



**U.S. Army  
Environmental  
Center**

**VERSION 3**

## **Base Realignment and Closure (BRAC) Cleanup Plan**

### **Jefferson Proving Ground Madison, Indiana**

**Prepared for:**

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

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**June 1997**



**Date:** June 16, 1997

**To:** Jefferson Proving Ground (JPG) Restoration Advisory Board (RAB)

**From:** Corinne Buoni, Science Applications International Corporation (SAIC)

**Subject:** Base Realignment and Closure (BRAC) Cleanup Plan (Version 3)

On behalf of Paul Cloud, U.S. Army Test and Evaluation Command (TECOM), SAIC is providing you with a Final JPG BRAC Cleanup Plan (Version 3). This document updates the October 1995 BRAC Cleanup Plan (Version 2) to reflect the current status of JPG and ongoing closure-related activities.

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**BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP PLAN  
VERSION 3**

**JEFFERSON PROVING GROUND  
MADISON, INDIANA**

**FINAL**

**Submitted to:  
U.S. Army Environmental Center  
SFIM-AEC-BCB  
Aberdeen Proving Ground, Maryland 21010-5401**

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## LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Material
AEA	Atomic Energy Act
AOC	Area of Concern
AR	Army Regulation
ARAR	Applicable or Relevant and Appropriate Requirement
AREE	Area Requiring Environmental Evaluation
AST	Aboveground Storage Tank
BCP	BRAC Cleanup Plan
BCT	BRAC Cleanup Team
BEC	BRAC Environmental Coordinator
BGS	Below Ground Surface
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Comprehensive Environmental Response Facilitation Act
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CFR	Code of Federal Regulations
CRMP	Cultural Resource Management Plan
CRP	Community Relations Plan
CWA	Clean Water Act
DD	Decision Document
DENIX	Defense Environmental Network and Information Exchange
DOD	U.S. Department of Defense
DOT	U.S. Department of Transportation
DRMO	Defense Reutilization Marketing Office
DU	Depleted Uranium
EBS	Environmental Baseline Survey
EIS	Environmental Impact Statement

## LIST OF ACRONYMS (Continued)

ENPA	Enhanced Preliminary Assessment
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
FFA	Federal Facility Agreement
FOSL	Finding of Suitability to Lease
FOST	Finding of Suitability to Transfer
FS	Feasibility Study
FY	Fiscal Year
GC/MS	Gas Chromatography/Mass Spectrometry
gpm	Gallon per Minute
HPC	Historic Preservation Coordinator
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
IRP	Installation Restoration Program
JPG	Jefferson Proving Ground
LRA	Local Redevelopment Authority
LTM	Long-Term Monitoring
LUST	Leaking Underground Storage Tank
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
msl	Mean Sea Level
MSDS	Material Safety Data Sheet
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission



### LIST OF ACRONYMS (Continued)

NRHP	National Register of Historic Places
OB	Open Burning
OD	Open Detonation
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
OWS	Oil/Water Separator
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
pCi/L	Picocuries per Liter
PCP	Pentachlorophenol
PIRP	Public Involvement Response Plan
POL	Petroleum, Oils, and Lubricants
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDB	Regional Development Board
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
RI	Remedial Investigation
RMIS	Restoration Management Information System
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SPCC	Spill Prevention Control and Countermeasure
STP	Sewage Treatment Plant
SVOC	Semivolatile Organic Compound

### LIST OF ACRONYMS (Continued)

SWMU	Solid Waste Management Unit
TBD	To Be Determined
1,1,1-TCA	1,1,1-Trichloroethane
TCLP	Toxicity Characteristics Leaching Procedure
TECOM	U.S. Army Test and Evaluation Command
TM	Technical Memorandum
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USAEHA	U.S. Army Environmental Hygiene Agency
USAMC	U.S. Army Materiel Command
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound

## BCP GLOSSARY OF TERMS

**Applicable or Relevant and Appropriate Requirement (ARAR).** ARARs are cleanup standards, standards of control, and other environmental protection requirements, criteria, or limitations promulgated in Federal or state regulations that define remedial action requirements at CERCLA sites.

**Area Requiring Environmental Evaluation (AREE).** An AREE is an individual site, multiple sites, or program area identified through an environmental assessment or site investigation as a potential threat to human health or the environment that requires further investigation. An AREE is roughly synonymous with an Area of Concern (AOC).

**BRAC Cleanup Team (BCT).** The BCT is formed to manage environmental programs for BRAC installations and consists of a U.S. Army installation representative, USEPA Region representative, and state environmental agency representative.

**Base Environmental Coordinator (BEC).** The BEC is the U.S. Army representative of the BCT.

**Base Realignment and Closure Act (BRAC Act).** The Base Realignment and Closure Act of 1988 (P.L. 100-526, 102 Stat. 2623) (BRAC 88 or BRAC I) and the Defense Base Closure and Realignment Act of 1990 (P.L. 101-0510, 104 Stat. 1808) (BRAC 91, 93, 95) legislated the closure or realignment of military bases.

**Base Transition Coordinator (BTC).** The BTC is the DOD representative who serves as the primary point of contact for the public at a BRAC installation and assists in disposal and reuse planning and coordination for the property.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (1980).** This Act is otherwise known as Superfund; it provides for liability, compensation, cleanup, and emergency response for hazardous substances released to the environment. It was amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Section 120 of CERCLA specifically addresses procedures to be followed for Federal facilities investigation and cleanup, including BRAC installations. Section 120(h) was amended by the Community Environmental Response Facilitation Act of 1992 (CERFA).

**Community Environmental Response Facilitation Act (CERFA).** This Act is an amendment to CERCLA, which established new procedures on contamination assessment, remediation (cleanup), and regulatory agency notification and concurrence for Federal facility closures. CERFA requires the U.S. Army to identify uncontaminated property; its primary goal is to accelerate the transfer of property that can be immediately reused and redeveloped. USAEC prepared CERFA reports for all U.S. Army BRAC installations. Included in the report is an environmental condition of property map, which classifies property in seven categories.

**Community Relations Plan (CRP).** The CRP is a formal plan for community relations activities at an NPL site (see Public Involvement and Response Plan).

**Corrective Measures Study (CMS).** The CMS is the third phase of the RCRA corrective action program for a facility, consisting of the identification of corrective action requirements and the evaluation and selection of appropriate remedies for the problems identified during the RFI. The CMS roughly equates to the FS and PP prepared for sites being investigated under CERCLA.

**Decision Document (DD).** The DD formalizes the selection of remedial actions that are to be implemented at the installation. DDs are prepared for installations not on the NPL. The DD corresponds roughly to a ROD for an NPL site.

**Defense Environmental Restoration Account (DERA).** The DERA is the Defense Appropriations Act funding mechanism for the DERP IRP (except the BRAC IRP).

**Defense Environmental Restoration Program (DERP).** The DERP is the program established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at DOD installations. The program currently includes: the IRP, under which DOD installation investigations and site cleanups are conducted; and Other Hazardous Waste (OWH) Operations, through which research, development and demonstration programs aimed at improving remediation technology and reducing DOD waste generation rates are conducted. DERP is managed centrally by the Office of the Secretary of Defense. SARA provides continuing authority for the Secretary of Defense to carry out this program in consultation with USEPA and in compliance with CERCLA and SARA guidelines.

**Early Action.** Also called interim actions, early actions are remedial actions taken to respond to an immediate site threat or take advantage of an opportunity to significantly reduce risk quickly. These actions typically are limited in scope and are followed by other OU actions that complete site restoration for the long term. Examples of early or interim actions are construction of a temporary landfill cap and removal of contaminated soil to prohibit groundwater contamination.

**Environmental Assessment (EA).** An EA is a document prepared to evaluate the environmental impacts of a Federal action in compliance with NEPA when an EIS may not be necessary. If the EA indicates that there may be negative impacts to the environment from the proposed action, an EIS is required. If no significant impact is identified in the EA, a Finding of No Significant Impact (FONSI) is documented and no further evaluation under NEPA is required.

**Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).** This Act is Title III of SARA, which requires certain facilities to coordinate emergency planning with local and regional authorities and prepare hazardous material inventory and release data (Tier I and II and Toxic Release Inventory Reports). Executive Order 12856, signed August 3, 1993, requires that Federal facilities comply with EPCRA.

**Environmental Impact Statement (EIS).** An EIS is required by NEPA, which examines major Federal actions to determine their impact on the environment. Installation disposal and reuse actions require the preparation of NEPA documentation.

**Environmental Investigation/Alternatives Analysis (EI/AA).** The EI/AA describes RI/FS studies conducted at U.S. Army installations that are not on the NPL.

**Explanation of Significant Difference (ESD).** An ESD is a document that identifies significant changes that are being made to a component of the remedial action remedy in a ROD or DD. If fundamental changes are made to the overall remedy, they are documented in a ROD or DD amendment and not an ESD.

**Feasibility Study (FS).** An FS is a CERCLA environmental restoration study undertaken to develop and evaluate options for remedial action and generally is performed concurrently with and using data gathered during the RI. The FS evaluates remedial action alternatives based on technical feasibility and cost effectiveness, regulatory requirements, public health effects, and environmental impact.

**Federal Facility Agreement (FFA).** The FFA is a binding agreement between the party responsible for cleanup of an NPL site and USEPA, which formalizes the CERCLA procedures and schedules to be followed for the site.

**Federal Facility Site Restoration Agreement (FFSRA).** This is a binding agreement between the party responsible for cleanup of a non-NPL site and the lead state environmental agency, which formalizes the CERCLA procedures and schedules to be followed for the site. The FFSRA equates to an FFA for an NPL site.

**Hazard Ranking System (HRS).** This is a system established by USEPA for evaluating contaminated sites based on the potential hazard posed to public health and the environment. The system uses PA/SI data to generate a score ranging from 0 to 100 for each installation or individual site evaluated. Installations with a score above 28.5 may be included on the NPL.

**Installation Restoration Data Management Information System (IRDMIS).** IRDMIS is a data base developed by the U.S. Army and maintained by USAEC to manage sampling and analysis data generated at U.S. Army installations undergoing environmental investigation and restoration.

**Installation Restoration Program (IRP).** This is a program implemented under the DERP to investigate and remediate DOD installations. The IRP conforms with the NCP and CERCLA and applies guidelines promulgated by USEPA. The IRP for active installations is funded by the DERA, and the IRP for BRAC installations is funded through the Military Construction Act.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP).** This plan provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances in accordance with CERCLA and the Clean Water Act. These procedures include the completion of a PA, RI/FS, PP, RD, and RA.

**National Environmental Policy Act (NEPA).** This Act was passed in 1970 to encourage the assessment of environmental impact in Federal decisionmaking processes. The Act requires the preparation of an EIS/EA for significant Federal actions.

**National Pollutant Discharge Elimination System (NPDES).** USEPA administered this program authorized by the Clean Water Act to monitor wastewater discharges to surface water and groundwater. NPDES elements include industrial and sanitary wastewater discharge permitting programs and storm water permitting programs.

**National Priorities List (NPL).** The NPL is a listing of CERCLA hazardous substance release sites scoring 28.5 or higher under the USEPA HRS. Such sites are first proposed for NPL listing. Following a public comment period, proposed NPL sites may be listed on the NPL or may be deleted from consideration for placement on the list. Regulatory oversight for CERCLA site restoration actions at NPL installations is provided by USEPA. Such installations are required to enter into an FFA.

**No Further Response Action Planned (NFRAP).** NFRAP is the designation given to an AREE or IRP site when investigation (SI or RI/FS) results indicate that the site does not require remedial action or after adequate remedial actions have been completed. NFRAP is synonymous with no further action (NFA).

**Operable Unit (OU).** An OU is an environmental restoration unit identified as part of the CERCLA environmental restoration process to aid in the development of a remedial action strategy for the installation. Operable units may address geographical portions of an installation, specific installation problems, initial phases of an action, sets of actions performed over time, or concurrent actions located in different portions of the installation.

**Preliminary Assessment (PA).** The PA is the first phase of investigation in the CERCLA environmental restoration process. The PA consists of a review of existing information and site reconnaissance, if appropriate, to determine AREEs.

**Proposed Plan (PP).** The PP is a document that identifies the preferred remedial action alternative for a site and summarizes all of the alternatives studied in the detailed analysis phase of the RI/FS.

**Public Involvement and Response Plan (PIRP).** The PIRP is a U.S. Army document that outlines the program established to inform the community of the IRP at an installation and provides for community involvement in the cleanup process. The PIRP is synonymous with the CRP. A PIRP or CRP is required for NPL sites and also may be prepared for U.S. Army installations that are not on the NPL, but are undergoing investigation under the active installation or BRAC IRP.

**RCRA Facility Assessment (RFA).** An RFA is the first phase of the RCRA corrective action program for a facility consisting of a records review and site inspection to gather information on releases at the facility. The RFA process includes an evaluation of SWMUs as well as preliminary determinations regarding the need for further investigation. The RFA roughly equates to the PA conducted under the CERCLA environmental program.



**RCRA Facility Investigation (RFI).** An RFI is the second phase of the RCRA corrective action program for a facility conducted at installations where the RFA identified the need for further evaluation. The RFI consists of multimedia investigations conducted to characterize the extent of releases at the RCRA facility. The RFI roughly equates to the RI conducted under the CERCLA environmental restoration process.

**Record of Decision (ROD).** This document formalizes the selection of remedial actions that are to be implemented at an NPL site. The ROD certifies that the remedy selection process was carried out in accordance with CERCLA and the NCP. It describes the treatment, engineering, and institutional components of the remedial action and remediation goals. The ROD roughly equates to a DD for a non-NPL site.

**Remedial Action (RA).** RA is the final phase of the CERCLA environmental restoration process during which the actual construction of the remedy or implementation phase of site cleanup occurs. When all phases of the remedial activity at the site have been completed in compliance with the terms of the ROD or DD, the site can be designated NFRAP.

**Remedial Design (RD).** RD is the engineering phase of the CERCLA environmental restoration process, during which technical drawings and specifications are developed for the subsequent RA. These specifications are based upon the detailed description of the remedy and the cleanup criteria provided in the ROD or DD.

**Remedial Investigation (RI).** The RI is the CERCLA environmental restoration process phase undertaken to determine the nature and extent of the problem represented by a release of CERCLA hazardous substances. The RI includes multimedia sampling, field studies, monitoring, data analysis, and completion of a baseline risk assessment and ecological evaluation to determine the nature, extent, and impacts to human health and the environment from contaminants present at the site if no remedial action is taken.

**Resource Conservation and Recovery Act (RCRA).** This Act is Federal law introduced in 1976 as an amendment to the Solid Waste Disposal Act. RCRA consists of nine subtitles, including subtitles C, D, and I, which outline management requirements for hazardous waste, solid waste, and underground storage tanks containing petroleum products, respectively.

**Restoration Advisory Board (RAB).** The RAB acts as a forum for discussion and exchange of cleanup information between the DOD installation representatives and the public at BRAC installations where property will be available for transfer. The RAB consists of a DOD component, USEPA, state environmental agency, and local community representatives, and is jointly chaired by the BEC and a local community member.


**Site Inspection (SI).** The SI is a CERCLA investigation conducted if a PA indicates the need for further investigation. SIs routinely involve visual inspections and the collection and analysis of multimedia samples to evaluate the extent of the problem and to determine whether a more detailed study, such as an RI/FS, is necessary.

**Solid Waste Management Unit (SWMU).** A SWMU is an area or unit at a RCRA facility from which hazardous constituents might migrate. SWMUs may include containers, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators and recycling units, and wastewater treatment units.

**Spill Prevention Control and Countermeasures (SPCC).** These are actions taken by an installation to address potential releases of hazardous substances or petroleum products. An SPCC Plan, which documents procedures established by an installation to effect these response actions, may be required for an installation pursuant to the Clean Water Act, RCRA, or SARA.

**Superfund Amendments and Reauthorization Act (SARA).** SARA is the law and amendments to CERCLA that address liability, compensation, cleanup, and emergency response for hazardous substance releases. Title III of SARA established EPCRA.

**Zone.** A zone is a geographically contiguous area amenable to investigation in an SI or RI as a single unit identified to organize installation field efforts, group data from multiple investigations, facilitate the development of conceptual site models, prepare detailed maps, and otherwise manage investigation activities. Zones are different than OU response actions.



## Executive Summary

**BRAC Cleanup Plan Executive Summary  
Jefferson Proving Ground**

**INSTALLATION SUMMARY**

- Location:** Jefferson Proving Ground (JPG) is located in Madison, Jefferson, Jennings, and Ripley Counties, Indiana, approximately 5 miles north of the city of Madison.
- Size (in acres):** JPG is situated on 55,264 acres, which is also the total Base Realignment and Closure (BRAC) acreage. Three reuse parcels have been identified for JPG: the Northern Firing Range reuse parcel (50,950 acres), Southern Cantonment Area reuse parcel (4,310 acres), and Off-Post Pumphouse (1.2 acres).

**BRAC ENVIRONMENTAL SUMMARY**

- BRAC Cleanup Team:** The JPG BRAC Cleanup Team (BCT), formed in 1994, acts as the primary forum in which issues affecting the cleanup of the installation to facilitate reuse are addressed. The team is led by Paul Cloud, the BRAC Environmental Coordinator (BEC). The other two members include Remedial Project Managers from the U.S. Environmental Protection Agency (USEPA), Region V, Karen Mason-Smith, and Indiana Department of Environmental Management (IDEM), John J. Manley, Jr.
- Restoration Advisory Board:** The Restoration Advisory Board (RAB) is an advisory organization providing the opportunity for open discussions and exchange of information regarding JPG's environmental restoration program. The 19-member board is chaired by Paul Cloud, the BEC, and co-chaired by a member of the community, Richard Hill. Members also include the USEPA, IDEM, county officials, and local citizens. Since its first meeting in 1994, the RAB has met on a quarterly basis.
- Fast-Track Initiatives:** The BCT has identified and implemented a number of initiatives to accelerate cleanup and conveyance of property. These include using and validating key technologies to expedite cleanup, implementing removal actions to eliminate hot spots, using improved contracting procedures, identifying clean properties to facilitate transfers, coordinating with the community on reuse planning, and using innovative management techniques to expedite decisions affecting cleanup and transfer of property. As a result of several of these initiatives, environmental restoration activities have proceeded smoothly and rapidly. For instance, with state-of-the-art technology, the U.S. Army has surveyed and cleared several hundred acres in the Southern Cantonment Area in the past year and leased or transferred more than 3,500 acres.

**BRAC Cleanup Plan Executive Summary  
Jefferson Proving Ground (Continued)**

**Fast-Track  
Initiatives  
(continued):**

In addition, the Army has cleaned up several sites under the Resource Conservation and Recovery Act (RCRA) program through expedited removal actions and informed and involved local citizens on JPG's closure process in meetings and through fact sheets. The BCT has worked together closely on site cleanups and property transfers to ensure decisions are made quickly and cooperatively. In May 1997, the U.S. Army and the U.S. Fish and Wildlife Service (USFWS) signed a Memorandum of Understanding (MOU) on the area north of the firing line.

**Reuse Plan:**

JPG was identified for closure in 1988 and officially closed in September 1995. During the closure process, cleanup requirements and potential land reuse options were identified and evaluated in cooperation with the community. In October 1992, the U.S. Army issued a Cleanup and Reuse Options Plan for JPG, which was followed in 1994 by the JPG Reuse Plan developed by the Regional Development Board (RDB). The Reuse Plan identifies three reuse parcels: the Northern Firing Range, Southern Cantonment Area, and an Off-Post Pump House. As of May 1997, 3,400 acres (including 300 buildings) in the Southern Cantonment Area have been leased in furtherance of conveyance, and Building 216 and railroad trackage have been transferred. The other parcels, the Off-Post Pump Station, Krueger Lake Area, and the Papermill Road and Woodfill Road Area, currently are being transferred. Parcels of land currently are being leased for use by the Indiana Air National Guard. The U.S. Army and USFWS MOU is serving as a framework for managing natural resources in the Northern Firing Range.

**NEPA:**

The Final Environmental Impact Statement (EIS) for Disposal and Reuse of JPG was issued in September 1995. This EIS addresses the closure of JPG as the primary action and reuse as a secondary action. A Record of Decision (ROD) for the EIS was released in December 1995.

**Regulatory  
Programs:**

Environmental restoration programs at JPG are being conducted under the BRAC Installation Restoration Program (IRP) in compliance with the U.S. Department of Defense (DOD), State of Indiana, and Federal statutes and regulations, particularly the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Environmental compliance programs at JPG are conducted in compliance with applicable Federal and state regulations, including those administered under the Clean Air Act, Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act (RCRA), and the Superfund Amendments and Reauthorization Act (SARA).

**BRAC Cleanup Plan Executive Summary  
Jefferson Proving Ground (Continued)**

**COMPLIANCE**

<b>Underground Storage Tanks:</b>	A total of 70 underground storage tanks (USTs) have been removed under Indiana's UST Program. Two aboveground storage tanks (ASTs) are currently active and being managed by Ford Lumber and Supply Company, the lessee for the Southern Cantonment Area parcel.
<b>Solid Waste Management Units:</b>	JPG generated large quantities of dunnage and waste, construction rubble, debris, and office waste, which was either burned or landfilled. The Gate 19 landfill, closed in 1993, is currently undergoing a post-closure monitoring program. The remediation of soil and groundwater associated with solvent and burn pits currently is being addressed in an ongoing Remedial Investigation/Feasibility Study (RI/FS).
<b>Hazardous Waste Management:</b>	All hazardous wastes generated at JPG were transported to the hazardous storage area at Building 305 for storage prior to disposal by Defense Reutilization Marketing Office (DRMO) or recycling. The hazardous waste storage area was a RCRA Interim Status unit. A closure plan for this unit was submitted to the State of Indiana in 1989 and was approved. Usage of Building 305 as a less-than-90-day storage facility ceased on June 1, 1995. The IDEM-approved closure plan was implemented and successfully closed in June 1996.
<b>Air:</b>	Prior to closure, JPG had a permit exemption from the State of Indiana to operate the installation's incinerators and boilers. These facilities are no longer in use and are in the process of being closed. In addition, the Open Burning and Open Detonation (OB/OD) unit operated under RCRA. This permit was renewed annually when JPG was operational. The U.S. Army currently has no active air permits.
<b>Water:</b>	Point source discharges from the Sewage Treatment Plant (STP) were regulated under JPG's National Pollutant Discharge Elimination System (NPDES) permit. When the Southern Cantonment Area was leased to Ford Lumber and Supply Company, this permit became the responsibility of the lessee.
<b>Asbestos:</b>	As a result of a comprehensive asbestos survey in 1993, a total of 345 buildings were inspected and provided with ratings, none of which required immediate action. No major abatement actions have occurred at JPG.



**BRAC Cleanup Plan Executive Summary  
Jefferson Proving Ground (Continued)**

<b>Natural and Cultural Resources:</b>	A Memorandum of Agreement (MOA) between the U.S. Army, the Advisory Council, and the Indiana State Historic Preservation Office (SHPO) concerning closure of JPG stipulates preparation of a cultural resource management plan. In accordance with this MOA, the JPG Cultural Resource Management Plan was prepared in 1996 and based on earlier comprehensive surveys of the area. The U.S. Army and the State of Indiana are working on a strategy for implementing this plan.
<b>Depleted Uranium:</b>	During operation, JPG tested depleted uranium (DU) penetrators and munitions. Support buildings and facilities in the area south of the firing line have been inspected and released for unrestricted use. The DU impact area, north of the firing line, currently is being investigated in an EIS being conducted by the Nuclear Regulatory Commission (NRC).
<b>Unexploded Ordnance:</b>	As a result of an archive record search, approximately 2,234 acres south of the firing line were identified as having potential unexploded ordnance (UXO). A UXO removal action commenced in May 1996 and has resulted in survey and clearance of almost 130 acres in the Cantonment Area. Current plans are to complete the clearance activities in the next 3 to 4 years. Because of the personnel safety hazards and high degree of UXO contamination in the area north of the firing line, no intrusive environmental investigations or remediations are planned north of the firing line. The U.S. Army has undertaken initiatives to strengthen the security of the area, including installation of new fencing; additional surveillance; and information distribution to visitors, onsite employees of companies leasing property from Ford Lumber and Supply Company, and the general public.

**EXECUTION ISSUES**

The BCT is jointly addressing a number of significant issues affecting environmental restoration and property transfer. The BCT action items are shown in Table ES-1. The more timely issues include:

- Conducting a comprehensive UXO management program
- Implementing, in response to the community concerns, a more proactive community involvement program
- Assessing and closing out the OB/OD areas.

**Table ES-1. BCT/Project Team Action Items**

Action Item	Status			
	Program Review Item	In Progress	To Be Performed	Completed
<b>COMPLIANCE ACTIVITIES</b>				
UST Removal/Compliance - Installation-wide tank removal	7			X
Hazardous Materials/Waste Management - Close accumulation areas	7			X
Wastewater Discharge - Monitoring in accordance with permit - Transfer permit to reuse entity	16, 20 16			X
Air Emissions - Determine if air permit is required for remediation activities	16, 22, 25			X
NEPA - Obtain ROD for Disposal and Reuse EIS	22, 27			X
<b>ENVIRONMENTAL RESTORATION ACTIVITIES</b>				
Environmental Condition of Property - Complete RI/FS of Cantonment Area	4, 9, 15, 17, 22	X		
Suitability of Property for Transfer - Support McKinney Act screening	22, 28			X
- Determine required and acceptable deed restrictions or controls	22, 28, 32	X		
- Integrate disposal and reuse priorities into restoration and compliance scheduling	3, 17, 18, 22	X		
- Develop post-wide remedial action strategy	17, 22	X		
- Develop risk assessment protocols	17, 22, 24	X		
- Resolve ARARs questions	22, 25	X		
- Perform additional site-specific EBSs to complement IRP studies for specific parcels, as required	22	X		
- Verify adequacy of investigative zones	10, 22	X		
- Resolve planned sequence of operable units; describe strategy	12, 22	X		
- Incorporate streamlining concepts into installation's remedy selection approach	15, 22	X		
- Develop master restoration schedule	17, 22	X		
- Summarize status of disposal and reuse planning effort	22, 27	X		
- Develop table indicating information for each reuse parcel	22, 29	X		

**Table ES-1. BCT/Project Team Action Items (continued)**

Action Item	Status			
	Program Review Item	In Progress	To Be Performed	Completed
<b>COMMUNITY RELATIONS ACTIVITIES</b>				
Develop community relations plan	8, 14			X
Establish RAB	8, 14			X
Keep current public information repository	8, 14	X		
Ensure development of environmental restoration program fact sheets and accessibility to public	8, 14	X		
Identify opportunities to combine disposal planning-related community involvement activities with restoration-related community involvement activities	22, 30	X		
<b>MANAGEMENT AND ADMINISTRATIVE SUPPORT ACTIVITIES</b>				
Establish and maintain data base for information management	21	X		
Establish background concentration levels for use in risk assessments	22, 23	X		
Establish data quality objectives	20, 22	X		
Support update of BCP periodically	27, 33	X		
Determine requirements by fiscal year	17	X		
BCT resolve BCP data gaps	22	X		
Identify opportunities to document the anticipated remedial response process for each site or area in installation's Disposal and Reuse EIS	22, 31	X		
Identify land reuses for specific parcels and ensure that these uses are considered during the development of risk assessment protocols and cleanup objectives	22, 23	X		

## **1. INTRODUCTION AND SUMMARY**

This Base Realignment and Closure (BRAC) Cleanup Plan (BCP) summarizes the current status of Jefferson Proving Ground's (JPG's) environmental restoration and associated environmental compliance programs. The BCP also presents a comprehensive strategy for implementing response actions at the installation necessary to protect human health and the environment. This implementation strategy integrates activities being performed under the BRAC Installation Restoration Program (IRP) and installation environmental compliance programs to support restoration of JPG.

This BCP is intended to be a dynamic planning document. It was necessary to make certain assumptions and interpretations to develop the schedule and cost estimates provided. As additional data become available, implementation strategies and cost estimates could be altered. Such changes then would be reflected in future updates to the BCP. This version of the BCP was prepared with information available as of May 1997.

Section 1 of the BCP presents the objectives of the environmental restoration program, explains the purpose of the BCP, introduces the Project Team formed to review the program, and provides a brief description and history of the installation.

Section 2 summarizes the current status of the JPG property disposal planning process and describes the relationship of the disposal process to other environmental programs.

Section 3 summarizes the current status and past history of the JPG IRP and associated environmental compliance programs, community relations activities that have occurred to date, and the environmental condition of the installation property.

Section 4 describes the installation-wide strategy for environmental restoration, including the strategies for addressing each site (as listed on the Restoration Management Information System

[RMIS] site summary chart) on the installation. This section also includes plans for managing responses under Federal and state compliance programs.

Section 5 provides master schedules of planned activities to be implemented during the environmental restoration program, including associated compliance activities.

Section 6 describes specific technical and/or administrative issues to be resolved and presents a strategy for resolving these issues.

Section 7 lists the primary references used in preparing the BCP.

This document includes the following appendices:

- Appendix A presents summary tables of past, current, and projected costs for the installation environmental restoration program.
- Appendix B presents technical documents and data loading summaries and listings of previous environmental restoration program deliverables by program and site.
- Appendix C presents summaries of Decision Documents (DDs) for each site or operable unit (OU) for which a remedial action (RA) was selected.
- Appendix D presents summaries of the DD for each site or OU for which a no further response action planned (NFRAP) decision has been made.
- Appendix E presents working conceptual models for each site, zone, or OU for which an RA was selected.
- Appendix F presents ancillary materials relevant to the BCP, including a BCP distribution list, a summary of issues related to environmental justice at JPG, a description of each environmental restoration site at JPG, vegetation classification and wetlands maps, and property suitable for transfer maps.

## **1.1 ENVIRONMENTAL RESPONSE OBJECTIVES**

The U.S. Army Test and Evaluation Command (TECOM), Headquarters is responsible for the management and overall implementation of environmental programs at JPG. The U.S. Army Environmental Center (USAEC); U.S. Army Corps of Engineers (USACE); U.S. Nuclear Regulatory Commission; U.S. Environmental Protection Agency (USEPA), Region V; and the

Indiana Department of Environmental Management (IDEM) provide environmental investigations, remedial design (RD), RA, and compliance support. The combined objectives of the BRAC Cleanup Team (BCT), USAEC, and other supporting U.S. Army agencies for the installation environmental restoration and compliance programs at JPG are as follows:

- Protect human health and the environment
- Strive to meet reuse goals established by the U.S. Army and the community, consistent with legislation relevant to JPG closure
- Comply with existing statutes and regulations
- Conduct all environmental restoration activities in a manner consistent with Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), the State of Indiana, and other applicable regulations
- Meet Federal Facility Agreement (FFA) and Post-Closure and Corrective Action Permit schedules and deadlines, as applicable
- Perform ongoing investigations to identify and evaluate potential source areas as well as those areas currently being investigated
- Continue to identify and map the environmental condition of installation property, including areas of no suspected contamination, with the intent of identifying areas suitable for transfer by deed
- Conduct site-specific environmental baseline surveys (EBSs), as necessary, to support transfer and lease of property
- Establish priorities for environmental restoration and restoration-related compliance activities so that property disposal and reuse goals can be met
- Develop, screen, select, and initiate selected removal actions to control, eliminate, or reduce risks to manageable levels as soon as practicable
- Complete the environmental restoration process as soon as practicable for each source area, zone, or OU, in an order of priority that takes into account both environmental concerns and redevelopment plans
- Continue to consider future land use when characterizing risks associated with releases of hazardous substances, pollutants, contaminants, or hazardous wastes
- Advise real estate personnel at USACE of property that is deemed suitable for transfer and properties that are not suitable for transfer because they are either not properly evaluated or pose an unacceptable human health or environmental risk
- Establish interim and Long-Term Monitoring (LTM) plans for RAs, as appropriate.

## **1.2 BCP PURPOSE, UPDATES, AND DISTRIBUTION**

This BCP summarizes the status of JPG's environmental restoration and compliance programs and the comprehensive strategy for environmental restoration and restoration-related compliance activities. It describes the response action approach being implemented at the installation in support of BRAC parcel disposal and reuse. In addition, the BCP defines the status of efforts to resolve technical issues so that continued progress and implementation of scheduled activities can occur. The JPG BCP strategy and schedule are designed to streamline and expedite the necessary response actions associated with JPG to facilitate the earliest possible disposal and reuse activities.

This BCP is a "living document;" it will be updated annually, or as necessary. Updates of the BCP are distributed to the BCT and the JPG Restoration Advisory Board (RAB) and placed in the JPG Administrative Record. The distribution list is provided in Appendix F as Table F-1.

## **1.3 BRAC CLEANUP TEAM/PROJECT TEAM**

The JPG BCT is led by Paul Cloud, the BRAC Environmental Coordinator (BEC). The other two BCT members are Remedial Project Managers from USEPA, Region V (Karen Mason-Smith) and IDEM (John J. Manley, Jr.).

The JPG Project Team consists of the BCT and additional individuals whom the BCT selects to assist in the environmental restoration process at JPG. The Project Team is led by the BEC. Project Team meetings are held regularly to conduct program reviews and reach consensus on decisions with the USEPA, Region V and IDEM.

Table 1-1 lists the current Project Team members and their specific roles and responsibilities. Other support staff who contribute in the areas of toxicology and risk assessment, legal, Resource Conservation and Recovery Act (RCRA) compliance, fate and transport, field support, ecological, etc. are not listed. BCT and Project Team members may consult/coordinate with additional staff on an as-needed basis.

**Table 1-1. Current BCT/Project Team Members**

<b>Name/Title/Organization</b>	<b>Telephone/Fax/E-Mail</b>	<b>Role/Responsibility</b>
<b>BCT MEMBERS</b>		
Cloud, Paul BRAC Environmental Coordinator U.S. Army, TECOM	(410) 278-1088/(800) 392-2015 x1088 (410) 278-8525 (Fax) pcloud@TEC.apg.army.mil	Jefferson Proving Ground BRAC Environmental Coordination
Manley, Jr., John J. Project Manager IDEM	(317) 308-3132 (317) 308-3063 (Fax) JJM@opn.dem.state.in.us	BRAC Closure Team Representative
Mason-Smith, Karen Project Manager USEPA	(312) 886-6150 (312) 886-0753 (Fax) mason-smith.karen@epamail.epa.gov	BRAC Closure Team Representative
<b>OTHER KEY PARTICIPANTS</b>		
Aaserude, Robert Health Physicist U.S. Army TECOM	(410) 278-1308	Depleted Uranium Decommissioning
Boldt, Glenn Project Manager USACE Louisville District	(410) 671-1611 (410) 671-1635 (Fax) gsboldt@aec1.apgea.army.mil	Contract Management and Oversight
Briggs, John Project Manager USACE-Louisville District	(502) 625-7682 jbriggs@jnbp.orl.usace.army.mil	Technical and Real Estate Support
Crawford, Bill Chemist IDEM	(317) 308-3157 (317) 308-3086 (Fax) brc@opn.dem.state.in.us	IDEM Technical Support
Chrystof, Mike Chemist USEPA Region V	(312) 353-3705 (312) 353-8426 (Fax) chrystof.mike@epamail.epa.gov	USEPA Technical Support
Early, Mike BRAC Transition Coordinator Department of Defense	(410) 278-1189 (410) 278-8715 (Fax) mearly@tec1.apg.army.mil	Liaison with Community
Gibbs, Cynthia Legal Counsel IDEM	(317) 232-8572 (317) 233-5517 (Fax) cad@opn.dem.state.in.us	IDEM Legal Support
Hill, Richard Co-Chairman JPG Restoration Advisory Board	(812) 265-2580 x4156 (812) 265-4028 (Fax) phill@venus.net	Community Restoration Advisory Board Co-Chairman
Johnson, Mark Toxicologist USEPA Region V	(312) 353-9298 (312) 353-8426 (Fax) johnson.mark@epamail.epa.gov	USEPA Technical Support
Knouf, Ken Site Manager Jefferson Proving Ground	(812) 273-2551 (812) 273-2853 (Fax)	Jefferson Proving Ground Site Management (Caretaker Office)
Kosko, Nancy Environmental U. S. Army TECOM	(410) 278-1083	Headquarters Point-of-Contact
Migdalski, T. USAEC (Environmental Compliance)	(410) 612-6868	Open Burning/Open Detonation Permitting
Pittiglio, Larry Program Manager Nuclear Regulatory Commission	(301) 415-6702 (301) 415-5398 (Fax)	License Termination
Poe, S. Geologist IDEM	(317) 308-3150	IDEM Technical Support
Pruitt, Scott Area Office Manager USFWS	(812) 334-4261	Department of Interior Point-of-Contact
Rice, Cliff Project Manager IDEM, LUST Division	(317) 308-3101	IDEM Technical Support



**Table 1-1. Current BCT/Project Team Members (continued)**

<b>Name/Title/Organization</b>	<b>Telephone/Fax/E-Mail</b>	<b>Role/Responsibility</b>
Rigano, Kelly Technical Specialist USAEC	(410) 278-1083 (410) 612-6836 (Fax) karigana@aec2.apgea.army.mil	UXO Demonstration
Smith, Jim Natural Resource Specialist IDEM	(317) 308-3003 js@opn.dem.state.in.us	IDEM Technical Support
Smith, Tom Project Geologist USEPA	(312) 886-6540 (312) 353-8426 (Fax) smith.thomas@epa.gov	USEPA Technical Support
Williamson III, George Real Estate Specialist USACE	(502) 625-7373	Real Estate Management
Witt-Smith, Carol RCRA Facility Manager USEPA	(312) 886-6146 (312) 353-4788 (Fax) wittsmith.carol@epamail.epa.gov	USEPA RCRA Support
<b>CONTRACTORS</b>		
Buoni, Corinne Project Manager SAIC	(703) 734-5997 (703) 506-0354 (Fax) corinne_buoni@cpqm.saic.com	Community Relations Technical Support; BRAC Cleanup Plan
Droughton, Toby Project Manager Planning Research Corporation	(513) 241-0149 (513) 241-0354 (Fax) drought@prcemi.com	UXO Demonstration
Ebinger, Michael Project Manager Los Alamos National Laboratory	(505) 667-3147	Depleted Uranium Decommissioning Technical Support
Hanoski, Richard Project Manager Human Factors Association	(301) 705-5044 (301) 705-7561 (Fax) waldorf@hfactors.com	UXO Survey and Removal
Hodson, Holly RI/FS Manager Rust Environment and Infrastructure	(303) 804-2334 (303) 694-4410 (Fax)	RI/FS Technical Support
Sandrin, Joseph Project Manager CH2M Hill	(414) 272-2526 x346 (414) 272-4408 (Fax) jsandrin@ch2m.com	USEPA Technical Support Contractor
Venkateshwara, L. Project Manager Halliburton NUS	(301) 258-1883	Open Burning/Open Detonation Technical Support; Permitting

**Key:**  
 BCT = BRAC Cleanup Team  
 BRAC = Base Realignment and Closure  
 IDEM = Indiana Department of Environmental Management  
 JPG = Jefferson Proving Ground  
 LUST = Leaking Underground Storage Tank  
 RCRA = Resource Conservation and Recovery Act  
 RI/FS = Remedial Investigation/Feasibility Study  
 SAIC = Science Applications International Corporation  
 TECOM = Test and Evaluation Command  
 USACE = U.S. Army Corps of Engineers  
 USAEC = U.S. Army Environmental Center  
 USFWS = U.S. Fish and Wildlife Service  
 USEPA = U.S. Environmental Protection Agency  
 UXO = Unexploded Ordnance

## **1.4 INSTALLATION DESCRIPTION AND HISTORY**

This section provides a general description and historical summary of JPG.

### ***1.4.1 General Property Description***

JPG is located on 55,264 acres in Jefferson, Jennings, and Ripley Counties, Indiana, approximately 5 miles north of the city of Madison and 45 miles northeast of Louisville, Kentucky. Figure 1-1 shows the general location of the installation.

The facility is divided into a northern impact area and a southern Cantonment Area, separated by a firing line consisting of 268 former gun positions that were used for the testing of ordnance until September 1994. This line runs east-west across the width of the facility and is separated from the Cantonment Area by a new east-west firing line fence. The northern area consists of 51,000 acres of undeveloped and heavily wooded land. Numerous discrete areas in this part of the facility have been cleared and were targeted during certain munitions tests. The southern Cantonment Area houses the support facilities that were used for administration, ammunition assembly and testing, vehicle maintenance, and residential housing. Up to September 1994, this area also was used for ammunition assembly and testing and weapons maintenance. Most of these buildings are situated along a 1-mile-wide strip just south of the Firing Line Road (also known as Main Front Road). An abandoned airport with four runways and a hangar building are located in the southwest corner of the facility. JPG contains 379 buildings, 182 miles of roads, and 48 miles of boundary fenceline.

The majority of the land adjacent to JPG is agricultural and rural residential. Figure 1-2 shows surrounding land use at the installation.

### ***1.4.2 History of Installation***

JPG was constructed in 1940-41, just prior to the U.S. involvement in World War II. In 1940, the Chief of Ordnance, U.S. Army Service Forces, determined the need for a large proving ground to simultaneously conduct research while performing development and production

acceptance tests. JPG was constructed because existing U.S. Army proving grounds were determined to be inadequate to support the perceived World War II effort.

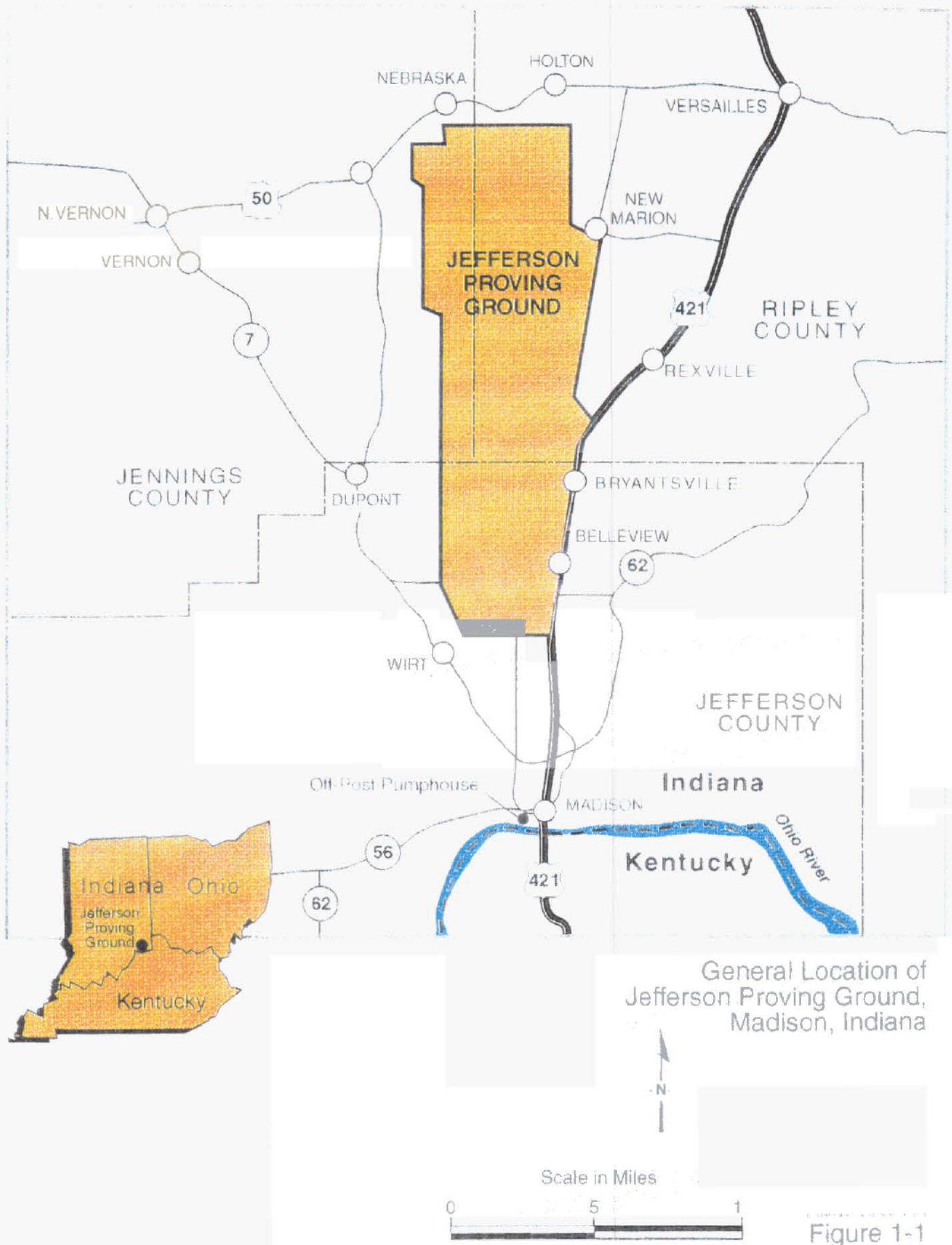
Test operations at the installation conducted during World War II consisted of production acceptance tests of ammunition and weapons systems, and their components. Test munitions included high-explosive projectiles, propellants, cartridges, primers, fuzes, boosters, bombs, and grenades. More than 7 million rounds were fired from the initial test in 1941 to September 1945.

After World War II, testing activities were sharply reduced. In March 1946, U.S. Army officials discontinued JPG's status as an independent command and included it as a subpost under the control of the Indiana Arsenal, placing most of JPG on standby status. In June 1950, the outbreak of the Korean Conflict prompted JPG's return to active status. Special production engineering tests as well as research and development tests were conducted during the 1951 to 1955 time period. In July 1958, JPG again was placed on standby status, but with ammunition test capabilities held at a high level of readiness. JPG remained on standby status until 1961.

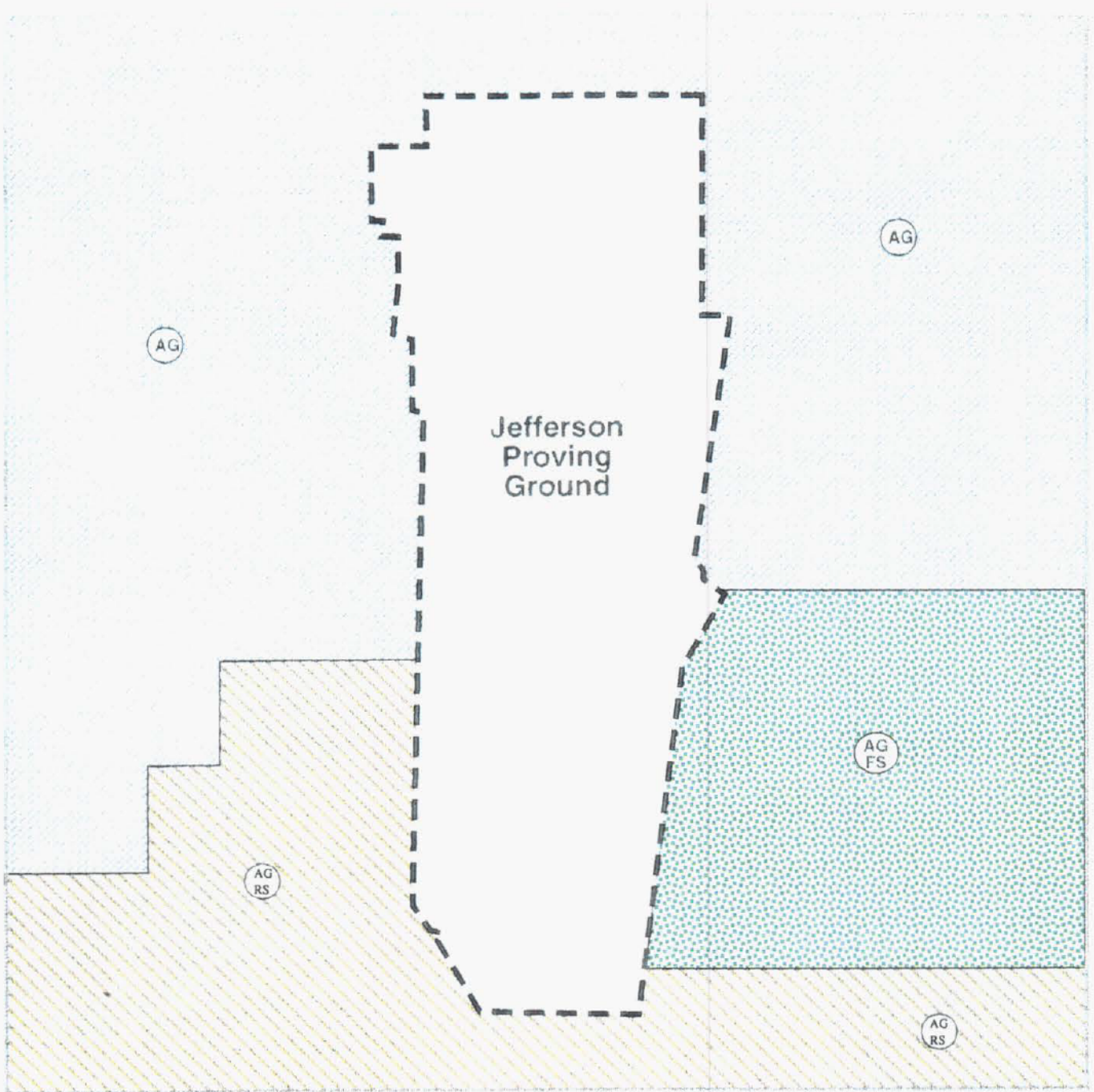
Effective August 1961, JPG was placed under the command of TECOM, headquartered at Aberdeen Proving Ground, Maryland, and JPG was reactivated to resume its proof test mission in September 1961. At that time, JPG added white phosphorous munitions and in 1984 added depleted uranium (DU) kinetic energy penetrators to its list of test munitions responsibilities.

In 1988, JPG was one of many installations identified for closure. The mission was realigned to Yuma Proving Ground, Arizona. Under the guidelines for the installation closure plan, testing activities ceased in September 1994, and the facility closed in September 1995.





Nearly 700 tracts of land were acquired during 1939 and 1940 to create JPG. A property acquisition summary for the installation is provided in the installation Community Environmental Response Facilitation Act (CERFA) Report (Figure 5-2, Tract Maps for JPG). The tract maps are composed of five sheet maps. The historical activities conducted at the installation are outlined in Table 1-2 by activity period.

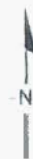


*Jefferson Proving Ground, Indiana*



# EXPLANATION

-  Agricultural/Residential
-  Agricultural
-  Agricultural Forestry
-  Installation Boundary



Surrounding  
Off-Post  
Land Use

Figure 1-2

*Jefferson Proving Ground, Indiana*

**Table 1-2. History of Installation Operations**

<b>Period</b>	<b>Type of Operation</b>	<b>Weapons Systems</b>	<b>Environmentally Significant Activities</b>	<b>Activity Designator*</b>
1941–1945	JPG, under command of U.S. Army Service Forces. Production acceptance tests of ammunition and weapons systems, and their components.	High-explosive projectiles, propellants, cartridges, primers, fuzes, boosters, bombs, and grenades	Open burning/open detonation; landfill/disposal areas; hazardous substance storage; POL release; incineration; painting/sanding	1 2 3 4 5 6
1946–1951	JPG, under command of Indiana Arsenal. On standby status.	None	None	NA
1951–1958	JPG returns to active status. Special production engineering tests as well as research and development tests.	High-explosive projectiles, propellants, cartridges, primers, fuzes, boosters, bombs, and grenades	Open burning/open detonation; landfill/disposal areas; hazardous substance storage; POL release; incineration; painting/sanding	1 2 3 4 5 6
1958–1961	JPG on standby status.	None	None	NA
1961–1995	JPG, under command of U.S. Army TECOM	High-explosive projectiles, propellants, cartridges, primers, fuzes, boosters, bombs, and grenades	Open burning/open detonation; landfill/disposal areas; hazardous substance storage; POL release; incineration; painting/sanding; DU testing (1984)	1 2 3 4 5 6 7

\*Refers to Figure 1-3 to identify the location of these activities at JPG.

**Key:**

DU = Depleted Uranium  
 JPG = Jefferson Proving Ground  
 NA = Not Applicable  
 POL = Petroleum, Oil, and Lubricant  
 TECOM = Test and Evaluation Command



## **1.5 ENVIRONMENTAL SETTING**

This section describes the environmental setting at JPG, including topography, geology, hydrogeology, and surface water hydrology.

### ***1.5.1 Topography***

JPG is approximately 85 miles southeast of Indianapolis, Indiana, and 45 miles northeast of Louisville, Kentucky. The installation is rectangular in shape, measuring approximately 17.2 miles long (north-south) and 5 miles wide.

The installation is located within the Till Plains Section of the Interior Lowlands Physiographic Province and lies within the White River Basin. The topography of the region slopes gently from east to west at an average rate of 15 to 20 feet per mile. Elevations range from 900 feet above mean sea level (msl) at the eastern installation boundary to 750 feet above msl at Middle Fork Creek at the western boundary. The topography of the southern two-thirds of the installation is flat, whereas that of the northern third is rolling. The topography in the northern portion of the installation is influenced by several incised stream valleys, where the streams have cut into the underlying bedrock units, forming steeply sloping relief features (up to 75 feet vertically).

### ***1.5.2 Geology***

The subsurface geology at JPG generally consists of unconsolidated glacial deposits overlying carbonate bedrock units from 0 to 50 feet below ground surface (BGS). The unconsolidated material consists of a thin veneer of silty loam soil overlying Illinoian Age glacial till deposits. The soils consist primarily of well-drained to poorly drained silt loams. The till deposits are composed predominantly of silts and clays with minor amounts of gravel and rock fragments. The tills generally are not present in the incised river valleys where bedrock has been breached. Some clayey silt is present in the low-lying areas of some of the larger rivers and creeks.

The carbonate bedrock units consist of thick sequences of interbedded limestones (or dolomites) and shales. The units range in age from Ordovician (oldest) to Silurian or Devonian (youngest). Silurian Age limestones and dolomites directly underlie the glacial deposits throughout

most of the installation. The compositions of these units are variable, ranging from compact crystalline limestone to fine-grained, porous limestone and dolomite and dolomitic limestone. These range in thickness from 60 to 120 feet, and unconformably overlie Ordovician Age units.

Ordovician Age units consist of limestones, dolomites, and shales. These units are exposed in the incised valleys formed by Otter Creek and Graham Creek in the northern portion of the installation. The compositions of the Ordovician Age units range from fine-grained limestones to interbedded shales and limestones.

### ***1.5.3 Hydrogeology***

The hydrogeologic units at JPG have been characterized using data from monitoring wells installed near the Gate 19 Landfill and Building 279. The hydrogeologic units consist of a perched water table that exists within 1 foot of the surface at the installation from December to April, water-bearing sand and gravel layers that exist within the glacial till, and aquifers within the Silurian and Devonian Age bedrock units. Groundwater typically occurs approximately 7 to 16 feet BGS near the Gate 19 Landfill and 6 to 11 feet BGS near Building 279. According to groundwater contour maps constructed for these areas, flow near the Gate 19 Landfill is toward the west-northwest, while in the vicinity of Building 279, flow is toward the north-northwest. The bedrock units have been described as poor sources of groundwater, as yields from the aquifers have been reported at less than 25 to 50 gallons per minute (gpm). The glacial till was not utilized as a drinking water aquifer in the area because of the predominance of silt and clay-sized particles in the deposits. The city of Madison provided water to JPG after the Off-Post Pumphouse, which formerly supplied JPG's water, was deactivated.

### ***1.5.4 Surface Water Hydrology***

The installation lies within the White River Basin. Eight major drainageways located within JPG flow within this basin from northeast to southwest. These drainageways include: Otter Creek, Little Otter Creek, Graham Creek, Little Graham Creek, Big Creek, Marble Creek, Middle Fork Creek, and Harberts Creek. Each of these creeks has a well-developed drainage network consisting of several tributaries. Surface water runoff in the northern portion of the installation is



controlled by these natural drainage networks. Surface drainage along roads in the northern portion of JPG is controlled by drainage ditches located adjacent to the roads. The ditches follow natural contours and discharge into the natural drainage areas.

Surface drainage south of Firing Line Road is managed by the storm sewer drainage system. In this system, surface runoff drains into surface inlets, through underground pipes, and into ditches. The ditches are located throughout the installation and generally flow to the southwest, ultimately discharging into surface streams.

Several ponds, lakes, and impoundments are located throughout JPG. Larger lakes include Krueger Lake, which is located in the southeastern portion of the installation, and Old Timbers Lake, which is located in the northeastern portion.

The National Wetlands Inventory Maps and the Gap Analysis performed by Indiana State University estimates that there are more than 6,400 acres of wetlands within JPG's boundaries. Wetlands located within the boundaries of JPG are depicted in Figure F-2 in Appendix F.

## **1.6 HAZARDOUS SUBSTANCES AND WASTE MANAGEMENT PRACTICES**

A variety of activities involving the handling of hazardous substances and generation of listed hazardous wastes; petroleum, oil, and lubricant (POL) wastes; and other waste materials occurred at the installation throughout its history. These activities are listed in Table 1-3. Figures 1-3a, 1-3b, and 1-3c identify the various locations in the Cantonment Area, Northern Firing Range, and Off-Post Pumphouse where these activities have occurred. These activities also are highlighted by historical time period in Table 1-2.

**Table 1-3. Hazardous Substance Activity Areas**

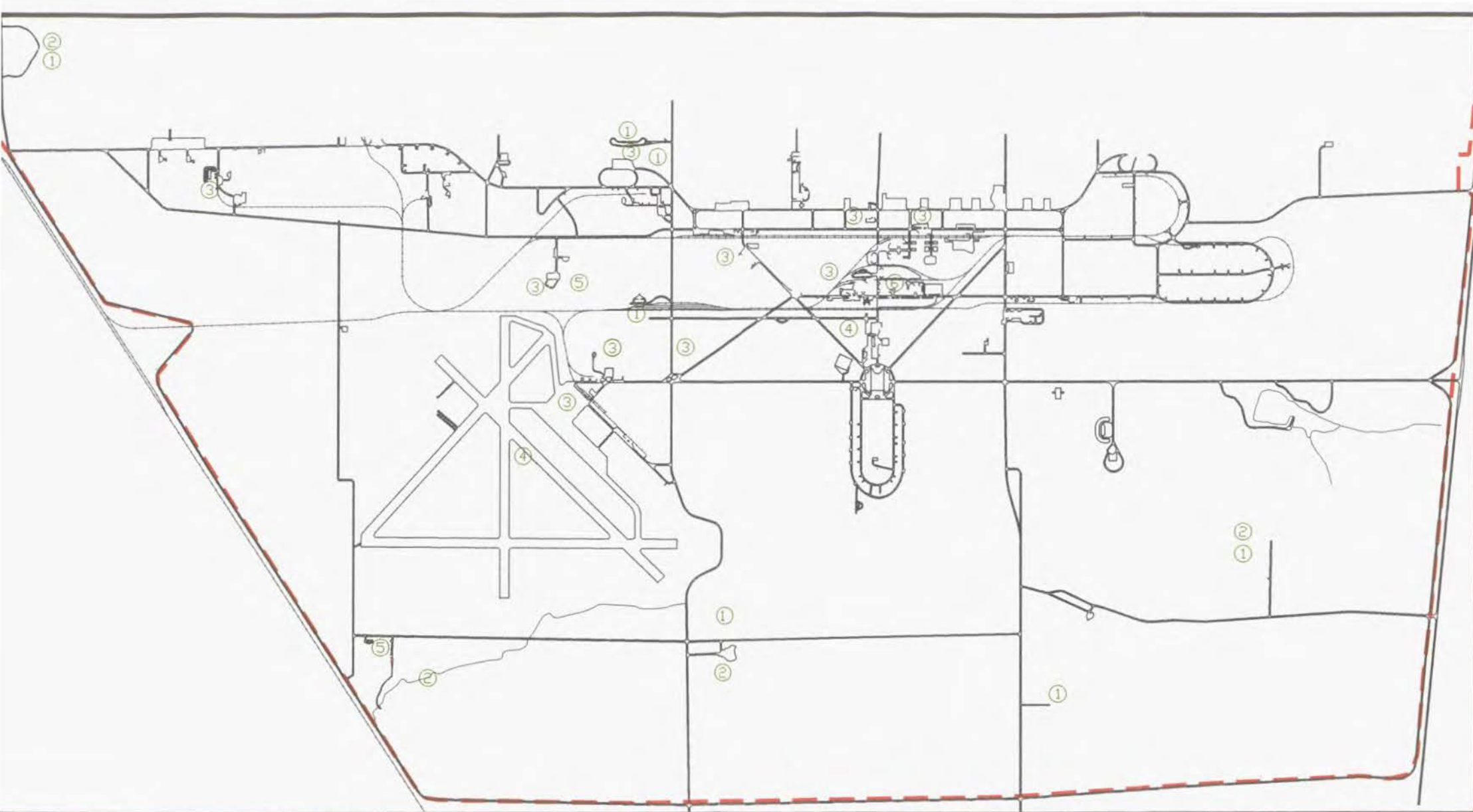
<b>Hazardous Substance Activity</b>	<b>Map Reference (See Figure 1-3)</b>
Open Burning/Open Detonation	1
Landfill/Disposal Areas	2
Hazardous Substance Storage	3
POL Release	4
Incineration	5
Painting/Sanding	6
Depleted Uranium Testing	7

Since the installation became operational in 1941, the general types of waste generation at JPG remained consistent. Three classes of waste were generated at JPG: hazardous waste from munitions testing activities; hazardous waste from installation maintenance and support activities, and miscellaneous solid waste, such as office trash. The hazardous waste generated by munitions testing was primarily reactive waste, such as scrap propellant and scrap high-explosive projectiles. These were disposed of through open burning/open detonation (OB/OD). In addition to reactive waste, some solvents were generated during inert shell loading and ordnance maintenance. The hazardous wastes generated during general installation maintenance activities were primarily spent solvents, waste paint, and photo finishing chemicals. Solid waste consisted primarily of packaging materials, construction rubble, sanitary wastewater, and miscellaneous solid waste. Table 1-4 outlines the hazardous waste generating activities that occurred at JPG prior to its closure in September 1995.

## **1.7 OFF-POST PROPERTY**

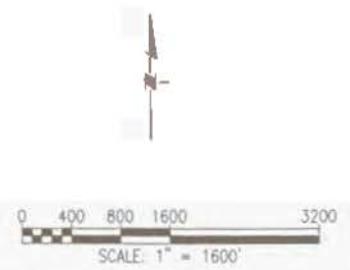
JPG owned one off-post property. The property is 1.19 acres and is located near the Madison Country Club in downtown Madison. The property was purchased in 1941, at approximately the same time as JPG's other property acquisitions. The area was used to house the installation's two drinking water wells that formerly supplied JPG with its drinking water.

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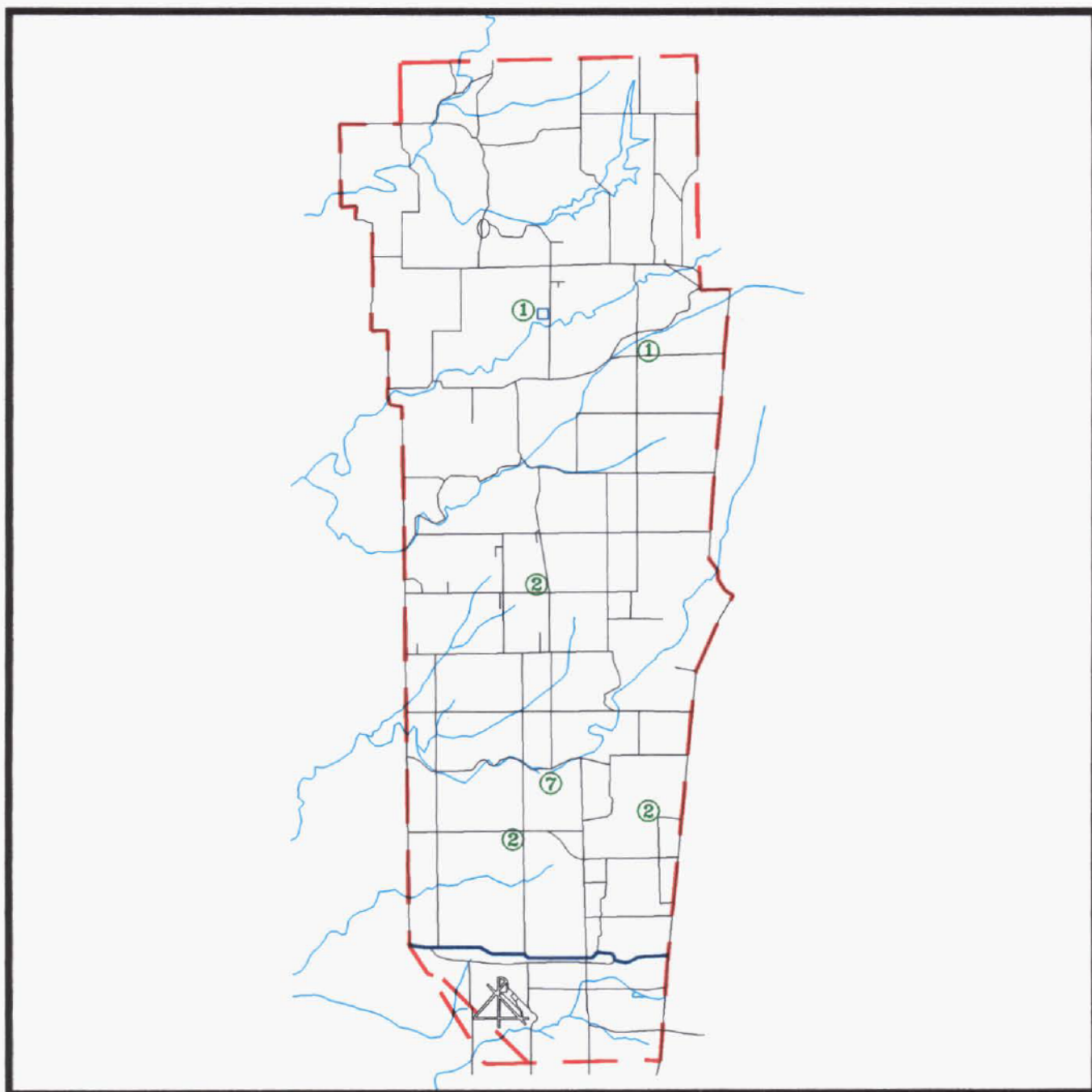
# LEGEND

- Installation Boundary
- ① Open Burning / Open Detention
- ② Landfill / Disposal Areas
- ③ Hazardous Substance Storage
- ④ PDL Release
- ⑤ Incineration
- ⑥ Painting / Sanding



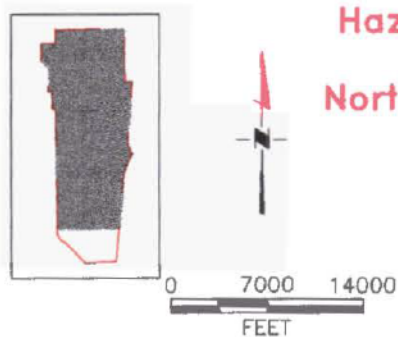
Location of Past  
Hazardous  
Substance Activities,  
Cantonment Area

Figure 1-3A



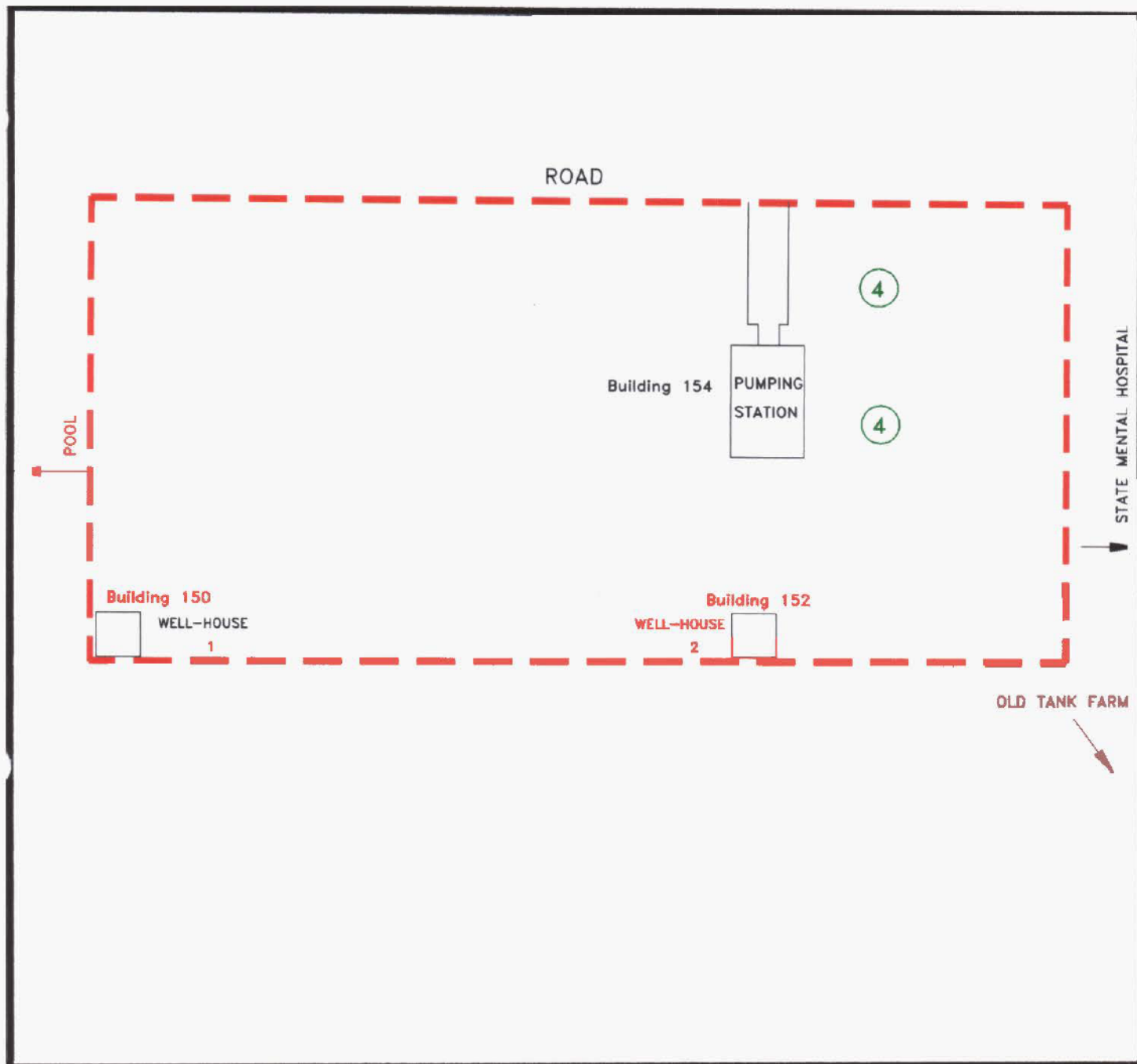
# LEGEND

- Installation Boundary
- ① Open Burning / Open Detention
- ② Landfill / Disposal Areas
- ⑦ Depleted Uranium Testing



Location of Past  
Hazardous Substance  
Activities,  
Northern Firing Range

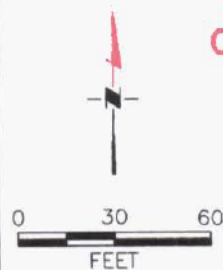
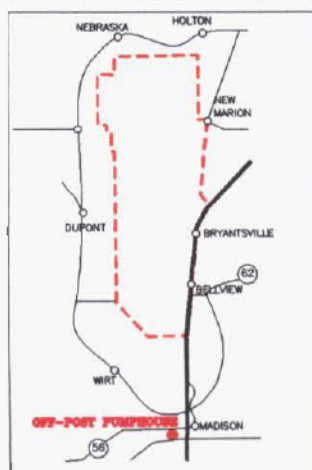
Figure 1-3B



## LEGEND

— — Installation Boundary

④ POL Release



Location of Past  
Hazardous  
Substance Activities,  
Off-Post Pumphouse

Figure 1-3C

Table 1-4. Former Hazardous Waste Generating Activities

Facility	Activity	Name of Waste Material	Generation Rate	Disposition
Abandoned Airport Runway	Storage of PCP treated wood pallets	PCP (not a RCRA hazardous waste)	1,000 pounds/year	Disposed of commercially.
Gator Z Mine Test Area	Land mine testing	Waste lithium batteries	300 pounds/year	Disposed of through DRMO.
Shonk Farm Detonation Ground	Open detonation	Excess, unserviceable explosives, and pyrotechnics	5,000 to 6,000 pounds/year	Onsite detonation.
Shun Pike Burn Area	Open burning in pans	Excess, unserviceable propellants, and explosives	40,000 pounds/year	Onsite open burning for propellants and explosives. Residue ash (600 pounds) analyzed (determined solid waste) and disposed of commercially.
Building 121	Painting/sanding operations	Papers, cloth rags with paint residue	55 gallon drum/month	Disposed of through DRMO.
Buildings 122, 305	Transformers removed from electrical service	PCB fluid (not a RCRA hazardous waste)	600 gallons (1992)	Disposed of through DRMO.
Building 136	Painting/sanding operations	Waste paint	110 gallons/month	Disposed of through DRMO.
Building 186	Vehicle maintenance	Used motor oil	1,000 gallon UST	Disposed of commercially.
		Used lead-acid batteries	1,500 pounds (200 batteries/year)	Disposed of through DRMO.
Building 211	Projectile filling	Excess, barium sulfate (80%) and paraffin wax (20%) (not a RCRA hazardous waste)	150 gallons/year	Disposed of commercially.
Building 305	Maintenance of buildings	Asbestos-containing material (not a RCRA hazardous waste)	1,000 pounds (1992)	Formerly disposed of at the Gate 19 Landfill.
Various Buildings	Parts cleaning	Waste petroleum naphtha	1,500 gallons/year	Recycled through Safety-Kleen.

## Key:

PCB = Polychlorinated Biphenyl  
 PCP = Pentachlorophenol  
 UST = Underground Storage Tank  
 RCRA = Resource Conservation and Recovery Act  
 DRMO = Defense Reutilization Marketing Office

A Finding of Suitability to Transfer (FOST) for this property was signed in February 1995 and transferred to the city of Madison in 1997. This off-post property is identified in Table 1-5 and is depicted in Figure 1-3c.

**Table 1-5. Off-Post Properties**

Description	Acreage	Date of Acquisition	Environmental Status	Location	Remarks
Water Pumping Station	1.19	1941	Remediated through UST removal and soil excavation and treatment, which was satisfactory to IDEM and completed in May 1994.	W. Main Street, Madison	Transferred to city of Madison in 1997

## 1.8 TENANT UNITS

Prior to JPG's closure in September 1995, the installation's real property records documented numerous tenants, the most significant of which are listed in Table 1-6. Of these tenants, only the Defense Reutilization Marketing Office (DRMO) and the Indiana Air National Guard conducted environmentally significant operations. The DRMO area consists of an outdoor, fenced area used to store various waste prior to off-post transfer. These may have included used batteries, spent 1,1,1-trichloroethane (1,1,1-TCA), waste paint, and polychlorinated biphenyls (PCBs). The Indiana Air National Guard used their tenant buildings to support an aircraft firing range located in the north-central portion of JPG. Tactical aircraft used practice rounds in simulated air-to-ground missions.

**Table 1-6. On-Post Tenant Units**

Tenant	Building
Occupational Health and Nursing Office	33
Defense Reutilization Marketing Office	189
181st Tactical Fighter Group, Indiana Air National Guard	114, 480, 481, 488



Other tenants located at the installation included the Madison Municipal Airport Authority, which used the airport in the western Cantonment Area. Randall Automotive (automotive parts manufacturer), Glastron (fiberglass boat manufacturer), and Federal Reserves (training) were tenants for a short time in the 1960's.

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## **2. PROPERTY DISPOSAL AND REUSE PLAN**

This section describes the status of the disposal planning process at Jefferson Proving Ground (JPG) and the relationship between the disposal process and environmental programs at the installation. Property transfer methods being used or considered in the disposal process also are identified.

### **2.1 STATUS OF DISPOSAL PLANNING PROCESS**

Base Realignment and Closure (BRAC) I, enacted in 1988, identified JPG for closure. Closure legislation began on September 30, 1991, and was completed on September 30, 1995. The disposal of JPG property involves three inter-related activities: the preparation of a Community Reuse Plan (CRP), the development of a disposal plan, and the development of a National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS). This three-part disposal process is designed to integrate goals of both the U.S. Army and the local community for the efficient transfer of the JPG mission within the U.S. Army and minimization of the impact of closure on the community. Each of these activities is outlined below.

#### **2.1.1 Reuse Plan**

In October 1992, the U.S. Army Materiel Command (USAMC) issued a Cleanup and Reuse Options Plan for JPG. This plan outlined the numerous reuse options available and the anticipated cost for cleanup. The JPG Regional Development Board (RDB) developed a reuse plan for JPG that was completed in August 1994. An addendum to the reuse plan was released on September 21, 1994.

The RDB CRP identifies several goals and potential reuses for JPG. The reuse objectives that have been identified for JPG include:

- Increase employment opportunities in the three-county area
- Stimulate effective land uses and redevelopment

- Induce substantial private investment
- Generate economic diversification for the three-county area
- Fulfill community needs that otherwise might go unfulfilled
- Increase the area's inventory of public and private recreational resources
- Phase the incremental scale of reuses to benefit sustained economic development at the installation and within the region
- Consistently improve local government coordination
- Reuse JPG in accordance with sound environmental quality principles
- Carry out the long-term reuse of JPG (as financially self-sufficient).

The CRP split the JPG property into three parcels to manage the property efficiently: the Northern Firing Range, the Southern Cantonment Area, and the Off-Post Pumphouse. These parcels are described in Table 2-1 and shown in Figure 2-1.

Reuse Plan Parcel A is the area north of Firing Line Road and is approximately 51,000 acres. Among the potential reuse options for all or selected portions of this acreage are an agri-business park, agri-business/industrial park, national wildlife refuge, forest land, commercial/public recreation, weapons/ammunition testing, other military uses, and as an unexploded ordnance (UXO) research center. In May 1997, the U.S. Fish and Wildlife Service (USFWS) and U.S. Army signed a Memorandum of Understanding (MOU) for the management of the area north of the firing line (see Section 2.3.1). The Indiana Air National Guard is using the 1,033-acre air gunnery range in the installation's northern section and may seek to increase the size of their active use footprint. The U.S. Army will continue to coordinate with these and other organizations on potential reuses of this area.

Reuse Plan Parcel B is the area south of Firing Line Road, also known as the Cantonment Area. This 4,314-acre parcel is JPG's most economically valuable area. Among the reuse options for Parcel B that have been considered are an industrial business park, recreational/open space, an aviation facility, and an international training facility. As a result of a bid on the property in 1996, approximately 3,400 acres in the Cantonment Area, with improvements, are being leased in

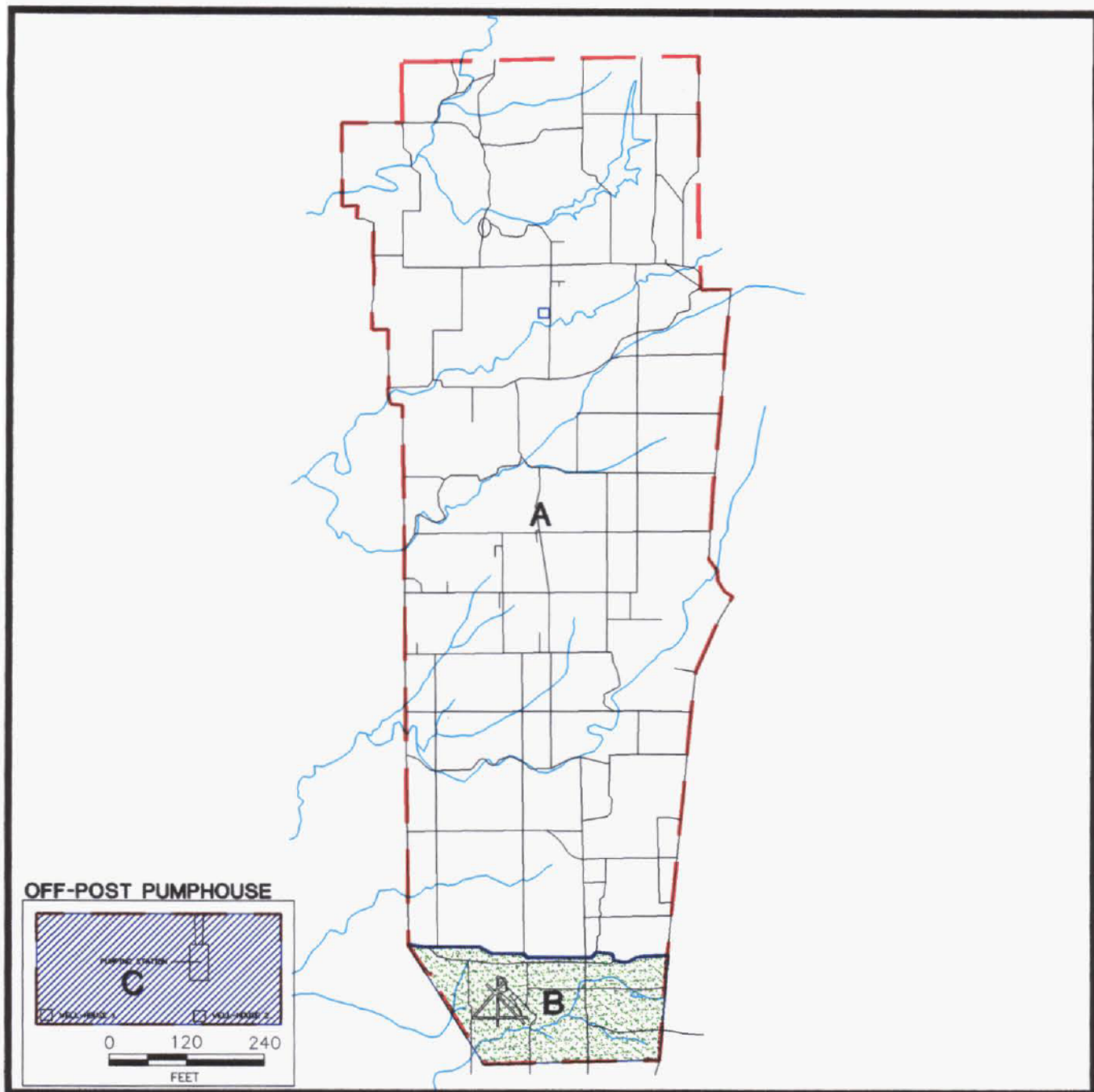
Table 2-1. Reuse Parcel Data Summary

Reuse Parcel	Acres	Priority	Description and Proposed Reuse	Known Sites (RMIS)	Projected Transfer Date	Transfer Mechanism	Recipient
A	50,950	Low	Northern Firing Range; 1,000 acres for reuse as training area for Air National Guard	13, 16-26, 32, 38, 40, 52, 53, 68, 71, 72, 73, 75	TBD	Federal Transfer	Indiana Air National Guard
B	4,314	High	Cantonment Area; 3,400 acres for commercial, residential, and agricultural reuse	1-12, 14, 15, 27-31, 33-37, 39, 41-51, 54-67, 69, 70, 74, 77-103	1997	Competitive public sale (leasing arrangement)	Ford Lumber and Building Supply Company
			Krueger Lake; 230 acres for recreational use area	N/A	1997	No-cost public benefit conveyance	Jefferson County
			Building 216 and associated railroad tracks; 10,065 sq. ft. for reuse as Like-Kind	39, 93	1997	No-cost public benefit conveyance	Madison Port Authority
			Papermill and Woodfill Road Area, includes Bldgs. 182, 186, 189, 193, 223, 227, and 231; 40 acres for commercial and residential reuse	49, 58, 62, 80, 82, 90, 91a	1997	Competitive public sale (transfer arrangement)	Ford Lumber and Building Supply Company
C	1.2	High	Off-Post Pumphouse; reuse as Like-Kind	76	1997	No-cost public conveyance	City of Madison, Indiana

**Key:**

MOU = Memorandum of Understanding  
 RMIS = Restoration Management Information System  
 USFWS = U.S. Fish and Wildlife Service  
 TBD = To Be Determined

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# EXPLANATION

- A Potential reuse on Air Force and Air National Guard Training Facility
- B To Be Determined, Potential Reuses include Commercial, Residential & Agricultural
- C Reuse as like-kind
- Installation Boundary

Disposal and Reuse Parcels



0 1750 3500  
FEET

Figure 2-1

furtherance of conveyance to Ford Lumber and Building Supply Company. The parcel contains approximately 300 buildings of permanent and semi-permanent construction. As of April 1997, Mr. Ford has leased a number of the buildings in Parcel B for residential and light industrial use and is farming approximately 300 acres. Table 2-2 summarizes the sublessees at JPG.

In addition to the 3,400-acre lease within Parcel B, three other areas have been transferred or are in the process of being transferred. These properties are shown in Figure 2-2 and described below:

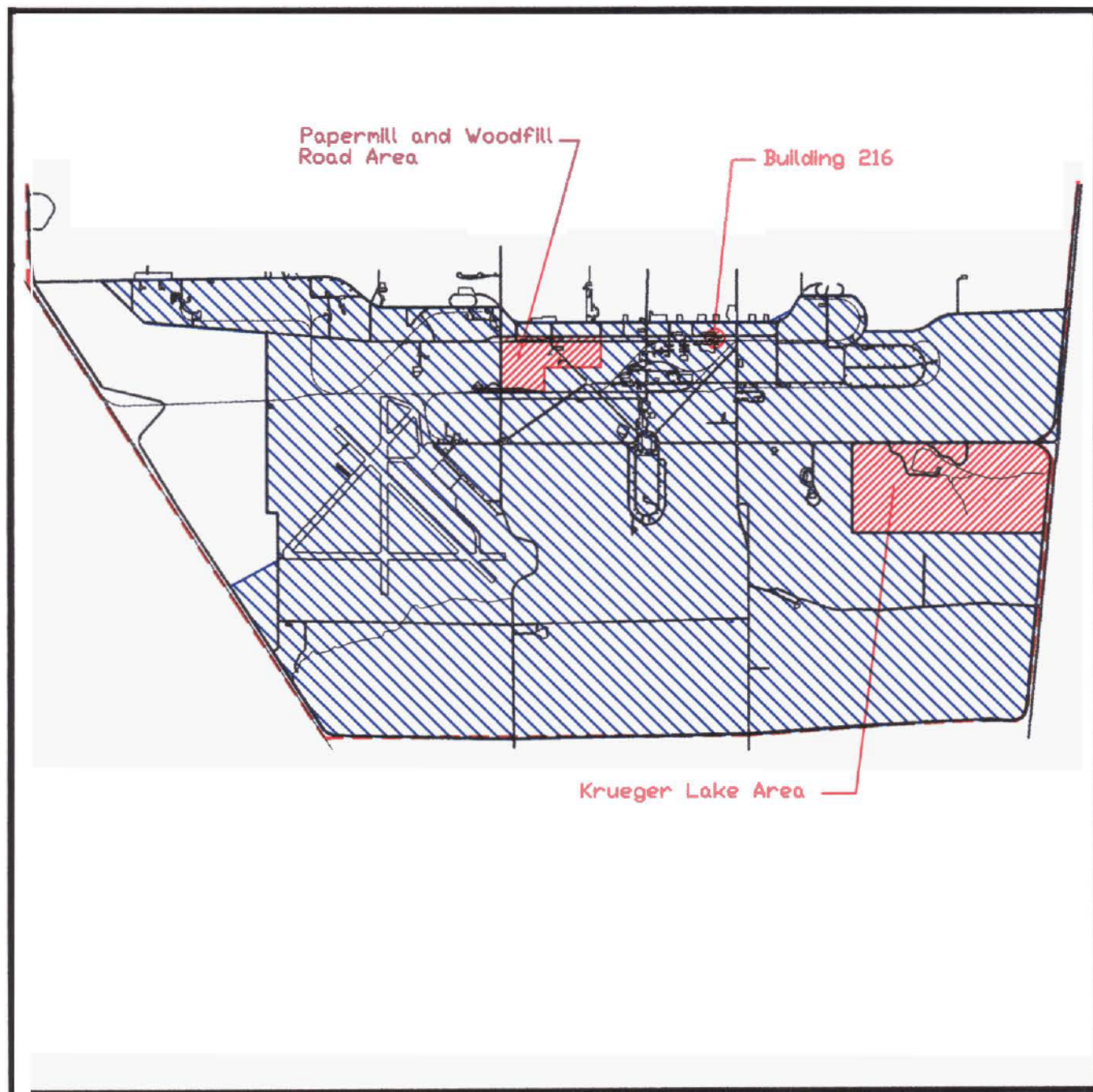
- A Finding of Suitability to Transfer (FOST) was signed on November 5, 1996 for a Public Benefit Conveyance of a 230-acre parcel at JPG, known as the Krueger Lake area. The parcel was assigned to the Department of Interior, National Park Service, for conveyance to the Jefferson County Board of Commissioners for public and recreational purposes. The parcel, located on the far east side of the Cantonment Area south of Ordnance Drive, includes Krueger Lake, picnic facilities, and a playground area. Formal transfer of the property is anticipated to occur by July 1997.
- Building 216 was transferred to the Madison Port Authority on November 18, 1996. The 10,065-square foot building and adjacent parking lot (approximately 60 feet by 50 feet) is included in the transfer. The FOST for this building was signed on April 1, 1996 and transfer of the property occurred on November 18, 1996.
- The Papermill and Woodfill Road Area parcel is being transferred to the Ford Lumber and Building Supply Company. The area to be transferred is approximately 40 acres and includes Buildings 182, 186, 189, 193, 223, 227, and 231. A draft FOST, issued in January 1997, currently is under review by the U.S. Army, Indiana Department of Environmental Management (IDEM), and U.S. Environmental Protection Agency (USEPA).

Reuse Parcel C is the 1.19-acre parcel that is located south of JPG property and includes a pump building (Building 154) and two well houses (Buildings 150 and 152). The parcel is enclosed with a chain-link fence. This parcel was found suitable for transfer to the city of Madison, Indiana, for like use by the Army. The FOST was signed on February 22, 1996. Transfer is expected to occur by July 1997.



**Table 2-2. Facilities Leased by Ford Lumber and Building Supply Company  
(as of April 16, 1997)**

Building Number	Company/Individual	Occupancy
1	Mary Howard	5 residents
4	Richard Leedy	4 residents
7	Mary Blair	3 residents
11	Leased to flood victims	5 residents
12	David Lee	2 residents
15	Rosalee Carey	3 residents
16	Paul Brown	2 residents
17	Edward Austin, Sr.	2 residents
20	George and Frances Lockard	3 residents
21	Melvin Torence	1 resident
100	Alternative Health Care*	To be determined
105	J&R Stamping	8 employees
108, 108A	M&M Towing and Recovery	4 employees
119	VMV	6 employees
125	U.S. Army Site Management Team	3 employees plus 2 gate attendants
148, 156, 202	Banner Distribution	17 employees
211	Pietrykowski Products, Inc.	10 employees
216	Madison Railroad	2 employees and 10 Department of Correction inmates
226	Jones Environmental Drilling, Inc.	10 employees (3 onsite)
322	Stephan Machine Shop	4 employees
502, 534	Southeastern Indiana Solid Waste	5 employees



#### LEGEND

--- Installation Boundary



Leased Property



Property to be Transferred

Properties to be Transferred,  
Cantonment Area

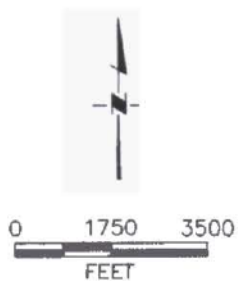


Figure 2-2

### **2.1.2 Disposal Plan**

The U.S. Army Corps of Engineers (USACE), Louisville District has developed a disposal plan for JPG. The plan fully considers the reuse planning goals of the local community and incorporates U.S. Army BRAC disposal hierarchy requirements established by Public Law 100-526 and the Federal Property and Administration Services Act. This hierarchy includes the following in the sequence provided: (1) offer the facility to U.S. Department of Defense (DOD) agencies for use; (2) offer the facility to other Federal agencies; (3) offer the facility under Section 501 of the McKinney Act (excluding property taken by DOD agencies) to sponsoring organizations for the homeless; (4) offer the facility to state and local government agencies; and (5) offer the property through competitive bid to the private sector.

### **2.1.3 NEPA Documentation**

The Final EIS on disposal and reuse of JPG was completed in September 1995. The Record of Decision (ROD) for the proposed EIS action was signed in December 1995.

## **2.2 RELATIONSHIP TO ENVIRONMENTAL PROGRAMS**

Disposal and reuse activities at JPG are closely linked to environmental investigations, restoration, and compliance activities for two basic reasons:

- Federal property transfers to non-Federal parties are governed by Section 120(h)(3)(B)(i) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- Residual contamination may remain on certain properties after remedial actions (RAs) have been completed or put into place, thereby restricting the future use of those properties.

Section 120(h)(3)(B)(i) of CERCLA requires deeds for Federal transfer of previously contaminated property to contain a covenant that all RAs necessary to protect human health and the environment have been taken. All RAs were taken if the construction and installation of an approved remedial design (RD) has been completed, and the remedy has been demonstrated to the

Administrator to be operating properly and successfully. The law further states that the implementation of long-term pumping and treating, or operation and maintenance, after the remedy has been demonstrated to the Administrator to be operating properly and successfully does not preclude the transfer of the property. This deed requirement applies only to property on which a hazardous substance was stored for 1 year or more, or is known to have been disposed of or released. CERCLA also requires that deeds for property on which a hazardous substance was stored for more than 1 year, released, or disposed of include information on the type, quantity, and the time at which the storage or release occurred.

As a result of the Fiscal Year (FY) 1997 Defense Appropriation Bill, CERCLA regulations now include provisions for transfer of contaminated property. The regulations allow the Governor of Indiana to waive requirements for RAs at JPG to be completed prior to transfer, subject to assurances that the U.S. Army will complete the RA and fulfill other legal and budgetary requirements. This option will be considered at JPG during the property disposal and reuse process on a case-by-case basis.

The requirement for complying with CERCLA 120(h), the possibility of residual contamination at the installation, and the remediation of the site according to future use are factored into the property disposal and reuse process at JPG. This is accomplished in the following manner:

- JPG has experienced releases of CERCLA hazardous substances and subsequently is subject to CERCLA transfer restrictions, as described above.
- The BRAC Installation Restoration Program (IRP) at JPG utilizes an investigative and restoration process modeled after the CERCLA process for National Priorities List (NPL) sites. This process includes the completion of a Remedial Investigation (RI) risk assessment according to future land use. Potential future land use scenarios at JPG were identified in the Disposal and Reuse EIS. The Ford Lumber and Building Supply Company has developed and will continue to develop reuse options for the 3,400 acres to be transferred.
- The U.S. Army has and will continue to solicit input from the community on proposed reuse scenarios and reuse plan implementation through participation in the Restoration Advisory Board (RAB) process (see Section 3.5).

- The presence of residual contamination at JPG after closure will be considered in the development of real estate transfer documentation. The U.S. Army will be remediating contaminated groundwater at JPG beyond the installation's closure date of September 30, 1995. The U.S. Army will not sell land until remediation is complete, or will sell the land with a Statement of Condition, specifying that remediation activities are underway, the expected timeframe of completion, and limits on reuse of part of the land. Restrictions on development cannot be specified at this time without a detailed reuse site plan. Easements will be established to ensure U.S. Army and regulator access for RA equipment operation and maintenance and long-term monitoring (LTM).

The JPG strategy and schedule for disposal and reuse is designed to streamline and expedite the necessary response actions associated with the identified reuse parcels to facilitate the earliest possible disposal and reuse activities. Because of the need to delineate between areas suitable and unsuitable for transfer according to historical activities and restoration status, the JPG BRAC Cleanup Team (BCT) developed an environmental condition of property map for JPG (see text and figures in Section 3.4) using data from the JPG Community Environmental Response Facilitation Act (CERFA) Report. This environmental condition of property map allows the visualization of both contaminated areas and areas of no suspected contamination, and the relationship of these areas to disposal and reuse parcels. The property suitable for transfer map further defines those properties that have had no hazardous substance releases or that have had releases that have been remediated or have a remedy in place and are therefore available for transfer under CERCLA. The BCT will continue to update and refine the environmental condition of property and property suitable for transfer maps for JPG as data become available and site restorations are completed.

## **2.3 PROPERTY TRANSFER METHODS**

The various property transfer methods being used or considered in the disposal process at JPG are described in this section. These transfer methods were identified from U.S. Army BRAC disposal protocols established by Public Law 100-526 and the Federal Property and Administration Services Act. The Disposal and Reuse EIS has evaluated reuses consistent with the requirements of the potential transfer methods for JPG. The CERFA investigation results and reuse parcel designations are also major components for determining the selected transfer method. Transfer methods that are not currently being considered but could be used in future disposal planning actions at the installation also have been identified.

### ***2.3.1 Federal Transfer of Property***

USFWS formally requested the transfer of 53,000 acres in 1994 to be used as a National Wildlife Refuge. This request for transfer was based upon numerous statutory authorities, including the Federal Property and Administration Service Act of 1949 (40 U.S.C. 471-535) as amended; P.L. 80-537, Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948 as amended; and BRAC. In a September 1995 letter, USFWS expressed concern regarding the acquisition of the area north of the firing line.

Since 1995, the U.S. Army and USFWS have continued discussions on this property and signed an MOU in May 1997. Under this agreement, USFWS will have responsibility for evaluating the status of fish, wildlife, and habitats on approximately 51,000 acres north of the firing line. Funding for USFWS activities will be provided by the U.S. Army, which retains ownership of this portion of JPG. As noted in Section 2.1.1, part of this area also is being used for National Guard exercises.

As part of this 3-year agreement, USFWS will manage the basic forest and grasslands; develop a plan for Indiana bats and other endangered species, such as the Henslow's sparrow; manage and enhance aquatic habitats; and promote public understanding and awareness of JPG's natural resources.

The Stewart B. McKinney Homeless Assistance Act screening process was completed in March 1995. No buildings were identified by homeless providers for use as homeless facilities or low-income housing. State and local screening also was completed in March 1995.

### ***2.3.2 No-Cost Public Benefit Conveyance***

Negotiations for the transfer of the Off-Post Pumphouse (Reuse Parcel C) to the city of Madison was completed as a no-cost public benefit conveyance. The Krueger Lake parcel transfer also was completed as a no-cost public benefit conveyance. Building 216 and the associated railroad trackage were sold by the U.S. Army to the Madison Port Authority as a result of the Federal property screening process.

### ***2.3.3 Economic Development Conveyance***

The 1994 Defense Authorization Act provides for the conveyance of property to an LRA at or below fair market value using flexible payment terms for recoupment up-front or over time. If certain criteria are met for a rural installation, conveyance may be made at no cost. The Economic Development Conveyance is intended to promote economic development and job creation in the local community. To qualify for this conveyance, an LRA must submit a request to the U.S. Army describing its proposed economic development and job creation program. The RDB is the LRA for JPG. A request for an economic development conveyance was made to the Department of the Army for five parcels; the request was not approved based on funding issues.

### ***2.3.4 Negotiated Sale***

There is no indication at this time that a negotiated sale would take place at JPG. A negotiated sale could occur on property that is requested by the LRA during the state and local community property screening process.

### ***2.3.5 Competitive Public Sale***

An invitation to bid on land in the Cantonment Area was issued in 1995. The highest bid of \$5.1 million was selected in December 1995. This bid was for the purchase of approximately 3,400 acres in the Cantonment Area by Ford Lumber and Building Supply Company. A FOSL was issued in April 1996. The property will be transferred subsequent to the U.S. Army's remediation efforts, which include comprehensive UXO surveys and clearance.

### ***2.3.6 Widening of Public Highways***

No ongoing or currently scheduled road widening projects are associated with JPG BRAC parcels.

### ***2.3.7 Donated Property***

There is no indication at this time that any property at JPG will be donated.

### **2.3.8 Interim Leases**

The U.S. Air Force leases Buildings 114, 480, 481, and 488, and the Air Gunnery Range. On at least one occasion, the Indiana Air National Guard and the U.S. Air Force have held joint air-to-ground combat exercises. Current and future interim leases that are held with JPG are identified in Table 2-3.

**Table 2-3. Existing Legal Agreements/Interim Leases**

<b>Title of Interim Lease/Legal Agreement</b>	<b>Building No./Areas</b>	<b>Date of Agreement</b>	<b>Reuse Parcel</b>
Indiana Air National Guard	Buildings 114, 480, 481, and 488/Approximately 1,033 acres	November 10, 1992	Portions of Parcels A and B

### **2.3.9 Caretaker of Property Until Disposal**

The U.S. Army has the responsibility to ensure that inactive facilities and areas at JPG are maintained in accordance with safety, security, and health standards (Army Regulation [AR] 210-17). The JPG Caretaker Office, established on October 1, 1995 and located in Building 125, is staffed by three personnel who are responsible for maintaining the integrity of the facility in accordance with these standards. The responsibilities of the caretaker team are outlined below:

- Promote safety and public awareness of the munitions and natural hazards associated with JPG
- Maintain and improve security on the installation
- Monitor the condition of the U.S. Army's real property interests and take appropriate maintenance and repair actions
- Provide information assistance to former employees, retirees, and other civil servants
- Serve as stewards of JPG's natural and cultural resources
- Monitor and support contractor activity
- Assist and coordinate with the Indiana Air National Guard in using its area in the north end range
- Coordinate with and support the Cantonment Area lessee, Mr. Ford, during the transition process



### **3. INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS**

This section summarizes the current status of environmental restoration projects, installation-wide source discovery and assessment activities, and ongoing compliance activities at Jefferson Proving Ground (JPG). The status of the cultural and natural resources program, and community reuse and disposal involvement programs at the installation, also are summarized. In addition, the environmental condition and suitability for transfer of the installation property are discussed.

#### **3.1 ENVIRONMENTAL PROGRAM STATUS**

When JPG closed on September 30, 1995, responsibility for management of JPG's environmental programs, compliance, and remediation efforts was transferred to Headquarters, U.S. Army Test and Evaluation Command (TECOM). The U.S. Army is responsible for the Caretaker Office, located at JPG in Building 125. As noted in Section 2.3.9, the Caretaker Office, staffed with three personnel, is responsible for ensuring that the inactive facilities and areas at JPG are maintained in accordance with safety, security, and health requirements, and coordinating and fulfilling information and access requirements for the lessee, Mr. Ford, and environmental restoration contractors.

Two principal U.S. Army components assist the installation's effort in implementing the environmental program at JPG. The U.S. Army Environmental Center (USAEC) has been responsible for Base Realignment and Closure (BRAC) site investigations at the installation. The U.S. Army Corps of Engineers (USACE), Louisville District provides support in remedial design (RD), remedial action (RA), compliance programs, and natural and cultural resource management and is in the process of assessing responsibility for USAEC-led efforts. The Louisville District also works with Huntsville District personnel on unexploded ordinance (UXO) survey and clearance activities. The lead regulatory oversight agencies for the installation include the Indiana Department of Environmental Management (IDEM) for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-related projects and the U.S. Environmental

Protection Agency (USEPA), Region V for Resource Conservation and Recovery Act (RCRA)-related projects.

Environmental restoration programs at JPG are being conducted under the BRAC Installation Restoration Program (IRP) in compliance with applicable Department of the Army, U.S. Department of Defense (DOD), state, and Federal statutes and regulations, particularly CERCLA. Environmental compliance programs at JPG, a non-National Priorities List (NPL) site, are conducted in compliance with applicable Department of the Army and DOD regulations and state and Federal regulatory programs, including those administered under the Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), RCRA, Toxic Substances Control Act (TSCA), and the Superfund Amendments and Reauthorization Act (SARA).

An installation Preliminary Assessment (PA) was completed by the U.S. Army Toxic and Hazardous Materials Agency (currently USAEC) in August 1980. The PA did not recommend any follow-up work because contamination migration potential off the active installation was estimated to be low. JPG's inclusion on the December 1988 BRAC list changed the scope of subsequent environmental studies of the installation. With this closure announcement, the installation's strategy shifted from one supporting an active U.S. Army mission to one responding to disposal and reuse considerations.

An environmental restoration program has been in place at JPG for approximately 7 years. Some of the major milestones in the IRP and compliance programs at the installation are summarized below:

- An Enhanced Preliminary Assessment (ENPA) was performed in 1990. The ENPA identified 36 discrete areas requiring environmental evaluation (AREEs) and 17 installation-wide AREEs, including underground storage tanks (USTs), asbestos, and polychlorinated biphenyl (PCB) equipment.
- A RCRA Facility Assessment (RFA) Report was completed in February 1992. The RFA identified 85 solid waste management units (SWMUs) and areas of concern (AOCs).

- A Community Environmental Response Facilitation Act (CERFA) Report was completed in April 1994. The CERFA Report identified seven new AREEs. After a document review, five of these AREEs were determined not to need additional evaluation. The two remaining AREEs were added to the list of AREEs being investigated by JPG.
- A Remedial Investigation/Feasibility Study (RI/FS) was initiated in 1992 for 50 of the AREEs. The final draft version of the Phase I RI report was submitted to USEPA and IDEM in July 1994. This report detailed the results of the Phase I site investigation and risk assessment. Additional field work (Phase II) was approved for several existing sites to fill in data gaps. All Phase II analytical data were collected by June 1996 and preliminary work on the Draft Phase II RI report has begun. An additional site was discovered in July 1996 and the site investigation results will be included in the RI report.

Table 3-1 lists 103 sites that have been and/or are currently being investigated at the installation and the two additional areas identified in JPG's CERFA Report. The locations of the sites in the Cantonment Area, Northern Firing Range, and Off-Post Pumphouse are shown in Figures 3-1A, 3-1B, and 3-1C, respectively. This information was obtained from the 1990 ENPA, 1992 RFA Report, and 1994 CERFA Report. The table identifies the various investigations conducted at each site and summarizes their findings. Because UXO is known to be present in the area north of the firing line, an intrusive environmental investigation of this area is not planned. Therefore, the definitive environmental status of the area is in a "to be determined" (TBD) state. The No Further Action (NFA) status of some sites south of the firing line was recommended by USAEC and concurred with by USEPA, Region V and IDEM. At this time, concurrence on the final determination for all sites investigated during the RI has not been reached.

### **3.1.1 Restoration Sites**

Eight major studies have been completed in an effort to document the environmental status of JPG. The initial installation closure study was an ENPA, completed in February 1990. It identified 36 SWMUs and 17 AOCs; however, very little information was available for many of these sites. The ENPA recommended that further study be undertaken at many of the locations.

**Table 3-1. Preliminary Location Summary**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
01 [1]	Building 185 - Old Incinerator	x	x	x	x	Several metals were detected at concentrations greater than background, but less than risk-based concentrations.	Currently being evaluated in the Phase II RI/FS
02	Building 177 - Sewage Treatment Plant Lab	x	x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
03 [2]	Building 177 - STP	x	x	x	x	Several metals exceeded background and risk-based concentrations.	Currently being evaluated in the Phase II RI/FS
04 [3]	Explosive Burn Area (Engineer's Road)	x	x	x	x	Several metals exceeded background and risk-based concentrations.	Currently being evaluated in the Phase II RI/FS
05 [4]	Abandoned Landfill (Engineer's Road)	x	x	x	x	Several metals in soil exceeded background and risk-based concentrations.	Currently being evaluated in the Phase II RI/FS
06 [11]	Open Burning Pan Area (Shun Pike Road)/Burning Area for Explosive Residue	x	x	x	x	Lead exceeds USEPA screening criteria in surface soils.	Technical memorandum written, but not approved, for dismissal from RI/FS; further investigation planned as part of the RCRA closure process
07 [5]	Wood Storage Pile (Airport)	x	x	x	x	PCP and dioxin were detected in surface soils.	Currently being evaluated in the Phase II RI/FS
09 [7]	Red Lead Disposal Area (Behind 211)	x	x	x	x	Barium, cadmium, chromium, copper, lead, and zinc were represented as COPCs.	Interim remediation started
10	Building 208 - Photo Lab	x	x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
11 [33]	Building 333 - Incinerator	x	x	x	x	Several metals exceeded background concentrations, but were less than risk-based concentrations.	Currently being evaluated in the Phase II RI/FS

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
12a [42]	Building 281 - Indoor Firing Range	x		x	x	Metal concentrations in soils did not exceed RCRA TCLP criteria.	Interim remediation planned for building interior
12b [8]	Building 295 - Indoor Firing Range	x		x	x	Lead was detected at levels below USEPA screening criteria.	Interim remediation planned for building interior
13	Ammo Demilitarization Area	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
14 [9]	Burning Area (Gate 19)	x	x	x	x	Contaminants detected in soils.	Currently being evaluated in the Phase II RI/FS
15 [10]	Gate 19 Landfill	x	x	x	x	Contaminants detected in soils, manganese in groundwater exceeded risk-based concentrations.	Currently being evaluated in the Phase II RI/FS
16	Ordnance Disposal Area (C & Morgan Roads)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
17	Landfill (S of 4.5 Mortar Impact Range & York Road)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
18	Abandoned Grenade Disposal Well	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
19	Munitions Test Pond	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
20	Macadam Test Pond	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
21	Abandoned Cistern (I & Cottrell Roads)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
22	Open Burning Area (J & Cottrell Roads)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
23	Open Detonation Area (Shonk Farm)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
24	Abandoned Landfill (Near East Perimeter Road)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
25	Abandoned Landfill (2 in Impact Area)	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
26	Landfill (Within Impact Area)	x		x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
27 [12A/24]	Building 602 – Solvent Pit (and Soil Staging Area)	x	x	x	x	High levels of solvent contamination were detected in groundwater.	Site 12A being evaluated in the Phase II RI/FS; Site 24 under closure by IDEM
28 [12B]	Building 617 – Solvent Pit	x	x	x	x	High levels of solvent contamination were detected in groundwater.	Currently being evaluated in the Phase II RI/FS
29 [12C]	Building 279 – Solvent Pit	x	x	x	x	Geoprobe and monitoring well data indicate that solvent contamination is limited to the glacial till in the immediate vicinity of the former solvent pit.	Currently being evaluated in the Phase II RI/FS
30 [13]	Old Fire Training Pit	x	x	x	x	Site sampled and contaminants of potential concern below acceptable risk levels.	Currently being evaluated in the Phase II RI/FS
31	Building 105 – Temporary Waste Storage	x	x			USAEHA recommended NFA following the USEPA, Region V RFA	NFA
32	Depleted Uranium Firing Range	x	x			The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	Separate NRC action for closing and decom- missioning
33 [21A]	Building 204 – Insecticide/ Herbicide Storage	x	x	x	x	Seven pesticides were detected in surface soils at this site.	Currently being evaluated in the Phase II RI/FS
34	Building 227 – Weapons Maintenance Workshop	x	x	x		TBD	TBD
35	Building 186 – Equipment Maintenance Shop	x	x	x		TBD	TBD
36 [20B]	Building 305 – Hazardous Waste Temporary Storage	x	x	x	x	Four metals, nine pesticides, five PAHs, and PCBs are COPCs.	Technical memorandum written, but not approved, for dismissal from RI/FS; final closure letter received from IDEM in 1996

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
37	Transformers- Installation Wide	x		x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
38	Unsurfaced Roads		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
39 [22]	Building 216 - Locomotive Maintenance Pit		x	x	x	Low release potential and no evidence of contamination release.	Technical memorandum written, but not approved, for dismissal from RI/FS
40	Disposal Area (North of 4.5 Mortar Impact Range)		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
41	Debris Dump (North of Airport)		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
42 [25]	Disposal Area (Papermill Road)		x	x	x	Elevated concentrations of beryllium and thallium drive risk at this site.	Currently being evaluated in the Phase II RI/FS
43 [26]	Defense Reutilization Marketing Office Storage Area	x	x	x	x	Ten metals were detected in surface soils.	Interim remediation started
44 [14]	Yellow Sulfur Disposal Area	x	x	x	x	Elevated arsenic levels in soil and groundwater are of concern at this site.	Interim remediation started
45 [27]	Sewage Sludge Application Area		x	x	x	Five metals exceed risk-based criteria at this site.	Currently being evaluated in the Phase II RI/FS
46 [16]	Potential Ammunition Dump (Tokyo & RR)	x	x	x	x	No evidence of ammunition disposal revealed during geophysical survey.	Technical memorandum written, but not approved, for dismissal from RI/FS



**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
47 [28]	Gator Z Open Burning Area	x	x	x	x	Eight metals were detected in surface soils, two metals were detected in subsurface soils, and two metals and one explosive were detected in surface water.	Interim remediation started
48 [29]	Gator Z Mine Scrap Disposal Area		x	x	x	Eight metals were detected in surface soils, two metals were detected in subsurface soils, and two metals and one explosive were detected in surface water.	Interim remediation started
49	Building 186 - Antifreeze Storage		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
50 [20A]	Building 279 - Former Chemical Storage		x	x	x	No evidence of releases in storage area.	Technical memorandum written, but not approved, for dismissal from RI/FS; final closure letter received from IDEM in 1996
51	Building 301 - Waste Storage (Airport Hangar)		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
52	Air Gunnery Range Accumulation Area		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
53	Scrap Equipment Storage at Air Gunnery Range		x	x		The U.S. Army is RI/FS of the area north of the firing line due to the physical and personnel with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
54	Building 108A - Former Transformer Storage		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
55	Sanitary Sewer		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
56	Storm Sewer		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
57	Building 186 - Waste Oil UST	x	x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
58 [50]	Building 186 - Oil/Water Separator	x	x	x	x	USAEHA recommended NFA following the Phase I RI site investigation.	Technical memorandum written, but not approved, for dismissal from RI/FS
59	Building 110 - Former Oil/Water Separator		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
60 [34]	Building 136 - Sand Blasting Area		x	x	x	Contamination of potential concern below acceptable risk.	Currently being evaluated in the Phase II RI/FS
61	Building 136 - Waste Paint Area		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
62 [50]	Building 186 - Floor Drain & Wash Rack	x	x	x	x	Phase I site investigation found no evidence of contaminant release.	Technical memorandum written, but not approved, for dismissal from RI/FS
63a	Building 115 - Photo Lab Drain		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
63b	Building 208 - Photo Lab Drain		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
63c	Building 325 - Photo Lab Drain		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
64	Building 602 - UST & Soil Staging Area		x	x		TPH was detected in the surface soil.	TBD
65 [18]	USTs (some with known releases)	x	x	x	x	USTs have been investigated and remediated by USACE.	Technical memorandum written, but not approved, for dismissal from RI/FS

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings				Findings	Final Determination
		ENPA	RFA	CERFA	RI/FS		
66 [36]	Building 103 - Oil Spill		x	x	x	Very limited vertical and horizontal extent of TPH contamination.	Technical memorandum written, but not approved, for dismissal from RI/FS
67 [37]	Building 118 - Gas Station		x	x	x	VOC contamination was confined to two of the four tank excavation pits. Soil was remediated in early 1994.	Technical memorandum written, but not approved, for dismissal from RI/FS
68	Firing Range Impact Areas	x	x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
69 [32]	Building 105 - Former Lead Soldering Area		x	x	x	Soldering area vent hood was dismantled and disposed of.	Technical memorandum written, but not approved, for dismissal from RI/FS
70 [38]	Northwest - Southeast Runway Test Area		x	x	x	No COPCs identified.	Currently being evaluated in the Phase II RI/FS
71	Air Gunnery Range		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
72	Air Bombed Storage Tank Target Area		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
73	Family of Scatterable Mines Area (8100 E)		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
74 [39]	Gator Z Mine Test Area	x	x	x	x	Arsenic concentrations exceeded background at one surface soil location.	Currently being evaluated in the Phase II RI/FS
75	Bromacil Area (Jinestown Road)		x	x		The U.S. Army is currently deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area.	No intrusive investigations north of the firing line are planned at this time
76 [19]	Off-site Pumphouse and Water Supply Wells			x	x	TPH soil contamination has been remediated.	Technical memorandum written, but not approved, for dismissal from RI/FS
77a	Building M1 - Low Level Radiological Waste Storage			x		This site was investigated under DU decommissioning survey.	NFA
77b	Building 610 - Low Level Radiological Waste Storage			x		This site was investigated under DU decommissioning survey.	NFA
78	Building 506 - Solvent Distillation Stills		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
79	Building 506 - TCA Accumulation Area		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
80	Building 186 - Spent Lead/Acid Battery Storage	x	x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
81 [21B]	Building 211 - Waste Filler/Methylene Accumulation Area		x	x	x	USAEHA recommended NFA following the USEPA, Region V RFA Report.	Interim remediation started
82 [31]	Building 227 - Former Storage Pad		x	x	x	No contaminants of potential concern identified.	Currently being evaluated in the Phase II RI/FS
83	Building 600 - Scrap Propellant Accumulation & Storage Shed		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
84	Building 534 - Scrap Propellant Accumulation Area		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
85	Building 534 - Temperature Controlled Unit Storage Building		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
86	Building 325 - Scrap Fuse Accumulation Area		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
87	Portable Oil/Water Separator		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
88	Building 119 - Cyclone		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
89	Building 136 (former) Water Curtain		x	x		No evidence to indicate releases.	NFA
90a	Building 186 - Safety Kleen Cleaner	x	x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
90b	Building 216 - Safety Kleen Cleaner		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
90c	Building 227 - Safety Kleen Cleaner		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
91	Building 227 - Magnaflum Fluid Satellite Accumulation		x	x		USAEHA recommended NFA following the USEPA, Region V RFA Report.	NFA
92 [17]	Asbestos Materials	x		x	x	Refer to Asbestos Survey.	Technical memorandum written, but not approved, for dismissal from RI/FS

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings					Final Determination
		ENPA	RFA	CERFA	RI/FS	Findings	
93 [23]	Building 216 - Potential Solvent Pit			x	x	No COPCs identified.	Technical memorandum written, but not approved, for dismissal from RI/FS
94 [32]	Building 105 - Locomotive Maintenance Pit			x	x	No evidence of contaminant release from pit.	Technical memorandum written, but not approved, for dismissal from RI/FS
95 [40]	Building 259 - Discharge/Fill Pipe			x	x	TPH contamination has been remediated.	Technical memorandum written, but not approved, for dismissal from RI/FS
96 [41]	Building 281 - Former UST			x	x	TPH soil contamination has been remediated.	Technical memorandum written, but not approved, for dismissal from RI/FS
97 [43]	Potential Wells or Tanks at Artillery and Infantry Roads			x	x	Pipes were former steam pipes, not UST piping.	Technical memorandum written, but not approved, for dismissal from RI/FS
98 [44]	Concrete Vault (Near Airport Railroad Tracks)			x	x	This site has been remediated and has undergone state closure as part of a UST remediation.	Technical memorandum written, but not approved, for dismissal from RI/FS
99 [45]	Potential UXO at Airfield			x	x	Geophysical survey revealed no evidence of UXO.	Technical memorandum written, but not approved, for dismissal from RI/FS
100 [46]	Flare Test Sites at Airport			x	x	No evidence of flare tests having been conducted.	Technical memorandum written, but not approved, for dismissal from RI/FS

**Table 3-1. Preliminary Location Summary (continued)**

Restoration Site Number/ [RI/FS Site]	Description	Environmental Investigation Report Results/Findings				Findings	Final Determination
		ENPA	RFA	CERFA	RI/FS		
101 [47]	Potential Mine Test Area (South of Airport)			x	x	Geophysical surveys revealed no evidence to indicate this was a mine test area.	Technical memorandum written, but not approved, for dismissal from RI/FS
102 [48]	Storage Igloos			x	x	No evidence to indicate releases.	Technical memorandum written, but not approved, for dismissal from RI/FS
103a [49]	Potential UXO South of Firing Line 1	x		x	x	Interviews failed to confirm ordnance testing and visual inspection of site by UXO personnel resulted in no identification of UXO.	Technical memorandum written, but not approved, for dismissal from RI/FS
103b [49]	Potential UXO South of Firing Line 2	x		x	x	Interviews failed to confirm ordnance testing and visual inspection of site by UXO personnel resulted in no identification of UXO.	Technical memorandum written, but not approved, for dismissal from RI/FS
NA	POL Release at Bridge No. 1			x		Release was contained and remediated.	NFA
NA	Impoundment: West of Airport			x		Sampling is to be conducted at this site.	TBD

### Key to Table 3-1

COPC	=	Chemical of Potential Concern	RFA	=	RCRA Facility Assessment
DU	=	Depleted Uranium	RCRA	=	Resource Conservation and Recovery Act
IDEM	=	Indiana Department of Environmental Management	RMIS	=	Restoration Management Information System
ENPA	=	Enhanced Preliminary Assessment	TBD	=	To Be Determined
NA	=	Not Applicable	TCA	=	1,1,1-Trichloroethane
NFA	=	No Further Action	TCLP	=	Toxicity Characteristics Leaching Procedure
NRC	=	Nuclear Regulatory Commission	TPH	=	Total Petroleum Hydrocarbons
PAH	=	Polynuclear Aromatic Hydrocarbon	USACE	=	U.S. Army Corps of Engineers
PCB	=	Polychlorinated Biphenyl	USAEHA	=	U.S. Army Environmental Hygiene Agency
PCP	=	Pentachlorophenol	USEPA	=	U.S. Environmental Protection Agency
POL	=	Petroleum, Oils, and Lubricants	UST	=	Underground Storage Tank
RI/FS	=	Remedial Investigation/Feasibility Study	UXO	=	Unexploded Ordnance
			VOC	=	Volatile Organic Compound



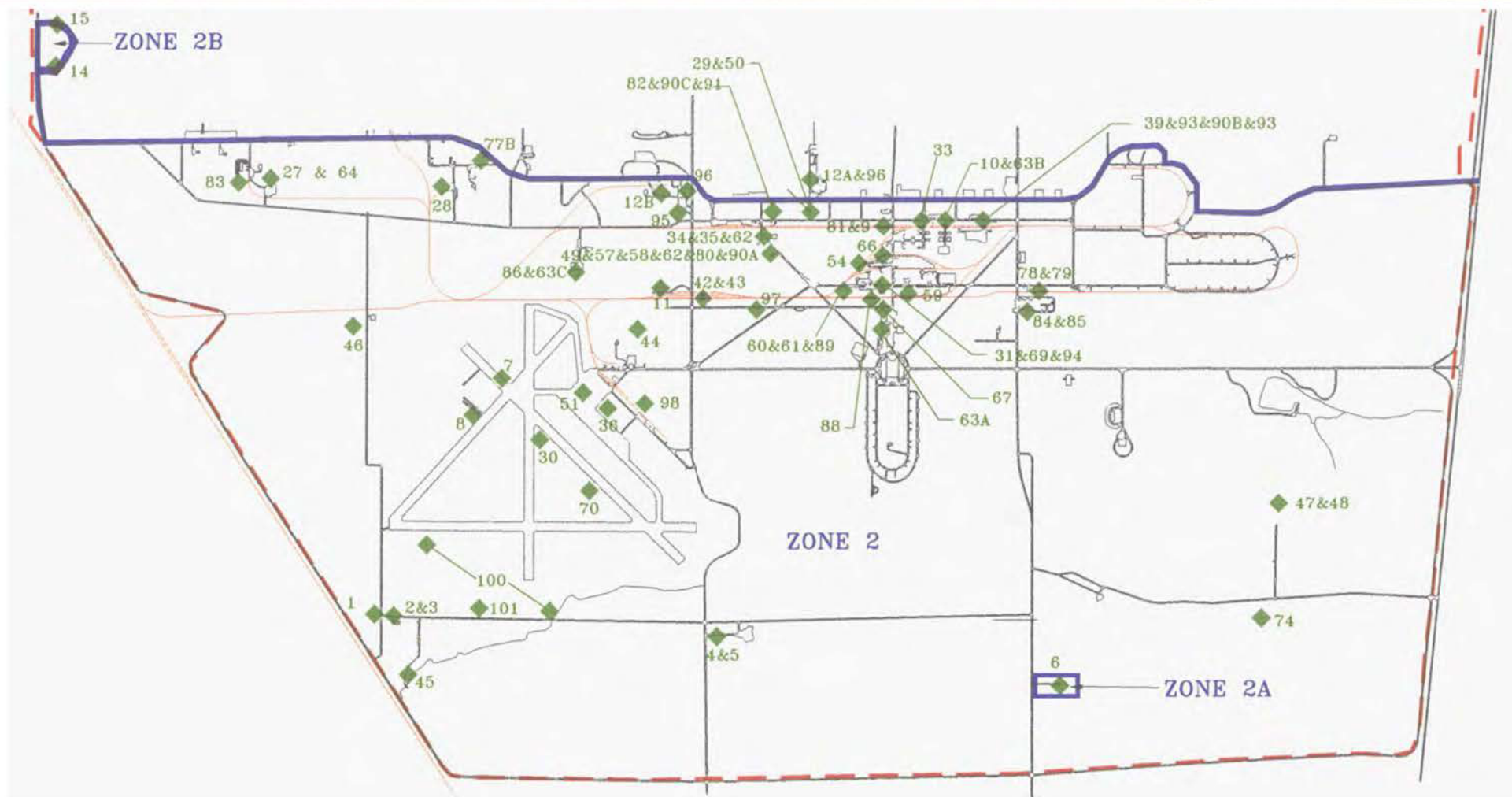
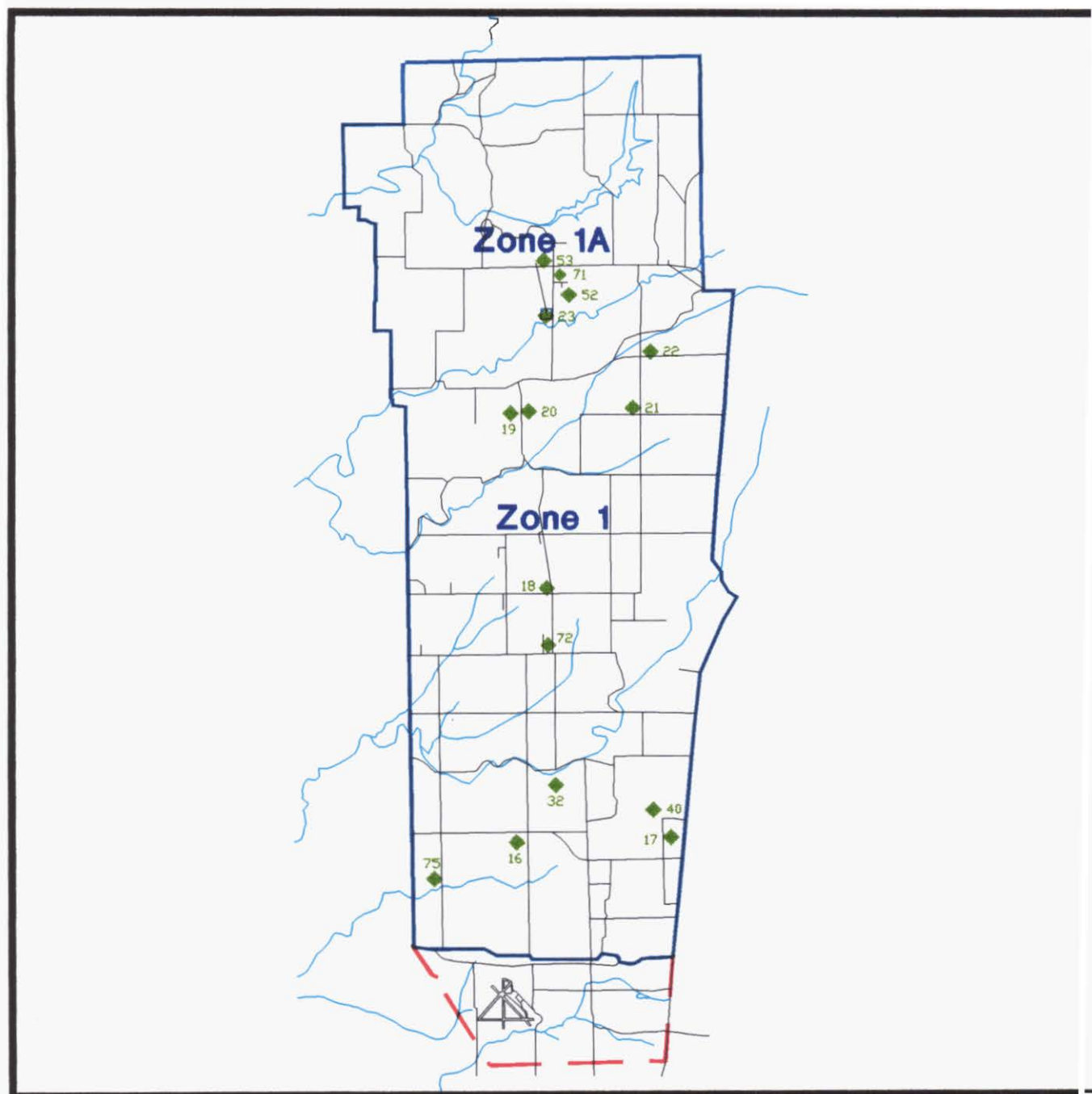
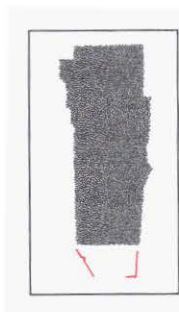


Figure 3-1A



#### EXPLANATION

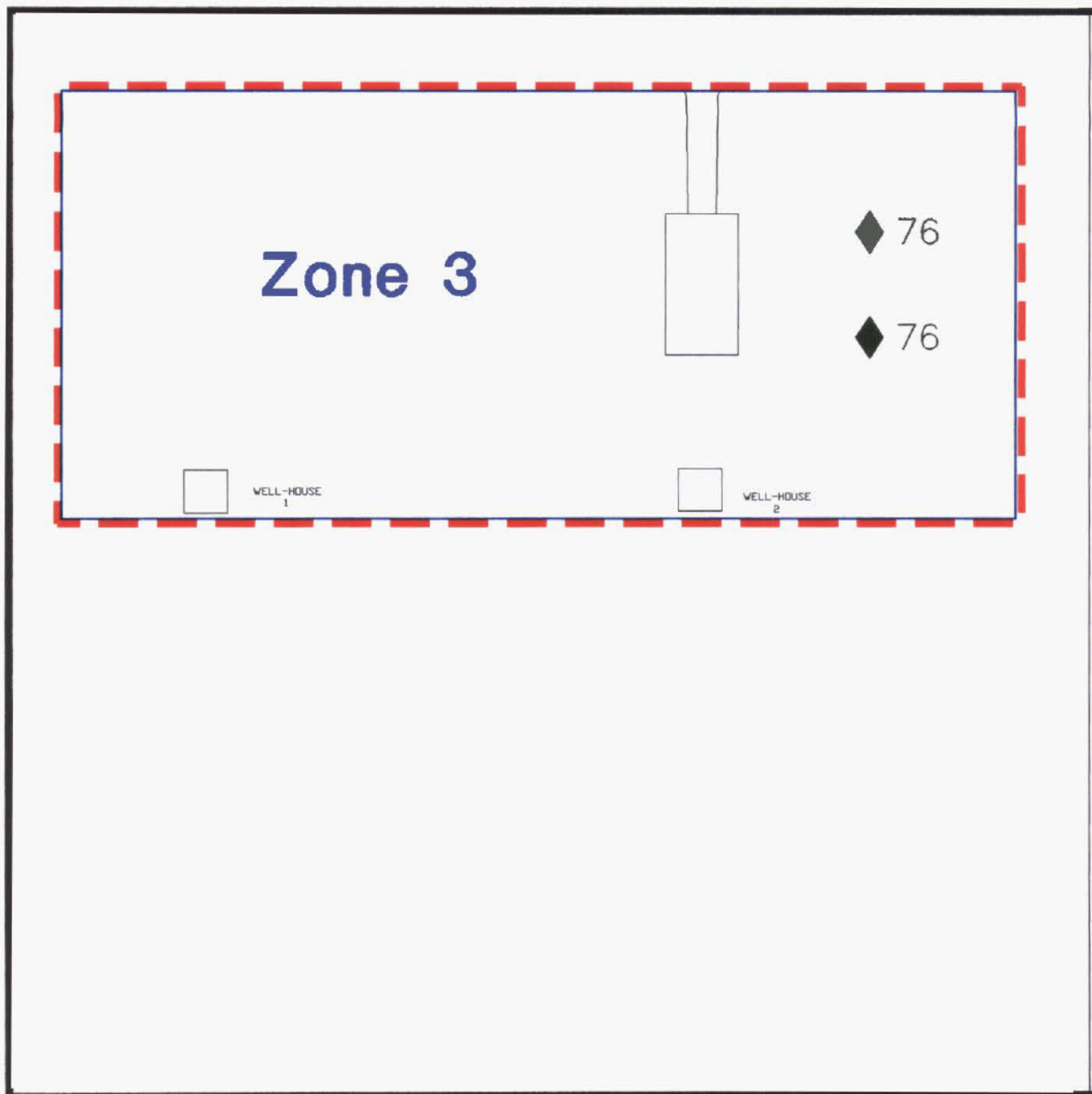
- Installation Boundary
- ◆ RMIS Site No. (See Table 3-1)
- - - Zone Boundary



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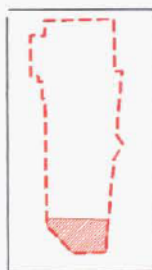
**Sites and Zones  
Currently Under  
Investigation,  
Northern Firing  
Range**

**Figure 3-1B**



# LEGEND

- Zone Boundary
- ◆ RMIS Site No. (See Table 3-1)
- - - Installation Boundary



Sites and Zones  
Currently Under  
Investigation,  
Off-Post Pumphouse



Figure 3-1C

In February 1992, USEPA, Region V completed an RFA for the entire installation. The RFA identified 85 SWMUs and AOCs. Nineteen of these sites were described as areas where the potential for release was unlikely. JPG requested that the U.S. Army Environmental Hygiene Agency (USAEHA) evaluate the SWMUs and review the RFA. In June 1992, the U.S. Army responded to USEPA's categorization of the 85 areas in *Groundwater Consultation No. 38-26-KQ80-92, Evaluation of SWMUs*. This document requested that USEPA re-evaluate its list of units. USEPA concurred with the recommendation of categorizing some of the sites as NFA.

As a result of the RFA, an additional 28 sites were added to the original scope of the RI/FS for a total of 50 sites. The initial field work (Phase I) was conducted in 1992 and 1993 and the follow-up field work (Phase II) was conducted in 1995 and 1996. The Draft Phase II RI Report is expected at the end of 1997, and the FS will be submitted after the RI is finalized.

The study areas currently under investigation in the RI/FS and Open Burning/Open Detonation (OB/OD) Subpart X Permit are summarized in Table 3-2. The table also provides the reuse parcels/planning areas, which may be cross-referenced to the reuse parcel map presented in Figure 2-1. The restoration sites at the Cantonment Area, Northern Firing Range, and Off-Post Pumphouse are shown in Figures 3-1A, 3-1B, and 3-1C, respectively.

The U.S. Army currently is deferring an RI/FS of the area north of the firing line due to the physical and personnel safety hazards associated with UXO in this area. The timeframe for an environmental investigation of this area is dependent on regulatory requirements, the level of safety that may be attained during an investigation, the technology available to eliminate potential hazards, and the identification of reuse options and the associated cleanup requirements for this area.

A major element of the JPG environmental restoration process is the execution of early actions, including the implementation of immediate removal actions to eliminate "hot spots" while investigations continue. These early actions provide the means of removing contamination sources and reducing risks posed by releases while at the same time providing critical data for the development of effective long-term remedial actions. Early actions also can accelerate the

Table 3-2. Environmental Restoration Site/Study Area Summary

RI/FS Site No.	RMIS Site No.	Zone	Reuse Parcel	Site Class	Description	Material Disposed of	Date of Operation	Status	Risk to Human Health and the Environment (Future Residential Scenario, Adult)	Regulatory Mechanism	NPA
1	01	2	B	BCA	Building 185, Old Incinerator	Particulate matter	1941-1978	RI/FS	Not calculated	CERCLA	
2	03	2	B	BCA	Building 177, Sewage Treatment Plant	Domestic and industrial wastes	Unknown	RI/FS	CR: 2E-05 HI: 1.1E+00	CERCLA	
3	04	2	B	BCA	Explosive Burn Area South of Engineers Road	Explosive-contaminated wastes	mid-1970's	RI/FS	CR: 1E-05 HI: 1.3E+00	CERCLA	
4	05	2	B	BCA	Abandoned Landfill (Engineer's Road)	Photographic waste	1941-1970's	RI/FS	CR: 1E-05 HI: 1.3E+00	CERCLA	
5	07	2	B	BCA	Wood Storage Pile (Airport)	Wood debris	since 1975	RI/FS	Not calculated	CERCLA	
6	08	2	B	BCA	PCP Wood Storage Pile/Wood Burning Area	PCP-treated wood	since 1975	RI/FS	Not calculated	CERCLA	
7	09	2	B	BCA	Red Lead Disposal Area, Behind Building 211	Red-lead and barium sulfate waste	1957	RI/FS	CR: 2E-06 HI: 2.9E-01	CERCLA	
8	12b	2	B	BCA	Building 295, Indoor Firing Range	Lead dust	early 1980's	RI/FS	Not calculated	CERCLA	
9	14	2B	B	BCA	Burn Area Near Gate 19	Construction debris and unserviceable propellants	1950's-1970's	RI/FS	CR: 6E-07 HI: 9.7E+00	CERCLA	
10	15	2B	B	BCA	Gate 19 Landfill	Pesticides, ash, TCE, lead, and chloride wastes	since 1960	RI/FS	CR: 6E-07 HI: 9.7E+00	CERCLA	
11	06	2A	B	BCA	Burning Area for Explosive Residue (Open Burning Pan Area)	Unserviceable propellants	since 1950's	RI/FS & Subpart X Permit	CR: NA HI: 4.4E-05	CERCLA & RCRA	TM
12A	27	2	B	BCA	Solvent Disposal Pit (Building 602)	Waste solvents and degreasers	1970-1978	RI/FS	CR: 4E-02 HI: 1.4E+02	CERCLA	
12B	28	2	B	BCA	Solvent Disposal Pit (Building 617)	Waste solvents and degreasers	1970-1978	RI/FS	CR: 3E-02 HI: 1.1E+01	CERCLA	
12C	29	2	B	BCA	Solvent Disposal Pit (Building 279)	Waste solvents and degreasers	1970-1978	RI/FS	CR: 1E-04 HI: 3.0E+00	CERCLA	
13	30	2	B	BCA	Old Fire Training Pit	Petroleum products	1970's-1980's	RI/FS	CR: 7E-08 HI: 1.5E-01	CERCLA	

Table 3-2. Environmental Restoration Site/Study Area Summary (continued)

RIFS Site No.	RMIS Site No.	Zone	Reuse Parcel	Site Class	Description	Material Disposed of	Date of Operation	Status	Risk to Human Health and the Environment (Future Residential Scenario, Adult)	Regulatory Mechanism	NFA
14	44	2	B	BCA	Yellow Sulfur Disposal Area	Sulfur	Unknown	R/FS, IR	CR: 4E-04 HI: 4.0E+00	CERCLA	
15		2	B	BCA	Burn Area South of New Incinerator			R/FS, IR		CERCLA	
16	46	2	B	BCA	Potential Munitions Dump Site	Ammunition	Unknown	R/FS	CR: NA HI: NA	CERCLA	TM
17	92	2	B	BCA	Asbestos Materials	Asbestos	Unknown	R/FS	TBD	CERCLA	TM
18	65	2	B	BCA	USTs (some with known releases)	Fuel oil, diesel, gasoline, kerosene	1941-1992	R/FS	Not calculated	CERCLA	TM
19	76	3	C	BCA	Off-site Water Supply Wells	Fuel oil	Unknown	R/FS	Not calculated	CERCLA	TM
20A	50	2	B	BCA	Building 279, Former Chemical Storage	Photographic wastes	1979-1980	R/FS	Not calculated	CERCLA	TM
20B	36	2	B	BCA	Building 305, Hazardous Waste Storage Area	Solvents, PCBs, asbestos, etc.	Unknown	R/FS	CR: 3E-06 HI: 2.6E-01	CERCLA	TM
21A	33	2	B	BCA	Building 204, Pesticide Storage	Pesticides	Unknown	R/FS	CR: 3E-05 HI: 9.7E-02	CERCLA	
21B	81	2	B	BCA	Building 211-Waste Filler/Methylene Accumulation Area	Methylene chloride	Unknown	R/FS, IR	CR: 2E-06 HI: 2.9E-01	CERCLA	
22	39	2	B	BCA	Building 216, Locomotive Maintenance Pit	Unknown	Unknown	R/FS	Not calculated	CERCLA	TM
23	93	2	B	BCA	Building 216, Potential Solvent Pit	Unknown	Unknown	R/FS	Not calculated	CERCLA	TM
24	27	2	B	BCA	Building 602, Soil Staging Area	Soil contaminated with waste solvents and degreasers	1970-1978	R/FS	CR: 4E-02 HI: 1.4E+02	CERCLA	TM
25	42	2	B	BCA	Papermill Road Disposal Area	Unknown waste disposal	1949-1968	R/FS, IR	CR: 2E-05 HI: 1.5E+00	CERCLA	
26	43	2	B	BCA	DRMO Storage Area	Scrap metal and equipment	since 1949	R/FS, IR	CR: 2E-05 HI: 5.2E-01	CERCLA	



Table 3-2. Environmental Restoration Site/Study Area Summary (continued)

RI/FS Site No.	RMIS Site No.	Zone	Reuse Parcel	Site Class	Description	Material Disposed of	Date of Operation	Status	Risk to Human Health and the Environment (Future Residential Scenario, Adult)	Regulatory Mechanism	NFA
27	45	2	B	BCA	Sewage Sludge Application Area	WWTP sludge	since 1960's	RI/FS	CR: 2E-05 HI: 1.1E+00	CERCLA	
28	47	2	B	BCA	Gator Z Open Burning Area	Ordinance components	1985-1991	RI/FS, IR	CR: 1E-05 HI: 1.1E-01	CERCLA	
29	48	2	B	BCA	Gator Z Mine Scrap Disposal Area	Mines	1970's	RI/FS, IR	CR: 1E-05 HI: 1.1E-01	CERCLA	
31	82	2	B	BCA	Building 227, Former Storage Pad	Waste oil and anti-freeze	since 1941	RI/FS	Not calculated	CERCLA	
32	69	2	B	BCA	Building 105-Former Lead Soldering Area	Lead	early 1940's	RI/FS	Not calculated	CERCLA	TM
32	94	2	B	BCA	Building 105, Locomotive Maintenance Pit	Cutting oils	Unknown	RI/FS	Not calculated	CERCLA	TM
33	11	2	B	BCA	Building 333, Incinerator	Paper, plywood, polyurethane, and iron oxide	since 1978	RI/FS, IR	Not calculated	CERCLA	
34	60	2	B	BCA	Building 136, Painting Shop	Paint wastes	since 1942	RI/FS	CR: NA HI: 5.1E-04	CERCLA	
35		2	B	BCA	Former Leaking UST			RI/FS		CERCLA	TM
36	66	2	B	BCA	Building 103, Oil Spill	Heating oil	1988	RI/FS	Not calculated	CERCLA	
37	67	2	B	BCA	Building 118, Gas Station	Gasoline	since 1942	RI/FS	Not calculated	CERCLA	
38	70	2	B	BCA	Northwest-Southeast Runway Test Area	Burned flares	since 1950's	RI/FS	Not calculated	CERCLA	
39	74	2	B	BCA	Gator Z Mine Test Area	Explosive waste	Unknown	RI/FS	CR: 1E-05 HI: 1.1E-01	CERCLA	
40	95	2	B	BCA	Building 259, Discharge/Fill Pipe	Black tar-like material	Unknown	RI/FS	Not calculated	CERCLA	TM
41	96	2	B	BCA	Building 281, Former UST	Fuel oil	Unknown	RI/FS	Not calculated	CERCLA	TM
42	12a	2	B	BCA	Building 281, Indoor Firing Range	Lead dust	early 1980's	RI/FS, IR	Not calculated	CERCLA	

Table 3-2. Environmental Restoration Site/Study Area Summary (continued)

RI/FS Site No.	RMIS Site No.	Zone	Reuse Parcel	Site Class	Description	Material Disposed of	Date of Operation	Status	Risk to Human Health and the Environment (Future Residential Scenario, Adult)	Regulatory Mechanism	NFA
43	97	2	B	BCA	Potential Wells/Tanks at Artillery and Infantry Roads	Unknown	Unknown	RI/FS	NA	CERCLA	TM
44	98	2	B	BCA	Concrete Vault Near Airfield Railroad Tracks	Unknown	Unknown	RI/FS	Not calculated	CERCLA	TM
45	99	2	B	BCA	Potential UXO at Airfield	Explosive wastes	Unknown	RI/FS	NA	CERCLA	TM
46	100	2	B	BCA	Flare Test Sites at Airport	Burned flares	Unknown	RI/FS	NA	CERCLA	TM
47	101	2	B	BCA	Potential Mine Test Area, South of Airfield	Possible explosive wastes	Unknown	RI/FS	NA	CERCLA	TM
48	102	2	B	BCA	Storage Igloos	Ammunition	Unknown	RI/FS	Not calculated	CERCLA	TM
30	33	2	B	BCA	Building 204, Temporary Storage Area	Pesticides	Unknown	RI/FS	CR: 3E-05 HI: 9.7E-02	CERCLA	
49	103a	2	B	BCA	Potential UXO South of Firing Line	Explosive wastes	since 1940s	RI/FS	NA	CERCLA	TM
	103b	2	B	BCA	Potential UXO South of Firing Line	Explosive wastes	since 1940s	RI/FS	NA	CERCLA	TM
50	58	2	B	BCA	Building 186-Oil/Water Separator	Waste oil	since 1941	RI/FS	Not calculated	CERCLA	TM
	62	2	B	BCA	Building 186, Floor Drain and Wash Rack	Oils, anti-freeze, etc.	Unknown	RI/FS	Not calculated	CERCLA	TM
NA	23	1A	A	BCA	Open Detonation Area (Shonk Farm)	Explosive waste	Unknown	Subpart X Permit	TBD	CERCLA	

## Key:

BCA = Base Closure Account  
 CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act  
 CR = Cancer Risk  
 DRMO = Defense Reutilization Marketing Office  
 HI = Hazard Index  
 IR = Interim Remedial Measures  
 NA = Not Applicable  
 NFA = No Further Action

RI/FS = Remedial Investigation/Feasibility Study  
 RMIS = Restoration Management Information System  
 TBD = To Be Determined  
 TCE = Trichloroethylene  
 TM = Technical memorandum completed (but not approved by regulators) to remove site from RI/FS  
 UST = Underground Storage Tank



availability of property for economic development. JPG currently is pursuing closure of the Gate 19 Landfill and Propellant Burning Area and has completed the clean closure of Buildings 279 and 305. These environmental restoration early actions are identified in Table 3-3.

### ***3.1.2 Installation-wide Source Discovery and Assessment Status***

Several installation-wide assessments have been conducted to identify the presence of contamination sources at JPG. These include the ENPA completed February 1990, the RFA completed in 1992, and the Installation Action Plan completed in 1993. The most recent installation-wide investigation conducted at JPG was the CERFA Report, which was completed in April 1994. Several other installation-wide surveys that are related to environmental compliance programs have been conducted at JPG. These include asbestos surveys from September 1993 and March 1995 and a radon survey completed in June 1989. A JPG final survey and recently completed Nuclear Regulatory Commission (NRC) confirmatory radiological survey in the area south of the firing line resulted in the area being released for unrestricted use.

The Bottom-up Review conducted by the BRAC Cleanup Team BCT did not reveal any additional areas of concern to date. Should any new areas of environmental consideration occur prior to the transfer of the property, they will be addressed according to the strategy described in Section 4.

## **3.2 COMPLIANCE PROGRAM STATUS**

Compliance activities at JPG are being conducted in coordination with environmental restoration activities being completed under the BRAC IRP. General compliance activities address the management of USTs, hazardous materials, asbestos, radon, PCBs, and water discharges. Compliance-related remedial actions at JPG include removal of USTs, removal of PCB transformers, and removal of friable asbestos. Compliance actions at the installation are identified in Table 3-4.

Table 3-3. Environmental Restoration Early Action Status

RI/FS Site No.	Description	Action	Purpose	Status
7	Red Lead Disposal Area Behind Building 211	Interim Remediation	Source removal.	Interim remediation in process.
10	Gate 19 Landfill	Early Closure	Meet regulatory requirements and mitigate spread of potential contamination.	Disposal of solid waste discontinued in fall of 1994. Landfill covered with impervious cap in fall of 1995. Groundwater monitoring plan being implemented in accordance with closure plan. Currently being evaluated in the Phase II RI/FS.
11	Burning Area for Excess Propellant (Open Burning Pan Area)	Early Closure	Meet regulatory requirements and mitigate spread of potential contamination.	Closure in process under RCRA Part B, Subpart X Interim Permit.
14	Yellow Sulfur Disposal Area	Interim Remediation	Source removal.	Interim remediation in process.
20A	Building 279 Hazardous Waste Storage Area	Early Closure	Meet regulatory requirements and mitigate spread of potential contamination.	RCRA Part B closure completed in October 1995. Technical memorandum completed (but not approved by regulators) to remove site from RI/FS.
20B	Building 305 Hazardous Waste Storage Area	Early Closure	Meet regulatory requirements and mitigate spread of potential contamination.	RCRA Part B closure completed in June 1996. Technical memorandum completed (but not approved by regulators) to remove site from RI/FS.
21B	Building 211 Waste Filler/ Methylene Accumulation Area	Interim Remediation	Source removal.	Interim remediation in process.
26	DRMO Storage Area	Interim Remediation	Source removal.	Interim remediation in process.
28	Gator Z Open Burning Area	Interim Remediation	Source removal.	Interim remediation in process.
29	Gator Z Mine Scrap Disposal Area	Interim Remediation	Source removal.	Interim remediation in process.

**Key:**

RCRA = Resource Conservation Recovery Act  
RI/FS = Remedial Investigation/Feasibility Study

**Table 3-4. Closure-related Compliance Projects**

<b>Project</b>	<b>Status</b>	<b>Regulatory Program</b>
Groundwater Monitoring at Gate 19 Landfill	In progress	IDEM Solid Waste Program
Closure of OB/OD Units with Interim Permits	In progress	RCRA
DU Monitoring	Current license	AEA
DU Decommissioning	EIS for restricted termination being developed by NRC	AEA
Endangered Species	Continuing consultation with USFWS on habitat management for the Indiana bat	NEPA/CERCLA/RCRA
Cultural Resource Management	Management plan completed in August 1996	NHPA/MOU
Wetland Delineations	Plan to be developed	CWA

**Key:**

AEA	= Atomic Energy Act
CERCLA	= Comprehensive Environmental Response, Compensation, and Liability Act
CWA	= Clean Water Act
EIS	= Environmental Impact Statement
IDEM	= Indiana Department of Environmental Management
MOU	= Memorandum of Understanding between the Army, the Advisory Council on Historic Preservation, and the Indiana State Historic Preservation Office
NEPA	= National Environmental Policy Act
NHPA	= National Historic Preservation Act
NRC	= Nuclear Regulatory Commission
OB/OD	= Open Burning/Open Detonation
RCRA	= Resource Conservation and Recovery Act
USFWS	= U.S. Fish and Wildlife Service

Several compliance-related activities at JPG have been completed as early actions to reduce or eliminate potential contamination at the installation. These actions, which are related to UST management, are identified in Table 3-5. A more detailed description of the various environmental compliance programs at JPG is provided below.

**Table 3-5. Compliance Early Action Status**

UST Site No.	UST No.	Action	Purpose	Status*
7D	118 (4)	Tank removed December 1990	Close site; remove contaminant source (LUST)	USACE remediating
7D	118	Tank removed December 1990	Close site; remove contaminant source (LUST)	USACE remediating
7D	127	Tank removed March 1992	Close site; remove contaminant source (LUST)	USACE remediating
7D	149	Tank removed December 1990	Close site; remove contaminant source (LUST)	USACE remediating
Off-Post	154 (2)	Tank removed December 1990	Close site; remove contaminant source (LUST)	USACE remediating
7D	156	Tank removed - date unknown	Close site; remove contaminant source (LUST)	No action
7D	189	Tank removed June 1993	Close site; remove contaminant source (LUST)	USACE remediating
7D	202	Tank removed November 1990	Close site; remove contaminant source (LUST)	TM
7D	211	Tank removed June 1993	Close site; remove contaminant source (LUST)	USACE remediating
7D	227	Tank removed November 1990	Close site; remove contaminant source (LUST)	TM
7D	227	Tank removed November 1990	Close site; remove contaminant source (LUST)	TM
3D	265	Tank removed - date unknown	Close site; remove contaminant source (LUST)	USACE remediating
8D	266	Tank removed - date unknown	Close site; remove contaminant source (LUST)	USACE remediating
7D	281	Tank removed March 1992	Close site; remove contaminant source (LUST)	USACE remediating
7D	281	Tank removed March 1992	Close site; remove contaminant source (LUST)	USACE remediating
3D	291 (2)	Tank removed November 1988	Close site; remove contaminant source (LUST)	USACE remediating
7D	303 (2)	Tanks removed November 1988	Close site; remove contaminant source (LUST)	USACE remediating
7D	310 (1)	Tank removed November 1988	Close site; remove contaminant source (LUST)	TM
N2D	488	Tank removed February 1993	Close site; remove contaminant source (LUST)	JPG remediating
13D	510	Tank removed March 1992	Close site; remove contaminant source (LUST)	USACE remediating
5D	602 (2)	Tanks removed November 1988	Close site; remove contaminant source (LUST)	TM
6D	617 (3)	Tanks removed November 1988	Close site; remove contaminant source (LUST)	TM USACE remediating around one site
NA	103	Tanks removed—Date unknown	Close site; remove contaminant source (LUST)	TM
NA	123	Tank removed	Close site; remove contaminant source (LUST)	USACE to remove tank inside building

\*All USTs have been removed. Soil is being remediated or evaluated for concentration.

**Key:**

JPG = Jefferson Proving Ground  
 LUST = Leaking Underground Storage Tank  
 TM = UST(s) have been remediated by USACE (except at UST No. 123), technical memorandum completed (but not approved by regulators) to remove site from RI/FS  
 USACE = U.S. Army Corps of Engineers

Prior to installation closure, JPG maintained several notifications with Federal, state, and local agencies under various installation environmental compliance programs. However, after installation closure, many of these permits were transferred or allowed to expire. The remaining environmental compliance permits are summarized by environmental compliance program in Table 3-6.

**Table 3-6. Current Environmental Compliance Permits, Licenses, Notifications, and Registrations**

Compliance Program	Permit/License/Notification/Registration No.	Description	Issuing Agency	Issue Date	Expiration Date	Comments
RCRA	IN5210020454	TSDf	IDEM	February 1995	NA	Interim permit for temporary storage of hazardous waste at OB/OD units
	IN5210020454	OB/OD	USEPA, Region V	February 1995	NA	Operated OB/OD under interim status. Clean closure of OB unit is in progress. OD is seeking closure in-place as a landfill.

### 3.2.1 Storage Tanks

USTs and aboveground storage tanks (ASTs) were used for the storage of petroleum products, heating fuels, and wastes at JPG. Compliance activities and environmental restoration activities related to these storage tanks are described below.

#### 3.2.1.1 Underground Storage Tanks

Seventy USTs were located throughout the installation. All USTs have been removed under Indiana's UST Program. Table 3-5 indicates those USTs that were leaking and required soil remediation.

### 3.2.1.2 Aboveground Storage Tanks

AST compliance programs at JPG were conducted under U.S. Army Regulation (AR) 200-1 and Federal and state requirements, including 40 Code of Federal Regulations (CFR) Parts 110, 112, and 116 and applicable State of Indiana oil pollution prevention regulations.

Table 3-7 presents an inventory of the ASTs (Building 125) and shows two tanks that were active before the installation closed. The current lessee of the property, Mr. Dean Ford, is responsible for managing these structures and will take appropriate action depending on his plans for the area.

**Table 3-7. Aboveground Storage Tank Inventory**

Tank No.	Parcel	Location	Year Installed	Capacity (Gal.)	Substance Stored	Status	Comments	Future Actions
125	B	Building 125	1995	500	No. 2 Fuel Oil	Active	Two tanks are located here; One was moved from Building 211-1	The new property owner will bring tank into compliance as necessary
211-1	B	Building 211	unknown	500	No. 2 Fuel Oil	Moved	This tank was relocated to Building 125	None

### 3.2.2 Hazardous Materials Management

Historically, activities at JPG involved the management of a variety of hazardous materials. These materials included solvents and battery acid used at the motor pools, pesticides stored and handled around Building 208, photographic development chemicals, and paints and solvents used in paint shops. Small amounts of other miscellaneous hazardous materials, such as boiler treatment chemicals, grounds keeping chemicals, and janitorial supplies, also were used at the installation.

Hazardous materials present at JPG were managed in compliance with Federal requirements outlined in the Emergency Planning and Community Right-to-Know Act (EPCRA); Executive Order (E.O.) 12385; the Spill Prevention Control and Countermeasure (SPCC) requirements in

40 CFR Parts 110 and 112; State of Indiana regulations; AR 200-1; and other applicable Federal, state, and local regulations.

Hazardous materials surveys of the installation were completed during the ENPA and CERFA investigations. No extremely hazardous substances as defined in SARA, Title II, Section 302 were identified to be present at the installation. JPG did not maintain or use sufficient quantities of hazardous chemicals to require reporting under SARA Title III, Section 312 (Tier reporting), or SARA Title III, Section 313 (Toxic Chemical Release Form R reporting).

The installation maintained Material Safety Data Sheets (MSDSs) as required by the Occupational Safety and Health Administration (OSHA) for all hazardous chemicals on the installation. Spill response equipment was present at JPG when the installation was operational.

Pesticide storage and handling activities at JPG were conducted in compliance with TSCA regulations. Storage facilities with secondary containment were used, and washwaters were collected and properly disposed of offsite by a vendor.

Use and storage of hazardous materials were eliminated when the installation closed and tenant activities were discontinued. JPG implemented its close-out survey program, which was established for installation facilities being vacated by U.S. Army components and tenants. Hazardous materials found abandoned during these close-out surveys were identified and arrangements were made for the proper disposal of the materials in compliance with regulatory requirements.

### ***3.2.3 Hazardous Waste Management***

Hazardous waste compliance programs at JPG were conducted under AR 200-1, the Federal requirements contained in 40 CFR 260 through 270, 40 CFR 117, 49 CFR 171 et seq., U.S. Department of Transportation (DOT) regulations, and the State of Indiana regulatory requirements.

All hazardous wastes generated at JPG were transported to the hazardous waste storage area at Building 305 for storage prior to offsite disposal by the Defense Reutilization Marketing Office (DRMO) or recycling. The hazardous waste storage area was a RCRA Interim Status unit. A closure plan for this unit was submitted to the State of Indiana in 1989 and was approved. Usage of Building 305 as a less-than-90-day storage facility ceased on June 1, 1995. The IDEM-approved closure plan was completed and a letter from IDEM dated June 4, 1996 closed out Building 305.

### **3.2.4 Solid Waste Management**

Solid waste management compliance programs at JPG were conducted under AR 200-1 and 420-47, Federal requirements contained in 40 CFR 240-246 and 40 CFR 257-258, DOT regulations, and applicable State of Indiana regulatory requirements.

The JPG facility generated large quantities of dunnage and waste packaging materials due to the number of munitions shipped to the facility for testing. This material was burned rather than landfilled (or recycled) given that trace amounts of reactive explosives or propellants may have been introduced to the packaging during loading or shipment. IDEM issued an open burning permit to JPG as an air permit/air permit variance to burn excess propellants and explosives, vegetation, and scrap wood. This permit is renewed annually.

Other solid waste generated at the facility included construction rubble, debris, and office wastes. The few residences and a small cafeteria generated household trash. The construction rubble was disposed of at the Engineer's Road Landfill/Burning Area and the Gate 19 Landfill. IDEM temporarily allowed the Gate 19 Landfill to receive asbestos waste at various times. The Gate 19 Landfill also received sludge from the STP under an IDEM special permit from April to September 1993. The Gate 19 Landfill stopped receiving waste in October 1993 and was closed per Indiana Administrative Code Sections 329 IAC 2-7-6 and 329 IAC 2-15 requirements. Post-closure groundwater monitoring will be conducted at the landfill for the next 10 years.

JPG's solvent and burn pits received solid waste. The remediation of soil and groundwater associated with the solvent and burn pits currently is being addressed in the ongoing RI/FS.



### **3.2.5 Polychlorinated Biphenyls**

PCB management compliance programs at JPG were conducted under AR 200-1 and Federal requirements contained in 40 CFR 761, DOT regulations, and applicable State of Indiana requirements.

As outlined in the PCB management program, the electrical distribution system at JPG was replaced. This replacement included the removal of all electrical devices, including transformers, capacitors, and breakers that contained PCBs from the site. Building 122, a former dry ice storage area, served as an accumulation warehouse for out-of-service transformers. No releases of PCB material were documented or reported at JPG.

### **3.2.6 Asbestos**

Asbestos-containing material (ACM) is regulated by USEPA, OSHA, and the State of Indiana. Asbestos at JPG is being managed in compliance with the Department of the Army policy, "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1984.

In 1993, a comprehensive asbestos survey was completed that located, identified, and recommended appropriate abatement action for ACM at JPG. A total of 345 buildings were inspected. No buildings were found to have an ACM assessment rating of "A" (immediate action). All buildings surveyed were given ratings of "B" (action as soon as possible), "C" (planned action), "E" (monitoring), or "F" (no immediate action). As part of the lease arrangement, Ford Lumber and Building Supply Company has remediated three "A" buildings. The remaining buildings are the responsibility of the lessee.

No major abatement actions have occurred at JPG. A minor amount of ACM abatement has occurred during operation and maintenance activities of buildings. Waste ACM generated in these operations was double-bagged and stored in Building 305 prior to disposal at the Gate 19 Landfill, which previously had been permitted to receive such waste at various times during the last decade.

### **3.2.7 Radon**

The radon reduction program at JPG was conducted under AR 200-2 and Army policy, "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1994. Radon surveys were conducted in 1989 and 1993. The 1989 radon gas background level measurement was performed at the 16 buildings with basements. The radon levels were measured using radon gas home test detectors. The highest detected reading was 1.3 picoCuries/liter (pCi/L). In 1993, data obtained from the analysis of alpha track monitors showed levels of radon to be less than USEPA's suggested action level of 4 pCi/L.

### **3.2.8 RCRA Facilities (SWMUs)**

RCRA regulated units and SWMUs at JPG are managed under the installation hazardous waste management program in accordance with AR 200-1, Section 6; DOD directives; RCRA Subtitle C; and Indiana Hazardous Waste Regulations.

JPG submitted a Part A permit application for the storage, treatment, and disposal of hazardous waste in November 1980. The application identified three container storage areas, one waste pile, four landfills, and two explosives waste treatment areas. The application listed container storage of warfarin, cyanide, and spent solvents; waste storage piles of P090; treatment of di-n-butyl phthalate and 2,4-dinitrotoluene; and landfilling of asbestos, chlordane, and 2,4,5-trichlorophenoxy-acetic acid.

In March 1982, the installation submitted a revised Part A permit application to USEPA, Region V. The revised Part A permit did not include two of the container storage areas, the waste pile, and the landfills. One of the container storage areas, the Building 279 Former Chemical Storage Area, ceased operation prior to November 1980. The second storage area, the Building 204 Pesticide Container Storage Area, stored empty pesticide containers that had been triple-rinsed. The landfilled material was asbestos debris (asbestos had been removed from the list of hazardous wastes), empty containers of wood preservative and pesticides that had been triple-rinsed, and pentachlorophenol (PCP)-impregnated wood pallets. These wastes were disposed of in the Gate 19

Landfill. The revised Part A permit listed only one container storage area, the Building 305 Hazardous Waste Storage Area, and two explosives treatment units (an open burning pan unit and an open detonation unit).

A closure plan for Building 305 was submitted and approved by the State of Indiana. Closure activities were certified and completed on June 4, 1996. The State of Indiana also had requested JPG to submit a closure plan for the Building 279 Former Chemical Storage Area. This unit reportedly had not been used for storage of hazardous wastes after promulgation of the RCRA regulations in November 1980, but had been included inadvertently in the installation's Part A permit application. The State of Indiana required a closure plan for the unit because it was listed on the original Part A application. IDEM subsequently approved a closure plan. Building 279 was closed in September 1993 and certified clean by IDEM in November 1994.

JPG submitted a RCRA Part B, Subpart X Permit Application for the OB/OD units in November 1988. The OB/OD units operated under interim status until facility closure. The closure plans for the OD unit and OB unit (revised in February 1996) are currently under review by USEPA, Region V. Clean closure is planned for the OB unit. The OD unit may require post-closure monitoring.

USEPA, Region V completed an RFA in February 1992. The RFA identified 85 SWMUs and AOCs for JPG. The evaluation of SWMUs (Groundwater Consultation No. 38-26-KQ80-92) provided additional information updating the status of these identified sites. Many of the areas were given a status of NFA after the evaluation.

### **3.2.9 NPDES Permits**

Point source wastewater discharges generated at JPG were regulated under the Federal Water Pollution Control Act, CWA, the National Pollutant Discharge Elimination System (NPDES) Permit Program (40 CFR Parts 122, 125, and 136), National Pretreatment Standards (40 CFR Part 403), and State of Indiana wastewater discharge permit regulations.

JPG held an NPDES permit (No. IN0024210) for the Sewage Treatment Plant (STP) effluent discharge into Harberts Creek. The lessee to this property, Mr. Dean Ford, assumed responsibility for any related NPDES permitting requirements.

### ***3.2.10 Oil/Water Separators***

One oil/water separator (OWS) is located at JPG, just outside of Building 186. The OWS consists of a 3- by 3-foot concrete pit, which managed wastewater from the floor drain and wash rack in Building 186. Oily liquids were piped off the top of the fluid, and disposed of in a waste oil UST. Solids were collected and disposed of annually at an offsite sanitary landfill. The wastewater from the OWS discharged to the sanitary sewer system and then was treated by the STP.

### ***3.2.11 Pollution Prevention***

Pollution prevention at JPG was managed through the installation hazardous waste management program in accordance with AR 200-1, Section 6, and applicable Federal and state regulatory requirements. Pollution prevention at JPG was implemented in compliance with an installation Hazardous Waste Minimization Plan, which identified methods to reduce hazardous waste generation. The plan addressed all hazardous wastes generated at the installation regulated under RCRA (or state equivalent legislation) as well as used oils not destined for recycling.

### ***3.2.12 NRC Licensing***

Depleted uranium (DU) was used in weapons testing of 105 millimeter and 120 millimeter tank ammunition at JPG beginning in March 1984. Testing was conducted under NRC License No. SUB 1435, approved in December 1983. The NRC license also encompassed testing at the DU Impact Area and storage of DU in Buildings 610, 611, and M1. A minor amount (50 kilograms) of DU, used as a collimator for a photographic x-ray machine, also was covered by this same license. This license was transferred to U.S. Army TECOM in May 1996 and amended to delete all facilities within the Cantonment Area.

A groundwater monitoring program was implemented as part of JPG's NRC permit application. Groundwater samples are collected semi-annually from nine wells inside of the DU Impact Area and two background wells outside of the DU Impact Area. Past analyses of these samples indicate that no uranium contamination has reached the locations monitored by the existing wells. However, uranium contamination was detected in surface water and sediment samples from Big Creek as it passed through the impact area. JPG sent a letter to the NRC dated February 16, 1995 requesting the restricted reuse termination of the JPG DU license.

In addition, promethium and tritium were used in artillery sighting devices at JPG. However, these were sealed sources and were covered under a general U.S. Army-wide NRC license, which was maintained by the U.S. Army Materiel Command (USAMC).

### ***3.2.13 Mixed Waste***

Mixed nuclear/hazardous wastes were not generated at JPG and, according to documentation and interviews, were not stored at the installation.

### ***3.2.14 Radiation***

Radiation sources at JPG included DU (used in weapons testing) and an x-ray photography machine. These sources were regulated under an installation NRC license. Promethium and tritium also were used in artillery sighting devices under a U.S. Army-wide license.

### ***3.2.15 Lead-based Paint***

Lead-based paint at JPG was managed in accordance with Department of the Army policy "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1994.

A lead exposure risk assessment was conducted at JPG in October 1991 for the 13 family housing quarters built before 1978. The assessment score was based on the age of the building, the exterior condition, the interior condition, documented cases of lead poisoning, and special considerations. All 13 buildings were given a rating of "medium" risk.

The remaining buildings at JPG have not been surveyed for lead-based paint. Until this is accomplished, all structures constructed before 1978 must be considered to contain some amount of lead-based paint. The installation contains approximately 380 buildings, of which only 25 have been built after 1978.

### ***3.2.16 Medical Waste***

Small amounts of medical waste were generated from the medical clinic and were disposed of as biohazardous wastes.

### ***3.2.17 Unexploded Ordnance***

Due to the nature of JPG's primary mission as a proving ground, UXO is a major concern. Areas south of the firing line that are suspected of containing UXO are being investigated. The USACE, Huntsville and St. Louis Districts, have completed an archive search for UXO for the entire facility. The report of this search was completed in June 1995. A magnetometer survey of portions of the Cantonment Area was conducted in 1996 based on the archive UXO report search. Remediation of UXO in the Cantonment Area will be implemented based on safety and funding availability.

The U.S. Army is deferring an investigation of the area north of the firing line because of physical hazards associated with UXO. The timeframe for an environmental investigation is dependent on regulatory requirements, the level of safety that may be attained during an investigation, the UXO removal technology available to eliminate potential hazards, the identification of reuse options for the area, and the establishment of reuse-based cleanup levels. If present, UXO would have to be remediated prior to conducting an intrusive environmental investigation. Therefore, the RI/FS for the area north of the firing line may be scheduled in the future. Currently, areas that are suspected of containing UXO are excluded to unauthorized personnel.

### ***3.2.18 National Environmental Policy Act***

The BRAC Act (Public Law 100-526) requires that the U.S. Army consider the environmental consequences of the proposed closure and realignment actions of military installations. The environmental impacts must be described relative to the provisions of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et. seq.), as implemented by the President's Council on Environmental Quality (40 CFR Parts 1500-1508). In addition, AR 200-2 (32 CFR Part 651) provides the policies and procedures followed by the U.S. Army for implementing NEPA regulations. The Environmental Impact Statement (EIS) provides a basis for informed decisionmaking and allows agency and public review and comment.

The Final EIS on Closure of JPG and Realignment to Yuma Proving Ground, Arizona, was completed in September 1991. It addressed the effects of the proposed action on the natural and human environments at JPG and Yuma. The Final EIS for Disposal and Reuse of JPG was completed in September 1995. The Record of Decision (ROD) for the proposed EIS action was issued in December 1995.

### ***3.2.19 Air Emissions***

While operational, JPG had a permit exemption from the IDEM, Office of Air Management, to operate the installation's incinerators and boilers. IDEM classified a new incinerator at Building 333 as exempt because emissions would not increase from current levels and the potential to emit was unchanged. IDEM also ruled that JPG's wood-fired boiler would not be required to meet the particulate matter emission limitation of the incinerator standard. These facilities are no longer operational. As part of JPG's compliance activities, an air emissions inventory was completed in August 1994.

The OB/OD unit operated under RCRA Subpart X interim status, regulated by USEPA, Region V. A variance has been obtained through IDEM to burn vegetation and scrap wood. This variance was renewed annually.

### 3.3 STATUS OF NATURAL AND CULTURAL RESOURCES PROGRAMS

This section describes the status of JPG's natural and cultural resource program, including identification and management of vegetation, wildlife, wetlands, and other preservation areas; rare, threatened, and endangered species; and cultural resources. Although progress has been made in identifying these resources at JPG, the former military mission and UXO-contaminated restricted areas have prevented the completion of thorough analyses. Natural and cultural resources at JPG are managed in accordance with ARs 420-74 and 420-40, DOD Directives 4700.4 and 4710.1, and applicable Federal and state regulations and statutes.

#### 3.3.1 *Vegetation*

An inventory of natural areas and special plant species within JPG was prepared in March 1993 by the Indiana Department of Natural Resources (IDNR), Division of Natural Preserves, through funding by the U.S. Army. A forest management plan, timber stand improvement, and fire protection programs were in place at JPG to provide for the proper management of JPG's timber resources. Currently, the forest management plan is in limbo due to U.S. Fish and Wildlife Service (USFWS) concerns over timber management. Historically, the majority of JPG consisted of forested natural communities, predominantly flatwoods. Today, these areas are in various stages of regrowth or succession, ranging from open flats to relatively mature flatwoods. A vegetation map is provided in Appendix F, Figure F-1. Other community types inventoried included flood plain forests, mesic upland forests, dry-mesic upland forests, and cliffs along or in the vicinity of the major drainages.

The 1993 survey also provided recommendations on disposal and reuse that would maximize the vegetative natural resources at the installation. Recommendations of the survey were to: consider a portion of JPG as an ecosystem reserve; designate the highest quality natural communities (natural areas), the best rare plant species sites, and selected clusters of these smaller sites as Research Natural Areas or State Nature Preserves; control exotic species; restrict timber harvest (in select areas); control frequency and timing of mowing; maintain natural hydrology; use prescribed fire; and conduct additional evaluations site by site as areas are cleaned up.



Of the 30,000 acres of hardwood forest available, 15,000 acres were managed for commercial production since 1941. The timber harvested was in the area north of "K" Road and in the south end of JPG along the perimeter. Timber harvests include saw timber and high-quality veneer of white oak and black walnut. Byproducts from timber harvesting include hardwood pulpwood, firewood, and fence posts. USACE has regulated and controlled annual timber sales since 1982.

### **3.3.2 Wildlife**

JPG provides a quality habitat for a variety of terrestrial and aquatic species. Mammal species include white-tail deer, raccoon, coyote, opossum, gray and fox squirrel, skunk, beaver, red fox, weasel, and mink. Large populations of small mammals, including mice and moles, attract significant numbers of reptiles and raptors. The installation is approximately 80 percent reforested, and the unbroken stands of mature and young trees are used by migrating neo-tropical birds. More than 100 breeding birds have been recorded thus far at the installation. A comprehensive wildlife survey has not been completed to date. USFWS and the Institute for Bird Populations are conducting ongoing census surveys. Wildlife management continues even with the closing of JPG in September 1995. In February 1996, 25 river otters were released at Old Timbers Lake in support of Indiana's Otter Restoration Program. JPG has a program in place allowing hunting at the installation. The program allows designated areas for hunting of various game.

### **3.3.3 Wetlands and Flood Plains**

Results of an analysis of National Wetlands Inventory data conducted by Indiana State University indicate that JPG contains approximately 6,470 acres of designated wetlands. Of this total, palustrine forested wetlands comprise 4,004 acres, and palustrine scrub-shrub/wetlands add another 2,210 acres. An installation-specific wetlands delineation has not been prepared. A National Wetlands Inventory map of JPG wetlands is provided in Appendix F, Figure F-2.

### ***3.3.4 Designated Preservation Areas***

In an ongoing biotic survey of JPG, USFWS has documented the unique habitat value of the Otter Creek corridor as well as Graham Creek. Graham Creek marks the location of the Great blue heron rookery (approximately 200 nests) and the capture site of the federally endangered Indiana bat. A biotic survey of the area conducted by Hanover College indicates that the Graham Creek area represents one of the richest areas for reptiles and amphibians in the midwest. Additional unique vegetation areas were documented in the inventory conducted by the Nature Preserve Division of the IDNR. A half-acre grove of bald cypress trees also is located along Wonju Road. These areas are not Federal or state designated preservation areas.

### ***3.3.5 Rare, Threatened, and Endangered Species***

USFWS has identified several rare, threatened, endangered, and special concern animal species that possibly or have been confirmed to use JPG as a habitat or transient location for migratory birds. IDNR has reported approximately 30 plants in the same category. USFWS completed a biotic survey of JPG, concentrating on these rare and endangered species.

Henslow's sparrow has been identified as a breeding species of JPG. Henslow's sparrow is listed as a state and Federal threatened candidate species. The cerulean warbler is listed as a Federal threatened and endangered species and the golden-wing warbler is listed as a state endangered species. The following species found at JPG are listed as Indiana species of special concern: sharp-skinned hawk, red-shouldered hawk, broad-winged hawk, black-and-white warbler, worm-eating warbler, hooded warbler, and northern warbler.

### ***3.3.6 Cultural Resources***

Cultural resources at JPG fall under the 1992 Amended BRAC PA between the Department of the Army, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers as well as the Memorandum of Agreement (MOA) between the Army, the ACHP, and the Indiana State Historic Preservation Officer (SHPO). All of the National Register of Historic Places (NRHP)-listed or NRHP-eligible properties at JPG should be

protected, preserved, or mitigated for loss if primary or secondary impact is unavoidable. According to the MOA, the properties of unknown NRHP eligibility must be considered potentially eligible and should be protected and preserved until the NRHP evaluation process is completed.

According to the 1996 Cultural Resources Management Plan and interviews with site personnel, two buildings and four bridges at JPG are listed on the NRHP. These include the Oakdale School (Building 401), Old Timbers Lodge (Building 495), and four stone arch bridges (Nos. 17, 25, 27, and 28). In addition, 75 buildings and 4 bridges dating to pre-1946 are considered eligible for inclusion on the NRHP. For historic properties being transferred through sale, the U.S. Army will provide preservation covenants where required, noting the potential NRHP eligibility.

An archaeological inventory of the 55,264-acre facility was initiated in 1975. Subsequently, five additional surveys have been completed, including a survey of the 4,341-acre Cantonment Area in 1995. The combined areas that have been surveyed total 4,845 acres and are shown graphically in Appendix F. Thus, because disturbed areas total 28,800 acres, an additional 21,619 acres remain to be inventoried. Of the 153 recorded archaeological sites on the facility (74 prehistoric, 55 historic, and 24 prehistoric/historic), none is presently eligible for inclusion in the NRHP.

The following structures at JPG either have been placed on the NRHP or have been nominated to the NRHP or the Historic Landmark Foundation of Indiana:

- The Oakdale School, built in the 1860's and one of the few remaining one-room schoolhouses in the local area, is located just north of the firing line. Constructed of limestone masonry, it is a good example of an intact architectural building. The Oakdale School was placed on the NRHP in May 1993.
- The Old Timbers Lodge, built as a country house by Cincinnati industrialist Alexander Thompson in the early 1930's, represents the arts and crafts tradition of the early twentieth century and features a "great hall" flanked by massive stone fireplaces. Located in Otter Creek Township of Ripley County, the facility presently is used as a recreational lodge for JPG staff. Following a site visit in May 1992, the Indiana SHPO determined that Old Timbers Lodge was eligible for the NRHP. Old Timbers Lodge was nominated for inclusion in the NRHP and approved by the Department of Army. This nomination then was forwarded to the National Park Service and recently was added to the NRHP.

- Four stone arch bridges are known to exist within the JPG boundaries: Bridge No. 17 is located on Otter Creek, Bridge No. 25 is located on Marble Creek, and Bridges Nos. 27 and 28 are located on Graham Creek. Bridge No. 27 is near the installation's western boundary and Bridge No. 28 is near the installation's eastern boundary. Bridge No. 17, constructed in 1910-1912, is listed as a Historic Inventory site by the Historic Landmark Foundation of Indiana. The other three bridges, of similar construction, exist as excellent examples of local masonry bridge design and construction. In April 1995, the Indiana SHPO determined that the other three bridges were eligible for inclusion as sites in the Historic Landmark Foundation of Indiana. The four bridges (Nos. 17, 25, 27, and 28) were nominated for inclusion in the NRHP and approved by the Department of Army. The nominations then were forwarded to the National Park Service and recently were added to the NRHP.
- The majority of the Cantonment Area is eligible for inclusion in the NRHP as one large historic district. By letter dated May 12, 1994, the Indiana SHPO informed the JPG that the historic district would encompass, at a minimum, all of the World War II-era permanent and semi-permanent buildings and structures. This district is significant for its role in U.S. military history and also for its role in the social and economic history of southeastern Indiana. The final cultural resource management plan endorsed this district concept.

### **3.4 ENVIRONMENTAL CONDITION OF PROPERTY**

In October 1992, Public Law 102-426, Section 120(h) of CERCLA was amended and established new requirements with respect to contamination assessment, cleanup, and regulatory agency notification/concurrence for Federal facility closures. CERFA requires the Federal Government, before termination of Federal activities on Federal property, to identify property where no hazardous substances were stored, released, or disposed of. These requirements retroactively affect the U.S. Army BRAC 88 and BRAC 91 environmental restoration activities, and are being implemented at BRAC 93 and BRAC 95 sites concurrently with their Environmental Baseline Surveys (EBSs). The primary CERFA objective is for Federal agencies to identify real property offering an opportunity for immediate reuse and redevelopment. Although CERFA does not mandate the U.S. Army transfer real property so identified, the first step in satisfying the objective is the requirement to identify real property where no CERCLA-regulated hazardous substances or petroleum products were stored, released, or disposed of.

The U.S. Army has completed an investigation to identify the environmental condition of property at JPG in compliance with CERFA. The final report was released in April 1994, but neither IDEM nor USEPA has concurred with the report. The IDEM response to the CERFA report is provided in Appendix F. The CERFA investigation included a review of historical installation records, interviews with current and past installation employees, and a visual site inspection of the installation.

Based on this information, the property was categorized in accordance with the 1995 BRAC Cleanup Plan Guidebook. The seven categories used for classification of the property are as follows:

- **Category 1**—Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
- **Category 2**—Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).
- **Category 3**—Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.
- **Category 4**—Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.
- **Category 5**—Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.
- **Category 6**—Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but all required response actions have not yet been implemented.
- **Category 7**—Areas that are unevaluated or require additional evaluation.

Environmental condition of property maps for the Cantonment Area, Northern Firing Range, and Off-Post Pumphouse are provided as Figures 3-2A, 3-2B and, 3-2C, respectively. Under SARA Title I, Section 120 to CERCLA, those parcels that are Category 1, 2, 3, 4, and 5 (if the remedy in place has been approved by the Administrator), meet the CERCLA criteria of suitability for transfer. Category 6 and 7 properties that involve releases of hazardous substances as defined by CERCLA cannot be transferred under CERCLA until environmental restoration is initiated or a waiver is granted under Article 334 of the FY97 Defense Appropriation Act.

#### ***3.4.1 Areas Where No Storage, Release, or Disposal Has Occurred***

Approximately 3,250 acres of Category 1 parcels are located in the Cantonment Area and approximately 50,000 acres of Category 1 parcels are located in the Northern Firing Range. Most of these parcels contain non-CERCLA hazards, such as UXO and asbestos.

#### ***3.4.2 Areas Where Only Storage Has Occurred***

Approximately 47 acres of Category 2 parcels are located in the Cantonment Area and no Category 2 parcels are located in the Northern Firing Range. The storage igloo area contains the most Category 2 property.

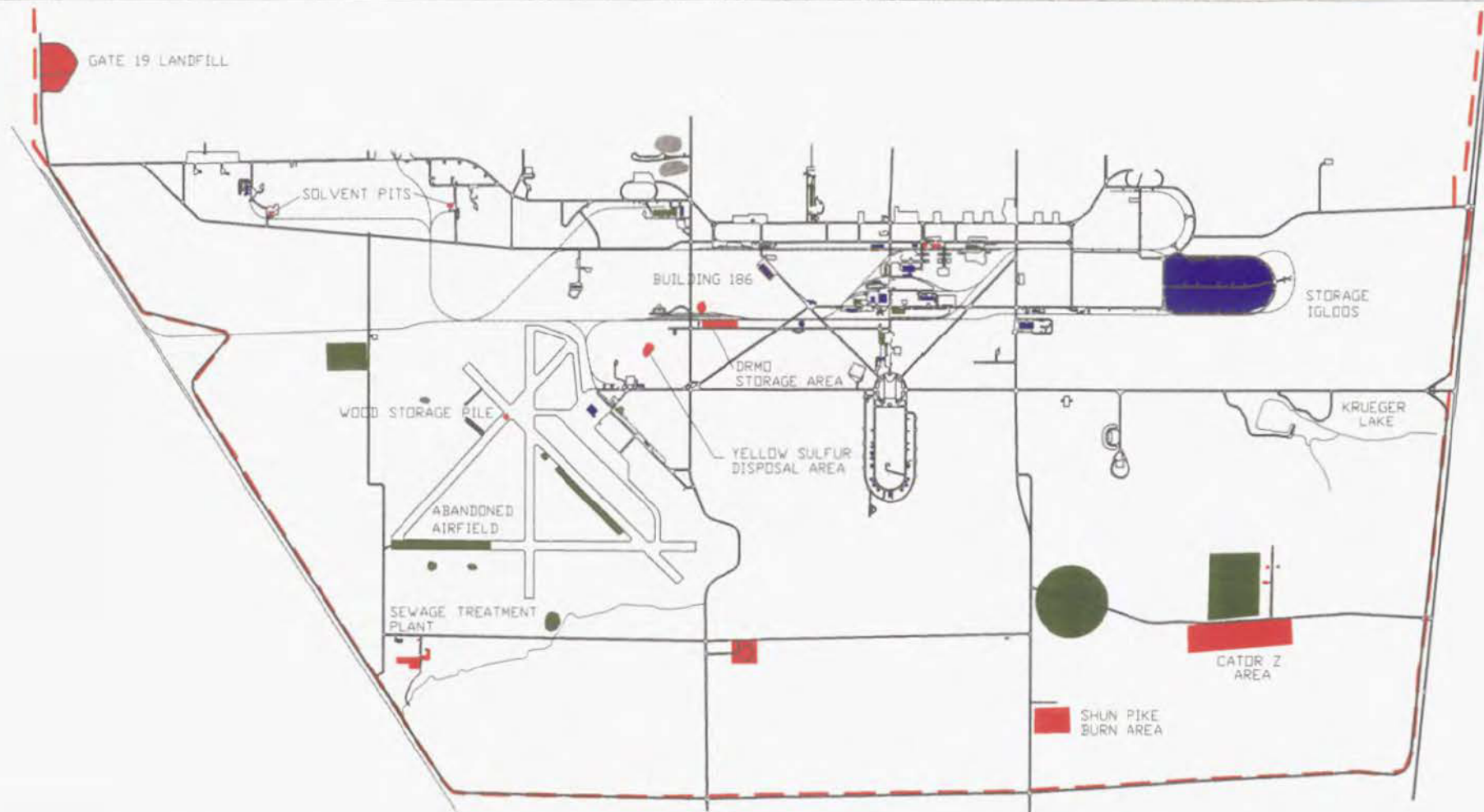
#### ***3.4.3 Areas Where Storage, Release, Disposal, and/or Migration Has Occurred, But Requires No Remedial Action***

Approximately 4 acres of Category 3 parcels from one site are located in the Cantonment Area and no Category 3 parcels are located in the Northern Firing Range.

#### ***3.4.4 Areas Where Storage, Release, Disposal, and/or Migration Has Occurred and All Remedial Actions Have Been Taken***

Approximately 55 acres of Category 4 parcels are located in the Cantonment Area and no Category 4 parcels are located in the Northern Firing Range.

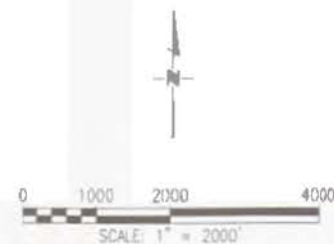
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# LEGEND

- Installation Boundary
- CATEGORY 1 PROPERTY  
Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
- CATEGORY 2 PROPERTY  
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).
- CATEGORY 3 PROPERTY  
Areas where release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.

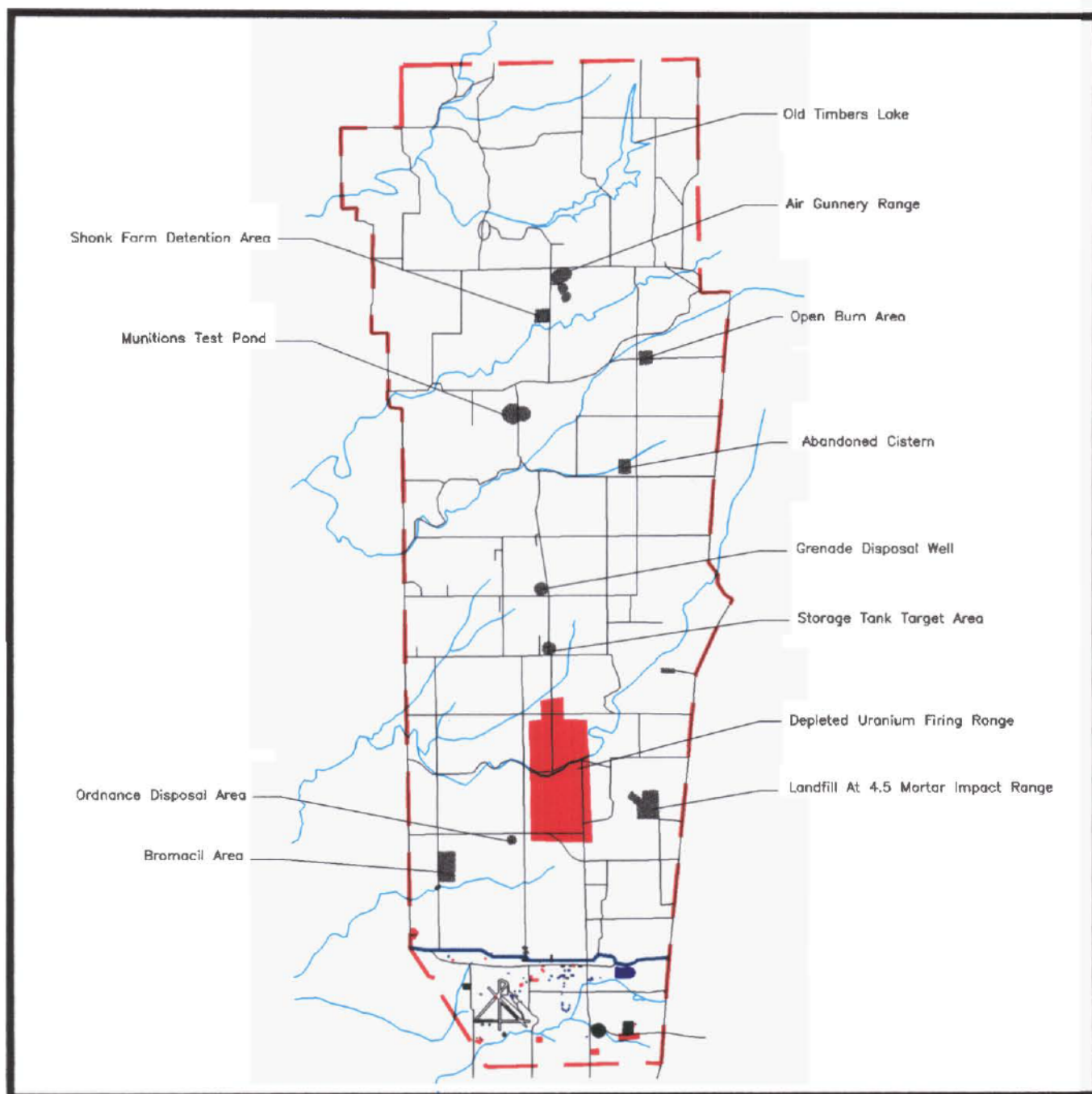
- CATEGORY 4 PROPERTY  
Areas where release, disposal, and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.
- CATEGORY 5 PROPERTY  
Areas where release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.



Environmental Condition of  
Property,  
Cantonment Area

Figure 3-2A





## EXPLANATION

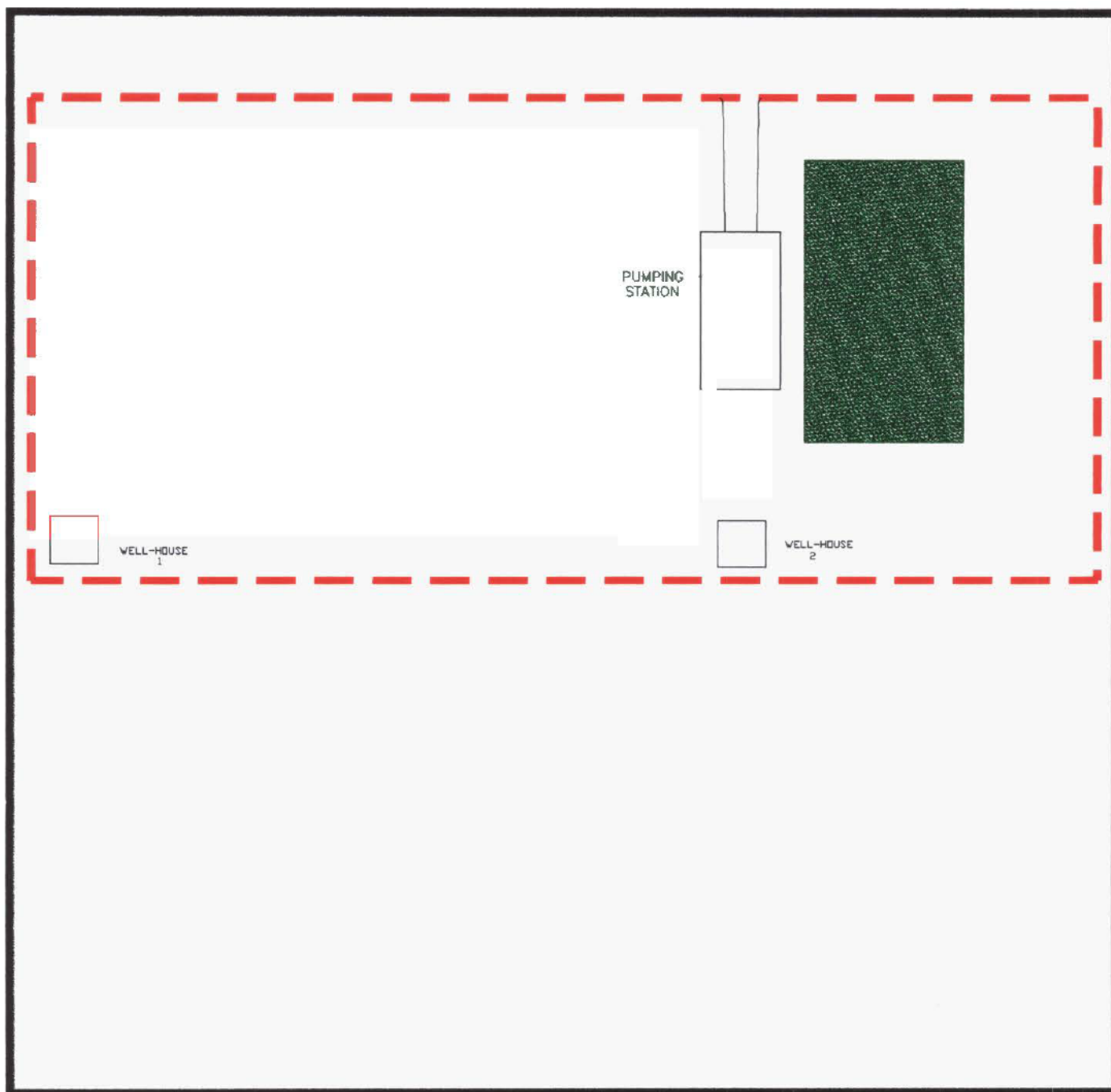
- Installation Boundary
- CERFA Category 6 Parcel  
Areas where release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but all required response actions have not yet been implemented.
- CERFA Category 7 Parcel  
Areas that are unevaluated or require additional evaluation.



0 7000 14000  
FEET

Environmental  
Condition  
of Property,  
Northern Firing  
Range

Figure 3-2B



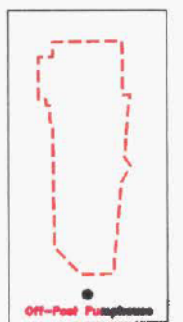
# LEGEND

— — Installation Boundary



CERFA Category 4 Parcel

Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but all required response actions have been implemented.



## Environmental Condition of Property and Off-Post Pumphouse



SCALE: 1" = 50'

Figure 3-2C

Note: Off-post pumphouse is approximately 7 miles south of JPG, in the City of Madison.

**3.4.5 *Areas Where Storage, Release, Disposal, and/or Migration Has Occurred and Remedial Action Is Under Way, But Not Final***

No Category 5 parcels are located in the Cantonment Area or in the Northern Firing Range.

**3.4.6 *Areas Where Storage, Release, Disposal, and/or Migration Have Occurred, But Required Response Actions Have Not Been Taken***

Approximately 25 acres of Category 6 parcels are located in the Cantonment Area and approximately 1,400 acres of Category 6 parcels are located in the Northern Firing Range. The DU impact area contains the most Category 6 property.

**3.4.7 *Unevaluated Areas or Areas Requiring Additional Evaluation***

Approximately 25 acres of Category 7 parcels are located in the Cantonment Area and approximately 1,000 acres of Category 7 parcels are located in the Northern Firing Range.

**3.4.8 *Suitability of Installation Property for Transfer by Deed***

The property suitable for transfer at the Cantonment Area and Northern Firing Range is shown in Figures 3-3A and 3-3B, respectively (provided after Appendix F). These large-scale maps are provided at the end of Appendix F.

**3.5 STATUS OF COMMUNITY INVOLVEMENT**

Community relations activities that have taken place at JPG to date include the following:

- ***EIS Process***—During the development of the JPG Closure and Realignment EIS, public scoping meetings were held with the intent of serving as a medium for public review and comment. Individual comments, responses, and associated correspondence were received by the U.S. Army on the draft Closure and Realignment EIS and were integrated into the final version, for which a ROD was signed in September 1991.
- ***Draft Disposal and Reuse EIS***—This EIS was issued for public comment in March 1995. A public hearing was held on April 25, 1995 to solicit public comments. A Final EIS was issued in September 1995 and a ROD was signed in December 1995.

- **Information Repositories**—In March 1994, a public repository for information was established at the Madison Jefferson County Public Library, located at 420 West Main Street in downtown Madison. It contains information relative to environmental activities at JPG and its history.
- **Administrative Record**—An Administrative Record was established at Hanover College in accordance with CERCLA requirements.
- **Community Reuse Plan**—A proposed Community Reuse Plan was submitted by the Regional Development Board (RDB) in June 1993, followed by a final Community Reuse Plan in August 1994. In September 1994, an addendum to the August 1994 plan was submitted. The JPG Local Redevelopment Authority (LRA) submitted an application for JPG property in June 1995. The U.S. Army rejected this application in July 1995.
- **Restoration Advisory Board (RAB)**—The RAB is a forum for discussion and exchange of information regarding JPG's environmental restoration program between governmental agencies and the affected community. It also provides an opportunity for the affected community to review progress and voice opinions. The first RAB meeting was held in March 1994, and was attended by U.S. Army, USEPA, Region V, and IDEM representatives, in addition to several members of the local community. Additional RAB meetings were held in June 1994; January, April, and November 1995; February, May, August, and November 1996; and January, March, and May 1997.
- **Mailing List**—A mailing list of all interested parties in the community is maintained by the RAB and updated regularly.
- **Fact Sheets**—The following fact sheets describing status of the IRP and other installation environmental programs (i.e., USTs at the installation) have been distributed to individuals on the mailing list and are made available at RAB meetings:
  - Status of environmental restoration
  - JPG site history, including CERFA Report maps
  - RAB meeting minutes
  - DU information
  - Environmental cleanup efforts at JPG
  - UXO information.
- **Public Involvement Response Plan (PIRP)**—A Draft PIRP was issued and reviewed in September and October 1994. The draft plan is being implemented until comments are resolved.
- **Community Relations Plan**—A Community Relations Plan for JPG was released in February 1995. The plan sets forth a site-specific program to establish communication and information exchange among U.S. Army staff. This plan currently is being updated to include community involvement initiatives that will enhance community involvement

and participation. The community's interests will influence the revised strategies and have been solicited through a series of interviews held in March 1997. The draft Community Relations Plan will be issued in June 1997.

- ***Town Meeting***—A town meeting was held in April 1997 with State of Indiana congressmen and local citizens. The JPG environmental restoration program was discussed in an open forum and was viewed by the community as an extremely valuable meeting. Additional meetings are planned in coming years.
- ***Videos***—A video on UXO education was released in 1997 and presented at an RAB meeting. Current plans are to make it available to local schools and organizations as well as JPG visitors.
- ***Press Releases***—Press releases are planned to be issued as often as monthly to apprise the community of the status and progress of JPG's closure process.

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#### 4. INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION

This section summarizes the installation-wide environmental restoration and compliance strategy for Jefferson Proving Ground (JPG). Prior to April 1989, projects were underway to identify, characterize, and remediate environmental contamination at JPG. With the closure announcement, the installation's strategy shifted from supporting an active U.S. Army mission to responding to disposal and reuse considerations. In March 1989, the U.S. Army Environmental Center (USAEC) was assigned the responsibility for managing the Base Realignment and Closure (BRAC) Installation Restoration Program (IRP). The JPG environmental restoration strategy was modified to address the new issues of closure and reuse. This strategy has included the completion of an installation-wide Remedial Investigation/Feasibility Study (RI/FS) under the direction of USAEC, development of an installation-wide Decision Document (DD) or individual site DDs, preparation of remedial designs (RDs), and implementation of remedial actions (RAs).

Upon formation of the BRAC Cleanup Team (BCT), a "Bottom-Up Review" of the restoration strategy for JPG was completed to verify that the appropriate restoration actions and regulatory programs applicable to the areas of environmental contamination have been considered and that all possible fast-track cleanup opportunities have been taken in the JPG environmental restoration program.

The overall environmental restoration and compliance strategy for JPG currently is reviewed by the BCT and the Project Team (see Section 1.3). USAEC continues to provide assistance at the installation in the area of site investigation support. USAEC is in the process of transitioning its contract management role for JPG environmental cleanup to the U.S. Army Corps of Engineers (USACE), Louisville District. This transfer is expected to be complete by January 1998. The USACE, Louisville District currently is providing support in the area of interim RAs for selected RI sites south of the firing line. JPG's strategy is designed to ensure that all regulatory requirements are met and that adequate and cost-effective restorations are implemented as quickly as possible to provide for the expedited disposal and reuse of JPG in compliance with U.S. Army and community goals.

The following sections define various elements of the JPG environmental restoration strategy, including the designation of zones and operable units (OUs), sequencing of OU restoration actions, early action programs, the remedy selection approach process, and integrated environmental compliance planning. Schedules for the implementation of this strategy are described in Section 5.

#### **4.1 ZONE/OU DESIGNATION AND STRATEGY**

The designation of zones and OUs as part of the environmental restoration process has been valuable in evaluating sites and developing cleanup strategies at installations. Zones define the investigative strategy at an installation. Zones are geographically contiguous areas amenable to management as a single investigative unit. Zones can be used to group multiple sites and environmental data collected during one or more investigations into related geographic areas for detailed mapping, and facilitate the development of conceptual models of sources, migration pathways, and receptors. OUs define the remedial strategy at an installation. They are derived from an evaluation of hydrogeologic and chemical analytical data within an investigative zone or by comparing data between zones. OU types may be based on geographic area, common media (e.g., soil, groundwater, surface water), common treatment technology, priorities, or schedules. Properly defined, OUs establish a logical sequence of discussions that address contamination releases in a comprehensive fashion. Zones are distinct from OU response actions. The strategies for designating zones and OUs at JPG are described below.

##### ***4.1.1 Zone Designations***

JPG generally is divided into two main areas: the area north of the firing line (Northern Firing Range) and the area south of the firing line (Cantonment Area). In order to address planning and scheduling requirements adequately, the BRAC Cleanup Plan (BCP) requires a more explicit division according to the most current environmental status of the facility. The BCT has designated three main zones at JPG: Zones 1, 2, and 3. Three smaller zones also have been designated: Zone 1A (within Zone 1), Zone 2A (within Zone 2), and Zone 2B (within Zone 2).



The six zones contain the 103 environmental restoration sites that have been and/or are currently being investigated at the installation. Table 4-1 depicts the relationship between each site and zone, and the locations of the sites and zones within the Cantonment Area, Northern Firing Range, and Off-Post Pumphouse are shown in Figures 3-1a, 3-2b, and 3-2c, respectively.

**Table 4-1. Relationship Between Restoration Sites, Zones, OUs, and Reuse Parcels**

Reuse Parcel	Location	Zone	OU	Restoration Management Information System (RMIS) Site Number
A	Northern Firing Range	1	Not Applicable	13, 16-26, 32, 38, 40, 52, 53, 68, 71, 72, 73, 75
		1A	Not Applicable	23
B	Cantonment Area	2	Not Applicable	1-12, 27-31, 33-37, 39, 41-51, 54-67, 69, 70, 74, 77-103
		2A	Not Applicable	6
		2B	Not Applicable	14, 15
C	Off-Post Pumphouse	3	Not Applicable	76

The composition of each of the zones at JPG is as follows:

- **Zone 1**—This zone encompasses all areas north of the firing line, excluding the Gate 19 Landfill and Burn Area, and includes Sites 13, 16-26, 32, 38, 40, 52, 53, 68, 71, 72, 73, and 75. These sites are excluded from the ongoing RI/FS due to physical hazards associated with the past mission at JPG.
- **Zone 1A**—This zone also includes Site 23, the open detonation (OD) unit, which is being investigated as part of JPG's Resource Conservation and Recovery Act (RCRA) Part B, Subpart X permit.
- **Zone 2**—This zone includes all areas south of the firing line in addition to the Gate 19 and Burn Area, and the remaining 80 sites, excluding Site 76, the Off-Post Pumphouse. Forty-nine sites within this area are being addressed under the RI/FS.
- **Zone 2A**—This zone includes Site 6, the open burning (OB) unit, which also is being investigated as part of JPG's RCRA Part B, Subpart X permit, and the RI/FS.
- **Zone 2B**—This zone includes Site 14, the Gate 19 Burn Area, and Site 15, the Gate 19 Landfill. These sites are being addressed under the RI/FS.
- **Zone 3**—This zone is located off-post, approximately 7 miles south of JPG; Site 76, the Off-Post Pumphouse, is located within this zone. Underground storage tanks (USTs) and contaminated soils have been removed from this site.

#### **4.1.2 OU Designations**

OUs have not been established at JPG because the parameters required to make such designations have yet to be prepared. OUs will be designated with the submittal of the Final RI/FS, which is scheduled to be completed at the beginning of 1999. All references to OUs will be reviewed and updated during the subsequent revisions of this BCP.

#### **4.1.3 Sequence of OUs**

A comprehensive environmental restoration strategy for OUs in the Cantonment Area will be developed by the JPG BCT. This strategy will define a logical sequence for the cleanup of the OUs, addressing all past releases associated with the sites within the OU(s), and take into account cleanup requirements and reuse priorities.

##### **4.1.3.1 Sequencing Strategy**

The sequencing strategy will be developed in conjunction with the RI/FS. The sequencing of restoration sites and OU cleanup will be developed from the following criteria:

- Risk to human health and the environment
- Effect on property reuse
- Scope (time required for cleanup and possible use of existing contract with modification).

The cleanup sequence for the installation is summarized in Table 4-2. The cleanup sequence of the Northern Firing Range is in a to be determined (TBD) status because an intrusive investigation of the area would be impractical due to the presence of unexploded ordnance (UXO) in this area.

**Table 4-2. Cleanup Sequence for the Installation**

Reuse Parcel	Zone	OU	Environmental Risk	Reuse Priority	Cleanup Sequence	Reconcile Comments
A	1	NA	TBD	3	3	NA
B	2	NA	TBD	2	2	NA
C	3	NA	Below Action Levels	1	1	NFRAP

**Key:**

NA = Not Applicable  
NFRAP = No Further Response Action Planned  
TBD = To Be Determined

#### **4.1.3.2 Remediation Timeliness and Documents**

Several environmental studies have been completed at JPG in an effort to identify sites, determine the degree and extent of contamination, evaluate risk, and identify and implement RAs. Figure 4-1 identifies the timeline for the completion of those documents.

#### **4.1.4 Environmental Restoration Early Actions Strategy**

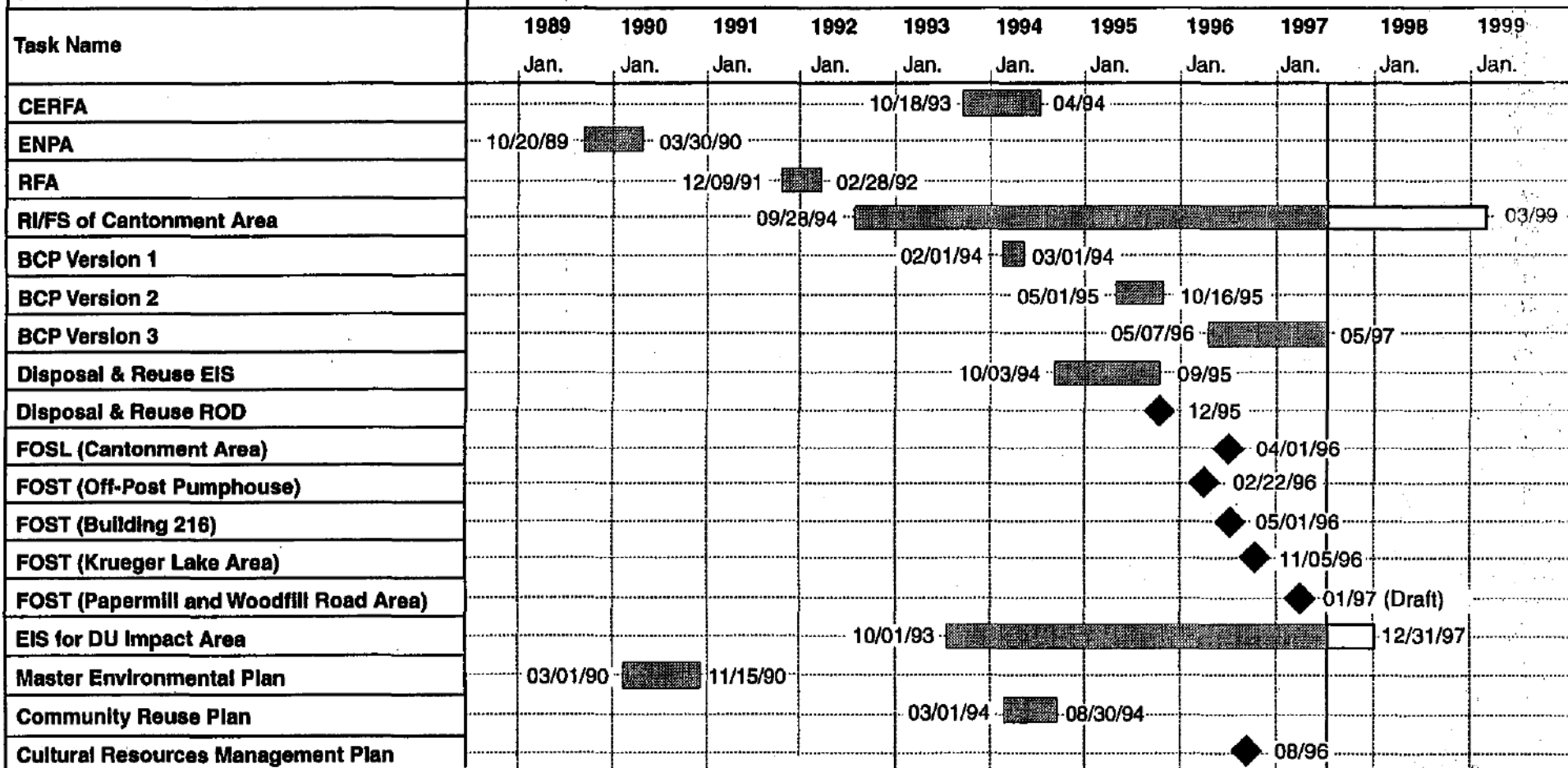
Early actions are planned at the five interim action sites detailed in Table 4-3. These actions are fully described in the Interim Measures Work Plan/Field Sampling Plan being developed by RUST Environment and Infrastructure, and are designed to reduce or eliminate the risk to human health and the environment. Early actions at the two indoor firing ranges and the burn area are anticipated to begin by the end of 1997. Remedial actions at the other two sites (i.e., Explosive Burn Area and Abandoned Landfill) require additional analytical data.




#### **4.1.5 Remedy Selection Approach**

Environmental restoration remedies will be selected in accordance with statutory and National Oil and Hazardous Substances Pollution Contingency Plan (NCP) criteria. JPG currently is not listed on the National Priorities List (NPL). The corrective action program for environmental restoration will be conducted so that it is in compliance with all applicable Federal, state, and local environmental statutes and regulations. The JPG BCT will involve all parties who have an impact on the remedies selected at the installation in the remedy selection process.

PROJECT: Jefferson Proving Ground  
 MANAGER: Paul Cloud  
 CURRENT DATE: 05/15/97

Figure 4-1. Primary Documents



-  Completed  
 To Be Completed  
 Milestones

**Table 4-3. Environmental Restoration Planned Early Actions**

<b>RI/FS Site No.</b>	<b>Identifier</b>	<b>Action</b>	<b>Objective</b>	<b>Timeframe</b>
Site 3	Explosive Burn Area off Engineer's Road	Contaminated Soil Removal	Source Removal	Currently being evaluated in Phase II RI/FS
Site 4	Abandoned Landfill off Engineer's Road	Contaminated Soil Removal	Source Removal	Currently being evaluated in Phase II RI/FS
Site 8	Indoor Firing Range (Building 295)	Contaminated Sand/Soil Removal and Surface Decontamination	Source Removal	Begin in late 1997
Site 15	Small Burn Area South of New Incinerator	Trench Demolition and Contaminated Soil Removal	Source Removal	Begin in late 1997
Site 42	Indoor Firing Range (Building 281)	Contaminated Sand/Soil Removal and Surface Decontamination	Source Removal	Begin in late 1997

**Key:**

RI/FS = Remedial Investigation/Feasibility Study

Particular attention will be given to the following during the evaluation of alternatives and the selection of remedies:

- ***Applicable or Relevant and Appropriate Requirements (ARARs)***—Applicable requirements for anticipated RAs will be identified through the BCT. The effectiveness of alternatives in reducing concentrations of contaminants to chemical-specific ARARs will be evaluated. Waivers will be considered where treatment to standards is technically impractical.
- ***Future Land Use/Risk Assessment***—Risk assessment protocols will incorporate future land use in exposure scenarios.
- ***Applicable Remedies***—The presumptive remedy selection approach advocated in the U.S. Environmental Protection Agency's (USEPA's) 30-day study will be applied in selected cases. Focused FSs will be developed where appropriate.
- ***Petroleum, Oils, and Lubricants (POL) Remedies***—Source-specific actions for POL will be addressed under the state UST program, as POL releases at JPG have occurred mostly as a result of leaking USTs. Large-scale groundwater RAs as a result of leaking USTs will be incorporated into the appropriate zone groundwater actions, if practicable.
- ***Future Land Use***—Cleanup goals need to be factored into future land use and/or deed restrictions.

The U.S. Army BRAC Environmental Coordinator (BEC) will hold BCT meetings to discuss conceptual remedies early in the FS process to ensure that the FS focuses on the appropriate types of remedies for each site or potential OU.

## 4.2 COMPLIANCE STRATEGY

This section describes the strategies for addressing compliance-related environmental issues at JPG prior to property transfer. These environmental compliance strategies will be developed to ensure that the installation is compliant with Federal and state regulatory programs, and U.S. Department of Defense (DOD) and U.S. Army directives and regulations throughout the BRAC process.

No environmental compliance early actions currently are planned at JPG. The two previous early actions were the closure of the Gate 19 Landfill and the closure of Building 305. These actions have been completed. Any additional early actions will be identified in Table 4-4 in updates of this BCP.

**Table 4-4. Environmental Compliance Planned Early Actions**

Site/RMIS No.	Unit Identifier	Action	Objective	Timeframe
No environmental compliance early actions currently are planned at JPG. Future changes will be reflected in this table.				

A detailed description of strategies and schedules for individual compliance programs is provided in the following sections.

### 4.2.1 Storage Tanks

The following strategies have been developed to manage USTs and aboveground storage tanks (ASTs) at JPG.

#### **4.2.1.1 Underground Storage Tanks**

All remaining USTs at JPG were removed during the fall of 1995 to meet regulatory requirements. USACE, in coordination with the Indiana Department of Environmental Management (IDEM), will engage all necessary and immediate remedial activity if additional USTs are identified, and will continue to coordinate activities to ensure the UST-contaminated soil is properly cleaned up.

#### **4.2.1.2 Aboveground Storage Tanks**

The two Building 125 ASTs currently in use at JPG are in compliance and will remain active until the current lessee (i.e., Mr. Ford of Ford Lumber and Building Supply Company) takes further action in accordance with his land use plans for the area.

#### **4.2.2 Hazardous Materials Management**

Hazardous materials inventories and Material Safety Data Sheets (MSDSs) were maintained at the installation until closure. As a precaution, the installation conducted a close-out survey of each tenant activity to ensure that no hazardous materials were left after the tenants vacated the property.

#### **4.2.3 Hazardous Waste Management**

Hazardous wastes generated at JPG were managed in compliance with Federal, state, and U.S. Army regulations. The last hazardous waste storage facilities at JPG Building 305 achieved final closure in June 1996. The close-out surveys of tenant activities ensured that no hazardous wastes were left after the tenants vacated the property.

#### **4.2.4 Solid Waste Management**

Solid wastes generated by the caretaker staff will be disposed of by a contractor. Groundwater monitoring at the Gate 19 Landfill will continue for 10 years in accordance with the IDEM-approved closure plan.

#### ***4.2.5 Polychlorinated Biphenyls***

Polychlorinated biphenyls (PCBs) were managed in compliance with applicable regulations until installation closure. Building 122, a former dry ice storage area, formerly served as temporary storage for out-of-service transformers, prior to the transformers being sent to the Defense Reutilization Marketing Office (DRMO).

#### ***4.2.6 Asbestos***

In the comprehensive asbestos survey conducted in 1993, no buildings were found to contain levels of asbestos-containing material (ACM) that would require immediate action. Therefore, ACM abatement will occur as necessitated by applicable regulations prior to property transfer.

#### ***4.2.7 Radon***

Past surveys indicate that radon is not an issue at JPG because the concentrations of radon were below the USEPA action level of 4 picocuries per liter (pCi/L).

#### ***4.2.8 RCRA Facilities (SWMUs)***

The closure of the hazardous waste storage areas in Building 279 (RMIS Site 50) and Building 305 (RMIS Site 36) has been completed. Closure plans for the OB/OD units that were operating under interim status have been submitted to USEPA. A revised closure plan was submitted in February 1996 for the Open Burning Ground (RMIS Site 6). The goal of this plan is to receive clean closure of the OB unit so that this area can be used without restrictions. The U.S. Army is requesting in-place closure of the Open Detonation Area at Shank Farm (RMIS Site 23) as a landfill. It is anticipated that post-closure monitoring will be required for the OD unit as part of its post-closure permit.



#### **4.2.9 NPDES Permits**

The Ford Lumber and Building Supply Company currently has the permit for the JPG sewage treatment plant (STP). The lessee is responsible for meeting all discharge requirements in the permit.

#### **4.2.10 Oil/Water Separators**

The outfall from the OWS in the Equipment Maintenance Shop (Building 186) discharged directly to the sanitary sewer system, which leads to the STP. The OWS is no longer in operation pending reuse plans by the Ford Lumber and Building Supply Company. The OWS is designated as RMIS Site 58 and no further action was recommended following the Phase I RI site investigation.

#### **4.2.11 Pollution Prevention**

JPG continued to utilize its Hazardous Waste Minimization Plan until closure. Currently, there are no hazardous substances used or hazardous wastes generated at JPG; therefore, no further compliance-related environmental issues exist with regard to pollution prevention.

#### **4.2.12 Nuclear Regulatory Commission Licensing**

JPG had obtained a license from the Nuclear Regulatory Commission (NRC) for the testing of depleted uranium (DU) penetrators and DU munitions on December 16, 1983. As part of the closure process, JPG informed NRC in a letter dated February 16, 1995 of its intent to terminate its NRC license. The U.S. Army sought a release for unrestricted reuse at the DU receiving and storage areas south of the firing line and a restricted release (not requiring DU remediation) at the DU impact area north of the firing line.

NRC surveyed the support buildings and facilities south of the firing line to determine if this area could be released for unrestricted reuse without an adverse impact on the environment or surrounding population. The NRC radiological survey confirmed that residual contamination levels complied with NRC criteria for unrestricted reuse (i.e., less than 35 pCi DU per gram of soil). After

a fence had been constructed between the north and south areas, NRC issued a license amendment in the *Federal Register* on May 7, 1996, which released the area south of the firing line for unrestricted use and transferred the license responsibility to the U.S. Army Test and Evaluation Command (TECOM) in Aberdeen, Maryland.

Because the U.S. Army had requested an exemption from the unrestricted use requirements, NRC determined that it must prepare an Environmental Impact Statement (EIS) for the area north of the firing line. On April 10, 1995, NRC published a Notice of Intent (NOI) in the *Federal Register* to prepare an EIS for the decommissioning of JPG. A public meeting on the scope of the EIS was held on April 26, 1995 and the oral and written comments were summarized in a report dated April 1995. The NRC conducted an inspection at JPG in November 1995 and started developing an EIS task plan in April 1996. A reduction in budget and shift of resources by NRC to another facility has caused a slowdown in the schedule and the EIS may not be completed until late 1998.

#### **4.2.13 Mixed Wastes**

No mixed wastes are generated at JPG; therefore, there are no compliance requirements or strategies under this program for the installation.

#### **4.2.14 Radiation**

Radiation compliance strategies are dictated by the JPG NRC license and are discussed in Section 4.2.12.

#### **4.2.15 Lead-based Paint**

The JPG lead-based paint management program will continue to be conducted in accordance with U.S. Department of Housing and Urban Development guidelines for lead-based paint protection and the Department of the Army policy, "Asbestos, Lead Paint, and Radon Policies at BRAC Properties," dated October 31, 1994. New property owners will be notified of the suspected presence of lead-based paint in all structures.

#### **4.2.16 Medical Waste**

Medical waste was not generated after the closure of JPG; therefore, there are no compliance requirements or strategies under this program for the installation.

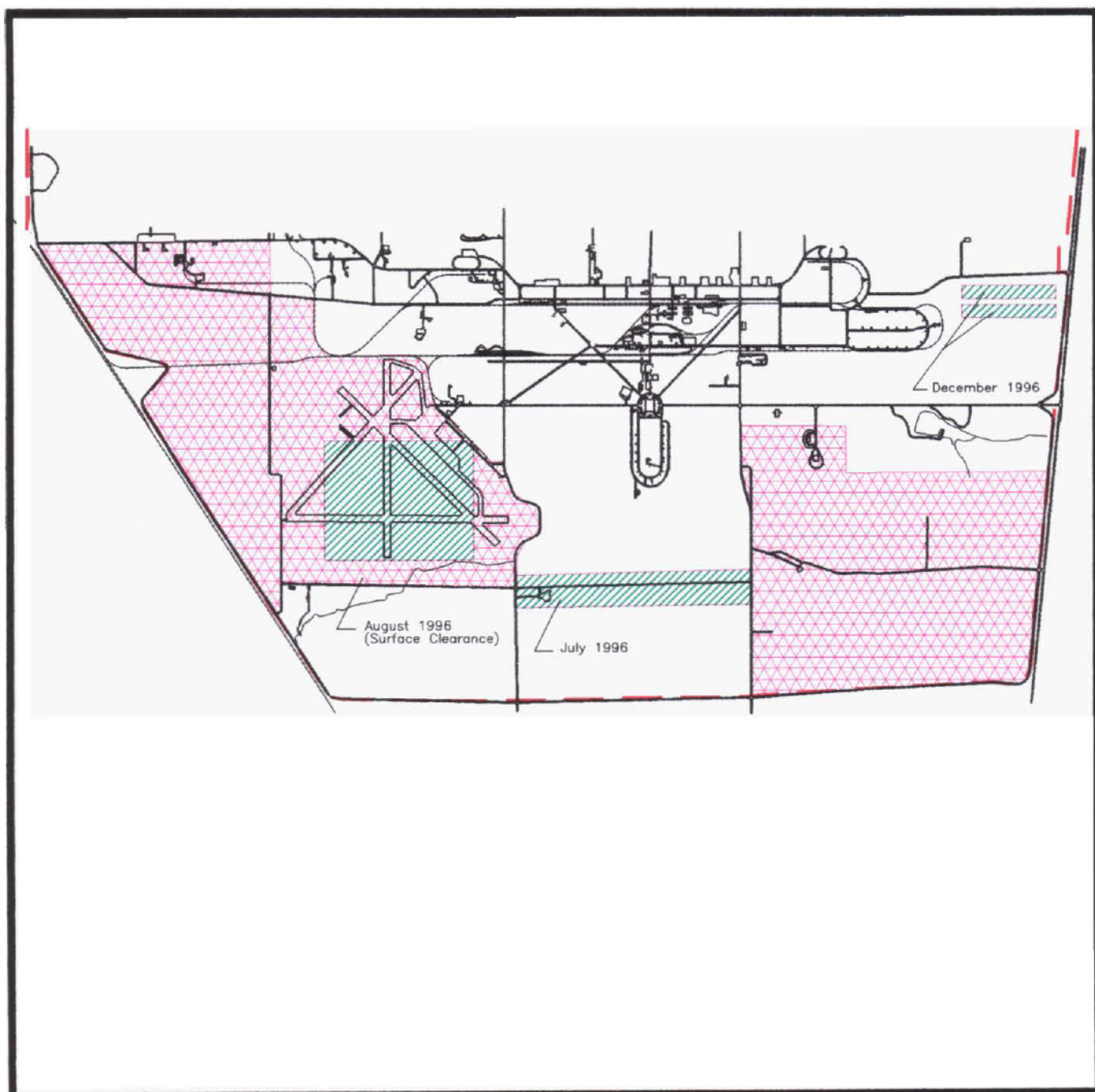
#### **4.2.17 Unexploded Ordnance**

The Huntsville and St. Louis Districts of USACE conducted an archive record search to identify UXO contamination at JPG. Approximately 2,234 acres south of the firing line were identified as potentially containing UXO (see Figure 4-2). A UXO identification/removal action commenced in May 1996 over the 100-acre parcel south of the housing area to separate the suspected UXO area into two parcels. This 100-acre parcel was surveyed for UXO with magnetometers to a depth of 4 feet below ground surface (BGS). This 100-acre area is now suitable for agriculture, but not heavy construction, which would disturb soils deeper than 4 feet BGS.



Other surface clearances by USACE include an 8-acre area east of the 100-acre removal action in July 1996, and a 30-acre site at the northeastern portion of the Cantonment Area (to a depth of 4 feet BGS) in December 1996. The Air National Guard also cleared 181 acres at the airport runways in August 1996. Currently, a scope of work is being prepared for clearance of approximately 700 acres in the vicinity of the airport.

Due to the personnel safety hazards and high degree of UXO contamination north of the firing line, no intrusive environmental investigations or remediation are planned in this area until USEPA and DOD finalize the proposed munitions and range rules. The proposed rules are currently in a public comment period. In the interim, JPG is consulting with the U.S. Fish and Wildlife Service (USFWS) on best management practices for the area north of the firing line.

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## LEGEND

- — Installation Boundary
-  Suspected UXO Areas Based on 1995 Archive Search Report (USACE)
-  Cleared UXO Areas Based on 4-foot Magnetometer search

0 1750 3500  
FEET

Note: Entire area north of firing line is assumed to contain UXO

**Suspected Unexploded  
Ordnance Locations  
Cantonment Area**

**Figure 4-2**

The security program for UXO is part of the caretaker responsibilities. This program includes:

- Replacing fencing as necessary
- Patrolling area
- Guard presence at main gate
- Fact sheets and videos on UXO education
- UXO briefing for all contractors and lessees
- Restrictions on public access at Krueger Lake.

#### ***4.2.18 National Environmental Policy Act***

The Disposal and Reuse EIS was finalized in September 1995 and the Disposal and Reuse Record of Decision (ROD) was signed in December 1995. The EIS was required by National Environmental Policy Act (NEPA) regulations as a prerequisite to closure.

#### ***4.2.19 Air Emissions***

The OB Permit and Fire Training Permit continued to be renewed annually with the State of Indiana until the installation closed. All stipulations required for permit approval were followed.

### **4.3 NATURAL AND CULTURAL RESOURCES STRATEGIES**

This section describes the strategies for natural and cultural resource programs at JPG that were developed to manage these resources throughout the BRAC cleanup and installation closure process.

#### ***4.3.1 Vegetation***

With the signing of the lease in furtherance of conveyance between the U.S. Army and the Ford Lumber and Building Supply Company, the company is responsible for the operations and maintenance of the JPG Cantonment Area. However, JPG will continue to maintain the existing vegetation in the areas north of the firing line until transfer of the parcel. Only very small areas of

vegetation are expected to be impacted during future soil excavations at restoration sites. No critical habitats will be impacted in the restoration areas. The U.S. Army will consider ways to minimize vegetation impacts during the RD process, if necessary. Specific future programs addressing vegetation planned at JPG include revision of the forest management plan and surveying interior woodlands.

#### **4.3.2 Wildlife**

JPG will continue its survey of existing wildlife until transfer of the property. Only small areas are expected to be disturbed at future restoration sites during remedial activities, and impact to wildlife is expected to be minimal. The U.S. Army will consider ways to minimize wildlife impacts during the future RD process, if necessary. Ongoing or planned programs addressing JPG's wildlife include:

- Establishing monitoring stations in coordination with the Institute of Bird Populations.
- Continuing its participation in the National Wildlife Federation's Bald Eagle Survey and Audubon's Bird Counts.
- Continuing to support the Indiana Department of Natural Resources (IDNR) on reintroduction of the river otter. In February 1996, 25 river otters were introduced to the Old Timber Lake area. The results of this initiative will be monitored.

#### **4.3.3 Wetlands**

JPG will continue to maintain the estimated 6,470 acres of wetlands until transfer of the property. The wetlands identified in past studies will be considered in the selection of a final reuse of the installation.

#### **4.3.4 Designated Preservation Areas**

The Memorandum of Understanding (MOU) between the U.S. Army and USFWS includes a management program for forests and indigenous animal species. Whitetail deer, squirrel, rabbit, and waterfowl are abundant and would be likely candidates under this program. A great blue heron rookery is located at Graham Creek, as well as several capture sites of the federally endangered

Indiana bat. To maintain a grassland habitat for the Henslow sparrow, controlled burns of approximately 1,000 acres north of the firing line are conducted. The U.S. Army has an IDEM permit to continue conducting this land use management activity.

#### ***4.3.5 Rare, Threatened, and Endangered Species***

USFWS is completing a survey of endangered and threatened species at JPG. In accordance with a letter from USFWS dated January 1996, no known threatened or endangered species or critical habitat are located within the JPG Cantonment Area. However, endangered and threatened species are known to be located north of the firing line (see Sections 3.3.4 through 3.3.6). Planned restoration activities are not expected to impact areas where potential threatened or endangered flora and fauna exist because the RI/FS is only considering the area south of the firing line. No future intrusive environmental investigations are planned in the area north of the firing line due to the presence of UXO and the related personnel safety hazards. Prescribed fires are being planned for approximately 1,000 acres north of the firing range area to maintain a grassland habitat for the Henslow sparrows. The U.S. Army has an IDEM burn permit to continue conducting a prescribed burning program.

#### ***4.3.6 Cultural Resources***

A Memorandum of Agreement (MOA) between the U.S. Army, the Advisory Council on Historic Preservation (ACHP), and the Indiana State Historic Preservation Office (SHPO) concerning closure of JPG stipulated preparation of a Cultural Resource Management Plan (CRMP). In accordance with the MOA, USACE finalized the JPG CRMP in August 1996.

The CRMP provides guidelines and procedures that will enable JPG to fulfill its legal responsibilities while under U.S. Army control for the identification, evaluation, and treatment of historic properties under its jurisdiction. The specific commitments made to date for cultural resources management include the following:

- The U.S. Army is responsible for carrying out the management of the historic preservation program at all levels, but may delegate the authority by appointment of a



Historic Preservation Coordinator (HPC) or a Cultural Resources Point of Contact for JPG for all projects that may impact historic properties and to determine whether further Section 106 review is required.

- In accordance with Technical Memorandum (TM) 5-801-2 and the MOA between the U.S. Army, the ACHP, and the Indiana SHPO (see Appendix M), the U.S. Army will secure, protect, and maintain the National Register of Historic Places (NRHP)-listed Oakdale School, as well as the NRHP-listed Old Timbers Lodge and Bridges No. 17, 25, 27, and 28.
- As JPG is excessed, historic preservation obligations will be deemed to pass to the receiving agency if excess is to another Federal agency for conservation purposes. If disposal is to another Federal agency for purposes other than conservation, the parties of the MOA and the receiving agency will consult to determine what actions, if any, may be necessary to preserve historic properties subject to effect by such transfer and will amend the MOA or take actions in accordance with 36 Code of Federal Regulations (CFR) 800 to the extent needed to specify how such actions, if any, will be implemented.
- The timing of the inventory process for identification, evaluation, and nomination of historic properties will be dependent upon the projected owner and final disposition of the facility. However, the process must be completed prior to the excessing of land and the transfer of architectural resources to private ownership.
- Any NRHP-eligible building or structure that remains under Federal ownership, or under a designated Federal agency, will be maintained and protected, and NRHP-eligible properties should be inspected on a periodic basis in order to document the condition of the property and evaluate the need for active maintenance measures.
- The U.S. Army will ensure that the personnel conducting RI and FS tasks related to the IRP are familiar with historic property compliance requirements.
- Care should be taken to preserve and protect facility records pertaining to the construction, evolution, and history of JPG so that the appropriate records, which may include facility plans, building floor plans and elevations, drawings, and photographs, can be curated for archival purposes.

#### **4.4 COMMUNITY INVOLVEMENT/STRATEGY**

A Public Involvement Response Plan (PIRP), completed in late 1994, will facilitate communication among the U.S. Army; other Federal, state, or local agencies; and interested groups and other community residents concerning activities conducted under the IRP at JPG. This communication ensures that all parties involved or interested are provided accurate, consistent

information in a timely manner concerning related cleanup activities, contaminants, and possible effects of any contamination. It provides mechanisms for all parties to provide input into the decisionmaking process of the IRP.

The JPG BCT has adopted the following strategy to support a proactive community relations program in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements:

- Update the community involvement program
- Enhance community outreach activities to include periodic town meetings, distribution of information, and open houses
- Hold meetings and allow for public comment on proposed plans and other activities, and respond to all comments in a responsiveness summary
- Publish facts sheets on the progress of environmental restoration and disposal programs and make these fact sheets available to all interested parties
- Maintain an administrative record in the Dugan Library at Hanover College
- Maintain an information repository at the Madison Jefferson County Public Library.

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## **5. ENVIRONMENTAL PROGRAM MASTER SCHEDULES**

This section presents Jefferson Proving Ground's (JPG's) master schedules of anticipated activities in the installation's environmental programs. These schedules are simplified from detailed network and operational schedules developed to support site-specific work plans and compliance agreements.

### **5.1 ENVIRONMENTAL RESTORATION PROGRAM**

This section presents response schedules and outlines fiscal year (FY) requirements for JPG's environmental restoration program.

#### ***5.1.1 Response Schedules***

The schedule for environmental response actions for JPG will be shown in Figure 5-1 in revisions to this Base Realignment and Closure (BRAC) Cleanup Plan (BCP). Sufficient information is not available to complete this schedule at this time. Future changes will be reflected here as documents, such as the Remedial Investigation/Feasibility Study (RI/FS) Report, become available.

#### ***5.1.2 Requirements by Fiscal Year***

The detailed requirements information by FY are developed and maintained by the U.S. Army Test and Evaluation Command (TECOM). The tables in Appendix A provide summary information on funding requirements.

### **5.2 COMPLIANCE PROGRAMS**

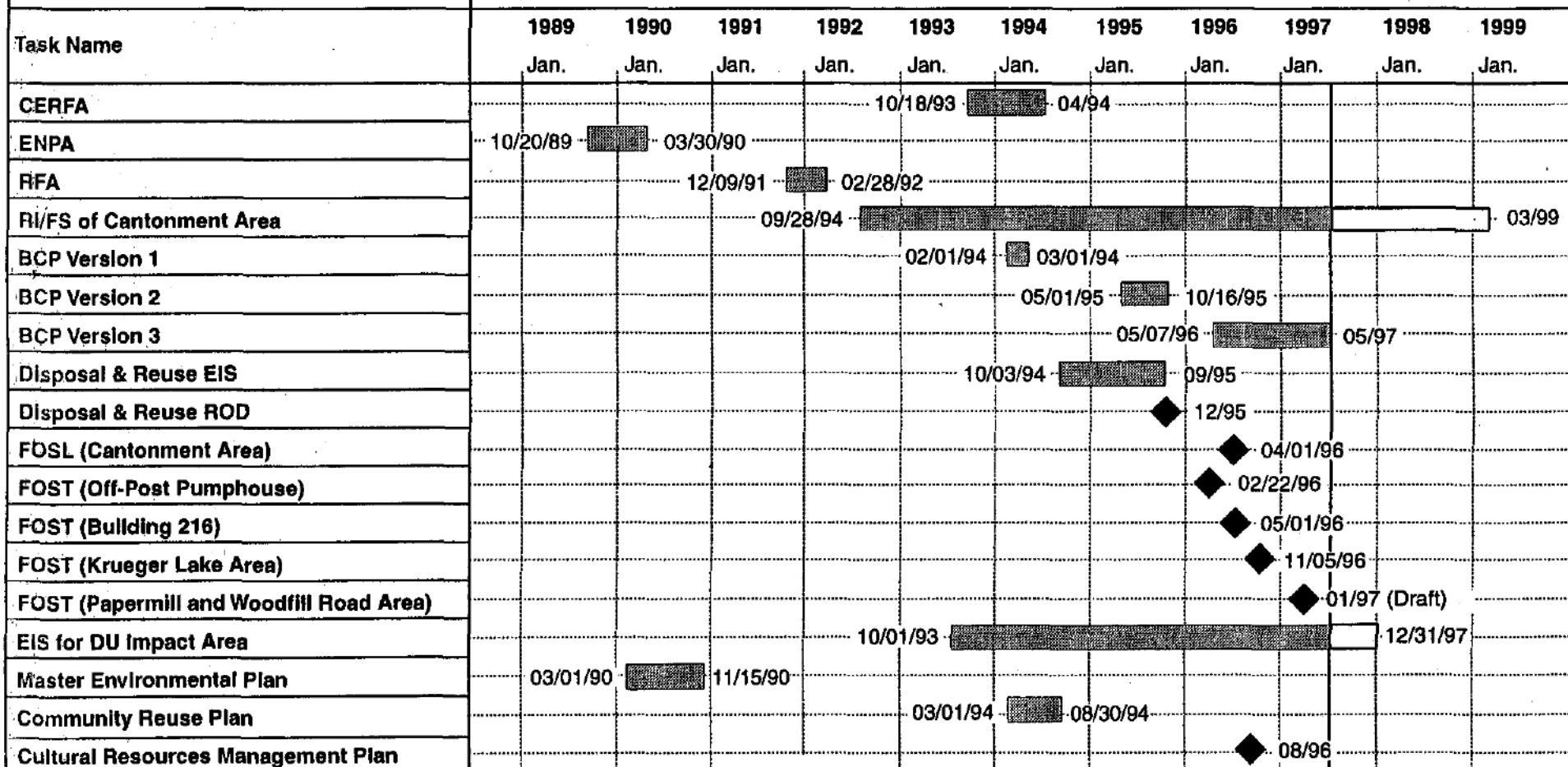
This section presents master compliance schedules and outlines FY requirements for JPG's compliance programs. Mission-related and closure-related programs are scheduled separately.

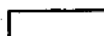


#### ***5.2.1 Master Compliance Schedules***

The compliance schedule for mission and operational related compliance programs at JPG is provided in Figure 5-2. The compliance schedule for JPG closure-related compliance programs is

PROJECT: Jefferson Proving Ground  
 MANAGER: Paul Cloud  
 CURRENT DATE: 05/15/97

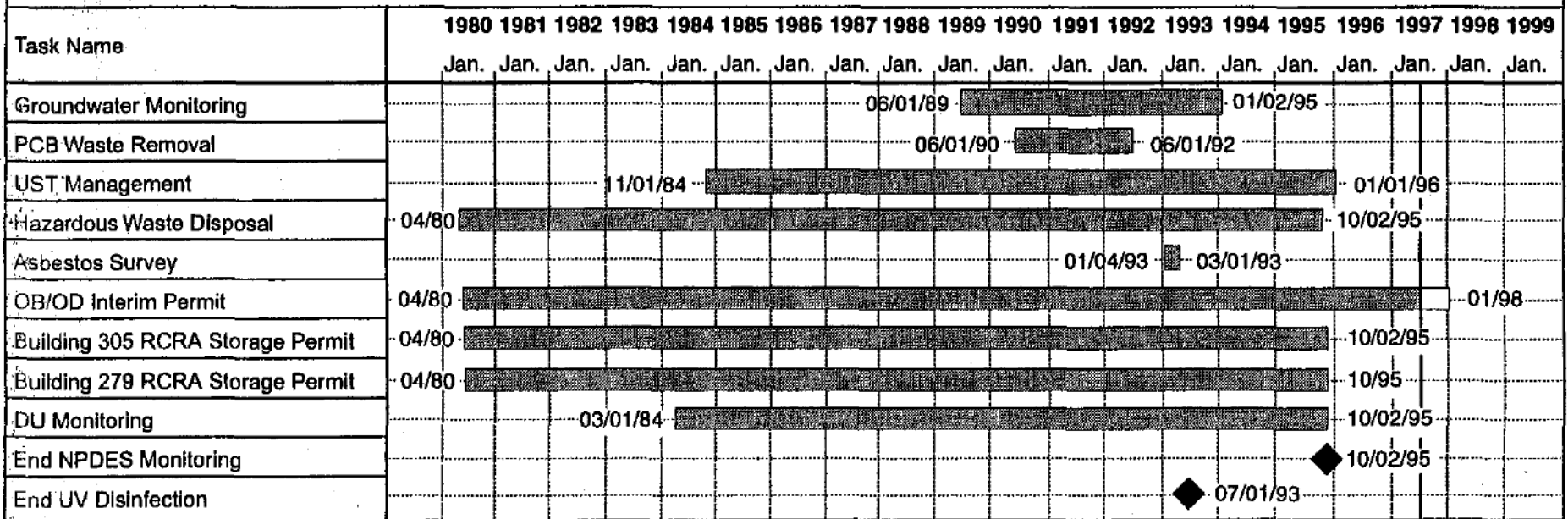
Figure 5-1. Environmental Restoration Schedule






-  Completed  
 To Be Completed  
 Milestones

**PROJECT: Jefferson Proving Ground**  
**MANAGER: Paul Cloud**  
**CURRENT DATE: 05/15/97**

**Figure 5-2. Compliance-Related Schedule**



-  Completed
-  To Be Completed
-  Milestones

0230W/5-4

provided in Figure 5-3. The only remaining compliance activities to be completed are the open burning/open detonation (OB/OD) Resource Conservation and Recovery Act (RCRA) permit close-out and the decommissioning of the depleted uranium (DU) impact area.

#### **5.2.2 Requirements by Fiscal Year**

The detailed requirements information by FY are developed and maintained by TECOM. The tables in Appendix A provide summary information on funding requirements.

### **5.3 NATURAL AND CULTURAL RESOURCES**

This section presents master natural and cultural resources activity schedules and outlines FY requirements for JPG's natural and cultural resources programs.

#### **5.3.1 Natural and Cultural Resources Schedule**

The natural and cultural resources schedule for JPG is provided in Figure 5-4. Natural and cultural resources activities to be completed include a Natural Resources Survey of the Cantonment Area.

#### **5.3.2 Requirements by Fiscal Year**

The detailed requirements information by FY are developed and maintained by TECOM. The tables in Appendix A provide summary information on funding requirements.


### **5.4 MEETING SCHEDULE**

Meetings are scheduled as required by the applicable process (e.g., Restoration Advisory Board [RAB]). Meetings are typically held as follows:

- **BRAC Cleanup Team (BCT) Meetings**—As determined by issues and events
- **RAB**—Initially quarterly, and bimonthly (since 1996)
- **Technical/Issue Resolution Meetings**—As necessary to facilitate contained movement of the Installation Restoration Program (IRP) or compliance activities.

<b>PROJECT:</b> Jefferson Proving Ground <b>MANAGER:</b> Paul Cloud <b>CURRENT DATE:</b> 05/15/97		<b>Figure 5-3. Closure-Related Schedule</b>									
<b>Task Name</b>		<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
		Jan.	Jan.	Jan.	Jan.	Jan.	Jan.	Jan.	Jan.	Jan.	Jan.
DU Decommissioning					11/01/93					12/31/97	
Gate 19 Landfill*			04/07/92								
Building 305 Closure							◆ 10/95				
Building 279 Closure							◆ 10/95				
OB Closure										◆ 1/98	
OD Closure										◆ 1/98	

 Completed

 To Be Completed

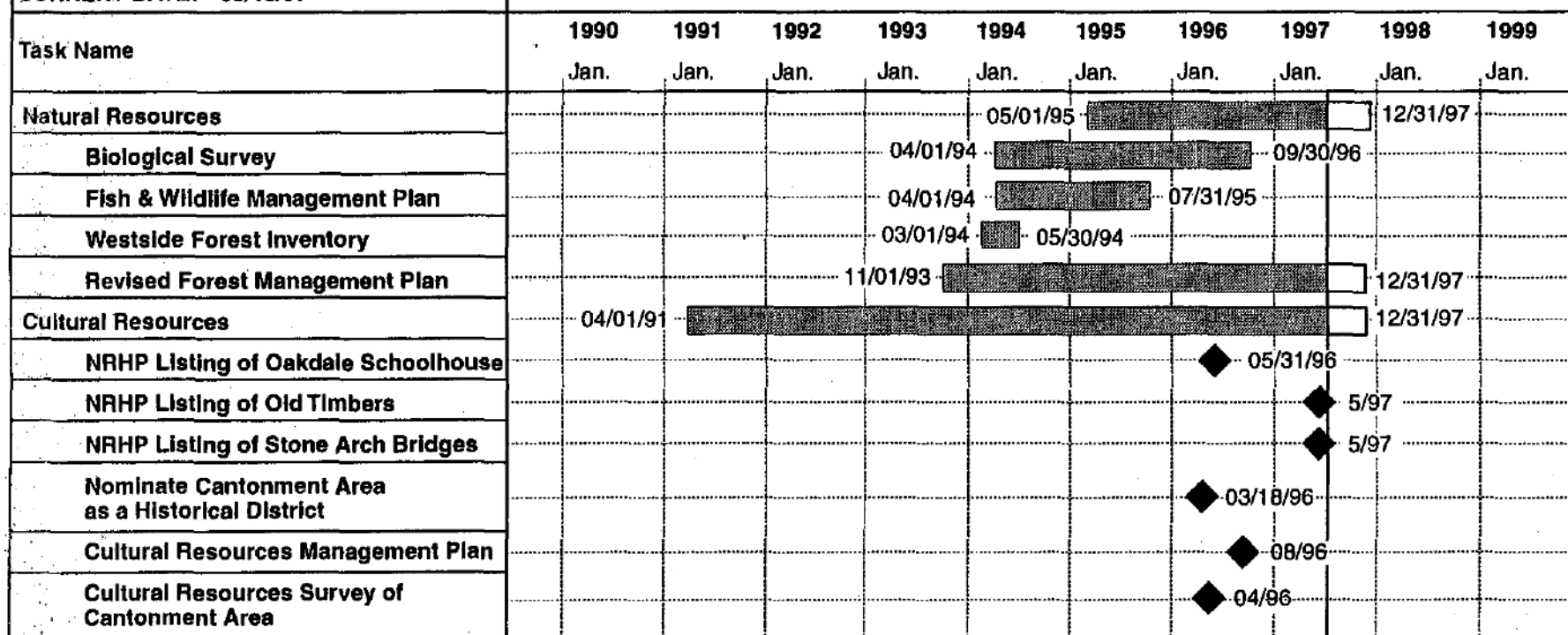
 Milestones

\* Groundwater monitoring will continue for 10 years in accordance with IDEM-approved closure plan.



PROJECT: Jefferson Proving Ground  
 MANAGER: Paul Cloud  
 CURRENT DATE: 05/15/97

Figure 5-4. Cultural and Natural Resources



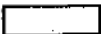


-  Completed  
 To Be Completed  
 Milestones

Table 5-1 lists the past and currently scheduled BCT meetings.

**Table 5-1. BRAC Cleanup Team Meeting Schedule**

<b>Date</b>	<b>Topic</b>
December 14, 1993	<ul style="list-style-type: none"> <li>• Preparation of BCP</li> </ul>
January 21, 1994	<ul style="list-style-type: none"> <li>• Discuss Earth Technology Visit Date (March 8, 1994)</li> <li>• Review of Completed BCP Tables</li> <li>• Reuse of Buildings 154 and 105</li> <li>• National Priorities List (NPL) Status</li> <li>• Onsite Regulatory Presence</li> <li>• Unexploded Ordnance (UXO)</li> <li>• RAB</li> </ul>
February 16, 1994	<ul style="list-style-type: none"> <li>• Review of BCP Sections 2.1, 2.2, and 2.3</li> <li>• Information Sources</li> <li>• Data gaps relevant to non-availability of Community Relations Plan (CRP), RI/FS, and Environmental Impact Statement (EIS) prior to BCP, Version 1</li> <li>• UST Program</li> <li>• Lead Exposure Risk Assessment</li> <li>• Natural, Cultural, Historical, and Archaeological Resources</li> </ul>
March 8, 1994	<ul style="list-style-type: none"> <li>• Review BCP, Draft Version 1 with Contractor</li> </ul>
July 20, 1994	<ul style="list-style-type: none"> <li>• OB/OD Notice of Deficiency Response</li> </ul>
October 12-13, 1994	<ul style="list-style-type: none"> <li>• RI regulator comment review/U.S. Army responses</li> </ul>
January 31, 1995	<ul style="list-style-type: none"> <li>• DU cleanup</li> </ul>
February 23, 1995	<ul style="list-style-type: none"> <li>• Endangered species impact on cleanup</li> </ul>
March 7, 1995	<ul style="list-style-type: none"> <li>• Interim remedial measures south of the firing line</li> </ul>
March 12, 1995	<ul style="list-style-type: none"> <li>• RI data quality resolution</li> </ul>
August 1995	<ul style="list-style-type: none"> <li>• RI Phase II pre-Quality Assurance Project Plan (QAPP) meeting</li> </ul>
March 1996	<ul style="list-style-type: none"> <li>• RI Phase II work plan comment resolution</li> </ul>
January 1996	<ul style="list-style-type: none"> <li>• Outstanding Community Environmental Response Facilitation Act (CERFA) comment resolution</li> </ul>
September 9, 1997	<ul style="list-style-type: none"> <li>• North of firing line (closure, monitoring)</li> </ul>

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## **6. TECHNICAL AND OTHER ISSUES TO BE RESOLVED**

This section summarizes technical and other issues that are yet to be resolved. These issues include information management; the usability of historical data; natural (background) levels of elements and compounds in soil, groundwater, surface water, and sediments; risk assessment; state cleanup standards; and program initiatives to complete cleanup requirements to meet property transfer schedules.

### **6.1 INFORMATION MANAGEMENT**

This section identifies issues that need to be resolved with regard to managing information gathered and used in the installation environmental restoration and compliance programs. Issues include:

- Improved coordination of, access to, and management of environmental restoration and real estate-type data generated at Jefferson Proving Ground (JPG)
- Implementation of contractor requirements to submit data in electronic format that can be readily used by the U.S. Army
- Develop provisions for real-time data inputs of field decisions to expedite Base Realignment and Closure (BRAC) field work progression.

#### **6.1.1 BRAC Cleanup Team Action Items**

In addition to the issues addressed above, one additional BRAC Cleanup Team (BCT) action item should be addressed at JPG. In order to manage information during the environmental restoration BRAC process, the information transfer system, Defense Environmental Network and Information Exchange (DENIX), has been made available to each BCT member.

#### **6.1.2 Rationale**

As the number of agencies and contractors associated with the JPG disposal and environmental restoration program increases, it is important that all parties involved are able to share data for decisionmaking. The establishment and maintenance of an electronic data base of sampling and analysis data and spatial data (e.g., real estate and environmental condition of

property maps) is the most efficient method of sharing data among parties. The availability of reports and maps in an electronic format that can be addressed and shared by users also is important in managing and expediting the environmental restoration process.

### **6.1.3 Status/Strategy**

The current status of information management relative to BRAC cleanup activities at JPG and strategies that have been developed to address information management requirements are summarized below:

- All historical data generated at JPG have been relocated to the BRAC Environmental Coordinator (BEC) Office at the U.S. Army Test and Evaluation Command (TECOM).
- Data generated in the future will be loaded into DENIX on a quarterly basis, subject to inclusion of this requirement being added to or included into contracts.
- Necessary contract modifications will be made by the U.S. Army Corps of Engineers (USACE), Louisville District, to ensure that data from ongoing efforts are submitted electronically into DENIX.

## **6.2 DATA USABILITY**

This section summarizes unresolved issues pertaining to the validity of using historical data sets in the installation environmental restoration program.

### **6.2.1 BRAC Cleanup Team Action Items**

The BCT has reviewed the Draft Remedial Investigation (RI) generated by Rust E&I and has resolved outstanding issues identified during this review. During the data quality issue meeting of May 12, 1995, additional follow-up action items were identified. The additional action items identified during this meeting include providing references to the appendix concerning laboratory review requirements; providing copies of DataChem's standard operating procedures to the U.S. Environmental Protection Agency (USEPA), Region V and the Indiana Department of Environmental Management (IDEM); providing a technical memorandum detailing the proposed approach to validate JPG data; revising laboratory comparison tables to reflect standard operating procedures in effect when JPG sample analyses were performed; and addressing questions

regarding the calibration linear range of semivolatile organic compounds (SVOCs) in soil and gas chromatography/mass spectrometry (GC/MS) compound identification.

#### **6.2.2 Rationale**

Historical analytical data can contribute to the completion of site characterizations and risk assessments by filling data gaps. The qualification of current and future data from each data collection system (e.g., field laboratories and field screening techniques) is critical to the completion of all site characterization efforts, comprehensive conceptual model development, risk assessments, and ultimately the selection of remedial actions (RAs) to protect human health and the environment.

#### **6.2.3 Status/Strategy**

The BCT will continue to work through the data usability issues to ensure the acceptability of data generated in the future.

### **6.3 DATA GAPS**

This section summarizes unresolved issues pertaining to the determination and collection of data needed to complete JPG's environmental restoration program.

#### **6.3.1 BRAC Cleanup Team Action Items**

The BCT action item of assessing the need for additional sampling during the Remedial Investigation/Feasibility Study (RI/FS) to identify and fill data gaps and continue the BRAC environmental restoration process is complete. The need for additional sampling at several sites to complete the delineation of contamination has been resolved.

#### **6.3.2 Rationale**

Effective identification and filling of data gaps will permit the development of comprehensive conceptual zone or site models for site characterization and risk assessment. Effective analysis of data gaps also will facilitate the completion of RI efforts and the designation of

operable units (OUs) so that the appropriate RA can be identified and evaluated. This information also will facilitate the identification of clean areas at JPG.

### **6.3.3 *Status/Strategy***

No additional data gaps have been identified at this time. However, data gaps will be discussed in this section if they are found during the RI.

## **6.4 BACKGROUND LEVELS**

This section summarizes unresolved issues pertaining to documenting background levels for JPG's environmental restoration program.

### **6.4.1 *BRAC Cleanup Team Action Items***

Background levels at JPG are being discussed by the U.S. Army; USEPA, Region V; and IDEM. Additional samples have been collected during the RI to resolve this issue.

### **6.4.2 *Rationale***

Background concentration values of elements in the soil, groundwater, surface water, and sediment need to be determined before risk assessments can be conducted. The values must be representative of what is naturally occurring and what is occurring due to anthropogenic sources. These values must be concurred with by USEPA and state regulators.

### **6.4.3 *Status/Strategy***

The status of background level documentation at JPG and strategies developed to further identify background cleanup levels will be provided in the RI/FS Report.

## **6.5 RISK ASSESSMENTS**

This section summarizes unresolved issues pertaining to the completion of risk assessments required to complete JPG's environmental restoration and compliance programs.

#### **6.5.1 BRAC Cleanup Team Action Items**

Currently, no problems have been identified concerning the completion of the risk assessment for JPG. When this document becomes available, action items may be identified to address future risk assessment issues.

#### **6.5.2 Rationale**

Anticipated or changing land uses at JPG need to be considered in exposure assessment assumptions. These land uses may include residential, agricultural, recreational, and industrial scenarios.

#### **6.5.3 Status/Strategy**

A summary of the current risk assessment protocols employed at JPG and strategies that have been developed to improve these protocols will be provided in this section if any issues arise.

### **6.6 INSTALLATION-WIDE REMEDIAL ACTION STRATEGY**

This section summarizes unresolved issues pertaining to the completion of remedial actions as part of the installation-wide remedial action strategy.

#### **6.6.1 BRAC Cleanup Team Action Items**

The BCT plans to update the BCP annually or as needed, which will include revisions to the remediation schedule. A budget addressing current and projected funding needs will be developed and modified as necessary to reflect changes in the BCP.

The following action items need to be addressed by the BCT in order for the installation-wide environmental restoration and compliance process to be completed:

- Define the appropriate long-term strategy for the area north of the firing line
- Resolve of potential issues associated with transfer of contaminated property, subject to certain restrictions.



### **6.6.2 Rationale**

The installation-wide RA strategy will be structured to achieve restoration of contaminated sites as quickly as possible and to expedite any necessary RAs while controlling costs.

### **6.6.3 Status/Strategy**

Remedial design (RD) plans will be made available upon completion of the RI/FS and will take into account future reuse of JPG. The results of these RDs will be used to modify the installation-wide RA strategy, if necessary. Sites north of the firing line (excluding the Gate 19 Burn Area and Landfill) are not being investigated under the current RI/FS due to physical hazards associated with disturbing unexploded ordnance (UXO). The BCT will evaluate transfers of contaminated property on a case-by-case basis.

## **6.7 INTERIM MONITORING OF GROUNDWATER AND SURFACE WATER**

Several rounds of groundwater and surface water monitoring activities have occurred at JPG to evaluate the environmental impact caused by past activities. The scope of the ongoing RI/FS currently includes groundwater and surface water sampling.

### **6.7.1 BRAC Cleanup Team Action Items**

Under the stipulations of the Nuclear Regulatory Commission (NRC) license, JPG regularly samples surface water and groundwater at the depleted uranium (DU) impact area for uranium contamination. The BCT will evaluate the need for routine monitoring of other areas according to the results of the RI/FS. The groundwater at the Gate 19 Landfill will be monitored for 10 years in accordance with the IDEM-approved closure plan.

### **6.7.2 Rationale**

If the results of the ongoing environmental investigations indicate the need for interim monitoring of groundwater and surface water, the BCT will develop a plan to execute these activities. Sampling and analysis efforts will target specific analyses, sampling locations, and

sampling frequencies. Selection of these parameters will be based on the results of previous investigative efforts.

#### **6.7.3 Status/Strategy**

If necessary, the BCT will develop a plan for interim monitoring of groundwater and surface water at JPG. The plan will be based on the results of ongoing environmental investigations.

### **6.8 EXCAVATION OF CONTAMINATED MATERIALS**

The need to excavate contaminated materials at JPG will be evaluated in the RI/FS, which is expected to be completed in March 1999.

#### **6.8.1 BRAC Cleanup Team Action Items**

Excavation of contaminated materials currently is planned at 10 sites located south of the firing line. These excavations are considered interim remedial measures. Table 4-3 identifies the sites where these interim remedial measures are planned.

#### **6.8.2 Rationale**

If ongoing environmental investigations at JPG identify source areas that can be removed by excavation, or other contaminated materials requiring excavation, the BCT will address this need through the installation-wide remedial strategy.

#### **6.8.3 Status/Strategy**

Contaminated materials requiring excavation have been identified at JPG and are listed in Table 4-3. When excavation begins, the status of the remedial efforts will be provided in Table 3-3.

## **6.9 PROTOCOLS FOR REMEDIAL DESIGN REVIEWS**

Environmental investigations currently are proceeding at JPG. When these ongoing investigations are complete, it may be necessary to develop RDs depending on scheduled reuse of specific areas.

### **6.9.1 BRAC Cleanup Team Action Items**

If ongoing environmental investigations at JPG identify a need to develop RDs, the BCT will adopt RD protocols as part of the installation-wide remedial strategy.

### **6.9.2 Rationale**

If RDs are required, review of the designs is critical to ensure that they will achieve cleanup goals and that they are technically and administratively feasible. The BCT will adopt RD review protocols, if necessary, as part of the installation-wide remedial strategy.

### **6.9.3 Status/Strategy**

As noted above, the results of environmental investigations will be used to determine if RDs are necessary. If designs are necessary, the BCT will adopt review protocols as part of the installation-wide remedial strategy.

## **6.10 CONCEPTUAL MODELS**

Conceptual site models have been prepared for several JPG sites. These models are provided in Appendix E.

### **6.10.1 BRAC Cleanup Team Action Items**

As the current environmental investigations at JPG are completed, the BCT will develop additional conceptual models. The models will be updated by the BCT as new information becomes available.

### **6.10.2 Rationale**

Conceptual site models will be based on the results of past and current investigations. The conceptual models will be used to identify data gaps, and to help identify and evaluate potential remedial alternatives, if necessary.

### **6.10.3 Status/Strategy**

As the current environmental investigations at JPG are completed, the investigation results will be reviewed, evaluated, and integrated with existing data to develop conceptual models. The models will focus on identification of source areas, the potential extent of contamination, potential contaminant migration pathways, and potential receptors.

## **6.11 CLEANUP STANDARDS**

If site remediation is required, it is necessary to establish cleanup standards. The standards are used to identify remedial alternatives capable of achieving cleanup goals, and the time at which remediation is complete.

### **6.11.1 BRAC Cleanup Team Action Items**

If it is necessary to remediate sites at JPG, the BCT will identify chemicals of concern (COCs) and establish cleanup standards dependent on scheduled reuse of specific areas.

### **6.11.2 Rationale**

If it is necessary to remediate sites at JPG, cleanup standards will be established by the BCT. Cleanup standards may be based on applicable or relevant and appropriate requirements (ARARs) or they may be based on estimates of risk. ARARs will be identified and risk will be estimated for chemicals of potential concern (COPCs), if necessary. The cleanup standards will be selected after review and evaluation of ARARs, risk estimates, and review of potential future land use.

### **6.11.3 Status/Strategy**

Both ARARs and risk-based cleanup goals will be evaluated prior to selection of final cleanup goals. Selection of final cleanup goals will take into consideration potential future land use (e.g., residential, agricultural, or industrial). Ten sites have or are being remediated as Resource Conservation and Recovery Act (RCRA) interim measures using this approach. As of March 1997, five RAs were completed (sites 7, 14, 15, 26, and 28); five sites still need to be scheduled or completed (sites 3, 4, 8, 29, and 42).

## **6.12 INITIATIVES FOR ACCELERATING CLEANUP**

Implementation of initiatives for accelerated cleanup is desirable at JPG to facilitate property transfer efforts.

### **6.12.1 BRAC Cleanup Team Action Items**

The BCT will make every effort to take the initiative in implementation of any necessary cleanup activities to facilitate transfer of JPG.

### **6.12.2 Rationale**

It is desirable to initiate accelerated cleanups at JPG to facilitate the property transfer process.

### **6.12.3 Status/Strategy**

If the ongoing environmental investigations at JPG indicate the need for remediation, cleanup initiatives that are capable of meeting cleanup standards and are technically and administratively feasible will be identified. The time required to achieve cleanup standards will be considered during selection of cleanup approaches. Cleanup initiatives will be expedited as much as possible and will be incorporated into the installation-wide RA strategy (see Section 6.11).

The BCT is considering the following initiatives for expediting response actions at the installation:

- **Target Source Areas**—Target source areas for early RAs.
- **Identify ARARs**—Early in the project, develop a list of ARARs by obtaining lists of ARARs from the state and other agencies and examine the Records of Decision (RODs) for similar sites in the same state to identify which ARARs are likely to apply.
- **Risk-based Cleanup**—Pursue negotiations with the regulators to agree on risk-based cleanup standards according to future land use.
- **Agreements**—Explore the use of Interagency Agreement and U.S. Department of Defense (DOD)/State Memorandum of Agreement (MOA) to implement agreements and expedite cleanup needs.
- **Defined Document Review Process**—Negotiate terms with the regulatory reviewers to streamline the review process by agreeing to a definitive time cycle (such as 12 months) from the submittal of a Draft FS/Proposed Plan to the signing of a ROD.
- **Concurrent Reviews**—Develop a complete list of reviewers early and pursue parallel review tracks to eliminate delays.
- **Team Approach**—Build a strong team consisting of the installation remedial project manager, U.S. Army representatives, contractors, and Federal and state regulatory personnel that has the authority, responsibility, and accountability for implementing innovative solutions to remediate and close sites in a timely, cost-effective manner.
- **Joint Preparation**—Expedite the document preparation and review/approval by forming a working team with USEPA and the state when preparing required documents, such as decision documents (DDs) and RODs.
- **Community Involvement**—Involve the community during the remedial process to encourage support at the time of site closure. By informing the community during the process, the likelihood of opposing comments during the public comment period would be lessened.
- **Innovative Technologies**—Pursue collaborative projects using innovative technologies being researched at the U.S. Army or those suggested by the contractor.
- **Generic Procedures**—Develop generic procedures and scopes of work for common problems or common types of contaminated sites (such as fuel contamination in soil). The procedures should be sufficiently flexible for site-specific modifications to be made.
- **Innovative Contracting**—Maximize flexibility of contracting procedures, investigate use of level-of-effort, direct/cost reimbursement, award incentives, and other flexible contracting methods.

- **Personnel and Resources**—Determine person-hour requirements, expertise, and funding required to handle existing and proposed Installation Restoration Program (IRP)/compliance programs, including support to the Restoration Advisory Board (RAB) and Public Involvement Response Plan (PIRP).

## **6.13 REMEDIAL ACTIONS**

Environmental investigations currently are being conducted at JPG. The results of these investigations will be used to determine which RAs will be necessary.

### **6.13.1 BRAC Cleanup Team Action Items**

As specific RAs are required, the BCT will review all available data to select appropriate action.

### **6.13.2 Rationale**

If RAs are necessary at JPG, the BCT will select alternatives that are capable of achieving cleanup standards in a timely and cost-effective manner.

### **6.13.3 Status/Strategy**

RAs will be incorporated into the installation-wide RA strategy. Selection of remedial alternatives will be based on data from ongoing environmental investigations, evaluation of cleanup standards, and the technical and administrative feasibility of potential alternatives.

## **6.14 REVIEW OF SELECTED TECHNOLOGIES FOR APPLICATION OF EXPEDITED SOLUTIONS**

Expedited implementation of remedial technologies may be desirable at JPG to facilitate property transfer efforts.

### **6.14.1 BRAC Cleanup Team Action Items**

The BCT will make every effort to expedite implementation of any necessary remedial technologies to facilitate transfer of JPG property.

#### **6.14.2 Rationale**

It may be desirable to expedite implementation of remedial technologies to facilitate the property transfer process.

#### **6.14.3 Status/Strategy**

If environmental investigations indicate the need for remediation, the BCT will identify cleanup initiatives that are capable of meeting cleanup standards and are technically and administratively feasible. The time required to achieve cleanup standards will be considered during the selection of cleanup approaches. Cleanup initiatives will be expedited as much as possible and will be incorporated into the installation-wide RA strategy, and take into account future potential land reuse.

### **6.15 HOT SPOT REMOVALS**

Five hot spots have been identified at JPG and are listed in Table 4-3. The removal of contaminated soil at these spots is desirable to remove continuing sources of contamination.

#### **6.15.1 BRAC Cleanup Team Action Items**

If additional hot spots are identified, the BCT will review the situation to determine if removal of the hot spots will expedite cleanup and property transfer efforts. If these efforts will be expedited by a hot spot removal, the BCT may elect to incorporate this approach into the installation-wide RA strategy.

#### **6.15.2 Rationale**

Hot spot removals may expedite any required cleanup efforts and facilitate property transfer. If appropriate, hot spot removals may be used to achieve these goals.

#### **6.15.3 Status/Strategy**

No additional hot spots have been identified at this time. Should information arise that would suggest the need for immediate action to protect human health and the environment, the



BCT, in conjunction with the U.S. Army Environmental Center (USAEC), U.S. Army Corps of Engineers (USACE), USEPA, and IDEM will evaluate the situation and make decisions regarding the best strategy for removal.

## **6.16 IDENTIFICATION OF CLEAN PROPERTIES**

Clean properties will be identified as early in the BRAC process as possible to facilitate property transfer.

### **6.16.1 BRAC Cleanup Team Action Items**

As clean properties are identified or become available for property transfer, the BCT will update the BRAC Cleanup Plan (BCP) and the Community Environmental Response Facilitation Act (CERFA) map.

### **6.16.2 Rationale**

It is necessary to identify clean properties as part of the property transfer effort.

### **6.16.3 Status/Strategy**

Section 3.4 of this BCP describes the environmental condition of property and suitability of property for transfer. JPG has defined the environmental condition of property that is available for transfer as required under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and CERFA.

Property suitable for transfer maps have been developed using information from the CERFA investigation, the installation RI/FS, and other sources. The maps identify JPG properties in seven categories according to historical evidence of storage or release of hazardous materials or petroleum, oils, and lubricants (POL) and the status of related restoration activities. These large-scale maps are provided after Appendix F as Figures 3-3A and 3-3B.

The property suitable for transfer maps will be updated as areas of JPG are investigated further so that an accurate visual portrayal of property available for transfer is maintained.

## **6.17 OVERLAPPING PHASES OF THE CLEANUP PROCESS**

RDs will continue to be evaluated to determine where opportunities exist for combining RA efforts at JPG.

### **6.17.1 BRAC Cleanup Team Action Items**

The BCT will review the RDs to evaluate where opportunities exist for combining RAs to eliminate duplication of effort.

### **6.17.2 Rationale**

Overlapping phases of the cleanup process can expedite remediation efforts, if necessary, and facilitate property transfer.

### **6.17.3 Status/Strategy**

If additional investigations or remedial activities are necessary, it may be desirable to conduct them concurrently as part of the installation-wide RA strategy to expedite property transfer efforts.

## **6.18 IMPROVED CONTRACTING PROCEDURES**

Efficient and cost-effective contracting procedures are necessary to expedite the restoration process.

### **6.18.1 BRAC Cleanup Team Action Items**

No BCT action items regarding contracting have been identified at this time, pending issue of the contracts for the interim remedial actions.

### **6.18.2 Rationale**

Any unresolved technical issues relative to improved contracting procedures will be addressed here in future revisions to this BCP, as needed.

### **6.18.3 Status/Strategy**

The U.S. Army is considering implementation of Total Environmental Restoration Contracts to allow the environmental studies, RDs, and RAs to be completed by one contractor under one contract to expedite the restoration process.

## **6.19 INTERFACING WITH THE COMMUNITY REUSE PLAN**

Interface with the Community Reuse Plan is desirable to expedite potential implementation of RAs, and early identification and transfer of parcels to the community.

### **6.19.1 BRAC Cleanup Team Action Items**

BCT activities will be coordinated with the Community Reuse Plan, which is currently being updated.

### **6.19.2 Rationale**

Coordination with the Community Reuse Plan helps ensure selection of appropriate cleanup standards and facilitates implementation of remedial alternatives, ultimately resulting in successful transfer of property.

### **6.19.3 Status/Strategy**

The BCT will coordinate installation-wide remedial activities with the Community Reuse Plan.

## **6.20 BIAS FOR CLEANUP INSTEAD OF STUDIES**

Whenever possible, the BCT will select early cleanup rather than additional studies of potentially contaminated sites. This approach will expedite early achievement of cleanup goals and transfer of property.

### **6.20.1 BRAC Cleanup Team Action Items**

The BCT will make every effort to implement any necessary remedial technologies as soon as possible to facilitate transfer of JPG.

### **6.20.2 Rationale**

Early implementation of remedial alternatives will reduce the need for additional studies of contaminated sites and will accelerate completion of cleanup activities. This, in turn, will facilitate property transfer efforts.

### **6.20.3 Status/Strategy**

Where applicable, the BCT will promote cleanup instead of studies, taking into account future potential land reuse.

## **6.21 EXPERT INPUT ON CONTAMINATION AND POTENTIAL REMEDIAL ACTIONS**

It is necessary that proper resources are used to evaluate contamination and associated RAs.

### **6.21.1 BRAC Cleanup Team Action Items**

The BCT currently is utilizing USAEC and USACE, and their contractors, to execute field investigations at JPG and to develop associated reports and documents.

### **6.21.2 Rationale**

The use of several entities involved in the restoration of JPG will promote an expedited property transfer process.

### **6.21.3 Status/Strategy**

At the present time, USAEC and USACE, and their contractors, are providing RI/FS and RCRA support services.

## **6.22 GENERIC REMEDIES**

USEPA has issued guidance on "generic" or "presumptive" remedies for a few specific contamination scenarios. Some of these generic remedies may be applicable to JPG if environmental investigations identify sites with contamination scenarios similar to those in the generic remedy guidance.

### **6.22.1 BRAC Cleanup Team Action Items**

The BCT will consider generic remedies to expedite implementation of the installation's RA strategy.

### **6.22.2 Rationale**

The use of generic remedies may potentially expedite the cleanup process by allowing early implementation of cleanup technologies.

### **6.22.3 Status/Strategy**

Generic remedies will be used where applicable.

## **6.23 PARTNERING (USING INNOVATIVE MANAGEMENT, COORDINATION, AND COMMUNICATION TECHNIQUES)**

Partnering is the process of fostering cooperation and communication between key players in the BRAC process.

### **6.23.1 BRAC Cleanup Team Action Items**

At the present time, the BCT is actively fostering partnerships with USAEC, the community, and regulatory agencies through scheduled meetings and the document review process.

### **6.23.2 Rationale**

Close cooperation/coordination between JPG, USAEC, the community, and regulators helps foster good working relationships, and can accelerate implementation of the installation-wide RA strategy by keeping "key players" informed of the status of environmental efforts, soliciting their input, and addressing potential concerns early in the process.

### **6.23.3 Status/Strategy**

The BCT plans to continue its activities and encourage information transfer between JPG, USAEC, the community, and regulators, taking into account future potential land reuse.

## **6.24 UPDATING THE CERFA REPORT AND NATURAL/CULTURAL RESOURCES DOCUMENTATION**

At the present time, the JPG natural and cultural resources are being investigated. The CERFA parcel classifications will be updated as necessary according to the results of ongoing environmental investigations at JPG.

### **6.24.1 BRAC Cleanup Team Action Items**

The BCT will update the CERFA parcel classifications as necessary when the results of ongoing environmental investigations at JPG become available.

### **6.24.2 Rationale**

Updates of the CERFA map are necessary to reflect changes in parcel classification according to the results of environmental investigations and potential RAs.

### **6.24.3 Status/Strategy**

The BCT will periodically review the CERFA map in conjunction with new data from environmental investigations and potential RAs to determine if parcels can be reclassified to allow property transfer, taking into account future potential land reuse.

## **6.25 IMPLEMENTING THE POLICY FOR ONSITE DECISIONMAKING**

If decisions leading to investigation, potential remediation, and transfer of JPG can be made onsite, implementation of the installation-wide RA strategy will be expedited.

### **6.25.1 BRAC Cleanup Team Action Items**

At the present time, the BCT is actively fostering partnerships with USAEC, the community, and regulatory agencies through scheduled meetings and the document review process. This will enhance the BCT's ability to make effective onsite decisions and will speed the BRAC process.

### **6.25.2 Rationale**

Close cooperation/coordination between JPG, USAEC, the community, and regulators helps foster good working relationships, and can accelerate implementation of the installation-wide RA strategy by keeping "key players" informed of the status of environmental efforts, soliciting their input, allowing effective onsite decisionmaking, and addressing potential concerns early in the remediation process.

### **6.25.3 Status/Strategy**

The BCT plans to continue its activities and encourage information transfer between JPG, USAEC, the community, and regulators.

## **6.26 STRUCTURAL AND INFRASTRUCTURAL CONSTRAINTS TO REUSE**

No structural or infrastructural constraints to the reuse of JPG have been identified at this time.

### **6.26.1 BRAC Cleanup Team Action Items**

If structural and infrastructural constraints to the reuse of JPG are identified, the BCT will evaluate approaches for overcoming these constraints, or for considering alternative reuses, so the property can be transferred.

### **6.26.2 Rationale**

Potential structural and infrastructural constraints must be overcome, or alternative reuses must be identified, to allow transfer of JPG.

### **6.26.3 Status/Strategy**

No structural or infrastructural constraints to the reuse of JPG have been identified at this time.

### **6.27 OTHER TECHNICAL REUSE ISSUES TO BE RESOLVED**

No other technical issues have been identified at this time.



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## 7. PRIMARY REFERENCES

*Enhanced Preliminary Assessment Report, Jefferson Proving Ground, Ebasco Environmental, March 1990.*

*Master Environmental Plan: Jefferson Proving Ground, Madison, Indiana, Ebasco Environmental, November 1990.*

*Final Environmental Impact Statement: Closure of Jefferson Proving Ground, Indiana and Realignment to Yuma Proving Ground, Arizona, U.S. Army Corps of Engineers, September 1991.*

*Draft RCRA Facility Assessment, Jefferson Proving Ground, Madison, Indiana, A.T. Kearney, Inc., February 1992.*

*Draft Study on the Cleanup and Reuse of Jefferson Proving Ground, Mason & Hanger, Battelle Memorial Institute; and Automation Research Systems, June 1992.*

*Installation Action Plan for Jefferson Proving Ground, U.S. Army Environmental Center, March 1993.*

*Draft Report: Community Environmental Response Facilitation Act (CERFA) Report, Jefferson Proving Ground, Madison, Indiana, The Earth Technology Corporation, December 1993.*

*Jefferson Proving Ground Reuse Plan, Submitted by the Jefferson Proving Ground Regional Development Board, August 1994.*

*Final Draft Remedial Investigation, U.S. Army Environmental Center, July 1994.*

*Record of Decision, Disposal and Reuse EIS, JPG, U.S. Department of Army, December 1995.*

*FOST for JPG Pumphouse, JPG, Indiana, U.S. Department of Army, February 1996.*

*FOST for Building 216, JPG, Indiana, U.S. Department of Army, May 1996.*

*FOST for Cantonment Area, JPG, Indiana, U.S. Department of Army, May 1996.*

*FOST for Kruger Lake Area, JPG, Indiana, U.S. Department of Army.*

*Cultural Resources Management Plan for JPG, U.S. Department of Army, August 1996.*

*Cultural Resource Survey of Approximately 4,341 Acres on the U.S. Army, JPG, Madison, Indiana, U.S. Department of Army, April 1996.*

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## **APPENDIX A**

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### **FISCAL YEAR FUNDING REQUIREMENTS/COSTS**

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<b>TABLE A-1. TOTAL ENVIRONMENTAL PROGRAM SUMMARY</b>								
<b>FUND REQUIREMENTS (\$000)</b>								
<b>Program</b>	<b>FY 1993</b>	<b>FY 1994</b>	<b>FY 1995</b>	<b>FY 1996</b>	<b>FY 1997</b>	<b>FY 1998</b>	<b>FY 1999</b>	<b>Total</b>
IRP DERA	0	0	0					
IRP BRAC	3,699	1,400	2,000	2,000	6,500	1,850	7,850	25,299
EC-CR <sup>1</sup>	20	1,000	17,000					
EC-MR <sup>2</sup>	282	300	0					
NAT/CULT	71.4	113.8	21					
Total	4,072.4	2,813.8	3,721					

**Note:** Financial information from FY 1996 to FY 1999 will be provided by BEC.

<b>TABLE A-2. HISTORICAL ENVIRONMENTAL PROGRAM EXPENDITURES SUMMARY</b>								
<b>FUND REQUIREMENTS (\$000)</b>								
<b>Program</b>	<b>FY 1986</b>	<b>FY 1987</b>	<b>FY 1988</b>	<b>FY 1989</b>	<b>FY 1990</b>	<b>FY 1991</b>	<b>FY 1992</b>	<b>Total</b>
IRP DERA	0	70	334.7	0	0	0	0	404.7
IRP BRAC	0	0	0	190	0	699.4	3,861	4,750.4
EC-CR <sup>1</sup>	0	0	0	0	0	0	0	0
EC-MR <sup>2</sup>	0	0	0	0	220	235	275	730
NAT/CULT	0	63.3	67.6	63	70	69.8	104.4	438.1
Total	0	133.3	402.3	253	290	1,004.2	4,240.4	6,323.2

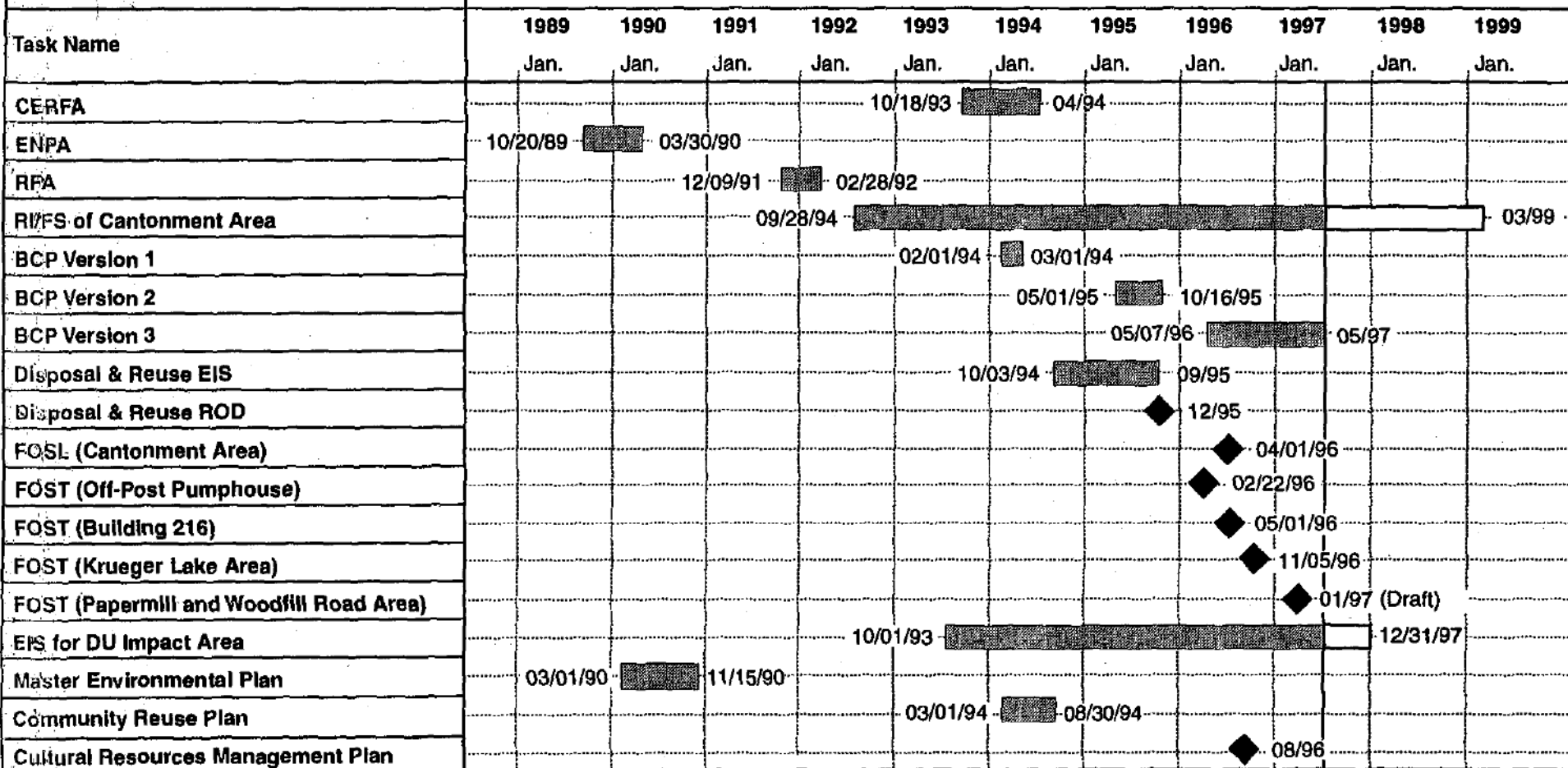
**Note:** Historical information provided from currently available documents/records. Figures will be updated as additional information becomes available.




<sup>1</sup>Environmental compliance-closure related.

<sup>2</sup>Environmental compliance-mission related.

PROJECT: Jefferson Proving Ground  
 MANAGER: Paul Cloud  
 CURRENT DATE: 05/15/97

Figure A-1. Past Restoration Schedule



-  Completed  
 To Be Completed  
 Milestones

## **APPENDIX B**

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### **INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS SUMMARY TABLES**



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**TABLE B-1. PROJECT DELIVERABLES**

Year	Phase	Project Title	Report No.	Sites Examined	Delivery Date/ Contractor
1990	PA	Enhanced Preliminary Assessment Report	1	1-32, 34-37, 43, 44, 46, 47, 57, 58, 62, 65, 68, 74, 80, 90, 92, and 103	March 1990/Ebasco Environmental
1990		Master Environmental Plan	2	1-5, 7-37, 44, 47, 65, 68, 74, 76, 92, 102, and 103	November 1990/Ebasco Environmental
1992	SI	RCRA Facility Assessment	3	1-11, 13-25, 27-36, 38-75, and 78-91	February 1992/A.T. Kearney
1992	SI	Groundwater Consultation No. 38-26-KQ80-92, Evaluation of SWMUs	4	1-11, 13-25, 27-36, 38-75, 78-91, and 93	June 1992/USAEHA
1993		Installation Action Plan	5	1-103	March 1993/USAEC
1993	SI	Revised Preliminary Site Inspection	6	1-6, 8, 9, 11, 14-17, 19, 23, 27-29, 30, 32-36, 44, 47, 68, and 74	August 1993/Advanced Sciences, Inc.
1993		CERFA Report	7	1-103	April 1994/The Earth Technology Corporation
Ongoing	RI/FS	RI/FS South of the Firing Line	8	1, 3-9, 11, 12, 14, 15, 27-30, 33, 36, 39, 42-48, 50, 58, 60, 62, 64-67, 69, 70, 74, 76, 82, 89, and 92-103	March 1999/Rust E&I

**TABLE B-2. SITE DELIVERABLES**

IRP Phase <sup>(1)</sup>							
Site ID	PA/SI	RI/FS	RD/RA	Close Out	IRA	LTM	NFA
01	1,3, 4, 6	8					
02	1,3,4, 6						
03	1,3,4, 6	8					
04	1,3,4, 6	8					
05	1,3,4, 6	8					
06	1,3,4, 6	8					
07	1,3,4	8					
08	1,3,4, 6	8					
09	1,3,4, 6	8					
10	1,3,4						
11	1,3, 4, 6	8					
12	1	8					
13	1,3, 4						
14	1,3,4, 6	8					
15	1,3,4, 6	8					
16	1,3,4, 6						
17	1,3,4, 6						
18	1,3,4						
19	1,3,4, 6						
20	1,3,4						
21	1,3,4						
22	1,3,4						
23	1,3,4, 6						
24	1,3,4						
25	1,3,4						
26	1						
27	1,3,4, 6	8					
28	1,3,4, 6	8					
29	1,3,4, 6	8					
30	1,3,4, 6	8					
31	1,3,4						
32	1,3,4, 6						
33	1,3,4, 6	8					
34	1,3,4, 6						
35	1,3,4, 6						

**TABLE B-2. SITE DELIVERABLES (CONTINUED)**

IRP Phase <sup>(1)</sup>							
Site ID	PA/SI	RI/FS	RD/RA	Close Out	IRA	LTM	NFA
36	1,3,4, 6	8					
37	1						
38	3, 4						
39	3, 4	8					
40	3, 4						
41	3, 4						
42	3, 4	8					
43	1, 3, 4	8					
44	1, 3, 4, 6	8					
45	3, 4	8					
46	1, 3, 4	8					
47	1, 3, 4, 6	8					
48	3, 4	8					
49	3, 4						
50	3, 4	8					
51	3, 4						
52	3, 4						
53	3, 4						
54	3, 4						
55	3, 4						
56	3, 4						
57	1, 3, 4						
58	1, 3, 4	8					
59	3, 4						
60	3, 4	8					
61	3, 4						
62	1,3, 4	8					
63	3, 4						
64	3, 4	8					
65	1, 3, 4	8					
66	3, 4	8					
67	3, 4	8					
68	1, 3, 4, 6						
69	3, 4	8					
70	3, 4	8					

**TABLE B-2. SITE DELIVERABLES (CONTINUED)**

IRP Phase <sup>(1)</sup>							
Site ID	PA/SI	RI/ES	RD/RA	Close Out	IRA	LTM	NFA
71	3, 4						
72	3, 4						
73	3, 4						
74	1, 3, 4, 6	8					
75	3, 4						
76		8					
77							
78	3, 4						
79	3, 4						
80	1, 3, 4						
81	3, 4						
82	3, 4	8					
83	3, 4						
84	3, 4						
85	3, 4						
86	3, 4						
87	3, 4						
88	3, 4						
89	3, 4	8					
90	1, 3, 4						
91	3, 4						
92	1	8					
93	4	8					
94		8					
95		8					
96		8					
97		8					
98		8					
99		8					
100		8					
101		8					
102		8					
103	1	8					

<sup>(1)</sup>Numbers refer to report numbers listed in Table B-1, Project Deliverables.

TABLE B-3. TECHNICAL DOCUMENTS/DATA LOADING STATUS SUMMARY					
Date	IRP Title	Site/OU	Contractor	Service Center	IRDMIS Status/Other

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## **APPENDIX C**

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### **DECISION DOCUMENT/ROD SUMMARIES**



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## **DECISION DOCUMENT/ROD SUMMARIES**

The Final EIS for JPG Base Closure and Realignment with Yuma Proving Ground was completed and the ROD signed on September 30, 1991. A ROD for the Final Disposal and Reuse EIS for JPG was signed in December 1995.

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## **APPENDIX D**

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### **NO FURTHER RESPONSE ACTION PLANNED (NFRAP) SUMMARIES**

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## **NO FURTHER RESPONSE ACTION PLANNED (NFRAP) SUMMARIES**

In March 1992, USEPA, Region V produced an RFA for the entire installation. The Final RFA identifies 85 SWMUs and AOCs for the entire installation.

On June 15-18, 1992, USATHAMA and USAEHA performed a site visit and evaluation of the 85 SWMUs and AOCs (Groundwater Consultation No. 38-36-KQ80-92, Evaluation of SWMUs) identified in the RFA. It was concluded that many of the sites were correctly identified as SWMUs and AOCs, but recommended that USEPA re-evaluate its list of units according to additional U.S. Army information. Later, it was agreed that 50 of the SWMUs and AOCs required no further work and 28 of these sites were categorized as NFRAP. A description of the NFRAP sites is provided in Appendix F.

In May 1996, RUST completed Phase I of the RI/FS. Samples were collected at Sites 23, 34, and 38 but no contamination was detected. In addition, a site inspection of Sites 22, 32, 43, 48, and 50 revealed no evidence of release of contamination. These sites are proposed for removal from the RI and a technical memorandum that summarizes the argument for no further action will be included in this appendix.

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## **APPENDIX E**

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### **CONCEPTUAL SITE MODEL DATA SUMMARIES**



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## CONCEPTUAL SITE MODEL DATA SUMMARIES

Conceptual site models have been prepared for several JPG sites. Additional conceptual site models will be added to this appendix, as they are developed.

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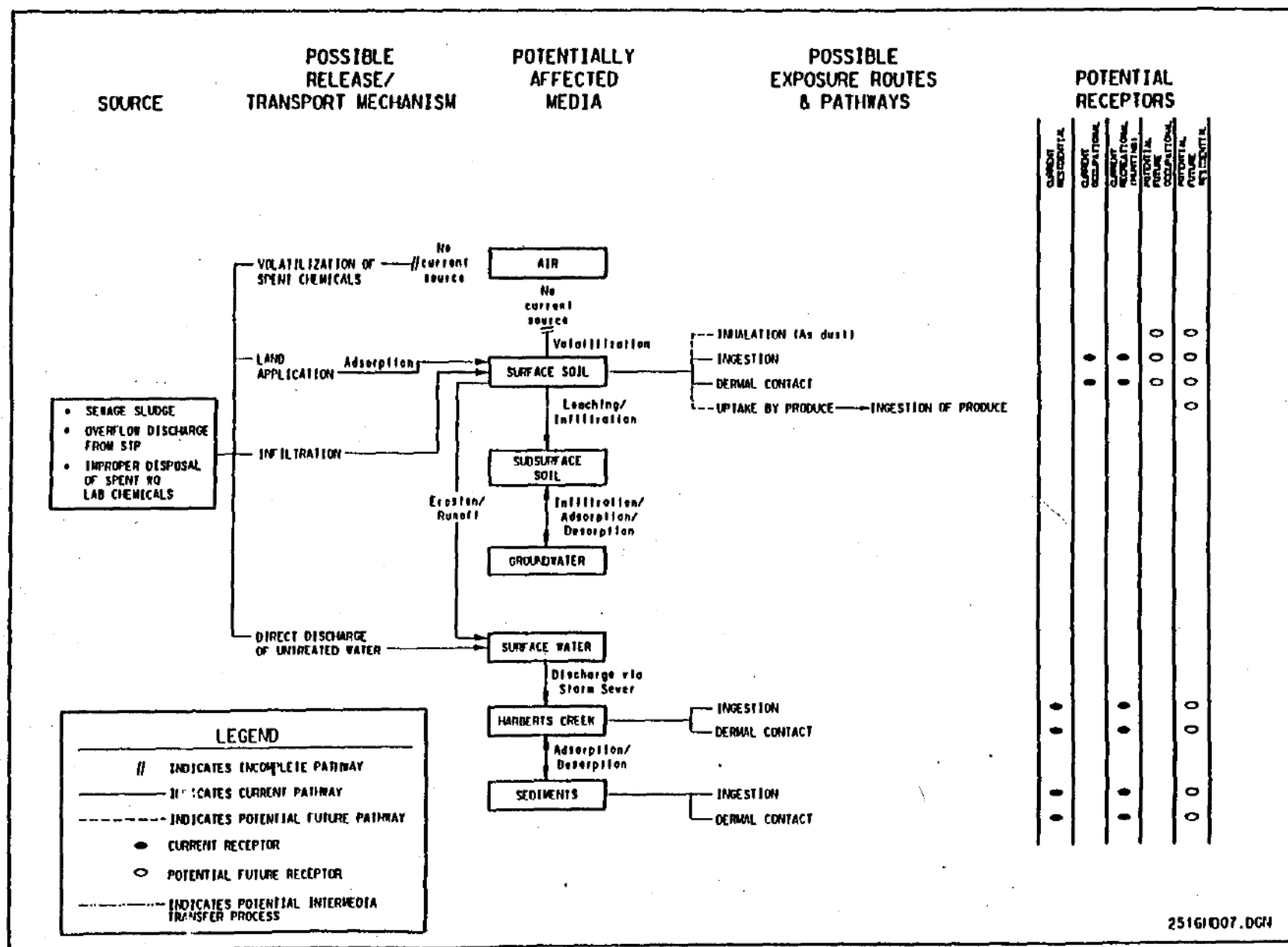
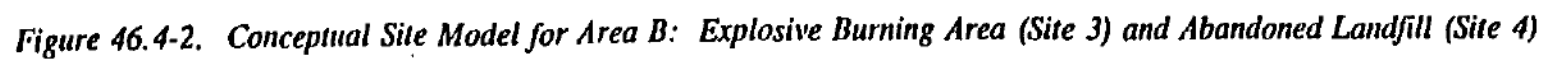


Figure 46-4-1. Conceptual Site Model for Area A: Sewage Treatment Plant (Site 2) and Sewage Sludge Application Areas (Site 27)



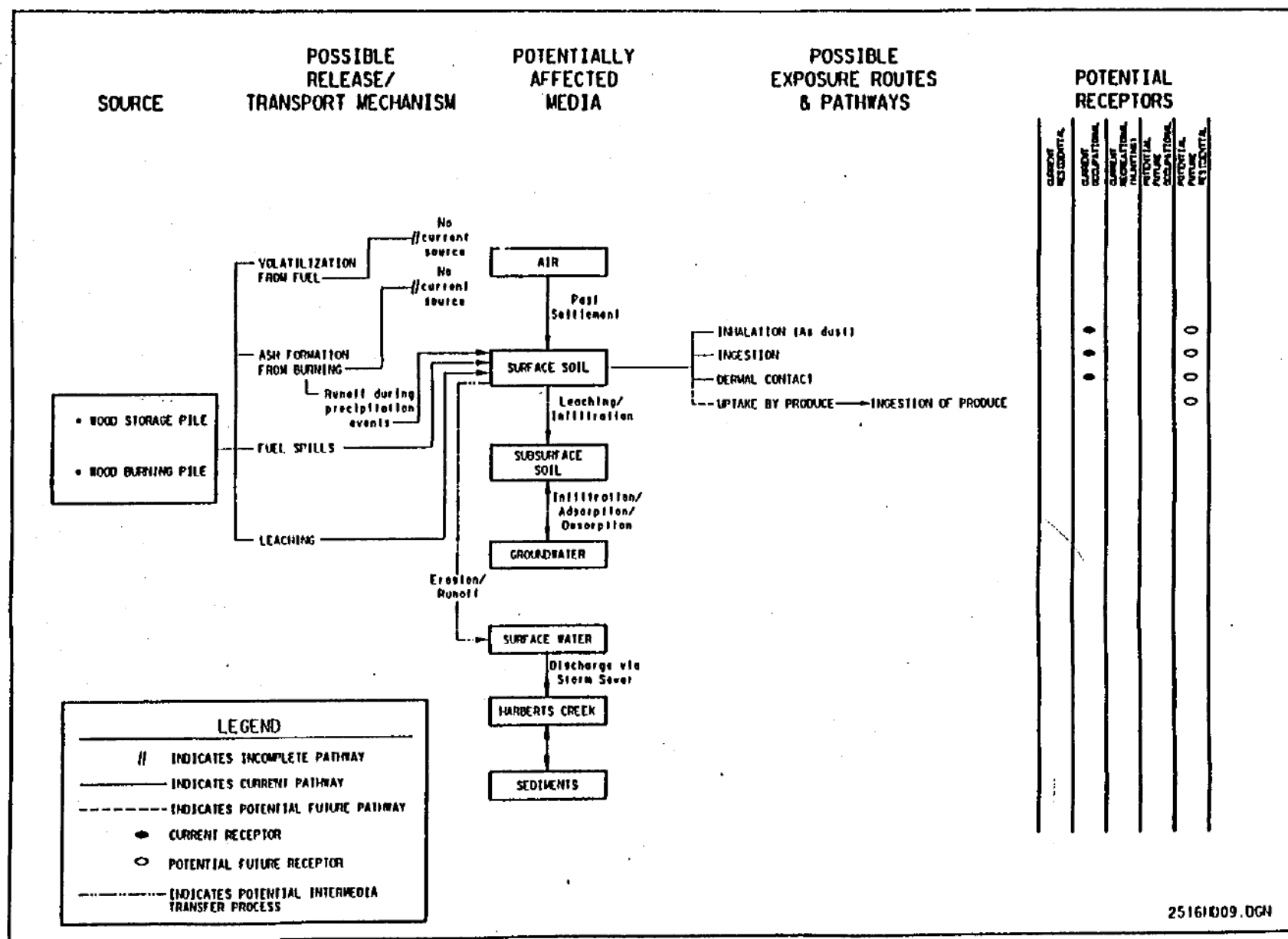


Figure 46.4-3. Conceptual Site Model for Area C: Wood Storage Pile (Site 5) and Wood Burning Area (Site 6)



**Figure 46.4-4. Conceptual Site Model for Area D: Red Lead Disposal Area (Site 7) and Temporary Methylene Chloride Storage Area at Building 211 (Site 21B)**





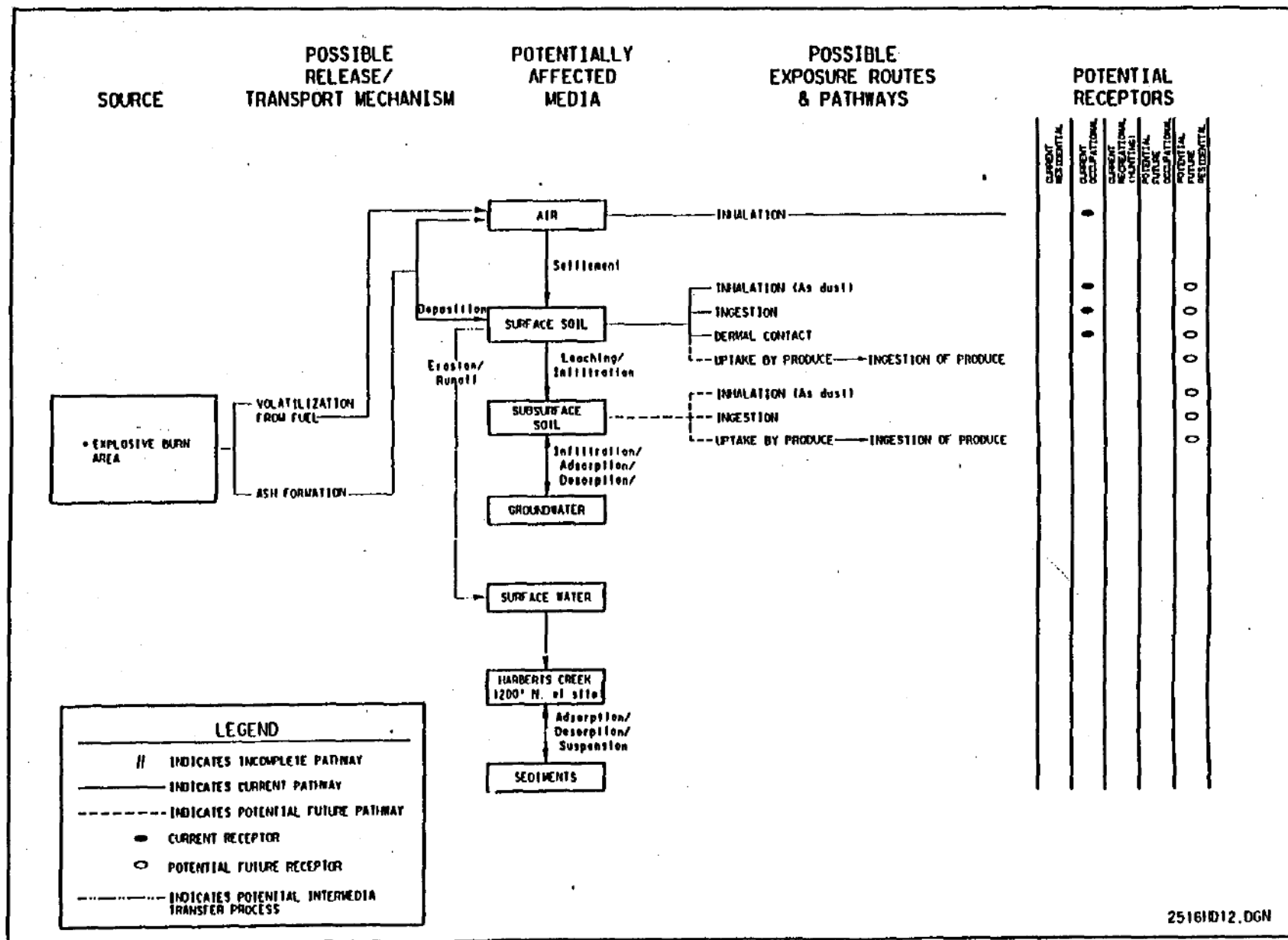


Figure 46.4-6. Conceptual Site Model for Area F: Burning Area for Explosive Residue (Site 11)

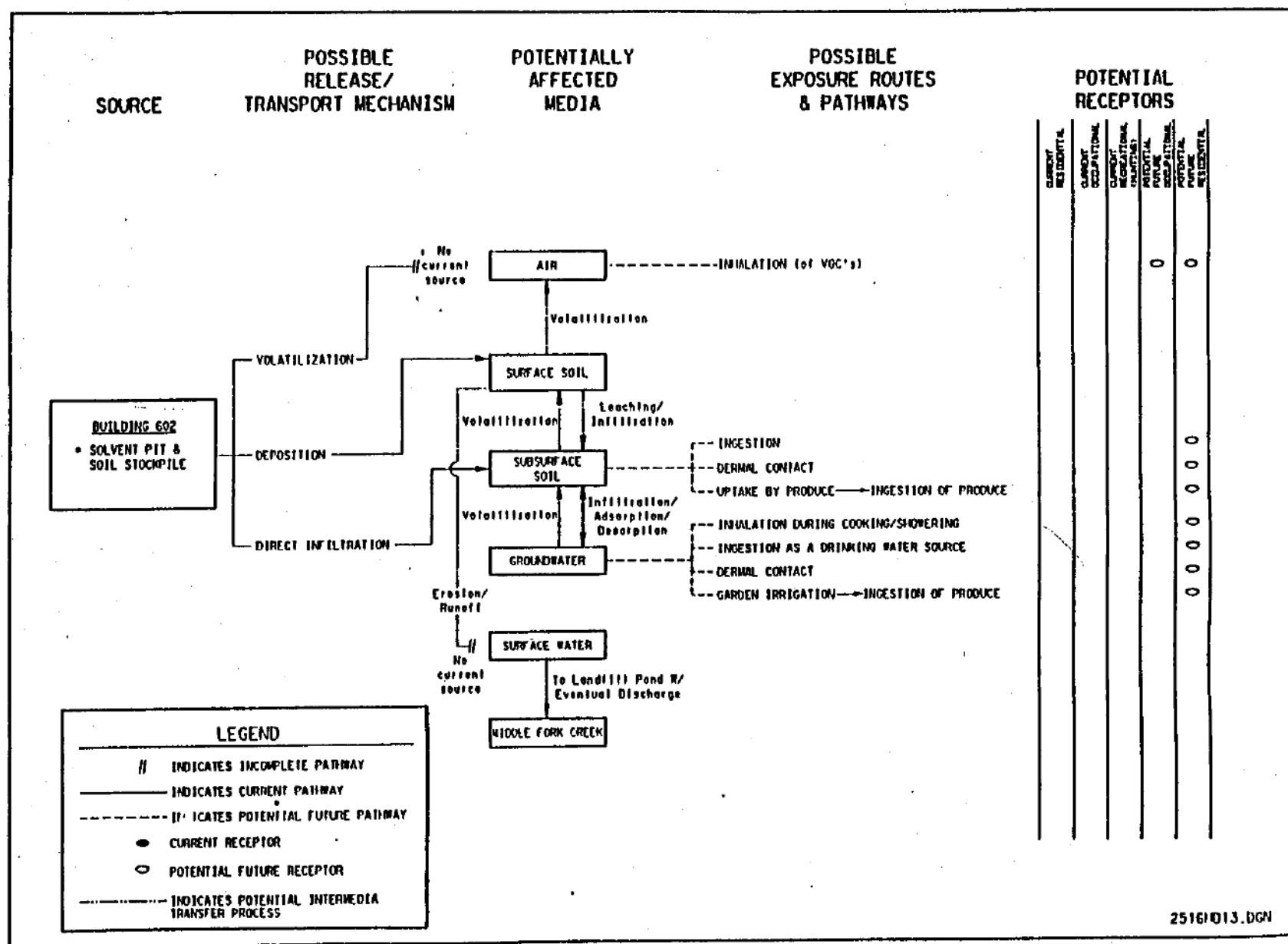


Figure 46.4-7. Conceptual Site Model for Area G: Building 602 Solvent Pit (Site 12A) and Soil Staging Area (Site 24)

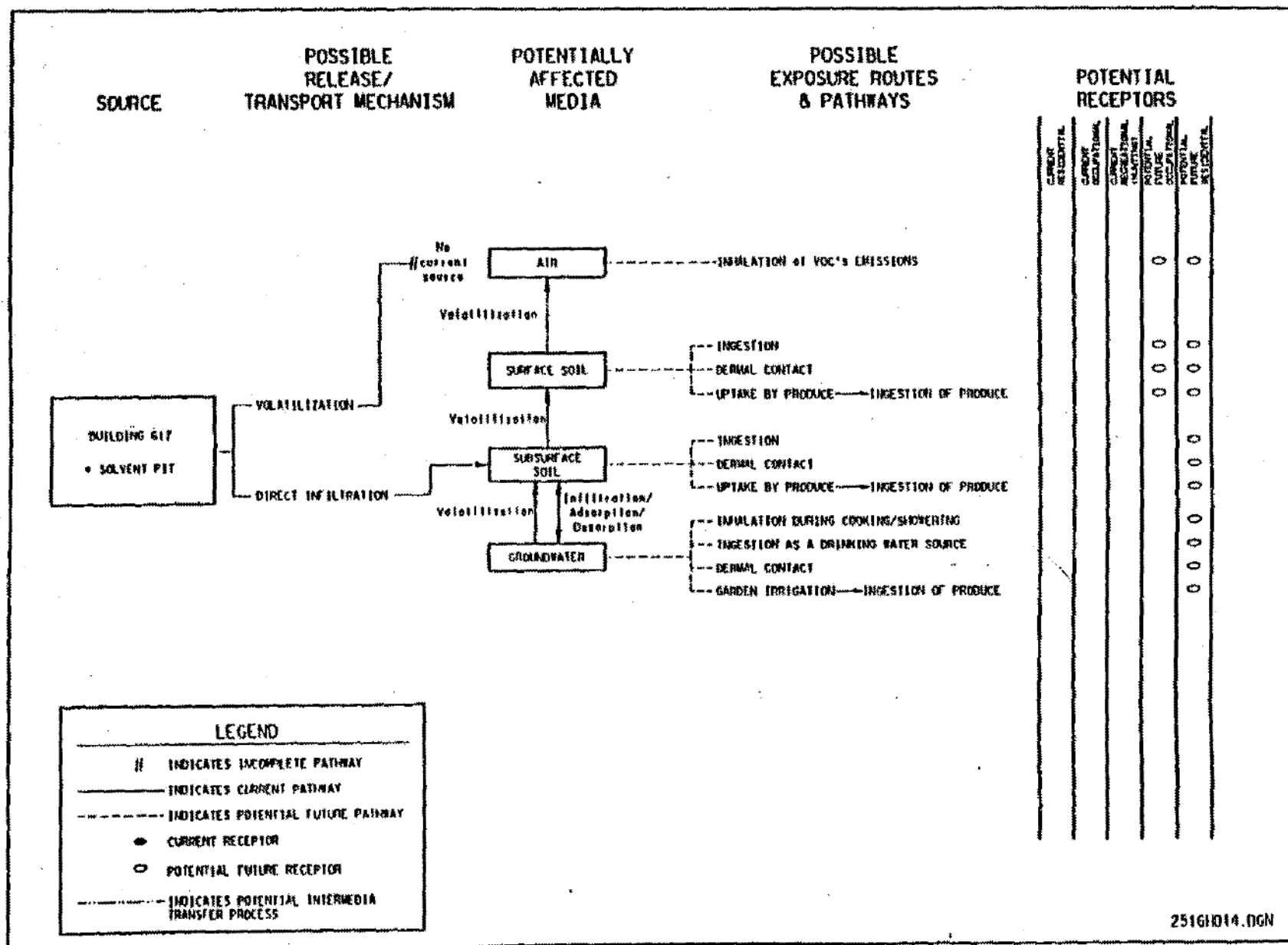


Figure 46.4-8. Conceptual Site Model for Area II: Building 617 Solvent Pit (Site 12B)



Figure 46.4-9. Conceptual Site Model for Area I: Building 279 Solvent Pit (Site 12C) and Temporary Waste Storage Area (Site 20A)

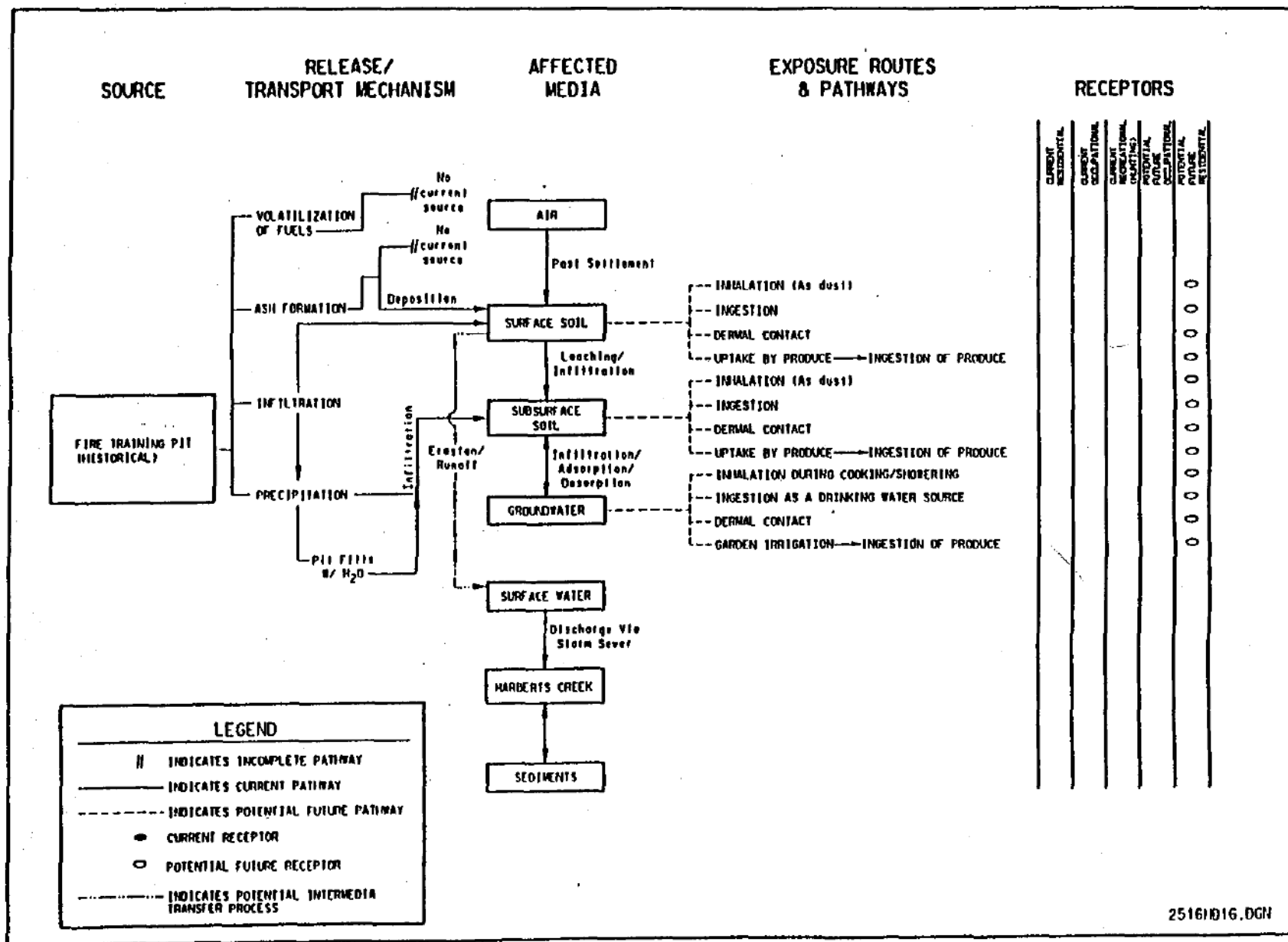


Figure 46.4-10. Conceptual Site Model for Area J: Old Fire Training Pit (Site 13)

**Figure 46.4-11. Conceptual Site Model for Area K: Yellow Sulphur Area (Site 14) and Burn Area South of New Incinerator (Site 15)**



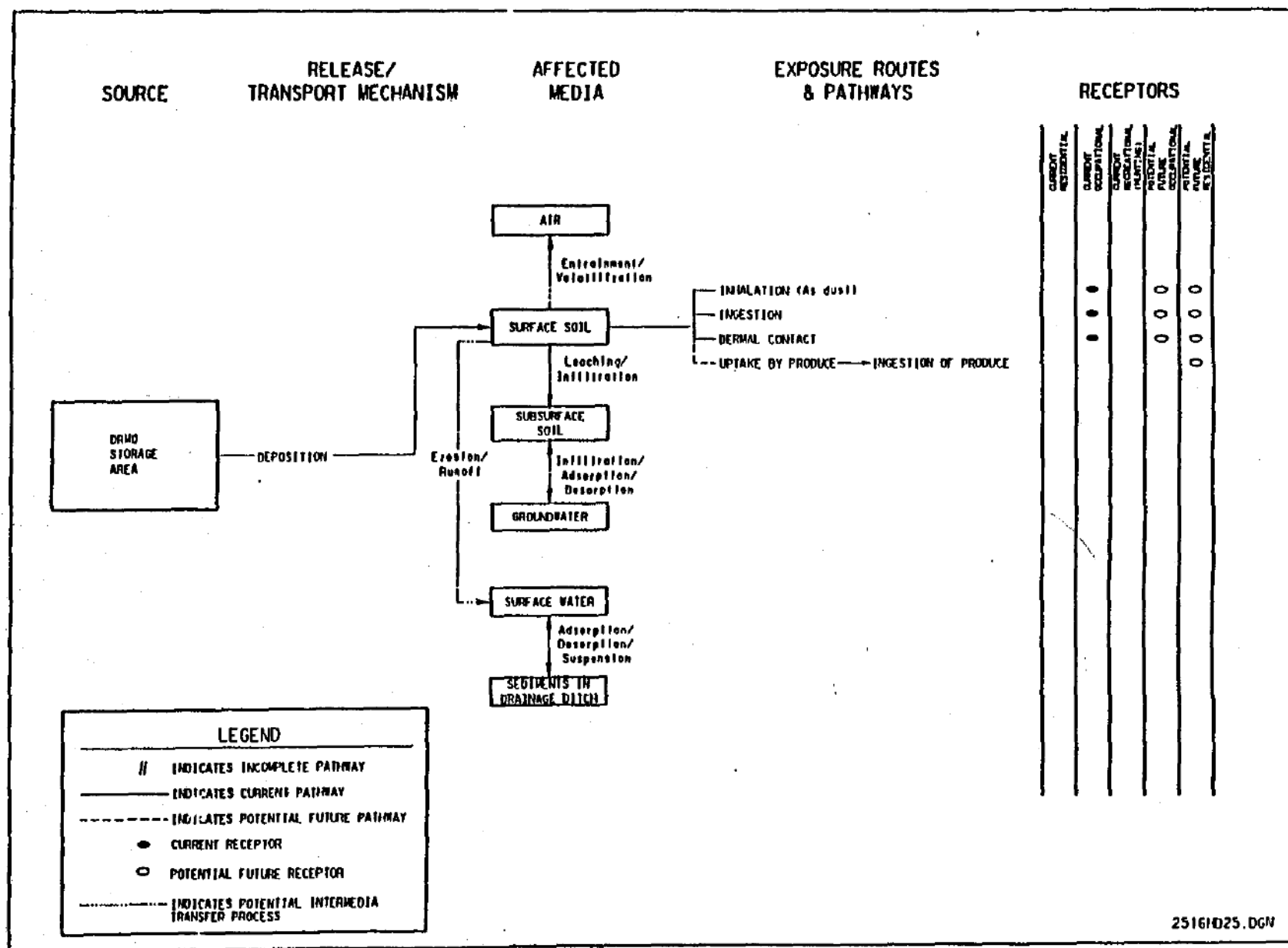


Figure 46.4-13. Conceptual Site Model for Area M: DRMO Storage Area (Site 26)



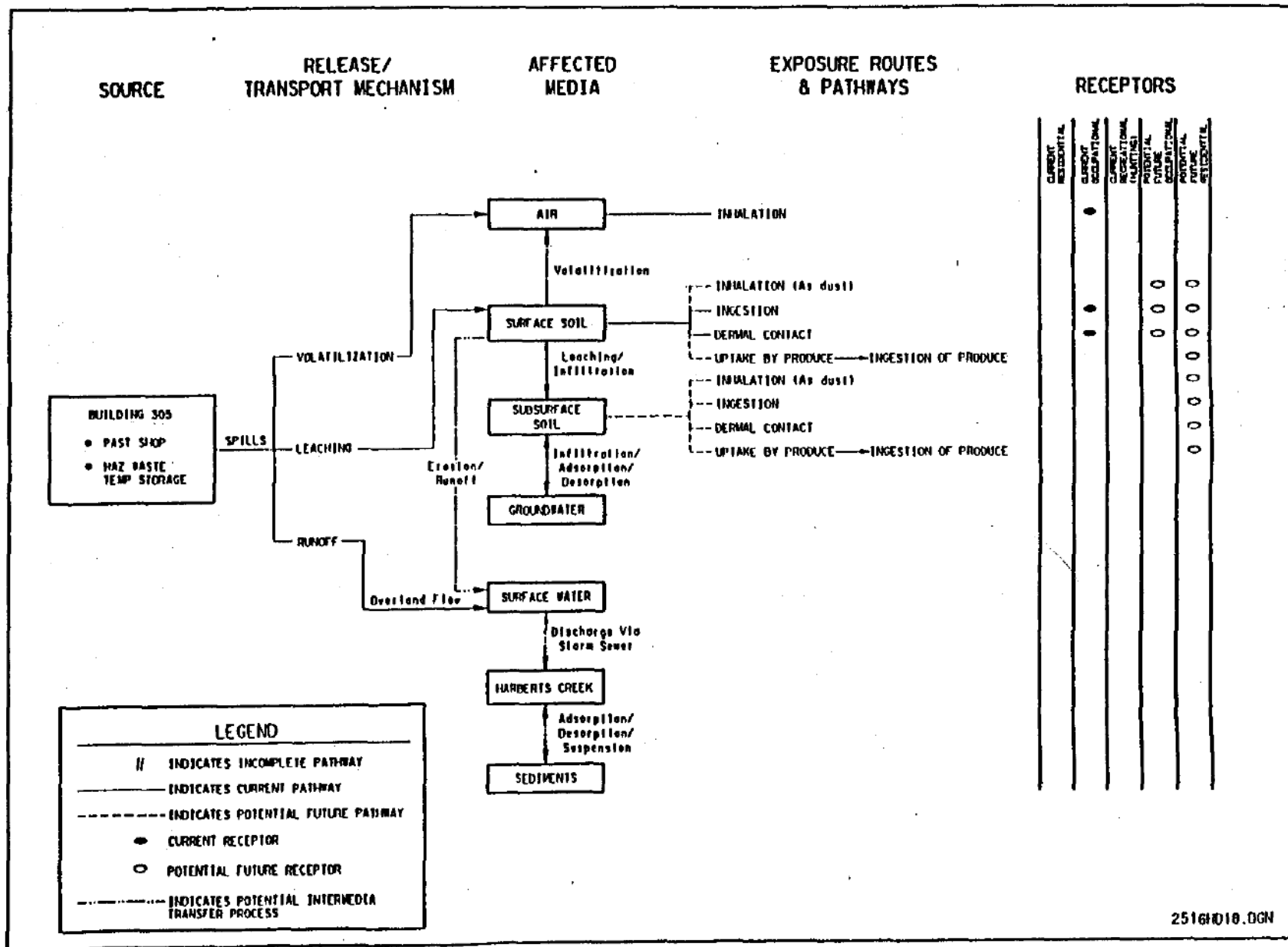


Figure 46.4-14. Conceptual Site Model for Area N: Building 305 Temporary Waste Storage Area (Site 20B)

**Figure 46.4-15. Conceptual Site Model for Area O: Storage Building 204 (Site 21A)**

**Figure 46.4-16. Conceptual Site Model for Area P: Gator Z Open Burn Area (Site 28), Gator Z Mine Scrap Disposal Area (Site 29) and Gator Z Mine Test Area (Site 39)**

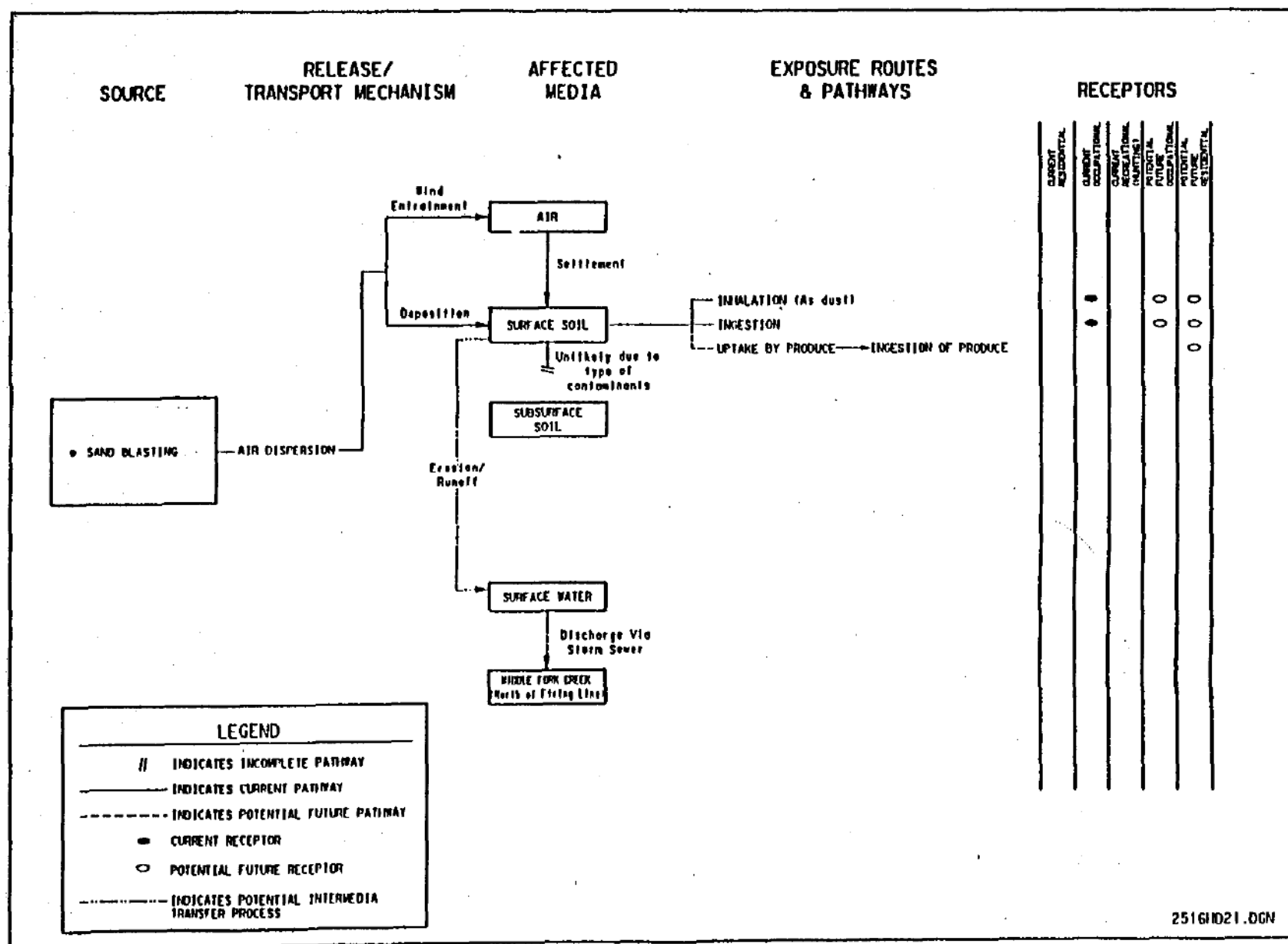


Figure 46.4-17. Conceptual Site Model for Area Q: Building 136 Sandblasting Area (Site 34)

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## **APPENDIX F**

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### **ANCILLARY BCP MATERIALS**

- BCP Distribution List
- Summary of Environmental Justice Issues at JPG
- Environmental Restoration Sites at JPG
- IDEM CERFA Concurrence Letter
- Vegetation Classification of JPG
- National Wetlands Inventory - JPG
- Previously Surveyed Areas and Cultural Resource Site Locations at JPG

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## **BCP DISTRIBUTION LIST**



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TABLE F-1. BCP DISTRIBUTION LIST		
Name	Title/Office	Address
Col (Ret.) James Bishop	Private Citizen RAB Member	407 Laurel Lane Madison, IN 47250
Mr. Glenn Boldt	JPG, SFIM-AEC-BCB	Aberdeen Proving Ground, MD 21010-5401
Mr. James Burton	Private Citizen RAB Member	1535 N 600 W Madison, IN 47250
Mr. Paul Cloud	JPG BEC RAB Member	U.S. Army ATTN: AMSTE Bldg. 314 Aberdeen Proving Ground, MD 21105-5005
Mr. Frank Copeland	Private Citizen RAB Member	3210 480 North Madison, IN 47250
Mr. William Corning	Private Citizen RAB Member	333 N. Main Street Versailles, IN 47042
Mr. Michael Early	Base Transition Coordinator (Acting)	U.S. Army TECOM Attn: AMSTE-PL Aberdeen Proving Ground, MD 21005-5055
Dr. Wayne Faatz	Indiana Department of Natural Resources RAB Member	402 W. Washington Street Room 274 Indianapolis, IN 46204
Mr. Allen Franklin	Ripley County Commissioners RAB Member	Ripley County Courthouse Versailles, IN 47042
Mr. Skip Fry	Jennings County Commissioners RAB Member	Jennings County Courthouse Vernon, IN 47282
Norman Hester	Indiana Geological Survey RAB Member	611 North Walnut Grove Bloomington, IN 47405-2208
Mr. Richard Hill	Save the Valley RAB Cochairman	P.O. Box 813 Madison, IN 47250
Mr. John Holmes	Ripley County Redevelopment RAB Member	P.O. Box 576 Versailles, IN 47042-0576
Mr. Robert Hudson	Private Citizen RAB Member	1838 Crozier Avenue Madison, IN 47250
Mr. Jerry Hunter	Private Citizen RAB Member	5113 West County Road Madison, IN 47250
Mr. Eddie R. Johnson	Private Citizen RAB Member	6066 E. Street Road 48 Sunman, IN 47041
Mr. Ken Knouf	JPG Natural Resource Manager RAB Member	1541 N. Rykers Ridge Rd. Madison, IN 47250
Mr. David Koenig	City of North Vernon	101 Madison Avenue North Vernon, IN 47625

**TABLE F-1. BCP DISTRIBUTION LIST (CONTINUED)**

<b>Name</b>	<b>Title/Office</b>	<b>Address</b>
Mr. Timothy Maloney	Hoosier Environmental Council RAB Member	1002 E. Washington Street Suite 300 Indianapolis, IN 46202
Mr. John Manley, Jr.	IDEM, Office of Environmental Response RAB Member	100 N. Senate Avenue P.O. Box 6015 Indianapolis, IN 46206-6015
Ms. Karen Mason-Smith	USEPA, Region V RAB Member	Mail Code HSF-5J 77 W. Jackson Boulevard Chicago, IL 60604-3590
Ms. G. Williamson	USACE, Louisville District RE-H	Louisville, KY 40201-0059
Mr. M. McCann	Nuclear Regulatory Commission Region III	801 Warrenville Road Lisle, IL 60532-4351
Mr. Larry Pittiglio	Nuclear Regulatory Commission Headquarters, RAB Member	LLW & Decommissioning Projects Mail Stop T7F27 Division of Waste Management Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555
Mr. Scott Pruitt	U.S. Fish and Wildlife Service RAB Member	620 S. Walker Bloomington, IN 47403
Dr. H. Schirmer Riley, M.D.	Jefferson County Health Department	715 Green Road Madison, IN 47250-2143
Mr. Donald Server	Jefferson County Commissioners RAB Member	Jefferson County Courthouse Room 103 Madison, IN 47250
Ms. John Briggs	Project Manager Louisville COE	U.S. Army Corps of Engineers P.O. Box 59 Louisville, KY 40201-0059
Dr. David Welsh, M.D.	Ripley County Health Department RAB Member	976 State Road 46 East Batesville, IN 47006

## **SUMMARY OF ENVIRONMENTAL JUSTICE ISSUES AT JPG**

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## **SUMMARY OF ENVIRONMENTAL JUSTICE ISSUES AT JPG**

There has been growing concern during the past decade about the effect of environmental pollution on particular population groups. A movement to ensure environmental justice for all individuals is the outgrowth of a widespread belief that minority and low-income communities bear a disproportionately high risk of exposure to health hazards related to contamination or pollution.

The President issued Executive Order 12898 on Environmental Justice on February 11, 1994. The Order and its accompanying Presidential memorandum marked a significant step toward focusing the attention of Federal agencies on concerns of environmental justice. The order requires certain Federal agencies, including the U.S. Department of Defense (DOD), to the greatest practicable extent permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.

At closed installations such as Jefferson Proving Ground (JPG), considerations of environmental justice must be examined in the context of cleanup activities, including their relationship to plans for reuse of land and community redevelopment initiatives. The decisionmaking processes for establishing cleanup priorities, determining relative risk, developing reuse plans, and other actions related to installation closure must ensure that environmental protection and environmental justice are adequately addressed.

The Defense Environmental Response Task Force (DERTF) of DoD formed the Environmental Justice Subworking Group (EJ SWG) to determine whether concerns related to environmental justice are being adequately addressed at installations affected by the Base Realignment and Closure Act (BRAC). The EJ SWG has identified a number of significant issues related to environmental justice that are applicable to environmental restoration at BRAC installations. These include:

- Outreach
- Cultural Resources
- Risk Assessment
- Cleanup Priorities
- Risk Communication
- Epidemiology
- Natural Resources
- Brownfield or Urban Revitalization
- Deed and Lease Restrictions.

JPG has proactively addressed many of these issues in its current BRAC environmental restoration, compliance, and natural resources strategies. JPG's approach for addressing each of the EJ SWG

issue areas is summarized below and also addressed in context, in applicable sections of the BRAC Cleanup Plan (BCP).

**Outreach**—JPG has an active outreach program. A Public Involvement Response Plan (PIRP) was prepared and released in September 1994. The plan establishes the procedures for effective communication with all elements of the surrounding community on environmental issues. A Restoration Advisory Board (RAB) has been formed at the installation and meets monthly to promote public involvement and provide a forum for public input on the JPG Installation Restoration Program (IRP). During the formation of the RAB, particular attention was placed on ensuring balanced community representation. Public hearings are conducted to obtain community input on particular environmental documents, Environmental Impact Statements (EISs) and proposed plans. The installation also keeps community members informed through the issuance of fact sheets and newsletters and the maintenance of information repositories.

**Cultural Resources**—Investigations conducted at JPG to date have not identified any religious sites or sacred lands at the installation that could have environmental justice impacts. Several Phase I surveys for prehistoric archaeological sites at JPG have been conducted. All sites identified during these surveys were considered ineligible for the National Register of Historic Places (NRHP). The Oakdale School, located just north of the firing line, was placed on the NRHP in May 1993. Four stone arch bridges and Old Timbers Lodge, all located north of the firing line, recently were included on the NRHP.

This information will be evaluated in conjunction with community reuse goals presented in the Community Reuse Plan (CRP). A restoration strategy then will be developed that accomplishes two goals: prioritization of cleanup to mitigate any immediate risks to receptor populations, and prioritization of cleanup on the basis of community reuse planning goals and priorities.

**Risk Assessment**—The baseline risk assessment conducted during the Remedial Investigation (RI) did not discriminate in its evaluation of risk. An exposure pathway analysis was conducted to identify all potential onsite or offsite receptor population. The risk assessment then calculated risk caused by each restoration site and installation total risk for each of the identified receptor populations. The potential for varying patterns of consumption or other risk factors relative to particular population groups in the JPG area were considered in the RI risk assessment exposure pathway analysis. This ensured that the risk assessment accurately evaluated risk for all potential receptor populations.

**Cleanup Priorities**—The prioritization of environmental restoration at JPG versus other BRAC installations is conducted on a programmatic level by the Department of the Army (DA) and DOD. The U.S. Army is working in partnership with Howard University to identify U.S. Army installations located near minority and low-income communities so that environmental justice can be incorporated in the prioritization process.

**Risk Communication**—Issues relative to human health risks are fully disclosed to the public through the various outreach activities conducted by the installation.

**Natural Resources**—The baseline risk assessment conducted during the RI evaluated potential contaminant pathways to onsite and offsite receptors.

***Brownfield and Urban Revitalization***—JPG is located in a rural area in southeastern Indiana. In order to maximize the reuse opportunities for JPG, the JPG Regional Development Board (RDB) was established to plan and implement reuse of JPG in a manner that mitigates the negative impacts of installation closure and meets the long-term goals of the community. Full community participation was solicited in the reuse planning process by establishing broad-based community representation on the JPG RDB and by conducting numerous public meetings to obtain community input.

No-cost public conveyance and donation of property disposal mechanisms, which could benefit the urban development of the area, will be conducted prior to other forms of property transfer, as part of the established DOD disposal process.

***Deed and Lease Restrictions***—Deed and lease restrictions may be a critical element in the disposal planning process for JPG if remedial action (RA) at the installation will continue past installation closure and property disposal. Issues such as access, liability for RA equipment and operation, impacts on redevelopment, and conflicts with construction may be investigated as bid documents for the sale/development of JPG are prepared. Small, disadvantaged, and minority-owned business impacts from potential deed and lease restrictions may be considered by the U.S. Army throughout the disposal process. A disposal plan may be prepared that will outline potential deed and lease restrictions on the property as determined by factors including environmental condition.



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## **ENVIRONMENTAL RESTORATION SITES AT JPG**

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## SITES IN THE SOUTHERN CANTONMENT AREA/OFF-POST

**Site 01: Building 185, Old Incinerator**—This unit is a 556-square-foot incinerator used from 1941 to 1978 to burn small ammunition as well as paper products. Particulate matter that had settled on the surrounding soil and within the stack itself are of concern. The particulate matter may have included hazardous substances from disposed of materials. The building had stored open containers of waste polyurethane contaminated with methylene chloride and full/empty containers of chlorine gas. This site is part of the ongoing Remedial Investigation/Feasibility Study (RI/FS).

**Site 02: Building 177, Water Quality Laboratory**—This site generated minor quantities of laboratory wastes, including cleaning detergent and residual sample waste. According to a U.S. Environmental Protection Agency (USEPA) Environmental Audit conducted in 1990, no further investigation of the site is warranted.

**Site 03: Building 177, Waste Water Treatment Plant**—This 682-square-foot unit consists of primary and secondary treatment for sanitary wastes as well as some light industrial waste (boiler blowdown and photographic wastes). In the past, infiltration of surface water into the Sanitary Sewer System (see Site 55) caused the concentrations of suspended solids to exceed the National Pollutant Discharge Elimination System (NPDES) limits. A fish kill was attributed to cyanide releases from the unit in 1978. The facility had since changed film processing methods to exclude bleach and cyanide use, thereby mitigating similar contamination problems. A Sewage Sludge Application Area (see Site 45) and a satellite accumulation area also are located adjacent to this plant. This site is part of the ongoing RI/FS.

**Site 04: Burn Area South of Engineers Road**—This 2-acre unit is located just south of Engineers Road and east of Papermill Road. It was used to burn explosive-contaminated waste and fuses in the mid-1970's and since has been overgrown with vegetation. This site is part of the ongoing RI/FS.

**Site 05: Abandoned Landfill**—This 1-acre unit just south of Site 04 consists of trenches and mounds that were used to landfill photographic wastes and other refuse. This area was the only on-post landfill south of the firing line and was used from 1941 to the 1970's. It was the probable recipient of pesticide containers, ash from the old incinerator (Site 01), and paint wastes. This site is part of the ongoing RI/FS.

**Site 06: Burn Area**—This area consists of four pans used in open burning (OB) unserviceable propellants. They were installed in 1986, spread out in an area measuring 200 feet by 200 feet. Before the use of these pans, demilitarization of propellants was conducted on gravel placed over the soil. This unit is located just east of Shun Pike Road in the southeast portion of the installation. Extensive use of herbicides historically have been used to clear vegetation. This site is part of the ongoing RI/FS.

**Site 07: Wood Storage Pile**—This area is located on the airport runway and is used to stockpile wood debris prior to open burning by the facility's fire department. This site is part of the ongoing RI/FS.

**Site 08: Pentachlorophenol (PCP) Wood Storage Pile**—This pile is located on the airport, due west of the hangar, approximately 50 feet from the Wood Storage Pile (Site 07). The PCP-treated wood is accumulated prior to disposal at an offsite landfill. This site is part of the ongoing RI/FS.

**Site 09: Disposal Area, Behind Building 211**—This area reportedly was used in 1957 to dispose of red lead and barium sulfate waste generated during the inert munitions loading process. An unknown amount of methylene chloride also was reportedly dumped between the rails of the railroad tracks behind Building 211. This site is part of the ongoing RI/FS.

**Site 10: Building 208, Photographic Laboratory**—This site was used from the mid-1970's until base closure in 1995 to process film related to the facility's activities. Discharges of cyanide and silver to the sanitary sewer occurred prior to 1980. A silver recovery process was used. Following removal of the silver, the waste chemicals were fed into a distillation apparatus, eliminating the need to dispose of chemicals in the sanitary sewer. No further action is planned for this unit.

**Site 11: Building 333, Incinerator**—The unit was used to treat burnable waste, including paper products, debris, plywood, polyurethane, and iron oxide. The polyurethane may have been contaminated with methylene chloride. The incinerator was used from 1978 until the installation closed in 1995. This site is part of the ongoing RI/FS.

**Site 12: Buildings 281 & 295, Indoor Firing Ranges**—These buildings were used to test small arms for training until the early 1980's. Lead dust from the firing of ammunition is the primary environmental concern. The RI/FS is being conducted to determine the extent of lead contamination. This site is part of the ongoing RI/FS.

**Site 14: Burn Area Near Gate 19**—This 0.5-acre area was reportedly used from the 1950s to the 1970's to burn construction debris as well as unserviceable propellants. In addition, trichloroethene (TCE) was disposed of at the unit. Currently, the area is overgrown by tall vegetation and the extent of this area is indiscernible. This site is part of the ongoing RI/FS.

**Site 15: Gate 19 Landfill**—Empty pesticide containers, incinerator ash, polyurethane/methylene chloride wastes, red lead, and TCE reportedly have been disposed of in this 12-acre site. The landfill currently is undergoing closure. The RI/FS is underway to study the migration of contaminants.

**Sites 27, 28, and 29: Solvent Disposal Pits**—These sites are located adjacent to Buildings 602, 617, and 279, respectively, which were all ammunition assembly plants. Buildings 617 and 279 have been deactivated. From 1970 to 1978, waste solvents/degreasers (including TCE) were disposed of in 3-foot diameter, 3-foot deep gravel-filled pits. An estimated 4 to 500 gallons of TCE may have been disposed of in these pits. The current RI/FS addresses the three solvent disposal pits. As part of the investigation, subsurface soil samples were collected at each of these three sites, and monitoring wells were installed to determine if groundwater had been affected.

**Site 30: Fire Training Pit**—This 200-square-foot, 2-foot-deep pit is located adjacent to the airport runway. Wood soaked with petroleum products was ignited to train fire-fighting personnel. Although currently inactive, petroleum products likely have entered subsurface soils due to incomplete combustion. This site is part of the ongoing RI/FS.

**Sites 31, 69, and 94: Building 105**—Site 31 is a temporary storage area located within a metal shop where waste fluids such as cutting oil, cooling fluids, and naphthalenic oils were temporarily stored before they are properly disposed of offsite. The use of 55-gallon drums within steel containment pans makes the potential of a former release very low.

Site 69 contains a former solvent tank and lead casting operations, both of which have been deactivated. Small machinery parts were cleaned in the dip tank, which probably was used from the early 1940's until the late 1980's. The lead casting process, used to make lead hammers, was put out of service in 1986.

Site 94 is a locomotive maintenance pit located within the building. It is a 36-foot-long by 5-foot-wide trench covered with steel plates. The trench allowed access to the underside of locomotives and may have received fluids that were drained, spilled, or leaked from the locomotives. No records exist documenting whether the trench was cleaned out after locomotive maintenance ceased. It is assumed that the pit became operational along with the building. It is not known when the locomotive maintenance operations ceased.

Of the three sites located within Building 105, Site 94 is the only site requiring further evaluation in the ongoing RI/FS.

**Site 33: Building 204, Insecticide/Herbicide Storage**—The building has a concrete floor, and waste quantities are reported to be small and appropriately handled. Any accidental spills inside the facility would be contained; however, past practices are not well-known. A small building just east of Building 204 appears to have been used for mixing herbicides and rinsing containers. The area is contained, yet the possibility of contamination via runoff exists. This site is part of the ongoing RI/FS.

**Sites 34, 82, and 91: Building 227, Weapons Maintenance Workshop**—Site 34 consists of a concrete pad situated approximately 30 yards east of the building. Minor spills have occurred in the past. This workshop was replaced in 1990 by the Satellite Accumulation Shed (Site 82). The ongoing RI/FS will assess the status of a former UST site; and if necessary it will be remediated by the U.S. Army Corps of Engineers (USACE) in coordination with the Indiana Department of Environmental Management (IDEM).

Site 82 is a shed east of Building 227, adjacent to Site 34, above. Both the shelter and the pad were used to store waste solvents, waste oil and lubricants, and waste paint from the operations conducted in the workshop. This site is part of the ongoing RI/FS.

Site 91 is a Magnaflux Fluid Satellite Accumulation Shed. No further action is planned, according to Groundwater Consultation No. 38-26-KQ80-92 (U.S. Army Environmental Hygiene Agency ([USAEHA])).

**Sites 35, 49, 57, 58, 62, and 80: Building 186, Equipment Maintenance Shop**—This building contains the six Areas Requiring Environmental Evaluation (AREEs) described below.

Site 49, the Antifreeze Accumulation Area, consisted of a 55-gallon drum to collect used antifreeze and an antifreeze recycling unit. This recycling system was located within Building 186, which is

an enclosed structure with a concrete floor. No further action is planned according to Groundwater Consultation No. 38-26-KQ80-90 (USAHEA).

Site 57 consisted of a 1,000-gallon waste oil Underground Storage Tank (UST) (Tank No. 17) located inside and outside of this shop, constructed of galvanized steel that was painted for corrosion protection, and an indoor tank that feeds waste oil to the outdoor tank. The USTs were approximately 8 years old. No releases have been reported or observed, and no further action is planned.

Site 58, an oil/water separator (OWS) located just outside of Building 186, consists of a concrete pit 3 feet by 3 feet in size and managed wastewater from the Floor Drain and Wash Rack (Site 62, below). Oily liquids were piped off the top of the fluid and are disposed of in the Tank No. 17 Waste Oil UST (JPG 57, above). The wastewater from the OWS was discharged to the Sanitary Sewer System (Site 55). Solids were collected and disposed of at an offsite sanitary landfill annually. No further action is planned according to Groundwater Consultation No. 38-26-KQ80-90 (USAHEA).

Site 62 consists of a floor drain within the building and a wash rack immediately outside. The floor drain consists of a trench approximately 18 inches wide and 12 inches deep that spans the length of the shop. The wash rack is a 4-foot by-20 foot grate over a 3-foot-deep concrete pit that collected liquids from vehicular washing and maintenance activities. This site is part of the ongoing RI/FS.

Site 80 was an accumulation area for used batteries. There is no evidence of a release from this area, and no further action is planned.

**Site 36: Building 305, Hazardous Waste Storage Area**—This unit was used as a temporary storage area (less than 90 days) of Resource Conservation and Recovery Act (RCRA) hazardous waste prior to removal by Defense Reutilization Marketing Office (DRMO) contractors. Waste stored here have included stoddard solvent, Polychlorinated biphenyl (PCB)-contaminated oil, electrical transformers, asbestos, copper slats, scrap propellant, and bagged ash. A closure plan has been approved for Building 305, as required under RCRA. This site is part of the ongoing RI/FS.

**Site 37: Transformers**—JPG currently had a program in place for inventory, control, sampling, and ultimate removal of all PCB-containing transformers. No further action is planned.

**Sites 39, and 93: Building 216, Locomotive Maintenance Area**—Site 39 is a concrete trench in the floor of the building that may have been used as part of the maintenance of locomotives. No further information regarding this site exists. This site is part of the ongoing RI/FS.

Site 93 is a potential solvent pit. A break in the concrete next to the north side of the building resembles a rock-covered area similar to the solvent pits at Buildings 602, 617, and 279 (Site 27, 28, and 29).

These areas are being evaluated under the RI/FS.

**Site 41: Debris Dump North of Airport**—This unit is located to the west of the new incinerator (Building 333). The unit was reported to be a solid waste disposal area used for dumping

construction debris from approximately 1955 to 1972, but appears to have been used more recently for the disposal of brush, woods, and tree trimmings. No further action is planned for this area.

**Site 42: Papermill Road Disposal Area**—This unit consists of an open field with few distinguishing features. It was used from approximately 1949 to 1968 for unknown purposes. Ground staining, along with debris, mounded material, vehicles, and containers were noted in successive aerial photographs. The area is presently overgrown, but stressed. There is no information regarding the nature of potential contaminants at this site. This site is part of the ongoing RI/FS.

**Site 43: DRMO Area**—This site, located at the northeast corner of Paper Mill Road and Infantry Road (adjacent to Building 189), consists of a flat, gravel-covered open storage area approximately 150 feet wide and 300 feet long. The area was used to store scrap metal, scrap equipment, and materials from the facility prior to being sold to offsite vendors. A small portion was used to store spent lead-acid vehicle batteries prior to offsite recycling. The southeastern corner of the site was used prior to 1980 for the storage of waste oil and transformers with PCB concentrations of less than 50 parts per million. This site is part of the ongoing RI/FS.

**Site 44: Yellow Sulfur Disposal Area**—This area was identified in previous investigations. An analysis of area samples confirmed the presence of sulfur as the pH in the area is generally less than 2. This site is part of the ongoing RI/FS.

**Site 45: Sewage Sludge Application Area**—Four areas located in the vicinity of Buildings 185 and 177 formerly were used as drying beds for the sludge generated at the wastewater treatment plant. In the past, high concentrations of silver and cyanide were reported in the wastewater treatment plant. This site is part of the ongoing RI/FS.

**Site 46: Potential Munitions Dump Site**—A historical installation map indicated an area near the intersection of Tokyo Road and the railroad tracks that may have been used to dispose of ammunition. The accuracy of the map showing the location of the disposal area is questionable; no records exist that would indicate the type and quantity of materials dumped at this location. In addition, an initial geophysical survey found no evidence of a dump site. This site is part of the ongoing RI/FS.

**Site 47: Gator Z Open Burning Area**—This area is located in the southeastern portion of the facility, known as "Gator Z." Debris from materials used during mine testing was stockpiled and burned in a flat, open, nonvegetated area. Because there was a potential for ordnance components to be embedded in the refuse, it was burned before disposal. The unit was operated from 1985 until 1991, when the scrap was approved for disposal in the new incinerator (Site 11). This site is part of the ongoing RI/FS.

**Site 48: Gator Z Mine Scrap Disposal Area**—This unit consists of an open pit, with approximate dimensions of 12 feet by 25 feet by 5 feet. The pit was reportedly a disposal area for the components of "bouncing betty" mines. The only scrap disposed of here may be the steel carcasses of these mines, but these may contain explosive residuals. It is not known when the unit was first used, and it reportedly was last used in the late 1970's. This site is part of the ongoing RI/FS.



**Site 49: Building 186, Antifreeze Accumulation Area**—See Site 35.

**Site 50: Building 279, Former Chemical Storage**—The unit consists of a 25 by 15-foot former shower room where two drums of photographic wastes had been stored from 1979 to October 1980. Building 279 was certified to be clean, and was closed in September 1993. An RI/FS is underway for the solvent pit located just outside Building 279 (Site 29).

**Site 51: Waste Storage at Hangar**—This 20-square-foot room is located within the main airport hangar. Nonhazardous wastes were stored in 55-gallon drums directly on the concrete ground surface. No secondary containment system exists, but storage was indoors and over a concrete floor. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 54: Building 108A, Former Transformer Storage Area**—The unit is located outdoors, north of Building 108A in a fenced-in area. This unit stored transformers that may have been filled with PCB oils. The time of operation is unknown. No releases were documented or observed. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 55: Sanitary Sewer System**—This is a regulated unit, located throughout the southern portion of the facility. It consists of below-grade pipes that are used to convey sanitary wastewater from the photo development laboratory and boiler blowdown from the facility steam generators. The unit has been in use since 1941. No further action is planned.

**Site 56: Storm Sewer System**—The unit, located throughout the southern portion of the facility, consists of concrete catch basins, open ditches, and below-grade lines that are used to convey runoff away from developed portions of the facility. The unit currently manages stormwater runoff only. The unit has been in use since 1941. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 57: Building 186, Waste Oil UST (Tank No. 17)** —See Site 35.

**Site 58: Oil/Water Separator**—See Site 35.

**Site 59: Building 110, Oil/Water Separator**—The unit is located next to the driveway area in front of Building 110. The unit is composed of a concrete pit with a lid approximately 3 feet by 3 feet in surface area, and about 5 feet deep, containing an OWS. No releases have been observed or reported. Oil/grease and solids from the carwash and garage in Building 110 were managed until 1980. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 60, 61: Building 136, Painting Shop**—Site 60 is located just west of the building, consisting of an approximately 20- by 20-foot area on a 6-inch thick asphalt pad that is used for sandblasting operations. Vehicles and other equipment were sandblasted there prior to being painted inside Building 136. Red primer containing lead was used in the past as a installation coat. Waste sand was collected and analyzed for hazardous contamination. The unit began operations in 1942 and was operated until in 1995. This site is part of the ongoing RI/FS.

Site 61 is located outdoors, between Buildings 136 and 121, on asphalt. It consisted of steel pans and garbage cans used to store empty paint cans and associated wastes, such as rags, etc. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 62: Building 186, Floor Drain and Wash Rack**—See Site 35.

**Site 63: Buildings 115, 208, and 325, Photo Lab Drains**—The unit consists of the floor drains and associated piping beneath Buildings 115, 208, and 325. The floor drains in each of the buildings were used to convey spent photo developing solutions, which contained high levels of cyanide and silver, to the sanitary sewer system. The use of cyanide-bearing photo development chemicals ceased in 1980. Building 115 was used as the photo development lab prior to 1970; Building 208 was used for this purpose from 1970 until base closure in 1995. Building 325 was used as the x-ray photo development lab from 1965 to 1987. X-ray film is now processed in Building 208. No further action is planned.

**Site 64: Building 602, Former UST and Soil Staging Area**—Contaminated soil was excavated in 1988 during the removal of a leaking UST and was stockpiled in the parking lot east of the building. The soil was contaminated with No. 2 fuel oil, which had leaked from tanks in the area. A sample of the excavated soil showed Total Petroleum Hydrocarbon (TPH) levels of 146 milligrams per kilogram (mg/kg). The soil subsequently has been disposed of offsite.

The former UST was used to store No. 6 fuel oil. In 1990, the IDEM received notice that No. 6 fuel oil had been released to a ditch near Building 602. This tank, which already had been removed, was identified as the source, because IDEM's tanks in the area stored No. 2 fuel oil. This site is part of the ongoing RI/FS.

**Site 65: USTs**—There were 37 USTs that were installed between 1941 and 1992 with capacities ranging from 300 to 25,000 gallons. The tanks have been used for the storage of fuel oil, diesel fuel, leaded and unleaded gasoline, kerosene, and white gas. In 1988, 10 inactive tanks were removed, and soil sampling in the excavation indicated that leakage of tank contents has occurred. Some contamination from metals (e.g., lead) also may have occurred. All USTs at the facility have been removed.

**Site 66: Building 103, Oil Spill**—The Building 103 oil spill occurred in April 1988 and was caused by the overfilling of an UST at the Central Heating Plant. Approximately 300 gallons of No. 2 heating oil were spilled, covering about 600 square feet of soil south of the building. Most of the oil went into a nearby containment ditch, and approximately 65 percent of the spill was recovered from the ditch during the initial spill response. Most of the remaining oil was removed using adsorbents, which subsequently were landfilled or incinerated. According to facility personnel, the spill was cleaned up in 3 hours, and neither the storm sewer nor groundwater was affected. This area is of concern because of the nature of the contaminants and the lack of soil sample data confirming the cleanup. This site is part of the ongoing RI/FS.

**Site 67: Building 118, Gas Station**—This unit consists of an office building (Building 118); a diesel pump house (Building 128); a gasoline pump house (Building 111); the dispensing pumps; and underground piping from three former USTs. The unit operated from 1942 until installation

closure in 1995. The area is of concern due to the age of the underground piping and the large quantities of fuels, which were managed at the unit. This site is part of the ongoing RI/FS.

**Site 69: Building 105, Solvent Tank/Lead Casting**—See Site 31.

**Site 70: East-West Runway Test Area**—This site was used for flare testing. The site is rectangularly shaped and is approximately 50 feet wide and several hundred feet long. The types of wastes that have resulted in the burning of flares have not been documented. Most flares contain magnesium, white phosphorus, sulphur, and either potassium or sodium nitrate. White phosphorus is poisonous when ingested and is ignitable at ambient temperatures. This site is part of the ongoing RI/FS.

**Site 74: Gator Z, Mine Test Area**—This site is located in the southeastern portion of the facility west of East Perimeter Road between Mine Field Road and a tributary to Harberts Creek, encompassing approximately 220,000 square yards. There are 26 mine test pits placed in 2 rows parallel to Mine Field Road. Water and sediment samples were collected from Harberts Creek in January and July 1992. Silver was detected in both sample efforts. The exact source may be the Mine Test Area, the wastewater treatment plant, or runoff from the sludge application area. This site is part of the ongoing RI/FS.

**Site 76: Off-site Water Supply Wells**—Two drinking-water wells, located near the Madison Country Club in downtown Madison, formerly were used to supply JPG with its drinking water. Three USTs, each with a 300-gallon capacity, supplied emergency power to the pumps. These USTs have been removed from the site. Although field screening efforts conducted in May 1993 concluded that the site did not contain significant volatile organic compound (VOC) contamination, and no further action was recommended for the former USTs at the site, the U.S. Army Environmental Center (USAEC) has since determined that the site was contaminated and recommended remediation. USACE completed the field work on this remediation.

**Site 77: Buildings 610, 611, and M1, Low Level Radioactive Waste Storage**—M1 is a portable facility that has been used for temporary storage of depleted uranium (DU) penetrators after they are recovered from the impact field. Buildings 610 and 611 also were used for this purpose. These were in use from 1986 until installation closure in 1995 and were all covered by a license from the Nuclear Regulatory Commission (NRC).

**Sites 78, and 79: Building 506**—Site 78 was composed of solvent distillation stills. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

Site 79 was a 1,1,1-TCA accumulation area. No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 80: Building 186, Spent Lead/Acid Battery Storage**—See Site 35.

**Site 81: Building 211, Waste Filler/Methylene Accumulation**—No further action, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 82: Building 227, Satellite Accumulation Shed**—See Site 34.

**Site 83: Building 600, Scrap Propellant Accumulation and Storage Shed**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 84: Building 534, Scrap Propellant Accumulation Area**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 85: Building 534, TCU Storage**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 86: Building 325, Scrap Fuse Accumulation Area**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 87: Portable Oil/Water Separator**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 88: Building 117, Cyclone**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 89: Former Building 136, Water Curtain**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 90: Buildings 186, 227, 216, Safety Kleen Cleaners**—No further action is planned, per Groundwater Consultation No. 38-26-KQ80-92 (USAEHA).

**Site 91: Building 227, Magnaflux Satellite Accumulation**—See Site 34.

**Site 92: Asbestos-containing Material (ACM)**—ACM has been identified in many facility buildings, including pipes insulation, roofing, siding, and tiles. An asbestos survey was conducted in 1988 and again in 1993. Some asbestos abatement has occurred and the materials were disposed of at the Gate 19 landfill.

**Site 93: Building 216, Potential Solvent Pit**—See Site 39.

**Site 94: Building 105, Locomotive Maintenance Pit**—See Site 31.

**Site 95: Building 259, Discharge/Fill Pipe**—This site consists of a horizontal pipe that exits the building and extends to the edge of the nearby railroad tracks. There is a black tar-like material on the ground surface at the end of the pipe, which appears to be some type of petroleum, oil, and lubricant (POL); it is assumed that the pipe formerly was used to discharge some type of hydrocarbon. Leaching or infiltration of the possible hydrocarbon material is considered the only potential source at the site. This site is part of the ongoing RI/FS.

**Site 96: Building 281, Former USTs**—Two USTs were located at this site. One had a capacity of 500 gallons and the other 650 gallons; both were removed in the spring of 1992. Results of soil samples collected from the excavation ranged from 14.4 to 650 mg/kg TPH. This site is part of the ongoing RI/FS.

**Site 97: Potential Wells/Tanks at Artillery and Infantry Roads**—This site consists of two vertical pipes that rise approximately 3 feet above two former building floors. The history and former uses of the site are unknown. This site is part of the ongoing RI/FS.

**Site 98: Concrete Vault Near Airfield Railroad Tracks**—There is no information on the former use of the site, but it appears to be a vault for underground piping that possibly led to USTs at the former fuel storage area across the road northwest of the vault. The vault, the associated piping, and potential USTs would constitute possible contaminant sources. The site will be remediated by USACE in coordination with IDEM.

**Site 99: Potential Unexploded Ordnance at Airfield**—An area located on the southwestern side of the northwest-to-southwest runway reportedly was used as a mine mortar test area. This site is part of the ongoing RI/FS.

**Site 100: Flare Test Sites at Airport**—These two sites apparently have been used to launch flares for flare testing, according to historical reports. The flares reportedly were launched onto the east-west runway. Most flares contain magnesium, white phosphorus, sulphur, and either potassium or sodium nitrate. This site is part of the ongoing RI/FS.

**Site 101: Potential Mine Test Area, South of Airfield**—This area is characterized by numerous round surface depressions that appear to be the result of possible mine or mortar impact. The area has long since remained inactive, as evidenced by the thick growth of vegetation. This site is part of the ongoing RI/FS.

**Site 102: Ammunition Storage Igloos**—Most of the 32 ammunition storage igloos are located along Igloo Loop at the eastern end of the Cantonment Area; they consist of earth-covered concrete bunkers. This site is part of the ongoing RI/FS.

**Site 103: Potential UXO South of Firing Line**—There are three possible munitions testing areas: the Rocket Range, the hand-grenade testing area, and the mine test area. Potential contaminant sources include UXO and explosive residues. This site is part of the ongoing RI/FS.

## SITES IN THE NORTHERN FIRING RANGE

**Site 13: Ammunition Demilitarization Area**—This unit, located west of Morgan Road and north of Firing Line Road, consists of an area used to burn explosive charges from shells and for undefined demilitarization of other munitions. The area was first identified in aerial photographs, but its exact boundaries are unknown.

**Site 16: Ordnance Disposal Area**—This unit, located at the intersection of Morgan and "C" Roads, consists of a 35-foot by 12-foot by 5-foot unlined pond used for the disposal of munitions collected during cleanup operations at facility ranges. The unit contains numerous corroding shells, which reportedly contain no explosive residues.

**Site 17: Landfill, Off York Road**—The unit is on an extension of York Road, just north of "B" Road and south of the 4.5 Mortar Impact Range. It consists of a landfill that reportedly was used to bury inert projectiles and metals recovered from the impact areas, but facility personnel could not be certain of all of the landfill contents. The actual size of the landfill is not known, but the unit is located within a clearing in the woods that is approximately 200 feet square in size.

**Site 18: Abandoned Grenade Disposal Wells**—These two wells are located at the northwest corner of the intersection of Recovery and "G" Roads. Documents indicate that 100 to 200 riot control grenades and other munitions-related material were disposed of in the wells. Only one of the wells has been located.

**Site 19: Munitions Test Pond**—This unlined pond covers an area approximately 300 feet by 600 feet formerly used to test the performance of munitions under water. Residual explosive materials are of concern.

**Site 20: Macadam Test Pond**—This unit also tested the performance of munitions under water. The water was drained in the 1970's and found to hold no munitions, but the possibility of contamination to the surrounding soil never has been investigated.

**Site 21: Cistern Disposal Site**—This site could not be located by facility personnel, but is reported to be at the northwest corner of "T" and Cottrell Roads. Documents indicated that waste fuels were disposed of in this cistern.

**Site 22: Burn Area**—This unit is in the southwest end of the 1,600 east impact area, just east of Cottrell Road; it consists of 0.25-acre of land used to burn projectiles and propellants. This area was abandoned in 1980.

**Site 23: Detonation Area**—This unit is located in the north central portion of JPG, north of Graham Creek and west of Bombfield Road. It consists of about 10 acres used for open detonation (OD) of unserviceable munitions.

**Sites 24, and 25: Landfills Near Hunting Lodge**—These units (1 acre each) managed trash and debris from Old Timbers Lodge; they have become contiguous and indistinguishable. The combined landfill covers an area of approximately 100 feet by 100 feet on each side of the access road to the unit. Facility representatives indicated that ordnance may have been disposed of in ponds near the landfill.

**Site 26: Landfill**—This unit is located north of the firing line, and no response action is planned at this time. It was used for approximately 2 years for the disposal of trash and construction debris.

**Site 32: Depleted Uranium Firing Range**—This unit is used as an impact area for the testing of munitions containing DU and is regulated by an NRC license. After firing, the facility attempts to recover the projectiles, but only 25 percent have been recovered. Low-level radiation as well as explosive residue and metal contamination are of concern. The preparation of the DU Decommissioning Plan is underway and is being managed by the U.S. Army Test and Evaluation Command (TECOM).

**Site 38: Unsurfaced Roads**—Used motor oil was sprayed on unsurfaced roads for dust control.

**Site 40: Landfill at 4.5 Mortar Impact Range**—This unit is located near the northeast corner of the 4.5 Mortar Impact Range. The exact wastes managed at this unit (if any) are not known. This unit has been identified inaccurately in many of the facility documents as Site 17. However, Site 17 is actually located south of the 4.5 Mortar Impact Range and is described as the Landfill Off York Road. As a result of the inaccurate identification, very little information has been collected regarding the portion of this unit in the northeast corner of the 4.5 Impact Range.

**Site 52: Air Gunnery Accumulation Area**—This unit is located in the north central portion of the facility, west of Bombfield Road and north of Site 23. It consists of a 55-gallon drum where steel slugs are collected and stored before they are detonated.

**Site 53: Air Gunnery Scrap Equipment Area**—This unit stored scrap equipment that was later placed on the Aircraft Target Range (Site 71) as targets.

**Site 68: Firing Range Impact Areas**—This unit consists of the 50,000 acres north of the firing line. It is estimated that 7.6 million out of 23 million rounds fired into this area are unexploded (Government Accounting Office Report #NSIAD-90-42). Residual constituents of propellants and explosives may be present throughout the northern area.

**Site 71: Air Gunnery Range**—The unit is located in the north-central portion of the facility south of "K" Road and west of Bombfield Road. It was used by both the Indiana Air National Guard and U.S. Air Force as an air gunnery and bombing practice area. The unit consists of 750 acres of relatively flat open field.

**Site 72: Air Bombed Storage Tank Target Area**—This area is located off Center Recovery Road just north of "F" Road. It houses approximately eight storage tanks used as impact range targets.

**Site 73: Family of Scatterable Mines Area**—This was a test area for mines, approximately 100 by 400 yards in size, specifically designated as Family of Scatterable Mines.

**Site 75: Bromacil Area**—This area is located east of Jinestown Road, north of the Firing Line. This area was identified by aerial photographs as a vegetation-free area approximately 65 to 70 acres in size. Bromacil, an herbicide, was used to clear this area.

## **ADDITIONAL AREAS IDENTIFIED IN CERFA REPORT**

This section describes areas identified during the Community Environmental Response Facilitation Act (CERFA) site visit and documents search of the IDEM Spill Reports.

**POL Release**—Approximately 25 to 30 gallons of hydraulic fluid were released on May 5, 1993 near Bridge No. 1 on Jinestown Road at Middleford Creek in the range area, north of the firing line. The cause was a ruptured hydraulic line on a piece of heavy construction. A dike, water skimmer, and the containment of contaminated soil and water were used to control the release.

**Impoundment at Airport**—During the automobile drive-through survey conducted in October 1993, a pond containing ammunition boxes located west of the airport was identified by environmental personnel. They described a sheen on the surface of the pond, possibly due to decaying organic matter, an occurrence that often is observed in shallow ponds at JPG.



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## **IDEM CERFA Concurrence Letter**

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AR-JPG-7058



## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Indianapolis, Indiana 46206-6015  
Telephone 317-232-8603  
Environmental Helpline 1-800-451-8027

February 8, 1996

Commander  
U.S. Army Test and Evaluation Command  
Aberdeen Proving Ground, Maryland 21005-5055

Attention: AMSTE-EQ (Paul Cloud)

Dear Mr. Cloud:

Re: Community Environmental  
Response Facilitation Act  
Report, Jefferson Proving  
Ground, Madison, Indiana

This letter is intended to document a meeting conducted January 24, 1996, to discuss a final resolution to Indiana Department of Environmental Management (IDEM) comments concerning the Community Environmental Response Facilitation Act (CERFA) Report for Jefferson Proving Ground (JPG). The JPG Base Realignment and Closure (BRAC) Cleanup Team, the Army Environmental Center (AEC) Regional Environmental Coordinator (REC), Earth Technology Corporation, Army Environmental Center and IDEM representatives participated in the meeting (Enclosure 1).

Neither IDEM nor EPA concurred with the Final JPG CERFA Report dated April 1994. IDEM believes that no property can be transferred or leased unless IDEM concurred with the CERFA Report for that property. IDEM received a letter on December 6, 1995, containing previous IDEM comments and Army responses to the CERFA Report, potential points of confusion, and a request for a meeting to resolve outstanding CERFA comments. During the meeting the following was determined:

- \* Both IDEM and Army staff agreed that reevaluating all CERFA clean parcel designations in the CERFA Report at this time may not be in either party's best interest and

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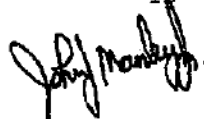
Page 2

would require an inordinate amount of time.

- \* The mechanism or process suggested instead, is to prepare site-specific Environmental Baseline Surveys (EBSSs) for each parcel under consideration for transfer or lease. The site-specific EBSSs may rely upon information in the original CERFA Report but should be updated/supplemented as necessary to address previous IDEM comments.
- \* IDEM staff believe the Army should obtain concurrence from IDEM on these site-specific EBSSs in lieu of concurrence with the CERFA Report before preceding with any transfer or lease of property. IDEM's agreement to review the site-specific EBSSs shall not be construed as concurrence or a waiver of IDEM's right to concur with the CERFA Report. IDEM staff do not believe that attaching unresolved comments to the site-specific EBSSs is an acceptable way to proceed.
- \* Army staff agrees to prepare Site-specific EBSSs for parcels to be transferred/leased. IDEM staff agree to work with the Army to resolve comments on site-specific EBSSs, such that concurrence can be given.

If you have any questions, please call me at  
(317) 233-6425.

Sincerely,



John Manley Jr., Project Manager  
Defense Environmental Restoration Program  
Office of Environmental Response

JJM:mg

Enclosure

cc: Rex Osborn, IDEM

Karen Mason-Smith, EPA

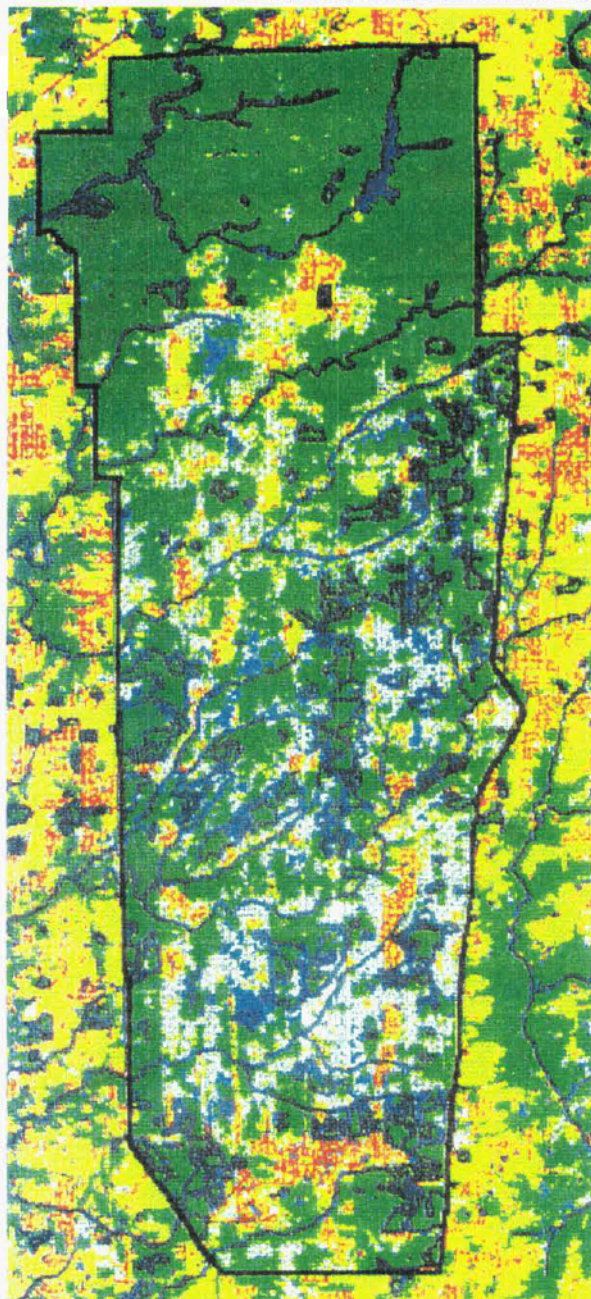
Ken Quirk, AEC

## **VEGETATION CLASSIFICATION OF JPG**

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Indiana Gap  
Analysis  
Jefferson Proving  
Ground  
Pilot Study Area

Vegetation  
Classification  
National Wetland  
Inventory Overlay



- Terrestrial Mainly Deciduous
- Terrestrial Wooded Grassland
- Terrestrial Herbaceous
- Terrestrial Mainly (Field Check)
- Agriculture
- Developed Urban
- Developed Other
- Lacustrine Limnetic
- Wetland Delineations
- JPG Boundary (inner)
- Study Area Boundary (Outer)

Vegetation  
Classification  
of Jefferson  
Proving Ground,  
Madison, Indiana



Scale in Miles



Figure F-1

Jefferson Proving Ground - Madison, Indiana

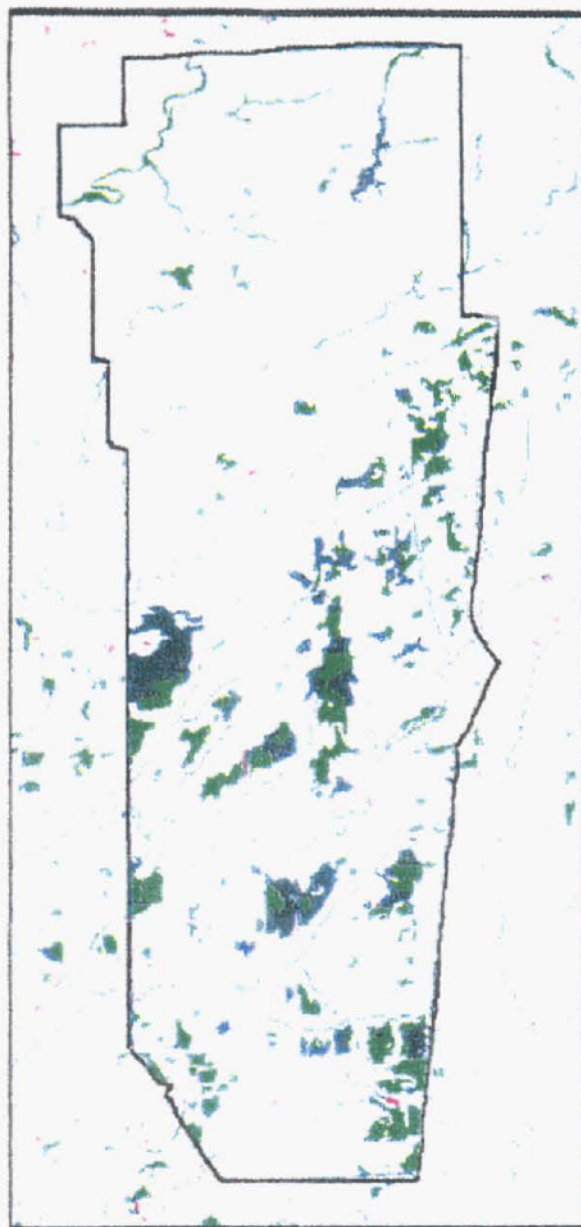


## **NATIONAL WETLANDS INVENTORY - JPG**

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# Indiana Gap Analysis Jefferson Proving Ground Pilot Study Area

National Wetlands  
Inventory Data



- Palustrine Unconsolidated Bottom (27 acres)
- Palustrine Emergent (58 acres)
- Palustrine Scrub-Shrub (2,210 acres)
- Palustrine Forested (4,004 acres)
- Lacustrine (140 acres)
- Upland

- ⊙ Riverine Perennial (31 acres)
- ⊙ Riverine Intermittant (31 acres)
- Palustrine Emergent
- ⊙ Palustrine Unconsolidated Bottom
- ⊙ Palustrine Forested
- ⊙ JPG Boundary (inner)  
Study Area Boundary (Outer)

## National Wetlands Inventory Jefferson Proving Ground, Madison, Indiana

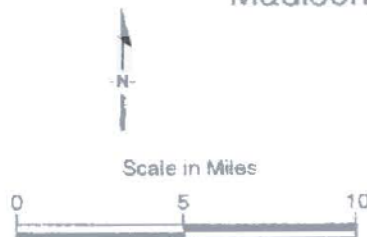


Figure F-2

**PREVIOUSLY SURVEYED AREAS AND  
CULTURAL RESOURCE SITE LOCATIONS AT JPG**

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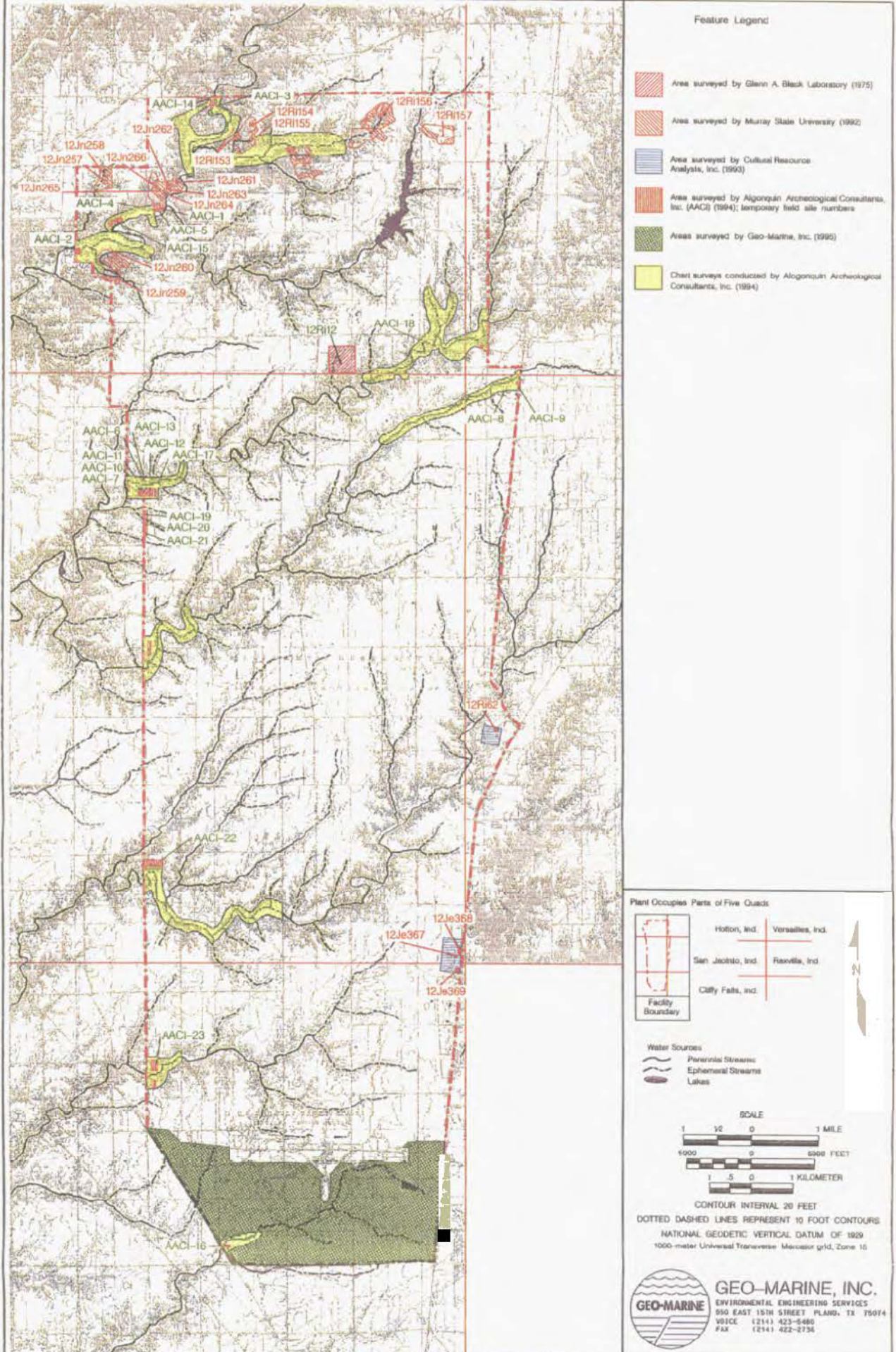


Figure F-3. Previously surveyed areas and cultural resources site locations, JPG.