNT Ditch Complex	A	041:23:46.2	088:09:40.6	Pole #1228 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:45.0	088:09:41.3	Pole #1229 - 1 transformer with "No PCBs" sticker north of Building 808-4. (11/96)
			A	041:23:51.1	088:09:38.4	Pole #1281 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:52.2	088:09:37.5	Pole #1282 - 1 transformer with "No PCBs" sticker north of Building 808-5. (11/96)
			A	041:23:35.5	088:09:45.6	Pole #832 - 3 transformers with "No PCBs" sticker north of Building 808-3. (11/96)
			A	041:23:26.3	088:09:48.9	Pole #565 - 3 transformers with "No PCBs" sticker north of Building 808-2. (11/96)
			A	041:23:25.6	088:09:49.8	Pole #571 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:14.8	088:09:49.7	1 transformer on pole with "No PCBs" sticker. (11/96)
			A	041:23:14.2	088:09:51.1	Pole #477 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:24:03.1	088:09:31.9	Ground mounted transformer with "No PCBs" sticker west of Building 411-2. (11/96)
			A	041:24:01.9	088:09:28.9	Pole #8676 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:58.6	088:09:33.5	Ground mounted transformer with "No PCBs" sticker west of Building 875-5. There are stains around the fill pipe. (11/96)
			A	041:23:55.2	088:09:29.7	Ground mounted transformer with "No PCBs" sticker west of Building 875-6. (11/96)
			A	041:24:03.1	088:09:31.9	Ground mounted transformer with "No PCBs" sticker west of Building 875-4. (11/96)
			A	041:23:10.5	088:09:32.6	Pole #579 - 1 transformer with "No PCBs" sticker. (11/96)
			A			Pole #539B - 2 transformers with "No PCBs" stickers. (11/96)
			A	041:23:20.3	088:09:32.2	Pole #576 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:29.8	088:09:31.6	1 transformers with "No PCBs" sticker between Buildings 704-3 and 706-3. (11/96)
			A	041:23:23.6	088:09:31.2	Pole #574 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:33.3	088:09:31.4	Pole #814 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:37.1	088:09:32.3	Pole #845 - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:38.9	088:09:27.6	Pole #876 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:41.9	088:09:27.8	Pole #874 - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:47.2	088:09:24.0	Pole #1235 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:07.1	088:09:37.7	Pole #496 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:06.8	088:09:38.1	Pole #491/491A - 3 transformers with "No PCBs" stickers. (11/96)

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TABLE 4-9
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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M6		TNT Ditch Complex	A	041:23:07.5	088:09:41.7	Pole #485/485A - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:07.5	088:09:44.0	Pole #476 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:17.0	088:09:43.1	Pole #517/517A - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:17.6	088:09:42.2	Pole #516 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:18.8	088:09:39.2	Pole #509/509A - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:17.7	088:09:41.9	Pole #510 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:28.6	088:09:44.1	Pole #524 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:28.6	088:09:42.6	Pole #525/525A - 3 transformers with "No PCBs" stickers. (11/96)
			A			Pole #559/559A - 3 transformers with "No PCBs" stickers. (11/96)
			A			Pole #557 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:28.6	088:09:40.8	Pole #553 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:28.5	088:09:39.2	Pole #552/552 - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:23:28.4	088:09:37.7	Pole #549 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:28.6	088:09:36.6	Pole #548A - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:30.6	088:09:37.6	Pole #824/824A - 3 transformers with "No PCBs" stickers east of Building 802-6. (11/96)
			A	041:23:31.4	088:09:38.1	Pole #824S - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:33.5	088:09:41.0	Pole #828A - 4 transformers with "No PCBs" stickers. (11/96)
			A	041:23:33.5	088:09:41.0	Pole #859/859A - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:35.6	088:09:36.4	Pole #853 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:35.5	088:09:35.0	Pole #852 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:35.0	088:09:31.1	Pole #847 - 4 transformers with "No PCBs" stickers. (11/96)
			A			4 transformers with "No PCBs" sticker west of Building 722-3. (11/96)
			S			A leak was discovered in a transformer at AFR-1 on June 12, 1978. The area was cleaned and transformer drained so that it could be repaired.
	806-1	Wash House	S			Elevator hydraulic fluids must be tested for PCBs.
	806-2	Wash House	S	041:23:03.4	088:09:50.3	Elevator hydraulic fluids must be tested for PCBs.
	806-3	Wash House	S			Elevator hydraulic fluids must be tested for PCBs.

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M6	806-4	Wash House	S			Elevator hydraulic fluids must be tested for PCBs.
	806-5	Wash House	S			Elevator hydraulic fluids must be tested for PCB's.
	806-6	Wash House	S			Elevator hydraulic fluids must be tested for PCB's.
	806-7	Wash House	S			Elevator hydraulic fluids must be tested for PCBs.
	806-8	Wash House	S			Elevator hydraulic fluids must be tested for PCBs.
	806-9	Wash House	S			Elevator hydraulic fluids must be tested for PCBs.
	806-10	Wash House	S	041:23:53.1	088:09:34.0	Elevator hydraulic fluids must be tested for PCBs.
	871-2	AFR Control Building	S			There is a pump inside this building tagged "PCB tested drained". (11/96)
	873-1	Hydraulic Pump & Metering House	S			Hydraulic fluids should be tested for PCB's.
	873-2	Hydraulic Pump & Metering House	S			Hydraulic fluids should be tested for PCB's.
	873-3	Hydraulic Pump & metering House	S			Hydraulic fluids should be tested for PCB's.
	873-4	Hydraulic Pump & Metering House	S			Hydraulic fluids must be tested for PCB's.
	873-5	Hydraulic Pump & Metering House	S			Hydraulic fluids should be tested for PCB's.
	873-6	Hydraulic Pump & Metering Station	S			Hydraulic fluids should be tested for PCB's.
	882-1	D.D.C. Remote Control Building	A			There is a large ground mounted transformer outside the building. It is marked "No PCBs". (11/96)
M7		Red Water Area	A	041:23:05.5	088:09:49.0	Pole #473- has 1 transformer. "NO PCB". (11/96)
			A	041:23:06.6	088:09:50.4	Pole #473 S- has 1 transformer. "NO PCB". (11/96).
			A	041:23:02.7	088:09:48.2	Pole #211- has 2 transformers. "NO PCB". (11/96)
	860-2	Evaporator Building #2	A			There is one large transformer inside this building. The sticker says "certified less than 50ppm PCB." (11/96)
			S			Some of the equipment in this building is tagged "PCB test 6/30/93 no oil". Others are tagged "PCB test 6/30/93 oil sample". (11/96)
	860-4	Carbon Treatment Building	A	041:23:00.8	088:09:44.8	There is a transformer pit on the ground in front of this building with a "No PCBs" sticker. (11/96)
M8		Acid Manufacturing Area	S	041:23:41.6	088:06:07.1	Pole #1136 - 1 transformer with "No PCBs" sticker.(11/96)
			S	041:23:32.7	088:09:07.2	Pole #1128 - 1 transformer with "No PCBs" sticker.(11/96)
			S	041:23:32.2	088:09:05.8	Pole #1122 and 1122A - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:29.8	088:09:05.4	Poles #1120 and 1120A - 4 transformers tagged "No PCBs". (11/96)

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M8		Acid Manufacturing Area	A	041:23:28.9	088:09:05.3	Poles #1119 and 1119A - support 1 transformer tagged "No PCBs". (11/96)
			A	041:23:27.4	088:09:05.8	Pole #1019 S- 1 transformer tagged "No PCBs". (11/96)
			A	041:24:06.6	088:09:03.2	Pole #2101 - 3 transformers on top with "No PCBs" sticker.(11/96)
			A	041:24:06.2	088:09:01.5	Pole #2037 - 1 transformer with "No PCBs" sticker.(11/96)
			A	041:23:48.6	088:09:09.8	Pole #9633 - 3 transformers with "No PCBs" sticker.(11/96)
			A	041:23:48.6	088:09:09.8	Pole #9634 - 3 transformer with "No PCBs" stickers. (11/96)
			A	041:23:48.6	088:09:09.8	Pole #9683 -3 transformers with "No PCBs" stickers.(11/96)
			A	041:23:48.1	088:09:14.8	Pole #9679 - 3 transformers with "No PCBs" stickers.(11/96)
			A	041:23:48.1	088:09:14.8	Pole #9673 - 3 transformers with "No PCBs" stickers.(11/96)
			A	041:23:33.7	088:08:44.6	Pole #1816 - 1 transformer with "No PCB's" sticker. (11/96)
			S	041:23:33.7	088:08:44.6	Pole # 1815 and 1815A - 3 transformers. Two with "No PCB's" stickers, one is not tagged. The untagged transformer is marked. (11/96)
			A	041:23:33.7	088:08:44.6	Pole #1815S - 3 transformers with "No PCBs" stickers. (11/96)
			S	041:23:33.1	088:09:28.6	Pole #8402B - 1 transformer atop of pole. (11/96)
			S	041:23:32.3	088:09:35.8	Pole #842B and 842C - 2 transformers (one on each pole). Pole 842B bears another unidentified electrical box, perhaps a siren. (11/96)
			S	041:23:33.5	088:09:34.6	Pole #871 - 1 transformer with "No PCBs" sticker. (11/96)
			S	041:23:47.9	088:09:25.7	Pole #1236 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:50.9	088:09:26.5	Pole #2 - 1 transformer with "No PCBs" sticker.(Pole is across Snake Road from Building 722-5). (11/96)
			A	041:24:02.1	088:09:20.3	Pole #1299 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:24:03.6	088:09:21.1	Pole #1302 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:24:07.4	088:08:47.1	Pole #2054 - 1 transformer atop with "No PCBs" sticker. (11/96)
			A	041:24:07.4	088:08:47.1	Poles #2050 and 2050A - 3 transformers atop, all with "No PCBs" stickers. (11/96)
			A	041:24:07.4	088:08:47.1	Pole #2045 - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:24:07.4	088:08:47.1	Pole #2068 and 2068A - 3 transformers atop with "No PCBs" stickers. (11/96)
			A	041:24:07.4	088:08:47.1	Pole #2072A - 3 transformers with "No PCBs" stickers. (11/96)
			A	041:24:07.4	088:08:47.1	Poles #2073 and 2073A - 3 transformers with "No PCBs" stickers. (11/96)

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M8		Acid Manufacturing Area	A	041:24:07.4	088:08:47.1	Pole #2080B - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:24:07.4	088:08:47.1	Poles #2094A and 2094 - 4 transformers each with "No PCBs" stickers. (11/96)
			A	041:24:07.4	088:08:47.1	M104-There is a transformer on the ground in front of Building 411-9. It contains less than 50 ppm of PCB, per green tag on the unit. (11/96)
			S	041:23:41.7	088:09:06.9	Pole #111 - 3 transformers with no stickers visible. (11/96)
			S	041:23:42.0	088:09:07.6	Pole #1143- 1 transformer with no stickers visible. (11/96)
			S	041:23:37.7	088:09:06.7	Pole #1149T- 3 transformers with no stickers visible. (11/96)
			S	041:23:37.0	088:09:08.5	Poles #1148 and 1148A - 4 transformers with no stickers visible. (11/96)
			S	041:23:37.0	088:09:08.5	Poles #1147 and 1147A - 4 transformers with no stickers visible. (11/96)
			S	041:23:37.0	088:09:08.5	Poles #1157 and 1157A - 3 transformers with no stickers visible. (11/96)
			S	041:23:35.3	088:09:10.4	Pole #1131T -3 transformers with no stickers visible. (11/96)
			S	041:23:35.3	088:09:10.4	Poles #1152 and 1152A - 3 transformers with no stickers visible. (11/96)
			S	041:24:07.0	088:09:21.9	Pole #1876 - 1 transformer atop with no stickers visible. (11/96)
			S	041:24:07.0	088:09:21.9	Pole #1877 - 1 transformer atop with no stickers visible. (location 50 feet ahead) (11/96)
			S	041:24:07.0	088:09:21.9	Poles #1878 - 1 transformer atop with no stickers visible. (50 feet ahead) (11/96)
			S	041:24:23.5	088:08:45.2	Poles #1849 and 1849A - 1 transformer with no stickers visible. There is a culvert discharging in the field at the foot of the poles. (11/96)
			A	041:24:19.0	088:08:54.6	Pole #2107 - 2 transformers with "No PCBs" stickers. (11/96)
			A	041:24:10.8	088:08:49.9	Poles #2055 and 2055A - 2 transformers with "No PCBs" stickers. (11/96)
			A			One sample was collected at the substation adjacent to South Power (401-1) and field analyzed for PCBs. The sample was from the west transformer bank and results indicate less than 0.5 ppm PCBs (11/96).
	301-2	Anhydrous Ammonia	S			The equipment in this building is tagged "PCB test 8-23-93." There are also switch boxes in this building. (11/96)
	302-2-1	Ammonia Oxidation Plant	S			There are multiple transformers surrounding and inside this building. (11/96)
	357-1	Waste Treatment Building	S			Some of the heavy electrical equipment in this building may be oil filled. (11/96)
	704-11	Supervisor's Office	S			PCB's may be present in electrical equipment.
	706-8	Laboratory	P			PCB's may be present in any electrical equipment.
M9		Northern Ash Pile				
	411-10	Well Water Pump House	S			Pole # - 1 transformer located outside of this building. (11/96)

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M10		Toluene Tank Farms	A	041:24:06.9	088:10:04.5	Pole 2500 - 1 "NO PCBs" transformer is located west of tank farm.
			A	041:24:07.2	088:10:02.6	Pole 2500A - 3 "NO PCBs" transformers are located west of tank farm.
			A			Pole 1839B - 3 "NO PCBs" transformers
M13		Gravel Pits	A	041:23:18.7	088:09:31.1	Pole #540 - 1 transformer with "No PCBs" sticker.(11/96)
			A	041:23:28.8	088:09:32.0	Pole #808BB - 3 transformers with "No PCBs" stickers.(11/96)
			A	041:23:17.8	088:09:28.4	Pole #808A - 3 transformers with "No PCBs" stickers.(11/96)
			S	041:23:17.0	088:09:21.4	Pole #3735 - 3 transformers with no tags. (11/96)
			S	041:23:10.6	088:09:21.0	Pole #2244 A - 1 transformer with no tags. (11/96)
			S	041:23:09.6	088:09:27.9	Pole #1781 g- 1 transformer with no tags.(11/96)
			A	041:23:13.8	088:09:21.5	Pole #2242A - 2 transformers with "No PCBs" stickers.(11/96)
			S	041:23:16.8	088:09:21.0	Pole #2733- 1 transformer with no tags.(11/96)
			A	041:23:30.2	088:09:23.5	Pole #838 A - 1 transformer with "No PCBs" sticker.(11/96)
			S	041:22:59.3	088:09:26.4	Pole #1653 S - 1 transformer with no tags. (11/96)
	704-10	Supervisor's Office	S			PCB's may be present in electrical equipment.
	706-7	Laboratory	P			PCB's may be present in any electrical equipment.
	713-2	Warehouse "B" Property	S	041:23:30.2	088:09:23.5	This building appears to have been used as a storage house for electrical equipment. Heavy duty electrical equipment were seen inside. Some of the equipment tested for PCBs, others did not. Many motors and switch boxes were also observed inside the building along with other miscellaneous equipment. (11/96)
	713-2-1	Open Storage Area	S	041:23:29.1	088:09:22.3	About six large heavy duty transformers were observed with about half of them bearing a "No PCBs" sticker. Some of the transformers had large brown stains on them and also on surrounding soil. A soil sample collected adjacent to a leaking electrical unit and was field analyzed for PCBs. Results indicate 1.1 to 4 ppm PCBs (11/96).
M16		Motor Pool Area	A	041:23:30.0	088:09:09.5	Pole #1194 - 1 transformer with "No PCBs" sticker southeast of Building 716-3. (11/96)
			A	041:23:31.7	088:09:09.4	Pole #11615 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:31.7	088:09:09.0	Pole #1160B - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:31.7	088:09:09.0	Pole #11605 - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:27.2	088:09:09.3	Ground mounted transformer with "No PCBs" sticker. (11/96)
	413-1	Filtration Plant	S			Several switches and transformers in electrical room. It is unknown if they contain dielectric fluids. (4/97)

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Section	Building	Description	Status	Latitude	Longitude	Comments
M17		Laundry Facility				
M18		Herbicide Storage Area	S	041:23:24.3	088:08:40.2	Pole #1084 - 1 transformer with no sticker present. (11/96)
			A	041:23:23.8	088:08:35.3	Pole #1077/1077A - 6 transformers with "No PCBs" stickers. (11/96)
M103		PAS Section	S	041:24:25.2	088:08:42.4	Pole 328: transformer
			A	041:24:08.9	088:08:29.0	Pole 1842B: 2 transformers labeled "No PCB's"
			S	041:23:54.0	088:07:45.1	Pole 364: transformer
			S	041:24:24.2	088:08:07.5	2 transformers (pole 346) and some other strange cylinder with conical double top.
M104		PAS Survey Section M104	R			A fire from a lightning strike resulted in PCB leakage from a transformer in the North Power MFG Substation. Soils beneath and around transformers on the west side of the substation were sampled. Soil between the west side of the Substation and the Power house and the road were removed up to a depth of about one foot. No sampling has been conducted on the other sides of the building.
			A			Soil/sediment samples were analyzed for PCBs. PCB concentration: Southeast Transformer East Side 0.5-1 PPM Southwest Transformer <0.5 PPM Center North side of Northwest Transformer Bank 0.5-1 PPM Gate Near Northeast corner of <0.5 Substation
			S	041:23:31.0	088:08:42.7	Pole #418- 3 transformers with no stickers visible. (11/96)
			S	041:23:21.3	088:08:44.6	There is a fenced area 90 by 40 feet located west of East Patrol Road. The platform is constructed of railroad ties and rails. There are several electrical grounds and stays, such as for a utility pole. There is a number on the fence, 501-X or 561-X. There appear to be warning signs around area. The map indicates this to be a 5000 KVA Substation.
			A	041:23:25.8	088:08:59.7	Ground mounted transformer with "No PCBs" sticker on the south side of North Power Station. (11/96)
			A	041:23:26.8	088:08:38.4	Pole #1085A - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:26.2	088:08:39.2	Pole #1082 - 1 transformer with "No PCBs" sticker. (11/96)
			S	041:23:27.3	088:08:33.7	Poles #1007/1007AB- 6 transformers with no stickers visible. (11/96)
			A	041:23:29.0	088:08:31.3	Pole #1005AB - 1 transformer with "No PCBs" sticker. (11/96)
			S	041:23:30.4	088:08:27.9	Pole #2530BA/1064A- 5 transformers with no stickers visible. (11/96)
			S	041:23:29.0	088:08:29.7	Pole #2536AD - 3 transformers with no stickers visible. Pole #2530AC - 1 transformer with no sticker visible south of building. (11/96)

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M104		PAS Survey Section M104	S	041:23:00.2	088:08:56.5	Pole #1 - 1 transformer with no stickers visible. (11/96)
			S	041:23:02.7	088:08:40.8	Pole #438- 1 transformer with no stickers visible. (11/96)
			S	041:23:06.6	088:08:42.1	Pole #1509/1509A- 1 transformer with yellow illegible sticker. (11/96)
			S	041:23:14.3	088:08:40.3	Pole #1861A- 1 transformer with no stickers visible. (11/96)
			S	041:23:15.1	088:08:40.5	Pole #1860A- 2 transformers with no stickers visible. (11/96)
			S	041:23:22.6	088:08:40.9	Pole #424- 3 transformers with no stickers visible. (11/96)
			S	041:23:30.0	088:08:44.9	Pole #1807T- 3 transformers with no stickers visible. (11/96)
			P	041:23:31.5	088:08:45.0	Pole #1815A- 3 transformer; 2 on outside with "No PCBs" sticker, 1 in center PCB contaminated. (11/96)
			A	041:23:31.5	088:08:45.0	Pole #18155 - 3 transformers with "No PCBs" sticker. (11/96)
			A	041:23:37.5	088:08:44.0	Pole #1816 - 1 transformer with "No PCBs" sticker. (11/96)
			P	041:24:00.1	088:08:44.2	Ground mounted transformer with tag indicating less than 50ppm PCBs north of Building 411-9. (11/96)
			A	041:24:01.6	088:08:52.3	Pole #2126 - 1 transformer with "No PCBs" sticker. (11/96)
			S	041:23:46.1	088:09:06.2	Pole #9630 - 1 transformer with no stickers visible. (11/96)
			P	041:23:33.0	088:08:58.1	North Power Substation- 6 transformers with tag indicating less than 50ppm PCBs, 2 67,000 pound transformers with "No PCBs" sticker. There is about 50 square feet of stained soil within the substation. There is also some staining beneath the gravel. (11/96)
			A	041:23:30.0	088:09:02.2	Pole #1015A - 1 transformer with "No PCBs" sticker. (11/96)
			A	041:23:27.5	088:09:02.0	Pole #1017A - 1 transformer with "No PCBs" sticker. (11/96)
			P			A former 5000 KVA substation was identified west of Building 709 in a fenced area. Two soil samples were collected and field analyzed for PCBs. The sample collected at the transformer mounts contained 1.1 to 4.0 ppm PCBs while the results for the sample collected in the north end of the area indicated less than 0.5 ppm PCBs (11/96).
			P	041:23:21.3	088:08:44.6	Three surface soil samples were collected and analyzed for PCBs from the platform upon which transformers presumably rested in the former 5000KW substation.

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TABLE 4-9
SUMMARY OF PCB FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M104		PAS Survey Section M104				Only one positive detection of PCBs (PCB-1260) was reported in the samples taken in September 1997, at a level (0.183 microgram/gram) below the Preliminary Remediation Goal of 1.0 microgram/gram. No further action is required.
	354-1	OBL - Water Treatment Building	A	041:23:44.7	088:09:04.7	Ten feet from this building at the north entrance, there is a large transformer labelled "less than 50ppm PCBs". The label indicates that this building is a GE substation. (11/96)
	401-2	Power House & Coal Conveyor	P			Transformer oil leak at North Power House was not cleaned up. Oil residue from transformer leads to drainage ditch which discharges to Grant Creek. Approximately 600 square feet of soil is contaminated. This was determined during the 1994 ECAS.
	411	Drinking Water Chlorinator House	A	041:23:34.9	088:08:46.7	Poles # 1815, 1815S and 1815A - 3 transformers with "No PCBs" sticker east of building. (11/96)
	411-8	Well Water Pump House (Pump In	S			Poles #1815/1815A - 3 transformers outside of this building. (11/96)
M115		PAS Survey Section M115				
M116		North Pump Station	S	041:25:27.7	088:10:41.2	Pole #699- 1 transformer with no stickers visible. (11/96)
			S	041:25:30.7	088:10:39.9	Pole #694B- 4 transformers with no stickers visible, directly in front of door to building. (11/96)
	412-2	River Pump House (North)	S	041:25:03.7	088:10:39.9	There are 2 transformers and 7 oil filled circuit breakers at this building. Much of the equipment in this building is tagged as tested for PCBs. The results are not indicated. (11/96)
M117		South Pump Station	S	041:22:35.4	088:13:25.5	Pole - 4 transformers with no stickers visible. (11/96)
			S	041:22:26.4	088:13:17.7	Pole- 1 transformer with no stickers visible. (11/96)
	412-1	River Pump House (South)	S	041:22:35.4	088:13:25.5	There are 2 oil filled transformers and 7 oil filled circuit breakers at this building. (11/96)
	412-1	River Pump House (South)	S	041:22:35.4	088:13:25.5	A 1 by 2 foot tray containing a bluish liquid is located under the north stairs. Dexsil Chlor-N-Oil PCB test showed less than 50 ppm. The cooling oil in the small reservoir for pump tested less than 50ppm. However, the resulting test color was close to 50ppm. (11/96)

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TABLE 4-10
SUMMARY OF EXPLOSIVES
FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L6 T		Group 70 Industrial Park Portion					
	70-5	Material Warehouse (In use by	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	70-6	Facilities Warehouse/Pipe shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	70-7	Machine Shop (DIPEC Storage)	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	70-8	Combined Facilities Shops	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	70-9A	Oil Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	70-43	Central Heating Plant	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
L11		Test Site	P				In 1968 this group was used as a test area for M406 and XM576E1.
			S		041:20:26.7	04:40.6	There is a backstop with lead in wood west of Building 1-49. There is possible lead in the ground surrounding the backstop which is overgrown with grass. (11/96)
			S		041:20:27.0	04:41.7	There are several white posts 200 feet west of Building 1-49, indicating a possible test range for HE rounds. (11/96)
			S		041:20:27.5	04:48.0	There is a backstop constructed of railroad tie wall 3 feet high and topped with a 20 foot high chicken wire fence. Parts of M406 fuse and fragments are imbedded in the railroad ties. There is a pit and several dirt piles in front of the railroad ties, approximately four feet high. There is a 50 by 30 feet gravel pad east of the backstop and a metal box (steel firing box) south of the pad. (11/96)
	1-36	Ammunition Sectioning (Test Site	P	3X			Explosives were processed in this building. The building was decontaminated to XXX after shutdown but must be tested for residues.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L11	1-36	Ammunition Sectioning (Test Site	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1-44	Personnel Shelter (Test Site)	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
	1-49	Test House F/40mm (Test Site)	P	3X	041:20:23.2	04:40.7	Explosives were processed in this building. The building was decontaminated to XXX after shutdown but must be tested for residues.
			P		041:20:23.2	04:40.7	According to a 1970 Standard Operating Procedures, this building contains a gun room for M79 launcher and mount.
			P		041:20:23.2	04:40.7	There is a pile of lead pellets and parts of sabot 40 mm rounds at the backstop at the west end of this building. (11/96)
			P	3X	041:20:23.2	04:40.7	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1-50C	Barricade (Test Site)	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
L14 T		Group 4 Industrial Park Portion					
L15 T		Group 5 Industrial Park Portion					
L16		Group 6	S				Remediation of soil may be necessary for explosives. Contamination of sediment also a concern.
			S				On October 1, 1942, a detonator exploded as it was being crimped into the slider of an M103 bomb fuze in this group.
			P				This area was involved in fuse, booster, primer, or detonator loading.
			S		041:20:14.4	07:24.8	Southeast of Building 6-51C there is a spiral shaped structure made of railroad ties on-end. The roof is made up of 2 layers of railroad ties bolted together. There is 18 inch high steel plating along the ground of the inside wall. A 4 by 4 by 4 feet heavy steel box and rusted metal components (possible UXO) are inside the structure. (11/96)
			P				In 1962, Group 6 was to assemble a classified item.
			P				In 1962, tests were executed concerning the use of Composition A5 as an explosive filler at Group 6, in lieu of wet RDX. Further large scale tests were scheduled.
			P				The M444 grenade was loaded in Group 6.
			P				In 1962, machines were used in Group 6 to assemble a classified item.
			P				In 1959, Group 6 was engaged in the manufacture, assembling, and packaging of Supplementary Charges.

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TABLE 4-10
SUMMARY OF EXPLOSIVES
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PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L16	6-2	Tetryl Screen & Blend	S				An excess of TNT dust was generated while dumping boxes into screen hopper.
	6-4	Tetryl Pelleting House	S				TNT dust was generated during remote controlled pelleting of supplementary charge gaging pellets, and transferring pellet from pelleting press conveyor. TNT was loaded into supplemental charge cups.
			P				Pelleting of RDX took place here.
	6-6	Booster Assembly	S				The tapping of supplemental charge involved TNT.
			S				TNT dust was present during inserting of tops on supplementary charge and during insertion of TNT pellets into cups.
	6-36	Vacuum Pump House	P	b	041:20:22.2	07:30.3	This building contains a Hoffman "Vacuum Sweeping System Secondary Separator." At other locations in the LAP area soil contamination was noted next to separators. (11/96)
	6-37	Vacuum Pump House	P	b	041:20:23.3	07:30.5	This building contains a Hoffman "Vacuum Sweeping System Secondary Separator." At other locations in the LAP area soil contamination was noted next to separators. (11/96)
L17		Group 7	S				Media of concern: Groundwater, sediment. Metals, SVOC's, and Phosphorous - Contamination significant enough to warrant remediation was not detected during the investigation phase. No further action planned.
			S				This Group was originally developed primarily for manufacturing of fuses and booster munitions. During the Vietnam conflict, facilities in the group were converted to the manufacture of 40 mm grenade rounds.
			P				During 1968, the 40MM, M406 and the 40MM, XM576E1 items were assigned to this plant. Initial production in the M406 was scheduled for February 1969 and start-up on the XM576E1 was scheduled for March 1969. Groups 4 and 7 were reactivated for production of these two items. A contract was negotiated with Gilman Engineering and Manufacturing Company to provide an automated assembly line for the M406.
			S				On March 13, 1942, the first explosion of any magnitude occurred in this group when a tetryl pellet detonated in a pelleting machine and blew the top part of the machine through the roof of the pelleting bay.
			S				Alliant packs tracer materials in Group 7 on an as needed basis. The tracer material consists of powdered metals which are received in a pellet form.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L17		Group 7	P				This assembly line operated in a similar manner as Groups 4 and 5. High explosive charging and pressing operations were controlled remotely, cartridge case priming was accomplished in a room by itself and machines were shielded.
							As of 1984, Honeywell was using this area for the production of the 30 mm lightweight HEDP.
			P				This area was involved in fuse, booster, primer, or detonator loading.
			P				According to a 1968 Technical Department Training Syllabus, XM576E1 were produced here.
			P				In 1959, Group 7 was engaged in the assembly of M21A4 Boosters and M14 Mines. Group 7 was used on a part time basis for manufacture of special boosters and tetryl pellets for V.T.
	4-8	Change House, Women	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	4-25	Superintendent's Office	A				On March 24, 1945, an explosion occurred in the melt unit.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	7-2	Tetryl Screen & Blend	S				Tetryl and graphite dusts were generated during remote controlled blending and screening operations.
			S				Tetryl was used during remote control blending and screening of pellet powder.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	7-4	Tetryl Pelleting	S				Tetryl dust was generated when filling five pound supply containers, loading booster cups, and when the cups were crimped.
			S				Tetryl was used to make booster pellets in a
			S				Tetryl and its dust were present during dumping, screening, blending, removing, and pelleting, and when placing and removing tetryl pellets on conveyor hooks.
							Dipping tetryl pellets into adhesive solution involved solution.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			A				There were no explosive materials in this building.
	7-5	Change House - Men	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	7-6	Booster Assembly	S				Tetryl dust was generated during demilitarization and reassembling of boosters. Ventilation and washing was used to control dust.
			S				Tetryl was used while inserting cups in boosters, assembling booster and detonator, and tightening cup. Inerting detonator involved lead azide and tetryl.
			P				A 1982 energy analysis indicates explosive hazards in this building.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L17	7-6	Booster Assembly	P				Cartridge cases, primers, and flashtubes were fed into an automated assembly machine. Explosive materials was stored in excess of posted limits in the primer-flashtube installation area.
			S				Load, assemble and pack cartridge, 40MM, MP, XM576E1 operations took place here. R.T.V sealant was also applied to cartridges. Propellant drums were located in this building.
	7-7	Detonator Service Magazine	P				A sign on this building says "contaminated black powder". There is also a 3X sign on this building. (11/96)
	7-8	Change House - Women	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	7-9	Jumble & Jolt Booster Test	P				A 1982 energy analysis indicates explosive hazards in this building.
	7-10	Power House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	9-30E	Vacuum & Condensate Pump House	R	5X			Building is not contaminated with explosives and/or has been converted to office building for administrative personnel and is considered to be in XXXXX condition.
L32		Group 60					
	60-1	Administration Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	60-2	Gate House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-3	Employment Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-4	Mess Hall	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-5	B.O.Q. Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-6	Telephone Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L32	60-7	Fire Station	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-8	Hospital	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-9	Officer's Club	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-9A	Swimming Pool Bath House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-10	Byrum Hall	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-11	General Heating Plant	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-13	Record Storage Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-20	Civilian's Quarter	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-41	Garage	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
L32	60-50	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-51	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-52	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-53	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-54	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-55	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-56	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-57	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-58	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-59	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-60	Staff House w/Attached Double	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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L32	60-62	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-63	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-64	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-65	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-66	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-67	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-68	Staff Home	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-69	Staff House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-70	Staff House w/Double Garage (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-71	Staff House with Double Garage, (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-72	Staff House w/Double Garage (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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L32	60-74	Staff House w/Double Garage (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-75	Staff House w/Double Garage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-76	Staff House w/Double Garage (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-78	Staff House w/Double Garage (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	60-79	Staff House w/Double Garage (P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
L115		PAS Survey Section L115 - Ind. Park					
	60-12	Sewage Pumping Station	A	0	041:21:06.0	06:02.1	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
L122		PAS Survey Section L122					
M5		Tetryl Production Area	S				Northeast of Nitrating House 1002-3 is/was a decon trench used for steam cleaning pipes, valves, etc. containing Tetryl.
			P				Tetryl production in this area, intermittently, between early 1940's and 1973, over 225 acres. Contained 12 production lines for total capacity of 1.3 million pounds per month when in operation. Waste water discharged into open ditches flowing to Tetryl ditch and ultimately into Grant Creek. Soils: silts and clays. From previous sampling: Explosives detected in soil and surface water.
			P				Wastewater from the production facilities was discharged to major east-west and north-south ditches. Low concentrations of five explosives have been found in ground water samples from one well (MW-207) in M5. This well is situated downgradient from the location of the Nitrating House on Production Line No. 5.
			R				The Tetryl Buildings were burned in 1984.

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M5		Tetryl Production Area	P				In 1972, the following emissions were produced as by-products/waste of tetryl production: nitrogen oxides-1,200 pounds/day; DMAS and acid spills-100 pounds/day; sellite wash water; and nitric and sulfuric acid-10,000 pounds/day.
			P				Production of tetryl ceased on July 31 1973.
			P				Through September 1945, 1.3 million pounds of tetryl was reclaimed at the plant.
			P				According to the Standard Engineering Procedure number 1-14, Tetryl Lag and Dry houses were located here. It also states that these buildings could never be completely decontaminated.
			P				Cooling water at the tetryl nitrator building was routed to the underground drain system instead of into the catch box system. This was done to improve the settling and recovery of tetryl from the wash water and to reduce the amount of polluted process water that must be treated.
	707-11	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-12	Change House	A		041:22:59.8	09:02.3	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:22:59.8	09:02.3	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	722-8	Area Shop	A		041:22:56.3	09:04.0	A 1982 energy analysis does not indicate explosive hazards in this building.
	1001-2	Sulphating House	P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1002-1	Nitrating House	P				A 1982 energy analysis indicates explosive hazards in this building.
	1002-2	Nitrating House	P				A 1982 energy analysis indicates explosive hazards in this building.
	1002-3	Nitrating House	P				A 1982 energy analysis indicates explosive hazards in this building.
	1002-4	Nitrating House	P				A 1982 energy analysis indicates explosive hazards in this building.
	1002-5	Nitrating House	P				A 1982 energy analysis indicates explosive hazards in this building.
	1002-6	Nitrating House	P				A 1982 energy analysis indicates explosive hazards in this building.

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M5	1002-7	Nitrating House	P	3X			Decontaminated to XXX 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1002-8	Nitrating House	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1002-9	Nitrating House	P	3X			Decontaminated to XXX 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1002-10	Nitrating House	P	3X	041:22:54.5	09:03.5	Decontaminated to XXX 1973 but residues must be tested for.
			P		041:22:54.5	09:03.5	A 1982 energy analysis indicates explosive hazards in this building.
			P		041:22:54.5	09:03.5	A sign outside this building says "3X". (11/96)
			P	3X	041:22:54.5	09:03.5	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1002-11	Nitrating House	P	3X			Decontaminated to XXX 1973 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1002-12	Nitrating House	P	3X			Decontaminated to XXX 1971 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.

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M5	1003-1	Refinery	P				A 1982 energy analysis indicates explosive hazards in this building.
	1003-2	Refinery	P				A 1982 energy analysis indicates explosive hazards in this building.
	1003-3	Refinery	P				A 1982 energy analysis indicates explosive hazards in this building.
	1003-4	Refinery	P				A 1982 energy analysis indicates explosive hazards in this building.
	1003-5	Refinery	P				A 1982 energy analysis indicates explosive hazards in this building.
	1003-6	Refinery	P				A 1982 energy analysis indicates explosive hazards in this building.
	1003-7	Refinery	P	3X			Decontaminated to XXX 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1003-8	Refinery	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1003-9	Refinery	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1003-10	Refinery	P	3X	041:22:55.0	09:08.4	Decontaminated to XXX in 1970 but residues
			P		041:22:55.0	09:08.4	A 1982 energy analysis indicates explosive hazards in this building.
			P		041:22:55.0	09:08.4	A 1971 industrial hygiene survey indicates washing of tetryl with acetone took place in this building.
			P	1X	041:22:55.0	09:08.4	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1003-11	Refinery	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.

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M5	1003-11	Refinery	P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1003-12	Refinery	P	3X			Decontaminated to XXX 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	1004-1	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1004-2	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1004-3	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1004-4	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1004-5	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1004-6	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1004-7	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1004-8	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1004-9	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1004-10	Lag Storage	P		041:22:48.1	09:02.8	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:22:48.1	09:02.8	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1004-11	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.

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M5	1004-11	Lag Storage	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1004-12	Lag Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1005	Tetryl Production	P				Nine explosives found in 32 of 41 soil samples. Tetryl detected in 27 samples (>1%).
	1005-1	Dry Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1005-2	Dry Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1005-3	Dry Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1005-4	Dry Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1005-5	Dry Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1005-6	Dry Storage	P				A 1982 energy analysis indicates explosive hazards in this building.
	1005-7	Dry Storage	P	3X			Decontaminated to XXX 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1005-8	Dry Storage	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1005-9	Dry Storage	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1005-10	Dry Storage	P	3X	041:22:54.6	09:02.2	Decontaminated to XXX in 1970 but residues must be tested for.

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M5	1005-10	Dry Storage	P		041:22:54.6	09:02.2	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:22:54.6	09:02.2	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1005-11	Dry Storage	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			S				Raking of tetryl from the drying bed in 1971 resulted in air concentrations over 60 mg/m3.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P				A 1971 industrial hygiene survey indicates drying of tetryl took place in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1005-12	Dry Storage	P	3X			Decontaminated to XXX in 1970 but residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1008-1	Acid & Fume Recovery House	S				The TNT pilot plant installation was nearly completed within the last six months of 1955.
	1008-2	Acid & Fume Recovery House	P		041:22:55.9	09:05.7	*Underground sewer line located directly center* and south of 1008-2 may be contaminated and must be tested.
			P		041:22:55.9	09:05.7	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:22:55.9	09:05.7	This building is labeled "3X". Most of equipment remains inside the building. Erosion of concrete is noticeable in some areas. Some equipment is marked 3X. (11/96)
			P	3X	041:22:55.9	09:05.7	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1009-1-1	Box Packing House	P		041:22:42.4	09:26.3	A pilot refining unit was added to the continuous tetryl nitration unit. The combined equipment was operated at rates of ten to fifteen pounds per hour of tetryl from dinitromethylaniline. This combined process of continuous nitration of dinitromethylaniline in an inert solvent media (dichloroethane) with the subsequent separation of the solvent layer and continuous crystallization of the tetryl to the required degree

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M5	1009-1-1	Box Packing House					of purification and granulation, is a unique and novel process for the manufacture of tetryl.
			P	3X	041:22:42.4	09:26.3	The sign on this building indicates 3X. Powder baggies, tagged as decontaminated to 3X, are stored inside this building. All appear empty and no residue was noted. (11/96)
			P	3X	041:22:42.4	09:26.3	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1009-1-2	Shipping House	P	3X	041:22:37.4	09:21.0	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1009-2-1	Box Packing House	S		041:22:39.8	09:01.1	Packing of tetryl was conducted here in 1971. This involved scooping into bags, closing bags and taping boxes. Air concentrations exceeded 60 mg/m3.
			A		041:22:39.8	09:01.1	A 1982 energy analysis does not indicate explosive hazards in this building.
			P		041:22:39.8	09:01.1	A 1971 industrial hygiene survey indicates bagging of tetryl took place in this building.
			P	3X	041:22:39.8	09:01.1	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	1009-2-2	Shipping House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
M6		TNT Ditch Complex	P				Several swaps throughout the TNT Ditch Complex are red in color.
			P				From previous sampling, explosives were detected in the soil, groundwater, surface water, and sediments.
			P				According to the Feasibility Study for Operable Unit 1; Red water, cooling water, wash water, and spent acids were discharged from the production lines into a north-south ditch. Seepage and overflow from this ditch most likely contributed to soil and groundwater impacts. Of 95 ground water samples taken, 20 percent contained TNT. Other explosives were also detected in the parts per million range.
							40 of 59 samples contained seven different explosives. Most common was TNT; average concentration 28,949 mg/g.
			S				Potential groundwater contamination

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M6		TNT Ditch Complex	R				The last TNT Batch line operating crew was dissolved on January 31, 1975.
			P				After having installed the concrete sumps in the TNT areas to catch the scrap TNT from the exhaust systems, changes were necessary. The sumps were reinstalled below grade.
			P				Emphasis within the Production Engineering Department was to operate the continuous solvent refining system in conjunction with the nitration unit to produce specification grade TNT. This unit is suspected to be Building 806-12.
			P				The first three months of 1959 were devoted to the installation of the continuous TNT pilot plant equipment on TNT Line 12. The pilot plant consisted of the following: Nitration Building, Control House, Purification Building, and Acid Recovery Building. Preliminary work on a method of solvent purification in which no red water would be formed was performed, utilizing solvents and recrystallizing TNT. This pilot installization project was proposed and funded.
			P				In 1956, 16,200,000 pounds of M-1 Propellant Powder was stored in the 811 area.
			P				According to a 1976 Standard Operating Procedures, contaminated Dempster Dumpsters were delivered and cleaned east of Line 13 Nitration and Purification Building.
			P				In 1972, the following emissions were produced as by-products/waste of TNT and Red Water production: nitrogen oxides-27,800 lbs/day; particulates from red water process-1,765 lbs/day; red water condesate-3.9 million lbs/day; red water ash-100,000 pounds/day; and nitric and sulfuric acid-200 pounds/day.
			R				TNT production lines ceased operation on February 27, 1976.
			P				The beginning of FY76, TNT production schedule remained firm at three million pounds per month. All TNT production was accomplished on CTP Line 13.
			P				The DNT Production Schedule remained firm at 400,200 lbs/month until the end of the second quarter when all production for TNT ceased. On December 17, 1975, the last DNT was packed on line 4, bringing the total packed since the operation began in August 67 to 92,226,900 pounds. Decontamination of facilities was completed in February 1976. During the era of operation, lines 4 and 5 were the only facilities operated.

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M6		TNT Ditch Complex					Although line 6 was rehabilitated it was never contaminated. Beginning November 1967, the nitration phase could not be completed, therefore production was limited to the refining, graining, and packing steps. Crude DNT was purchased on the commercial market with Government consent.
			S				Four TNT lines were converted to the manufacture of nitro-xylene, but in October, 1943, this was reduced to two lines.
			S				In batch TNT, all equipment was decontaminated in hot sellite solution behind building 722-4.
	601-201	Dock Loading Station	P	3X	041:23:59.5	09:43.1	Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
			A		041:23:59.5	09:43.1	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:59.5	09:43.1	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	601-202	Dock Loading Station	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-1	Supervisor's Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-2	Supervisor's Office	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-3	Supervisor's Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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M6	704-4	Supervisor's Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-5	Supervisor's Office	A		041:23:46.6	09:26.1	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:46.6	09:26.1	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-6	Supervisor's Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	706-1	Laboratory	S		041:23:26.0	09:58.3	Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A		041:23:26.0	09:58.3	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:26.0	09:58.3	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	706-2	Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	706-3	Laboratory	S				Former lab for DNT or Tetryl. This TNT lab was used periodically to test DNT and Tetryl products in addition to TNT.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
			P				The TNT Control Laboratory was decontaminated following the stop of production of explosives. The various pieces of laboratory equipment and instruments were prepared for layaway and stored in the Standards Laboratory Building 704-7, along with standards and measuring equipment no longer required.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M6	706-4	Laboratory	S				Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	706-5	Laboratory	S		041:23:43.5	09:25.8	Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A		041:23:43.5	09:25.8	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:43.5	09:25.8	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	706-6	Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-1	Change House	P	3X			Explosives processed in building to XXX after shutdown but must be tested for residues.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-2	Change House	S				Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-3	Change House	S				Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-4	Change House	S				Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.

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TABLE 4-10
SUMMARY OF EXPLOSIVES
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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M6	707-4	Change House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-5	Change House	S		041:23:51.7	09:24.8	Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A		041:23:51.7	09:24.8	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:51.7	09:24.8	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-6	Change House	S				Excavate, test for nitrobodies and treat all sewer lines; fireload and burn building.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715-5	Storage - Oil & Paint	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715-6	Storage - Oil & Paint	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715-7	Storage - Solvent	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715-8	Storage - Oil & Paint	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	722-1	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-2	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-4	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-5	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-6	Area Shop	A		041:23:27.2	09:09.3	A 1982 energy analysis does not indicate explosive hazards in this building.
	801-1	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M6	801-1	Mono-Nitrating House	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-2	Mono-Nitrating House	P	3X			Decon to XXX after shutdown in 1974; residue must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-3	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-4	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-5	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-6	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1971 industrial hygiene survey indicates nitrating toluene took place in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-7	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-8	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M6	801-9	Mono-Nitrating House	P	3X	041:23:46.1	09:31.0	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X	041:23:46.1	09:31.0	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	801-10	Mono-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-1	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			R				This building was completely demolished by a fire and explosion in 1943. The contents of both nitrators in the buildings were drowned. The bi-oil remaining in the scale tank detonated several minutes after the intial flash.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-2	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-3	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-4	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-5	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-6	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.

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M6	802-6	Tri-Nitrating House	P				A 1971 industrial hygiene survey indicates nitrating of DNT took place in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-7	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-8	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-9	Tri-Nitrating House	P	3X	041:23:45.3	09:33.8	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X	041:23:45.3	09:33.8	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	802-10	Tri-Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-1	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			S				A fire and explosion occurred in August 1942. On the first nitration run in the house, a mono-oil gas vapor flash occurred, enveloping the interior of the building in flames.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-2	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-3	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M6	803-3	Bi-Fortifying House	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-4	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-5	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-6	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1971 industrial hygiene survey indicates nitrating of mononitrotoluene took place in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-7	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-8	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-9	Bi-Fortifying House	P	3X	041:23:43.7	09:32.0	Decontaminated to XXX after shutdown in 1974; residue must be tested.
			S		041:23:43.7	09:32.0	There is a 10 foot diameter drowning tub buried in the ground at this building. The discharge pipes to the ground. There is discolored soil around the tub. (11/96)
			P	3X	041:23:43.7	09:32.0	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-10	Bi-Fortifying House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.

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M6	803-10	Bi-Fortifying House	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	803-AA	Bi-Fortifier, Line #1	P				Explosion in the building on August 19, 1942.
	806-1	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-2	Wash House	P	3X	041:23:03.4	09:50.3	Decontaminated to XXX after shutdown in 1974; residues must be tested.
			P		041:23:03.4	09:50.3	A 1982 energy analysis indicates explosive hazards in this building.
			P	1X	041:23:03.4	09:50.3	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-3	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-4	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-5	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-6	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			S				A fire on December 7, 1973 caused considerable damage and set back the completion of the conversion of the Melt Pour

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M6	806-6	Wash House					Red Water filtration system was activated in March 1974.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P				A 1971 industrial hygiene survey indicates washing, flaking, and bagging of TNT took place in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-7	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			S				TNT fumes and dust were generated during TNT crystallization and packaging.
			S				TNT fumes and dust were generated during TNT crystallization, purification, and packaging. Purification, crystallization, drying and packaging of tetryl was conducted here.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-8	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-9	Wash House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-10	Wash House	P	3X	041:23:53.1	09:34.0	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P		041:23:53.1	09:34.0	A 1982 energy analysis indicates explosive hazards in this building.
			P	1	041:23:53.1	09:34.0	A Best Group sign indicates that this building is decontaminated at 1X. (11/96)
			S		041:23:53.1	09:34.0	A wooden trough is located outside of the building. Yellow and red crusts in a wooden box flume are present around the trough. There is also a small pile of yellow crystals on top of flaker equipment on the second floor. (11/96)

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M6	806-10	Wash House	P	1X	041:23:53.1	09:34.0	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	806-12	Wash House	P				During the first six months of 1960, the design of the continuous solvent purification system was finalized and constructed here.
			P				A scale-up of the equipment used in the Continuous Nitration of TNT manufacture occured here.
			P				A continuous nitration DNT pilot plant operated in this building in early 1960. In November 1958, nitrobenzene was produced in the continuous nitration pilot plant. This plant is beleived to be located in this building.
	808-1	Nailing House	P	3X	041:23:12.1	09:52.2	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P		041:23:12.1	09:52.2	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:23:12.1	09:52.2	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	808-2	Nailing House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	808-3	Nailing House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			S				TNT was boxed here. Closing of bags generated TNT dust.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P				A 1971 industrial hygiene survey indicates boxing of TNT took place in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	808-4	Nailing House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.

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M6	808-5	Nailing House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-1	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-2	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-3	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-4	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-5	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-6	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M6	812-6	Acid & Fume Recovery House	P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-7	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-8	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-9	Acid & Fume Recovery House	P	3X	041:23:52.4	09:36.9	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P		041:23:52.4	09:36.9	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:23:52.4	09:36.9	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-10	Acid & Fume Recovery House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	812-12	Acid & Fume Recovery House	R				From December 13, 1943 to the end of the period, difficulty was experienced with the denitration of waste acid in lines 4 to 7. It was traced as being due to the DNT waste acid. The difficulty was eliminated late in the period by transferring all DNT waste to the No. 12 line Acid Recovery buiding by either tank car or
	852-1	Sweating & Graining House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.

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M6	852-1	Sweating & Graining House	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	852-2	Sweating & Graining House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	852-3	Sweating & Graining House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	852-4	Sweating & Graining House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	852-5	Sweating & Graining House	P	3X	041:23:49.7	09:27.4	Decontaminated to XXX after shutdown; residues must be tested for.
			P		041:23:49.7	09:27.4	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:23:49.7	09:27.4	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	852-6	Sweating & Graining House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	855-1	DNT Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				This property not considered thoroughly decontaminated and safe for public use. Explosive material remains in joints, bolted parts, angles, cracks and equipment.

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M6	855-1	DNT Nitrating House	P	3X			This building was last operated during World War II and decontaminated to 3X degree. Some equipment was disconnected and removed.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	855-2	DNT Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				This property not considered thoroughly decontaminated and safe for public use. Explosive material remains in joints, bolted parts, angles, cracks and equipment.
			P	3X			This building was last operated during World War II and decontaminated to 3X degree. Some equipment was disconnected and removed.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	855-3	DNT Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				This property not considered thoroughly decontaminated and safe for public use. Explosive material remains in joints, bolted parts, angles, cracks and equipment.
			P	3X			All exterior equipment was removed from this building, except for 2 raw component storage tanks outside on the south side of the building. These were decontaminated to 3X degree as was the interior equipment.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	855-4	DNT Nitrating House	P	3X			Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P				This property not considered thoroughly decontaminated and safe for public use. Explosive material remains in joints, bolted parts, angles, cracks and equipment.
			P				The interior and exterior equipment of this building was intact as of February 1973. This building was reactivated during the Southeast Asia operation and toluene was nitrated only for training and retention of operations expertise.
							Following shutdown, the equipment was flushed with hot water.

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M6	855-4	DNT Nitrating House	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	855-5	DNT Nitrating House	P	3X	041:23:46.4	09:29.9	Decontaminated to XXX after shutdown in 1974; residues must be tested for.
			P		041:23:46.4	09:29.9	This property not considered thoroughly decontaminated and safe for public use. Explosive material remains in joints, bolted parts, angles, cracks and equipment.
			P	3X	041:23:46.4	09:29.9	The interior and exterior equipment of this building was intact as of February 1973. This building was reactivated during the Southeast Asia operation but it was never contaminated for production purposes. This building is in 3X decontamination.
			P	3X	041:23:46.4	09:29.9	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	855-6	DNT Nitrating House	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
			P	3X			Facility deconned to 3X status. This property not considered thoroughly decontaminated and safe for public use. Explosive material remains in joints, bolted parts, angles, cracks and equipment which when exposed to heat, creating friction, may ignite or explode.
			P	3X			This building has not been operated since the Korean Operation and has been decontaminated to 3X degree. Some parts of the equipment were coated with preservative for layaway.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	870-1	Finishing Box Unloading and As	P	3X			Operated for prove-out in 1970's then decon to XXX but must be tested for nitrate residues.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P				According to a 1977 Standard Operating Procedures, the Finishing Building equipment was prepared to receive the purified TNT and water emulsion from the Nitration and Purification Building.
	870-2	Finishing Box Unloading and As	A	0	041:24:17.8	09:28.7	This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			A		041:24:17.8	09:28.7	A 1982 energy analysis does not indicate explosive hazards in this building.

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M6	870-2	Finishing Box Unloading and As	P		041:24:17.8	09:28.7	According to a 1977 Standard Operating Procedures, the Finishing Building equipment was prepared to receive the purified TNT and water emulsion from the Nitration and Purification Building.
	870-3	Finishing Box Unloading and As	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P				According to a 1977 Standard Operating Procedures, the Finishing Building equipment was prepared to receive the purified TNT and water emulsion from the Nitration and Purification Building.
	870-4	Finishing Box Unloading and As	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P				According to a 1977 Standard Operating Procedures, the Finishing Building equipment was prepared to receive the purified TNT and water emulsion from the Nitration and Purification Building.
	870-5	Finishing Box Unloading and As	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P				According to a 1977 Standard Operating Procedures, the Finishing Building equipment was prepared to receive the purified TNT and water emulsion from the Nitration and Purification Building.
	870-6	Finishing Box Unloading and As	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P				According to a 1977 Standard Operating Procedures, the Finishing Building equipment was prepared to receive the purified TNT and water emulsion from the Nitration and Purification Building.
	871-1	AFR Control Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
	871-2	AFR Control Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.

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M6	871-2	AFR Control Building	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	872-1	Nitration & Purification Building	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
			P				In 1996, it was noted that TNT Line 13 contained gross contamination of TNT product residues contamination in sellite separator tanks, pipes and gross contamination of red water in bottom level of the building.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	872-2	Nitration & Purification Building	P	3X	041:24:11.5	09:27.2	Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
			P		041:24:11.5	09:27.2	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:24:11.5	09:27.2	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	872-3	Nitration & Purification Build	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	872-4	Nitration & Purification Build	P				This building was contaminated with explosive residue and deconned to XXX.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	872-5	Nitration & Purification Build	P				Although this building was never contaminated; the fume lines running from each nitrator may have been contaminated.
			P				A 1982 energy analysis indicates explosive hazards in this building.

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M6	872-5	Nitration & Purification Build	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
			P				During prove-out of TNT line 16, a valve between the oil separator and spent acid tanks failed to open. This resulted in over filling of oil separator which forced explosive ladened spent acid into the tank fume vent filling the entire fume line system. Lines located in penthouses of Buildings 872-4, 872-5, and 872-6 are in this network.
	872-6	Nitration & Purification Build	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
			P				During prove-out of TNT line 16, a valve between the oil separator and spent acid tanks failed to open. This resulted in over filling of oil separator which forced explosive ladened spent acid into the tank fume vent filling the entire fume line system. Lines located in penthouses of Buildings 872-4, 872-5, and 872-6 are in this network.
	873-1	Hydraulic Pump & Metering House	P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	873-2	Hydraulic Pump & Metering House	P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	873-3	Hydraulic Pump & metering House	P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	873-4	Hydraulic Pump & Metering House	P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	873-5	Hydraulic Pump & Metering House	P				A 1982 energy analysis indicates explosive hazards in this building.

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M6	873-5	Hydraulic Pump & Metering House	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	873-6	Hydraulic Pump & Metering Station	P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	874-1	Sellite & Soda Ash Dissolve Ho	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	874-2	Sellite & Soda Ash Dissolve House	A	0	041:24:11.5	09:27.2	This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P		041:24:11.5	09:27.2	A 1982 energy analysis indicates explosive hazards in this building.
	874-3	Sellite & Soda Ash Dissolve House	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	874-4	Sellite & Soda Ash Dissolve House	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	874-5	Sellite & Soda Ash Dissolve House	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	874-6	Sellite & Soda Ash Dissolve House	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	875-1	Utility Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	875-2	Utility Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	875-3	Utility Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	875-4	Utility Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.

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M6	875-4	Utility Building	P				A 1982 energy analysis indicates explosive hazards in this building.
	875-5	Utility Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	875-6	Utility Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
	876-1	Spent Acid Settling Area	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
	876-4	Spent Acid Settling Area	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
	878-1	Settling Tank Area, N & P	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
	878-4	Settling Tank Area, N & P	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
	879-1	Settling Tank Area Finishing	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
	879-4	Settling Tank Area Finishing	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
	880-1	Water Treatment Building	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	882-1	D.D.C. Remote Control Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	883-1	Recovery Building	P	3X			Operatd for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues.
			P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
			P				During prove-out of TNT line 16, a valve between the oil separator and spent acid tanks failed to open. This resulted in over filling of oil separator which forced explosive ladened spent acid into the tank fume vent filling the entire fume line system. The fume lines between 883-1 and 872-1 may be contaminated with tetranitromethane.
	883-2	Recovery Building	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.

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M6	883-2	Recovery Building	P	1X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 1X.
	MS-192	Decontamination Facility	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	TS-1271	Storage Shelter	P	3X			Operated for prove-out in 1970's then deconned to XXX but must be tested for nitrate residues. Conveyors may also be contaminated.
M7		Red Water Area	S				In 1984-85, the liquid contents of the Red Water Lagoon, the sludge above the liner, and the lagoon liner were removed and disposed of at a EPA permitted facility.
			S				Project Scope: 'American Waste Handlers' to pump water into tank trunk and haul offsite. Remaining sludge to be loaded onto trucks for offsite disposal. Liner to be cut into strips, packed into drums, and shipped offsite. Shallow core samples to be taken in Lagoon Area. After sampling completed, berms of the lagoon to be pushed into the area to prevent ponding.
			S				1. Swamps downgradient of the Red Water Incinerator Facility are especially red in color. 2. Sludges (RDX) taken from sumps (Group 1,2,3,3A) placed in Red Water Lagoon. 3. Certified quantity of liquid removed to date: 4,644,366 gallons (28 March 1984). Estimated 1.3 million remain to be removed. 4. The lagoon liner currently in place is not intact and explosives-contaminated water probably contaminated soils below the liner.
			S				Overflow from Incinerator Storage Tanks diverted to Red Water Lagoon (capacity 4.1M gallons). Sludge, liner, and water in lagoon removed in 1985. Depth to groundwater: 2 to 3 feet. Soils: silts, clays. Surface water includes TNT ditch, tributary to TNT ditch, and ditch receiving runoff that flows west; all ditches ultimately flow into Grant Creek. Area located within 100-year floodplain.
			S				Red water spillage from North Catch Boxes is excessive due to inadequate width of weir. A recommendation was made to widen the weirs.
			P				All environmental media sampled contained explosives, metals, and anions. In addition, both surface water and ground water contained VOC's. Nine explosives detected in 38 of 64 soil samples. TNT detected in 16 samples (averages 4350 mg/g).

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M7		Red Water Area					Nine explosives and four VOC's detected in ground water samples. Highest explosive concentration was HMX (130 mg/g). Highest VOC concentration was TCA (900 mg/g).
			S				Potential groundwater contamination
			S				Incinerator complex constructed in 1965 for treatment of red water from TNT manufacturing operations. Covers 50 acres; includes three sets of storage tanks, incinerator, evaporators, and an open lined two acre lagoon.
			P				Sludge (RDX) taken from sumps in L7, L8, L9, L10, and L14 were placed in Red Water Lagoon.
			P				Red Water Filtration Systems have been installed in L7, L8, L9, L10, and L14 and are operational. These systems were designed to remove the explosive contaminants from the water, prior to releasing the water into existing streams. Prior to the installation of these units in 1970, the Red Water generated in the LAP Operating lines was transported to the MFG Area Disposal Plant.
	707-21	Change House	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-22	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	860-1	Evaporator Building #1	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	860-2	Evaporator Building #2	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			P	3X			The equipment inside this building is marked 3X. (11/96)
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	860-3	Evaporator Building #3	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.

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			P				A 1982 energy analysis indicates explosive hazards in this building.
M7	860-3	Evaporator Building #3	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	860-4	Carbon Treatment Building	A	0	041:23:00.8	09:44.8	This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
			P		041:23:00.8	09:44.8	A 1982 energy analysis indicates explosive hazards in this building.
			P	3X	041:23:00.8	09:44.8	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	860-5	Cooling Tower	A	0			This building was considered not contaminated in a 1993 Standard Operating Procedure for demolition of buildings.
	861-1	Incinerator Building #1	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-2	Incinerator Building #2	P	3X	041:23:01.5	09:49.7	Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			A		041:23:01.5	09:49.7	A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X	041:23:01.5	09:49.7	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-3	Incinerator Building #3	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.

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M7	861-4	Incinerator Building #4	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-5	Incinerator Building #5	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-6	Incinerator Building #6	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-7	Ash Elevator Building #1	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-8	Ash Elevator Building #2	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-9	Ash Elevator #3	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.

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M7	861-9	Ash Elevator #3	P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	861-10	Ash Hoppers	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
	861-11	Ash Hoppers	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
	861-12	Ash Hoppers	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
	862-1	Raw Waste Pumping Station	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	862-2	Ash Cooling System Condensation	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
	862-3	Ash Cooling & Water Lift Station	P	3X	041:23:00.0	09:52.0	Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
	864-1	Neutral Waste Storage Tank #1	P	3X			Contaminated with explosive residues deconned to XXX in 1975 or 1977.
	864-2	Neutral Waste Storage Tank #2	P	3X	041:23:03.6	09:53.8	Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	864-2	Neutral Waste Storage Tank #2	P	3X	041:23:03.6	09:53.8	This building is marked 3X. It is not clear whether this condition is due to explosives or chemical hazards. (11/96)
	864-3	Neutral Waste Storage Tank #3	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	865-1	Raw Waste Storage Tank #1	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	865-2	Raw Waste Storage Tank #2	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	865-3	Raw Waste Storage Tank #3	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	866-1	Condensate Storage Tank #1	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.

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M7	866-2	Condensate Storage Tank #2	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	866-3	Condensate Storage Tank #3	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	867-1	Acid Storage Tank #1	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	867-2	Acid Storage Tank #2	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	868-1	Thick Liquor Storage Tank #1	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	868-2	Thick Liquor Storage Tank #2	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	868-3	Thick Liquor Storage Tank #3	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	868-4	Thick Liquor Storage Tank #4	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	868-5	Thick Liquor Storage Tank #5	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	868-6	Thick Liquor Storage Tank #6	P	3X			Contaminated with explosive residues; deconned to XXX in 1975 or 1977.
	880-2	Yellow Water Treatment Plant	P	3X			Explosives processed in building. Deconned to XXX after shutdown but must be tested for residues according to a 1993 Standard Operating Procedure for demolition of buildings.
			P	3X			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 3X.
M8		Acid Manufacturing Area	P				Explosives detected in groundwater.
			P				According to a 1968 Technical Department Training Syllabus, tetryl residual (72% sulfuric) is the sulfuric acid remaining after the removal of nitric acid. The tetryl residual was returned to the acid area for further concentration.
			P				93% sulfuric acid, for the making of oleum, is made from NAC, TNT and tetryl residuals. In 1972, the following emissions were produced as by-products/waste of acid and sellite production: liquid effluents polluted by sulfate and nitrates-13,000 pounds/day and ammonia and oil.
	301-2	Anhydrous Ammonia	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	301-3-1	Compressor House, Ammonia Stage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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M8	301-3-2	Anhydrous Ammonia Storage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	301-3-3	Compressor House, Ammonia Stage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	301-3-4	Compressor House, Ammonia Stage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-1-1	Ammonia Oxidation Plant	P	3X			Decontaminated to XXX when operations ceased in 1975.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-1-2	Ammonia Oxidation Plant Pump House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-2-1	Ammonia Oxidation Plant	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-2-2	Ammonia Oxidation Plant Pump House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-3-1	Ammonia Oxidation Plant	P	3X			Decontaminated to XXX when operations ceased in 1975.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-3-2	Ammonia Oxidation Plant Pump House	P	3X			Decontaminated to XXX when operations ceased in 1975.

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M8	302-3-2	Ammonia Oxidation Plant Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	302-3-3	Ammonia Oxidation Plant Booster	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	303-1	N.A. & S.A. Concentrator House	P	3X			Decontaminted to XXX when operations ceased in 1975.
	303-2	N.A. & S.A. Concentrator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	303-3-1	N.A. Concentrator House	P	3X			Explosives were processed in this building. The building was decontaminated to XXX after shutdown but must be tested for residues.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	303-3-2	N.A. Concentrator Office	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-1-1	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-1-2	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-2-1	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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M8	305-2-2	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-3-1	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-3-2	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-3-3	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	305-3-4	Scale Operator's Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	306-1	Acid Area Water Re-use Pump House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	306-2	Acid Area Water Re-use Pump House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-1-1	Dark Sulphuric Acid Concentration	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-1-2	Oil Storage Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-1-3	Oil Heater House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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M8	308-1-4	Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-1-5	Chemico Dark S.A. Concentrator	P	3X			Decontaminated to XXX when operations ceased in 1975.
			P				A 1982 energy analysis indicates explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-1-6	Chemico Dark S.A. Precipitator	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-1-7	Chemico Dark S.A. Precipitator	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-3-1	Sulphuric Acid Concentrator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-3-2	Sulphuric Acid Precipitator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-3-3	Sulphuric Acid Precipitator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-3-4	Sulphuric Acid Precipitator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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M8	308-3-5	Sulphuric Acid Precipitator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	308-3-6	Sulphuric Acid Concentrator House	P	3X			Decontaminated to XXX when operations ceased in 1975.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	350-1	Lime Feeding Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	351-1	DSN-Compressor Building	P				A 1982 energy analysis indicates explosive hazards in this building.
	351-3	DSN Refrigerator Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	351-4	DSN-Motor Control Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	352-1	SAR-Water Treating Equipment Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	353-2	AOP - Motor Control Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	354-10	Chlorinator House	A	0	041:23:44.7	09:04.7	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	354-2	OBL - Filtered Water Booster P	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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M8	354-5-1	Cooling Tower	A	0	041:23:44.7	09:04.7	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	355-1	Control Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	357-1	Waste Treatment Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	357-1-2	Lime Storage & Slurry Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	357-1-3	Barium Storage & Slurry Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	357-2	Reactor Clarifier Facilities	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	401-1	Power House & Coal Conveyor	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	402-1	Reservoir and Fire Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	402-3	Emergency Fire Pump Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	402-4	House, Valve Control - Water	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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TABLE 4-10
SUMMARY OF EXPLOSIVES
FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M8	403-3	Coal Shed	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	413	Filtration Plant	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	502-1	Steam Reducing Valve House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	503-1-6	Temperature Control House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	505-2	Sewage Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	505-4	Waste Cooling Water Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-11	Supervisor's Office	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-17	Supervisor's Office and Laboratory	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-18	Track Scale and Shelter Office	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M8	704-18	Track Scale and Shelter Office	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-7	Supervisor's Office	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
	706-17	Catalyst Building	P				A 1982 energy analysis indicates explosive hazards in this building.
	706-8	Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	707-18	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-19	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-7	Change House	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
	713	General Storehouse	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
			A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	713-1	Warehouse and Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	714	Material Shed	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	714-1	Track Equipment Storage Shed	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M8	714-1	Track Equipment Storage Shed	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715	Oil and Paint Storage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715-11	Storage Solvent	A	0			This building is considered to be in 0 condition. It was not contaminated with explosives.
	715-12	Storage Solvent	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	715-13	Storage Oil & Paint	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	715-2	Storage Building, Oil & Kerose	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	717	Combined Shops	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	718-1	Locomotive House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-3	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-9	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-12	Area Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-17	Shop Maintenance	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	750-1	Office, Change House & Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
M9		Northern Ash Pile	S				10-15 feet high pile formed by landfilling residues from incineration of TNT by-products. Active between 1966 and 1967. Original clay cap replaced in 1985. Depth to groundwater 20 to 30 feet. Soils: organic topsoil, silts and clays, sand and gravel. Surface runoff drains to Jackson Creek and a tributary of Jackson Creek.
			P				Explosives, Metals, Anions, and Organics - From previous sampling, anions and metals detected in groundwater and surface water; explosives and organics detected in groundwater.

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FINDINGS
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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M9	605-2-3	Storage Shelter	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
M10		Toluene Tank Farms					
M13		Gravel Pits	P				The Northern Gravel Pit has been filled. Contaminants of concern in the area: Explosives.
			P				M13 includes 4 excavated areas which were used as disposal sites for a wide variety of waste metals. Analyses of 37 ground water samples from 9 monitoring wells indicated the presence of 5 explosives. Previous investigations indicated that the gravel pits are not source areas, and that the chemicals of concern in the ground water are most likely being transported from other areas.
	704-10	Supervisor's Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-20	TNT Production Area Office	A	0	041:23:29.7	09:32.4	This building is considered to be in 0 condition. It was not contaminated with explosives.
			A		041:23:29.7	09:32.4	A 1982 energy analysis does not indicate explosive hazards in this building.
	704-21	Supervisor's Office, Maintenance	A		041:23:29.7	09:32.4	A 1982 energy analysis does not indicate explosive hazards in this building.
	706-7	Laboratory	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-16	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	713-2	Warehouse "B" Property	A		041:23:30.2	09:23.5	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:30.2	09:23.5	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	713-3	Warehouse, General Purpose	A				A 1982 energy analysis does not indicate explosive hazards in this building.
M16		Motor Pool Area					
	413-1	Filtration Plant	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M16	413-1	Filtration Plant	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-19	Transportation Area Office Building	A		041:23:37.6	09:08.7	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:37.6	09:08.7	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-14	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	710	Lead Salvage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	716-2	Garage and Repair Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	716-3	Storage Garage, Heavy Equipment	A		041:23:30.0	09:09.5	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:30.0	09:09.5	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	722-16	Shop Maintenance, Scale & Instrument	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	TS-352	Lineman Electrical Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
M17		Laundry Facility	S				All drain lines handling explosive waste needed to be provided with settling basins for the removal of the explosive by settling. Clothing processed in the laundry was contaminated with TNT.
	704-8	Supervisor's Office and Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-8	Change House (Guards)	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M17	707-8	Change House (Guards)	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	723	Laundry	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			P	3X			This building is marked 3X on the door. (11/96)
M18		Herbicide Storage Area					
	702-3	Communication Emergency Genera	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	703-3	Hut, Quonset, APSA Stock Room	A		041:23:25.1	08:35.6	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:25.1	088:84:08	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	716-1	EAM Building & Crypto Center	A	0	041:23:24.4	088:84:08	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
M103		PAS Section					
	704-13	Yardmaster's Office	A		041:24:11.7	088:84:08	A 1982 energy analysis does not indicate explosive hazards in this building.
M104		PAS Survey Section M104					
	354-1	OBL - Water Treatment Building	A		041:23:44.7	088:84:09	A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0	041:23:44.7	088:84:09	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	354-5	OBL - Cooling Water Pump House	A	0	041:23:44.7	088:84:09	ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	401-2	Power House & Coal Conveyor	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	401-2-1	Auxiliary Power House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.

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JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Condition	Latitude	Longitude	Comments
M104	401-3	House, Pump - Water	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	401-4	House, Pump - Water	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	401-5	House, Oil - Pump	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	401-6	House, Oil - Pump	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	402-2	Reservoir and Fire Pump House	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	403-2	Coal Shed	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	702	Communications Building	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	703-1	APSA Administration Office	A				This building was never used for any explosives, industrial or warehouse operations. Hence, it has not been the subject of any studies.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	703-4	APSA Office Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	704-9	Supervisor's Office and Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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M104	704-9	Supervisor's Office and Laboratory	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	705	U.S.Army Hospital. & Air Force Ind	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-9	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	707-10	Change House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	709	Fire Headquarters	A				A 1982 energy analysis does not indicate explosive hazards in this building.
			A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	709-4	Supply Storage	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	716-4	APSA Training Building	A	0			ETSC for Best Group, Inc. conducted inspections during December 1996 to reclassify explosive condition relative to the ongoing property liquidation. This building was reclassified 0.
	720-3	Guard Gate House	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	721-1	Inspection Office	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	721-2-1	Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	721-3	Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	721-4	Laboratory	A				A 1982 energy analysis does not indicate explosive hazards in this building.
	722-15	Maintenance Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.

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M104	TS-190	Maintenance Shop	A				A 1982 energy analysis does not indicate explosive hazards in this building.
M115		PAS Survey Section M115					
M116	412-2	North Pump Station River Pump House (North)	A		041:25:03.7	088:84:10	A 1982 energy analysis does not indicate explosive hazards in this building.
M117	412-1	South Pump Station River Pump House (South)	A		041:22:35.4	088:84:13	A 1982 energy analysis does not indicate explosive hazards in this building.

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TABLE 4-11
PERIMETER INDUSTRIAL FACILITIES IDENTIFIED
JOAAP, WILL COUNTY, ILLINOIS

Facility	Operation	Location	Comments
Amoco Station	Fuel Dispensing	Mississippi Street in Elwood	Likely has USTs for Gasoline
JATA	Truck Maintenance	Bridge Road North of M102	
SNG Plant	Gas Light & Coke	Millsdale Ext. North of MFG area	Several very large bermed storage tanks
Liquid Carbonic	Carbon dioxide	Millsdale Ext. North of MFG area	
Stepan	Appeared to be oil refining	Van Drielingn Strasse Road North of MFG area	
Mobil	Oil Refining	East Frontage Road	
Joliet Polystyrene operated by BASF	Polystyrene	West of Route 55 on access road	
Dow Chemical		West of Route 55 on access road	
Unknown	Not-operating	At confluence of Kankakee River and GM&O RR	Several very large tanks present (about 0.5 million gallons)
Johnson & Johnson	Personal Products	Southwest corner of Peotone and Route 53	
PHIBRO TECH	Unknown	1/2 mile west of Johnson & Johnson	
James Tyler & Sons	Grain Storage; Weed and Feed Production	South of MFG area just west of Route 53	Former petroleum pipeline facility
Highway Department	Fuel Dispensing	Elwood-North of MFG area	2-1,000 gal. ASTs 1-diesel; 1-gasoline
Private Residence	Farm	East of LAP area	5-1,000 gal. ASTs
Private Residence	Farm	Immediate southeast corner of LAP area	2-500 gal. ASTs
	Petroleum Facility	1/2 mile northeast of LAP area	

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
1941 to 1942	TNT and Tetryl	Several power failures at the river pump houses during this period resulted in the drowning of charges in the TNT and Tetryl areas.	HIST40
August, 1942	TNT #1	A fire and explosion occurred in the TNT line 1 Bi-fortifier building (803-1). During the first nitration run of the house, a mono-oil vapor flash occurred.	HIST40
1943	Sellite	Wooden storage tanks were found to be so unsatisfactory due to excessive leakage that they were dismantled and removed.	HIST42
October 07, 1943	TNT #1	The Tri-nitrating House on TNT Line 1 (802-1) was destroyed by fire. The contents of both nitrators were drowned. The bi-oil feed line apparently broke allowing continued flow of bi-oil which fed the fire and resulted in detonation of the scale tank.	HIST39
December 30,1943	TNT Blocking Area	A single block detonated in the number 9 press demolishing the press matrix and causing minor damage to the building.	HIST39
January to March, 1944	TNT #1 and 2	Fires occurred in rework drums at the TNT Line 2 (806-2) and 4 (806-4) Wash Houses. Fires were attributed to material from the red water ditch which dried on the drums and ignited during continued heating. Use of rework drums was discontinued as a result.	HIST41
February 15, 1944	TNT Blocking Area	An explosion occurred in the matrix of #3 press causing a fire behind the barricade. The explosion was believed to be due to TNT dust. The sprinkler system extinguished the fire.	HIST41
March 11, 1944	Lead Azide	An explosion occurred in the #1 Autoclave where sodium azide is made. The explosion was caused by feeding nitrous oxide into the autoclave when it contained about 50 pound of unreacted sodium and an atmosphere of ammonia vapor and some hydrogen.	HIST41
January 09, 1944	Building TS18	An electrical fire occurred in this warehouse for electrical equipment, office, and locker room for a line crew. The entire building was involved in the fire. It is not known if any dielectric fluid was housed in this building.	HIST41
August 16, 1954	East Toluene Tank Farm	Lightning struck the Toluene Tank 10 burning the entire contents of the tank. The storage tank and 80,878 gallons of toluene were lost.	HIST48
November 7, 1954	Acid Area	A platinum filter on #5 AOP unit ruptured. The cause was determined to be an explosion from accumulation of ammonia salts on the filter media. All platinum filters were subsequently removed from service.	HIST48
April 24, 1957	Prairie Creek	An oily film was reported on Prairie Creek at West Patrol Road, Baseline Road, and Highway 66A. No film was noted at North Patrol Road indicating the material, a mixture of saturated petroleum products, originated in the Elwood Unit.	HIST19
April 28, 1966	Center Toluene Tank Farm	The Toluene Tank 6 was struck by lightning and burned. Approximately 7,000 gallons of toluene was destroyed.	HIST12
May 19, 1966	TNT #5	11,000 pounds of acid were discharged from TNT Line 10. Approximately 6,000 pounds from the Wash House and 5,000 pounds from the bi-house. Dilution was maximized.	UCCI97
June 09, 1966	TNT #4	During nitration in 802-8 an uncontrolled chemical reaction took place resulting in a fatality. Repairs to the building and equipment were not completed until June 21.	HIST12
June 28, 1966	TNT #6	16,000 pounds of residual acid (70 percent sulfuric acid) was lost from a leaking storage tank on TNT Line 12. Acid was diluted with water and the diluted acid was neutralized with soda ash.	UCCI93
July 18, 1966	TNT # 4	During feed to the nitrator in 802-7, an uncontrolled chemical reaction occurred. Both nitrators were drowned and the building subsequently detonated. Due to repairs required to the building and equipment the line did not restart until November 3.	HIST12
May 02, 1967	Acid # 3	1,330 pounds of strong nitric acid were drained from a tank for repairs. The acid was diluted with water.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
May 06, 1967	'Acid # 3	6,428 pounds of tetryl mixed acid were overpumped due to operator error. The spill was neutralized with soda ash and flushed with water.	SPIL07
		2,000 pounds of 88 percent sulfuric acid were lost due to a leaky spool. Soda ash and water were used to neutralize the acid.	SPIL07
May 07, 1967	TNT Line 4	4,195 pounds of oleum and 5,105 pounds of T-mix were overpumped. The area was hosed down.	SPIL07
May 08, 1967	Acid # 3	8,000 pounds of 93 percent sales acid were lost when the 805 tank valve was left open while pumping to 801 tank causing 805 tank to overflow.	SPIL07
May 11, 1967	TNT #6	2,000 pounds of AOP Nitric Acid leaked out of car spot 362 due to a faulty valve. The area was washed with water.	SPIL07
May 14, 1967		2,734 pounds of mixed acid and 2,424 pounds of DMAS were dropped from a nitrator to the drowning tub. The tub was flushed and cleaned out.	SPIL07
	TNT Line 8	1,800 pounds of bi-oil, 4,410 pounds of oleum, and 3,970 pounds of T-mix were lost due to steam engine failure. 700 gallons of soda ash and water were used to neutralize the spill.	SPIL07
May 15, 1967	Acid # 3	1,000 pounds of tetryl residual were allowed to overflow. Water was applied to the spill.	SPIL07
	TNT Line 11	1,200 pounds of oleum were lost due to overpumping. 200 pounds of soda ash was used to neutralize the spill. 1,500 pounds of TNT residual overflowed due to overfilling a tank while recovery was pumping a tank into it.	SPIL07
May 17, 1967	TNT Line 8	6,000 pounds of TNT residual were lost due to an overpump. Soda ash was used to neutralize the spill.	SPIL07
May 19, 1967	Acid # 3	140,480 pounds of corn mix ran over. The Fire Department washed the area. Two trucks of soda ash were applied.	SPIL07
	TNT Line 9	1,600 pounds of bi-oil and 8,420 pounds of tri-mix were lost due to steam engine drive belts were blown off due to high winds thus stopping agitation. The number 1 tri-nitrator charge was drowned followed by 1,600 gallons of liquid soda ash and water.	SPIL07
	TNT Line 9	18,437 pounds of oleum overran the tank. 2,000 gallons of soda ash were used to neutralize.	SPIL07
May 23, 1967		1,400 pounds of waste acid were lost when an operator failed to switch tanks causing South tank to overflow into the drowning tub. The tub was neutralized, flushed, and refilled with water.	SPIL07
	Lead Azide	1,000 pounds of anhydrous ammonia leaked off because of a popped rupture disc.	SPIL07
May 26, 1967	Acid # 3	1,500 pounds of 93 percent sulfuric acid were drained from tank 621 during repairs because this heel was below the suction line. The sewer was flushed with water and soda ash.	SPIL07
August 01, 1967	Acid # 1	20,000 pounds of TNT residual were lost when a rolled flange on the transfer line failed. Soda ash was applied and the Fire Department flushed the area.	SPIL07
	Tetryl #2	1,376 pounds of tetryl mixed acid were lost due to operational error. The spill was flushed with water.	SPIL07
August 02, 1967	TNT #4	10,000 pounds of T-mix were lost when a flange gasket failed. 1,000 gallons of soda ash was used to neutralized the spill.	SPIL07
August 03, 1967	TNT Line 9	2,080 pounds of recovered nitric and 4,200 pounds of bi-waste was intentionally drowned because water had been accidentally been put into the mix making it useless for TNT production. Soda ash was added to the drowning tub while the acid was discharged.	SPIL07
August 04, 1967	TNT Line 7	1,000 pounds of Tri-mix was discharged due to operational error. The spill was diluted with water.	SPIL07
August 05, 1967	TNT Line 3	1,000 pounds of TNT residual was spilled due to an overpump. 1500 gallons of soda ash solutions were applied.	SPIL07
August 08, 1967	Tetryl #2	4,670 pounds of mixed acid were lost due to valve misalignment. Water and soda ash were used to neutralize the spill.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
August 09, 1967	Acid # 1	2,320 pounds of tetryl mix were spilled when the loading line ruptured. Water and soda ash were applied to the spill.	SPIL07
	Tetryl #2	3,361 pounds of DMAS were spilled when a storage tank was filled to overflowing. Soda ash were used to neutralize the spill.	SPIL07
August 13, 1967	TNT Line 3	1,985 pounds of AOP Nitric Acid were discharged to the stream due to operational error.	SPIL07
August 14, 1967	TNT Line 7	1,600 pounds of Tri-mix were lost due to valve failure. The spill was diluted with water.	SPIL07
August 15, 1967	TNT Line 11	1,000 pounds of Tri-mix were released to the drowning tub due to operational error.	SPIL07
August 16, 1967	TNT Line 2	1,500 pounds of oleum and 1,500 pounds of T-mix were lost due to an operational error. Water and soda ash were applied to the spill.	SPIL07
August 17, 1967	TNT Line 10	3,290 pounds of oleum had to be drowned due to an overpump. 3000 pounds of dry soda ash was used to neutralize the spill.	SPIL07
August 25, 1967	Acid # 3	11,680 pounds of summer TNT mix acid were spilled when a storage tank was filled to overflowing. Water and 1,000 pounds of dry soda ash were applied to the spill.	SPIL07
August 29, 1967	Acid # 3	13,712 pounds of strong nitric acid were spilled when part of a circulator coil failed. Soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	2,500 pounds of DMAS, 1,100 pounds of tetryl, and 1,400 pounds of mixed acid were lost due to the fire in the nitrator building of line #8.	SPIL07
	TNT Line 6	2,300 pounds of residual were lost when the transfer line ruptured. 2,000 pounds of soda ash was used to neutralize the area.	SPIL07
	TNT Line 1	1,200 pounds of mono-mix acid were released to the stream when a valve failed. Water and soda ash were used to neutralize and dilute the spill.	SPIL07
November 5, 1967	Lead Azide	18,700 pounds of ammonia was discharged.	SPIL07
November 8, 1967	Acid #3	3,200 pounds of ammonia was discharged.	SPIL07
	TNT Line 7	5,000 pounds of oleum had to be drained so that maintenance work could be done on the tank. 1000 gallons of soda ash solution was used to neutralize the spill.	SPIL07
November 11, 1967	TNT Line 12	1,150 pounds of oleum and 550 pounds of T-mix were lost due to operational error.	SPIL07
November 14, 1967	Acid # 3	5,000 pounds of TNT residual had to be drained from a storage tank so that a spool piece could be repaired. The acid was neutralized and the area washed down with water.	SPIL07
November 19, 1967	TNT #4	1,500 pounds of residual acid were lost due to operational error. Water was used to flush the acid.	SPIL07
November 22, 1967	TNT Line 3	2,095 pounds of AOP were lost when an operator unintentionally drowned a tri butt.	SPIL07
November 24, 1967	Acid #3	1,000 pounds of ammonia was discharged.	SPIL07
November 25, 1967	Tetryl Line 8	*800 pounds of tetryl mix were lost due to operational error.*	SPIL07
November 26, 1967	TNT Line 7	Between 20,000 and 25,000 pounds of oleum were lost when the unloading line from a tank car ruptured. 8000 gallons of soda ash solution was used to neutralize the spill.	SPIL07
November 28, 1967	TNT Line 7	9,720 pounds of combined bi-oil, low oil, and mono oil were lost due to operational errors.	SPIL07
November 29, 1967	Acid #3	4,000 pounds of ammonia was discharged.	SPIL07
November 30, 1967	Acid # 3	1,380 pounds of toluene was spilled due to faulty outlet valve.	SPIL07
December 3, 1967	Acid # 3	1,021 pounds of corn mix had to be drained from NAC Unit #5 to repair a boiler tube. Dry soda ash and water were used to neutralize the acid.	SPIL07
	Acid #2	2,000 pounds of ammonia was discharged.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
December 6, 1967	TNT Line 9	Two tri nitrator charges were drowned for safety reasons. The charge consisted of 9,820 pounds of bi-oil, 11,240 pounds of oleum, and 5,610 pounds of T-mix. Soda ash and water were used to neutralize the spill.	SPIL07
December 9, 1967	Acid # 3	5,000 pounds of TNT residual had to be drained to allow repair of the transfer line. Soda ash was used to neutralize the spill.	SPIL07
December 11, 1967	TNT Line 11	4,820 pounds of bi-oil, 7,210 pounds of oleum, and 1,335 pounds of T-mix had to be drowned due to an operational error. Soda ash used to neutralize the spill.	SPIL07
December 12, 1967	TNT Line 6	1,000 pounds of 60 percent nitric acid had to be drowned due to overpumping the AOP scale tank. The scale was partially locked and resulted in a lower than actual reading.	SPIL07
December 15, 1967	Acid #2	950 pounds of ammonia was discharged.	SPIL07
December 17, 1967	TNT Line 7	6,000 pounds of residual were lost due to an operational error. 1600 gallons of soda ash solution was used to neutralize the spill.	SPIL07
	TNT #4	3,925 pounds of residual acid were lost when a tank car was filled to overflowing. 1000 gallons of soda ash solution was used to neutralize the spill.	SPIL07
	Tetryl #2	38,282 pounds of tetryl mixed acid were lost due to operational error. Soda ash was used to neutralize the area.	SPIL07
	Acid # 2	1,500 pounds of 93 percent sulfuric acid were drained so that a defective valve could be replaced. 3,000 pounds of soda ash was used to neutralize the acid.	SPIL07
December 18, 1967	Acid # 1	1,500 pounds of AOP nitric acid were spilled when a valve failed. Maintenance repaired the valve and the area was flushed with water.	SPIL07
December 19, 1967	Acid #3	1,500 pounds of ammonia was discharged.	SPIL07
December 22, 1967	Acid # 3	5,300 pounds of toluene were lost due to an operational error. The spill was washed down with water.	SPIL07
	TNT Line 3	A charge was drowned because water had entered the batch from a broken coil. The charge consisted of 4,000 pounds of bi-oil, 5,380 pounds of oleum, and 2,900 pounds of T-mix.	SPIL07
December 31, 1967	TNT Line 9	3,500 pounds of mono mixed acid were lost due to an operational error. Soda ash solution was used to neutralize the area.	SPIL07
January 07, 1968	Acid # 2	5,000 pounds of oleum were lost due to an operational error. Soda ash was used to neutralize the spill.	SPIL07
January 08, 1968	Acid # 3	2,500 pounds of corn mix had to be drained from NAC Unit #6 for maintenance repairs. 100 pounds of soda ash was used to neutralize the area.	SPIL07
	Acid #3	2,000 pounds of ammonia was discharged.	SPIL07
January 14, 1968	Acid # 3	2,800 pounds of TNT residual were lost when a transfer line spool piece ruptured. 1500 gallons of soda ash was used to neutralize the spill.	SPIL07
January 22, 1968	TNT # 3	1,000 pounds of TNT residual acid were lost due to an operational error. 500 gallons of soda ash solution was used to neutralize the spill.	SPIL07
January 25, 1968	TNT # 2	3,000 pounds of oleum were lost due to an operational error. 1000 gallons of soda ash solution was used to neutralize the spill.	SPIL07
	Acid # 1	9,000 pounds of tetryl mix were drained so that the tank could be replaced. The area was washed down with water.	SPIL07
January 30, 1968	Acid # 1	5,200 pounds of AOP nitric acid were drained so that a defective valve could be replaced. 900 pounds of soda ash was used to neutralize the acid.	SPIL07
January 31, 1968	Acid # 1	9,000 pounds of tetryl mix were drained so that the tank could be replaced. Soda ash was used to neutralize the acid.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
February 03, 1968	Acid # 3	1,736 pounds of TNT residual were lost when a transfer line was drained to repair a leak. 1000 gallons of soda ash was used to neutralize the spill.	SPIL07
February 05, 1968	Acid #3	689 pounds of ammonia was discharged.	SPIL07
February 06, 1968	Acid # 2	3,000 pounds of weak nitric acid were lost due to an operational error.	SPIL07
February 08, 1968	Acid # 1	5,000 pounds of weak nitric acid were discharged when a tank was drained for maintenance work. The area was washed with water.	SPIL07
February 09, 1968	Acid # 1	5,000 pounds of weak nitric acid were lost due to a faulty inlet valve. 800 gallons of soda ash was used to neutralize the spill.	SPIL07
February 15, 1968	Acid #3	2,000 pounds of ammonia was discharged.	SPIL07
February 18, 1968	Acid # 3	3,000 pounds of weak nitric acid were lost due to an operational error. Soda ash and water were used to neutralize the spill.	SPIL07
February 19, 1968	Acid # 3	4,000 pounds of 93 percent sulfuric acid were lost due to operational error.	SPIL07
	TNT # 4	1,000 pounds of oleum were lost due to faulty oleum switch. 1000 gallons of soda ash was used to neutralize the spill.	SPIL07
	TNT # 5	1,670 pounds of oleum were lost due to an operational error. 1,000 gallons of soda ash and water were used to neutralize the spill.	SPIL07
February 23, 1968	Tetryl #2	2,752 pounds of mixed acid and 500 pounds of DMAS were lost due to operational error.	SPIL07
February 25, 1968	TNT # 4	A tri-charge was drowned due to loss of agitation. The charge consisted of 8,950 pounds of bi-oil, 11,370 pounds of oleum, and 5,450 pounds of T-mix. 1,000 gallons of soda ash and water were used to neutralize the spill.	SPIL07
February 27, 1968	Tetryl #2	1,270 pounds of mixed acid were lost due to equipment failure. Soda ash was used to neutralize the area.	SPIL07
February 28, 1968	TNT # 4	1,500 pounds of T-mix were lost due to an operational error. 1000 gallons of soda ash was used to neutralize the spill.	SPIL07
March 04, 1968	Acid #2	4,200 pounds of TNT mix were lost due to an operational error. Soda ash was used to neutralize the spill.	SPIL07
March 07, 1968	TNT # 4	3,000 pounds of TNT residual were lost due to an operational error. 1800 gallons of soda ash was used to neutralize the spill.	SPIL07
March 09, 1968	Acid # 3	10,000 pounds of TNT residual were lost due to equipment failure. Water and soda ash was used to neutralize the spill.	SPIL07
	Acid #1	19,300 pounds of corn mix were lost due to equipment failure. Water was used to neutralize the spill.	SPIL07
March 10, 1968	TNT # 3	A tri-oil charge was drowned when a charge went out of control. The charge consisted of 4,980 pounds of bi-oil, 5,655 pounds of oleum, and 2,855 pounds of T-mix. Water was used to wash the area.	SPIL07
March 12, 1968	Acid #1	9,000 pounds of corn mix were lost due to equipment failure. Water was used to neutralize the spill.	SPIL07
March 15, 1968	Acid #1	16,000 pounds of tetryl mix and sludge were discharged when a tank was drained for maintenance work. Soda ash was used to neutralize the spill.	SPIL07
March 16, 1968	Acid #3	2,000 pounds of ammonia was discharged.	SPIL07
March 17, 1968	Acid # 3	43,500 pounds of oleum was spilled at carspot 4071 due to overfilling of a tank car. Water and soda ash were used to neutralize the spill.	UNUR01
March 18, 1968	Acid # 3	24,810 pounds of oleum were lost due to an operational error. 4,000 pounds of soda ash solution and 800 pounds of dry soda ash were used to neutralize the spill.	SPIL07
March 21, 1968	TNT # 2	A tri-oil charge was drowned due to equipment failure. The charge consisted of 300 pounds of bi-oil, 5,370 pounds of oleum, and 2,905 pounds of T-mix. 800 gallons of soda ash was used to neutralize.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
March 26, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
	Acid #3	800 pounds of ammonia was discharged.	SPIL07
March 27, 1968	Acid #1	25,000 pounds of tetryl mix and sludge were discharged when a tank was drained and washed. Soda ash was used to neutralize the spill.	SPIL07
March 28, 1968	Acid # 3	32,000 pounds of residual sulfuric acid were lost due to equipment failure. Water was used to neutralize the acid.	SPIL07
March 30, 1968	TNT # 6	A tri-oil charge was drowned when a charge went out of control. The charge consisted of 4,860 pounds of bi-oil, 5,610 pounds of oleum, and 3,095 pounds of T-mix. Soda ash was used to neutralize.	SPIL07
March 31, 1968	TNT # 2	1,300 pounds of oleum were lost due to an operational error. 1,000 gallons of soda ash solution were used to neutralize the spill.	SPIL07
April 01, 1968	Acid #1	31,360 pounds of Corn mix and sludge were discharged when a tank was drained for maintenance work. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	1,200 pounds of 93 percent sulfuric acid and sludge were discharged when a tank was drained for maintenance work. The area was washed down with water.	SPIL07
April 02, 1968	Acid #1	2,000 pounds of oleum were discharged when a line was drained for maintenance work. 3,000 gallons of soda ash solution was used to neutralize the spill.	SPIL07
	TNT # 5	1,100 pounds of 60 percent nitric acid were lost due to operational error. 100 pounds of soda ash was used to neutralize the spill.	SPIL07
April 06, 1968	Acid #3	700 pounds of ammonia was discharged.	SPIL07
April 08, 1968	Acid #3	19,600 pounds of 93 percent sulfuric acid were lost due to operational error. Soda ash was used to neutralize the acid.	SPIL07
April 10, 1968	Acid #1	46,700 pounds of Corn mix and sludge were discharged when a tank was cleaned. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 3	1,000 pounds of residual sulfuric acid were discharged due to equipment failure. Soda ash was used to neutralize the acid.	SPIL07
April 11, 1968	Acid #1	3,400 pounds of 60 percent nitric acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
April 18, 1968	Acid #3	1000 pounds of ammonia was discharged.	SPIL07
April 19, 1968	TNT # 3	10,000 pounds of tri-waste acid were discharged due to equipment failure. 800 gallons of soda ash was used to neutralize the acid.	SPIL07
April 23, 1968	Acid #1	59,000 pounds of Corn mix and sludge were discharged when a tank was drained for maintenance work. Soda ash was used to neutralize the spill.	SPIL07
April 25, 1968	TNT # 1	1,350 pounds of 60 percent nitric acid were lost due to operational error.	SPIL07
April 27, 1968	TNT # 1	A tri-oil charge was discharged due to equipment failure. The charge consisted of 3,800 pounds of bi-oil, 4,250 pounds of oleum, and 4,330 pounds of T-mix. 1,000 gallons of soda ash was used to neutralize.	SPIL07
April 28, 1968	TNT # 5	1,400 pounds of bi oil were lost due to operational error.	SPIL07
April 29, 1968	TNT # 1	A tri-oil charge was drowned. The charge consisted of 4,890 pounds of oil and 8,595 pounds of acid. 900 gallons of soda ash was used to neutralize.	SPIL07
	Tetryl #2	1,145 pounds of tetryl mix were lost during tank cleaning operations. 700 gallons of soda ash was used to neutralize.	SPIL07
May 01, 1968	Acid #3	5,000 pounds of toluene were overloaded. The contaminated area was washed.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
May 06, 1968	Acid #1	6,300 pounds of weak nitric acid were lost when an outlet valve broke. The area was flushed with water and soda ash.	SPIL07
	Acid #1	65,681 pounds of acid sludge were drained to clean the tank. Soda ash and water were used to neutralize the sludge.	SPIL07
	Acid #2	2,000 pounds of TNT mix overflowed the tank due to operational error. Both the tank and the surrounding area were washed down.	SPIL07
May 07, 1968	TNT # 5	1,000 pounds of bi-oil were lost due to operational error.	SPIL07
	TNT # 4	4,000 pounds of oleum were overpumped from a tank car. Three truck loads of soda ash and water were applied to the area.	SPIL07
May 08, 1968	TNT # 4	3,925 pounds of oleum over-ran the scale tank. 800 gallons of soda ash were added to the flume.	SPIL07
May 11, 1968	Tetryl #2	16,241 pounds of tetryl mixed acid sludge were lost during cleaning operations. 19,400 pounds of soda ash and water were applied.	SPIL07
May 13, 1968	Acid #2	1,500 pounds of ammonia were lost when rupture disk failed.	SPIL07
May 17, 1968	TNT # 4	1,000 pounds of residual due to operational error. 800 gallons of soda ash solutions was used to neutralized the area.	SPIL07
May 20, 1968	Tetryl #2	1,376 pounds of mixed acid were lost due to operational error. The drowning was neutralized and flushed.	SPIL07
May 21, 1968	Acid #2	18,000 pounds of 93 percent sulfuric acid were lost due to operational error.	SPIL07
	Acid #1	42,670 pounds of corn mix residue were drained to facilitate maintenance. Sewers were protected with water and soda ash during flushing operations.	SPIL07
May 22, 1968	TNT # 6	2,000 pounds of oleum were flushed through a new nitrator coil. 1,000 gallons of soda ash was used to neutralize the spill.	SPIL07
May 24, 1968	Acid #3	800 pounds of ammonia were lost when rupture disk failed.	SPIL07
	Acid #3	600 pounds of ammonia were lost when rupture disk failed.	SPIL07
May 27, 1968	Acid #3	1,668 pounds of AOP nitric acid were lost due to an operational error. Water and soda ash were applied.	SPIL07
June 1-19, 1968	Acid #2,3	On five occasions, a total of 3,300 pounds of ammonia were lost when rupture discs blew.	SPIL07
June 02, 1968	Acid #3	2,500 pounds of toluene were lost when a standpipe was installed. The surrounding dike was flooded with water.	SPIL07
June 06, 1968	Acid #1	7,492 pounds of TNT residual were drained from the line for maintenance purposes. Soda ash and water were used to neutralize the spill.	SPIL07
June 10, 1968	Acid #3	1,000 pounds of toluene were lost because of a gasket leak. The area was flushed with water.	SPIL07
	Group 3	Oil was released from the Group 3 Power house (Building 3-1) to Prairie Creek via the storm sewer. Grass on the banks of the drainage ditch were heavily coated with oil. Plans were made to have the sides cleaned with a drag chain.	JAAP26, UCCI95
June 11, 1968	Acid #3	4,800 pounds of TNT residual were overpumped. The sewer was flushed and neutralized.	SPIL07
June 12, 1968	Acid #2	12,000 pounds of 74 percent residual were drained to permit maintenance repairs. The sewer was treated with water and soda ash.	SPIL07
June 13, 1968	Acid #1	7,410 pounds of tetryl mix were drained for repairs. The spill was neutralized and diluted.	SPIL07
	TNT # 5, Line 10	1,000 pounds of bi-waste were lost due to operational error.	SPIL07
June 14, 1968	TNT # 4, Line 5	2,000 pounds of oleum were spilled. 1,000 gallons of soda ash and water were applied to the area.	SPIL07
June 15, 1968	TNT # 6, Line 11	1,600 pounds of AOP nitric acid were discharged due to an operational error. 200 pounds of dry soda ash was added to the spill.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
June 20, 1968	Acid #3	12,000 pounds of TNT residual were lost during line repairs. Soda ash and water were used to neutralize the spill.	SPIL07
	Acid #3	7,000 pounds of 93 percent sulfuric acid were lost due to line corrosion. The area was flushed and neutralized.	SPIL07
	Acid #3	3,000 pounds of TNT residual leaked out of a hole in the residual line. 800 gallons of soda ash was used to neutralize the spill.	SPIL07
June 22, 1968	Acid #2	1,000 pounds of strong nitric acid were lost due to equipment failure. Soda ash and water were used to neutralize the spill.	SPIL07
	TNT # 4, Line 10	1,000 pounds of AOP nitric acid were lost due to an operational error. 1,000 pounds of liquid soda ash was used to neutralize.	SPIL07
June 23, 1968	TNT # 6, Line 12	1,300 pounds of AOP nitric acid were lost due to an operational error.	SPIL07
June 27, 1968	TNT # 4, Line 7	2,500 pounds of bi-oil, 4,375 pounds of oleum, and 4,100 pounds of T-mix were lost due to compound operational errors. 1,000 gallons of soda ash was used to neutralize.	SPIL07
July 01, 1968	Acid #3	3,800 pounds of 60 percent nitric acid were lost due to operational error. 200 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #1	36,834 pounds of tetryl mix were drained from two tanks so that the tanks could be repaired. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 5	3,125 pounds of tri-waste were lost due to operational error. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
July 02, 1968	Acid #1	10,834 pounds of 93 percent sulfuric acid were lost due to operational error. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 07, 1968	TNT # 5	1,800 pounds of 60 percent nitric acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
July 12, 1968	Tetryl #2	1,376 pounds of mixed acid were lost due to operational error.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
July 14, 1968	Acid #2	4,000 pounds of strong nitric acid were lost due to equipment failure. 500 gallons of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	5,300 pounds of ammonia was discharged.	SPIL07
July 15, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
July 16, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
July 17, 1968	Acid #3	700 pounds of ammonia was discharged.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
July 18, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
July 20, 1968	Acid #3	800 pounds of ammonia was discharged.	SPIL07
	TNT # 2	A bi-charge was lost due to equipment failure. The charge consisted of 11,000 pounds of bi-mix and 2,000 pounds of mono oil. Soda ash was used to neutralize.	SPIL07
	Acid #3	7,169 pounds of TNT mix were lost when a tank was drained for repairs. Soda ash was used to neutralize the spill.	SPIL07

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Date	Location	Quantity and Material Spilled	Reference
July 21, 1968	Acid #3	15,000 pounds of TNT residual were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	22,188 pounds of TNT residual were lost due to operational error. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 22, 1968	Acid #3	1,700 pounds of corn mix were lost when a circulator was drained for repairs. Soda ash was used to neutralize the spill.	SPIL07
July 24, 1968	TNT # 6	1,000 pounds of mono mix were lost due to operational error.	SPIL07
July 26, 1968	Acid #1	14,300 pounds of TNT residual were lost due to equipment failure. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #2	3,137 pounds of TNT mix were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
	Acid #2	1,500 pounds of TNT mix were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
	Acid #3	600 pounds of ammonia was discharged.	SPIL07
July 27, 1968	TNT # 4	A bi-charge was lost due to equipment failure. The charge consisted of 2,750 pounds of mono oil, 2,100 pounds of 60 percent nitric acid, and 8,000 pounds of tri-waste. 1,000 pounds of soda ash was used to neutralize.	SPIL07
July 29, 1968	TNT # 2	A tri-charge was drowned. The charge consisted of 4,900 pounds of bi-oil, 4,315 pounds of oleum, and 4,345 pounds of T-mix. 800 pounds of soda ash was used to neutralize.	SPIL07
	Acid #3	4,500 pounds of 93 percent sulfuric acid were lost due to equipment failure. 500 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	570 pounds of ammonia was discharged.	SPIL07
July 30, 1968	TNT # 2	2,000 pounds of DNT mix were lost due to equipment failure. 1,600 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 6	2,000 pounds of whisker oil were lost due to operational error.	SPIL07
August, 1968	West Toluene Tank Farm	A toluene storage tank was destroyed by lightning. This was reportedly the second such loss.	HIST03
August 05, 1968	TNT # 4	A bi-charge was lost due to equipment failure. The charge consisted of 4,800 pounds of bi-oil and 8,000 pounds of tri-waste. 20,000 pounds of soda ash was used to neutralize.	SPIL07
August 07, 1968	Tetryl #2	3,224 pounds of tetryl mixed acid were drained for maintenance work. 16,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 09, 1968	TNT # 6	1,800 pounds of 60 percent nitric acid were lost due to operational error. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 12, 1968	TNT # 6	A tri-charge was drowned. The charge consisted of 5,000 pounds of bi-oil, 4,440 pounds of oleum and 4,115 pounds of T-mix. 10,000 pounds of soda ash was used to neutralize.	SPIL07
August 18, 1968	TNT # 6	1,500 pounds of tri-waste and tri oil were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	12,000 pounds of TNT residual were lost due to equipment failure. 50,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 20, 1968	TNT # 4	A mono-charge was lost due to equipment failure. The charge consisted of 1,600 pounds of toluene and 8,500 pounds of mono mix. 800 pounds of soda ash was used to neutralize.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
August 22, 1968	TNT # 4	1,000 pounds of TNT residual were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 25, 1968	Tetryl #2	1,376 pounds of tetryl mix were lost due to operational error.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
August 26, 1968	Acid #3	4,200 pounds of 93 percent sulfuric acid were lost due to operational error. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	28,442 pounds of 74 percent sulfuric acid were lost due to equipment failure. 24,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 28, 1968	Acid #3	1,000 pounds of 93 percent sulfuric acid were lost due to equipment failure. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 30, 1968	Acid #3	8,000 pounds of 93 percent sulfuric acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 6	2,000 pounds of TNT residual were lost due to equipment failure. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 31, 1968	Acid #3	111,050 pounds of 93 percent sulfuric acid were lost due to operational error. 24,000 pounds of soda ash was used to neutralize the spill.	SPIL07
September 03, 1968	Acid #2	4,432 pounds of weak nitric acid were drained so Maintenance could work on the tank.	SPIL07
September 04, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
September 06, 1968	TNT # 4	1,000 pounds of TNT residual were lost due to equipment failure. 1,000 gallons of soda ash was used to neutralize the spill.	SPIL07
September 07, 1968	Acid #1	2,000 pounds of TNT residual were lost due to equipment failure. 2,000 gallons of soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	1,376 pounds of tetryl mix and 1,607 pounds of DMAS were lost when a charge was drowned.	SPIL07
September 10, 1968	Tetryl #2	1,376 pounds of tetryl mix were lost due to operational error.	SPIL07
	Tetryl #2	2,903 pounds of tetryl mix were drained for maintenance work. 4,250 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #1	24,288 pounds of tetryl mix and sludge were drained for maintenance repairs. Soda ash was used to neutralize the spill.	SPIL07
September 11, 1968	Acid #2	1,669 pounds of strong nitric acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
September 12, 1968	Acid #3	3,000 pounds of TNT mix were drained for maintenance work. Soda ash was used to neutralize the spill.	SPIL07
	Acid #1	11,000 pounds of TNT residual were lost due to equipment failure and subsequent draining of a line. Soda ash was used to neutralize the spill.	SPIL07
September 13, 1968	Tetryl #2	2,752 pounds of tetryl mix sludge were drained for maintenance work. 427 gallons of soda ash was used to neutralize the spill.	SPIL07
	Acid #1	42,439 pounds of Corn mix and sludge were drained for maintenance work. Soda ash was used to neutralize the spill.	SPIL07
September 14, 1968	Acid #1	2,000 pounds of TNT residual were lost due to equipment failure. 1,000 gallons of soda ash was used to neutralize the spill.	SPIL07
September 15, 1968	Acid #2	1000 pounds of ammonia was discharged.	SPIL07
September 17, 1968	Acid #3	1,500 pounds of oleum were lost due to equipment failure. 1,750 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
September 19, 1968	TNT # 6	1,336 pounds of TNT residual were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
September 20, 1968	Acid #1	10,000 pounds of TNT residual were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
	Acid #2	1,500 pounds of weak nitric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	1500 pounds of ammonia was discharged.	SPIL07
September 21, 1968	Tetryl #2	1,376 pounds of tetryl mix were lost due to operational error.	SPIL07
	Acid #3	1000 pounds of ammonia was discharged.	SPIL07
September 22, 1968	Acid #3	1000 pounds of ammonia was discharged.	SPIL07
September 23, 1968	TNT # 4	1,000 pounds of weak nitric acid were lost due to equipment failure. 1,000 gallons of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
September 24, 1968	Acid #1	2,000 pounds of 93 percent sulfuric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
September 25, 1968	TNT # 3	2,080 pounds of weak nitric acid were lost due to operational error.	SPIL07
September 27, 1968	Acid #3	2,000 pounds of TNT mix were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
September 30, 1968	TNT # 4	1,000 pounds of TNT residual were lost due to equipment failure. 1,000 gallons of soda ash was used to neutralize the spill.	SPIL07
October 01, 1968	Acid #3	28,500 pounds of F-80 mix and sludge were discharged due to tank cleaning. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	24,900 pounds of F-80 mix and sludge were discharged due to tank cleaning. Soda ash was used to neutralize the spill.	SPIL07
October 02, 1968	Acid #3	4,500 pounds of 93 percent sulfuric acid were lost due to equipment failure. 1,400 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	1000 pounds of ammonia was discharged.	SPIL07
October 03, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
October 04, 1968	Acid #3	2,000 pounds of 93 percent sulfuric acid were lost when a tank was drained for repairs. 500 pounds of soda ash was used to neutralize the spill.	SPIL07
October 05, 1968	TNT # 6	A tri-charge was lost due to operational error. The charge consisted of 3,750 pounds of bi-oil, 8,750 pounds of oleum and 2,830 pounds of T-mix. Soda ash was used to neutralize.	SPIL07
October 06, 1968	Tetryl #2	2,752 pounds of tetryl mix and 2,044 pounds of DMAS were lost due to excessive foaming in nitrator.	SPIL07
October 08, 1968	Tetryl #2	2,752 pounds of tetryl mix and 3,214 pounds of DMAS were lost due to equipment failure.	SPIL07
October 13, 1968	Acid #1	3,000 pounds of TNT residual were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	3,500 pounds of T-mix were lost due to an operational error. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
October 14, 1968	TNT # 5	1,230 pounds of T-mix were lost due to an operational error. 9,250 pounds of soda ash was used to neutralize the spill.	SPIL07
October 17, 1968	Acid #1	10,000 pounds of Con-mix were lost due to an operational error. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	2,100 pounds of Con-mix were lost due to an operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
October 19, 1968	Acid #1	3,000 pounds of TNT residual were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
October 20, 1968	Acid #2	6,000 pounds of 93 percent sulfuric acid were lost due to operational error. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #1	11,800 pounds of tetryl mix and sludge were lost when a tank was cleaned for repairs. Soda ash was used to neutralize the spill.	SPIL07
October 21, 1968	Acid #1	7,500 pounds of TNT residual were lost when a line was drained for repairs. Soda ash was used to neutralize the spill.	SPIL07
October 22, 1968	Acid #3	1,800 pounds of 93 percent sulfuric acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
	Acid #2	15,900 pounds of DNT mix and sludge were lost due to tank cleaning for repairs. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	1,376 pounds of tetryl mix were lost due to equipment failure.	SPIL07
October 24, 1968	Acid #2	49,000 pounds of 74 percent sulfuric acid were lost due to equipment failure.	SPIL07
	TNT # 6	A tri-charge was lost. The charge consisted of 4,940 pounds of bi-oil, 7,360 pounds of oleum and 1,200 pounds of T-mix. 20,000 pounds of soda ash was used to neutralize.	SPIL07
	Acid #3	1000 pounds of ammonia was discharged.	SPIL07
October 26, 1968	TNT # 4	1,000 pounds of residual acid were lost when a line was drained for repairs. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 2	2,200 pounds of oleum and T-mix were lost due to operational error.	SPIL07
October 29, 1968	TNT # 1	3,500 pounds of tri-waste acid were lost due to equipment failure.	SPIL07
November 05, 1968	Acid #3	500 pounds of ammonia was discharged.	SPIL07
November 06, 1968	TNT # 4	5,690 pounds of oleum and 2,790 pounds of T-mix were lost due to operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
November 09, 1968	TNT # 4	A tri-charge consisting of 4,910 pounds of bi-oil, 5,700 pounds of oleum and 2,770 pounds of T-mix were lost due to operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
November 13, 1968	Acid #1	1,000 pounds of tetryl mix were lost when a line was broken for maintenance work. 400 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 5	1,060 pounds of oleum and T-mix were lost due to operational error.	SPIL07
November 14, 1968	Tetryl #2	1,376 pounds of mixed acid and 1,197 pounds of DMAS were lost due to an operational error.	SPIL07
November 16, 1968	Tetryl #2	1,376 pounds of mixed acid were lost due to an operational error.	SPIL07
November 18, 1968	TNT # 4	2,670 pounds of bi-oil, 5,680 pounds of oleum and 2,775 pounds of T-mix were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
November 21, 1968	Acid #1	1,000 pounds of weak nitric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
November 22, 1968	Acid #1	438 pounds of ammonia was discharged.	SPIL07
November 26, 1968	TNT # 4	1,200 pounds of waste acid were lost due to equipment failure. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 1	Two tri-oils and two tri-wastes were lost due to operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
November 27, 1968	Acid #1	8,000 pounds of TNT mix were lost due to equipment repairs. 15,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 03, 1968	Acid #1	65,000 pounds of F-60 Anti-Freeze Acid and sludge were discharged so that maintenance work could be performed on a tank. Soda ash was used to neutralize the spill.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
December 05, 1968	Acid # 3	12,000 pounds of TNT mix were lost due to equipment failure. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 08, 1968	TNT # 2	1,400 pounds of oleum and T-mix were lost due to operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 10, 1968	TNT # 4	9,906 pounds of T-mix were lost due to an operational error. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 14, 1968	TNT # 6	5,700 pounds of oleum were lost due to equipment failure.	SPIL07
December 15, 1968	Acid #3	1000 pounds of ammonia was discharged.	SPIL07
December 21, 1968	TNT # 4	1,300 pounds of oleum were lost due to equipment failure. 18,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 26, 1968	Tetryl #2	1,376 pounds of tetryl mix were lost due to an operational error.	SPIL07
December 29, 1968	TNT # 4	1,000 pounds of TNT residual were lost when a line was drained for repairs. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 02, 1969	TNT # 4	8,000 pounds of 68 percent sulfuric acid were lost due to equipment failure. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 04, 1969	TNT # 3	A TNT charge consisting of 4,850 pounds of bi-oil, 5,670 pounds of oleum and 2,775 pounds of T-mix was drowned.	SPIL07
January 05, 1969	Acid #1	3,100 pounds of ammonia was discharged.	SPIL07
January 06, 1969	Acid # 3	40,000 pounds of 74 percent sulfuric acid were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid # 3	15,000 pounds of 74 percent sulfuric acid were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 07, 1969	TNT # 4	2,500 pounds of TNT mix were lost due to an operational error. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 08, 1969	Acid # 1	1,500 pounds of corn mix were lost when a unit was drained for repairs.	SPIL07
January 11, 1969	TNT # 3	2,100 pounds of 60 percent nitric acid were lost due to an operational error.	SPIL07
January 12, 1969	Acid # 3	19,000 pounds of corn mix were lost due to an operational error. Soda ash was used to neutralize the spill.	SPIL07
January 14, 1969	TNT # 4	5,000 pounds of 68 percent sulfuric acid were lost due to an operational error. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 16, 1969	Acid # 3	1,100 pounds of 60 percent nitric acid were lost due to an operational error. Soda ash was used to neutralize the spill.	SPIL07
January 17, 1969	Acid # 3	10,000 pounds of 74 percent sulfuric acid were lost when a tank was drained for repairs. 500 pounds of soda ash was used to neutralize the spill.	SPIL07
January 19, 1969	Acid # 3	50,000 pounds of 93 percent sulfuric acid were lost when the acid became contaminated. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	1,076 pounds of tetryl mix were lost due to an operational error.	SPIL07
January 21, 1969	Acid #3	500 pounds of ammonia was discharged.	SPIL07
January 23, 1969	TNT # 3	2,205 pounds of oleum and 1,155 pounds of T-mix were lost due to equipment failure.	SPIL07
January 24, 1969	TNT # 4	5,700 pounds of oleum and 2,770 pounds of T-mix were lost. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 25, 1969	Acid # 3	17,700 pounds of oleum were lost due to equipment failure.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
January 28, 1969	Acid # 3	4,000 pounds of oleum were lost due to an operational error. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 30, 1969	Acid # 3	13,500 pounds of TNT mix were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
February 01, 1969	Acid # 2	4,000 pounds of 93 percent sulfuric acid were lost due to equipment failure. 5,000 pounds of soda ash was used to neutralize the spill.	SPIL07
February 07, 1969	Acid # 1	57,900 pounds of corn mix were drained from a tank. Soda ash was used to neutralize the spill.	SPIL07
February 12, 1969	Acid #3	500 pounds of ammonia was discharged.	SPIL07
February 22, 1969	TNT # 5	A tri-charge was drowned due to equipment failure. The charge consisted of 4,950 pounds of bi-oil, 5,665 pounds of oleum and 2,745 pounds of T-mix. 10,000 pounds of soda ash was used to neutralize.	SPIL07
February 23, 1969	Acid # 2	1,500 pounds of 74 percent sulfuric acid were lost due to equipment failure. 800 pounds of soda ash was used to neutralize the spill.	SPIL07
February 24, 1969	Acid # 2	6,750 pounds of 93 percent sulfuric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
February 25, 1969	Acid # 2	2,500 pounds of 93 percent sulfuric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 2	7,400 pounds of strong nitric acid were lost due to equipment cleaning. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 03, 1969	Acid # 3	29,759 pounds of sulfuric acid sludge were lost when a tank was cleaned for repairs. 1,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 13, 1969	Acid # 3	1,000 pounds of 93 percent sulfuric acid were lost due to an operational error. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 3	30,000 pounds of 93 percent sulfuric acid were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 14, 1969	Tetryl #2	25,406 pounds of tetryl mix sludge were lost when a tank was cleaned. 23,500 pounds of soda ash was used to neutralize the spill.	SPIL07
March 15, 1969	TNT # 4	1,000 pounds of TNT residual were lost due to equipment failure. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 16, 1969	TNT # 4	4,000 pounds of TNT residual were lost due to operational error. 24,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 19, 1969	Acid # 1	20,000 pounds of tetryl mix sludge were lost when a tank was cleaned.	SPIL07
March 21, 1969	TNT # 4	1,000 pounds of oleum were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid # 3	3,800 pounds of TNT residual were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 22, 1969	Acid # 2	49,200 pounds of 93 percent sulfuric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
March 23, 1969	Acid # 1	1,500 pounds of corn mix were lost when unit was drained for repairs.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
March 24, 1969	Acid # 1	1,000 pounds of 74 percent sulfuric acid were lost due to equipment failure. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	1,000 pounds of tetryl mix were lost when unit was drained for replacement. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 5	2,400 pounds of mono mix acid were lost due to equipment failure.	SPIL07
March 25, 1969	TNT # 4	1,000 pounds of TNT residual were lost due to equipment failure. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
March 29, 1969	Acid # 3	54,060 pounds of corn mix were lost when tank was drained for repairs. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	16,000 pounds of tetryl mix sludge were lost when tank was cleaned. 19,500 pounds of soda ash was used to neutralize the spill.	SPIL07
March 31, 1969	Acid # 3	4,000 pounds of F-60 mix sludge were lost when tank was cleaned. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
April 01, 1969	Acid # 1	3,000 pounds of 74 percent sulfuric acid were lost due to operational error.	SPIL07
	Acid # 1	1,500 pounds of corn mix were lost when a unit was drained for repairs.	SPIL07
April 02, 1969	Acid # 1	10,000 pounds of 93 percent sulfuric acid were lost when a unit was drained for repairs.	SPIL07
April 03, 1969	TNT # 4	15,000 pounds of T-mix were lost due to operational error. 36,000 pounds of soda ash was used to neutralize the spill.	SPIL07
April 06, 1969	Acid #3	250 pounds of ammonia was discharged.	SPIL07
April 07, 1969	Acid # 3	1,800 pounds of corn mix were lost when a unit was drained for repairs. Soda ash was used to neutralize the acid.	SPIL07
April 08, 1969	Acid # 3	10,243 pounds of tetryl mix were lost when a tank was cleaned. Soda ash was used to neutralize the acid.	SPIL07
April 10, 1969	Acid # 3	1,800 pounds of corn mix were lost when a unit was drained for repairs. Soda ash was used to neutralize the acid.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
April 14, 1969	TNT # 4	1,100 pounds of T-mix were lost due to equipment failure. 8,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
	TNT # 4	2,000 pounds of TNT mix were lost due to equipment failure. 18,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
	TNT # 4	1,500 pounds of T-mix were lost when a line was drained for repairs. 8,000 pounds of soda ash was used to neutralize the acid.	SPIL07
April 15, 1969	Acid #3	500 pounds of ammonia was discharged.	SPIL07
	Acid # 3	6,900 pounds of TNT mix were lost when a tank was drained for repairs. Soda ash was used to neutralize the acid.	SPIL07
April 17, 1969	TNT # 4	2,000 pounds of T-mix were lost when a line was drained for repairs. 20,000 pounds of soda ash was used to neutralize the acid.	SPIL07
April 18, 1969	Acid # 3	5,000 pounds of 93 percent sulfuric acid were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	A tri-charge was drowned due to operational error. The charge consisted of 4,800 pounds of bi-oil, 5,680 pounds of oleum and 2,700 pounds of T-mix. 10,000 pounds of soda ash was used to neutralize.	SPIL07
	TNT # 2	A synthetic bi-charge was drowned due to excessive fuming and foaming. The charge consisted of 2,910 pounds of mono-oil, 200 pounds of weak nitric acid and 11,252 pounds of DNT mix. 8,000 pounds of soda ash was used to neutralize.	SPIL07
April 21, 1969	Acid # 1	8,500 pounds of TNT mix were lost due to equipment failure.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
April 23, 1969	Acid # 1	70,000 pounds of corn mix were lost when a tank was drained for repairs. Soda ash was used to neutralize the acid.	SPIL07
April 30, 1969	Acid # 1	20,434 pounds of tetryl mix sludge were lost when a tank was cleaned. Soda ash was used to neutralize the acid.	SPIL07
	Acid # 1	54,060 pounds of corn mix sludge were lost when a tank was cleaned. Soda ash was used to neutralize the acid.	SPIL07
	TNT # 2	57,665 pounds of 68 percent sulfuric acid were lost due to operational error. 17,000 pounds of soda ash was used to neutralize the spill.	SPIL07
May 03, 1969	Acid # 3	40,000 pounds of sulfuric acid sludge were lost during normal tank cleaning operations. 30,000 pounds of soda ash was used to neutralize the spill.	SPIL07
May 05, 1969	TNT # 3	1,000 pounds of tri-waste acid were lost due to equipment failure. The acid was neutralized.	SPIL07
May 07, 1969	Acid # 1	16,810 pounds of tetryl mix were lost when a tank was drained for replacement. Soda ash was used to neutralize the spill.	SPIL07
May 08, 1969	Acid # 3	5,700 pounds of TNT mix were lost during a routine tank washout. Soda ash was used to neutralize the spill.	SPIL07
May 11, 1969	TNT # 5	10,200 pounds of 93 percent sulfuric acid and T-mix were lost due to equipment malfunction. The acid was drowned.	SPIL07
May 12, 1969	TNT # 4	1,245 pounds of 68 percent sulfuric acid were lost due to operator error. Soda ash was used to neutralize the spill.	SPIL07
May 14, 1969	Tetryl #2	1,376 pounds of mixed acid were lost due to operator error.	SPIL07
May 21, 1969	TNT # 4	1,700 pounds of bi-oil, 4,480 pounds of 93 percent sulfuric acid and 3,940 pounds of T-mix were lost during controlled drowning. 17,000 pounds of soda ash was used to neutralize.	SPIL07
May 23, 1969	Acid # 3	85,049 pounds of corn mix sludge were lost during routine tank repair. Soda ash was used to neutralize the spill.	SPIL07
May 27, 1969	TNT # 4	4,115 pounds of 60 percent nitric acid were lost due to operator error. 18,000 pounds of soda ash was used to neutralize the spill.	SPIL07
May 28, 1969	Acid # 3	60,576 pounds of 93 percent sulfuric acid were lost during tank cleaning. Soda ash was used to neutralize the spill.	SPIL07
June 05, 1969	Acid # 1	21,300 pounds of 93 percent sulfuric acid were lost when a tank was drained for repair. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	16,100 pounds of 93 percent sulfuric acid were lost when a tank was drained for repair. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	65,681 pounds of corn mix were lost when a tank was drained for repair. Soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	2,386 pounds of DMAS were lost due to operational error. Soda ash solution was used to neutralize the spill.	SPIL07
June 06, 1969	Acid # 1	13,000 pounds of 93 percent sulfuric acid residue were used to flush deposits from an acid tank. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	2,000 pounds of T-mix were lost due to maintenance error. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
June 10, 1969	Acid Area	19,142 pounds of 74 percent NAC residual were lost during routine maintenance operations. 8,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
June 11, 1969	Acid Area	1,200 pounds of 74 percent residual acid were lost due to operational error. Soda ash solution was used to neutralize the spill.	SPIL07
	Acid # 3	15,670 pounds of 93 percent sulfuric acid were lost due to maintenance operations. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
June 12, 1969	Acid # 1	26,000 pounds of TNT mix residual were lost when a tank was drained for repair. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	1,400 pounds of bi-oil, 4,450 pounds of oleum and 3,960 pounds of T-mix were lost due to equipment failure. 9,000 pounds of soda ash was used to neutralize.	SPIL07
June 14, 1969	TNT # 4	10,000 pounds of residual acid were lost due to operational error. 24,000 pounds of soda ash was used to neutralize the spill.	SPIL07
June 16, 1969	Acid # 1	16,000 pounds of tetryl mix residual were lost during routine maintenance operations. The acid was neutralized.	SPIL07
June 18, 1969	TNT # 1	1,000 pounds of oleum were lost during controlled drowning. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
June 20, 1969	Tetryl #2	1,000 pounds of residual acid were lost due to operational error. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
June 28, 1969	TNT # 5	9,300 pounds of residual acid were lost due to equipment failure. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #3	500 pounds of ammonia was discharged.	SPIL07
June 29, 1969	Acid # 1	4,200 pounds of 93 percent sulfuric acid were lost when a valve was replaced. Soda ash and water were used to neutralize the spill.	SPIL07
July 01, 1969	TNT # 2	6,500 pounds of oleum were lost due to operational error. 16,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 15, 1969	Acid # 1	2,000 pounds of 98 percent nitric acid were lost during normal maintenance. The acid was neutralized.	SPIL07
July 17, 1969	Acid # 3	120,000 pounds of TNT residual were lost when an acid line developed a leak. The acid went directly into the creek.	SPIL07
July 18, 1969	Acid # 3	7,958 pounds of TNT residual were lost when a line was drained for maintenance. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	10,000 pounds of oleum were lost due to operational error. 38,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 19, 1969	TNT # 4	2,000 pounds of TNT mix were lost due to operational error. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 21, 1969	Acid # 2	6,000 pounds of TNT mix sludge were lost during normal maintenance operations. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 22, 1969	Acid # 3	7,000 pounds of 98 percent nitric acid were lost due to equipment failure. 7,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid #2	500 pounds of ammonia was discharged.	SPIL07
	TNT # 6	800 pounds of 60 percent nitric acid and 800 pounds of tri-waste were lost due to operational error. The area was washed with water.	SPIL07
July 26, 1969	TNT # 6	21,000 pounds of 60 percent nitric acid and 8,000 pounds of tri-waste were drowned. 18,000 pounds of soda ash was used to neutralize the tub.	SPIL07
July 27, 1969	TNT # 4	1,600 pounds of TNT mix were lost due to operational error. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
July 28, 1969	TNT # 5	9,300 pounds of TNT residual acid were lost when equipment failed. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	1,200 pounds of tetryl mix were lost due to operational error.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
July 29, 1969	TNT # 5	1,100 pounds of oleum and TNT mix were lost due to operational error.	SPIL07
August 05, 1969	TNT # 1	4,445 pounds of oleum and 3,980 pounds of TNT mix were lost due to a leak in the nitrator well. Soda ash was used to neutralize the spill.	SPIL07
August 06, 1969	TNT # 4	8,470 pounds of tri-mix were lost when a charge was drowned. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 3	9,000 pounds of 93 percent sulfuric acid were lost when a tank overfilled. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 07, 1969	Acid # 2	7,100 pounds of TNT-mix sludge were lost when a tank was drained for maintenance. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	64,000 pounds of 93 percent sulfuric acid residue were lost when a tank was drained for repair. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	22,500 pounds of tetryl mix residue were lost when a tank was drained for maintenance. Soda ash was used to neutralize the spill.	SPIL07
August 08, 1969	TNT # 4	1,000 pounds of residual acid were lost when a pump began leaking. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 09, 1969	Tetryl #2	1,376 pounds of tetryl mix and 1,607 pounds of DMAS were lost when a feed line ruptured.	SPIL07
August 10, 1969	TNT # 1	4,450 pounds of oleum and 3,985 pounds of TNT mix were lost due to operational error. 12,000 pounds of soda ash was used to neutralize the spill.	SPIL07
August 12, 1969	Acid # 1	60,600 pounds of 93 percent sulfuric acid were used to flush sludge from a storage tank. Soda ash was used to neutralize the spill.	SPIL07
August 13, 1969	Acid # 1	22,000 pounds of 93 percent sulfuric acid were used to flush sludge from a storage tank. Soda ash was used to neutralize the spill.	SPIL07
August 14, 1969	Acid # 3	2,000 pounds of corn mix were lost when a circulator ran over. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 3	81,176 pounds of corn mix sludge heel were spilled during maintenance operations. Soda ash was used to neutralize the spill.	SPIL07
August 15, 1969	Acid # 3	44,266 pounds of 93 percent sulfuric acid were used to wash sludge from a storage tank. Soda ash was used to neutralize the spill.	SPIL07
August 18, 1969	Acid # 1	1,300 pounds of 98 percent nitric acid were lost when maintenance checked a line for obstruction. 1500 pounds of soda ash solution was used to neutralize the spill.	SPIL07
August 19, 1969	Acid #2	500 pounds of ammonia was discharged.	SPIL07
August 26, 1969	Acid # 3	12,000 pounds of 93 percent sulfuric acid were lost when a tank developed a leak. 500 pounds of soda ash was used to neutralize the spill.	SPIL07
August 27, 1969	Acid # 1	42,595 pounds of 93 percent sulfuric acid were lost when a storage tank was washed. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 2	23,025 pounds of F-80 sludge were lost when a tank was cleaned. Soda ash was used to neutralize the spill.	SPIL07
August 28, 1969	Acid # 1	8,557 pounds of 93 percent sulfuric acid were lost when a tank was cleaned for repairs.	SPIL07
September 03, 1969	Acid # 1	61,776 pounds of corn mix acid were lost when a tank was flushed for repairs. Soda ash was used to neutralize the spill.	SPIL07
September 04, 1969	TNT # 4	4,410 pounds of oleum and 4,165 pounds of TNT mixed acid were lost when equipment failed. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
September 07, 1969	Acid # 3	10,500 pounds of 68 percent sulfuric acid were lost when a transfer line developed a leak. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 5	1,350 pounds of oleum and TNT mixed solution were lost when a line clogged.	SPIL07
September 08, 1969	Acid # 3	5,902 pounds of TNT residual were lost when a gasket failed. Soda ash was used to neutralize the spill.	SPIL07
September 10, 1969	Acid # 3	36,000 pounds of 68 percent sulfuric acid were lost due to mechanical failure. 16,000 pounds of soda ash was used to neutralize the spill.	SPIL07
September 12, 1969	Acid # 1	1,800 pounds of corn mix were lost when a preheater was drained for maintenance. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	2,500 pounds of DNT mixed acid were lost when a tank was drained for maintenance. 4,000 pounds of soda ash was used to neutralize the spill.	SPIL07
September 13, 1969	TNT # 6	3,825 pounds of bi-waste acid were lost due to operational error.	SPIL07
September 14, 1969	TNT # 6	2,000 pounds of residual acid were lost when packing failed in a pump. 20,000 pounds of soda ash was used to neutralize the spill.	SPIL07
September 16, 1969	TNT # 1	4,410 pounds of oleum and 4,050 pounds of TNT mix were lost due to operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
September 17, 1969	Acid # 1	8,000 pounds of 93 percent sulfuric acid were lost when a transfer line ruptured. Soda ash was used to neutralize the spill.	SPIL07
September 18, 1969	Acid Area	95,000 pounds of 74 percent sulfuric acid were lost when an acid tub bulkhead collapsed. 40,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 6	20,000 pounds of 40 percent nitric acid were lost when a line was drained for construction. 10,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
September 19, 1969	Acid # 1	26,296 pounds of tetryl mix were lost during regular maintenance operation. Soda ash was used to neutralize the spill.	SPIL07
September 22, 1969	Tetryl #2	1,932 pounds of waste acid were lost due to operational error. Soda ash solution was used to neutralize the spill.	SPIL07
September 23, 1969	Acid #1	1,568 pounds of ammonia was discharged.	SPIL07
September 24, 1969	Acid # 3	33,313 pounds of 93 percent sulfuric acid were lost when a circulator overflowed. Soda ash was used to neutralize the spill.	SPIL07
September 30, 1969	Acid # 2	1,000 pounds of tetryl mix acid were lost when a line was drained for maintenance. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
October 01, 1969	Acid # 1	3,100 pounds of corn mix acid were lost when a tank was cleaned. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	1,000 pounds of tetryl mix acid were lost when a line was drained for maintenance. Soda ash was used to neutralize the spill.	SPIL07
October 03, 1969	Acid #3	1,500 pounds of ammonia was discharged.	SPIL07
October 05, 1969	Tetryl #2	3,240 pounds of DMAS were lost during normal maintenance operations. Soda ash solution was used to neutralize the spill.	SPIL07
October 06, 1969	Acid # 1	20,000 pounds of 93 percent sulfuric acid were used to wash out a tank. The acid was neutralized.	SPIL07
	Acid # 1	24,288 pounds of tetryl mix acid were lost when a tank was washed. Soda ash was used to neutralize the spill.	SPIL07
October 07, 1969	Acid # 2	1,800 pounds of TNT mix were lost when a cooling coil started to leak. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 2	2,100 pounds of 98 percent nitric acid were lost due to operational error. Soda ash solution was used to neutralize the spill.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
October 08, 1969	Acid # 2	1,100 pounds of 60 percent nitric acid were lost when a line was drained for maintenance. Soda ash solution was used to neutralize the spill.	SPIL07
	Acid # 2	30,000 pounds of corn mix acid were lost when a tank was emptied for repairs. 5,000 pounds of soda ash was used to neutralize the spill.	SPIL07
October 10, 1969	TNT # 1	16,900 pounds of TNT mix acid were lost when a vent valve was left open. Soda ash was used to neutralize the spill.	SPIL07
October 15, 1969	Acid # 1	21,622 pounds of 93 percent sulfuric acid were used to wash out a tank.	SPIL07
	Acid # 1	24,288 pounds of tetryl mix acid were lost when a tank was emptied for repairs. Soda ash was used to neutralize the spill.	SPIL07
October 17, 1969	Acid # 2	15,000 pounds of 93 percent sulfuric acid were lost when a reducer ruptured. Soda ash was used to neutralize the spill.	SPIL07
October 18, 1969	Acid # 3	1,250 pounds of 68 percent sulfuric acid were lost due to operational error. 1600 pounds of soda ash was used to neutralize the spill.	SPIL07
October 19, 1969	Acid # 3	1530 pounds of 68 percent sulfuric acid were lost when a leak developed in a transfer line. Soda ash was used to neutralize the spill.	SPIL07
October 20, 1969	Acid # 1	3,300 pounds of 98 percent nitric acid were lost when a tank was replaced. Soda ash was used to neutralize the spill.	SPIL07
	Tetryl #2	2,046 pounds of DMAS and 2,752 pounds of tetryl mix acid were lost when equipment failed.	SPIL07
	Acid #1	750 pounds of ammonia was discharged.	SPIL07
October 21, 1969	Acid # 1	6,000 pounds of 68 percent sulfuric acid were lost when a line was drained for repairs. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 2	1,000 pounds of 93 percent sulfuric acid were lost when a line ruptured. Soda ash was used to neutralize the spill.	SPIL07
October 22, 1969	Acid # 1	25,719 pounds of summer TNT mix acid were lost when a tank was drained for repairs. Soda ash was used to neutralize the spill.	SPIL07
	Acid #3	1,000 pounds of ammonia was discharged.	SPIL07
October 23, 1969	Acid # 2	1,000 pounds of 93 percent sulfuric acid were lost during a routine maintenance. No neutralization was reported.	SPIL07
October 25, 1969	TNT # 1	3,448 pounds of 60 percent nitric acid were lost due to operational error. 8,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
October 28, 1969	Acid # 2	1,100 pounds of 93 percent sulfuric acid were lost when a preheater was drained. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 2	38,700 pounds of 93 percent sulfuric acid were lost when a tank was washed out. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 5	4,360 pounds of oleum and 4,035 pounds of TNT mixed acid were lost when equipment failed. Soda ash was used to neutralize the spill.	SPIL07
October 30, 1969	TNT # 3	4,455 pounds of oleum and 4,010 pounds of TNT mixed acid were lost when equipment failed. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 1	4,500 pounds of oleum were lost when cooling coils were blocked. No neutralization was reported.	SPIL07
October 31, 1969	Acid # 2	55,575 pounds of 93 percent sulfuric acid were lost due to maintenance. Soda ash was used to neutralize the spill.	SPIL07
	TNT # 2	4,375 pounds of oleum and 4,170 pounds of TNT mixed acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
November 03, 1969	TNT # 4	2,460 pounds of oleum and TNT mixed acid were lost due to operational error.	SPIL07
November 06, 1969	Acid # 3	34,059 pounds of 68 percent sulfuric acid were lost during maintenance operations. Soda ash was used to neutralize the spill.	SPIL07
November 08, 1969	Acid # 2	1500 pounds of oleum were lost when cooling coils became blocked.	SPIL07
November 09, 1969	Acid # 3	2,500 pounds of 93 percent sulfuric acid were lost when a tank was drained for repair. Soda ash was used to neutralize the spill.	SPIL07
	Tetryl #9	2,800 pounds of tetryl mixed acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
November 12, 1969	Acid # 3	2,000 pounds of TNT residual acid were lost when a tank was drained for repair. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
November 15, 1969	Acid # 1	13,000 pounds of 93 percent sulfuric acid were lost when a leak developed. Soda ash was used to neutralize the spill.	SPIL07
November 16, 1969	TNT # 4	5,640 pounds of oleum and 2,835 pounds of TNT mixed acid were lost when a coil ruptured. 4,000 pounds of soda ash was used to neutralize the spill.	SPIL07
November 17, 1969	Acid # 1	1,500 pounds of 93 percent sulfuric acid were lost during maintenance operations. Soda ash was used to neutralize the spill.	SPIL07
November 18, 1969	Acid # 1	24,458 pounds of TNT mixed acid were lost when a tank was flushed. Soda ash was used to neutralize the spill.	SPIL07
	Acid #2	500 pounds of ammonia was discharged.	SPIL07
November 20, 1969	Acid # 2	1,100 pounds of 74 percent sulfuric acid were lost when a tank was drained for maintenance. Soda ash was used to neutralize the spill.	SPIL07
November 21, 1969	TNT # 2	3,000 pounds of TNT mixed acid were lost due to operational error.	SPIL07
	TNT # 2	4,500 pounds of TNT mixed acid were lost due to operational error. 9,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
November 24, 1969	TNT # 6	1,000 pounds of oleum were lost due to operational error. 16,000 pounds of soda ash was used to neutralize the spill.	SPIL07
	TNT # 4	5,625 pounds of oleum and 2,815 pounds of TNT mixed acid were lost when equipment failed. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
November 25, 1969	Acid # 2	3,300 pounds of 60 percent nitric acid were lost due to operational error. 4,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
November 26, 1969	TNT # 6	7,500 pounds of TNT tri-waste acid were lost when equipment failed. 10,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 01, 1969	TNT # 5	1,000 pounds of TNT mixed acid were lost when a line was drained for maintenance. 10,000 pounds of soda ash was used to neutralize the acid.	SPIL07
	Acid # 2	1,700 pounds of 74 percent sulfuric acid were lost during repair operations. Soda ash was used to neutralize.	SPIL07
December 02, 1969	Acid # 2	1,700 pounds of 74 percent sulfuric acid were lost when maintenance drained a unit. Soda ash was used to neutralize.	SPIL07
December 03, 1969	TNT # 5	1,365 pounds of 98 percent nitric acid were lost due to operational error. 10,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
December 04, 1969	Acid #1	400 pounds of ammonia was discharged.	SPIL07
December 05, 1969	Acid # 1	6,800 pounds of 68 percent sulfuric acid were lost during maintenance operations. Soda ash was used to neutralize the spill.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
December 06, 1969	Acid # 1	10,000 pounds of 60 percent nitric acid were lost when the wrong materials were used in maintenance operations. Soda ash was used to neutralize the spill.	SPIL07
December 07, 1969	Acid # 3	2,770 pounds of 60 percent nitric acid were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 3	1,686 pounds of 68 percent sulfuric acid were lost during maintenance operations. Soda ash was used to neutralize the spill.	SPIL07
December 08, 1969	Tetryl # 2	5,072 pounds of DMAS were lost when a tank was drained for maintenance. 10,000 pounds of soda ash solution was used to neutralize the acid.	SPIL07
December 09, 1969	Tetryl # 2	2,467 pounds of 93 percent sulfuric acid were lost when equipment failed. Soda ash was used to neutralize the spill.	SPIL07
	Acid # 2	2,000 pounds of 93 percent sulfuric acid were lost when a connection failed. Soda ash was used to neutralize.	SPIL07
December 12, 1969	Tetryl # 2	1,376 pounds of tetryl mixed acid were lost due to operational error.	SPIL07
	Acid #2	500 pounds of ammonia was discharged.	SPIL07
December 14, 1969	TNT # 1	3,800 pounds of oleum were lost due to operational error. 8,000 pounds of soda ash was used to neutralize the spill.	SPIL07
December 16, 1969	Sellite	294,000 pounds of sellite solution were lost when steam and water coil ruptured.	SPIL07
December 18, 1969	Acid # 1	2,000 pounds of 74 percent sulfuric acid were lost when a unit was drained for repairs. Soda ash was used to neutralize.	SPIL07
	Acid # 1	2,000 pounds of 74 percent sulfuric acid were lost during maintenance operations. Soda ash was used to neutralize.	SPIL07
December 19, 1969	Acid # 1	74,437 pounds of 68 percent sulfuric acid were lost due to operational error. Soda ash was used to neutralize.	SPIL07
	Acid # 1	74,000 pounds of acid were spilled from an acid line.	HOLM01
January 01, 1970	Acid # 3	2,140 pounds of 60 percent sulfuric acid was lost due to maintenance operations. Soda ash was used to neutralize the spill.	SPIL07
January 02, 1970	Acid # 3	15,000 pounds of TNT were lost when a valve began to leak. Soda ash was used to neutralize.	SPIL07
January 04, 1970	Acid # 2	1,200 pounds of oleum was lost when a coil began to leak. Soda ash was used to neutralize.	SPIL07
January 06, 1970	Acid # 3	28,560 pounds of 17 percent sulfuric acid was lost when a coil began to leak. Soda ash was used to neutralize.	SPIL07
January 10, 1970	Acid #3	1,639 pounds of ammonia was discharged.	SPIL07
January 12, 1970	TNT # 6	12,187 pounds of oleum was lost due to operational error. 30,000 pounds of soda ash was used to neutralize the spill.	SPIL07
January 16, 1970	Acid # 2	1,500 pounds of 74 percent sulfuric acid was lost when a line began to leak. Soda ash was used to neutralize.	SPIL07
January 17, 1970	TNT # 2	5,685 pounds of oleum and 2,730 pounds of TNT mixed acid were lost due to mechanical failure. 8,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
	Tetryl # 2	9,169 pounds of waste acid was lost when charges were drowned. The spill was neutralized.	SPIL07
	Tetryl # 2	1,934 pounds of DMAS and 1,752 pounds of mixed acid were lost when charges were drowned.	SPIL07
January 20, 1970	TNT # 5	10,000 pounds of tri-waste was lost due to valve failure. 10,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
January 21, 1970	Acid # 2	82,786 pounds of 93 percent sulfuric acid was lost when a flange was improperly installed.	SPIL07
	TNT # 2	5,725 pounds of oleum and 2,715 pounds of TNT mixed acid were lost due to operational error. 10,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
January 22, 1970	Acid # 2	1,000 pounds of 93 percent sulfuric acid was lost when maintenance drained a line for repair. Soda ash was used to neutralize the spill.	SPIL07
	Tetryl # 2	14,193 pounds of DMAS were lost when charges were drowned. 10,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
January 24, 1970	TNT # 5	10,000 pounds of tri-waste was lost when a charge was drowned. 10,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
January 25, 1970	Acid # 3	1,500 pounds of 68 percent sulfuric acid was lost during maintenance operations. 20,000 pounds of soda ash solution was used to neutralize the spill.	SPIL07
January 27, 1970	Tetryl # 2	5,000 pounds of DMAS were lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
January 28, 1970	TNT # 1	10,500 pounds of bi waste was lost due to operational error. Soda ash was used to neutralize the spill.	SPIL07
January 30, 1970	Tetryl # 2	3,206 pounds of DMAS were lost when a tank wad drained for maintenance.	SPIL07
February 02, 1970	Tetryl #2	15,100 pounds of acetone was lost due to an operational error.	SPIL07
February 05, 1970	Tetryl #2	3,206 pounds of DMAS were drained from a tank for repairs.	SPIL07
	Tetryl #2	12,632 pounds of tetryl mix were drained from a tank for repairs. Soda ash was used to neutralize.	SPIL07
February 06, 1970	Tetryl #2	3,206 pounds of DMAS were drained from a tank for repairs.	SPIL07
February 07, 1970	Acid # 3	3,762 pounds of 60 percent nitric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
February 08, 1970	Tetryl #2	2,723 pounds of DMAS were drained from a tank for repairs. Soda ash was used to neutralize.	SPIL07
February 09, 1970	TNT #5	A bi-mix and bi-oil were lost due to an operational error. 5,715 pounds of oleum, 2,695 pounds of mixed acid, 2,980 pounds of 60 percent nitric acid, 4,980 pounds of bi-oil and 800 pounds of mono-oil were lost. Soda ash was used to neutralize.	SPIL07
February 11, 1970	Tetryl #2	1,274 pounds of DMAS were drained from a tank for repairs. Soda ash was used to neutralize.	SPIL07
February 17, 1970	Tetryl #2	1,400 pounds of mixed acid was lost due to equipment failure.	SPIL07
	TNT #3	2,085 pounds of 60 percent nitric acid was lost due to an operational error.	SPIL07
February 19, 1970	TNT #5	10,000 pounds of tri-waste was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
February 22, 1970	TNT #2	900 pounds of bi-oil, 5,675 pounds of oleum and 2,740 pounds of mixed acid were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
February 23, 1970	TNT #6	10,000 pounds of tri-waste were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	TNT #6	20,000 pounds of tri-waste were lost due to line 12 deactivation. Soda ash was used to neutralize.	SPIL07
February 24, 1970	TNT #1	8,420 pounds of tri-waste were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
February 25, 1970	Acid # 3	10,000 pounds of 93 percent sulfuric acid and sludge were lost due to operational error. Soda ash was used to neutralize.	SPIL07
February 26, 1970	TNT #5	2,075 pounds of 60 percent nitric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
February 28, 1970	TNT #2	1,000 pounds of bi-oil was lost due to operational error.	SPIL07
March 09, 1970	Acid # 3	8,000 pounds of tetryl mix and 22,000 pounds of 93 percent sulfuric acid sludge were drained from a tank car for cleaning. Soda ash was used to neutralize.	SPIL07
March 11, 1970	Acid # 1	22,370 pounds of tetryl mix and 13,000 pounds of sulfuric acid were lost when a tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
	#2	500 pounds of ammonia was discharged.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
March 16, 1970	Acid # 1	6,000 pounds of 60 percent nitric acid were lost when a tank was drained for repair. Soda ash was used to neutralize.	SPIL07
	Tetryl #2	13,545 pounds of DMAS were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
March 17, 1970	Acid # 1	1,000 pounds of 93 percent sulfuric acid were lost when a preheater was drained for repairs. Soda ash was used to neutralize.	SPIL07
	Acid # 3	8,000 pounds of tetryl mix sludge and 10,000 pounds of 93 percent sulfuric acid were drained from a tank car for cleaning. Soda ash was used to neutralize.	SPIL07
March 20, 1970	TNT #1	7,500 pounds of tri-waste were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
March 21, 1970	TNT #4	1,000 pounds of tri-waste were lost due to equipment failure.	SPIL07
March 22, 1970	Acid # 3	4,379 pounds of oleum was lost due to operational error.	SPIL07
March 25, 1970	TNT #4	3,070 pounds of bi-oil, 5,620 pounds of oleum and 2,820 pounds of mixed acid were lost due to equipment failure.	SPIL07
March 31, 1970	Tetryl #2	3,214 pounds of DMAS and 2,752 pounds of mixed acid were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
April 07, 1970	Acid # 1	8,000 pounds of 93 percent sulfuric acid and sludge were drained from a tank for cleaning. Soda ash was used to neutralize.	SPIL07
	Acid # 3	1,500 pounds of 93 percent sulfuric acid was lost during tank car transfer. Soda ash was used to neutralize.	SPIL07
April 15, 1970	TNT #6	8,450 pounds of tri-waste was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
April 16, 1970	TNT #6	8,450 pounds of tri-waste was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
April 20, 1970	TNT #6	8,450 pounds of tri-waste was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
April 21, 1970	TNT #6	4,800 pounds of oleum was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
April 22, 1970	TNT #6	3,900 pounds of waste acid heel was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
April 23, 1970	TNT #6	4,000 pounds of TNT mix heel was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
April 24, 1970	Acid # 1	1,500 pounds of 93 percent sulfuric acid was lost due to equipment failure.	SPIL07
April 27, 1970	Tetryl #2	1,376 pounds of tetryl mixed acid was lost due to operational error.	SPIL07
April 28, 1970	TNT #6	3,900 pounds of TNT mix heel was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
May 01, 1970	TNT #2	7,000 pounds of waste acid heel was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
May 07, 1970	Acid # 3	5,700 pounds of T-mix sludge was lost when a tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
May 11, 1970	Acid # 2	14,600 pounds of F-80 sludge and 24,800 pounds of 93 percent sulfuric acid were lost when a tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
May 14, 1970	TNT #2	8,450 pounds of tri-waste acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
May 15, 1970	TNT #3	4,500 pounds of oleum, 3,995 pounds of T-mix, and 1,100 pounds of bi-oil were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
May 18, 1970	Acid # 2	19,500 pounds of 93 percent sulfuric acid and sludge were lost when a tank was drained for cleaning. Soda ash was used to neutralize.	SPIL07
May 19, 1970	Acid #2	500 pounds of ammonia was discharged.	SPIL07
May 20, 1970	TNT #2	1,560 pounds of weak nitric acid was lost due to equipment failure.	SPIL07
May 21, 1970	Acid #2	800 pounds of ammonia was discharged.	SPIL07
May 22, 1970	Acid #2	500 pounds of ammonia was discharged.	SPIL07
May 28, 1970	Acid #1	1,000 pounds of ammonia was discharged.	SPIL07
	Acid # 3	1,000 pounds of TNT mix was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
June 01, 1970	Acid #1	500 pounds of ammonia was discharged.	SPIL07
June 03, 1970	TNT #5	2,125 pounds of weak nitric acid was lost due to equipment failure.	SPIL07
June 04, 1970	Acid # 1	7,600 pounds of strong nitric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Acid #2	500 pounds of ammonia was discharged.	SPIL07
June 05, 1970	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid #1	500 pounds of ammonia was discharged.	SPIL07
June 08, 1970	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid # 2	16,000 pounds of weak nitric acid was lost due to equipment repair. Soda ash was used to neutralize.	SPIL07
	Sellite	2,460 pounds of sulfur and 11,500 pounds of soda ash were lost due to operational problems.	SPIL07
	Acid # 2	26,000 pounds of 93 percent sulfuric acid and sludge were lost when a tank was drained for cleaning. Soda ash was used to neutralize.	SPIL07
June 11, 1970	Acid #3	700 pounds of ammonia was discharged.	SPIL07
June 12, 1970	Acid #2	500 pounds of ammonia was discharged.	SPIL07
June 23, 1970	TNT #2	A mono-charge consisting of 1,400 pounds of toluene and 11,500 pounds of mono-mix were lost due to improper reaction.	SPIL07
June 24, 1970	Acid # 3	16,476 pounds of 89 percent sulfuric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
June 26, 1970	TNT #4	8,820 pounds of oleum, 8,180 pounds of T-mix, and 5,420 pounds of bi-oil were lost due to operational error. Soda ash was used to neutralize.	SPIL07
June 29, 1970	Acid #1	3,000 pounds of ammonia was discharged.	SPIL07
June 30, 1970	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid #2	500 pounds of ammonia was discharged.	SPIL07
	Acid # 1	1,000 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
July 01, 1970	Acid # 1	2,500 pounds of strong nitric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
	Acid # 2	7,000 pounds of TNT mix-sludge and 8,000 pounds of 93 percent sulfuric acid were lost when a tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid # 1	500 pounds of ammonia was discharged.	SPIL07
July 02, 1970	Acid # 1	1,200 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Acid #2	500 pounds of ammonia was discharged.	SPIL07
July 07, 1970	Acid #2	500 pounds of ammonia was discharged.	SPIL07
July 08, 1970	Acid #2	1,647 pounds of ammonia was discharged.	SPIL07
July 17, 1970	Acid # 1	9,500 pounds of 93 percent sulfuric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
July 18, 1970	Acid # 3	4,889 pounds of 68 percent sulfuric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
July 28, 1970	Acid # 3	4,200 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
July 31, 1970	TNT # 3	A bi-charge consisting of bi-mix acid, 1,800 pounds of weak nitric acid and 2,720 pounds of mono-oil were lost due to operational error. Soda ash was used to neutralize.	SPIL07
August 04, 1970	Acid # 1	4,500 pounds of strong nitric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
August 08, 1970	Acid # 3	8,000 pounds of weak nitric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
	TNT #5	18,700 pounds of waste acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
August 12, 1970	TNT #2	2,035 pounds of weak nitric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
August 17, 1970	Acid #1	1,000 pounds of ammonia was discharged.	SPIL07
August 20, 1970	Acid #1	1,000 pounds of ammonia was discharged.	SPIL07
	Tetryl #2	3,000 pounds of DMAS was lost due to tank decontamination. Soda ash was used to neutralize.	SPIL07
	Tetryl #2	4,215 pounds of tetryl mix was lost due to tank decontamination. Soda ash was used to neutralize.	SPIL07
August 23, 1970	Acid #3	2,500 pounds of ammonia was discharged.	SPIL07
	Acid # 1	3,800 pounds of 74 percent sulfuric acid was lost when a tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
August 24, 1970	Acid #2	500 pounds of ammonia was discharged.	SPIL07
	Acid # 3	2,000 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Red Water	1,600 pounds of tetryl residual was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
August 28, 1970	Acid # 3	24,300 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	TNT #5	8,770 pounds of oleum, 8,255 pounds of T-mix, and 9,120 pounds of bi-oil were lost due to loss of cooling water pressure. Soda ash was used to neutralize.	SPIL07
September 01, 1970	Acid # 1	2,000 pounds of 93 percent sulfuric acid was lost when line was drained. Soda ash was used to neutralize.	SPIL07
September 03, 1970	Acid # 2	13,000 pounds of strong nitric acid was lost due when tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
September 04, 1970	Acid # 2	1,000 pounds of NAC residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Tetryl #2	1,376 pounds of tetryl mix was lost due to operational error.	SPIL07
September 05, 1970	Acid # 1	4,500 pounds of 93 percent sulfuric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
September 06, 1970	West Toluene Farm	212,000 pounds of toluene was lost due to a fire.	SPIL07
September 09, 1970	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid #1	1,000 pounds of ammonia was discharged.	SPIL07
September 10, 1970	TNT #4	5,000 pounds of residual acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
September 11, 1970	Acid # 3	1,000 pounds of 93 percent sulfuric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
September 13, 1970	Acid # 1	1,400 pounds of 93 percent sulfuric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	TNT #5	8,500 pounds of soda ash was lost due to equipment failure.	SPIL07
September 14, 1970	Acid #1	500 pounds of ammonia was discharged.	SPIL07
	Acid #1	1,000 pounds of ammonia was discharged.	SPIL07
September 17, 1970	Sellite	1,300 pounds of sulfur was lost due to operational error.	SPIL07
	TNT #5	3,000 pounds of oleum was lost due to operational error. Soda ash was used to neutralize.	SPIL07
September 18, 1970	TNT #5	2,075 pounds of weak nitric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
September 21, 1970	Acid # 1	34,000 pounds of tetryl mix sludge and 30,000 pounds of 93 percent sulfuric acid were lost when a tank was washed. Soda ash was used to neutralize.	SPIL07
September 22, 1970	Sellite	8,567 pounds of soda ash sludge was lost when a tank was washed.	SPIL07
September 24, 1970	Sellite	10,000 pounds of soda ash was lost when a tank was washed.	SPIL07
September 29, 1970	Acid # 2	1,000 pounds of F-80 mix and 15,000 pounds of 93 percent sulfuric acid was lost when a tank was drained for repairs. Soda ash was used to neutralize.	SPIL07
October 05, 1970	Acid # 3	3,500 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
October 06, 1970	Acid # 1	4,889 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	TNT #6	30,000 pounds of TNT residual was lost due to operational error. Soda ash was used to neutralize.	SPIL07
October 07, 1970	Acid # 1	4,920 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
October 09, 1970	Acid #2	500 pounds of ammonia was lost.	SPIL07
October 10, 1970	Acid # 1	4,890 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
October 16, 1970	Acid # 1	30,000 pounds of 93 percent sulfuric acid and 26,296 pounds of tetryl residual were lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
October 20, 1970	Acid # 3	5,900 pounds of strong nitric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
October 23, 1970	TNT #1	5,690 pounds of oleum, 2,785 pounds of T-mix, and 2,760 pounds of bi-oil were lost due to operational error. Soda ash was used to neutralize.	SPIL07
	TNT #4	3,000 pounds of soda ash solution was lost due to an operational error.	SPIL07
October 26, 1970	Acid # 1	15,000 pounds of 93 percent sulfuric acid and 18,417 pounds of tetryl mix sludge were lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
	Acid # 1	15,000 pounds of 93 percent sulfuric acid was lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
	TNT #1	5,655 pounds of oleum, 2,815 pounds of T-mix, and 3,700 pounds of bi-oil were lost due to power failure. Soda ash was used to neutralize.	SPIL07
	TNT #2	1,100 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
October 28, 1970	Acid # 1	1,000 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
October 29, 1970	Acid # 1	1,000 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Acid # 1	3,951 pounds of 93 percent sulfuric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
November 02, 1970	Acid # 2	3,951 pounds of weak nitric acid was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Acid #2	500 pounds of ammonia was lost.	SPIL07
November 03, 1970	Acid # 1	3,800 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Acid # 1	7,895 pounds of NAC residual was lost due to equipment replacement. Soda ash was used to neutralize.	SPIL07
	Acid # 3	8,500 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
November 04, 1970	Acid # 2	1,500 pounds of 74 percent sulfuric was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
November 06, 1970	Acid # 1	1,100 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
November 16, 1970	Acid # 1	30,000 pounds of 93 percent sulfuric acid and 26,296 pounds of tetryl mix sludge were lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
November 17, 1970	Acid # 1	30,000 pounds of 93 percent sulfuric acid was lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
	TNT #5	2,000 pounds of weak nitric acid was lost due to operational error. Soda ash was used to neutralize.	SPIL07
November 18, 1970	Acid # 1	6,000 pounds of strong nitric acid was lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
November 23, 1970	TNT #5	2,960 pounds of mono-oil and 240 pounds of toluene were lost due to operational error.	SPIL07
November 30, 1970	Acid # 1	3,600 pounds of TNT mix was lost due to equipment replacement. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
December 01, 1970	Acid # 3	1500 pounds, anhydrous ammonia lost due to defective rupture disk and valve packing.	ARMY01, SPIL07
	TNT #2	5,680 pounds of oleum, 2,835 pounds of T-mix, and 4,920 pounds of bi-oil were lost when a tri-charge became uncontrollable. Soda ash was used to neutralize.	SPIL07
	TNT #4	5,655 pounds of oleum and 2,770 pounds of T-mix were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	Tetryl #2	18,948 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07
	Sellite	2,733 pounds of sellite sludge lost due to cleaning for maintenance.	ARMY01, SPIL07
	Acid #1	6,000 pounds of tetryl mix was lost due to transfer line decontamination. Soda ash was used to neutralize.	ARMY01, SPIL07
December 03, 1970	Acid #2	1,000 pounds of ammonia was lost.	SPIL07
December 04, 1970	TNT #5	8,520 pounds of oleum and T-mix were lost due to an operational error. Soda ash was used to neutralize.	SPIL07
December 07, 1970	Acid #3	3,000 pounds of 93 percent sulfuric acid sludge was lost due to cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
	TNT #2	5,635 pounds of oleum, 2,810 pounds of T-mix, and 850 pounds of bi-oil were lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
December 08, 1970	Acid # 1	30,000 pounds of 74 percent sulfuric acid and 30,404 pounds of tetryl mix sludge were lost due tank cleaning. Soda ash was used to neutralize.	SPIL07
	Acid # 2	385,735 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
December 09, 1970	Tetryl	2,466 pounds of tetryl mixed acid was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07
	TNT #4	5,660 pounds of oleum and 2,765 pounds of T-mix were lost due to an equipment failure. Soda ash was used to neutralize.	SPIL07
December 10, 1970	Acid #1	20,355 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
December 14, 1970	TNT # 2	2,065 pounds of weak nitric acid was lost due to an operational error.	SPIL07
December 16, 1970	Acid #3	1,500 pounds of anhydrous ammonia was lost due to a blown rupture disk.	ARMY01, SPIL07
	Sellite	11,500 pounds of soda ash was lost due to batch contamination.	SPIL07
December 17, 1970	Acid #2	500 pounds of ammonia was lost.	SPIL07
December 21, 1970	TNT #1	5,660 pounds of oleum, 2,800 pounds of T-mix, and 4,800 pounds of bi-oil were lost when a tri-charge became uncontrollable. Soda ash was used to neutralize.	SPIL07
December 24, 1970	Acid #1	6,400 pounds of NAC residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
December 28, 1970	Acid #1	4,830 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
January 04, 1971	Acid #1	3,800 pounds of 68 percent sulfuric acid was lost due to equipment repair. Soda ash was used to neutralize.	SPIL07
January 07, 1971	Acid #3	20,000 pounds of toluene was lost due to operational error.	SPIL07
January 09, 1971	Acid #2	18,000 pounds of NAC residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
January 11, 1971	TNT #2	1,600 pounds of mono-mix acid was lost due to operational difficulty.	SPIL07
January 12, 1971	Acid #3	2,500 pounds of TNT residual was lost due to equipment repair. Soda ash was used to neutralize.	SPIL07
January 14, 1971	TNT #1	8,500 pounds of tri-waste acid was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
January 15, 1971	TNT #1	8,500 pounds of tri-waste acid was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
January 17, 1971	Acid #3	20,842 pounds of oleum was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
January 18, 1971	TNT #1	17,000 pounds of tri-waste acid was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
January 19, 1971	TNT #1	17,000 pounds of tri-waste acid was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
January 22, 1971	Acid #1	1,000 pounds of TNT residual was lost due to equipment failure. Soda ash was used to neutralize.	SPIL07
	TNT #4	10,000 pounds of whisker oil was lost due to equipment failure.	SPIL07
January 25, 1971	TNT #1	2,000 pounds of waste acid was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
	TNT #1	3,500 pounds of oleum was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
January 27, 1971	Tetryl #2	16,581 pounds of tetryl mixed acid was lost due to line deactivation.	SPIL07
	Tetryl #2	16,863 pounds of DMAS was lost due to line deactivation.	SPIL07
January 28, 1971	TNT #3	2,365 pounds of TNT mix was lost due to line deactivation. Soda ash was used to neutralize.	SPIL07
February 03, 1971	TNT #3	7,000 pounds of tri-oil and 16,830 pounds of tri-waste were lost when two tri-charges were drowned.	SPIL07
February 15, 1971	Acid #1	500 pounds of ammonia was lost.	SPIL07
February 16, 1971	Acid #1	65,629 pounds of tetryl mix and sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
February 19, 1971	Acid #1	15,000 pounds of 74 percent sulfuric was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
February 22, 1971	TNT #2	3,500 pounds of mono mixed acid was lost due to equipment failure.	SPIL07
March 01, 1971	TNT #1	5,615 pounds of waste acid was lost due to line deactivation. 20,000 pounds of soda ash was used to neutralize.	SPIL07
March 05, 1971	TNT #3	2,085 pounds of AOP nitric acid was lost due to operational error.	SPIL07
March 07, 1971	Acid #3	1,500 pounds of ammonia was lost.	SPIL07
March 12, 1971	TNT #4	5,640 pounds of oleum, 2,805 pounds of T-mix and 4,950 pounds of bi-oil were lost due to equipment failure. 20,000 pounds of soda ash was used to neutralize.	SPIL07
March 20, 1971	Acid #3	7,300 pounds of ammonia was lost.	SPIL07
March 21, 1971	Acid #2	1,310 pounds of AOP nitric acid was lost due to operational error.	SPIL07
March 24, 1971	Acid #3	1,500 pounds of ammonia was lost.	SPIL07
April 01, 1971	Acid #3	8,421 pounds of TNT mix sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
	Acid #3	9,987 pounds of TNT mix and sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
April 16, 1971	Acid #3	1,000 pounds of 98 percent nitric acid was lost due to equipment failure.	SPIL07
April 20, 1971	Tetryl Line 8 & 9	4,000 pounds of DMAS was lost due to leak in transfer line.	SPIL07
April 22, 1971	Acid #3	39,280 pounds of tetryl mixed sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
April 26, 1971	Acid #3	1,836 pounds of 98 percent nitric sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
	TNT #4	10,573 pounds of oleum was lost due to valve misalignment. Soda ash was used to neutralize.	SPIL07
April 28, 1971	TNT #2	5,685 pounds of oleum, 2,775 pounds of TNT mix, and 4,760 pounds of bi-oil were lost due to drowned charge at Building 802-4.	SPIL07
April 29, 1971	Sellite	12,479 pounds of sellite solution was lost due to mechanical failure.	SPIL07
	Acid #3	2,089 pounds of 93 percent sulfuric acid sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
	TNT	A TNT nitration drowning took place at Number 4 Tri House.	HIST50
April 30, 1971	Tetryl #2	12,255 pounds of DMAS was lost due to valve misalignment. Soda ash was used to neutralize at Building 1001-2.	SPIL07
May 05, 1971	Acid #3	1,142 pounds of strong nitric acid was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
May 06, 1971	Tetryl #2	16,277 pounds of DMAS was lost due to tank cleaning at Building 1001-2.	SPIL07
May 13, 1971	Acid #1	6,000 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
	Acid #3	2,750 pounds of weak nitric acid was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
May 14, 1971	Acid #3	5,460 pounds of ammonia was lost due to a leaking heating coil.	SPIL07
May 17, 1971	TNT Line 6	8,500 pounds of oleum and TNT mix was lost due to operator error. Soda ash was used to neutralize.	SPIL07
May 20, 1971	Acid #1	11,832 pounds of tetryl mixed sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
May 26, 1971	Acid #1	15,292 pounds of tetryl mixed sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
May 27, 1971	Acid #1	5,820 pounds of 74 percent sulfuric acid was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
May 28, 1971	Acid #3	1,500 pounds of 93 percent sulfuric acid sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 01, 1971	Acid #3 Acid #1	3,000 pounds of TNT residual sludge lost due to maintenance. Soda ash was used to neutralize. 8,000 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07 SPIL07
June 02, 1971	Acid #1	3,000 pounds of sulfuric sludge lost due to maintenance requirements. Soda ash was used to neutralize.	SPIL07
June 07, 1971	Acid #1	32,591 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 10, 1971	Acid #1	5,400 pounds of sulfuric acid residual sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 11, 1971	Central Toluene Farm	A toluene tank was struck by lightning. "The tank was full and did not catch fire." The tank incurred $8,000 of damage. It is not clear from the history if any toluene was lost.	HIST06, HIST17
June 11, 1971	Acid #1	15,000 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 13, 1971	Acid #1	6,000 pounds of TNT residual sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 14, 1971	TNT #3	4390 pounds of oleum, 4090 pounds of TNT mix, and 630 pounds of bi-oil were lost due to a ruptured cooling coil at Building 802-5.	SPIL07
June 15, 1971	Acid #1 Acid #1	7,500 pounds of 93 percent sulfuric acid sludge lost due to tank cleaning. Soda ash was used to neutralize. 23,470 pounds of 93 percent sulfuric acid sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07 SPIL07
June 16, 1971	Acid #1	15,520 pounds of 74 percent sulfuric acid residual was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 17, 1971	Acid #3	1,000 pounds of anhydrous ammonia was lost due to a ruptured disk.	SPIL07
June 18, 1971	Acid #1	28,798 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
June 22, 1971	Acid #3 Acid #1	1,000 pounds of 93 percent sulfuric acid sludge lost due to leaky line. 12,000 pounds of tetryl mixed sludge lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07 SPIL07
June 29, 1971	Acid #1	30,000 pounds of 74 percent sulfuric acid residual was lost due to maintenance requirements. Soda ash was used to neutralize.	SPIL07
June 30, 1971	Tetryl	4,500 pounds of DMAS was lost due to equipment failure.	SPIL07
July 03, 1971	Acid #3	3,000 pounds of 74 percent sulfuric acid was lost due to a faulty gasket installation. Soda ash was used to neutralize.	ARMY01, SPIL07
July 07, 1971	Acid #1	1,600 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used neutralize.	ARMY01, SPIL07
July 08, 1971	Acid #3, West Toluene Farm	1,100,000 pounds of toluene was lost due to lighting striking tank Number 1.	ARMY01, HIST17, SPIL07
July 14, 1971	Acid #3	1,300 pounds of anhydrous ammonia was lost due to a rupture disk failure.	ARMY01, SPIL07
July 23, 1971	Acid #3	2,048 pounds of F-60 mix was lost due to line leakage. Soda ash was used to neutralize the spill.	ARMY01, SPIL07
August 02, 1971	TNT #5	9,000 pounds of mono waste acid was lost due to a broken separation tube. Two loads of soda ash were used to neutralize.	ARMY01, SPIL07
August 03, 1971	Acid #3	3,800 pounds of F-60 antifreeze sludge was lost due to cleaning of tank for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
August 05, 1971	Acid #3 Acid #1	967 pounds of ammonia was lost due to rupture disk failure. 2,250 pounds of strong nitric sludge was lost due tank cleaning for maintenance. Soda ash was used to neutralize the spill.	ARMY01, SPIL07 ARMY01, SPIL07
August 11, 1971	Acid #3	12,000 pounds of ammonia was lost due to ruptured steam coil.	ARMY01, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
August 13, 1971	Acid #3	1,350 pounds of strong nitric sludge was lost due tank cleaning for maintenance. Soda ash was used to neutralize the spill.	ARMY01, SPIL07
August 14, 1971	North Classification Yard	A leak occurred at a fuel oil tank adjacent to Building 704-13.	INCR01
August 17, 1971	Red Water Acid #3	4,800 pounds of 76 percent sulfuric acid sludge was lost due to tank cleaning. Soda ash was used to neutralize. 3,800 pounds of 76 percent sulfuric acid sludge was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01, SPIL07 ARMY01, SPIL07
August 19, 1971	Acid #3 Acid #3	1,900 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance work. Soda ash was used neutralize. 12,000 pounds of 93 percent sulfuric [acid] was lost due to tank cleaning for maintenance work. Soda ash was used neutralize.	ARMY01, SPIL07 ARMY01, SPIL07
August 20, 1971	TNT #6	3,800 pounds of TNT residual (reported by acid department) was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
August 21, 1971	Acid #1	55,369 pounds of 93 percent sulfuric [acid] was lost due to operator error.	ARMY01, SPIL07
August 25, 1971	Acid #3	2,500 pounds 93 percent sulfuric acid sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize	ARMY01, SPIL07
September 01, 1971	TNT #4	15,949 pounds of oleum was lost (oleum bulk tank) due to operator error. Soda ash was used to neutralize.	ARMY01, SPIL07
September 02, 1971	Acid #3	8,324 pounds of F-60 sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
September 03, 1971	Acid #3	8,500 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
September 08, 1971	Shop Area	A nitric acid line leaked at a connection over the railroad north east of Building 715-2.	INCR01
September 13, 1971	Acid #3	11,602 pounds of TNT summer mix was lost due to operator error. Soda ash was used to neutralize	ARMY01, SPIL07
September 15, 1971	Acid #2 Acid #3	14,000 pounds of 60 percent nitric acid was lost due to operator error. Soda ash was used to neutralize. 12,000 pounds of TNT mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01, SPIL07 ARMY01, SPIL07
September 20, 1971	Acid #3	12,000 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01, SPIL07
September 22, 1971	Acid #3	4,600 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01, SPIL07
September 28, 1971	Acid #3	1,000 pounds of tetryl mix was lost due to a leaking line. Soda ash was used to neutralize.	ARMY01, SPIL07
September 29, 1971	Acid #3	28,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01, SPIL07
September 30, 1971	Acid #3	1,200 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize	ARMY01, SPIL07
October 04, 1971	Acid #3	1,600 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07
October 05, 1971	Acid #3	5,000 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
October 07, 1971	Acid #3 Acid #3	4,000 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize. 4,000 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07 ARMY01, SPIL07
October 08, 1971	Acid #2	50,000 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07
October 12, 1971	Acid #3	2,500 pounds of F-80 sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
October 15, 1971	Acid #3	12,000 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
October 21, 1971	Acid #1	18,000 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize	ARMY01, SPIL07
October 22, 1971	Acid #3	3,000 pounds of 74 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
October 26, 1971	Acid #1	29,647 pounds of TNT mix sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07
October 28, 1971	Acid #3	4,000 pounds of 68 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	ARMY01, SPIL07
October 29, 1971	Acid #3	3,500 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	ARMY01, SPIL07
November 01, 1971	Acid #3	3,500 pounds of F-80 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
November 02, 1971	Acid #3	15,000 pounds of F-60 sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
	Acid #1	37,000 pounds of TNT residual sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
November 03, 1971	Acid #3	1,200 pounds of 93 percent sulfuric acid sludge was lost due to tank car cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
November 05, 1971	Acid #1	13,000 pounds of TNT residual sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
November 09, 1971	Acid #3	1,000 pounds of 74 percent residual was lost due to operator error. Acid was used to neutralize.	SPIL07
November 12, 1971	Acid #1	12,000 pounds of T-mix sludge was lost due to cleaning of transfer lines. Soda ash was used to neutralize.	SPIL07
November 15, 1971	Acid #3	5,000 pounds of 93 percent sulfuric acid sludge was lost due to tank car cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
	Acid #1	6,000 pounds of T-mix sludge was lost due to cleaning of transfer lines. Soda ash was used to neutralize.	SPIL07
November 16, 1971	Acid #3	1,649 pounds of anhydrous ammonia was lost due to broken rupture disk.	SPIL07
November 17, 1971	Acid #1	8,000 pounds of nitric acid was lost due to cleaning of transfer lines. Soda ash was used to neutralize.	SPIL07
	Acid #3	4,500 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
November 18, 1971	Acid #1	2,500 pounds of 93 percent sulfuric acid sludge was lost due to cleaning of transfer line. Soda ash was used to neutralize.	SPIL07
November 19, 1971	Acid #1	2,000 pounds of 68 percent sulfuric acid sludge was lost due to cleaning of transfer line. Soda ash was used to neutralize.	SPIL07
November 27, 1971	Sellite	9,706 pounds of sellite solution was lost due to equipment failure.	SPIL07
November 30, 1971	Acid #3	10,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
January 03, 1972	Acid #3	1,800 pounds of strong mix sludge was lost due to tank washing for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
January 10, 1972	Acid #3	600 pounds of toluene was lost at car spot 411 due to steam cleaning.	UNUR01
January 12, 1972	Acid #3	500 pounds of ammonia was lost at tank 106 (H.P. ammonia storage) due to blown rupture disc.	UNUR01
	Acid #3	11,000 pounds of 93 percent sulfuric acid sludge was lost at tank 612 due to washing for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
January 14, 1972	Tetryl	1,230 pounds of tetryl mixed acid was lost due to operator error. Soda ash was used to neutralize.	UCCI09, SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
January 18, 1972	Acid #1	81,612 pounds of 93 percent sulfuric acid was lost at tank 551 (near Building 704-7) due to operator error. Soda ash was used to neutralize and flush ditch.	UCCI09, SPIL07, UNUR01, INCR01
January 19, 1972	Acid #3	2,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
	TNT #5	1,600 pounds of TNT mix was lost at 802-10 TNT mix storage tank due to operator error. Soda ash was used to neutralize.	UCCI09, SPIL07
January 27, 1972	Acid #3	1,500 pounds of 74 percent sulfuric was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
January 30, 1972	Acid #3	1,157 pounds of ammonia was lost form tank 106 due to blown rupture discs.	UCCI09, SPIL07
February 02, 1972	Acid #3	500 pounds of 74 percent residual was lost to the ground at the NAC building due to a line rupture.	UNUR01
	Acid #3	1,000 pounds of winter TNT mix was lost at the 702 circulator due to equipment failure. Soda ash was used to neutralize.	UCCI09, SPIL07
February 03, 1972	Sellite	8,319 pounds of sellite was lost at #6 sellite storage due to equipment failure.	UCCI09, SPIL07
February 08, 1972	Acid #3	100,000 pounds (approximately) of was lost from 12A bulk storage due to over-pumping. Most of the overflow entered drain. Soda ash was used to neutralize.	UNUR01
February 10, 1972	Acid #3	1,500 pounds of TNT mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
	TNT #5	5,640 pounds of Oleum, 2,820 pounds of TNT mix, and 4,950 pounds of bi-oil was lost due to operator error. Soda ash was used to neutralize.	UCCI09, SPIL07
February 16, 1972	Tetryl #2	1,376 pounds of tetryl mixed acid and 1,247 pounds of DMAS was lost due to mechanical failure.	UCCI09, SPIL07
	Acid #3	2,500 pounds of tetryl mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
February 21, 1972	Acid #3	1,000 pounds of DNT mix was lost due to tank cleaning. Soda ash was used to neutralize.	UCCI09, SPIL07
February 22, 1972	Acid #3	2,000 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	UCCI09, SPIL07
	Acid #3	2,000 pounds of 93 percent sulfuric acid was lost from tank 552 due to operator error. Soda ash was used to neutralize.	UCCI09, UNUR01, SPIL07
February 24, 1972	Tetryl #2	500 pounds of sulfuric acid was lost to the ground at 1001-2 due to a leaking tank valve. Soda ash was used to neutralize.	UNUR01
February 28, 1972	TNT #4	1/2" of bi-waste was lost from the nitrator at Building 803-7 due to rupture of a sight tube.	UNUR01
March 01, 1972	Acid #3	22,000 pounds of anhydrous ammonia were lost due to blown rupture disc, and leaking packing glands.	UNUR01
March 02, 1972	Tetryl #2	1,000 pounds of DMAS was lost to the ground from the DMAS line south of Building 1001-2 due to a hole in the spool piece. Soda ash was used to neutralize.	UNUR01, SPIL07
March 07, 1972	Acid #3	5,400 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
March 08, 1972	Acid #3	3,000 pounds of 68 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
March 16, 1972	TNT #5	A TNT charge was drowned at 802-9, Pot #1.	UNUR01
March 17, 1972	Acid #3	1,500 pounds of ammonia was lost due to a blown rupture disc.	UNUR01, SPIL07
March 18, 1972	Sellite #1	30,503 pounds of sellite solution was lost from #4 sellite storage tank due to crack or hole in coil bank. Solution drained through coils to sewer through steam trap and steam trap bypass lines.	UNUR01, SPIL07
March 24, 1972	Acid #3	10,000 pounds of 93 percent sulfuric acid sludge was lost from tank 408 due to cleaning and decontamination for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
March 27, 1972	Sellite	13,706 pounds of 16 percent sellite solution was lost from sellite storage tank #9 due to washing for maintenance.	UNUR01, SPIL07
	Acid #3	1,100 pounds of 93 percent sulfuric acid sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01, SPIL07
March 28, 1972	Acid #3	1,400 pounds of 93 pounds of sulfuric acid sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01, SPIL07
March 29, 1972	Acid #3	1,900 pounds of 93 pounds of sulfuric acid sludge was lost at car spot 410 due to washing and decontamination of a tanker car. Soda ash was used to neutralize.	UNUR01
March 31, 1972	Acid #3	23,300 pounds of anhydrous ammonia was lost from ammonia storage and A.O.P. due to normal losses from draining of lines for repair, blowing of vaporizers, unloading, and other unavoidable losses.	UNUR01
April 02, 1972	Acid #3	1,000 pounds of anhydrous ammonia was lost at Building 301-3-3 due to failure of packing in a valve.	UNUR01, SPIL07
April 04, 1972	Acid #3	1,900 pounds of 93 percent sulfuric acid was lost due to tank car cleaning. Soda ash was used to neutralize.	SPIL07
April 06, 1972	Acid #3	13,046 pounds of oleum was lost at the west end of Acid Transfer Road due to a leak in a transfer line. Soda ash was used to neutralize.	UNUR01, SPIL07
	TNT #2	5,650 pounds of oleum - 2,850 pounds of TNT mix and 4,900 pounds of bi-oil was lost from the #2 nitrator at 802-4 due to the drowning of a charge.	UNUR01, SPIL07
April 10, 1972	Acid #3	9,400 pounds of 93 percent sulfuric acid was lost due to tank car cleaning. Soda ash was used to neutralize.	SPIL07
April 18, 1972	Acid #3	4,500 pounds of 93 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
	Acid #3	4,000 pounds of 93 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
April 20, 1972	Acid #3	1,500 pounds of 60 percent nitric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
April 22, 1972	Acid #3	1,600 pounds of ammonia was lost due to rupture disc failure.	SPIL07
April 24, 1972	Acid #3	2,800 pounds of F-80 mix was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
April 26, 1972	Acid #3	10 pounds of 93 percent sulfuric acid was lost at the 93 percent truck loading spot.	UNUR01
April 27, 1972	Acid #3	4,000 pounds of 93 percent sulfuric acid was lost at sales tank 803 due to tank overfilling.	UNUR01, SPIL07
May 1 to 31, 1972	Acid #3	22,000 pounds of anhydrous ammonia was lost from ammonia storage and A.O.P. due to normal losses from draining of lines for repair, blowing of vaporizers and filters, unloading of tank cars, and other unavoidable losses.	UNUR01
May 01, 1972	Acid #3	1,600 pounds of TNT residual sludge was lost due to tank car cleaning. Soda ash was used to neutralize.	SPIL07
	Acid #3	16,000 pounds of 93 percent sulfuric acid was lost due to tank cleaning. Soda ash was used to neutralize.	SPIL07
May 02, 1972	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to washing and decontamination of 6-inch transfer line from Acid #1 to Acid #3 areas. Soda ash was used to neutralize.	UNUR01
May 03, 1972	Acid #3	1,000 pounds of TNT residual sludge was lost due to tank car cleaning. Soda ash was used to neutralize.	SPIL07
May 04, 1972	Sellite	2,741 pounds of 16 percent sellite solution was lost due to tank cleaning for maintenance.	SPIL07
May 05, 1972	Acid #3	5,000 pounds of 74 percent N.A.C. residuals was lost due to washing and decontamination of 6-inch transfer line from Acid #1 to Acid #3 areas. Soda ash was used to neutralize.	UNUR01
	Acid #3	1,500 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01, SPIL07
May 07, 1972	TNT #2	200 pounds of T-mix acids was lost from T-mix storage tank 802-3 due to an open valve. Soda ash was used to neutralize.	UNUR01

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
May 08, 1972	Acid #3	600 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01
May 09, 1972	Acid #3	2,000 pounds of mixed acid sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	1,800 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
May 11, 1972	Acid #3	200 pounds of toluene was lost at car spot 410 due to rail car steam cleaning.	UNUR01
	Sellite	22,845 pounds of 20 percent soda ash solution was lost due to tank car cleaning for maintenance.	SPIL07
May 12, 1972	Acid #3	1,100 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	TNT #2	5,640 pounds of oleum, 2, 820 pounds of TNT mix and 4,930 pounds of bi-oil were lost due to a drowned charge - operator error.	SPIL07
May 15, 1972	Acid #3	900 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
May 16, 1972	Acid #3	1,700 pounds of TNT residual sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
May 17, 1972	Acid #3	2,200 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to rail car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
May 19, 1972	Acid #3	1,400 pounds of F60 was lost at car spot 410 due to rail car washing and decontaminating. Soda ash was used to neutralize.	UNUR01, SPIL07
May 23, 1972	TNT #2	300 pounds of waste oil and 800 pounds waste acid was lost at 812-4 due to tank over flow. Cleaned up and soda ash was introduced to flume ditch.	UNUR01, SPIL07
May 25, 1972	Acid #1	86,360 pounds of 93 percent sulfuric acid was lost due to tank cleaning. Soda ash was used.	SPIL07
June 02, 1972	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to transfer line decontamination. Soda ash was used.	ARMY01, SPIL07
	Acid #1	64,000 pounds of 93 percent sulfuric acid sludge was lost due to storage tank decontamination. Soda ash was used.	ARMY01, SPIL07
June 05, 1972	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost due to transfer line decontamination. Soda ash was used.	ARMY01, SPIL07
June 07, 1972	Acid #3	2,500 pounds of tetryl mixed acid was lost at car spot 410 due to tank car decontamination for maintenance. Soda ash was used.	ARMY01, SPIL07 UNUR01
June 13, 1972	North Classification Yard	Ammonia car was leaking at dome. Car moved to Acid #3 and unloaded.	UNUR01
June 22, 1972	Acid #3	8,000 pounds of 74 percent sulfuric acid sludge was lost due to storage tank decontamination for maintenance. Soda ash was used.	ARMY01, SPIL07
June 26, 1972	Acid #1	9,500 pounds of 60 percent nitric acid was lost due to storage tank decontamination. Soda ash was used.	ARMY01, SPIL07
June 27, 1972	Acid #1	70,000 pounds of 93 percent sulfuric acid sludge was lost due to storage tank decontamination. Soda ash was used.	ARMY01, SPIL07
July 06, 1972	Acid #3	3,600 pounds of 68 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used.	SPIL07
	Acid #3	5,000 pounds of 93 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used.	SPIL07
July 11, 1972	TNT #5	4,410 pounds of oleum - 7,390 pounds TNT mix was lost at 802-9 due to operator error which required a controlled drowning. Soda ash was used to neutralize.	UNUR01, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
July 14, 1972	TNT #5	19,998 pounds oleum was lost at 802-9 due to operator error. When pumping oleum to 9 Tri storage, the valves were not closed. Oleum was siphoned to 9 tri storage tank and spilled into dry well. Soda ash was used to neutralize.	UNUR01, SPIL07
July 18, 1972	Acid #3	4,000 pounds of F60 was lost at Tank 551 due to washing. Soda ash was put in drain to neutralize.	UNUR01, SPIL07
	North Power	8,400 gallons of #2 Diesel fuel oil was lost while outside contractors were working on the 15,000 gallon day tank. The spill was contained and cleaned up by the combined action of Uniroyal forces, the Corps of Engineers and the outside contractors.	SPIL07
July 19, 1972	Acid #3	52,910 pounds of TNT mix was lost due to overflow of TNT mix tank 706. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	1,600 pounds of 93 percent sulfuric acid was lost at clear car spot 410 due to washing of two tank cars. Water (30,000 pounds) and soda ash (10,000 pounds) was used to dilute washings from each car.	UNUR01
July 24, 1972	Acid #3	2,000 pounds of 93 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
July 25, 1972	Acid #3	2,760 pounds of 68 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
	Acid #3	1,500 pounds of 74 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
July 27, 1972	Acid #1	5,200 pounds of 98 percent nitric acid was lost due to tank cleaning and decontamination. Soda ash was used to neutralize.	SPIL07
July 28, 1972	Acid #3	1,100 pounds of 74 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
July 29, 1972	Acid #3	10,000 pounds of 93 percent sulfuric acid was lost from tank 519 due to a popped rivet. Soda ash was used to neutralize.	UNUR01, SPIL07
	TNT #6	4,587 pounds of oleum was lost due to washing and neutralizing of #12 oleum tank. Soda ash was used to neutralize.	SPIL07
July 31, 1972	TNT #3	1,350 pounds of batch mono mix was lost at 801-5 due to a ruptured cooling coil requiring that charge be drowned. Soda ash was used to neutralize.	UCCI09, UNUR01
	Acid #3	20,000 pounds of 93 percent sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
August 04, 1972	TNT #3	38,674 pounds of TNT mix was lost due to washing and neutralizing for maintenance of B-TNT mix tank. Soda ash was used to neutralize.	UCCI09
August 05, 1972	Acid #3	37,500 pounds of 74 percent sulfuric acid sludge was lost at tank 618 due to cleaning for maintenance. Soda ash was used to neutralize.	UCCI09
August 09, 1972	Sellite Plant #1	74,871 pounds of sellite was lost from tank #2 South due to contaminated material. Solution was flushed with water.	UCCI09, UNUR01
	TNT #5	4,000 pounds of oleum was lost from oleum tank #12 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09
August 10, 1972	Acid #3	1,200 pounds of strong nitric acid was lost at car spot 413 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
August 14, 1972	Acid #1	5,000 pounds of strong nitric acid was lost at 300 tank due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09, UNUR01
	Acid #3	1,100 pounds of sulfuric acid was lost at car spot 410 due to washing and neutralizing of a tank car. Soda ash was used to neutralize.	UCCI09, UNUR01
August 15, 1972	Acid #3	1,000 pounds of oleum was lost at tank 404 due to washing and neutralizing. Soda ash was used to neutralize.	UCCI09
	Acid #3	2,000 pounds of sulfuric acid sludge was lost due to tank washing. Soda ash was used to neutralize.	UCCI09
	TNT #2	1,400 pounds of 60 percent nitric acid was lost at tank 803-4 due to improper valve alignment.	UCCI09
	TNT #6	17,124 pounds of TNT mix was lost due to washing of tank C-TNT. Soda ash was used to neutralize.	UCCI09
August 18, 1972	Acid #2	2,000 pounds of TNT mix was lost due to washing of the transfer line from Acid #2 to TNT #4. Soda ash was used to neutralize.	UCCI09, UNUR01
August 19, 1972	Acid #3	1,500 pounds of oleum was lost at tank 403 due to washing. Soda ash was used to neutralize.	UCCI09, UNUR01
August 21, 1972	Sellite Plant #1	74,871 pounds of sellite solution was lost from Tank #2 South due to contaminated material. Solution was flushed to the sewer with water.	UCCI09, UNUR01
August 22, 1972	Acid #3	2,500 pounds of ammonia was lost at sphere 101 due to a blown rupture disc.	UCCI09, UNUR01
	Sellite Plant #2	1,800 pounds of sulfur was lost due to operator error.	UCCI09, UNUR01
August 23, 1972	Acid #3	4,700 pounds of 93 percent acid sludge was lost at tank 620 due to washing. Soda ash was used to neutralize.	UCCI09
	TNT #3	9,000 pounds of oleum was lost at tank 6 due to washing. Soda ash was used to neutralize.	UCCI09
August 25, 1972	Acid #3	8,000 pounds of tetryl mix was lost at tank 754 due to washing for maintenance. Soda ash was used to neutralize.	UCCI09
August 29, 1972	Acid #3	1,500 pounds of strong nitric acid residue was lost at tank 619 due to leakage. Soda ash was used to neutralize.	UCCI09
August 30, 1972	TNT #6	27,750 pounds of residual sulfuric acid overflowed from "B" residual tank - 6 TNT area.	UNUR01
September, 1972	Acid #3	40,840 pounds of anhydrous ammonia was lost from ammonia storage and AOP due to normal loss from draining lines, blowing vaporizers and filters, unloading tank cars, and other unavoidable losses.	UNUR01
September 06, 1972	Acid #3	21,000 pounds of 74 percent sulfuric acid sludge was lost at tank 619 due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	3,000 pounds of oleum was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
September 14, 1972	Acid #3	8,000 pounds of TNT mix was lost due to washing of tank #708. Soda ash was used to neutralize.	SPIL07
September 18, 1972	Sellite Plant #1	11,200 pounds of soda ash was lost due to rupture of filtered water line which has resulted into contaminated sellite solution.	SPIL07
	Acid #3	8,000 pounds of tetryl mix sludge was lost due to washing of tank #751. Soda ash was used to neutralize.	SPIL07
September 22, 1972	Acid #3	1,800 pounds of TNT mix was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	900 pounds of 64 percent nitric acid was lost at car spot 410 due to tanker car washing and neutralizing. Soda ash was used to neutralize.	UNUR01
September 26, 1972	Acid #3	1,200 pounds of F-80 was lost due to washing of tank car DODX 14186 at 410 car spot. Soda ash was used to neutralize.	SPIL07
September 27, 1972	TNT #4	400 pounds of bi-waste was lost to drowning tub at Building 803-8 due to operator error.	UNUR01

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
September 29, 1972	Acid #3	9,000 pounds of tetryl mix sludge was lost at tank 752 due to tank washing and neutralizing. Soda ash was used to neutralize.	UNUR01
	Acid #3	9,000 pounds of TNT mix sludge was lost at tank 752 due to tank washing and neutralizing. Soda ash was used to neutralize.	SPIL07
September 30, 1972	Acid #3	4,458 pounds of tetryl mix was lost due to tank 750 overflowing. Soda ash was used to neutralize. Separate report indicates loss was of TNT mix.	UNUR01, SPIL07
October, 1972	Acid #3	50,650 pounds of anhydrous ammonia was lost from ammonia storage and AOP due to normal loss from draining lines, blowing vaporizers and filters, unloading tank cars, and other unavoidable losses.	UNUR01
October 02, 1972	Acid #3	17,000 pounds of 93 percent sulfuric acid sludge was lost from tank 801 due to washing and neutralizing of tank for maintenance. Soda ash was used to neutralize.	UNUR01
October 09, 1972	TNT #4	2,132 pounds of waste acid and 2,400 gallons of soda ash were lost at Building 812-8 due to decontamination of waste acid tank for repair. Soda ash was used to neutralize.	UNUR01, SPIL07
October 10, 1972	Acid #3	2,500 pounds of oleum was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	1,800 pounds of 93 percent sulfuric acid sludge was lost at car spot 410 due to tanker washing and decontamination and hydrostatic test of tank car DDODX 14135. Soda ash was used to neutralize.	SPIL07
October 12, 1972	Acid #3	1,800 pounds of sulfuric acid sludge (?) was lost at car spot 410 due to tanker washing and decontamination. Soda ash was used to neutralize.	UNUR01
October 13, 1972	Acid #3	1,800 pounds of 93 percent sulfuric sludge was lost at car spot 410 due to tanker washing and decontamination. Soda ash was used to neutralize.	UNUR01
October 19, 1972	Acid #3	119,608 pounds of 93 percent sulfuric sludge was lost at tank 520 due to washing and cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	1,000 pounds of F80 was lost at car spot 410 due to tanker washing and neutralizing for maintenance of tank car DODX 14119. Soda ash was used to neutralize.	UNUR01, SPIL07
October 22, 1972	TNT #5	Dripping acid leak from the end of TNT mix line on old #11 line north of #10 bulk storage. Not a large loss.	UNUR01
October 24, 1972	Acid #3	21,000 pounds of 93 percent sulfuric acid sludge was lost at tank 805 due to washing and maintenance. Soda ash was used to neutralize.	SPIL07
	Acid #3	5,000 pounds of 93 percent sulfuric acid sludge was lost at tank 555 due to washing and maintenance. Soda ash was used to neutralize.	SPIL07
October 25, 1972	TNT #4	5,575 pounds of oleum, 2,875 pounds of TNT mix, and 4,920 pounds of bi-oil was lost at 802-8 due to equipment failure. Soda ash was added to neutralize. A report indicates that the oil would probably be drawn off from sump and burning ground.	UNUR01, SPIL07
	TNT #2	1,000 pounds of bi-oil was lost to the drowning tub at 803-3 due to improper valve alignment.	UNUR01, SPIL07
October 27, 1972	Acid #3	9,000 pounds of TNT mix sludge was lost at tank 709 due to tank washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01
October 28, 1972	Acid #3	9,000 pounds of TNT mix sludge was lost due to washing and maintenance of tank #709. Soda ash was used to neutralize.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
October 30, 1972	TNT #2	5,635 pounds of oleum, 4,950 pounds of bi-oil, and 2,845 pounds of TNT mix was lost at 802-3 when charge had to be drowned due to operator error.	UNUR01, SPIL07
	TNT #4	A tri-nitrator charge was drowned from the #2 nitrator in Building 802-8 due to operator error.	UNUR01
	TNT #4	5,595 pounds of oleum, 4,850 pounds of bi-oil, and 2,875 pounds of T-mix were lost due to temporary loss of suction at 802-8.	SPIL07
	Acid #3	32,000 pounds of 93 percent sulfuric acid sludge was lost at tank 512 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
November 1, 1972	Acid #3	2,400 pounds of oleum was lost at car spot 410 due to tanker washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
November 2, 1972	TNT #4	4,000 pounds of winter TNT mix was lost from the "B" bulk TNT mix tank due to a hole in the side. One report indicates this occurred at TNT #3, #6 TNT mix bulk storage. Soda ash was used to neutralize.	UNUR01, SPIL07
	Tetryl #2	500 pounds of DMAS was lost at 1002-9 due to a hole in the main DMAS transfer line.	UNUR01
	TNT #4	A tri-nitrator charge was drowned from the #2 nitrator in Building 802-8 due to operator error. One report indicates charge was drowned on TNT line 8, tri-house No. 2 pot. Soda ash was added at bridge in TNT #1 near the red water plant.	UNUR01
November 3, 1972	Tetryl #2	2,000 pounds of waste acid was lost at 1002-11 due to operator error.	UNUR01, SPIL07
November 7, 1972	TNT #1	16,000 pounds of TNT mix was lost form A-bulk TNT mix tank due to tank washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	7,200 pounds of sulfuric acid sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
November 8, 1972	Tetryl	10,614 pounds of mixed acid sludge was lost at the 1008-2 tetryl A-mixed acid tank due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	6,000 pounds of sulfuric acid sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
November 9, 1972	Acid #3	6,000 pounds of sulfuric acid sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
November 10, 1972	Acid #3	29,759 pounds of 93 percent sulfuric acid sludge was lost from tank 803 due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #3	3,700 pounds of 68 percent TNT residual was lost from tank 611 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
November 11, 1972	Acid #3	12,000 pounds of tetryl mix was lost from tank 750 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
November 13, 1972	Acid #3	2,000 pounds of 74 percent sulfuric acid sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
November 14, 1972	Acid #3	3,600 pounds of sulfuric acid sludge was lost at car spot 410 due to tanker washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
	Sellite #1	33,251 pounds of sellite was lost due to rupture of circulating line.	SPIL07
November 20, 1972	Acid #3	2,000 pounds of TNT residual was lost due to washing and decontamination of TNT residual line from Acid #3 to TNT #6. Soda ash was used to neutralize.	UNUR01
November 22, 1972	TNT #6	1,200 pounds of TNT mix was lost from B-bulk storage tank due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
November 28, 1972	TNT #6	9,000 pounds of TNT mix was lost from A-bulk storage tank due to washing and neutralizing. Soda ash was used to neutralize.	UNUR01, SPIL07
December 09, 1972	TNT #4	1,480 pounds of toluene and 2,700 pounds of mono oil were lost at 801-7 due to operator error.	UNUR01, SPIL07
December 12, 1972	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost at tub 607 in the NAC building due to failure of the cooling coil. Acid was drained to the sewer with soda ash.	UNUR01, SPIL07
December 15, 1972	Acid #3	3,500 gallons of soda ash was lost to Grant Creek when an automatic control value on tank opened due to a malfunctioning pH meter.	UNUR01, SPIL07
December 18, 1972	TNT #3	2,810 pounds of TNT mix, 1,000 gallons of soda ash, 2,150 pounds of bi-oil, and 5,690 pounds of oleum was lost at Building 802-6 when mechanical failure necessitated that a charge be drowned.	UNUR01, SPIL07
December 19, 1972	Acid #3	3,600 pounds of 68 percent sulfuric acid sludge was lost from tank 613 due to washing and neutralizing for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
	TNT #3	5,690 pounds of oleum, 2,810 pounds of TNT mix, 1,000 pounds of bi-oil, and 1,000 gallons of soda ash was lost at 802-5 when mechanical failure necessitated that a charge be drowned.	UNUR01, SPIL07
December 22, 1972	Sellite	16,638 pounds of sellite was lost at the #5 sellite tank due to equipment failure. Tank was emptied for repairs.	UNUR01, SPIL07
December 23, 1972	TNT #3	5,660 pounds of oleum, 19,990 pounds of soda ash, and 7,340 pounds of TNT mix was lost at Building 802-6 due to equipment malfunction.	UNUR01, SPIL07
December 30, 1972	TNT #2	5,685 pounds of OLEUM, 2,810 pounds of TNT mix, and 1,000 gallons of soda ash was lost to drowning tub at 802-3 due to operator error. Soda ash was used for anti-pollution purposes.	UNUR01, SPIL07
December 31, 1972	Acid #3	Ammonia was lost from tank 112 due to blown rupture disc.	UNUR01
December 30 & 31, 1972	West Toluene Farm	3,600 pounds of toluene was lost due to operational error from Toluene Tank 4.	SPIL07
1973	Redwater	Raw waste, neutral waste, and thick liquor storage tanks developed leaking bottoms. A repair program was implemented and good progress was made in overcoming the problem.	HIST07
January 02, 1973	West Toluene Farm	500 gallons of toluene was found on the ground in the diked area around tank #4. No toluene went to the drain off ditches or sewers. The toluene was allowed to evaporate.	UNUR01
January 03, 1973	TNT #4	3,390 pounds of bi-oil, 2,000 gallons of soda ash, and 8,520 pounds of TNT mix was lost at 802-8 due to operator error.	UNUR01
	TNT #4	A TNT charge was accidentally drowned at #1 nitrator in 802-7. Wind blowing deluge ring caused charge to be drowned.	UNUR01
	Acid #1	10,000 pounds of 83 percent sulfuric acid was lost in order to protect equipment from freezing.	SPIL07
	TNT #4	5,665 pounds of oleum, 2,820 pounds of TNT mix and 4,620 pounds of bi-oil were lost due to equipment failure.	SPIL07
January 04, 1973	Sellite	22,184 pounds of sellite was lost due to ruptured steam coil in tank #6.	SPIL07
January 08, 1973	Sellite	9,706 pounds of 16 percent sellite solution was lost due to washing and maintenance of tank #6.	SPIL07
January 11, 1973	TNT #4	A TNT charge was drowned at 802-7 due to operator error 5,640 pounds of oleum, 4,700 pound of bi-oil and 2,875 pounds of T-mix were lost .	SPIL07, UNUR01
	TNT #3	5,645 pounds of oleum, and 7,300 pounds of TNT mix were lost at 802-6 due to operational error.	SPIL07, UNUR01
	Sellite	19,412 pounds of 16 percent sellite solution was lost due to washing and maintenance of tank #4.	SPIL07
January 20, 1973	TNT #5	29,942 pounds of 25 percent nitric acid was lost at 812-9 due to operational error.	SPIL07
January 31, 1973	Acid #3	1,000 pounds of ammonia was lost due to ruptured disc on tank #111.	SPIL07
	TNT #2	1,600 pounds of tri-waste was lost at 806-3 due to operational error.	SPIL07
February 05, 1973	Acid #3	2,400 pounds of tetryl mix was lost at car spot 412 1/2 due to overfilling.	UNUR01, SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
February 07, 1973	TNT #1	1,000 pounds of oleum acid was lost at Building 802-1 due to operator error.	UNUR01
	Acid #3	2,000 pounds of 93 percent sulfuric acid was lost due to maintenance of tank #554. Soda ash was used to neutralize.	SPIL07
February 08, 1973	Acid #3	1,000 pounds of 60 percent nitric acid was lost due to equipment failure at 406 car spot.	SPIL07
February 09, 1973	Acid #1	1,800 pounds of 74 percent sulfuric acid was lost due to equipment failure of tank #604. Soda ash was used to neutralize.	SPIL07
	Acid #3	5,000 pounds of strong nitric acid was lost due to maintenance of tank #302. Soda ash was used to neutralize.	SPIL07
February 10, 1973	Sellite #1	10,000 pounds of soda ash and 9,800 pounds of sellite were lost due to operational error.	SPIL07
February 12, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to maintenance of tank #556. Soda ash was used to neutralize.	SPIL07
February 19, 1973	Acid #3	16,000 pounds of tetryl mix sludge was lost due to maintenance of tank #753. Soda ash was used to neutralize.	SPIL07
February 26, 1973	Acid #1	4,500 pounds of TNT mix was lost due to maintenance of tank #807. Soda ash was used to neutralize.	SPIL07
February 27, 1973	Acid #1	10,000 pounds of 74 percent sulfuric acid was lost due to maintenance of tank #607. Soda ash was used to neutralize.	SPIL07
	TNT #2	1,000 pounds of oleum was lost from the oleum storage tank at 802-3 due to operator error. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #1	2,700 pounds of 74 percent sulfuric acid was lost due to maintenance of tank #607. Soda ash was used to neutralize.	SPIL07
February 28, 1973	TNT #4	2,075 pounds of 60 percent nitric acid was lost due to operational error at 803-8.	SPIL07
March 02, 1973	TNT #3	1,200 pounds of AOP was lost in Building 803-6 due to operational error.	SPIL07
March 07, 1973	West Toluene Farm	Toluene was lost from a leaking tank car near the West Toluene Farm. The tanker car was moved to the Central Farm and was unloaded immediately.	UNUR01
March 08, 1973	Acid #3	8,421 pounds of TNT mix was lost due to maintenance of tank #712. Soda ash was used to neutralize.	SPIL07
March 14, 1973	Acid #3	9,245 pounds of 68 percent sulfuric acid was lost due to maintenance of tank #615. Soda ash was used to neutralize.	SPIL07
March 15, 1973	Acid #3	1,000 pounds of DNT mix was lost due to washing of railroad car USA #11008 at #410 car spot.	SPIL07
March 19, 1973	Acid #1	3,000 pounds of 93 percent sulfuric acid sludge was lost due to maintenance of tank #505. Soda ash was used to neutralize.	SPIL07
March 20, 1973	TNT #1	10,000 pounds of tri-waste and AOP nitric acid (one complete butted tri-waste) was lost to the drowning tub at 803-2 due to an open valve.	UNUR01
	TNT #1	460 pounds of TNT mix was spilled when valve #2 from the TNT bulk storage tank was opened in error allowing material to enter the dry well. Soda ash was used to neutralize and was also applied to Grant Creek.	UNUR01, SPIL07
March 27, 1973	Sellite #4	8,319 pounds of 16 percent sellite was lost due to maintenance.	SPIL07
	TNT #4	3,150 pounds of bi-oil an 8,500 pounds of bi-waste were lost due to operational error.	SPIL07
April 05, 1973	Acid #3	6,000 pounds of 93 percent sulfuric acid sludge was lost due to maintenance of tank #623. Soda ash was used to neutralize.	SPIL07
	Acid #2	15,000 pounds of 74 percent sulfuric acid sludge was lost due to maintenance of tank #608. Soda ash was used to neutralize.	SPIL07
April 06, 1973	Acid #2	10,000 pounds of 74 percent sulfuric acid sludge was lost due to maintenance of tank #606. Soda ash was used to neutralize.	SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
April 07, 1973	Acid #2	10,000 pounds of 74 percent sulfuric acid sludge was lost due to maintenance of tank #607. Soda ash was used to neutralize.	SPIL07
April 13, 1973	Acid #3	4,000 pounds of 93 percent sulfuric acid sludge was lost due to maintenance of tub #623. Soda ash was used to neutralize.	SPIL07
	Sellite	16,638 pounds of 16 percent sellite solution was lost due to maintenance of tank #4.	SPIL07
April 17, 1973	TNT #2	2,000 pounds of whisker oil and waste acid were lost due to equipment failure in Building 812-4.	SPIL07
April 18, 1973	TNT #4	A charge was drowned at the South Nitrator of line #8 (802-8) due to operator error. 5,675 pounds of oleum, 2,815 pounds of T-mix and 4,120 pounds of bi-oil were lost. Soda ash was used to neutralize.	UNUR01, INCR01, SPIL07
April 20, 1973	TNT #2	30,000 pounds of residual acid from #3 bulk storage was lost due to maintenance of line between tanks 812-4 and 812-5. Soda ash was used to neutralize.	SPIL07
May 01, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to maintenance of tub #554. Soda ash was used to neutralize.	SPIL07
May 07, 1973	Acid #2	3,000 pounds of 98 percent nitric acid was lost due to washing of tank #304. Soda ash was used to neutralize.	SPIL07
May 08, 1973	Acid #3	3,500 pounds of tetryl mix was lost at car spot 411 1/2 due to operator error. Soda ash was used to neutralize.	UNUR01
May 10, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to equipment failure of tank #553 and #554. Soda ash was used to neutralize.	SPIL07
May 11, 1973	TNT #3	2,075 pounds of AOP nitric acid was lost due to operational error at 803-6.	SPIL07
May 13, 1973	Oleum Plant	There was a pile of sulfur on south side of Building 1502-2 going west to a ditch 5 feet x 1 foot x 10 feet, 300-400 feet, 30 feet by 30 feet.	INCR01
May 16, 1973	Acid #1	2,000 pounds of 60 percent AOP nitric acid was lost due to maintenance at tank 206.	SPIL07
May 18, 1973	Acid #2	10,000 pounds of 98 percent nitric acid was lost due to washing of tank #301. Soda ash was used to neutralize.	SPIL07
May 21, 1973	Acid #3	1,000 pounds of 93 percent sulfuric acid sludge was lost due to washing of tank #554.	SPIL07
	Acid #2	3,000 pounds of 98 percent nitric acid was lost due to washing of tank #302. Soda ash was used to neutralize.	SPIL07
May 24, 1973	Acid #3	126,000 pounds of TNT mix was lost at tank 709 due to operator error. Soda ash was used to neutralize.	UNUR01, SPIL07
May 30, 1973	Acid #3	8,483 pounds of 93 percent sulfuric acid was lost due to maintenance of tank #801. Soda ash was used to neutralize.	SPIL07
May 31, 1973	Acid #3	1,060 pounds of 93 percent sulfuric acid was lost due to operational error of tank #805. Soda ash was used to neutralize.	SPIL07
June 01, 1973	Acid #3	5,400 pounds of tetryl residual was lost due to washing tank car USA #10673 at #410 car spot. Soda ash was used to neutralize.	SPIL07
June 05, 1973	Acid #1	35,885 gallons of TNT Mix Acid was lost due to rupture of 32-year old tank (808). 18,000 gallons of 20 percent soda were used to neutralize.	SPIL01
	Acid #1	540,000 gallons of TNT mix was lost due to leak from bottom of tank 808. Soda ash used to neutralize.	SPIL07
June 06, 1973	Acid #1	Acid was lost from tank 808 resulting fumes disrupted activities at 704-7, 413, 704-19, 717, Tetryl Area, and TNT Areas for over four hours. Volume lost not reported. Soda ash was used to neutralize.	UNUR01
June 07, 1973	TNT #2	4,335 pounds of oleum, 1,915 pounds of TNT mix and 4,950 pounds of bi-oil were lost due to operational error at 802-3 when a charge was drowned in a controlled manner at 802-3 due to operator error.	UNUR01, SPIL07
June 12, 1973	Acid #1	5,464 pounds of TNT mix was lost from tank 710 due to holes in the tank. Soda ash was applied to the area north of the tank, Grant Creek, and at TS1248.	UNUR01
	Sellite	5,000 pounds of soda ash was lost due to maintenance of #1 East Sellite tank.	SPIL07
June 13, 1973	Acid #1	2,000 pounds of TNT mix sludge was lost due to maintenance of tank #808.	SPIL07

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Date	Location	Quantity and Material Spilled	Reference
June 14, 1973	Acid #3	8,758 pounds of TNT mix sludge was lost due to maintenance of tank #755. Soda ash was used to neutralize.	SPIL07
June 19, 1973	Acid #1	4,000 pounds of T-mix was lost due to washing of tank #711. Soda ash was used to neutralize.	SPIL07
	Acid #1	3,100 pounds of TNT mix was lost due to equipment failure #702 circulator. Soda ash was used to neutralize.	SPIL07
	Acid #1	3,000 pounds of T-mix was lost due to washing of tank #710. Soda ash was used to neutralize.	SPIL07
	TNT #1	Two charges in the nitrators at were drowned at 802-2. 4,910 pounds of bi-oil and 8,500 pounds of tri-waste were lost. Soda ash was used to neutralize.	UNUR01, SPIL07
June 20, 1973	Acid #3	9,000 pounds of T-mix was lost due to washing of tank #708. Soda ash was used to neutralize.	SPIL07
June 22, 1973	Acid #1	7,000 pounds of T-mix was lost due to washing of tank #807. Soda ash was used to neutralize.	SPIL07
June 25, 1973	Acid #3	8,000 pounds of T-mix was lost due to washing of tank #707. Soda ash was used to neutralize.	SPIL07
June 26, 1973	Acid #3	10,000 pounds of weak nitric acid was lost due to equipment failure at #607 NAC tub. Soda ash was used to neutralize.	SPIL07
June 27, 1973	Acid #3	5,000 pounds of 74 percent sulfuric acid was lost due to maintenance of tank #605. Soda ash was used to neutralize.	SPIL07
June 29, 1973	Acid #3	3,000 pounds of 93 percent sulfuric acid was lost due to maintenance of tank #554. Soda ash was used to neutralize.	SPIL07
July 02, 1973	TNT #2	B bulk storage overflowed and 3,800 pounds of TNT mix was lost due to operational error. Acid flowed down ditch along Snake Road and a large area of the ditch caught fire. Soda ash was used to neutralize.	UNUR01, SPIL07
July 06, 1973	Acid #3	3,000 pounds of tetryl mix sludge was lost due to washing tank car USA #11603. Soda ash was used.	SPIL07
July 05, 1973	Acid #3	1,000 pounds of toluene was lost due to cleaning of tank car DODX 11603. Water was used for dilution.	SPIL07
July 11, 1973	Acid #2	5,000 pounds of TNT mix was lost due to cleaning for maintenance purposes. Soda ash was used to neutralize.	SPIL07
July 12, 1973	Acid #3	1,800 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
July 16, 1973	Acid #3	2,800 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
July 17, 1973	Acid #2	2,000 pounds of TNT mix was lost due to cleaning for maintenance purposes. Soda ash was used to neutralize.	SPIL07
July 19, 1973	TNT #2	2,850 pounds of mono oil and 750 pounds of toluene was lost due to operational error. Soda ash was used to neutralize.	SPIL07
July 20, 1973	Acid #1	7,000 pounds of TNT mix was lost due to cleaning for maintenance purposes. Soda ash was used to neutralize.	SPIL07
July 30, 1973	Acid #2	2,000 pounds of TNT mix sludge was lost due to decontamination. Soda ash was used to neutralize.	SPIL07
July 31, 1973	Acid #2	4,000 pounds of TNT mix sludge was lost due to decontamination. Soda ash was used to neutralize.	SPIL07
August 01, 1973	Acid #3	1,000 pounds of TNT mix was lost due to decontamination. Soda ash was used to neutralize.	SPIL02, SPIL07
August 06, 1973	Acid #3	1,200 pounds of oleum sludge was lost due to decontamination. Soda ash was used to neutralize.	SPIL02, SPIL07
August 07, 1973	Acid #2	13,900 pounds of TNT sludge was lost due to decontamination. Soda ash used to neutralize.	SPIL02, SPIL07
	Acid #3	1,200 pounds of oleum was lost due to decontamination. Soda ash was used to neutralize.	SPIL02, SPIL07
August 08, 1973	Tetryl #2	3,681 pounds of DMA sludge was lost due to decontamination of production facilities. Sellite was used to decontaminate.	SPIL02, SPIL07
	Tetryl #2	48,231 pounds of tetryl mix sludge was lost due to decontamination of production facilities. Soda ash was used to neutralize.	SPIL02, SPIL07
	Acid #3	1,200 pounds of oleum was lost due to tank car cleaning. Soda ash was used to neutralize.	SPIL02, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
August 09, 1973	Tetryl #2	92,519 pounds of DMAS sludge was lost due to decontamination of production facilities. Sellite was used to decontaminate.	SPIL02, SPIL07
	Acid #1	7,000 pounds of Oleum was lost due to equipment failure. Soda ash was used to decontaminate	SPIL02, SPIL07
August 10, 1973	Tetryl #2	114,382 pounds of sulfuric acid sludge was lost due to decontamination of production facilities. Soda ash was used to decontaminate.	SPIL02, SPIL07
	Tetryl #2	37,000 pounds of sulfuric acid sludge was lost due to decontamination of production facilities. Soda ash was used to decontaminate.	SPIL02, SPIL07
	Acid #1	2,830 pounds of Ammonia was lost from tank 116 due to a blown rupture disc.	UNUR01, SPIL02, SPIL07
August 11, 1973	Redwater	Red water and sludge was lost adjacent to 864-2 when valve service was done. Flow from the pipe washed shoring from the hole and sprayed the area. There was 3 feet of water and sludge in the tank 864-2 prior to tank service.	UNUR01
August 13, 1973	Acid #2	11,000 pounds of sulfuric acid was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02, SPIL07
	TNT #4	4,390 pounds of oleum, and 4,115 pounds of TNT mix and 4,180 pounds of bi-oil was lost at 802-8 when a charge went out of control and had to be drowned. Soda ash was used to decontaminate.	SPIL02, SPIL07, UNUR01
	Acid # 3	1,000 pounds of sulfuric acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL02, SPIL07
August 14, 1973	Acid #3	1,200 pounds was oleum sludge was lost due to tank car cleaning. Soda ash was used to decontaminate.	SPIL02, SPIL07
	Acid #3	1,180 pounds was oleum sludge was lost due to tank car cleaning. Soda ash was used to decontaminate.	SPIL07
August 21, 1973	Acid #3	1,000 pounds of sulfuric acid was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02, SPIL07
August 23, 1973	Acid # 2	9,000 pounds of sulfuric acid sludge was lost due to tank cleaning. Soda ash was used.	SPIL02, SPIL07
August 24, 1973	Acid #2	58,000 pounds of T-mix was lost due to decontamination of production facilities. Soda ash was used to decontaminate.	SPIL02, SPIL07
	TNT #2	2,000 pounds of 60 percent nitric acid and 8,500 of tri-acid was lost due to operator error. Soda ash was used.	SPIL02, SPIL07
August 25, 1973	TNT #2	Controlled drowning of charges in Buildings 803-4 and 806-4 were performed due to operator error.	UNUR01
	TNT #1TNT #1	2,000 pounds of oleum was lost when the oleum bulk storage tank overflowed at the tri-house due to operator error. Soda ash was used to decontaminate.	UNUR01, SPIL02, SPIL07
August 27, 1973	Acid #3	11,000 pounds of tetryl mix was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02, SPIL07
August 28, 1973	Acid #3	17,000 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02, SPIL07
August 29, 1973	Acid #2	6,885 pounds of tetryl mix sludge was lost due to tank cleaning. Soda ash was used to decontaminate.	SPIL02, SPIL07
	TNT #1	A valve was left open and material was lost from the resulting in the overflow of the North and South residual acid tanks at #2 recovery. This was discovered when the pH in Grant Creek dropped to 3.2.	UNUR01
August 30, 1973	Acid #2	9,000 pounds of sulfuric acid sludge was lost due to tank washing. Soda ash was used.	SPIL02, SPIL07
August 31, 1973	TNT #1	3,000 pounds of TNT mix acid was lost at 802-1 due to operator error. Soda ash was used to neutralize.	UNUR01, SPIL02
	TNT #1	9,000 pounds of TNT mix acid was lost due to operator error. Soda ash was used to neutralize.	SPIL07
September 05, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
September 06, 1973	Acid #3	8,758 pounds of tetryl mix was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
	Acid #3	8,614 pounds of 93 percent sulfuric sludge was lost due to tank failure. Soda ash was used to neutralize.	SPIL07
September 07, 1973	Acid #3	10,387 pounds of tetryl mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
September 11, 1973	TNT #2	8,000 pounds of TNT mix was lost at the B TNT mix storage tank in #2 area due to a pump gasket blow out. Soda ash and water was used to neutralize.	SPIL07, UNUR01
September 12, 1973	Sellite	Sellite sludge was lost due to tank cleaning for maintenance.	SPIL07
September 13, 1973	Acid #3	7,169 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
September 19, 1973	Acid #3	16,000 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
September 24, 1973	Acid #3	34,000 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
September 25, 1973	Sewage treatment	A chlorine leak occurred at 505-3 due to equipment failure. Water was applied to dilute.	UNUR01
	Acid #3	14,000 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
	TNT #2	4,500 pounds of oleum and 8,500 pounds of TNT mix were lost due to operational errors. Soda ash was used to neutralize.	SPIL07
September 26, 1973	Acid #3	12,000 pounds of TNT mix sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
September 27, 1973	Acid #3	8,000 pounds of sulfating acid was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
October 03, 1973	Acid #3	1500 pounds of oleum sludge was lost due to tank car cleaning. Soda ash was used to neutralize.	SPIL07
	Acid #3	1,500 pounds of 93 percent sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
October 05, 1973	TNT #1	1000 pounds of bi-oil was lost due to an operational error. Soda ash was used to neutralize.	SPIL07
October 12, 1973	TNT #5	4385 pounds of oleum and 4135 pounds of TNT mix were lost due to operational errors. Soda ash was used to neutralize.	SPIL07
October 14, 1973	Acid #2	A "bad" leak of 93 percent sulfuric acid occurred at tank 801 following a series of errors. Soda ash was used to neutralize.	UNUR01
October 15, 1973	TNT #5	4400 pounds of oleum, 3700 pounds of bi-oil, and 4115 pounds of mixed acid were lost when a charge was drowned at 802-5 due to operator error. Soda ash was applied to the drowning tub and flue to neutralize.	UNUR01, SPIL07
October 16, 1973	Acid #3	2,700 pounds of 68 percent sulfuric sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
November 01, 1973	TNT #2	1600 pounds of bi-oil, 5700 pounds of oleum, and 2810 pounds of TNT mix were lost due to drowning at 802-3. Soda ash was used to neutralize.	UNUR01, SPIL07
November 02, 1973	TNT #1	4,000 pounds of sulfuric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07
November 04, 1973	TNT #2	4,071 pounds of T-mix was lost due to operational error. Soda ash was used to neutralize.	SPIL07
November 06, 1973	Building 717	Mercury was blown from a manometer at the east bench of the instrument shop (Building 717) and sprayed the area. Area was washed.	UNUR01
November 09, 1973	TNT #1	5680 pounds of oleum and 2830 pounds of T-mix were lost due to a hole in the water coil. Soda ash was used to neutralize.	SPIL07
November 12, 1973	TNT #3	2060 pounds of 60 percent nitric acid was lost due to equipment malfunction.	SPIL07
November 20, 1973	TNT #3	4,400 pounds of nitric acid sludge was lost due to tank cleaning for maintenance. Soda ash was used to neutralize.	SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
November 27, 1973	TNT #3	900 pounds of 93 percent sulfuric acid sludge was lost due to cleaning for maintenance. Soda ash was used neutralize.	SPIL07
	TNT #1	2000 pounds of 74 percent sulfuric acid sludge was lost due to cleaning for maintenance. Soda ash was used neutralize.	SPIL07
	TNT #2	A controlled drowning was performed at 802-4 due to operator error and 1370 pounds of T-mix, 5000 pounds of bi-oil, and 7100 pounds of oleum were lost. Soda ash was used to neutralize.	UNUR01, SPIL07
November 30, 1973	TNT #3	A controlled drowning was performed at 801-5 due to operator error. Soda ash was applied to the ditch to neutralize.	UNUR01
December 14, 1973	Acid #3	3200 gallons of #2 fuel oil was lost into Jackson Creek and the Des Plaines River due to a ruptured storage tank outlet valve. Straw was used as a sorbent and valve was replaced.	JAAP01, HIST09, SPIL03, SPIL07
December 15, 1973	Center Toluene Farm	A leak was discovered at bulk storage tank 8 when the U.S. Coast Guard called concerning an oil slick on the Des Planes River. A leaking valve was blocked and gravel was placed in the ditch to prevent further seepage to Jackson Creek. Oil in the moat was allowed to seep into the ground.	UNUR01
December 18, 1973	Sellite	157,400 pounds of sulfur was lost from a tank car (at unloading spot) when a plugged valve was freed and could not be closed.	UNUR01, SPIL03, SPIL07
December 26, 1973	Group 3	50 gallons of fuel oil was lost at the boiler house due to over filling of a storage tank. Straw was used as a sorbent.	JAAP01, UNUR01, SPIL07, HIST09, SPIL03
December 27, 1973	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost due to cleaning of storage tank 620. Soda ash was used neutralize.	UNUR01, SPIL03, SPIL07
	TNT #5	900 pounds of A.O.P nitric acid was lost at 803-9 due to misalignment of a valve which allowed acid to go to drowning tub. Soda ash was added to the TNT ditch at the red water area to neutralize.	UNUR01
January 03, 1974	TNT #4	A charge was drowned at 802-8 due to operator error. 3,390 pounds of bi-oil and 8,520 pounds of TNT mix were lost. Soda ash was used to neutralize.	UNUR01, SPIL07
January 08, 1974	Brown Circle House #11	Less than 10 gallons of fuel oil was lost due to a leak. All of the leak was collected at the Brown Circle sewage plant.	SPIL07
January 09, 1974	Acid #1	5,600 pounds of 98 percent nitric acid was lost at tank 300 in the strong acid mix area due to overfilling. Soda ash was used to neutralize.	UNUR01, SPIL07
January 15, 1974	Acid #1	Less than 25 gallons of oil was lost from the vicinity of the SAC units. Straws, weirs, and wooden floats were used in the cleanup.	SPIL07
January 16, 1974	Acid #3	10,058 pounds of ammonia was lost from storage tank 111 due to a blown rupture disc.	UNUR01, SPIL07
January 18, 1974	Acid #3	16,000 pounds of 98 percent sulfuric acid was lost from tank 408. Soda ash was used to neutralize.	UNUR01, SPIL07
January 24, 1974	Sellite	5,350 pounds of sellite was lost from the #3 sellite storage tank.	UNUR01, SPIL07
January 29, 1974	Acid #3	1,800 pounds oleum was lost from a tank car at car spot 410 during maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
	Acid #1	14,081 pounds of 100 percent nitric acid was lost when water coils inside of NAC tubs 603 and 604 broke. Soda ash was used to neutralize and then the tubs were drained to the sewer.	UNUR01, SPIL07
February 03, 1974	Acid #3	44,061 pounds of 93 percent sulfuric acid was lost from tank 805. Soda ash was used to neutralize.	UNUR01, SPIL04, SPIL07

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SUMMARY OF SIGNIFICANT SPILLS
JOAAP, WILL COUNTY, ILLINOIS

Date	Location	Quantity and Material Spilled	Reference
February 08, 1974	Acid #3	1,000 pounds of sulfuric acid sludge was lost from 612 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04, SPIL07
	Acid #4	6,000 pounds of oleum sludge was lost from tank 801 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04, SPIL07
February 12, 1974	Acid #3 (Center Toluene Farm)	3,200 pounds of toluene was lost due to initial charging and flushing of a new toluene transfer line from the center toluene farm to the TNT #7 storage area.	UNUR01, SPIL04, SPIL07
February 14, 1974	Acid #3	350 pounds 74 percent sulfuric acid was lost at the sales truck spot. Water was used to wash down the area.	UNUR01
February 17, 1974	Acid #3	57,568 pounds of TNT mix was lost TNT mix tank 740 due to over-pumping. Soda ash was used to neutralize.	UNUR01, SPIL04, SPIL07
February 20, 1974	Acid #3	2,760 pounds of 68 percent sulfuric acid was lost from tank 613 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04, SPIL07
February 23, 1974	TNT #3	5,770 pounds oleum and 2,720 pounds TNT mix was lost at 802-6 due to a hole in the goose neck. Soda ash was used during a controlled drowning of the acid.	UNUR01, SPIL04, SPIL07
February 25, 1974	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost from tank 620 during cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL04, SPIL07
March 07, 1974	TNT #3	Mixed acid - 5,670 pounds of oleum, 2,805 pounds of TNT mix, and 3,000 gallons of soda ash was lost at 802-5 due to operator error. Batch was drowned.	UNUR01, SPIL07
March 08, 1974	Acid #3	2,000 pounds of 93 percent sulfuric acid sludge was lost from tank 622 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
March 20, 1974	TNT #4	9,174 ponds of oleum was lost from TNT bulk tank # 8 due to operator error. Soda ash was used to neutralize.	UNUR01, SPIL07
March 23, 1974	Acid #1	3,230 pounds of 93 percent sulfuric acid was lost from tank 403 at valve.	UNUR01, SPIL07
March 25, 1974	TNT #4	5,640 pounds oleum - 2, 000 gallons soda ash, 2,835 pounds of TNT mix, and 1,890 pounds of bi-oil was lost at 802-8 when mechanical failure of the #2 nitrator required that the charge be drowned. Soda ash was used to neutralize.	UNUR01, SPIL07
March 31, 1974	TNT #3	Melt tank in 806-5 overflowed due to open valve. Lagging came off the melt tank bottom.	UNUR01
April 26, 1974	Acid #3	4,055 pounds of ammonia was lost form high pressure storage tank 109 due to blown rupture discs.	UNUR01, SPIL07
May 06, 1974	LAP area gasoline pumps	50 gallons of gas was lost when pump would not shut off. Area was washed down.	UNUR01
May 07, 1974	TNT #4	300 pounds oleum, and one load soda ash was lost due to tank over flow at 802-7 resulting from operator error.	UNUR01
May 08, 1974	Tetryl #2	There was an acid spill 50 feet north of Building 722-5	INCR01
May 13, 1974	Oleum Plant	Sulfur was noted covering an are about 150 by 30 feet starting at Building 1502-2 and extending west to the ditch. A pile of sulfur was also present on the south side of 1502--2 on a concrete slab. Sulfur is also present where rail cars are unloaded and	INCR01
May 17, 1974	TNT #5	5,605 pounds of oleum - 2,885 pounds TNT mix, and one load soda ash was lost to drowning tub at 802-9 due to operator error.	UNUR01, SPIL05, SPIL07
May 18, 1974	Sellite	Extensive fire damage to Building 307-1 occurred probably caused by spontaneous ignition in sulfur pit. A loss of materials was reported.	UNUR01
May 21, 1974	Acid #3	10,000 pounds of F-60 sludge was lost from tank 718 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05, SPIL07
May 28, 1974	Acid # 1	9,385 pounds of nitric acid crystals and sludge were lost due to maintenance purposes. Soda ash was used to neutralized.	SPIL05, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
May 29, 1974	Acid #1	1,100 pounds of nitric acid crystals and sludge was lost from tank 701 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05, SPIL07
May 30, 1974	Acid #1	9,385 pounds of strong nitric crystals and sludge was lost from 300 and 700 tanks due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL05, SPIL07
May 31, 1974	Acid #4	Rupture of an underground waste water line flushed oil residues from the ground at fuel oil unloading spot into a drainage ditch causing an oil sheen. Water line was repaired and oil retention materials were distributed in the ditch.	UNUR01, SPIL07
June 11, 1974	Acid #1	9,613 pounds of strong nitric acid sludge was lost from tank 301 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
June 20, 1974	Acid #3	5,702 pounds of summer T-mix sludge was lost from tank 706 due to cleaning for maintenance. Soda ash was used to neutralize.	UNUR01, SPIL07
July 03, 1974	TNT #5	900 pounds of bi-waste and bi-oil was lost at 803-9 due to operator error.	UNUR01
July 18, 1974	TNT #8	5,100 pounds of oleum was lost due to a tank leak. Soda ash was used to neutralize.	SPIL07
August 08, 1974	Acid #1	4,360 pounds of TNT mix sludge was lost from tank 709 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
August 09, 1974	Acid #1	4,362 pounds of TNT mix sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
August 11, 1974	Acid #2	2,850 pounds of weak nitric acid was lost at tank 204 due to operator error. Drainage ditch was blocked to prevent migration to public waters. Soda ash was used to neutralize.	UNUR01, SPIL07
August 12, 1974	Acid #1	3,121 pounds of TNT mix sludge was lost from tank 707 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
August 15, 1974	Acid #1	1,123 pounds of TNT mix sludge was lost from tank 706 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
August 16, 1974	Acid #1	4,362 pounds of TNT summer mix sludge was lost from tank 705 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
August 19, 1974	Acid #1	2,046 pounds of TNT summer mix sludge was lost from tank 703 due to cleaning. Soda ash was used to neutralize.	SPIL07
August 20, 1974	Acid #1	4,362 pounds of TNT summer mix sludge was lost from tank 704 due to cleaning. Soda ash was used to neutralize.	SPIL07
August 26, 1974	Acid #1 TNT	44,730 pounds of weak nitric acid was lost from 209 and 210 tanks. 800 gallons of waste acid was lost from a leaking truck to ditch east of TNT AFR building. Leak was contained in ditch.	UNUR01, SPIL07 UNUR01
August 28, 1974	Acid #1	8,762 pounds of TNT summer mix sludge was lost from tank 713 due to cleaning. Soda ash was used to neutralize.	SPIL07
August 30, 1974	Acid #1	3,121 pounds of TNT summer mix sludge was lost from tank 712 due to cleaning. Soda ash was used to neutralize.	SPIL07
September 06, 1974	Acid #1 Acid #1	12,723 pounds of sulfuric acid sludge was lost from tank 802 due to cleaning. Soda ash was used neutralize. 12,723 pounds of sulfuric acid sludge was lost from tank 801 due to cleaning. Soda ash was used neutralize.	UNUR01, SPIL07 UNUR01, SPIL07
September 07, 1974	TNT #4	4,420 pounds of oleum was lost from 802-7 when the material was drowned. Material was then neutralized.	UNUR01, SPIL07
September 13, 1974	Acid #1	42,410 pounds of 93 percent sulfuric acid sludge was lost from tank 805 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
September 14, 1974	TNT #4	1,250 pounds of waste acid was drowned at 801-7 due to operator error. Soda ash was used to neutralize.	UNUR01, SPIL07
September 24, 1974	Acid #1	42,410 pounds of 93 percent sulfuric acid sludge was lost from tank 804 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07

TABLE 4-12
SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
September 25, 1974	Acid #1	33,928 pounds of 93 percent sulfuric acid sludge was lost from tank 806 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
September 30, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid residuals was lost from tank 401 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
October 01, 1974	Acid #1	21,205 pounds of 93 percent sulfuric acid residuals was lost from tank 403 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
October 02, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid residuals was lost from tank 405 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
October 09, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid sludge was lost from tank 501 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
October 10, 1974	Acid #1	25,446 pounds of 93 percent sulfuric acid sludge was lost from tank 502 due to cleaning. Soda ash was used to neutralize.	UNUR01, SPIL07
October 25, 1974	TNT #4	200 gallons of oleum was lost at 802-8 due to operator error. Soda ash was used neutralize.	UNUR01, SPIL07
October 26, 1974	Acid #3	9,736 pounds of 98 percent nitric acid was lost at tank car spot 407 1/2 due to operator error. Soda ash was used to neutralize.	UNUR01, SPIL07
November 14, 1974	Acid #4	4,000 pounds of anhydrous ammonia was discharged in order to perform service on line.	UNUR01
November 16, 1974	Acid #3	39,380 pounds of 74 percent residual was lost at tank 604 riser spool. Soda ash was used to neutralize.	UNUR01,SPIL07
November 21, 1974	TNT #5	3,780 pounds of DNT was lost at 852-5 due to operator error.	UNUR01,SPIL07
November 22, 1974	TNT #4	1,000 pounds of bi-oil was added to #2 nitrator in 802-8 when a mechanical failure necessitated the drowning of the charge. Soda ash was added to the ditch to neutralize.	UNUR01
December 26, 1974	Acid #3	496 gallons of #2 fuel oil was lost at the fuel oil spot due to operator error. Straw was spread to absorb the oil.	UNUR01, SPIL06,SPIL07
January, 1975		No significant spills reported.	UCCI09
February, 1975		No significant spills reported.	UCCI09
February 28, 1975	Redwater	10,188 gallons of thick liquor was lost at a valve between 868-3 & 4 tanks due to gasket failure. Gravel and rock in the area was excavated and replaced.	UNUR01
March, 1975		No significant spills reported.	UCCI09
April 21,1975	Acid #3	There were two acid leaks, north east and northwest of tank 409	INCR01
April, 1975		No significant spills reported.	UCCI09
May, 1975		No significant spills reported.	UCCI09
May 22, 1975	Acid #2	Strong nitric acid was lost at car spot 207 due to overfilling of a tank car. Volume lost is unknown. Soda ash was used to neutralize.	UNUR01
May 28, 1975	Acid #1	9,385 pounds of strong nitric crystals and sludge was lost from tanks 302 and 702 due to cleaning. Soda ash was used to neutralize.	UNUR01
June 10, 1975	Acid #3	There was an acid leak at the man hole of tank 404.	INCR01
June 19, 1975	Acid #4	All attempts at commissioning the direct strong nitric acid unit were suspended until August as leaks had developed in the storage tanks which could not be readily repaired.	HIST11
June, 1975		No significant spills reported.	UCCI09
July, 1975		No significant spills reported.	UCCI09
August, 1975		No significant spills reported.	UCCI09

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SUMMARY OF SIGNIFICANT SPILLS
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Date	Location	Quantity and Material Spilled	Reference
September 10, 1975	Acid #3	240 gallons of #2 fuel oil was discharged to Goose Creek when a rubber fitting ruptured on feed to SAC unit. Straw, sorbent booms, and pumps were used to clean up spill.	UCCI09
October, 1975		No significant spills reported.	UCCI09
November, 1975		No significant spills reported.	UCCI09
December, 1975		No significant spills reported.	UCCI09
January, 1976		No significant spills reported.	UCCI09
February, 1976		No significant spills reported.	UCCI09
March, 1976		No significant spills reported.	UCCI09
April 27, 1976	TNT # 1	Oleum leak occurred in TNT #1 area where acid line crosses road.	INCR01
May 01, 1977	Sellite Area	Water was running out of the east door of Building 307 into sellite from the aerator on the floor of the change house.	INCR01
May 18, 1977	TNT #8	300 pounds of toluene, 1,000 pounds of soda ash, 7000 of oleum, and 300 pounds of strong nitric acid was lost from the #4 nitrator on Line 16 when a charge was drowned.	UNUR01
March, 1980		An oil spill from the drum storage area affected Goose Creek. Plant personnel were able to prevent off-site migration.	HIST32
June 03, 1985	Group 5	During transport of 16 45-pound drums of Explosive B, Class 1.3C Hercules smokeless propellant along a ramp from Building 5-6 to 5-14, 12 drums fell from the forklift. One drum of propellant deflagrated consuming the forklift. The fire was extinguished	HWYL06
December 01, 1986	Group 8	At the cartridge case demil machine in Building 8-9, 11 primers from 25mm cartridge cases detonated.	HWYL03
December 02, 1986	Group 8	At the cartridge case demil machine in Building 8-9, 400 primers from 25mm cartridge cases simultaneously detonated. The blown primers were scattered throughout the room.	HWYL03
July 23, 1990	Group 68	Two drums of explosive sludge (AMX-001 and water) in a trailer adjacent to Building 68-15 ignited spontaneously. AMX-001 contains PBX-N5 (HMX and a plasticizer) and aluminum.	HYWL08
August 28, 1991	LAP Gate #4	15 to 20 gallons of hydraulic oil leaked from a truck on to the road. Uniroyal responded to contain the spill.	UNUR01
June 06, 1994	Group 20	Wastewater entering the sewage treatment plant was observed to contain oil. The source of oil was apparently a UST removal in the vicinity. Manholes and sewer lines in the area were cleaned up.	DOTA04
1994	Group 3A	A discharge from an air compressor blowdown had an oily appearance. Dye testing was proposed to confirm the source so that remediation could be performed.	DOTA04
	Group 7	The group power house or cooling jacket appeared to be the source of a discharge emanating from the building. Dye testing was proposed to confirm the source so that remediation could be performed.	DOTA04
	Group 8	A discharge was noted from Building 8-8. Dye testing was proposed to confirm the source so that remediation could be performed.	DOTA04

Note: The summary presented in the table includes all of the significant spill reports found. However, not all of the monthly reports were found.
Monthly spill reporting was discontinued in March 1976 and was then done as spills occurred.

TABLE 4-13
SUMMARY OF OTHER FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
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Section	Building	Description	Status	Latitude	Longitude	Comments
L6 T		Group 70 Industrial Park Portion				
	70-5	Material Warehouse (In use by	P			In 1990, this building was operated by Honeywell, INC.
			P			In 1968 this building was used for LAP Reproduction.
			P			Alliant boiler in building was propane fired. (4/97)
			P			Alliant used building for general stores and offices. (4/97)
	70-6	Facilities Warehouse/Pipe shop	P			Fluorescent tubes containing Beryllium phosphor were broken underwater in an enclosed container prior to disposal.
			P			There are 2 yellow 4 inch cast iron pipes with 3-foot stickups. One is a vent, the other could be a fill pipe. No equipment is likely tied to a underground storage tank here.
			P			An early map of the Group identifies this building as a pipe shop.
	70-7	Machine Shop (DIPEC Storage)	S			Nuisance dust was generated from machining operations. Arc and Acetylene welding was done here.
						Buffing and grinding generated metal dust which was controlled by ventilation. Coolants were used during machining.
			P			Large equipment is stored in this building.
	70-8	Combined Facilities Shops	P			Arc and Acetylene welding was conducted here.
	70-43	Central Heating Plant	P			The No. 2 Boiler was repaired after the explosion on February 23, 1972.
L11		Test Site	S			Metals - Remediation of soil contamination may be necessary
			P			Ammunition was sectioned with a saw so that the cast section could be inspected.
						There is no knowledge of loading of chemical and biological materials. (9/96)
			P	041:20:27.0	88:04:41.7	There are two concrete pads with bars running between them in this area. (11/96)
			P	041:20:27.5	88:04:42.7	There is a 4 by 4 feet concrete pad, two capped 4 inch pipes and a 2 inch capped pipe standing up 300 feet west of Building 1-49. (11/96)
L14 T		Group 4 Industrial Park Portion	P	041:20:32.8	88:07:10.2	On the southern perimeter, there is a sewer outfall, about 14 inches diameter, flowing into a ditch which runs east-west along the section boundary. The sewer is located 80 yards south of building 4-7.
						There is a one inch cable coming out of the sewer and entering a galvanized rectangular pole. (slated for Industrial Park). (11/96)
			A			No other environmental concerns were observed here. (slated for Industrial Park). (11/96)
L15 T		Group 5 Industrial Park Portion	A			No environmental concerns were observed in this portion of section to be transferred for use as an Industrial Park. (11/96)

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Section	Building	Description	Status	Latitude	Longitude	Comments
L16		Group 6	S			Metals and Anions - Remediation of soil may be necessary for explosives. Contamination of sediment also a concern.
			P			In 1990, this area was operated by Honeywell, Inc.
			P	041:20:27.2	88:07:33.4	The hose attached to sump pump at loading dock on the west side of Building 6-6 discharges to the ground on the south side of the southern most loading dock. No stains were observed. (11/96)
	6-6	Booster Assembly	P			Alliant is presently using this building. (11/96)
	6-8	Change House - Women	P			In 1968 this building was used as Headquarters of LAP Munitions Training (Fork lift school, Drivers Test, Munitions school).
	6-9	Jumble & Jolt Booster Test	P			This building contains a pile of black toned material, probably for road maintenance. (11/96)
	6-36	Vacuum Pump House	P	041:20:22.2	88:07:30.3	The floors in this building are gravel. (11/96)
	6-37	Vacuum Pump House	P	041:20:23.3	88:07:30.5	The floors of this building are gravel. (11/96)
L17		Group 7	S			Metals and Anions - Media of concern: Groundwater, sediment. Metals, SVOC's, and Phosphorous - Contamination significant enough to warrant remediation was not detected during the investigation phase. No further action planned.
			P			A total of 2,574,562 40MM, XM576E1 rounds were produced through the month of November 1970, at which time the Group was deactivated.
			P			A final acceptance of layaway of Group 7, 40mm, XM 576 line was conducted on May 16, 1973.
			P			The production of 40MM Cartridges here marked the first use of an automated production lines at JAAP.
			P			In 1990, this area was operated by Honeywell, Inc.
			P	041:20:29.3	88:07:16.5	In the 10 by 10 feet excavated area behind Building 6-19 there are several pipes sticking up. (11/96)
			P			There is exhaust on the south side of Building 7-3 from the ventilation system. There is no stained soil. There are broken clay pipes around the perimeter of the building. (11/96)
	6-19	First Aid Building	P			It appears that this building may have a generator in it. (11/96)
	7-10	Power House	P			Discharge emanating from the building has the potential to impact the storm water system. Confirmation of the source by dye testing and corrective action proposed for January 1995.
L32		Group 60	P			Oil - This area apparently used by residents as an unauthorized dumping ground. PAH levels are below PRGs.

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Section	Building	Description	Status	Latitude	Longitude	Comments
L32		Group 60	P			The Department of Labor granted a permit providing the Department of Labor right of access to establish a Job Corps Center in this area. The center housed some 400 students and 125 staff members. The center was operated by RCA Corporation for the Department of Labor and was in operation during calendar year 1980.
			P			Alliant has a building in this group which is a telephone hub.
	60-1	Administration Building	P			In 1973, equipment for making microfilm records has been procured and installed here.
			P			In 1968 this building was used as an APSA Library.
	60-4	Mess Hall	P			Building is structurally unsound in some areas.
	60-7	Fire Station	P			There was a gas pump near stand of trees about 100 feet east of this building.
			P			In 1968 this building was used as a Communications Headquarters.
	60-8	Hospital	R			In January 1974, the main hospital was moved from the Munition Unit to the Explosives Unit Building 705.
			S			Lead - This building originally had lead wall shielding for hospital x-ray facilities. It is not known if the Job Corps removed this lead sheeting during remodeling. There is no visible evidence, but it is possible that it was covered up and still remains.
			P			The floor is in poor condition. There are 2 large, wet cell batteries inside the building.
			P			In 1968 this building was used as a COR and Hospital.
	60-9	Officer's Club	P			Building is empty and the floor is not sound.
	60-11	General Heating Plant	P			Lead acid battery
			R			Two drums in this building are being removed, as part of the 1997 removal action in this area.
	60-13	Record Storage Building	P			Building is empty.
L115		PAS Survey Section L115 - Ind. Park	P	041:20:28.8	88:05:41.6	Solid waste; rubble piles and foundation.
			P	041:20:12.6	88:05:52.1	Foundations in plant construction area along south fence line.
			P	041:20:07.2	88:05:47.5	One slab about 8 by 8 feet with a 2 inch capped pipe.
			A			Agricultural Tract 59 is located within this section. In 1990, four sediment samples were collected from the dutch draining Group 70 and lying adjacent to Tract 59. The samples were analyzed for anions, metals, and explosives. Anions and metals were detected but levels were not high enough to impact agricultural leasing.

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Section	Building	Description	Status	Latitude	Longitude	Comments
L115		PAS Survey Section L115 - Ind. Park	R			Former Group 73, which has been demolished is located in the southeast corner of this area. This group housed construction offices for LAP, as well as: Heavy Equipment Storage Garage, Warehouse, Boiler House, and Repair Shop.
L122		PAS Survey Section L122	A			This is the portion L112 which is considered agricultural tract 57. The current lessee has held a lease on this track for two years. No environmental concerns were addressed in the lessee questionnaire.
			P	041:20:23.2	88:06:40.9	A manhole was caving in on the northeast. (11/96)
			S			No environmental concern was apparent. (11/96)
M5		Tetryl Production Area	P			From previous sampling: Anions and metals detected in groundwater, surface water, and sediments; and trace organics in surface water and sediments.
			P			Many underground leaks showed up prior to and shortly after the official start-up.
			A			Soil samples for agricultural tract 113 were taken in August 1990. The samples appear to be environmentally sound.
			P	041:22:38.9	88:09:10.5	Outfall to creek from Tetryl Area
			P	041:22:58.2	88:09:38.1	The 2 acre excavated area of northwest portion of this area contains some concrete debris. No environmental concerns were noted. (11/96)
			P	041:22:39.6	88:09:33.9	A pile of woody debris, scattered crates and pallets, and four 12 inch diameter pipe segments are in this area.
	707-12	Change House	P	041:22:59.8	88:09:02.3	There is a grate in front of each door with a 24 inch pipe, end up, underneath. A small pipe is discharging into the top of a larger pipe. (11/96)
	722-8	Area Shop	P	041:22:56.3	88:09:04.0	Four circular steel screens are present here. There is also a spare parts bin with a sign indicating that grinding occurred here. (11/96)
	1001-2	Sulphating House	P			Lead-The ground floor is of concrete and the second floor is of sheet lead over wood.
	1002-1	Nitrating House	P			Lead - floor finish
	1002-2	Nitrating House	P			Lead - floor finish
			P			On May 17, 1943, a fire, which was extinguished by the sprinkler system, occurred on the acid nutsch immediately after a charge from the south nitrator had been dropped to the nutsch.
	1002-3	Nitrating House	P			Lead - floor finish
	1002-4	Nitrating House	P			Lead - floor finish
	1002-5	Nitrating House	P.			Lead - floor finish
	1002-6	Nitrating House	P			Lead - floor finish
	1002-7	Nitrating House	P			Lead - Ground floor is sheet lead over concrete and the second and third floors are sheet lead over wood; lead neutralizer tub and most of the lead piping is located from the ground level to the second floor.

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M5	1002-8	Nitrating House	P			Lead - Ground floor is sheet lead over concrete and the second and third floors are sheet lead over wood; lead neutralizer tub and most of the lead piping is located from the ground level to the second floor.
	1002-9	Nitrating House	P			Lead - The ground floor is concrete covered with sheet lead. The second and third floors are wood covered with sheet lead.
	1002-10	Nitrating House	P	041:22:54.5	88:09:03.5	Lead - Ground floor is sheet lead over concrete and the second and third floors are sheet lead over wood; lead neutralizer tub and most of the lead piping is located from the ground level to the second floor.
			P	041:22:54.5	88:09:03.5	There is a 8 foot diameter, round tub outside of this building. There is rusted and corroding equipment remaining inside of this building. (11/96)
	1002-11	Nitrating House	P			Lead - Ground floor is sheet lead over concrete and the second and third floors are sheet lead over wood; lead neutralizer tub and most of the lead piping is located from the ground level to the second floor.
			P			Lead - floor finish
	1002-12	Nitrating House	P			Lead - Ground floor is sheet lead over concrete and the second and third floors are sheet lead over wood; lead neutralizer tub and most of the lead piping is located from the ground level to the second floor.
	1003-1	Refinery	P			Lead - floor finish
	1003-2	Refinery	P			Lead - floor finish
	1003-3	Refinery	P			Lead - floor finish
	1003-4	Refinery	P			Lead - floor finish
	1003-5	Refinery	P			Lead - floor finish
	1003-6	Refinery	P			Lead - floor finish
	1003-7	Refinery	P			Lead - The ground floor is concrete covered with sheet lead. The second and third floors are wood covered with sheet lead. Shaft - Elevator shaft in northeast corner,
	1003-8	Refinery	P			Lead - Ground floor is sheet lead over concrete. The second and third floors are sheet lead over wood. Shaft - Elevator shaft in northeast corner.
	1003-9	Refinery	P			Lead - Ground floor is sheet lead over concrete. The second and third floors are sheet lead over wood. Shaft - Elevator shaft in northeast corner.
	1003-10	Refinery	P	041:22:55.0	88:09:08.4	Lead - The ground floor is concrete covered with sheet lead. The second and third floors are wood covered with sheet lead. Shaft - Elevator shaft in northeast corner.
			P	041:22:55.0	88:09:08.4	Tetryl refining in this building involved shovelling tetryl into a shaker. No tetryl was detected in air samples during this operation in 1971.

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Section	Building	Description	Status	Latitude	Longitude	Comments
M5	1003-10	Refinery	P	041:22:55.0	88:09:08.4	There is a scale and scale pit at the northeast corner of the building. At the entrance there are brushes for boot wiping. There is also equipment present and a 8 foot by 4 foot tub with discharge pipe to tile drain. (11/96)
	1003-11	Refinery	P			Lead - The ground floor is concrete covered with sheet lead. The second and third floors are wood covered with sheet lead. Shaft - Elevator shaft in northeast corner.
	1003-12	Refinery	P			Lead - Ground floor is sheet lead over concrete. The second and third floors are sheet lead over wood. Shaft - Elevator shaft in northeast corner.
	1004-10	Lag Storage	P	041:22:48.1	88:09:02.8	There are powder buggies stored inside this building. (11/96)
	1005-10	Dry Storage	P	041:22:54.6	88:09:02.2	Drying screens and carts are stored inside this building. (11/96)
	1008-2	Acid & Fume Recovery House	P	041:22:55.9	88:09:05.7	Vegetation appears stressed under tanks. A 10 foot diameter, 4 foot tall pipe is set in concrete with plumbing from waste acid. (11/96)
	1009-1-1	Box Packing House	P	041:22:42.4	88:09:26.3	Lab - portions of this building were used as labs.
			R	041:22:42.4	88:09:26.3	In 1944, this building was used as a Tetryl Storage Container.
	1009-1-2	Shipping House	P	041:22:37.4	88:09:21.0	This building is surrounded by a wood barricade on the south and west sides. (11/96)
	1009-2-1	Box Packing House	P	041:22:39.8	88:09:01.1	Lab - portions of this building were used as labs.
			R	041:22:39.8	88:09:01.1	In 1944, this building was used as a Tetryl Storage Container.
			P	041:22:39.8	88:09:01.1	There is a 24 inch pipe on the north side, possibly for condensate. There is also a dust collection tank and a stainless steel tank, 3 foot diameter 4 feet tall, at this building. (11/96)
M6		TNT Ditch Complex	P			From previous sampling, anions were detected in the soil, groundwater, surface water and sediments; metals in groundwater, surface water and sediments; and trace organics in the groundwater and surface water.
			P			The water test for line 16 was completed on May 6, 1978. The official ten-day live prove-out began on June 22 and was completed on July 1. Lost time incurred due to computer drowning of nitrator No. 4. Decontamination of line 16 was completed on September 30, 1977.
			P			An incident, in which lubricants in a pressure gauge were accidently nitrated and subsequently detonated, occurred in the Pilot Plant.
			P			Process cooling waters used in each batch production step, and during acid recovery, were discharged into a trough system which flowed into this area. Occasionally large volumes of highly contaminated water were discharged.

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Section	Building	Description	Status	Latitude	Longitude	Comments
M6		TNT Ditch Complex	P	041:24:00.0	88:09:26.7	There is a flume, running east to west, south of Building 852-6. The flume originates at the tanks at Building 852-6 and is made of a half clay tile. (11/96)
			P			There are several covered pits adjacent to Building 883-2 on the west side. The largest pit has overflow discharge to the ground. (11/96)
			P	041:24:03.3	88:09:31.1	There is a large 30 by 30 by 10 feet secondary containment structure with tanks in side at this site. Yellow water flume originates from north of Building 875-4. The concrete is eroded at intake. (11/96)
			P			The northern portion of M6 is criss-crossed by conveyor belt systems and insulated waterwash lines that connect the TNT lines. (11/96)
			P			In late 1958, a pilot plant was established in the TNT batch line where the continuous nitration could be further evaluated and improved upon and also to work on the continuous selliting purification of TNT. On #12 TNT line a new building was constructed to house the nitrators; the batch house was stripped of equipment and used to house the continuous purification equipment; and the control board was housed in the existing building from a previous experiment with mechanizing the TNT batch process. The final pilot plant was operated over a period of 18 months for evaluation. A total of 350,000 pounds of specification grade TNT was produced at rates up to 600 pounds per hour of acid free crude TNT. Complete conversion to TNT was obtained, using mixed acid containing no oleum. Continuous nitration of DNT and nirtobenzene took place.
	601-201	Dock Loading Station	P	041:23:59.5	88:09:43.1	Inside the building, there are conveyor rollers that seem to originate from TNT lines 16, 17, 18. (11/96)
	706-1	Laboratory	P	041:23:26.0	88:09:58.3	Lab - portions of this building were used as labs.
			P	041:23:26.0	88:09:58.3	This building has no roof. There were no other environmental concerns identified. (11/96)
	706-2	Laboratory	P			Lab - portions of this building were used as labs.
	706-3	Laboratory	P			All process control testing was consolidated in this laboratory. Testing both acids and TNT was involved.
			P			The Tetryl Laboratory was closed in or about 1971, and its functions were transferred to this building.
	706-4	Laboratory	P			Lab - portions of this building were used as labs.
	706-5	Laboratory	P	041:23:43.5	88:09:25.8	Lab - portions of this building were used as labs.

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Section	Building	Description	Status	Latitude	Longitude	Comments
M6	706-5	Laboratory	P	041:23:43.5	88:09:25.8	There is a 7 by 4 feet, irregular stain on the floor in the north side of the building. A concrete pad is present on the west side of the building. There are pipes from the building over the pad. The concrete is corroded. Several fume hoods, hoods in line with on end pipes, drain outside of building. (11/96)
	706-6	Laboratory	P			Lab - portions of this building were used as labs.
	715-10	Storage Solvent	P	041:23:59.1	88:10:04.0	This building is empty. (11/96)
	715-15	Storage Oil & Paint	P			This is a sheet metal building. (4/97)
	722-6	Area Shop	A	041:23:27.2	88:09:09.3	An inspection of this building did not reveal the presence of a shop, but rather an office. No obvious areas of solvent storage, floor drains, or other potential source areas were observed. It is possible that prior to its use as an office, the building was a shop area.
	801-1	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-2	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-3	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-4	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-5	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-6	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-7	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-8	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-9	Mono-Nitrating House	P	041:23:46.1	88:09:31.0	There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
			P	041:23:46.1	88:09:31.0	Equipment, 3 tanks and mixing bath, is present in this building. At each door of the building vegetation is stressed. There is a stain extending from the pump to floor drains. The concrete is cracked near the pump. There are also cracks in the concrete floor. (11/96)
	801-10	Mono-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	801-11	Mono-Nitrating House	P			Lead - floor finish

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M6	801-12	Mono Nitrating House	P			Lead - floor finish
	802-1	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-2	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-3	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-4	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-5	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-6	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-7	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-8	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-9	Tri-Nitrating House	P	041:23:45.3	88:09:33.8	There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
			P	041:23:45.3	88:09:33.8	There are several on end pipes around this building. The floors of this building are lead covered. (11/96)
	802-10	Tri-Nitrating House	P			There are two floors in each building. The upper floors are wood with 8 pound lead covering, while the lower floors are uncovered concrete.
	802-11	Tri-Nitrating House	P			Lead - floor finish
	802-12	Tri-Nitrating House	P			Lead - floor finish
	803-9	Bi-Fortifying House	P	041:23:43.7	88:09:32.0	There is a concrete lined, covered pit 15 feet deep and a 10 foot long 4 foot diameter tank east of this building. The equipment tag states "Monomix Blow Case". Below grade level (inaccessible, but visible through grating) contains a storage tank and a debris collector. (11/96)
	803-AA	Bi-Fortifier, Line #1	P			Oil-Explosion in the building on August 19, 1942.
	806-1	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
			P			The old steam water motivation system was converted to oil and electric.
	806-2	Wash House	P	041:23:03.4	88:09:50.3	Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
			P	041:23:03.4	88:09:50.3	The old steam water motivation system was converted to oil and electric.

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Section	Building	Description	Status	Latitude	Longitude	Comments
M6	806-3	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-4	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-5	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-6	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-7	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-8	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-9	Wash House	P			Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
	806-10	Wash House	P	041:23:53.1	88:09:34.0	Lead-The first and third floors are concrete and the second floors are wood with 8 lb. lead sheeting.
			P	041:23:53.1	88:09:34.0	There is an elevator in this building. The pit is not very visible. There is some water in the pit. It may be a contaminant trap. The concrete slab in this building is cracked. Stains are present on the second floor of this building, 1 foot by 6 inches. (11/96)
	806-11	Wash House	P			Lead - floor finish
	806-12	Wash House	P			No apparent environmental concerns in this poured concrete structure.
	808-1	Nailing House	P	041:23:12.1	88:09:52.2	There is a crawl space under this building. (11/96)
	812-9	Acid & Fume Recovery House	P	041:23:52.4	88:09:36.9	There are 10 clay towers at this building. (11/96)
	852-1	Sweating & Graining House	P			Lead-The upper floor rests on steel beams and consist of 1-1/2 inch tongue and groove planks covered with 8 pound lead.
	852-2	Sweating & Graining House	P			Lead-The upper floor rests on steel beams and consist of 1-1/2 inch tongue and groove planks covered with 8 pound lead.
	852-3	Sweating & Graining House	P			Lead-The upper floor rests on steel beams and consist of 1-1/2 inch tongue and groove planks covered with 8 pound lead.
	852-4	Sweating & Graining House	P			Lead-The upper floor rests on steel beams and consist of 1-1/2 inch tongue and groove planks covered with 8 pound lead.
			P			Catch boxes were replaced in this building.
	852-5	Sweating & Graining House	P	041:23:49.7	88:09:27.4	Lead-The upper floor rests on steel beams and consist of 1-1/2 inch tongue and groove planks covered with 8 pound lead.

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Section	Building	Description	Status	Latitude	Longitude	Comments
M6	852-5	Sweating & Graining House	P	041:23:49.7	88:09:27.4	Catch boxes were replaced in this building.
			P	041:23:49.7	88:09:27.4	Equipment is present in this building. There is some staining around the equipment. (11/96)
	852-6	Sweating & Graining House	P			Lead-The upper floor rests on steel beams and consist of 1-1/2 inch tongue and groove planks covered with 8 pound lead.
	855-1	DNT Nitrating House	P			Lead-Steel beams support the second and third floors, which are constructed of wooden planks covered with 8 pound lead.
	855-2	DNT Nitrating House	P			Lead-Steel beams support the second and third floors, which are constructed of wooden planks covered with 8 pound lead.
	855-3	DNT Nitrating House	P			Lead-Steel beams support the second and third floors, which are constructed of wooden planks covered with 8 pound lead.
	855-4	DNT Nitrating House	P			Lead-Steel beams support the second and third floors, which are constructed of wooden planks covered with 8 pound lead.
	855-5	DNT Nitrating House	P	041:23:46.4	88:09:29.9	Lead-Steel beams support the second and third floors, which are constructed of wooden planks covered with 8 pound lead.
	855-5	DNT Nitrating House	P	041:23:46.4	88:09:29.9	The upper floors of this building are inaccessible.(11/96)
	855-6	DNT Nitrating House	P			Lead-Steel beams support the second and third floors, which are constructed of wooden planks covered with 8 pound lead.
	870-2	Finishing Box Unloading and As	P	041:24:17.8	88:09:28.7	There is some equipment inside this building. Some of it is rusting. There was also a conveyor roller inside this building. (11/96)
	871-2	AFR Control Building	P			Miscellaneous electrical equipment and spare parts are stored in this building. (11/96)
	872-1	Nitration & Purification Building	P			This building contained 6" PVC drainage piping for settling pits.
	872-2	Nitration & Purification Building	P	041:24:11.5	88:09:27.2	This building is structurally sound and has 3 subterranean levels, the lowest of which is flooded with 6 inches of water. (11/96)
	872-6	Nitration & Purification Build	P			This building contained 6" PVC drainage piping for settling pits.
	875-2	Utility Building	P			This building is empty. The building has large electrical control panels. (11/96)
	882-1	D.D.C. Remote Control Building	P			This building contains a series of computers and a half dozen computer terminals. The building is entirely made of concrete. (11/96)
	1011-45		P	041:24:08.5	88:09:39.8	This is a barricade, the side of which are reinforced by treated wood. (11/96)
M7		Red Water Area	S			The Liner is not intact around the lagoon. It appears that segments ripped at the edges and then slid down the lagoon. Therefore, it is very possible that water is under the liner as well as gas.

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M7		Red Water Area	P			From previous sampling, explosives, anions, and metals detected in soil, groundwater, surface water, and sediments. Trace organics in groundwater.
			P			It was standing operating procedures to hose down all tanks, platforms, and stairways at tanks at least once during each shift.
			P			The raw waste, neutral waste and thick liquor storage tanks developed leaking bottoms. A repair program was implemented with outside contractors and good progress was made in overcoming the problem.
			R			The sludge, liner and water remaining in the lagoon were removed in 1985 and replaced with a one foot clay cap. The cap was graded to provide surface water drainage to one end of the former lagoon area, where the berm has been breached to prevent surficial ponding. Potentially contaminated groundwater, surface water and soil remaining in this site are of concern in this area.
			P			Sellite washwater, used to remove impurities from TNT, was concentrated by evaporation and the remaining thick liquor was incinerated at this plant.
			P			Solid wastes were generated in the Red Water Plant rotary kiln incinerator. The ash produced in this process was stockpiled on landfill area. A portion of the ash was sold as raw material to industrial plants.
			R			The sale of the entire output of the Red Water Plant by-products continued through March 1976.
			P			The red water lagoon was observed and almost no sign of it was found except for the berms on its perimeter. (11/96)
			P	041:22:44.8	88:09:46.4	There is an abandoned trailer at the southern tip of M7. Trailer full of 18 drums, all rusted in and out, most of them open. The truck is painted in military color. There is a stream flowing at this location with growing strands of algae.
			P			The dike at the red water pond was repaired in April 1979 to prevent overflow to TNT ditch.
			P			Fly ash from North Boiler Plant was discharged to Jackson Creek. FY 70 funds were approved to convert coal burning equipment to gas to eliminate this pollution. The South Power Plant fly ash was discharged to gravel pit (M13).
	860-2	Evaporator Building #2	P			A 1971 industrial hygiene survey indicates disposing of red water took place in this building.
			P			This building is 5 stories high. There are lots of animal droppings inside of the building. (11/96)

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M7	860-4	Carbon Treatment Building	P	041:23:00.8	88:09:44.8	This building is relatively in good shape, clean, and about 6 stories tall. There is a 100 yard pipe that connects this building to building 860-5. (11/96)
	861-2	Incinerator Building #2	P	041:23:01.5	88:09:49.7	This building contains 2 large brick lined combustion chambers that harbored some ash remnants of a reddish bown color. Other machinery is also present. (11/96)
	861-7	Ash Elevator Building #1	P			This building receives ducts from building 861-1 and 861-2. These buildings are incinerator buildings. (11/96)
	862-3	Ash Cooling & Water Lift Station	P	041:23:00.0	88:09:52.0	This is a flooded manhole like structure with an electric switch box like structure not securibly covered. (11/96)
	864-1	Neutral Waste Storage Tank #1	P			Storm drainage may be contaminated.
	864-2	Neutral Waste Storage Tank #2	P	041:23:03.6	88:09:53.8	Storm drainage may be contaminated.
	864-2	Neutral Waste Storage Tank #2	P	041:23:03.6	88:09:53.8	There appears to be water draining out of this badly rusted tank. (11/96)
	864-3	Neutral Waste Storage Tank #3	P			Storm drainage may be contaminated.
	865-1	Raw Waste Storage Tank #1	P			Storm drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
	865-2	Raw Waste Storage Tank #2	P			Storm drainage may be contaminated.
	865-2	Raw Waste Storage Tank #2	P			In 1973, new bottoms were installed in tanks.
	865-3	Raw Waste Storage Tank #3	P			Storm drainage may be contaminated.
	866-1	Condensate Storage Tank #1	P			Storm drainage may be contaminated.
	866-2	Condensate Storage Tank #2	P			Storm drainage may be contaminated.
	866-3	Condensate Storage Tank #3	P			Storm drainage may be contaminated.
	868-1	Thick Liquor Storage Tank #1	P			Storm drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
	868-2	Thick Liquor Storage Tank #2	P			Storm drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
	868-3	Thick Liquor Storage Tank #3	P			Storm drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
	868-4	Thick Liquor Storage Tank #4	P			Storm drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
	868-5	Thick Liquor Storage Tank #5	P			Storm drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
	868-6	Thick Liquor Storage Tank #6	P			Sumps and sewer drainage may be contaminated.
			P			In 1973, new bottoms were installed in tanks.
M8		Acid Manufacturing Area	P			Metals, Anions, and Organics - From previous sampling, anions and metals detected in groundwater and surface water; organics detected in groundwater.
			S			Lime, Alum - Sporadic white turbidity observed in acid ditch flow. Believed to be caused by periodic backwash of the filters at the water plant. The waste water is said to contain high concentrations of lime and alum.

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M8		Acid Manufacturing Area	P			Wastewaters discharged into open ditches. In addition, leakage from numerous storage tanks and two open lagoons may have contributed to soil, surface water, and ground water impacts. 5 VOC's detected in 7 of 12 ground water samples. These included 1,1,1-TCA; 1,1-DCA; Acetone; Methylene Chloride; and MEK. Only the 1,1,1-TCA and 1,1-DCA are believed to be site-related., the others are attributed to lab contamination of the samples.
			S			The lagoon was used to contain and neutralize spill and upset water. Overflow was discharged to the creek. Potential groundwater contamination.
			P			Because of the numerous leaks in the underground 48 inch tile which carried the waste water from the left station, and because the cost of repairing these leaks was prohibitive, the discharge pipes from the 3 pumps have been rerouted, and the water carried off through an open ditch.
			P			Soil samples for tract 111 were taken in July 1990. The samples appear to be environmentally sound. Sediment samples contain high levels of sulfate and lead.
			S			There is a 4 inch I.D. sludge outlet on the bottom of each stage, each outlet being 7 feet 2 inches from the lead partition between stages. The 117 carbon tube precipitator bodies also contains lead lining and the electrode wires have lead covering.
						The lead tube precipitator bodies have one layer of 20 pound lead at the base with two layers of 1/16 inch asbestos paper. Lead pipes connect the circulating pump header to the constant level tank (Building 308-3-1), feed acid is also delivered to this tank through this line.
			P			The equipment through which the hot gas passes consists of lead and acid brick lined steel.
			P			Sludge tanks are constructed of 3/8 inch steel and are lined with 10 pound lead. Lead pipes from the concentrating drums and gas coolers drain to the sludge tank.
			P			This group contains an oil lubricating system and boiler feed water treatment package. The water treatment packages consists of two separate units. One unit is provided to supply hydrazine to the deaerator surge tank for dissolved oxygen scavenging and pH

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M8		Acid Manufacturing Area				control. The other unit is for feeding a mixture of sodium phosphate for scale control and neutralizing amine for condensate return line corrosion control.
			P			In 1972, the following emissions were produced as by-products/waste: nitrogen oxides-5,000 pounds/day; particulates from power plant-33,000 pounds/day; flyash; lime sludge-7,000 pounds/day; oil and grease-1 pound/day; and sulfur dioxide-24,000 pounds/day.
			P			There are droppings of coal outside of Building 401-1 (power house), along with a coal yard about 100 yards by 20 yards in area.(11/96)
			P			Railroad rails are being removed. (11/96)
			P	041:24:19.0	88:08:54.6	There is a large manhole about 10 feet deep on the northeast portion. (11/96)
			P			Discharge from the north lagoon caused Goose Creek to be rust colored on April 19, 1976. Analysis on the lagoon showed 54 ppm total iron.
	301-2	Anhydrous Ammonia	P			This building contains several rusting tanks. (11/96)
	302-2-1	Ammonia Oxidation Plant	P			There are large rusted heat exchangers around this building. Cracks are visible on the concrete wall and foundation of this building. (11/96)
	308-3-1	Sulphuric Acid Concentrator House	P			Lead pipes are provided in this building.
	308-3-6	Sulphuric Acid Concentrator House	P			Lead pipes were installed in this building.
	354-5-1	Cooling Tower	P	041:23:44.7	88:09:04.7	This building is in good condition. The building is 4 stories tall with an open top. There is lumber criss-crossing the interior up to the roof. (11/96)
	354-10	Chlorinator House	P	041:23:44.7	88:09:04.7	This building is empty. There is a large, 10 feet diameter 20 feet deep, access hole in front of another manhole in the rear. (11/96)
	357-1	Waste Treatment Building	P			This appears to have been a waste treatment building. The building appears to be in good condition. The building looks clean. There are large tanks inside. Heavy equipment is still present within the building. (11/96)
	401-1	Power House & Coal Conveyor	P			Lab - Portions of this building were used as labs.
			P			There is a flooded coal loading/unloading area adjacent to this building next to the railroad track. Coal and coal granular are spread over the entire area. (11/96)
	402-1	Reservoir and Fire Pump House	P			There are multiple meters apparently surrounding this building and protruding fom the ground. (11/96)
	403-3	Coal Shed	P			This building is part of the railroad coal car unloading. The basement of this building is flooded. Coal is spread all over adjacent areas. (11/96)
	413	Filtration Plant	P			Lab - portions of this building were used as labs.

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M8	413	Filtration Plant	R			The water testing laboratory in this building was shut down and combined in Acid Area 1.
	601-96	Platform - Unloading	P	041:23:01.4	88:09:03.9	There are 3 electrical switches here. The benzene and acetone unloading area was on the railroad track about 200 feet north of this lab.
	601-A-4		P	041:23:05.9	88:09:26.4	This building is empty. A railroad weight scale has been shielded and put on layaway outside this building. South of the building, there is an 8 by 9 feet access structure connected to a 2 by 5 feet pipeline underground. (11/96)
	704-7	Supervisor's Office	P			As of 1978, all laboratory operations were conducted from the standards lab in this building. Operations included preperations of standard chemicals for other labs, water analysis for the STP, and air pollution testing.
			P			A fume hood and corrosion testing benches were installed.
			P			Various pieces of laboratory equipment and instruments from Building 706-3 were stored in the Standards Laboratory, along with other standards and measuring equipment no longer required.
			P			There is twelve inch diameter steel over pack container made of 1/2 inch steel from "Oceanography International Corporation". (4/97)
	704-17	Supervisor's Office and Laboratory	P			The laboratory was converted to classrooms.
	706-8	Laboratory	P			Lab - portions of this building were used as labs.
	713	General Storehouse	P			A Permit was issued to the U.S Atomic Energy Commision for use of this building with adjacent rail and truck facilities as a storage warehouse. Since May 1959, Argonne National Laboratory had been utilizing this building for space through Permit No. DA-11-032-ENG-7028. Twenty-one truckloads and two carloads of machinery and related parts were received to store for their account.
	713-1	Warehouse and Office	S			This warehouse space makes possible the orderly arrangement of stock amd files of old records in one location.
	717	Combined Shops	P			This building was destroyed in a fire on or about January 15, 1996. An arson investigation is underway.
			P			A 1971 industrial hygiene survey indicates lead burning and welding with cadium containing rods took place in this building.
			P			In 1978, the records for 1967-1971 were checked to determine the lead levels during a period of operation. This building was a lead burning area. An exhaust duct in the north part of the area was present.
			P			In 1978, samples taken in the lead burning shop in this building, ranged from nil to 170 micrograms per cubic meter of air.

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M8	717	Combined Shops	P			This is a partially collapsing building and is structurally very unsafe. (11/96)
	718-1	Locomotive House	P			All locomotive maintenance was consolidated here.
			P			Washing of locomotives caused an unsafe and unhealthful condition as well as a fire hazard. The properly drained concrete slab remedied this condition.
			P			It appears that this building was used to service trains. It is about 2 stories tall. (11/96)
	722-17	Shop Maintenance	P			This building was a maintanence shop for Acid Area 4.
	750-1	Office, Change House & Shop	R			In 1944, this building was labeled a Horse Stable.
	1501	Oleum Plant (Plant #1)	P			A fanning mill was purchased to clean the vanadium catalyst.
			P			A vacuum pickup for oleum vanadium catalyst were installed to reduce the man-hours required in handling the vanadium catalyst when cleaning is required.
	TS-1200	Storage Shed	P			Floor is cracked and is not curbed. (4/97)
M9		Northern Ash Pile	P			Northern Ash Pile covered with native soil and seeded since the Phase I Report.
			P			The ash pile in this area was capped by a covering with a plastic barrier, approximately 12 inches of clay and 6 inches of top soil and seeded with grass. It is on the parcel to be transferred to the State of Illinois.
			P			Soil samples for tract 111 were taken in July 1990. The samples appear to be environmentally sound. Sediment samples contain high levels of sulfate and lead.
			P			There is a culvert which indicates that the land receives drainage from the acid plant on the south. The culvert goes through the railroad track. (11/96)
			P			There is a complete grass community over the ash pile, mixed with annuals. (11/96)
			P			There is a gravel dam on the eastern boundary of M9 along the creek. The dam is almost broken down. (11/96)
			P			There is a culvert that drains the ashpile into M105. (11/96)
			P			An earth dike was repaired on the north ash pile July 22, 1974 to prevent leaching of black liquid into Acid Area 3.
	411-10	Well Water Pump House	P			This is a concrete building that served as a well house. It is located next to building 411-10-1 with a well underneath, discharging to the field. (11/96)

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M9	411-10-1	Well Water Pump Shelter	P			There are 4 above ground storage tanks on a concrete pad at the west end of this building. Three of the four tanks go into the building. One tank is 24 feet outside of building, 6 foot diameter; one and one tank is 8 feet outside of the building. One 8 foot by 2 foot tank is on the concrete pad. (11/96)
M10		Toluene Tank Farms	P			VOC's - Ground water at the western Tank Farm appears to be impacted with site-related VOC's. Two of the tanks were destroyed by fires caused by lightning, and the ground water impact is probably related to this event. Toluene, Ethylbenzene, and Xylenes were detected in ground water samples. Sampling at the central Tank Farm also indicated Toluene contamination.
			P	041:24:10.5	88:10:05.5	West tank farm has only 2 tanks (#2, #4). Berms at all tanks are breached. There are no strained or stressed vegetation.
			P	041:24:08.5	88:08:41.3	Two tank car unloading spots on north side of west tank farm are located here.
			S			Lead Based Paint - Tanks in all farms were painted. The paint in the center farm is chipping.
			P			Center tank farm has one car spot. Four tanks remain in each of the center and east tank farms. Berms in each were cut. No area areas of stressed vegetation were noted in any of the farms.
M13		Gravel Pits	A			This is the portion of L13 Which is agricultural tract 70. The current lessee has held the lease on this tract for two years. No environmental concerns addressed in lessee questionnaire found in the Appendix were observed by the lessee.
			P			Center pit took waste water. North pit was a landfill.
			P			The South Power Plant fly ash was discharged to gravel pit (M13).
			P			The north and south gravel pits were vegetated with evidence of concrete rubble, drums (empty), etcetera. The north pit is much larger in extent and has an unusually tall and robust growth of grass in excess of 2 meters in height. The north pit has a well built steel concrete walkway for sampling or viewing the pit. (11/96)
			S			A project was planned in 1980, to provide service to the Acid Area No. 3 which was, at the time, served by septic systems, thereby abandoning Outfall 012 referred to NPDES Permit IL-0002666.
	503-1-1	Temperature Control House	P	041:23:13.6	88:09:20.3	Equipment associated with distribution of steam is present inside this building. (11/96)
	503-1-4	Temperature Control House	P	041:23:21.5	88:09:25.6	There are 2 manholes and 1 access pit outside of this building. All are poorly covered. (11/96)

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M13	706-7	Laboratory	P			Lab - portions of this building were used as labs.
	713-2	Warehouse "B" Property	P	041:23:30.2	88:09:23.5	This building is made of metal siding. (11/96)
M16		Motor Pool Area				
	413-1	Filtration Plant	P			Basement is flooded. (4-97)
			P			Five gas cylinders on north side of building. (4-97)
	710	Lead Salvage	P			In 1978, the records for 1967-1971 were checked to determine the lead levels during a period of operation. Lead melting was present.
	716-2	Garage and Repair Shop	P			All vehicle maintenance (except lift truck and heavy equipment) was consolidated here and in Building 716-3.
			P			In 1966, all batteries that required slow charge were taken to the garage and all tires on heavy equipment were repaired by the tire man in the garage.
	716-3	Storage Garage, Heavy Equipment	P	041:23:30.0	88:09:09.5	All vehicle maintenance (except lift truck and heavy equipment) was consolidated here and in Building 716-2.
			P	041:23:30.0	88:09:09.5	Adequate fire protection and fume exhaust systems were installed in the spray paint room.
			P	041:23:30.0	88:09:09.5	Spray painting of vehicles was conducted in a paint booth.
			P	041:23:30.0	88:09:09.5	Powder-sanding vehicle bodies to remove old paint generated paint pigment dust. Metal and artificial abrasive dusts were generated from grinding.
M17		Laundry Facility	P			Arrangements were made for the laundry at the Kingsbury Ordnance Plant to be done at the Kankakee Unit installation.
			R			In January 1963 the Plant Laundry was shut down and laid away.
			P			The laundry produced 20 gpm of effluent on average as estimated in April 1972.
	704-8	Supervisor's Office and Laboratory	P			Lab - portions of this building were used as labs.
	704-8	Supervisor's Office and Laboratory	P			This building has two stories and is empty. The basement is flooded. (11/96)
	707-8	Change House (Guards)	P			This building is empty. (11/96)
	723	Laundry	P			There are large washing machines inside this building that are connected to a sump outside. (11/96)
M18		Herbicide Storage Area				
	703-3	Hut, Quonset, APSA Stock Room	P	041:23:25.1	88:08:35.6	There are storm drains at the northeast and northwest corner of the building. Several empty 5 gallon buckets labeled "Spike" herbicide are in this building. There is no stressed vegetation around the perimeter of this building. (11/96)
			P	041:23:25.1	88:08:35.6	In 1978, this building was used by Uniroyal for temporary storage of salt/cinder spreaders and other snow removal and similar equipment.
	716-1	EAM Building & Crypto Center	R	041:23:24.4	88:08:35.0	In 1944, this building was a Staff Garage.

P=Present, R=Removed, S=Suspected. T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References are cited in the profile sheets in the Appendix.
Details on IRP site sampling are provided in Appendix D.

TABLE 4-13
SUMMARY OF OTHER FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M18	716-1	EAM Building & Crypto Center	P	041:23:24.4	88:08:35.0	This building is collapsing. There are several holes in the roof. (11/96)
			P	041:23:24.4	88:08:35.0	The basement of this building is flooded. (11/96)
			P	041:23:24.4	88:08:35.0	In 1978, a portion of this building was used for ADP purposes and was vacant.
	721-6	APSA Office & Reproduction Building	P			In 1978, this building was used as an administrative building and was vacant.
M103		PAS Section	P	041:24:17.7	88:08:43.2	Wood and metal debris covering about 0.25 acres. Art Holz stated that debris was from dismantling of box cars that were excessed. Numerous identical fabric items that appear to have been oiled.
			P	041:24:21.4	88:08:34.1	Large foundation 100 by 50 foot, a large number of cresote treated wood and phone poles. One rusted out 55 gallon drum.
	414	Water Softener Treatment Plant	P	041:24:21.3	88:08:43.5	A mixing vat is present inside. A 4 inch pipe from the building discharges to adjacent ditch
	704-13	Yardmaster's Office	S	041:24:11.7	88:08:12.5	A scale assembly was present along with a pit for weighing rail cars.
M104		PAS Survey Section M104	P			In 1972, the following emissions were produced as by-products/waste: nitrogen oxides-5,000 pounds/day; particulates from power plant-33,000 pounds/day; flyash; lime sludge-7,000 pounds/day; oil and grease-1 pound/day; and sulfur dioxide-24,000 pounds/day.
			P	041:23:11.1	88:08:45.6	There is a 50 by 75 foot concrete pad west of East Patrol Road about 200 feet west of Building 411-7, 100 feet north of Building 411-7. (11/96)
			P	041:23:03.8	88:08:45.4	There are 2 valve boxes with wood lids in this area. They are possibly a physical hazard. (11/96)
			P	041:23:06.5	88:08:42.6	There is a possible valve pit full of water with broken wood top and ladder inside in this area. This is a physical hazard. (11/96)
	354-1	OBL - Water Treatment Building	P	041:23:44.7	88:09:04.7	This building contains large electronic control equipment. (11/96)
	354-5	OBL - Cooling Water Pump House	P	041:23:44.7	88:09:04.7	This is a small structure containing 3 large shafts and pumps that appear to serve building 354-5-1. (11/96)
	401-2	Power House & Coal Conveyor	P			Lab - Portions of this building were used as labs.
			P			This plant consists of 3 pulverized coal-fired boilers with capacity of 125,000 pound/hour steam each. Each boiler is equipped with four horizontally fired, turbulent burners for pulverized coal firing with provisions for Number 3 fuel oil firing to ignite the coal on startup. Oil firing can be used in an emergency. Each boiler is provided with an ash hopper and an ash quenching pit for

P=Present, R=Removed, S=Suspected. T=Industrial Park Portion
Blanks in the comment column indicate no findings.
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Details on IRP site sampling are provided in Appendix D.

TABLE 4-13
SUMMARY OF OTHER FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M104	401-2	Power House & Coal Conveyor				collection of bottom ash, and soot hoppers and multi-cyclone cinder catchers for collection of flyash. The ash handling equipment was designed and manufactured by the Allen-Sherman-Hoff Company.
	401-6	House, Oil - Pump	P			This building contains numerous pipe connections all leading out of in the rear of the building. All pipes are labeled fuel oil. There is a strong petroleum like odor from this building. Therefore the building could not be entered. Observations were made from the broken glass on the door. (11/96)
	403-2	Coal Shed	P			A large quantity of laboratory glassware in facility and 2 pallets of refractory brick present. There is also a coal conveyor. (4/97)
	411-8	Well Water Pump House (Pump In	P			There is a big well inside this building along with other electrical equipment. The well is capped. A trench runs in front of the building. (11/96)
	703	APSA Administration Office	P			This building was used as an administrative building and was vacant in 1978.
	703-1	APSA Administration Office	P			This building was used as an administrative building and was vacant in 1978.
	703-4	APSA Office Building	P			In 1978, this building was used as an administrative building by the US Army Reserves under terms of an Inter-Service Support Agreement. It provided classrooms, indoor sleeping space, training and testing sites, latrines and mess facilities during inclement weather.
	705	U.S.Army Hospital. & Air Force Ind	P			Installation of the ventilating equipment in the Photo and Art Lab was completed in 1974.
			S			In 1978, approximately two-thirds of this building was under permit to the Air Force for administrative recruiting purposes. The balance of the building was previously the hospital, which was inactive.
	708	Cafeteria	P			In 1978, this building was used as a cafetaria by the US Army Reserves under terms of an Inter-Service Support Agreement. It also provided classrooms, indoor sleeping space, training and testing sites, latrines and mess facilities during inclement weather.
	716-4	APSA Training Building	R			In 1944, this building was a Guard and Ambulance Garage.
			A			This building was formerly used as a garage and storage space by the Fire Guard Division.
	720	APSA Office Building	R			In 1944, this building was used as a Guard Headquarter.
			P			In 1978, this building was used as training grounds and was vacant.
	721-2-1	Laboratory	P			Lab - portions of this building were used as labs.

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Blanks in the comment column indicate no findings.
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Details on IRP site sampling are provided in Appendix D.

TABLE 4-13
SUMMARY OF OTHER FINDINGS
PROPERTY CONSIDERED FOR TRANSFER FOR USE AS AN INDUSTRIAL PARK
JOAAP, WILL COUNTY, ILLINOIS

Section	Building	Description	Status	Latitude	Longitude	Comments
M104	721-2-1	Laboratory	P			This building is a 580 square foot laboratory used for the testing of explosives. It is constructed of masonry and is located on Baseline Road.
	721-3	Laboratory	P			Lab - portions of this building were used as labs.
			P			This building is a 580 square foot laboratory used for the testing of explosives. It is constructed of masonry and is located on Baseline Road.
	721-4	Laboratory	P			Lab - portions of this building were used as labs.
			P			This building is a 580 square foot laboratory used for the testing of explosives. It is constructed of masonry and is located on Baseline Road.
M115		PAS Survey Section M115	P	041:24:36.9	88:08:59.0	3 by 5 foot tank with 10 foot stack that was possibly a smoker or a popping furnace. Heavy gauge steel with a small door at one end and a grating inside. At edge of tree line.
			P	041:24:36.1	88:09:04.4	Two abandoned cars, farm equipment refrigerator, two rusted out 55-gallon drums. This may have been a recreation area.
M116		North Pump Station				
	412-2	River Pump House (North)	P	041:25:03.7	88:10:39.9	Lab - portions of this building were used as labs.
			P	041:25:03.7	88:10:39.9	The equipment in this building is layed away in lower levels. (11/96)
M117		South Pump Station	P	041:22:28.9	88:13:18.5	Adjacent to the fence on the east side of this area are two 40 feet long 30 feet diameter pipes and 3 additional pieces 10 feet or less. (11/96)
			P	041:22:33.5	88:13:22.1	There are 2 concrete structures east of the intake building, allowing access to water main. The wooden covers are in poor condition presenting a fall hazard. (11/96)
	412-1	River Pump House (South)	P	041:22:35.4	88:13:25.5	Lab - portions of this building were used as labs.
			P	041:22:35.4	88:13:25.5	The equipment in this building is stored in lower level. (11/96)

P=Present, R=Removed, S=Suspected. T=Industrial Park Portion
Blanks in the comment column indicate no findings.
References are cited in the profile sheets in the Appendix.
Details on IRP site sampling are provided in Appendix D.

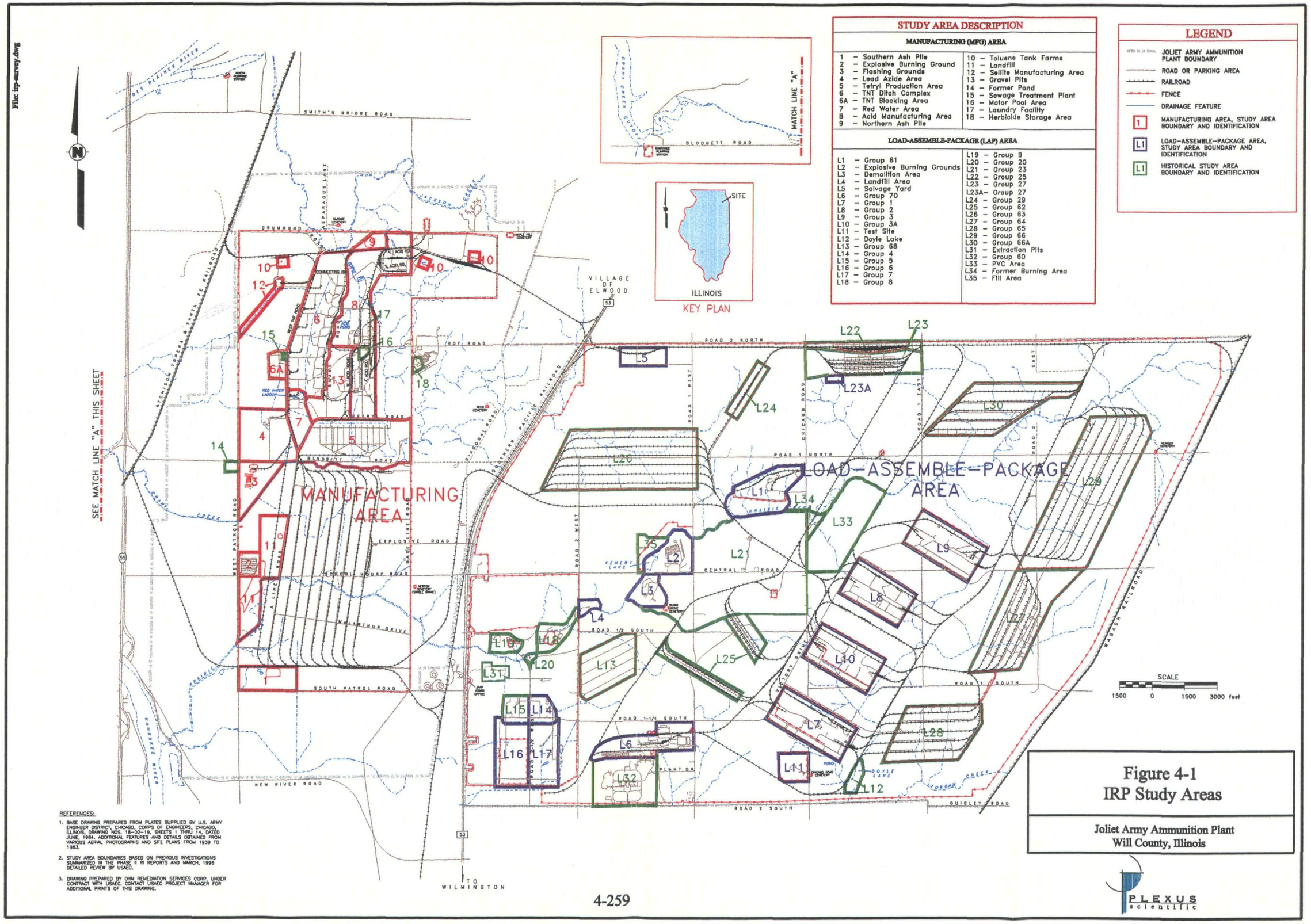
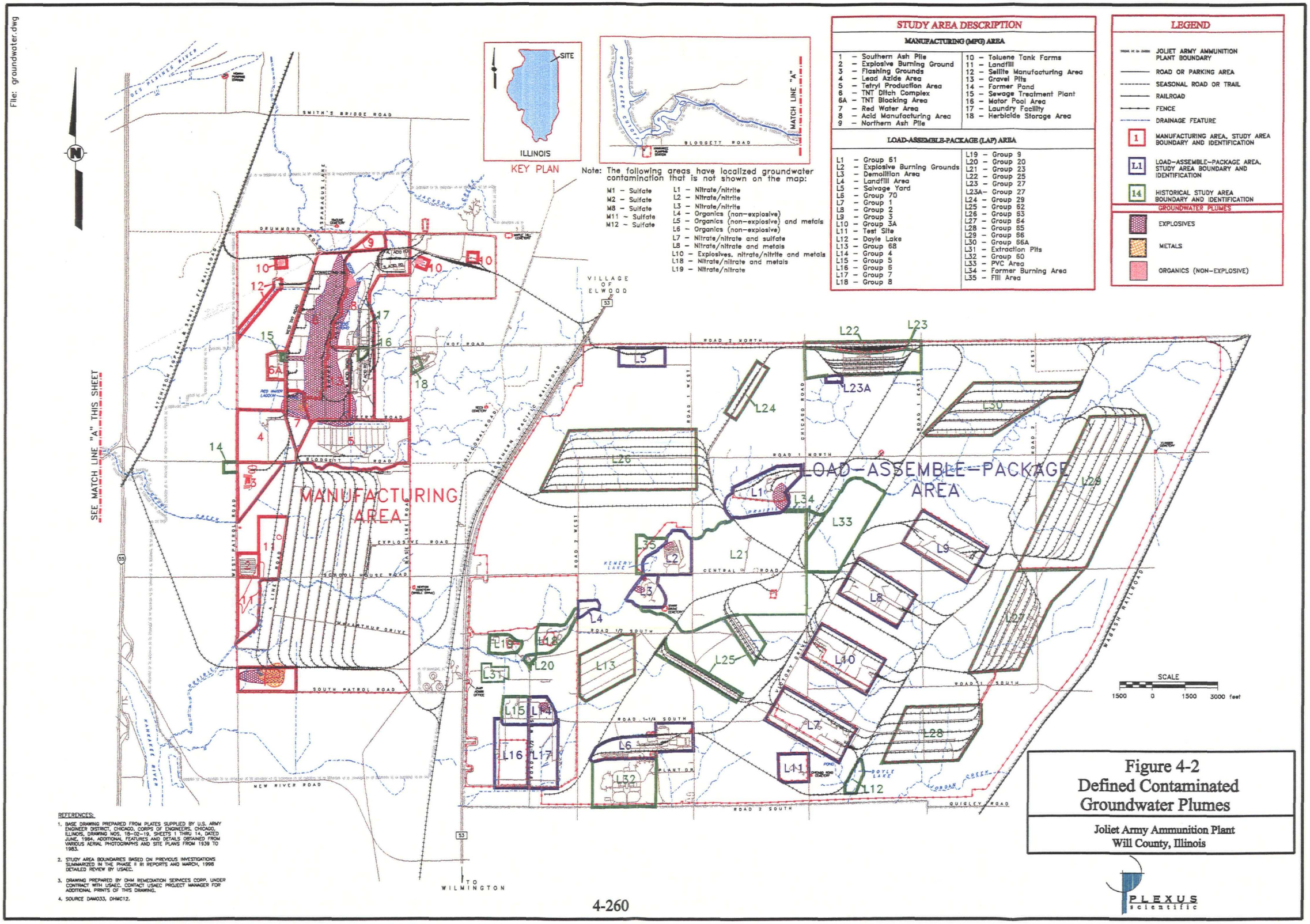


Figure 4-1
IRP Study Areas

Joliet Army Ammunition Plant
Will County, Illinois

File: groundwater.dwg



Note: The following areas have localized groundwater contamination that is not shown on the map:

M1 – Sulfate
M2 – Sulfate
M8 – Sulfate
M11 – Sulfate
M12 – Sulfate

L1 – Nitrate/nitrite
L2 – Nitrate/nitrite
L3 – Nitrate/nitrite
L4 – Organics (non-explosive)
L5 – Organics (non-explosive) and metals
L6 – Organics (non-explosive)
L7 – Nitrate/nitrate and sulfate
L8 – Nitrate/nitrate and metals
L10 – Explosives, nitrate/nitrite and metals
L18 – Nitrate/nitrate and metals
L19 – Nitrate/nitrate

STUDY AREA DESCRIPTION

MANUFACTURING (MFG) AREA

1 – Southern Ash Pile
2 – Explosive Burning Ground
3 – Flashing Grounds
4 – Lead Azide Area
5 – Tetryl Production Area
6 – TNT Ditch Complex
6A – TNT Blocking Area
7 – Red Water Area
8 – Acid Manufacturing Area
9 – Northern Ash Pile
10 – Toluene Tank Farms
11 – Landfill
12 – Sellite Manufacturing Area
13 – Gravel Pits
14 – Former Pond
15 – Sewage Treatment Plant
16 – Motor Pool Area
17 – Laundry Facility
18 – Herbicide Storage Area

LOAD-ASSEMBLE-PACKAGE (LAP) AREA

L1 – Group 61
L2 – Explosive Burning Grounds
L3 – Demolition Area
L4 – Landfill Area
L5 – Salvage Yard
L6 – Group 70
L7 – Group 1
L8 – Group 2
L9 – Group 3
L10 – Group 3A
L11 – Test Site
L12 – Doyle Lake
L13 – Group 68
L14 – Group 4
L15 – Group 5
L16 – Group 6
L17 – Group 7
L18 – Group 8
L19 – Group 9
L20 – Group 20
L21 – Group 23
L22 – Group 25
L23 – Group 27
L23A – Group 27
L24 – Group 29
L25 – Group 62
L26 – Group 63
L27 – Group 64
L28 – Group 65
L29 – Group 66
L30 – Group 66A
L31 – Extraction Pits
L32 – Group 60
L33 – PVC Area
L34 – Former Burning Area
L35 – Fill Area

LEGEND

JOLIET ARMY AMMUNITION PLANT BOUNDARY
ROAD OR PARKING AREA
SEASONAL ROAD OR TRAIL
RAILROAD
FENCE
DRAINAGE FEATURE
1 – MANUFACTURING AREA, STUDY AREA BOUNDARY AND IDENTIFICATION
L1 – LOAD-ASSEMBLE-PACKAGE AREA, STUDY AREA BOUNDARY AND IDENTIFICATION
14 – HISTORICAL STUDY AREA BOUNDARY AND IDENTIFICATION

GROUNDWATER PLUMES

EXPLOSIVES
METALS
ORGANICS (NON-EXPLOSIVE)

REFERENCES:

1. BASE DRAWING PREPARED FROM PLATES SUPPLIED BY U.S. ARMY ENGINEER DISTRICT, CHICAGO, CORPS OF ENGINEERS, CHICAGO, ILLINOIS, DRAWING NOS. 18-02-19, SHEETS 1 THRU 14, DATED JUNE, 1984. ADDITIONAL FEATURES AND DETAILS OBTAINED FROM VARIOUS AERIAL PHOTOGRAPHS AND SITE PLANS FROM 1939 TO 1983.
2. STUDY AREA BOUNDARIES BASED ON PREVIOUS INVESTIGATIONS SUMMARIZED IN THE PHASE II RI REPORTS AND MARCH, 1996 DETAILED REVIEW BY USAEC.
3. DRAWING PREPARED BY OHM REMEDIATION SERVICES CORP. UNDER CONTRACT WITH USAEC. CONTACT USAEC PROJECT MANAGER FOR ADDITIONAL PRINTS OF THIS DRAWING.
4. SOURCE DAM033, OHMC12.

Figure 4-2
Defined Contaminated Groundwater Plumes

Joliet Army Ammunition Plant
Will County, Illinois

PLEXUS scientific

5. SUMMARY

This report documents the results of a USAEC PAS of a portion of JOAAP, a U.S. Army facility in northeastern Illinois that has been declared excess. The PAS entails an evaluation of existing structures and environmental conditions on a portion of the JOAAP property consisting of the Industrial Park parcels which by Act of Congress will transfer to the State of Illinois (BILL01). (Separate reports cover property designated for transfer to other entities).

The Act transferring this property states that only those portions of the Arsenal property that the Secretary of the Army and the Administrator of USEPA agree require no further action under any environmental law, and that, accordingly, are exempted from further study will be transferred (BILL01). This PAS will be used to assist these parties in reaching an agreement.

The PAS involved four processes: (1) a review of practically obtainable and reasonably ascertainable records; (2) a site survey; (3) interviews with knowledgeable persons; and (4) generation of the final PAS report. Its objective was to uncover and document evidence of any hazardous or toxic substances that would require a CERCLA 120(h) Notice and to identify other areas of potential concern for human health and the environment. A list of compounds used, stored, released, or disposed of on the parcel covered by this PAS and potentially subject to the CERCLA 120(h) Notice requirement is presented in Appendix E. Contamination of environmental media is discussed in Appendix D.

Records concerning historic practices and operations that could have resulted in release or disposal of hazardous materials are incomplete. Ongoing investigations continue to develop information relating to the nature and extent of contamination in previously identified areas of concern. The PAS, however, involved a diligent effort to identify potential problems and thus enable appropriate decision-making and agreements by future owners concerning transfer of the property. Data gaps or discrepancies identified during the PAS were investigated to the extent possible; however, the project scope did not allow for verification of all findings.

Conditions that could adversely impact environmental quality or human health given the planned property uses (i.e., transient public access, waste disposal (landfill use), grazing, agricultural crops) are identified in this report. Most environmental concerns relative to JOAAP have been previously identified and are being addressed by the IRP. Many of the rest involve conditions having only minor impact and can probably be resolved through Memoranda of Understanding or deed restrictions. Some, however, may involve nonquantifiable risks to human health. For example, transfer of buildings classified as having a 3X level of explosive contamination or property potentially containing UXO involves risks that are not readily quantifiable.

This section is organized broadly by category of environmental issues. Information organized by specific portions of and structures on the property is provided in Appendices B, C, and D. Findings are based upon currently available information, applicable regulations, and professional judgment. In some instances, information regarding a specific concern is incomplete.

General information regarding the nature and extent of contamination and regulations are provided in the report. However, a detailed analysis of the nature and extent of contamination and an elaboration of appropriate requirements are beyond its scope. References are given throughout the document to direct the reader to an appropriate source for more detailed information. The findings of this report reflect conditions in effect and documentation available at the time of the field surveys.

5.1 Summary of Environmental Conditions

The following subsections present a summary of significant findings. The subsections in Section 5.1 correspond with those in Section 4. More detail concerning the findings and regulations can be found in Section 4 and the Appendices.

5.1.1 Hazardous Materials and Wastes

Hazardous waste and hazardous materials are defined by CERCLA, 42 USC 9601-9675, as amended, and the Solid Waste Disposal Act, as amended by RCRA, 42 USC 6901-6992, as amended. In general, the term hazardous is used in reference to substances that because of their quantity, concentration, or physical, chemical, or infectious characteristics may present substantial danger to public health or welfare or the environment. Information concerning permits held is presented in Section 2.2.3.

Both the LAP and MFG Areas have been included on the NPL. Areas of environmental concern relating to hazardous materials and wastes have been studied since the 1970s under the IRP. Manufacturing operations involving chemicals and explosives occurred in L14, L15, L16, L17, M5, M6, and M8. Significant maintenance, repair and storage operations occurred at L6, M10, M16, M17, and M18. Sites M7, M9, and M13 were involved in treatment and/or disposal of wastes. These areas are discussed in Section 5.1.3.

Information concerning the types, quantities and duration of storage of hazardous materials previously used at JOAAP is limited. In many cases, the only available documentation on the types of materials potentially stored is a description of that area or building (i.e., High-Explosive Storage Magazine). The information available has been collected (refer to Appendix E) so that the notice requirements of 40 CFR 373 can be met.

During the PAS site surveys, various full, partially full, or empty chemical containers were observed in several locations throughout the parcel. Although some of the containers were labeled, the contents of these were not positively identified. Table 4-2 and Appendixes B and C contain more information about the locations of these containers and the labeling.

5.1.1.1 LAP Industrial Park

Alliant Techsystems utilized Building 70-5 as a flammable liquid and flammable liquid waste storage area. The storage room has secondary containment. Building 7-6 is a hazardous waste satellite accumulation area utilized by Alliant. Chlorinated hydrocarbons and stoddard solvent was used for cleaning traction motors and other metal parts at Building 70-11. Soils in the vicinity of Building 70-11 are currently being evaluated for the presence of contamination.

During the PAS site survey, drums or containers of potentially hazardous materials were observed in or adjacent to Buildings 6-9, 6-10, 7-9, and 60-11.

5.1.1.2 MFG Industrial Park

A sign designates Building TS-1208 as a hazardous waste satellite collection point. Three sets of storage tanks in the red water area were used to contain raw red water and thick liquor prior to incineration and evaporation. Numerous ASTs were utilized for storage of chemicals throughout the Acid Manufacturing Area (M8) and portions of the TNT area (M6). Table 4-5 displays the materials stored in these tanks. Section 4.5 discusses storage tanks further.

During the PAS site survey, drums or containers of potentially hazardous materials were observed in Buildings 713-1, Building 716-3, 722-6, 801-9, 802-9, 803-9, TS-1200, TS-1208, 402-1, 505-2, 717, 718-1, 503-1-2, 704-19, 716-1, 709-1, 505-3, 411, 412-1, and 703-3. M10 was used for bulk storage of toluene and xylenes. Several drums and gas cylinders damaged in a fire at remain in Building 717. Two previously opened cans of ether and numerous other chemicals are stored in Building 713-1. Formation of reactive peroxides may occur in opened ether containers; these cans should be handled with extreme care.

5.1.2 Solid Waste

Solid waste disposal and management is regulated under the Illinois Solid and Special Waste Management Regulations. Closure and postclosure requirements for disposal units are specified in 35 IAC 811.110 and 811.111.

Several issues relating to solid waste were identified. A number of dumps and disposal areas are located around the facility. All major disposal areas are within the existing IR sites. Postclosure maintenance and monitoring requirements are designed to minimize the potential for the release of any contaminants that could be present and to allow for early detection of any releases that might occur. Some examples of typical closure requirements are: 1) the landfill cover should be maintained and the growth of trees and shrubs which compromise the cover should be prevented, 2) vehicular and animal traffic that damage the landfill cover should be prevented.

Aged, treated wood products no longer in use are subject to waste classification procedures under the Illinois Administrative Code at 35.722.111 and 721.104(b)(9). IEPA has determined, in accordance with USEPA guidance, that weathered treated wood products (refer to Section 4.1.2 of the PAS for further definition) may be disposed of as solid waste. According to the interpretation of regulations presented in Section 4.1.2 and discussions with state regulators, weathered, treated wood products present at JOAAP can be abandoned in place. However, most treated wood products (railroad ties and utility poles) will be removed by August 1998 as part of the site liquidation.

5.1.2.1 LAP Industrial Park

Nonhazardous debris including scrap metal, wood, building debris, auto parts and concrete were observed in a pile within Group 60. The debris pile was approximately eight feet high and no evidence of excavations was noted. Building 60-91 was a waste disposal shelter.

5.1.2.2 MFG Industrial Park

The Northern Ash Pile (M9) was generated through the incineration of TNT byproducts between May 1966 and July 1967. The pile has been capped by covering with a plastic barrier, approximately 12 inches of clay and six inches of topsoil and seeded with grass.

The gravel pit area (M13) is located in the southwestern portion of the Acid Manufacturing Area and covers approximately 130 acres. Four potential disposal areas are located within the area. The northern gravel pit has been covered with clean soil and graded. For further discussion of the Gravel Pit Area refer to Appendix D.

5.1.3 IRP Sites

The object of the IRP is to identify potential threats to human health and the environment and subsequently to take the steps necessary to minimize or eliminate unacceptable risks. The IR studies are conducted in accordance with the requirements of CERCLA and the NCP. This includes determination of the nature and extent of contamination that defines the boundary of the CERCLA study areas. Descriptions of the IRP sites are provided in Appendix D.

JOAAP has 53 separate IRP sites, as shown in Figure 4-1. General descriptions and environmental conditions at IRP site areas are presented in Appendix D. RIs have been performed at all of the sites, and where appropriate, a risk assessment has also been conducted. A summary of the results of the risk assessment for JOAAP is presented as Table 4-3.

There are 35 IRP sites located in the LAP area and all or part of seven (L6, L11, L14, L15, L16, L17 and L32) are included in the Industrial Park parcel. A total of 18 IRP study areas lie in the MFG area of which ten (M5, M6, M7, M8, M9, M10, M13, M16, M17 and M18) are included in the Industrial Park parcel. The FSs determined that no further action is required under CERCLA at L15, L32, M16, M17, and M18. A removal action is currently underway

is L6 and will be completed in October 1997. Following completion of the removal, no further action will be required in L6. A proposed plan is currently being developed based upon the FSs and completion of a Record of Decision is expected in June 1998.

The baseline human health risk assessments were used in conjunction with the RIs to determine sites requiring no further action. At study areas where site related contaminants were identified, potential risks to human health were calculated based upon RME scenarios. The RME provides a conservative estimate (i.e., well above average) of risk that is still within the range of possible exposures. Risks calculated for some scenarios at IRP sites M5, M6, M7, M8, M10 (center farm), L6, L11, L16, and L17 were either above the USEPA point of departure for carcinogenic risks or at a level indicating that non-carcinogenic health effects are possible. Refer to Table 4-3 for risk characterizations.

PRGs were developed on the basis of human health risk. The Army ecological risk assessment program for JOAAP was conducted to evaluate the risks associated with various scenarios, including the absence of remediation (refer to Sections 2 and 4.3 of the PAS for a description of the Ecological Risk Assessment). The assessment determined that any adverse contamination-related toxic/health effect which are occurring or might occur in the future are not expected to significantly reduce the structure and function of any of the important aquatic and terrestrial components of the JOAAP ecological landscape. Limited (considered *de minimus)* impacts on plants, earthworms, and microorganisms have resulted from residual soil contamination.

In order to comply with CERCLA and the NCP, the ultimate cleanup levels must be protective of human health and the environment. According to the law mandating the property transfer, areas requiring further study or remediation cannot be transferred until it is agreed that no further action is necessary under any environmental law. The boundaries of the IRP sites have not been established by land survey.

5.1.4 Asbestos

Remediation of ACM is regulated by USEPA, OSHA, and the State of Illinois. Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the Clean Air Act, which addresses the demolition or renovation of buildings with ACM. AHERA and OSHA cover protection for employees who work around ACM.

Compliance with the Federal Property Management Regulations (FPMR) disclosure law was achieved through a basewide asbestos survey conducted by Professional Service Industries, Inc., in 1993. This survey is available for review at Building 74-3. Army policy is to remove friable asbestos that presents a threat to human health. Nonfriable asbestos or friable asbestos which is encapsulated or in good condition is to be left in place and identified to the buyer per GSA precedent.

The personal property liquidation contract (DAAA08-96-C-0007, Section C) for JOAAP requires that the liquidator remove from the plant all friable type asbestos identified in the basewide asbestos survey by August 1998. The liquidator will not perform asbestos removal in active buildings.

Non-friable asbestos containing materials are present in many of the buildings at JOAAP. Such material include asbestos cement board building materials (i.e., siding and roofing), asbestos cement pipes, and asbestos-containing floor coverings. Activities such as the sanding, grinding, machining, and crushing of these materials may result in the release of asbestos fibers.

5.1.5 Storage Tanks

USTs are subject to federal regulations within RCRA, 40 CFR Part 289, Technical Standards and Corrective Action Requirement for Owners and Operator of USTs. The Hazardous and Solid Waste Amendments of 1984 mandated these regulations. Permanent closure of USTs

must be conducted in accordance with 40 CFR 280.70 and state regulations. The state of Illinois leaking UST program and the Federal corrective action requirement is implemented by USEPA. Illinois state law and IEPA regulations are still in effect.

A UST survey was conducted by USACE in 1989. Reportedly, all tanks identified by this survey and in subsequent years have been removed. Records indicate that there were 54 USTs on the Industrial Park parcels. However, documentation of removals is incomplete. Attempts are underway to confirm the removal of all previously identified USTs. Follow-on confirmation will be provided to future owners if and when available. UST removal was conducted on an "as-funded" basis. An inventory of USTs present at JOAAP and dates of removal are presented as Table 4-4.

Due to the age of the USTs, it is assumed that any remaining will not comply with current regulations. Permanent closure of USTs must be conducted in accordance with 40 CFR 280.70 and state regulations.

5.1.5.1 LAP Industrial Park USTs

Documentation identifies 11 USTs in the LAP Industrial Park parcel. Available records confirm removal of all but one of the tanks.

5.1.5.2 MFG Industrial Park USTs

Of the 43 USTs identified in the MFG Industrial Park parcel, verification of removal could only be obtained for 32. Ten in line process tanks remain in the TNT Area (M6). A tank in M16 may have been closed in place.

Throughout M6, drowning tubs were observed and soil in the vicinity was often heavily stained. There are also several partially buried (about ¼ of tank volume) process tanks in the TNT Area.

ASTs

More than 470 ASTs are present on the Industrial Park parcel. Details concerning the layaway procedures for ASTs are not known. It is possible that some of the tanks may not be empty or that some residual materials remain which may pose a hazard to human health or the environment. It was not possible to see beneath many of the tanks. All ASTs will be removed by August 1998 as part of the site liquidation. Soil beneath the tanks should be inspected following removal for evidence of tank leakage.

During the September and November 1996 survey reddish soil was observed underneath at or near a number of tanks in M6 and M7. AST at Building 806-10. Additionally, lack of vegetation around two of the tanks at Building 812-9 and a tank 50 yards west of Building 704-18 was noted.

Most of the storage tanks at JOAAP were emptied and laid away as of 1993. ASTs with any contents were visually inspected monthly by the Army. Drains in dikes are kept closed and any time that the dikes required drainage, the procedure is closely monitored to assure that no product was released. Findings related to ASTs are presented in Table 4-5.

5.1.6 Sumps, Dry Wells, Oil/Water Separators, and Septic Systems

Several septic systems are located on property to be transferred for Industrial Park use. The majority of the systems serviced latrines. No documented environmental concerns relating to the septic tanks on the parcel have been identified. County regulations specify that existing septic tanks be closed by pumping, collapsing at least one side so that the tank will not hold water, and filling with dirt. A representative of the Will County Health Department must verify the work. In many areas it appears that condensate from steam lines is discharged to dry wells adjacent to buildings. Findings concerning sumps, dry wells, oil/water separators, and septic tanks on the Industrial Park parcel are presented in Table 4-7.

5.1.6.1 LAP Industrial Park

A dry well is located in L115. This dry well may be associated with the guard shack at Gate 29. An oil-water separator and one to two cubic yards of contaminated soil in the same vicinity was removed in September 1997. There are suspected dry wells receiving discharge from Building 6-3 and 6-5. There are two latrines in Group 6. Three sumps in Group 6 and one sump in Group 7 were observed during the PAS site survey and the vicinity has been sampled as part of the IRP.

A service pit was located at Building 70-11 where some maintenance was performed on locomotives. The pit is being investigated concurrently with the removal action in L6.

Sumps in the LAP production groups were periodically cleaned out and residue was disposed of at the burning grounds. During peak production years, sumps occasionally overflowed and discharged directly into open drainages.

5.1.6.2 MFG Industrial Park

A French drain is located in the southern portion of the tetryl area, north of Blodgett Road and another French drain is located on the east side of Building 1009-1-1. Dry wells or suspected dry wells were observed at Buildings 704-5, 801-9 and 808-1 during the site survey. Additional dry wells are located at Buildings 806-9, 808-2, 808-3 and 808-4. Drains in fume hoods in TNT Laboratory 706-5 discharged to dry wells. Many of tanks in the TNT area and tanks at the AFR houses for both the TNT and tetryl areas appeared to have over fill or vent pipes which discharge to dry wells. In addition many of the steam condensate lines appear to discharge to dry wells.

Based on observations during the site survey, it is likely that sumps are present at each tetryl line. Several other sumps were observed in the Acid Manufacturing Area (M8), the TNT

Ditch Complex (M6), the Red Water Area (M7) and the gravel pit (M13) during the site survey. Many of these sumps present a physical hazard because they are not covered or the covers have rotted.

A 1959 Master Plan for JOAAP indicates that there were 55 septic tank serving isolated buildings on the MFG area but locations were not given. A number of septic tanks were identified as part of the PAS associated with latrines or isolated buildings. In addition, septic tanks were present at Acid Area 3. It is not known what was discharged to the septic tanks, however the tanks did receive an NPDES permit. A septic tank was also located south of warehouse TS-1230 (M103) which housed a pesticide storage area.

A UST removed from Building 716-3 (Table 4-4) contained waste oil and there was an oil/water separator located south of this building. Oil/water separators were also located at Buildings 883-1 and 883-2 (UCCI04).

5.1.7 Radon Gas

USEPA suggests that remedial action be considered if the average annual radon level in the living area of a residence exceeds 4 pCi/L. In spring of 1989, the Army conducted radon testing at 44 separate JOAAP buildings. The radon canisters were left in place over approximately a one year period. Twenty eight of these samples were collected at building units in the Industrial Park parcel. These samples were collected at the former White Circle Housing area in L32. None of the samples from buildings showed radon concentrations above the USEPA action level of 4.0 pCi/L.

5.1.8 PCBs

Disposal of PCBs is regulated under TSCA, which banned the manufacture and distribution of all PCBs except those used in enclosed systems. By definition, "PCB equipment" contains

500 ppm PCBs or greater. "PCB-contaminated equipment" contains PCB concentrations of 50 ppm or greater, but less than 500 ppm (40 CFR 761.3).

TSCA (40 CFR 761.40) requires that all PCB transformers (transformers containing over 500 ppm PCBs) be clearly marked. By implication, a determination as to the PCB status of transformers is required. Those PCB transformers "in use" in a facility that is not totally enclosed must be inspected quarterly (40 CFR 761.30). Any PCB and PCB-contaminated equipment that is "out of service for disposal" can be stored for up to one year in a properly constructed PCB storage for disposal area (40 CFR 761.65). The disposal of transformers containing oil with over 50 ppm PCBs is regulated under TSCA (40 CFR 761.60). USEPA, under TSCA, regulates the removal and disposal of all sources of PCBs containing 50 ppm or more.

The PRGs developed for JOAAP soil included levels for PCB contaminated soils. Clean up levels of 10 mg/kg PCBs have been established for soils of nonrestricted-access (provided the 10 inches of soil contains less than one mg/kg PCBs), as recommended by the PRG.

During the field survey, 319 transformers, and approximately 7 oil filled electrical circuit breakers not posted with sampling results were observed in the Industrial Park parcels. It is not clear from the documentation reviewed and interviews whether all transformers and oil-filled electrical switches on-site have been tested for PCBs nor whether all transformers tested and found to contain PCBs over regulatory levels have been removed. All inactive electrical equipment will be liquidated by August 1998 and removed from the site. A total of 1,119 oil-filled switch gear boxes were removed from the MFG Area in August and September 1996. The majority of the boxes were from the Industrial Park parcel. Soils around the switch gear boxes were sampled and subsequently removed contamination was above PRGs or if staining was noticeable. A summary of findings relating to PCBs is presented as Table 4-9.

A lightning strike in 1995 at the North substation caused the seals on a transformer to leak. Sampling in this area indicated PCB contamination outside of the spill area. Removal up to approximately one foot in depth was conducted on the west side of the substation.

All of the locations from which PCB and PCB-contaminated equipment has been previously removed are not known. It is also not known if the equipment leaked prior to removal. Potential threat to human health and the environment can not be estimated.

5.1.9 Pesticide/Herbicide Use and Storage

The use of pesticides is regulated under FIFRA. Pesticide management activities are subject to federal regulations contained in 40 CFR 162, 165, 166, 170, and 171. Pesticides known to have been used at JOAAP have been identified in Section 4.1.9. Pesticides have likely been applied in and around buildings, along railroad tracks, along fencelines, and by lessees. The areas where pesticides are known to have been mixed lie within IR sites and are addressed as part of the studies in those areas. It is likely that some residuals remain from the use of pesticides on-site.

Pesticides are known to have been mixed, stored, or dispersed at five locations on-site (L6, M8, M16, M18, and M103); four of which are on the Industrial Park parcels. Herbicides and pesticides were stored in Buildings 703-3 (M18), 704-19 (M16) and 714-1 (M8). No evidence of spills was found in or around Building 703-3. In 1993, remaining herbicides were either consumed or those that were not consumed were sent to off-site facilities. Mixing of herbicides was conducted at the rear of Building 704-19 (M16). Pesticides and insecticides were kept in TS-1230 (M103) or "other designated area." The material was poured into tanks outside the building. It should be noted that Building TS-1230 was served by a septic tank which was located at the center of the south side of the building. Pesticides were not detected in soil samples collected adjacent to the foundation of TS-1230 in September 1997.

5.1.10 Lead Based Paint

DOD banned the use of lead-based paint in 1978. Any items painted prior to 1978 should be assumed to have one or more coats of lead-based paint unless testing indicates otherwise. In addition, some facilities constructed immediately following the ban may also contain lead-based paint, because inventories of lead-based paints that were in the supply network were likely to have been used up on these facilities. The Residential Lead Based Paint Hazard Reduction Act of 1992, also known as Title X. Title X requires that buyers of residential property (excepting efficiencies, elderly housing, and housing for the handicapped) be informed that buildings built prior to 1978 may contain lead-based paint. Notice requirements are specified in the Act. Testing is not required, nor is there a notification requirement for non-residential properties.

Most facilities/buildings constructed prior to the Department of Defense ban on the use of lead-based paint in 1978 are likely to contain one or more coats of such paint. In addition, some facilities constructed immediately following the ban may also contain lead-based paint, because inventories of lead-based paints that were in the supply network were likely to have been used up on these facilities.

The condition of painted surfaces at JOAAP varies from good to poor. Routine maintenance, flaking, peeling, and chalking of painted surfaces may have resulted in past contamination. Due to the lack of continued maintenance, flaking, peeling, and chalking of painted surfaces is likely to continue. High levels of lead (up to 1,278 mg/kg) were found in paint chips found on the ground at Group 64 (L27). Similar contamination is possible in other locations.

Metal structures at JOAAP were routinely sandblasted and painted. The Army has had the soil beneath several of the water towers on the LAP Area tested for the presence of lead and all detections were below site PRGs (1,000 ppm).

5.1.11 Explosive Ordnance/Residues

Residue from the manufacture and disposal of explosives remains on-site. The potential for UXO exists at some locations on-site (L11, and L16 [a small portion]). Transfer of property and buildings potentially contaminated with explosives or UXO is contingent upon the approval of the DOD Explosive Safety Board (DDESB). Planning for UXO removal in sections L11 and L16 is currently in progress. AR 385-64 stipulates that real property contaminated with ammunition and explosives that may endanger the general public may not be released from DOD custody until appropriate efforts to ensure protection of the public have been made. Further, all contaminated locations must be placarded appropriately with permanent signs that prohibit entrance of unauthorized personnel and the signs must be maintained in legible condition by DOD.

Explosives and explosive wastes/residue may be present in process lines, tanks, sanitary and industrial sewer lines, and within buildings where explosives were handled. An attempt has been made to identify all areas where explosives were handled and disposed; however, due to the extended history of the facility, and the incomplete nature of the available records, it is not possible to positively identify all areas where explosives or munitions were used, stored, handled, or disposed.

Historically, when underground process or waste lines were replaced, the old lines were abandoned in place. Wastewater lines containing explosives could pose a safety hazard if disturbed. No information relating to the decontamination or testing of wastewater lines potentially containing explosives or the cleanup of soil potentially contaminated by broken lines was found.

Documentation concerning the explosive-contamination status for all of the buildings and facilities at JOAAP was not available at the time of this report. Based on available documentation, numerous buildings on the Industrial Park parcel have been assigned a XXX (3X) status. As discussed above, these buildings may not be released from DOD custody.

Draft IOC 385-5 provides a mechanism for classifying and reclassifying the explosive-contamination status of buildings and equipment based on nondestructive inspection methods. It appears unlikely that many buildings not directly involved in the manufacture or loading of explosives can be reclassified without a significant level of effort.

5.1.11.1 LAP Industrial Park

The test range located at the IRP study area L11 is within the Industrial Park parcel. Reportedly, both 40-mm munitions and the loads for the M444 improved conventional munitions were tested on the outdoor range. Lead pellets and parts of sabot 40 mm (576XM) rounds were observed at the Building 1-49 indoor range and embedded in a backstop west of the end of the building. Another backstop located at the west side of the study area contained M406 fragments.

A structure constructed of railroad ties is located southeast of Building 6-51C. A heavy steel box inside the structure contains rusted metal components, additional fragments are on the ground inside the structure. It is suspected that destructive testing of munitions components occurred here.

Many of the buildings in L16 and L17 are classified as being in 3X condition. Hoffman Vacuum Sweeping System Secondary Separators were observed at Buildings 6-36 and 6-37. At other locations within the LAP area, explosive contamination was noted next to similar separators.

5.1.11.2 MFG Industrial Park

Many of the buildings and tanks in M5, M6, and M7 were directly involved in the manufacture or treatment of explosives and are contaminated with explosives. The explosive classifications for the buildings are presented in Table 4-10.

Fume lines at TNT lines 16, 17, and 18 Nitration and Purification Buildings (872-4, 872-5, and 872-6) and from these buildings to the settling tanks were filled with explosive laden spent acid. The fume lines between Buildings 883-1 and 872-1 may be contaminated with tetranitromethane.

In 1943, Building 802-1 was completely demolished by a fire and explosion (HIST39). A fire and explosion occurred in August 1942 at Building 803-1 (HIST40). The level of explosives contamination, if any, around both of these buildings due to the explosion is unknown and the no information concerning the cleanup of the area was found.

Explosive residues were observed on the ground in M5 and M6. The Army is currently evaluating methods for addressing these residues.

5.1.12 Biomedical/Biohazardous/Chemical Warfare Materials and Wastes

No biological warfare agents have been used, stored or tested at JOAAP. All medical facilities have been closed for an extended duration and no evidence has been found to indicate biohazardous conditions exist at the facility. It is likely that some riot control chemicals were stored at the facility.

5.1.13 Radioactive Materials/Wastes

Several radioactive sources were present in instrumentation within several LAP and MFG area groups. All sources have been removed and the NRC license for these sources is no longer active. In the past, radiological sources such cesium-137 was used at the Acid 4 DSN Building in instrumentation. In 1974, medical x-ray operations were performed at Building 705 which was a hospital. Level gauge radiation equipment was located at Building 713-2. All sources have been removed from JOAAP.

The Atomic Energy Commission used several buildings at JOAAP during the 1950s. Neither the buildings used, nor are the types of activities performed by the commission at JOAAP known. Argonne National Laboratory leased Building 814 (M105) for equipment and machinery storage sometime prior to 1959. Atomic bomb components were reportedly stored. In August 1996, USEPA surveyed this building for the presence of radioactive materials. No widespread contamination was encountered.

The hospital in L32 was equipped with x-ray facilities. The equipment has been removed and no hazards associated with the facility were identified.

5.1.14 Laboratory Operations

Seventeen former laboratories were identified through field reconnaissance and records searches. Six laboratories in the TNT area were used for production control and acceptance testing of TNT, DNT and tetryl end products. One TNT laboratory, Building 706-3, was used periodically to test DNT and tetryl products. These laboratories were operational through the early 1970s.

An air pollution laboratory was closed prior to 1978 and its operations were combined with those of the standards laboratory in Building 704-7 (M8). By 1978, all laboratory operations were conducted in the Standards Laboratory (M8, Building 704-7). The Standards Laboratory prepared chemicals used in other JOAAP laboratories during operations, performed influent and effluent water analysis for the STP and tested plant emissions. Mercury from broken thermometers was observed on surfaces in the Building 704-7 and chemicals remain.

5.1.15 Wastewater Treatment and Discharge

Section 2.3.1 provides a general summary of wastewater activities at the JOAAP. The NPDES permit for JOAAP was issued on September 22, 1993 (IL0002666). The permit currently covers 17 discharges to various receiving waters. Over the years, waste products

were discharged to open ditches via lagoons, sumps, or underground waste lines. Old plant drawings indicate that broken or leaking underground waste lines were generally replaced with new lines that ran parallel to the old ones. The old lines were abandoned in place.

5.1.16 Surface Water Resources

Previous studies have identified numerous site related contaminants in surface water and sediments. A list of contaminants of concern was presented in Section 4.1.16. The calculated cancer and noncarcinogenic risks for several water bodies exceeded acceptable levels for fishermen, fish consumers and resident children. Specifically, the carcinogenic risks were greater than 1×10^{-6} for consumers of fish from Jackson Creek (due to arsenic), and Grant Creek (due to 2,6-DNT and 2,4-DNT); for fishermen in Grant Creek (due to 2,4,6-TNT); and for resident children Grant Creek (due to 2,4,6-TNT). The hazard index (noncarcinogenic risks) was greater than one for consumers of fish from Prairie Creek (1,3,5-trinitrobenzene). There are a number of uncertainties associated with the risk numbers that should be reviewed when using the numbers for decision making. For example, some of the unacceptable risks to fish consumers were due to arsenic and beryllium which accumulate in portions of fish (i.e., bones) not generally consumed by humans.

The Army has determined that the aquatic components of the ecological landscape at JOAAP are not significantly impacted by contamination as defined by the assessment endpoints of the ecological risk assessment program. Specifically, it has been determined that the fish and crayfish collected are not accumulating explosives and potential food-chain exposures are not occurring. In addition, it was determined that benthic macroinvertebrate communities are not significantly impacted.

Until primary and secondary contaminant sources have been remediated, the potential remains for contaminants from the IR sites to impact surface water and sediment quality. For example, at L1 surface water run off appears to be carrying contaminated soils along a

drainage ditch towards to Prairie Creek and groundwater at the site discharges to the creek. Potential future impacts have not been determined.

5.1.17 Soils

Soil contamination is a major concern at many of the IR sites. Contaminants of concern in soil at the IR sites are discussed in Appendix D. Windborne dust, surface water runoff, or groundwater migration from the IR sites could result in secondary soil contamination. The possibility of secondary soil contamination will be reduced or eliminated once remedial measures are complete.

Wastewater and potentially contaminated storm water runoff was discharged to ditches located throughout the facility. Periodically, sediment deposited in the ditches was removed to improve flow. The removed sediment was reportedly spread on the ground adjacent to the ditches.

A 1967 survey of the sewer system found severe infiltration problems. Pipes in a state of repair allowing infiltration are also likely to allow exfiltration. In addition, infiltration and exfiltration could occur in the same segment of pipe at different times (e.g., during droughts or wet weather) which could result in soil contamination. Wastewater lines may contain explosive residues. Plant demolition plans developed by Uniroyal identify specific procedures for closure of sewer lines within the groups and manufacturing areas. These plans also provide protocols for sampling soils near the lines. Historically, when lines were replaced, the old lines were abandoned in place.

5.1.17.1 LAP Industrial Park

During the November 1996 site visit, it was noted that the ditches north and west of Group 6 (L16) were being scraped apparently to improve flow. The excavated soil was deposited on the ground adjacent to the ditch. Some red and yellow toned materials were noted in the

excavated soil. Soil containing some debris such as concrete, pipes and asphalt was being brought into the group and deposited immediately north of Building 6-10.

In L6, there is TPH contamination within the spill control berms of each of the bunker fuel storage tanks on the south side of the group. A removal action addressing the contaminated soil will be completed in October 1997.

In L11, arsenic, cadmium, copper, and zinc are considered potential site-related contaminants in shallow soils at the target area, which covers approximately 2.5 acres.

RDX and HMX occur in soil at L16, primarily in a drainage ditch north of Building 6-32, around the sump at Buildings 6-32, at entrances/exits to Building 6-2, and along the tile flume extending west from the sump at Building 6-4. These areas appear to be the sources of site-related contaminants detected in surface water in the drainage ditch west of the site.

In L17, about 85 cubic yards of soil at the sump and flume near Building 7-4 is contaminated with low concentrations of explosives. PCBs and mercury are other soil contaminants in L17.

The only soils in L32 that have been sampled are at the former debris pile located in the northeast portion of the site. The FS concluded that no further action is necessary in L32.

5.1.17.2 MFG Industrial Park

During the PAS site reconnaissance, numerous possible dry wells were noted throughout M5 and M6. The potential exists for soil contamination associated with the possible dry wells. Drawings also show dry wells associated with tanks at the DNT buildings.

Extensive staining was noted in the electrical substation at the north power house. Field analysis for PCBs did not reveal widespread contamination. A former substation was identified and field screening indicated some PCB contamination in M104 south of Hof Road.

Soil contamination has been identified in M5, M6, M7, M8 and M9. Contaminated soil volumes are presented in Section 4.17. The RI indicates that no soil samples have been collected from M13, M16, M17, or M18 and no contaminants were identified at M10.

5.1.18 Groundwater

The Illinois Groundwater Protection Act (Illinois Public Act 85-863) was created to protect the chemical quality of the state's groundwater. This Act empowers the IEPA to set quality standards for groundwater within the state. Illinois Groundwater Quality Standards, IAC 35, Subpart D, regulate various aspects of groundwater quality including establishing criteria for groundwater classification, nondegradation provisions, standards for groundwater quality, and various procedures and protocols for the management and protection of groundwater.

Shallow groundwater quality at JOAAP has been extensively studied as part of the IRP and a number of areas of contamination have been identified. However, due to the types of activities and the duration during which they were carried out there is the possibility that some groundwater contamination has not been identified. According to data relating to known areas of contamination, the extent of any unidentified plumes of groundwater contamination is likely to be limited.

The glacial till aquifer is not utilized at JOAAP. A survey of residences indicated this aquifer is not used in the surrounding area. Elevated concentrations of several naturally occurring compounds were found in the glacial till groundwater rendering the water undesirable for domestic use, and in many cases, agricultural or industrial uses. All of the JOAAP related groundwater contamination is found in the glacial till and portions of the Silurian dolomite aquifer. The contamination is in most cases localized. In addition, the low yield (one gal/m) associated with the glacial till aquifer makes it undesirable for any usage. The glacial till groundwater is not considered potable and has been designated a Class II (General Resource) aquifer. The underlying Silurian dolomite aquifer appears to meet the yield requirements for

Class I (Potable Resource) aquifers, although groundwater from the dolomite may require treatment prior to use.

Groundwater contamination has been identified in the glacial till aquifer at the following IRP sites:

M5	Explosives	L6	Organics (non-explosive)
M6	Explosives and nitrate/nitrite	L14	Explosives
M7	Explosives		
M10	Toluene		
M13	Explosives and nitrate/nitrite		

The groundwater contamination at M5, M10, and L14 is considered localized. The FS determined that no further action for groundwater was required at L6. Descriptive information concerning specific contaminants present and concentrations is available in the IRP site histories in Appendix D and a map of groundwater plumes is presented as Figure 4-2.

Production, monitoring, fire protection, and farm wells are present at JOAAP. The wells are identified in the RIs. The coordinates of all wells that have been sampled and the analytical results can be obtained from the Army Installation Restoration Data Management Information System (IRDMIS). Construction, modification, and abandonment of wells is regulated by the Illinois Water Well Construction Code (415 ILCS 30/1 et seq.). Modification of existing wells triggers the requirement that they be brought into compliance with current regulations. Information on the current condition of all wells, current well use, and likely future well use has not been compiled. The Will County Health Department is flexible in its determination of what constitutes an abandoned well. A rule of thumb used is that wells not used for a full year may be considered abandoned.

5.1.19 Noise

Ongoing activities of Alliant Techsystems, such as test firing of munitions and any associated noise are expected to continue for some time. In addition, some noise associated with

demolition or remediation may also be generated. Until the specific types of activities to be conducted are known, the expected volume and duration of noise can not be determined.

5.1.20 Drinking Water

Public water systems are regulated under 40 CFR 141, are those systems that serve 15 or more connections or 25 or more people and whose water is used for drinking, cooking, bathing, or hand washing. Drinking water quality standards, including the stipulation of MCLs, appear in 40 CFR 143.

The future owner should be aware that due to the age of the facility, copper piping and lead bearing solder were probably used. Lead exceeded the USEPA action level and naturally occurring radon levels exceeded MCLs within portions of the potable water system piping.

5.1.21 Perimeter Survey

Airborne emissions from nearby industrial facilities have the potential to impact environmental quality at JOAAP. An area of possible run-on from Mobil Oil was identified on the west side of M100. There was no visual evidence of impacts from off-site facilities nor was any documentation of impacts to JOAAP found.

5.1.22 Spills

Records concerning spills are incomplete. Numerous spills have occurred and all but a few of the significant spills identified were within IR sites with the majority being within M6 and M8 (refer to Table 4-12 for a summary of all identified significant spills). Additionally, numerous small releases from operations may have occurred and these releases may have impacted sediment quality in streams and drainages.

5.1.23 Miscellaneous Findings

Lead was commonly used in ceramic coatings. Lead may be present in the ceramic coatings of bath tubs and sinks at JOAAP. Additionally, several of the buildings have a lead floor finishes and lead piping. Asbestos putty containing a high percentage of lead was used for packing and caulking at the facility.

Tile drains at JOAAP have recently been identified and mapped by USDA. These drains were installed to drain lands so that they could be used for agriculture or other purposes. Drains if present in areas of contamination could act as a conduit accelerating contaminant migration.

There were scattered empty drums around the facility. No environmental concerns were visually apparent relating to the drums. Locations of the drums are identified on Table 4-13.

5.1.23.1 LAP Industrial Park

No other significant findings were identified in the LAP Industrial Park Parcel.

5.1.23.2 MFG Industrial Park

Buildings 716-2 and 716-3 were used for vehicle maintenance (except lift truck and heavy equipment), including spray painting of vehicles in Building 716-3.

Lead burning and welding with cadmium rods was conducted in Building 717. This building was destroyed by fire on or about January 15, 1996.

There were several areas where stressed vegetation or no vegetation was noted during the site survey. On the south side of Building 855-5 there is a 3 foot diameter area where there is no vegetation. The vegetation around Building 882-1 also appears to be stressed. There is no

vegetation under the conveyor belt between Buildings 1009-1-1 and 1009-1-2. Additionally, there are irregular bare spots along the southeast perimeter of the Northern Ash Pile.

5.2 Summary of Major Findings

A brief summary of major environmental conditions/findings on the parcel for transfer to the State of Illinois for creation of Industrial Parks is presented below. The Army is currently addressing some of these findings and is developing plans to address others.

- Explosive classifications were not found for all buildings and explosive residues are present on the ground in some areas. Numerous buildings in the proposed transfer parcel are classified as 3X meaning that they pose a potential safety hazard. Under AR 385-64, areas posing a potential safety risk to the public may not be released from DOD custody.

- Spoils from the cleaning of sediment from drainage ditches, which carried wastewater from the explosive production, and handling areas were reportedly deposited adjacent to the ditches. No characterization has been conducted to determine if the periodic clean out has resulted in redepositing of contamination adjacent to the drainage ditches.

- Wastewater lines may have explosive contamination that could pose an explosion hazard if disturbed.

- Dry wells are present throughout much of M5 and M6 but the types of materials discharged to them is unknown.

- Wastewater lines reportedly leaked extensively. Only limited sampling has been conducted along the wastewater lines to determine if soil contamination is present.

- UXO may be present at the test range (L11) and at the spiral barricade in L16. Plans for removal are currently being developed.

- In several of the surface water bodies, the human health risk assessment identified exposure scenarios with unacceptable risks.

- Illinois code requires that wells that are out of service be abandoned.

- Elevated radon levels (above MCLs) are present in some portions of the water distribution system. Lead based solder may have been used on water pipes and the

USEPA action level for lead in water may also be exceeded in some portions of the water system.

- Lead-based paint is likely to be present on any surfaces painted prior to 1979.
- Non-friable asbestos is present throughout the facility in cement board siding, roofing, flooring and insulation.
- Transformers and oil-filled electrical switches are present on-site. It is not clear if documentation of sampling of the oils is available for all of these items. Oil-filled electrical switches on the MFG Area have been removed.
- Several hundred recorded spills have occurred on the proposed Industrial Park parcels.
- Both ASTs and USTs are still present. ASTs will be removed by August 1998.
- Containers of chemicals remain in several buildings.

Detailed findings by study section number are provided in Table 5-1. This table lists the JOAAP study section (described in Section 3.0) and the findings relating to that parcel

All actions taken on this property either in response to the environmental concerns identified within this report or those that are independent of environmental issues (i.e., general improvements and development activities) must comply with the requirements of NEPA and AR 200-2. Minimally, these requirements protect archeological and historically significant features that have been identified at JOAAP as well as ecological resources such as threatened and endangered species.

TABLE 5-1
SUMMARY OF FINDINGS BY SECTION FOR INDUSTRIAL PARK PARCELS
JOAAP, WILL COUNTY, ILLINOIS

Section Number	Description	Findings
L6	Group 70 - Industrial Park Portion	Building 70-5 has a room for flammable liquid and flammable liquid wastes storage which was used Alliant Techsystems. Clorinated hydrocarbons and stoddard solvent were used at Building 70-11. A service pit at Building 70-11 where some maintenance was performed on locomotives is currently being investigated. There are 10 transformers present. Soil beneath large ASTs is contaminated and removal will be completed October 1997. Four underground storage tanks have been removed.
L11	Test Range	This group was used as a test area for various types of munitions and UXO may be present. Lead pellets are imbedded in the backstop in Building 1-49 and M406 fuse and fragments are in imbedded in the outdoor backstop. Remediation of soil may be necessary for metals. There is a pole mounted transformer adjacent to the entrance.
L14	Group 4 - Industrial Park Portion	None.
L15	Group 5 - Industrial Park Portion	None.
L16	Group 6	HMX and RDX contamination has been found in the soils. Soil and groundwater remediation is necessary prior to transfer. There are three fuel tanks and 18 transformers present. There are 2 latrines, 2 dry wells, and 4 sumps present. Possible UXO at spiral barricade. Several buildings in this area are designated XXX. The buildings must be re-classified or decontaminated to 5X prior to transfer. This is area is in use by Alliant Techsystems.
L17	Group 7	RDX, tetryl and mercury has been detected in the soils. HMX, phosphourus, aluminum and lead have been detected in the surface waters. PCBs, cadmium and selenium have been detected in Soil and sediment contamination requires remediation prior to transfer. Several buildings in this area are designated XXX. The buildings must be re-classified or decontaminated to 5X prior to transfer. Building 7-6 is a hazardous waste satellite accumulation area used by Alliant. 15 transformers and 2 sumps are present.
L32	Group 60	Each residential unit has an aboveground storage tank and there are two 200 gallon above ground storage tanks. Building 60-91 was a waste disposal shelter. 21 transformers and 1 sump are present. There is possible lead shielding in hospital (60-8). Chemicals may still be present in the boiler house (60-11). Radon levels were below the EPA limit of 4pCi/l.
L115	PAS Survey Section 115	There is a cradle for 2 large AST's adjacent to railroad tracks and a 500-gallon tank in this area. 5 transformers, and a dry well are present. Sediment in ditch from L6 will be remediated by October 1997. Rubble piles and foundations are located in this section. Former Group 73 was located in the southeast corner of this section.
L122	PAS Survey Section 122	There is a collasping manhole present in the northeast section.
M5	Tetryl Production Area	There are 18 aboveground storage tanks present. Several buildings in this area are designated XXX. The buildings must be re-classified or decontaminated to 5X prior to transfer. Explosives and volatile organics are the contaminatnts of concern in the soil and groundwater. Groundwater and soil contamination require remediation prior to transfer. 32 transformers and 1 electrical switch are present

Refer to the text of Section 5 for more detailed information.

TABLE 5-1
SUMMARY OF FINDINGS BY SECTION FOR INDUSTRIAL PARK PARCELS
JOAAP, WILL COUNTY, ILLINOIS

Section Number	Description	Findings
M5	Tetryl Production Area	There were 2 laboratories in this section. There are 2 suspected dry wells, two french drains, 6 sumps and a possible oil/water separator are present. Sumps are also likely to be associated with each tetryl line. Many of the buildings in this section have lead floors or lead floor finishes.
M6	TNT Ditch Complex	There are 29 wooden tanks and more than 170 other above ground storage tanks. 108 transformers are present. TS-1208 is designated as a hazardous waste satellite collection point. Most buildings in this Group are designated XXX. The buildings must be re-classified or decontaminated to 5X prior to transfer. Groundwater and soil contamination require remediation prior to contamination. There were 4 laboratories in this section. Many of the buildings in this section have lead floors or lead floor finishes. Many dry wells wewre noted in this section. There are oil separators present at the Recovery Buildings. There is a storm sewer system and ditch system throughout this section. Half tile ditches link many of the buildings to the storm sewer Documentation of the removal of underground storage tanks is not complete for this area.
M7	Red Water Area	There are 25 aboveground storage tanks present. Storage tanks were used to contain red water prior to evaporation and incineration. Several buildings in this Group are designated XXX. Buildings must be re-classified or decontaminated to 5X prior to transfer. Soil and groundwater contamination requires remediation prior to transfer. Sludge, liner and water remaining in the red water lagoon were removed in 1985. A one foot clay cap was placed on top. Contaminated groundwater, soil, and surface water are of concern. 6 transformers are present. Sumps, sewers and storm drainage are present and may be contaminated.
M8	Acid Manufacturing Area	Over 350 aboveground storage tanks and more than 98 transformers are present. Storage tanks were used to store chemcials throughout this area. Several buildings in this Group are designated XXX. Buildings must be re-classified or decontaminated to 5X prior to transfer. Soil and groundwater contamination requires remediation prior to transfer. Numerous spills have occured in this area. Chemicals were noted in several buildings. Wastewater discharge from this area was directed via sewer lines to Goose Creek. Sumps are present at the AOP and cooling tower. Storm drainage is present and may be contaminated.
M9	Northern Ash Pile	The ash in this pile was generated through the incineration of TNT byproducts. The pile is covered with a plastic barrier, 12 inches of clay and 6 inches of top soil and seeded with grass. 1 transformer and 1 sump are present
M10	Toluene Tank Farms	There were originally 12 storage tanks present, several were destroyed by lightning strikes. Groundwater contamination in the center tank farm requires remediation. 7 transformers are present.
M13	Gravel Pits	This area includes to gravel pits, an excavation pit and an excavation area. Activities included episodes of excavation, filling and grading Mutiple aboveground storage tanks are stored in the open storage area and 13 other tanks present. Several buildings in this Group are designated XXX. Buildings must be re-classified or decontaminated to 5X prior to transfer.

Refer to the text of Section 5 for more detailed information.

TABLE 5-1
SUMMARY OF FINDINGS BY SECTION FOR INDUSTRIAL PARK PARCELS
JOAAP, WILL COUNTY, ILLINOIS

Section Number	Description	Findings
M13	Gravel Pits	23 transformers are present. Sumps and sewers are present.
M16	Motor Pool Area	5 transformers and an oil/water separator are present. Chemicals were noted in several buildings. There was a pesticide mixing area at Building 704-19.
M17	Laundry Facility	Clothing processed in the laundry was contaminated with TNT. There are two sumps present.
M18	Herbicide Storage Area	This area was used for the storage of herbicides and pesticides. A can of white powder was noted in Building 703-3. 5 aboveground storage tanks and 7 transformers are present.
M103	PAS Survey Section 103	Two aboveground storage tanks, 6 transformers and 2 septic tanks are present.
M104	PAS Survey Section 104	1 aboveground storage tank and 60 transformers are present. There are 3 sumps and a septic tank present.
M115	PAS Survey Section 115	2 transformers and 7 circuit breakers are present.
M116	PAS Survey Section 116 North Pump station	5 transformers are present.
M117	PAS Survey Section 117 South Pump Station	5 transformers are present.

Refer to the text of Section 5 for more detailed information.

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