RADIAN
CORPORATION

MEMORANDUM

TO: ANGRC Project Manager

FROM: Peter Crowley and Steven Stinger, Radian Corporation

DATE: 1 July 1994

SUBJECT: **Two Versions of Appendix A of Management Action Plan (MAP)**

In accordance with the instructions of the ANGRC, Radian prepared and distributed two different versions of Appendix A of the MAP-- a "full" version of Appendix A and a "condensed" version of Appendix A. The difference between the two versions is that the full version contains more detailed cost information than the condensed version. Specifically, the full version of Appendix A contains a breakdown of the cost estimates for each anticipated IRP activity at each site (presented as the cost model output sheets in Attachment 1 to Appendix A), and lists the costs for each IRP activity on the schedules in Attachment 2 of Appendix A. The condensed version contains a summary table, Table A-2, which presents anticipated IRP costs by fiscal year for each site, and does not include the cost model output sheets (Attachment 1) or the cost information on the schedules.

Parties on the ANGRC approved MAP distribution list will receive the different versions of Appendix A as follows:

- ANGRC PM--Both full and condensed versions;
- Air Force personnel--Full version only;
- Base personnel--Condensed version only;
- HAZWRAP--Condensed version only;
- Prime IRP contractor--Condensed version only; and
- Regulatory agency--Condensed version only.

Should you have any questions on the format and distribution of the two versions of Appendix A, please contact Steve Stinger or Renee Roberts at (703) 713-1500.

JMC-025
0630-01.JMC

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INSTALLATION RESTORATION PROGRAM

MANAGEMENT ACTION PLAN

128th FIGHTER WING

WISCONSIN AIR NATIONAL GUARD

TRUAX FIELD

MADISON, WISCONSIN

Prepared for:
Air National Guard Readiness Center
Andrews Air Force Base, Maryland

Prepared by:
Radian Corporation
2455 Horsepen Road
Herndon, Virginia 22071

September 1994

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

ACL	Alternate Concentration Limit
ACM	Asbestos-Containing Material
AFCEE	Air Force Center for Environmental Excellence
ANG	Air National Guard
ANGRC	Air National Guard Readiness Center
ARAR	Applicable or Relevant and Appropriate Requirement
ASI	Abbreviated Site Investigation
AST	Aboveground Storage Tank
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRP	Community Relations Plan
CSM	Conceptual Site Model
CWA	Clean Water Act
DD	Decision Document
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DLA	Defense Logistics Agency
DNR	Department of Natural Resources
DPM	Defense Priority Model
DSMOA	Defense and State Memorandum of Agreement
DSN	Defense Switching Network
EE/CA	Engineering Evaluation/Cost Analysis
ENVEST™	Environmental Estimating Module of RACER
ES	Enforcement Standard, Wisconsin Administrative Code NR 140
ESI	Expanded Site Investigation
FFA	Federal Facility Agreement
FS	Feasibility Study
FY	Fiscal Year
HARM	Hazard Assessment Rating Methodology
HAZWRAP	Hazardous Waste Remedial Actions Program
HRS	Hazard Ranking System
ID	Inside Diameter
ILHR	Industry, Labor, and Human Relations
IRA	Interim Remedial Action
IRP	Installation Restoration Program
JP-4	Jet Propulsion Fuel #4

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

LTM	Long-Term Monitoring
LTTD	Low-Temperature Thermal Desorption
MAP	Management Action Plan
MCL	Maximum Contaminant Level
mg/kg	Milligrams Per Kilogram
mg/L	Milligrams Per Liter
MILCON	Military Construction
NA	Not Analyzed
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	Not Detected
NFRAP	No Further Response Action Planned
No.	Number
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OU	Operable Unit
OWS	Oil/Water Separator
PA	Preliminary Assessment
PA/SI	Preliminary Assessment/Site Investigation
PAH	Polynuclear Aromatic Hydrocarbon
PAL	Preventive Action Limit, Wisconsin Administrative Code NR 140
PCB	Polychlorinated Biphenyl
pCi/L	Picocuries Per Liter
PCO	Project Closeout
PM	Project Manager
POL	Petroleum, Oil, and Lubricant
ppb	Parts Per Billion
ppm	Parts Per Million
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RACER	Remedial Action Cost Engineering and Requirements
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Real Property Maintenance
RRI	Rapid Response Initiative
SA	Site Assessment
SARA	Superfund Amendments and Reauthorization Act of 1986

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

SI	Site Investigation
SVE	Soil Vapor Extraction
TBC	To Be Considered
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act
U.S. EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
WIMS-ES	Work Information Management System - Environmental Subsystem
W.S.	Wisconsin Statutes
µg/kg	Micrograms Per Kilogram
µg/L	Micrograms Per Liter

1.0 INTRODUCTION

As a result of past resource and waste management practices at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin (hereafter referred to as "the Base"), some areas at the Base have been contaminated by various toxic and/or hazardous materials. In response, the ANG has implemented installation restoration and environmental compliance programs to ensure that these areas do not pose a threat to human health or the environment. This Management Action Plan (MAP) summarizes the status of the Installation Restoration Program (IRP) and the environmental compliance program at the Base, and presents a comprehensive strategy for implementing the response actions that are necessary to protect human health and the environment.

Current resource and waste management practices at the Base are performed in compliance with all applicable laws and regulations to protect human health and the environment. Activities performed under the IRP and the environmental compliance program support restoration of contaminated areas of the Base. Current resource and waste management practices conducted at the Base under the Resource Conservation and Recovery Act (RCRA) are assessed in this MAP only to the extent that they affect or are affected by the ongoing Defense Environmental Restoration Program (DERP).

This MAP was prepared using IRP and environmental compliance information available as of December 1993. It is a dynamic document that will be updated regularly to incorporate new information and to reflect the completion, or change in status, of remedial actions (RAs).

Section 1.0 of the MAP describes the objectives of the IRP and the environmental compliance program at the Base, explains the purpose of the MAP, identifies the members of the Base's Project Team who manage the IRP and the environmental compliance program, provides a brief history of the Base, and lists the major IRP activities accomplished at the Base.

Section 2.0 provides a summary of the land use and critical environments at the Base and its surrounding areas. Section 3.0 presents the status of the IRP and the environmental compliance program at the Base, lists the community relations activities performed to date at the Base, and describes the environmental condition of the Base property. Section 4.0 describes the Base's overall strategy for conducting activities under the IRP and the environmental compliance program.

Section 5.0 provides schedules for the activities to be conducted at the Base under the IRP and the environmental compliance program, as well as a proposed meeting schedule for the Project Team. Section 6.0 describes the specific action items and technical issues that will be resolved by the Project Team to ensure the successful completion of IRP activities at the Base.

Supplemental information on the Base's IRP is presented in several appendices to this MAP, as follows:

- Appendix A - Cost Estimate and Schedule Confirmation;
- Appendix B - Technical Documents/Data Loading Summary;
- Appendix C - Property Records;
- Appendix D - Documentation for Remedial Actions;
- Appendix E - Decision Documents for No Further Response Action; and
- Appendix F - Conceptual Site Models.

1.1 Environmental Response Objectives

The objectives of the Base's IRP are to:

- Protect human health and the environment;
- Complete investigations and designs, and implement all necessary RAs, by the end of fiscal year 2000 (FY2000);
- Characterize risks and implement necessary removal actions; and
- Develop, screen, select, and begin RAs associated with releases of hazardous materials.

1.2 Purpose of the Management Action Plan

The purpose of the MAP is to summarize the status of the IRP and the environmental compliance program at the Base, and to provide a comprehensive long-range strategy for conducting activities at the Base under these programs. In the short term, the MAP provides a vehicle for defining and resolving technical issues to ensure the continued progress and implementation of scheduled IRP and environmental compliance program activities. In the long term, the MAP provides a vehicle for implementing changes to the RA and long-term monitoring (LTM) programs. The Project Team will use this MAP to direct and monitor IRP and environmental compliance program activities and to schedule any other activities necessary to resolve technical, administrative, or operational issues.

1.3 Project Team

The Base's Project Team consists of ANG staff, contractors, and regulatory agencies. The Project Team is composed of two teams: a Core Team that works on the overall IRP, and a Support Team that assists the Core Team in specialized areas. The Project Team meets on an as-needed basis to resolve

technical and policy issues, to conduct program reviews and kickoff meetings, and to reach a consensus on procedural, organizational, regulatory, and operational issues. Table 1-1 lists the Project Team members and specifies their individual roles on the team.

The topics listed below are potential subjects for discussion at the Project Team meetings:

- Investigation strategies/sampling approaches;
- Sampling location rationales;
- Sampling and analytical protocols;
- Field team coordination;
- Data quality objectives and requirements;
- Identification of applicable or relevant and appropriate requirements (ARARs);
- Consideration of a no further response action planned (NFRAP) decision and evaluation of potential RAs; and
- Identification of action items.

Project Team meetings are generally conducted according to Environmental Protection Committee formats and procedures, which are summarized below.

- Meetings are conducted on an as-needed basis and generally consist of scoping meetings, kickoff meetings, review meetings, etc. Meetings may also be conducted via conference calls. (Table 5-1 provides a projected schedule of Project Team meetings.)

Table 1-1

Project Team Members
128th Fighter Wing, Wisconsin ANG

CORE TEAM MEMBERS			
Name	**Title**	**Telephone Number(s)**	**Role**
Ruth Lodder	Project Manager	(301) 981-8844 ext. 8172 DSN 858-8844 ext. 8172	ANGRC Project Manager
Capt. Mark Lampe	Environmental Coordinator	(608) 242-4339 DSN 724-8339	ANG Base Environmental Coordinator
Fritz Lebow	Project Manager	(615) 435-3257	HAZWRAP Service Center Technical Project Manager
Joe H. Hawk	Project Manager	(615) 483-1274	Advanced Sciences, Inc. - Prime Contractor for IRP Site Activities
Mike Schmoller	Project Manager	(608) 275-3303	Wisconsin Department of Natural Resources - Regulatory Contact
SUPPORT TEAM MEMBERS			
Name	**Title**	**Telephone Number(s)**	**Role**
Maj. Keith Geurts	Base Civil Engineer	(608) 242-4342 DSN 724-8342	ANG Base Civil Engineer
TSgt. Chris Buhler	Base Bio-Environmental Technician	(608) 242-4266 DSN 724-8266	ANG Base Bio-Environmental Technician
Col. Fred Sloan	Base Commander	(608) 242-4202 DSN 724-8202	ANG Base Commander
Henry Byers	ANGRC/Judge Advocate	(703) 756-2903	ANGRC/Judge Advocate Legal Counsel
Maj. Randy Noller	ANGRC/Public Affairs	(703) 681-0702 DSN 761-0702	ANGRC/Public Affairs Public Affairs Officer
Dan Waltz	ANGRC Hydrogeologist	(301) 981-8844 ext. 8900 DSN 858-8844 ext. 8900	ANGRC Hydrogeologist
Terry Cochran	Hydrogeologist	(615) 435-3487	HAZWRAP Hydrogeologist
Joe McMullen	Hydrogeologist	(615) 483-1274	Advanced Sciences, Inc. - Prime IRP Contractor Hydrogeologist
Mike Netzer	DSMOA Contact	(608) 267-7570	Wisconsin DSMOA Contact

DSN - Defense Switching Network.
ANGRC - Air National Guard Readiness Center.
ANG - Air National Guard.
HAZWRAP - Hazardous Waste Remedial Actions Program, managed by Martin Marietta Energy Systems, Inc.
IRP - Installation Restoration Program.
DSMOA - Defense and State Memorandum of Agreement.

- The Air National Guard Readiness Center (ANGRC) Project Manager (PM) maintains a calendar that shows the dates and locations of the Project Team meetings scheduled for the next three months.

- Approximately one week before each meeting, the ANGRC PM, or his/her designee, submits a written agenda of meeting issues and proposals to each team member.

- Meetings begin with an oral presentation of the issues by the ANGRC PM, which is followed by open discussion.

- Each issue is discussed in turn and is resolved during the meeting, to the extent possible.

- The ANGRC PM, or his/her designee, prepares meeting minutes that document the issues discussed during the meeting. Meeting minutes are distributed to all team members within one week after the meeting.

- Program modifications are made where appropriate.

1.4 Brief History of Base

The Base is located at the Dane County Regional Airport (Truax Field), approximately 3 miles northeast of downtown Madison, Wisconsin (Figure 1-1). The Base occupies 155 acres of land (Figure 1-2); this land is part of a parcel of land acquired by the U.S. Army in 1943. Lake Mendota and Lake Monona are located approximately 2.5 miles southwest of the Base, and Cherokee Marsh State Fishery Area is located approximately 2 miles northwest of the Base.

Truax Field became operational in October 1942 as a training site for radio operators and technicians for the Army Air Corps. In 1948, the 176th Tactical Fighter Squadron was established at Truax Field. Between 1948 and 1956, the 176th Tactical Fighter Squadron flew F-51, F-89, and F-86A aircraft. The unit served in active duty during the Korean War from February 1951 until

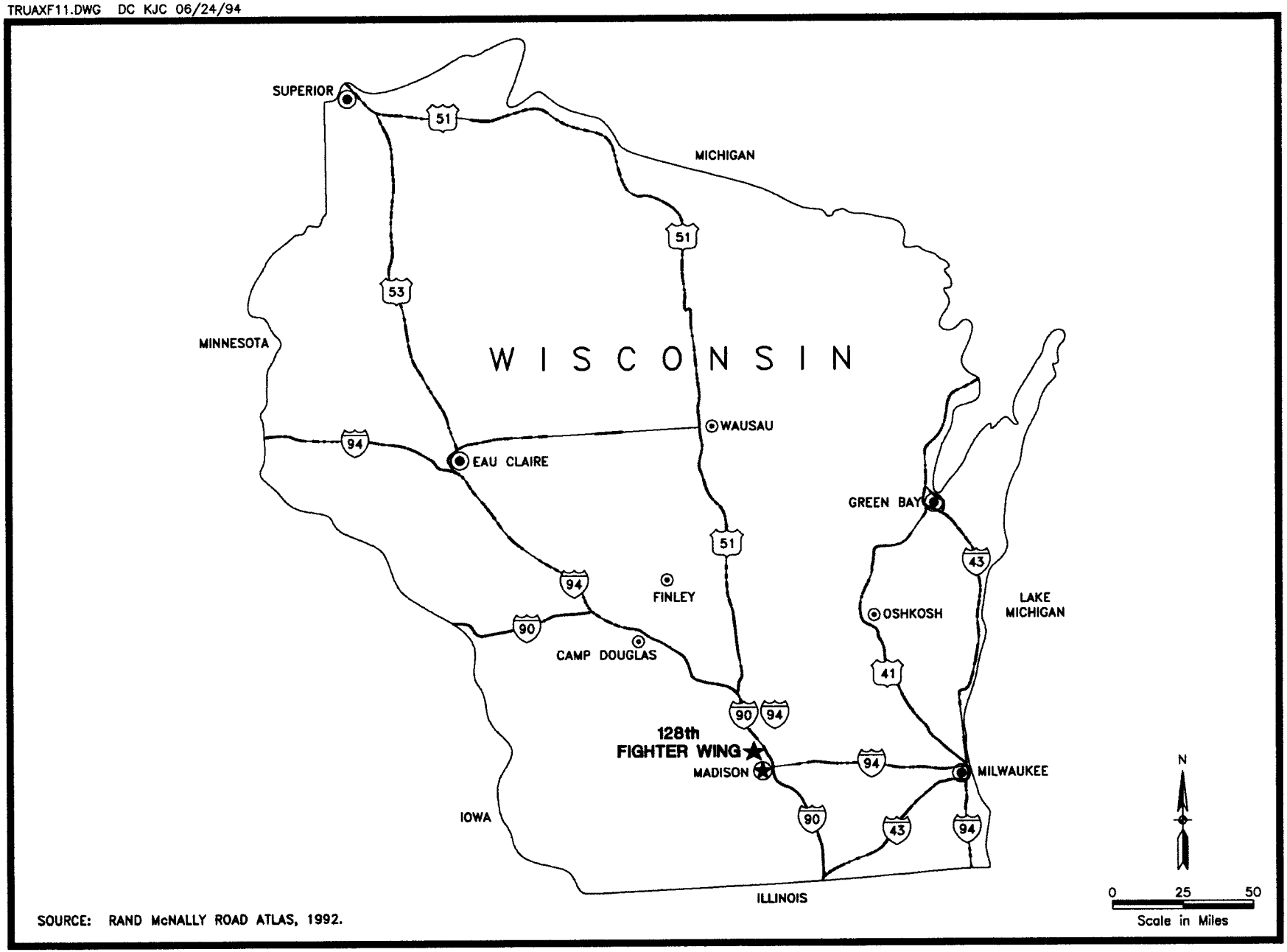

Figure 1-1. Location of the 128th Fighter Wing, Truax Field, Wisconsin ANG, Madison, Wisconsin

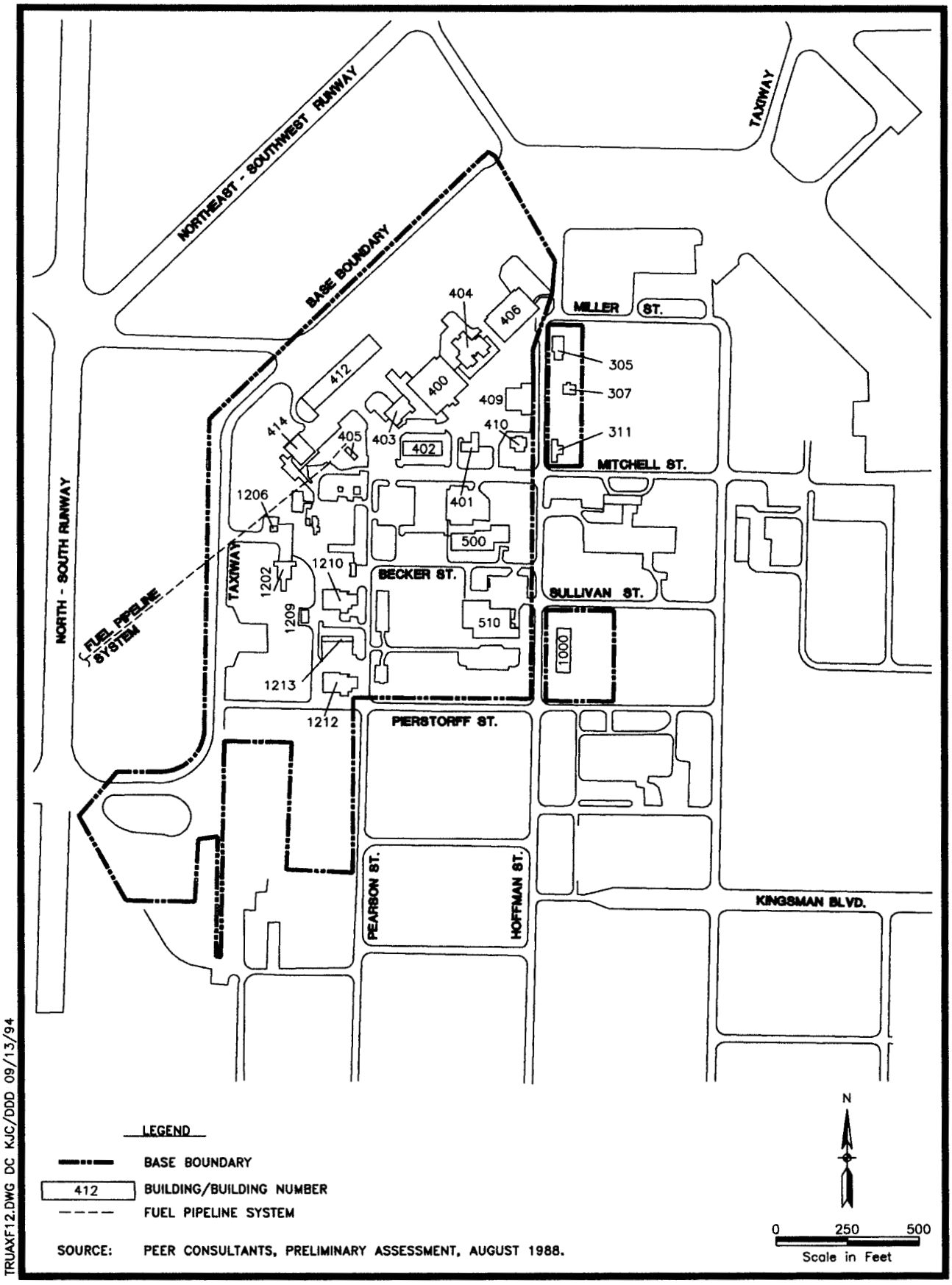

Figure 1-2. Base Map, 128th Fighter Wing, Wisconsin ANG

October 1952. In 1956, the 176th Tactical Fighter Squadron was reorganized as the 128th Air Defense Wing. From 1956 to 1966, the unit flew F-89 aircraft. In 1966, the 128th Air Defense Wing began to fly F-102 aircraft.

In 1974, the 128th Air Defense Wing at Truax Field was reorganized as the 128th Tactical Air Support Wing, and the unit converted to the use of O-2A and A-37 aircraft. In 1981, the unit was reorganized as the 128th Tactical Fighter Wing and was assigned A-10 aircraft. The unit was redesignated the 128th Fighter Wing in 1992. Since 1992, the unit has flown F-16 fighter aircraft. The unit has participated in numerous training exercises throughout the 1980s and 1990s.

In support of its primary mission of organizing, training, and equipping personnel for Close Air Support, the Base has stored and used various types of hazardous materials during its history. Although some of the Base's historical operations have resulted in the storage and use of hazardous materials, not all of these operations relate to IRP sites. A summary of the operations conducted at the Base, and the hazardous substance activities associated with these operations, is provided in Table 1-2. A list of the major tenant organizations at the Base is provided in Table 1-3.

1.5 IRP Milestones

The following major IRP activities have been accomplished at the Base:

- A Preliminary Assessment (PA) was completed in August 1988;
- Decision Documents (DDs) recommending no further response action at Sites 1, 2 and 3 were prepared in November 1988;
- A Site Investigation (SI) was initiated at Sites 4, 5, 6, and 7 in 1989, and a SI Report was completed in September 1990;

Table 1-2

History of Base Operations
128th Fighter Wing, Wisconsin ANG

Period	Type of Operation	Mission/Weapon System	Hazardous Substance Activity
1942-1948	Army Air Corps	Radio operator and technician training	Aircraft, vehicle, and ground equipment maintenance; petroleum, oil, and lubricant (POL) storage; battery, electric, machine, and engine shop activities; photographic laboratory activities
1948-1956	176th Tactical Fighter Squadron	F-51, F-86A, and F-89 fighter aircraft	Aircraft, vehicle, and ground equipment maintenance; POL storage; battery, electric, machine, and engine shop activities; photographic laboratory activities
1956-1966	128th Air Defense Wing	F-89 fighter aircraft	Aircraft, vehicle, and ground equipment maintenance; POL storage; battery, electric, machine, and engine shop activities; photographic laboratory activities
1966-1974	128th Air Defense Wing	F-102 fighter aircraft	Aircraft, vehicle, and ground equipment maintenance; POL storage; battery, electric, machine, and engine shop activities; photographic laboratory activities
1974-1981	128th Tactical Air Support Wing	O-2A, A-37 aircraft	Aircraft, vehicle, and ground equipment maintenance; POL storage; battery, electric, machine, and engine shop activities; photographic laboratory activities
1981-1992	128th Tactical Fighter Wing	A-10 aircraft	Aircraft, vehicle, and ground equipment maintenance; POL storage; battery, electric, machine, and engine shop activities; photographic laboratory activities
1992-Present	128th Fighter Wing	F-16 fighter aircraft	Aircraft, vehicle, and ground equipment maintenance; POL storage; battery, electric, machine, and engine shop activities; photographic laboratory activities

Table 1-3

On-Base Tenant Organizations[a]
128th Fighter Wing, Wisconsin ANG

Organization	Building Number	Comments

[TABLE IS RESERVED FOR FUTURE USE.]

[a]The Base does not have any on-base tenant organizations.

- A Site Assessment (SA) was initiated at Sites 4, 5, 6, and 7 in 1991, and a SA Report was completed in November 1991;

- Four Draft SA/Closure Assessment Reports were prepared for four removed underground storage tanks (USTs) in March 1993;

- A Draft SA Report for the proposed expansion of Hangar 414 was prepared in March 1993; and

- An interim remedial action (IRA) was initiated in 1993 to remove contaminated soil at Site 8.

2.0 LAND USE AND CRITICAL ENVIRONMENTS AT THE BASE AND SURROUNDING AREAS

This section provides a summary of the land use and critical environments at the Base and its surrounding areas. This information provides the basis for the development of a comprehensive environmental compliance strategy for the Base. The selection of appropriate risk-based action levels and remedial activities may depend on present and future land use at the Base and its surrounding areas.

2.1 Land Use

Figures 2-1 and 2-2 show present and future land use at the Base, respectively. The land-use information presented on the figures is derived from the Base's Master Plan (January 1992). Future plans include the acquisition of additional land to the north and west to extend the aircraft apron. Additionally, a portion of land that is currently open space will be developed to support industrial and command and support activities. The four general land-use categories shown on the figures are described below:

(1) **Open Space:**

- Includes undeveloped land and surface waters.

(2) **Airfield and Direct Mission Areas:**

- Restricted Safety/Environmental Zones - Restricted safety zones include zones surrounding special category areas (e.g., zones surrounding explosives storage areas) and runway, taxiway, and apron clearances; environmental zones include designated wildlife/plantlife habitats and other conservation areas.

- Airfield Pavement - Includes runways, taxiways, aprons, paved shoulders, arm/disarm pads, hush houses, and aircraft arresting barriers.

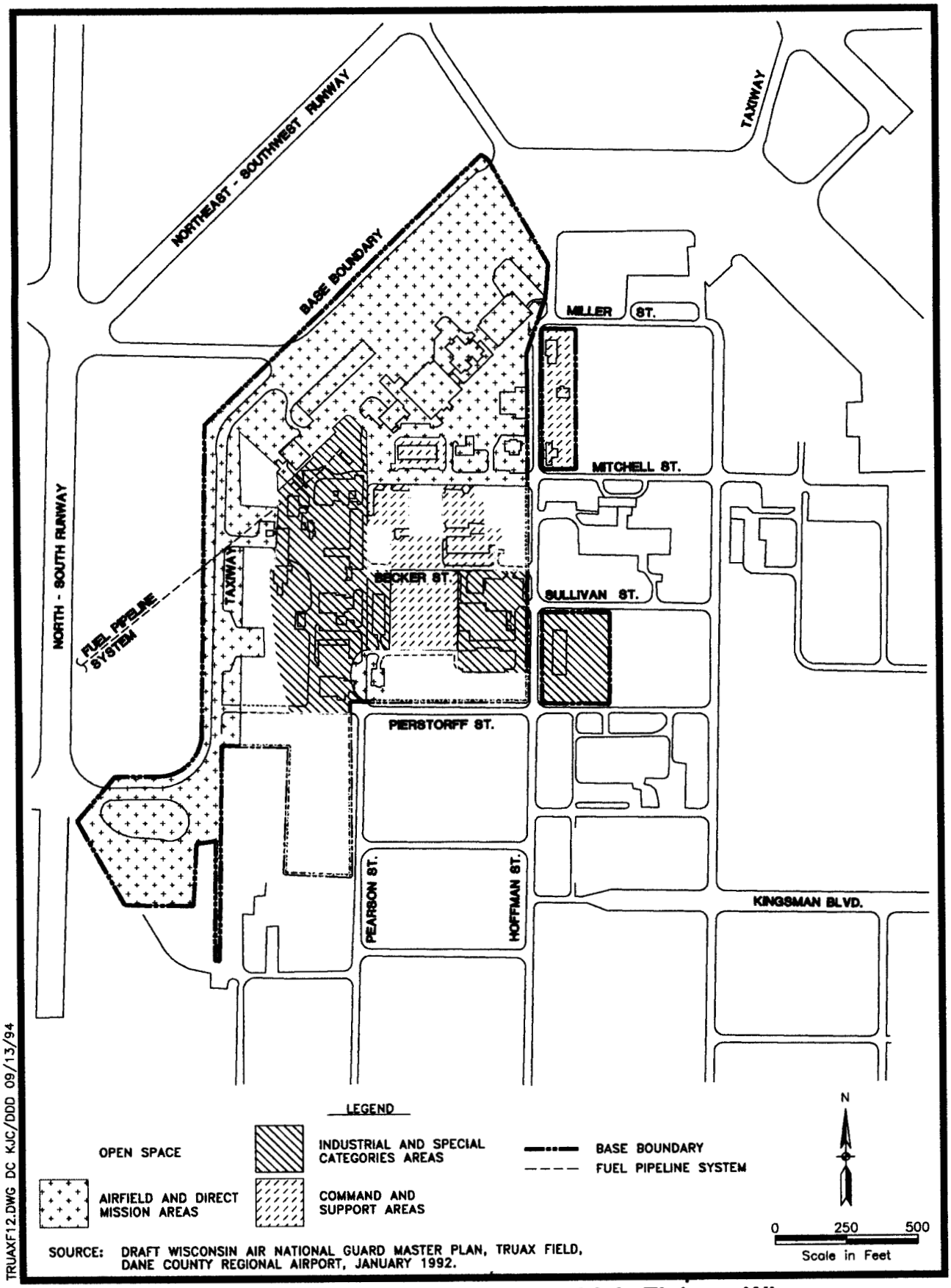

Figure 2-1. Present Land Use, 128th Fighter Wing, Wisconsin ANG

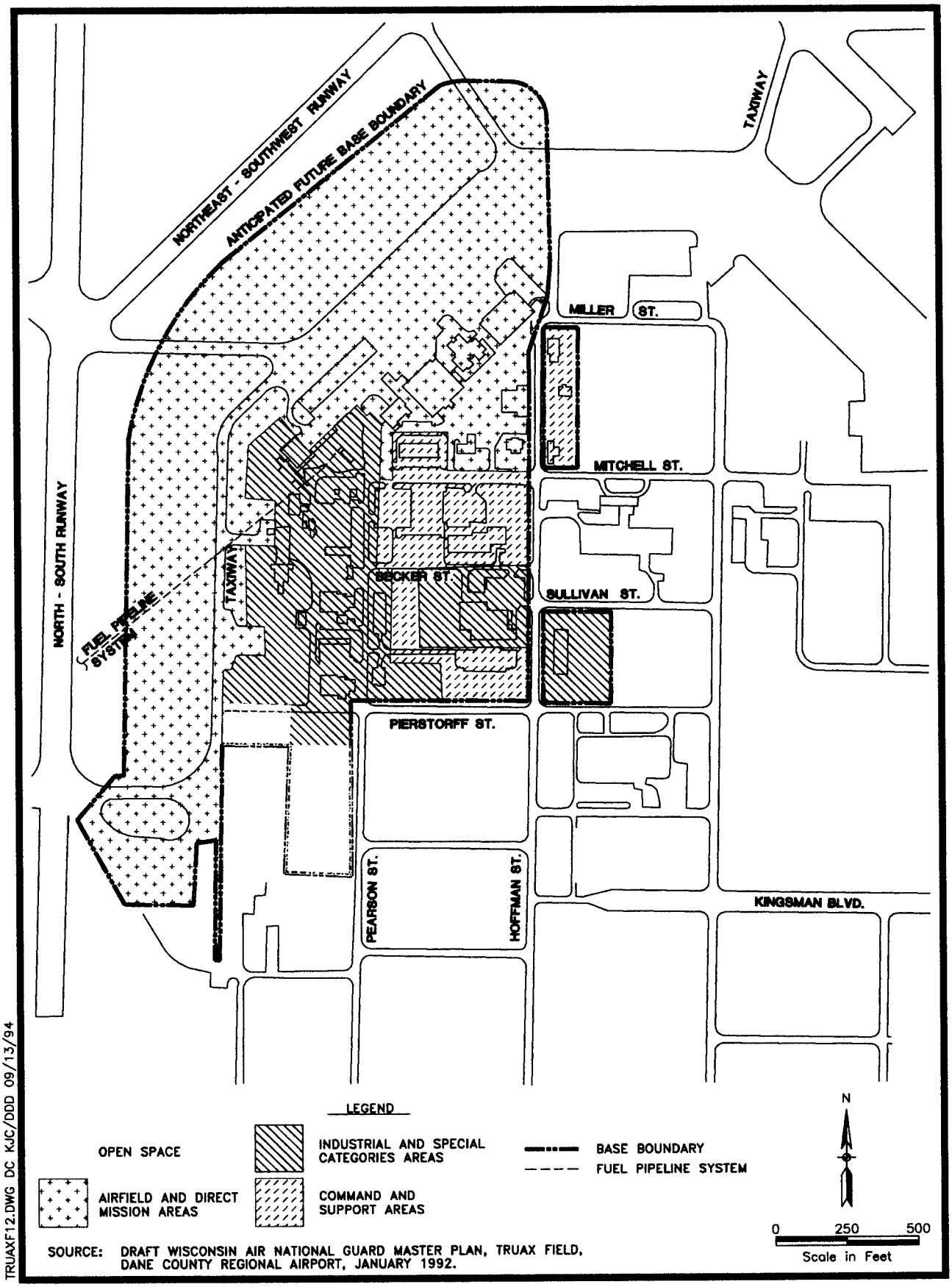

Figure 2-2. Future Land Use, 128th Fighter Wing, Wisconsin ANG

- Aircraft Maintenance - Includes maintenance hangars, shops, and docks; non-destructive inspection shops; fuel cells and fuel system maintenance docks; aircraft engine shops; corrosion control areas; avionics shops; weapons systems maintenance buildings; electronic countermeasures buildings; and aerospace ground equipment shops.

- Aircraft Operations - Includes Base operations buildings; control towers; alert crew readiness areas; squadron operations buildings; flight simulators; survival equipment shops; and fire and crash/rescue stations.

(3) **Industrial and Special Categories Areas:**

- Industrial - Includes petroleum, oil, and lubricant (POL) operations; liquid oxygen storage; jet fuel storage; vehicle maintenance shops and refueling areas; civil engineering operations and maintenance buildings; Base supply and equipment warehouses; heating plants; water storage towers; and pumphouses.

- Special Categories - Includes small arms ranges, fire training areas, munitions maintenance and storage areas, and hazardous waste storage areas.

(4) **Command and Support:**

- Includes areas designated for administrative operations, housing, medical services, community activities, and recreational activities (e.g., Base headquarters, communications centers, training buildings, security police areas, dorms and officers quarters, dining halls, hospitals, clinics, and all other morale, welfare, and recreation facilities).

Figure 2-3 shows the present land use in areas surrounding the Base; the land-use categories shown on this figure include Base property, residential areas, agricultural/pasture land, and commercial/industrial areas.

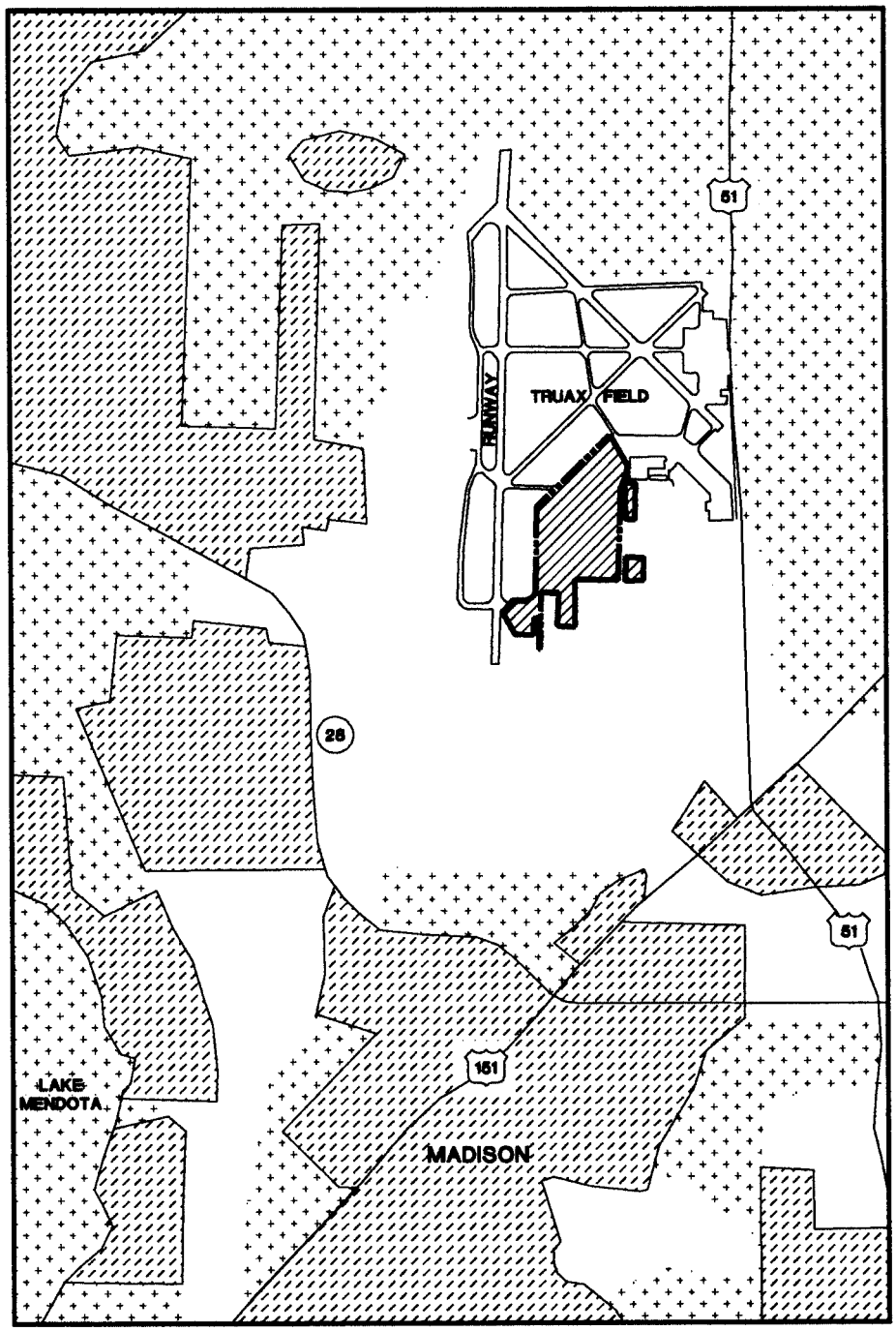

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Figure 2-3. Present Surrounding Off-Base Land Use, 128th Fighter Wing, Wisconsin ANG

2.2 Critical Environments

For the purposes of this MAP, critical environments are defined to include all lands and waters that are specifically recognized or managed (by federal, state, or local government agencies or private organizations) as rare, unique, unusually sensitive, or important natural resources. These areas include permanent and seasonal habitats of federally designated endangered species, nature preserves (including federal and state parks), wilderness areas, wildlife sanctuaries, and wetlands, but do not include parks established solely for historic preservation or recreation.

According to the August 1988 PA Report, no species that are listed as endangered or threatened are present or likely to be present in the vicinity of the Base. Based on information shown on United States Geological Survey 7.5-minute series topographic maps of the Base and its surrounding areas, the Cherokee Marsh State Fishery Area is located approximately 2.5 miles north of the Base. The topographic maps do not indicate the presence of any other publicly-owned nature preserves, wilderness areas, or wildlife sanctuaries within a 3-mile radius of the Base. Information on the topographic maps indicates the presence of a large wetland area 1 to 3 miles north of the Base and a smaller wetland area approximately 1 mile west of the Base.

3.0 BASEWIDE ENVIRONMENTAL PROGRAM STATUS

This section provides a summary of the status of the IRP and environmental compliance program activities at the Base. This section also provides a list of the community relations activities performed to date at the Base and a description of the environmental condition of the Base property.

3.1 IRP Status

The IRP is the basis for response actions at the Base under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), which is administered by the United States Environmental Protection Agency (U.S. EPA). At this time, no Federal Facility Agreements (FFAs) exist for the IRP sites at the Base. The IRP was initiated at the Base in January 1988. A PA was completed in August 1988. A SI was completed in 1990, and a SA was completed in 1991.

3.1.1 IRP Sites

Figure 3-1 shows the locations of the eight IRP sites at the Base. A summary of information for the IRP sites at the Base is presented in Table 3-1, including the Busicode classification assigned by the ANG and the Work Information Management System - Environmental Subsystem (WIMS-ES) Number assigned by the U.S. Air Force. Detailed descriptions of the IRP sites at the Base are presented in Appendix A. DDs recommending no further response action have been prepared for three sites (Sites 1, 2, and 3). A SA has been completed for four sites (Sites 4, 5, 6, and 7); a Remedial Investigation/ Feasibility Study (RI/FS) is planned for these sites. An IRA is ongoing at Site 8.

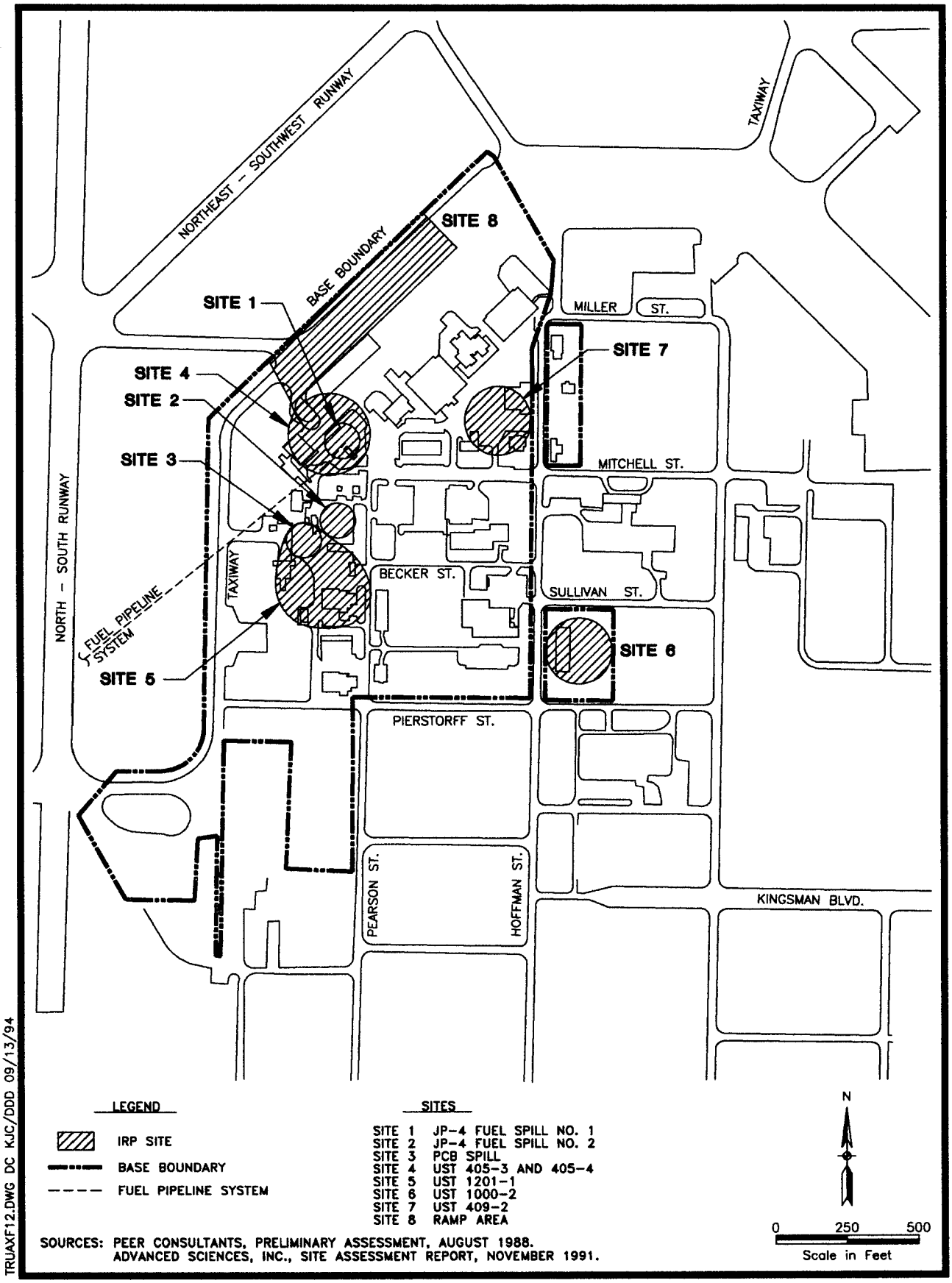

Figure 3-1. IRP Sites, 128th Fighter Wing, Wisconsin ANG

Table 3-1

Summary of IRP Site Information
128th Fighter Wing, Wisconsin ANG

Site Number	Air National Guard Busicode	WIMS-ES Number[a]	Site Name	Disposed Material	Operation Date	Identification Date	Status[b]	Defense Priority Model	
								Score	Date
1	XGFG01FS	SS-01	JP-4 Fuel Spill No. 1	Jet propulsion fuel #4	1952-Present	1988	NFRAP DD completed	Not Scored	Not Applicable
2	XGFG02FS	SS-02	JP-4 Fuel Spill No. 2	Waste jet propulsion fuel #4	Unknown-1991	1988	NFRAP DD completed	Not Scored	Not Applicable
3	XGFG03CS	SS-03	PCB Spill	Polychlorinated biphenyls	Unknown-1983	1988	NFRAP DD completed	Not Scored	Not Applicable
4	XGFG04USTX	ST-04	UST 405-3 and 405-4	Jet propulsion fuel #4, waste oil, waste solvent	1952-Present	1990	SA completed; RI/FS planned	To Be Scored	To Be Inserted
5	XGFG05USTX	ST-05	UST 1201-1	Waste oil, jet propulsion fuel #4	Unknown-1991	1990	SA completed; RI/FS planned	To Be Scored	To Be Inserted
6	XGFG06USTX	ST-06	UST 1000-2	Motor gasoline, diesel, waste oil	Unknown-Present	1990	SA completed; RI/FS planned	To Be Scored	To Be Inserted
7	XGFG07USTX	ST-07	UST 409-2	Waste oil	Unknown-Present	1990	SA completed; RI/FS planned	To Be Scored	To Be Inserted
8	XGFG08SS	SS-08	Ramp Area	Jet fuel, oil	Unknown-Present	1990	IRA ongoing	To Be Scored	To Be Inserted

[a]WIMS-ES Number - Work Information Management System - Environmental Subsystem Number (assigned by the U.S. Air Force).
[b]Status Abbreviations:
NFRAP - No Further Response Action Planned.
DD - Decision Document.
SA - Site Assessment.
RI/FS - Remedial Investigation/Feasibility Study.
IRA - Interim Remedial Action.

128FW.Truax Field
September 1994

Removal actions and/or IRAs will be performed at the Base to reduce or control known contamination. Table 3-2 provides a summary of the removal actions and IRAs completed to date for the IRP sites at the Base. In addition to the actions listed in Table 3-2, contaminated soil was removed immediately after past spills in the areas that were later identified as Sites 1, 2, and 3. Planned removal actions are discussed in Section 4.1.2.

3.1.2 Basewide Source Discovery/Assessment

Three IRP sites (Sites 1, 2, and 3) were identified in a 1988 PA. DDs recommending no further response action were prepared for these three sites in November 1988. Four additional sites (Sites 4, 5, 6, and 7) were identified in a 1990 SI. These four sites were studied in a 1991 SA and will be investigated further in a RI/FS scheduled to begin in FY94. Site 8 was identified in 1990 during maintenance activities. Analytical results for samples collected at Site 8 in 1990 indicated the presence of petroleum contamination at the site. An IRA is ongoing at Site 8.

Table 3-3 presents the historical IRP deliverables for the Base, listed by year. Table 3-4 presents the historical IRP deliverables, listed by IRP activity, for each site at the Base. A summary of historical IRP costs for the Base is presented in Table 3-5; the information in this table is categorized by IRP activity for each fiscal year, from FY85 through FY93.

3.2 Environmental Compliance Program Status

Environmental compliance program activities for ANG bases are typically funded using Real Property Maintenance (RPM) funds. These compliance activities address UST management, oil/water separator (OWS) management, aboveground storage tank (AST) management, hazardous waste management, polychlorinated biphenyl (PCB) management, asbestos abatement, National Pollutant Discharge Elimination System (NPDES) permits, and air emissions permits. The status of the environmental compliance activities at the Base is summarized in Table 3-6.

Table 3-2

Removal Actions and Interim Remedial Actions Completed to Date for IRP Sites 128th Fighter Wing, Wisconsin ANG

Site Number	Action	Objective	Completion Date
5	Removal of UST 1201-1	To remove potential source of contamination	1991
6	Removal of UST 1000-3	To remove potential source of contamination	1991
6	Removal of UST 1000-5	To remove potential source of contamination	1991
7	Removal of UST 401-2	To remove potential source of contamination	1990
8	Low-temperature thermal desorption of a portion of site soil	To eliminate potential risks due to petroleum-contaminated soil	1993

Table 3-3

Historical IRP Deliverables, Listed by Year
128th Fighter Wing, Wisconsin ANG

Year	IRP Activity[a]	Project Title	Report Number[b]	Associated Sites	Deliverable	
					Date	Author[c]
1988	PA	Preliminary Assessment	(1)	1, 2, 3	August 1988	PEER Consultants
1988	DD	Decision Document	(2)	1	November 1988	PEER Consultants and HAZWRAP
1988	DD	Decision Document	(3)	2	November 1988	PEER Consultants and HAZWRAP
1988	DD	Decision Document	(4)	3	November 1988	PEER Consultants and HAZWRAP
1990	SI	Site Investigation	(5)	4, 5, 6, 7	September 1990	Kapur & Associates, Inc.
1991	SI	Site Assessment Work Plan	(6)	4, 5, 6, 7	March 1991	Advanced Sciences, Inc.
1991	SI	Site Assessment Report	(7)	4, 5, 6, 7	November 1991	Advanced Sciences, Inc.
1993	IRA	Draft Site Assessment/ Closure Assessment Report, Underground Storage Tank 1201-1	(8)	5	March 1993	Advanced Sciences, Inc.

[a]IRP Activity Abbreviations:
PA - Preliminary Assessment.
DD - Decision Document.
SI - Site Investigation.
IRA - Interim Remedial Action.
[b]Report numbers are cross-referenced in Table 3-4.
[c]HAZWRAP - Hazardous Waste Remedial Actions Program, managed by Martin Marietta Energy Systems, Inc.

Table 3-3

(Continued)

Year	IRP Activity[a]	Project Title	Report Number[b]	Associated Sites	Deliverable	
					Date	Author
1993	IRA	Draft Site Assessment/ Closure Assessment Report, Underground Storage Tank 1000-3	(9)	6	March 1993	Advanced Sciences, Inc.
1993	IRA	Draft Site Assessment/ Closure Assessment Report, Underground Storage Tank 1000-5	(10)	6	March 1993	Advanced Sciences, Inc.
1993	IRA	Draft Site Assessment/ Closure Assessment Report, Underground Storage Tank 401-2	(11)	7	March 1993	Advanced Sciences, Inc.
1993	SI	Draft Site Assessment Report, Hangar 414 Proposed Expansion Area	(12)	4	March 1993	Advanced Sciences, Inc.

[a]IRP Activity Abbreviations:
PA - Preliminary Assessment.
DD - Decision Document.
SI - Site Investigation.
IRA - Interim Remedial Action.
[b]Report numbers are cross-referenced in Table 3-4.
[c]HAZWRAP - Hazardous Waste Remedial Actions Program, managed by Martin Marietta Energy Systems, Inc.

Table 3-4

Historical IRP Deliverables, Listed by IRP Activity and Site Number[a]
128th Fighter Wing, Wisconsin ANG

Site Number	PA	SI	IRA	RI/FS	RD	RA	DD
1	(1)						(2)
2	(1)						(3)
3	(1)						(4)
4		(5), (6), (7), (12)					
5		(5), (6), (7)	(8)				
6		(5), (6), (7)	(9), (10)				
7		(5), (6), (7)	(11)				
8							

[a]Numbers in parentheses refer to report numbers provided in Table 3-3.

IRP Activity Abbreviations:

PA - Preliminary Assessment.
SI - Site Investigation.
IRA - Interim Remedial Action.
RI/FS - Remedial Investigation/Feasibility Study.
RD - Remedial Design.
RA - Remedial Action.
DD - Decision Document.

Table 3-5

Historical IRP Costs, Listed by IRP Activity[a]
128th Fighter Wing, Wisconsin ANG

Year	PA	RI/FS	RD/RA	Total
		Cost in Thousands of Dollars		
FY85				$0
FY86				$50.00
FY87	$50.00			$0
FY88				$0
FY89				$0
FY90				$0
FY91		$440.00		$440.00
FY92		$200.00		$200.00
FY92S[b]				$0
FY93	$150.00	$63.00	$204.30	$417.30
Total	$200.00	$703.00	$204.30	$1,107.30

[a]Historical costs were provided by the ANGRC.
IRP Activity Abbreviations:
PA - Preliminary Assessment.
RI/FS - Remedial Investigation/Feasibility Study.
RD/RA - Remedial Design/Remedial Action.
[b]FY92 supplemental funds.

Table 3-6

Status of Environmental Compliance Activities
128th Fighter Wing, Wisconsin ANG

Activity	Status	Regulatory Program
Underground Storage Tank (UST) Management	9 USTs are currently in use, 18 USTs have been removed, and 2 USTs have been abandoned.	Wisconsin and Federal UST Programs
Oil/Water Separator (OWS) Management	10 OWSs are currently in use.	Wisconsin Resource Conservation and Recovery Act (RCRA) Program and Federal Requirements
Aboveground Storage Tank (AST) Management	Two ASTs are currently in use.	Wisconsin RCRA Program and Federal Requirements
Hazardous Waste Management	Hazardous wastes are stored at 4 satellite accumulation points and at one 180-day hazardous waste storage area.	Wisconsin and Federal RCRA Programs
Polychlorinated Biphenyl (PCB) Management	All PCB transformers have been removed from the Base.	Toxic Substances Control Act (TSCA), U.S. Environmental Protection Agency PCB policies
Asbestos Abatement	Buildings 403 and 1212 contain asbestos pipe insulation; Building 411 has asbestos-containing exterior siding.	TSCA
Air Emissions Permits	The Base has one air permit for the hush house.	Wisconsin Permit Program, Clean Air Act (CAA)

3.2.1 Underground Storage Tank, Oil/Water Separator, and Aboveground Storage Tank Environmental Compliance Activities

The status of the USTs, OWSs, and ASTs at the Base is presented in Table 3-7. The information in this table is based on an UST and OWS inventory list provided by the ANGRC and on information provided by the Base. The following guidelines are used to maintain program compliance:

- UST management in accordance with Wisconsin and federal UST programs;
- OWS management in accordance with the Wisconsin RCRA program and federal requirements; and
- AST management in accordance with the Wisconsin RCRA program and federal requirements.

3.2.2 Other Specific Environmental Compliance Activities

In addition to UST, OWS, and AST environmental compliance activities, other specific environmental compliance activities are being conducted at the Base. These other activities encompass the following areas:

- Hazardous waste management in accordance with Wisconsin and federal RCRA programs;
- Asbestos abatement in accordance with the Toxic Substances Control Act (TSCA); and
- Air emissions monitoring in accordance with the Wisconsin permit program and the Clean Air Act (CAA).

Table 3-7

Status of Underground Storage Tanks, Oil/Water Separators, and Aboveground Storage Tanks[a]
128th Fighter Wing, Wisconsin ANG

Identification Number	Capacity (gallons)	Product	Year Installed	Status	Empty
Underground Storage Tanks					
400-1	15,000	Fuel Oil	1951	Removed	Yes
400-2	500	Fuel Oil	1951	Removed	Yes
401-2	250	Fuel Oil	Unknown	Removed	Yes
403-1	4,000	Fuel Oil	1951	Removed	Yes
403-2	250	Used Oil	1979	Currently In Use	No
405-1	50,000	Jet Propulsion Fuel #4	1953	Currently In Use	No
405-2	50,000	Jet Propulsion Fuel #4	1953	Currently In Use	No
405-3	50,000	Jet Propulsion Fuel #4	1953	Currently In Use	No
405-4	50,000	Jet Propulsion Fuel #4	1953	Currently In Use	No
406-1	8,000	Fuel Oil	1954	Removed	Yes
409-1	2,000	Fuel Oil	1981	Removed	Yes
409-2	275	Used Oil	1982	Removed	Yes
410-1	250	Waste Oil	1982	Removed	Yes
414-1	2,000	Fuel Oil	1983	Abandoned	No
414-2	550	Other	1983	Currently In Use	No
414-3	550	Other	1983	Currently In Use	No
414-4	550	Used Oil	1983	Currently In Use	No
415-1	300	Waste Oil	1982	Removed	Yes
1000-1	12,000	Gasoline	1976	Removed	Yes
1000-2	6,000	Diesel	1976	Removed	Yes
1000-3	275	Used Oil	1976	Removed	Yes
1000-4	2,000	Fuel Oil	Unknown	Removed	Yes

[a]Information is based on an underground storage tank and oil/water separator inventory list provided by the ANGRC and on information supplied by Base personnel.

128FW.Truax Field
September 1994

Table 3-7

(Continued)

Identification Number	Capacity (gallons)	Product	Year Installed	Status	Empty
Underground Storage Tanks (Continued)					
1000-5	250	Waste Oil	Unknown	Removed	Yes
1201-1	3,000	Used Oil	Unknown	Removed	Yes
1209-1	300	Gasoline	1986	Removed	Yes
1210-1	1,500	Fuel Oil	1956	Abandoned	Yes
1212-1	1,500	Fuel Oil	1957	Removed	Yes
HYDRANT	10,000	Jet Propulsion Fuel #4	1954	Removed	Yes
1301-1	120 Linear Feet of Piping	Jet Fuel	1980	Currently In Use	No
Oil/Water Separators					
401-1	550	Used Oil	1983	Currently In Use	No
1000-6	550	Waste Oil	1992	Currently In Use	No
Hush House	2,000	Waste Oil	1992	Currently In Use	No
Unknown	2,000	Oil/Water	1992	Currently In Use	No
Unknown	Unknown	Oil/Water	Unknown	Currently In Use	Unknown
Unknown	Unknown	Oil/Water	Unknown	Currently In Use	Unknown
Unknown	Unknown	Oil/Water	Unknown	Currently In Use	Unknown
Unknown	Unknown	Oil/Water	Unknown	Currently In Use	Unknown
Unknown	Unknown	Oil/Water	Unknown	Currently In Use	Unknown
Unknown	Unknown	Oil/Water	Unknown	Currently In Use	Unknown
Aboveground Storage Tanks					
1000-7	6,000	Diesel Fuel	1992	Currently In Use	No
1000-8	6,000	Gasoline	1992	Currently In Use	No

[a]Information is based on an underground storage tank and oil/water separator inventory list provided by the ANGRC and on information supplied by Base personnel.

3.3 Community Relations Status

Community relations activities that have been performed to date at the Base include:

- **Administrative Record**--An Administrative Record, which contains information that was used to support IRP decision-making, has been established at the Base.

- **Information Repositories**--The Base Environmental Coordinator has established public information repositories at the Base and at the Central Branch of the Madison Public Library in Madison, Wisconsin. These information repositories are provided final versions of IRP documents.

- **Mailing List**--A mailing list of all interested parties in the community has been established by the Base and is updated regularly.

- **Newspaper Articles**--Articles regarding IRP activities at the Base have been published in the local newspaper.

Future community relations activities to be conducted at the Base are discussed in Section 4.1.3.

3.4 Environmental Condition of IRP Sites

IRP sites at ANG bases have been divided into three categories, based on current knowledge of the environmental conditions at each Base:

- **Sites With Contamination Above Action Levels**--IRP sites for which further action is required, as determined by the ANGRC. Further IRP activities will be conducted at these sites.

- **Sites With Contamination Below Action Levels**--IRP sites for which no further action is required, as determined by the ANGRC. Further IRP activities will not be conducted at these sites.

- **Unevaluated Areas**--Areas for which insufficient information is available to evaluate whether further action is required, as determined by the ANGRC. The presence of contamination has not been substantiated at these areas.

Figure 3-2 presents the environmental condition of the IRP sites at the Base, designated by the categories described above. This figure was developed using the results of the IRP reports, as well as guidance provided by the ANGRC. Approximate site boundaries are shown for sites that are in the early stages of the IRP process.

3.4.1 Sites With Contamination Above Action Levels

Sites 4, 5, 6, 7, and 8 are designated on Figure 3-2 as sites with contamination above action levels. This designation is based on information contained in the 1991 SA Report. Sites 4, 5, 6, and 7 will be investigated further during a RI/FS. An IRA is ongoing at Site 8.

3.4.2 Sites With Contamination Below Action Levels

Sites 1, 2, and 3 are designated on Figure 3-2 as sites with contamination below action levels. This designation is based on information contained in the 1988 PA Report and the 1988 DDs recommending no further response action at these sites. The PA Report recommended no further response action at these sites, and DDs recommending no further response action at these sites were prepared in November 1988.

3.4.3 Unevaluated Sites

No sites are designated on Figure 3-2 as unevaluated areas.

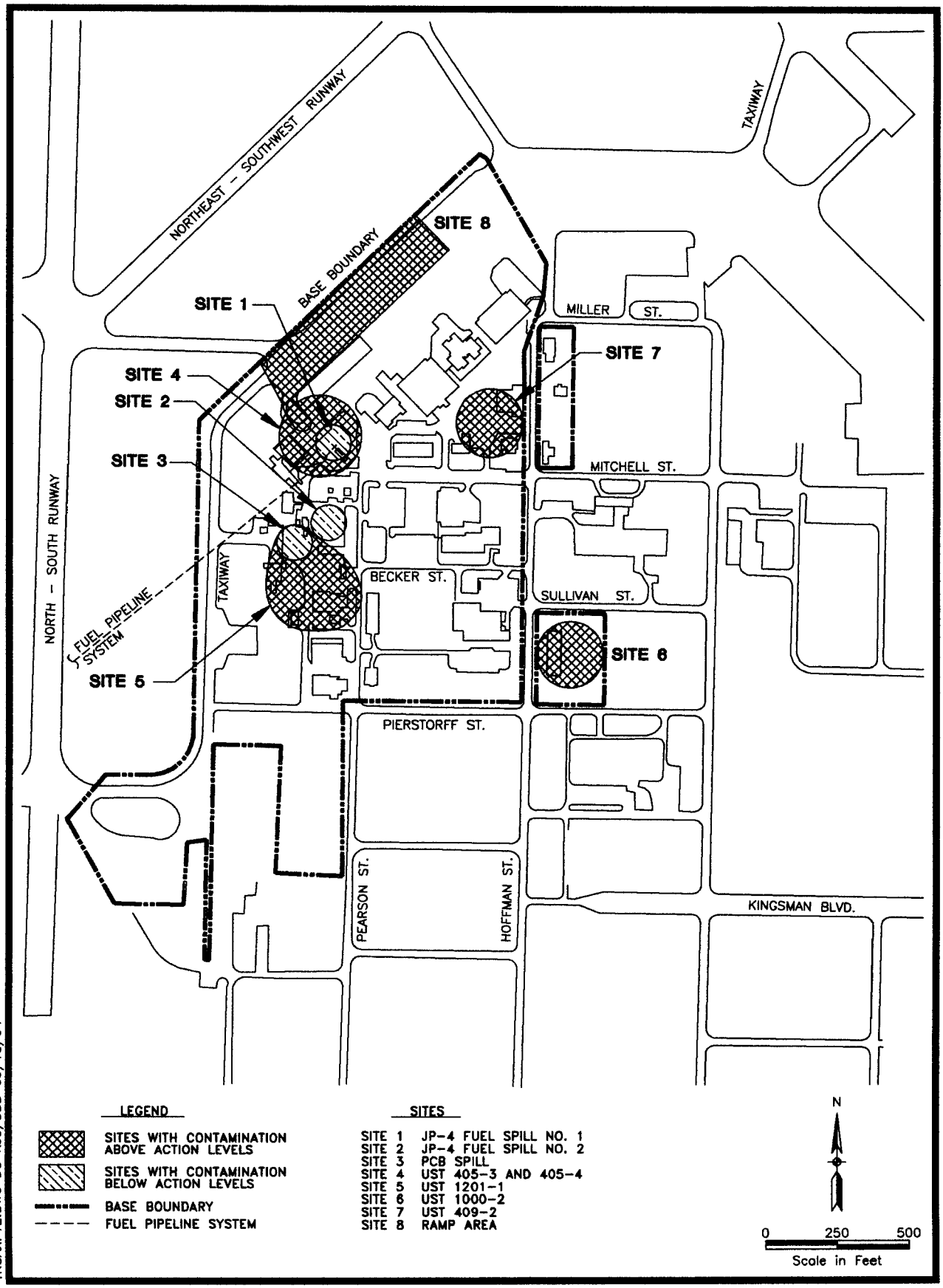

Figure 3-2. Environmental Condition Map, 128th Fighter Wing, Wisconsin ANG

4.0 BASEWIDE STRATEGY FOR ENVIRONMENTAL RESTORATION

This section provides a summary of the Base's overall strategy for conducting environmental restoration activities under the IRP and the environmental compliance program.

4.1 IRP Strategy

The ANGRC will combine IRP sites, or portions of these sites, in conducting IRP activities at the Base, when appropriate. The decision to combine IRP sites will be based on the following criteria:

- Similar types of sites (e.g., sites where fuel spills have occurred);
- Adjacent sites;
- Sites with similar contamination in similar media (e.g., sites where groundwater is contaminated with fuel from leaking USTs);
- Sites that will be remediated using the same RA (e.g., where one treatment plant will be used to remediate multiple sites);
- Sites in the same IRP phase (e.g., sites being investigated under a basewide SI); and
- Sites where activities could be efficiently performed under a single contract with one contractor.

In addition to combining IRP sites or portions of these sites, the ANGRC may designate operable units (OUs) at the Base to further expedite IRP activities. For example, groundwater at one or more IRP sites may be designated as a separate OU to facilitate the approval of a NFRAP decision for soil at these sites. To date, the ANGRC has not combined any IRP sites or designated any OUs at the Base.

4.1.1 IRP Activity Sequence

The Project Team has developed an overall investigation and remediation strategy for the Base. This strategy includes a logical sequence of IRP activities to address past contaminant releases associated with IRP sites at the Base. The sequence of IRP activities at the Base is typically as follows:

- Performance of Preliminary Assessment/Site Investigation (PA/SI);
- Completion of time-critical removal actions and non-time-critical removal actions;
- Performance of Remedial Investigation/Feasibility Study (RI/FS);
- Preparation of Decision Document (DD); and
- Completion of Remedial Design/Remedial Action (RD/RA).

4.1.2 Planned Removal Actions

A summary of the removal actions and IRAs that are planned as part of the Base's IRP strategy is provided in Table 4-1. Removal actions and IRAs conducted previously at the Base under the IRP are discussed in Section 3.1.1.

4.1.3 Community Relations

The Project Team has developed a proactive community relations strategy for the Base. The following community relations action items will be discussed at future Project Team meetings to ensure that a comprehensive community relations strategy is implemented at the Base:

- **Community Relations Plan (CRP)**--A CRP for the Base will be prepared in FY95, if appropriate.

Table 4-1

Removal Actions and Interim Remedial Actions Planned for IRP Sites 128th Fighter Wing, Wisconsin ANG

Site Number	Action	Objective	Completion Date
8	On-site treatment of soil at ramp area	To eliminate potential risks due to petroleum-contaminated soil	Fall 1994

- **Administrative Record**--The Administrative Record, which is located at the Base, will be updated regularly.

- **Information Repositories**--The information repositories for the Base will be updated with final versions of the IRP documents.

- **Mailing List**--The mailing list for the Base will be updated for use in distributing documents and fact sheets.

- **Fact Sheets**--Fact sheets on the progress of IRP activities at the Base will be published and distributed, as appropriate.

- **Open Houses**--Informational Open House meetings regarding environmental activities at the Base will be scheduled, as appropriate.

- **Newspaper Articles**--Articles regarding IRP activities at the Base will continue to be published in the local newspaper, as appropriate.

4.1.4 General Remedy Selection Approach

Potential RAs at the Base will be evaluated in accordance with statutory, ANGRC, and National Oil and Hazardous Substances Contingency Plan (NCP) criteria. The Air Force Center for Environmental Excellence (AFCEE) Remediation Technology Matrix, which is presented in Table 4-2, will be used to identify preferred RAs. The Project Team will solicit input from all relevant parties in the remedy selection process. Particular attention will be given to the following topics during the evaluation of potential RAs:

- **Applicable or Relevant and Appropriate Requirements (ARARs)**--ARARs for interim or future RAs at the Base will be identified in Project Team meetings.

- **ARAR Waivers**--The effectiveness of RAs in achieving chemical-specific ARARs will be evaluated. Waivers will be considered when it may be technically impractical to achieve chemical-specific ARARs.

Table 4-2

AFCEE Remediation Technology Matrix - Hierarchy of Preferred Alternatives
128th Fighter Wing, Wisconsin ANG

Remediation Technology	POL-Vadose Zone (i.e., jet fuel, diesel)	POL-Excavated Soil	Floating Product-Deep (>20 ft)	Floating Product-Shallow (<20 ft), Low Permeability	Floating Product-Shallow (<20 ft), High Permeability	Dissolved Fuel in Ground-water (BTEX)	Chlorinated Solvents in Vadose Zone (e.g., TCE)	Dissolved Chlorinated Solvents in Ground-water	Heavy Metals in Vadose Zone	Heavy Metals in Excavated Soil	POL in Vapor	Chlorinated Solvent in Vapor
Natural Attenuation/Assimilation	1	1	1	1	1	1	1	1	1	1		
Bioventing	2	4					3					
Soil Vapor Extraction	3	5					2					
Heat-Enhanced Vapor Extraction	4						4					
Low Permeability Cover/Cap	5						6		3			
Excavation and/or Hauling	6	8					7		4	4		
Composting (No Tilling)		2										
Land Farming		3								2		
Low-Temperature Thermal Desorption		6										
Incineration (High-Temperature)		7										
Apparent vs. Actual Studies			2	2	2							
Passive Extraction Wells			4	5	4							
Hand Bailing			3	3	3							
Vacuum-Assisted Pumping				4	5							
Dual Pump System			5									
Air Sparging						2		2				
Passive Treatment Wall						3		3				
Conventional Pump and Treat						4		4				
Slurry Wall						5		5				
Stabilization							5		2	3		
Permitted Direct Emissions											1	1
Flaring											2	
Biological Filtration											3	2
Catalytic Incineration											4	3
On-Site Regenerated Polymer											5	4
Carbon Adsorption											6	5

- **Land Use/Risk Assessment**--Where future land uses at the Base are known, risk assessments will include actual anticipated future land-use scenarios.

- **Alternate Concentration Limits (ACLs)**--ACLs will be considered during FSs as alternative protection standards for contaminated media.

- **Treatability Studies**--Effective treatability studies will be incorporated into DDs as required to support performance-based RAs.

Project Team meetings will be conducted early in the FS process to discuss potential RAs with regulatory agencies and to determine the appropriate scope for each site-specific FS.

4.1.5 Remedy Selection Approach for Petroleum-Contaminated Soil

The Base currently has one IRP site (Site 8) with petroleum-contaminated soil. The Project Team has established RA alternatives and cleanup goals based on the following parameters:

- Acceptance by the Wisconsin Department of Natural Resources (Wisconsin DNR);

- Proposed reuse of land; and

- Value analysis.

Various technologies were reviewed to allow consideration of the above parameters and to determine which technologies are technically correct and cost-effective. Based on the results of this review, the Project Team selected soil vapor extraction (SVE) as the primary alternative to address the site with petroleum-contaminated soil.

SVE is an in-situ RA in which air is removed from the subsurface, thereby stripping volatile compounds (including petroleum hydrocarbons) from the soil and bringing them to the surface. These compounds can then be discharged

directly to the air, if allowed, or they can be captured in an air pollution control device (e.g., a carbon adsorption canister). The Project Team plans to use this technology to remediate the petroleum-contaminated soil at Site 8. The geology of the Base consists of a surficial layer of silty clay that extends to a depth of approximately 5 feet below ground surface (BGS). The surficial layer is underlain by a fine- to medium-grained stratified sand layer that extends to an unknown depth. Groundwater in the vicinity of Site 8 occurs at a depth of approximately 4 to 7 BGS. Analysis of soil samples collected at the site documented petroleum contamination.

Section 3.0 of Appendix A provides the current projected parameters, cost, and schedule for implementing the SVE technology at Site 8. Although this alternative is currently presumed to be the best approach for remediating the site, the Project Team will also consider other alternatives proposed by RA contractors.

The Project Team will review the remedial approach based on the proposed land reuse and the disposal priorities to determine the most effective and appropriate remedial alternatives. The strategy for remedy selection may include the following elements:

- Identification and refinement of ARARs by the Project Team early in the IRP process;
- Identification of specific ARAR waivers, risk-based decisions, and ACLs, if applicable;
- Completion of treatability studies, where appropriate;
- Performance of land use/risk assessment for proposed reuse;
- Determination of environmental constraints for disposal; and
- Consideration of reuse priorities and scheduling goals.

4.2 Environmental Compliance Program Strategy

The Project Team has developed a strategy for conducting environmental compliance program activities, as discussed in Sections 4.2.1 and 4.2.2.

4.2.1 Underground Storage Tank, Oil/Water Separator, and Aboveground Storage Tank Environmental Compliance Activities

The ANGRC has established a program at the Base for maintaining, removing, and replacing USTs, OWSs, and ASTs, as well as for remediating associated media. Since October 1, 1992, the Defense Logistics Agency (DLA) has assumed the responsibility for maintaining and upgrading bulk POL facility tank systems and has funded compliance and recent spill cleanups associated with bulk POL tank activities. Activities associated with the testing and repair of active tanks or the replacement of USTs that are not eligible for DLA funding are typically performed using Real Property Maintenance (RPM) funds. Another funding mechanism that may be appropriate for tank-related compliance activities is the military construction (MILCON) program.

The following tank-related environmental compliance activities are anticipated at the Base:

- Upgrading four USTs in FY94 and four USTs in FY99;
- Removing one UST in FY95;
- Upgrading one OWS in FY94 and one OWS in FY95;
- Installing two new OWSs in FY95; and
- Installing two new ASTs in FY95.

4.2.2 Other Specific Environmental Compliance Activities

The following environmental compliance activities are anticipated at the Base:

- Hazardous waste will be managed in accordance with Wisconsin and federal RCRA programs;
- Asbestos will be removed from Buildings 403 and 411 in FY94 and from Building 1212 in FY95;
- Air emissions will be monitored in accordance with the Wisconsin permit program and the CAA;
- Anti-freeze will be recycled to reduce the amount of hazardous waste generated; and
- Solvent tanks will be replaced with high-pressure parts washers.

5.0 INSTALLATION RESTORATION PROGRAM AND ENVIRONMENTAL COMPLIANCE ACTIVITY SCHEDULES

This section presents schedules for the IRP and environmental compliance activities planned at the Base.

5.1 IRP Activity Schedule

The Base's ability to meet its IRP schedule will depend on accomplishment of the following tasks:

- Coordinating with regulatory agencies to achieve concurrence on appropriate cleanup levels;
- Obtaining adequate IRP funding in a timely manner; and
- Streamlining the contracting process to facilitate project startups.

Figure 5-1 shows the duration of anticipated IRP activities for each site at the Base, from the beginning of FY94 (October 1, 1993) through the end of FY2000 (September 30, 2000). Each timeline represents all phases of investigation, remediation, and other IRP activities anticipated for each site that requires further action at the Base. Detailed schedules for individual activities at these sites are presented in Appendix A.

5.2 Environmental Compliance Activity Schedule

Figure 5-2 presents the projected schedule of environmental compliance activities for the Base, from the beginning of FY94 (October 1, 1993) through the end of FY99 (September 30, 1999). This schedule is based on information obtained from the ANGRC.

128th Fighter Wing, Wisconsin ANG

ID	Name	Duration	Cost	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	*128th Fighter Wing, Wisconsin ANG*	339w	$2,295,000.00																												
2																															
3	Site 4 - UST 405-3 and 405-4	326w	$694,000.00																												
4																															
5	Site 5 - UST 1201-1	326w	$437,000.00																												
6																															
7	Site 6 - UST 1000-2	326w	$400,000.00																												
8																															
9	Site 7 - UST 409-2	326w	$378,000.00																												
10																															
11	Site 8 - Ramp Area	165w	$386,000.00																												

Figure 5-1. Summary of Scheduled IRP Activities, 128th Fighter Wing, Wisconsin ANG

128th Fighter Wing, Wisconsin ANG

Name	Duration (yrs)	Start Date	Finish Date	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
128th Fighter Wing, Wisconsin ANG	6	10/1/93	9/30/99						
RCRA Program	2	10/1/93	9/30/95						
Oil/Water Separator Management	2	10/1/93	9/30/95						
Hazardous Waste Storage Facility	1	10/1/94	9/29/95						
Aboveground Storage Tank Management	1	10/1/94	9/29/95						
UST Program	6	10/1/93	9/30/99						
Upgrading USTs	1	10/1/93	9/30/94						
Remove UST	1	10/1/94	9/29/95						
Upgrading USTs	1	10/1/98	9/30/99						
TSCA Program	2	10/1/93	9/30/95						
Asbestos Removal	2	10/1/93	9/30/95						
Other/Multiple Programs	4	10/1/94	9/30/98						
ECAMP Audit	1	10/1/94	9/29/95						
ECAMP Audit	1	10/1/97	9/30/98						

Figure 5-2. Schedule of Compliance Activities, 128th Fighter Wing, Wisconsin ANG

5.3 Project Team Meeting Schedule

Table 5-1 provides a projected meeting schedule for the Project Team. Project Team meetings are generally held on an as-needed basis (e.g., to correspond with the startup of scheduled IRP activities). The topics listed in Section 1.3 are potential subjects for discussion at these meetings.

Table 5-1

Projected Schedule of Project Team Meetings
128th Fighter Wing, Wisconsin ANG

Date	Location	Topic
4th Quarter FY94	Base	Sites 4, 5, 6, and 7 Remedial Investigation Kickoff
4th Quarter FY94	To be Determined	Sites 4, 5, 6, and 7 Remedial Investigation Draft Final Work Plan Regulatory Review
2nd Quarter FY95	To be Determined	Sites 4, 5, 6, and 7 Remedial Investigation Draft Final Report Regulatory Review
3rd Quarter FY95	Base	Sites 4, 5, 6, and 7 Feasibility Study Kickoff
3rd Quarter FY96	To be Determined	Sites 4, 5, 6, and 7 Remedial Design Scoping
1st Quarter FY97	To be Determined	Sites 4, 5, 6, and 7 Remedial Action Startup
4th Quarter FY97	To be Determined	Sites 4, 5, 6, and 7 Long-Term Monitoring Scoping
1st Quarter FY97	To be Determined	Site 8 Project Closeout
3rd Quarter FY2000	To be Determined	Sites 4, 5, 6, and 7 Project Closeout

6.0 ACTION ITEMS AND TECHNICAL ISSUES

The following action items and technical issues are critical in managing IRP sites and maintaining compliance with federal and state environmental regulations:

- Project Management;
- Information Management;
- Data Management;
- Background Levels;
- Risk Assessment;
- Community Relations;
- Cleanup Standards;
- Initiatives for Accelerating the IRP Process; and
- Off-Base Property Response Actions.

This section describes the specific action items and technical issues that will be resolved by the Project Team to ensure the successful completion of IRP activities at the Base.

6.1 Project Management

The ANGRC PM updates and maintains management and funding documents related to all IRP site activities conducted at the Base. The IRP budgets are updated continually to reflect planned investigation and remediation activities at the Base. Action items related to project management are as follows:

- **MAP**--The ANGRC PM will coordinate the review and update of the MAP annually.

- **Year 2000 Plan**--The ANGRC PM will review and update the Year 2000 Plan semiannually. Consistency will be maintained between the MAP and the Year 2000 Plan to ensure progress toward cleanup goals.

- **Funding Requirements**--In addition to the Year 2000 Plan, the ANGRC PM will update and maintain budget

narratives, 1391 forms, and other funding documents annually.

6.2 Information Management

The ANGRC PM maintains a central file that contains hard copies of pertinent information on the Base's IRP sites. This file is located at the ANGRC, Andrews Air Force Base, Maryland. IRP documentation is also stored at the Base and at the Hazardous Waste Remedial Actions Program (HAZWRAP) Service Center.

The primary action item related to information management is the maintenance of the Administrative Record. The Base will establish and maintain an Administrative Record for each IRP site that undergoes a RI. The Administrative Record is a complete record of all community relations activities and response actions conducted in support of the IRP, as well as a legal record of all documents and information consulted in making decisions contained in DDs or Records of Decision (RODs).

6.3 Data Management

The ANGRC ensures that all data produced by its contractors are reviewed for quality and usability, and also recommends methods for resolving any data deficiencies. Action items related to data management are as follows:

- **Data Evaluation**--For most IRP activities at the Base, the ANGRC has used HAZWRAP to perform a quality assurance/quality control (QA/QC) review of data and to produce a data validation report. In some instances, the ANGRC will use small, disadvantaged businesses to conduct IRP work, provide data, perform a QA/QC review, and produce a data validation report.

- **Data Usability**--After data validation is completed, the ANGRC will determine the usability of the data, based on their intended use. Data that do not meet the QA/QC

requirements may be used as qualitative screening data rather than as quantitative data.

- **Data Gaps**--The ANGRC will evaluate the data to identify data gaps and to determine the most appropriate method of addressing the identified gaps.

6.4 Background Levels

In accordance with standard CERCLA SI procedures, the ANGRC provides for the collection of background samples of surface water, sediment, soil, and groundwater for comparison with samples collected during IRP activities at ANG bases. If site-specific background samples cannot be obtained, the ANGRC considers the use of constituent concentrations that are representative of local conditions. The ANGRC will continue to provide for the collection of background samples during SIs for use in evaluating base-specific analytical data and in conducting base-specific risk assessments.

6.5 Risk Assessment

The ANGRC has conducted preliminary risk evaluations and baseline risk assessments for ANG IRP sites to identify potential receptors and to evaluate potential risks to human health and the environment. A preliminary risk evaluation may be performed for a site during the SI phase of the IRP process. In accordance with ANG IRP and standard CERCLA procedures, if a RI is conducted at a site, a baseline risk assessment is performed that replaces the results of the preliminary risk evaluation. Baseline risk assessments are anticipated for Sites 4, 5, 6, and 7 during an upcoming RI.

In addition, the ANGRC will continue to evaluate anticipated land use in formulating future-use scenarios for baseline risk assessments. The risk assessments will involve consideration of the contaminants of concern, the

potential receptors, and the current and future land use at the Base. Table 6-1 presents the information on anticipated land use that will be used in conducting baseline risk assessments and selecting RAs at the Base.

6.6 Community Relations

The ANGRC will establish a line of communications and report significant events, actively, using good community relations, during the IRP process. Action items related to community relations are presented in Section 4.1.3; the highest-priority items are as follows:

- **Community Relations Plan**--A CRP for the Base will be prepared in FY95, if appropriate. The ANGRC PM will coordinate the preparation of the CRP with the Base's Public Affairs Officer.

- **Information Repository**--The ANGRC PM will ensure that the Base Environmental Coordinator maintains current information repositories that contain copies of all final IRP documents. Appropriate final documents will be placed in the repositories before any community relations activities, which include public notices, public meetings, and public comment periods.

6.7 Cleanup Standards

Cleanup standards for the IRP sites at the Base will be site-specific. Table 6-2 presents the current Wisconsin drinking water standards (or Maximum Contaminant Levels (MCLs)). These MCLs are included in the table for reference only; they are not intended for use as cleanup standards. Federal drinking water standards for organic and inorganic contaminants are contained in Title 40, Code of Federal Regulations, Part 141 (40 CFR Part 141), Subpart G. Both state and federal standards must be considered as ARARs. Site-specific cleanup standards for soil, groundwater, and other media will be based on the ARARs or on the results of a risk assessment.

Table 6-1

Anticipated Land Use for Conducting Risk Assessments and Selecting Remedial Actions
128th Fighter Wing, Wisconsin ANG

Site Number	Potential Risks	Detected Contaminants				Current Land Use	Adjacent Land Use	Future Land Use
		In Groundwater	In Soil	In Surface Water	In Sediment			
1	No significant risk to human health due to removal of contaminant source	No sampling required--contaminant source removed	No sampling required--contaminant source removed	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	Petroleum, oil, and lubricants (POL) facility	Pump station; maintenance dock; hangar	POL facility
2	No significant risk to human health due to removal of contaminant source	No sampling required--contaminant source removed	No sampling required--contaminant source removed	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	Waste fuel and oil collection area	Civil engineering; Base storage areas	Storage area, industrial facility
3	No significant risk to human health due to low levels of contaminants detected	No sampling required--contaminant source removed	PCB levels less than 0.1 parts per million	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	Electrical training station	Base supply; storage areas	Industrial
4	Ingestion of and dermal contact with contaminated groundwater; dermal contact, incidental ingestion, and inhalation of contaminated soil or groundwater during potential future construction activities	VOCs; SVOCs	TPH	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	POL area; industrial	Taxiway; open space; maintenance dock; hangar	POL area
5	Ingestion of and dermal contact with contaminated groundwater; contact with contaminated groundwater during potential future construction activities	VOCs	None detected	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	Waste fuel and oil storage; civil engineering storage	Open space; taxiway; command and support; Base supply	Civil engineering storage; munitions storage

PCB - Polychlorinated Biphenyl.
VOCs - Volatile Organic Compounds.
SVOCs - Semivolatile Organic Compounds.
TPH - Total Petroleum Hydrocarbons.

128FW.Truax Field
September 1994

Table 6-1

(Continued)

Site Number	Potential Risks	Detected Contaminants				Current Land Use	Adjacent Land Use	Future Land Use
		In Groundwater	In Soil	In Surface Water	In Sediment			
6	Ingestion of and dermal contact with contaminated groundwater; contact with contaminated groundwater during potential future construction activities	VOCs	None detected	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	Motor pool area	Base boundary; industrial; open space	Motor pool area; main gate
7	Ingestion of and dermal contact with contaminated groundwater; contact with contaminated groundwater during potential future construction activities	VOCs	None detected	No sampling required--surface water not proximate to site	No sampling required--sediment not proximate to site	Aircraft maintenance facility	Airfield; command and support	Aircraft maintenance
8	Dermal contact, incidental ingestion, and inhalation of contaminated soil during potential future construction activities	No sampling required--contaminant source removed	VOCs; TPH	No sampling required--contaminant source removed	No sampling required--contaminant source removed	Ramp area	Aircraft maintenance; safety zones	Ramp area, aircraft apron

PCB - Polychlorinated Biphenyl.
VOCs - Volatile Organic Compounds.
SVOCs - Semivolatile Organic Compounds.
TPH - Total Petroleum Hydrocarbons.

Table 6-2

Wisconsin Drinking Water Standards[a]
128th Fighter Wing, Wisconsin ANG

Contaminant	MCL[b]
Inorganic Chemicals - mg/L (ppm)	
Antimony	0.006[c]
Arsenic	0.05
Asbestos	7 million fibers/L (longer than 10 µm)
Barium	2.0
Beryllium	0.004[c]
Cadmium	0.005
Chromium	0.1
Copper	1.3[c,d]
Fluoride	4.0
Lead	0.015[c,d]
Mercury	0.002
Nickel	0.1[c]
Nitrate	10 (as Nitrogen)
Nitrite	1 (as Nitrogen)
Nitrate and Nitrite (total)	10 (as Nitrogen)
Selenium	0.05
Thallium	0.002[c]
Organic Chemicals - mg/L (ppm)	
Acrylamide	TT[c,e]
Alachlor	0.002
Atrazine	0.003
Benzene	0.005
Benzo(a)pyrene	0.0002[c]
Carbofuran	0.04
Carbon tetrachloride	0.005
Chlordane	0.002
2,4-D	0.07
Dalapon	0.2[c]
Di(2-ethylhexyl)adipate	0.4[c]
Di(2-ethylhexyl)phthalate	0.006[c]
Dibromochloropropane	0.0002
m-Dichlorobenzene	0.6[c]
o-Dichlorobenzene	0.6

[a]Wisconsin Administrative Code (Chapter NR 809), updated July 1993.
[b]Maximum Contaminant Level.
[c]The level for this contaminant is a federally-mandated standard.
[d]The level for this contaminant represents an action level rather than a MCL. Treatment technique regulations are triggered when this action level is exceeded in a number of samples measured.
[e]No level is specified for this contaminant; a specific treatment technique is required.

Table 6-2

(Continued)

Contaminant	MCL[b]
Organic Chemicals - mg/L (ppm) (Continued)	
p-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
cis-1,2-Dichloroethylene	0.07
trans-1,2-Dichloroethylene	0.1
Dichloromethane	0.005[c]
1,2-Dichloropropane	0.005
Dinoseb	0.007[c]
Diquat	0.02[c]
Endothall	0.1[c]
Endrin	0.0002
Epichlorohydrin	TT[c,e]
Ethylbenzene	0.7
Ethylene dibromide	0.00005
Glyphosate	0.7[c]
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Hexachlorobenzene	0.001[c]
Hexachlorocyclopentadiene	0.05[c]
Lindane	0.0002
Methoxychlor	0.04
Monochlorobenzene	0.1
Oxamyl (Vydate)	0.2[c]
Pentachlorophenol	0.001
Picloram	0.5[c]
Polychlorinated biphenyls	0.0005
Simazine	0.004[c]
Styrene	0.1
2,3,7,8-TCDD (Dioxin)	0.00000003[c]
Tetrachloroethylene	0.005
Toluene	1.0
Total Trihalomethanes	0.1
Toxaphene	0.003
2,4,5-TP (Silvex)	0.05
1,2,4-Trichlorobenzene	0.07[c]

[a]Wisconsin Administrative Code (Chapter NR 809), updated July 1993.
[b]Maximum Contaminant Level.
[c]The level for this contaminant is a federally-mandated standard.
[d]The level for this contaminant represents an action level rather than a MCL. Treatment technique regulations are triggered when this action level is exceeded in a number of samples measured.
[e]No level is specified for this contaminant; a specific treatment technique is required.

Table 6-2

(Continued)

Contaminant	MCL[b]
Organic Chemicals - mg/L (ppm) (Continued)	
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.005[c]
Trichloroethylene	0.005
Vinyl chloride	0.0002
Xylenes (total)	10.0

[a]Wisconsin Administrative Code (Chapter NR 809), updated July 1993.
[b]Maximum Contaminant Level.
[c]The level for this contaminant is a federally-mandated standard.
[d]The level for this contaminant represents an action level rather than a MCL. Treatment technique regulations are triggered when this action level is exceeded in a number of samples measured.
[e]No level is specified for this contaminant; a specific treatment technique is required.

The remediation of any petroleum-contaminated soil that results from an UST release at the Base is regulated under federal and state UST regulations. Certain portions of these regulations may also be "relevant and appropriate" to petroleum-contaminated soil resulting from a non-UST release. Other federal and state criteria, advisories, guidance, and proposed rules may also apply as materials to be considered (TBCs) in the remediation of a non-UST release.

The federal UST regulations are contained in 40 CFR Part 280. Subpart F of these regulations pertains to "Release Response and Corrective Action for UST Systems Containing Petroleum or Hazardous Substances." The Wisconsin state laws that pertain to USTs are the Wisconsin Underground Storage Tank Act (Wisconsin Statutes (W.S.) 101.142 and 101.143) and the Wisconsin Hazardous Waste Management Act (W.S. 144.76). The Wisconsin UST Act is implemented via the Wisconsin Underground Storage Tank Rules. The Wisconsin DNR is currently developing regulations covering petroleum releases and corrective action. These regulations will be developed as Natural Resources 700-series regulations that are expected to be promulgated early in 1994.[1] For remediation of petroleum-contaminated soil, the Base must comply with state regulations for both Investigation and Corrective Action in accordance with the Wisconsin Administrative Code for the Department of Industry, Labor, and Human Relations (ILHR 10.67) and federal regulations for USTs (40 CFR Part 280, Subpart F). The following federal UST regulation sections pertain to release response and corrective action:

- General (280.60);
- Initial Response (280.61);
- Initial Abatement Measures and Site Check (280.62);
- Initial Site Characterization (280.63);
- Free Product Removal (280.64);
- Investigations for Soil and Groundwater Cleanup (280.65);
- Corrective Action Plan (280.66); and
- Public Participation (280.67).

[1]Based on a December 16, 1993 telephone conversation with Ms. Laurie Egre, Wisconsin DNR.

Soil corrective action levels are currently determined by the Wisconsin DNR on a case-by-case basis. The remedy selection approach for petroleum-contaminated soil at the Base is presented in Section 4.1.5. Potentially applicable cleanup standards for petroleum-contaminated media are presented in Table 6-3.

6.8 Initiatives for Accelerating the IRP Process

In accordance with ANG IRP and standard CERCLA procedures, the following initiatives will be considered to accelerate the IRP process at the Base:

- **Site Grouping**--Sites at the Base will be grouped to expedite the site investigation and document review process.
- **Target Source Areas**--Source areas at the Base will be targeted for RAs.
- **Site Definition**--Contaminated areas at the Base will be grouped into a few sites, rather than designating the entire Base as one site, to expedite cleanup actions and to facilitate the timely closure of smaller, less complex sites.
- **ARAR Identification**--Early in the IRP process, a list of ARARs will be developed for Base cleanup activities by obtaining lists of ARARs from the state and other agencies, and by examining RODs for similar sites at other bases.
- **Risk-Based Cleanup Standards**--Negotiations with regulatory agencies will be conducted to receive approval to use risk-based cleanup standards based on future land use for all RAs conducted at the Base.
- **Single Regulatory Authority**--All RAs at the Base will be conducted under one regulatory authority for threshold decisions (e.g., under RCRA or CERCLA authority).

Table 6-3

Cleanup Standards for Petroleum-Contaminated Media
128th Fighter Wing, Wisconsin ANG

Contaminant	Soil (mg/kg)[a]	Groundwater (µg/L)[b]
Benzene	Not Available	5
Toluene	Not Available	343
Ethylbenzene	Not Available	1,360
Xylenes	Not Available	620

[a]No applicable cleanup standards for soil are available; cleanup standards are established on a case-by-case basis.
[b]Wisconsin Groundwater Quality Standards, II-140.10, November 20, 1992.

- **Document Review Process**--Negotiations with regulatory agencies will be conducted to streamline the review process for Base documents by agreeing to a definitive timeframe.

- **Concurrent Reviews**--A complete list of reviewers for Base documents will be developed early in the IRP process, and parallel review (internal and external) of these documents will be pursued to eliminate delays.

- **Team Approach**--A strong Project Team will be built that consists of Base personnel, ANGRC personnel, contractor personnel, and state and federal regulatory personnel. This team will have the authority, responsibility, and accountability for implementing innovative solutions to remediate and close sites at the Base in a timely, cost-effective manner.

- **Joint Document Preparation**--The document preparation and review/approval process will be expedited by conducting a kickoff meeting before preparing required documents, such as DDs, to encourage participation from both federal and state regulatory agencies. This participation may be in the form of correspondence.

- **Community Involvement**--The community will be involved in the IRP process to encourage support during site closure. By keeping the community informed of activities during the IRP process, the likelihood of opposing comments during the public comment period will be decreased.

- **Generic Procedures**--Generic scopes of work will be developed for use in contracting various phases of IRP work for common problems or for common types of contaminated sites (such as fuel contamination in soil). The scopes of work will be flexible enough to allow for site-specific modifications.

- **Innovative Contracting**--The flexibility of contracting procedures will be maximized, and the use of level-of-effort, direct cost reimbursement, award incentive, and fixed-price contracting will be investigated.

- **Innovative Technologies**--A partnership with the U.S. EPA will be pursued to investigate the use of innovative technologies in cleanup actions at the Base.

- **Model Statement of Work**--A model Statement of Work will be developed to minimize the time required for development of this document. The model document will include a RI/FS scoping process that would be conducted before development of a Work Plan. The model will be flexible enough to allow for site-specific modifications.

- **Use of Existing Data**--New contractors will be encouraged to use existing data for the Base.

6.9 Off-Base Property Response Actions

The Base does not own or lease any off-base property for which there are environmental concerns.

7.0 REFERENCES

United States Geological Survey, 1983. Madison East Quadrangle, Wisconsin, 7.5-Minute Series Topographic Map.

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Appendix A

COST ESTIMATE AND SCHEDULE CONFIRMATION
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

1.0 INTRODUCTION

This appendix presents the estimated costs and schedules for completing the investigation and remediation of Installation Restoration Program (IRP) sites at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin. The investigation and remediation of ANG property at the Base are being conducted under the IRP.

Eight IRP sites have been identified at the Base. These sites are shown on Figure A-1 and are listed below:

- Site 1 - JP-4 Fuel Spill No. 1;
- Site 2 - JP-4 Fuel Spill No. 2;
- Site 3 - PCB Spill;
- Site 4 - UST 405-3 and 405-4;
- Site 5 - UST 1201-1;
- Site 6 - UST 1000-2;
- Site 7 - UST 409-2; and
- Site 8 - Ramp Area.

Descriptions of the IRP sites at the Base are presented in Section 2.0 of this appendix.

The costs for the IRP activities at each site were estimated using the Environmental Estimating (ENVEST™) module of the Remedial Action Cost Engineering and Requirements (RACER) cost model (Version 2.0). The associated schedules were prepared using Microsoft® Project for Windows (Version 3.0). The estimated costs and schedules for the IRP sites at the Base are presented in Section 3.0 of this appendix.

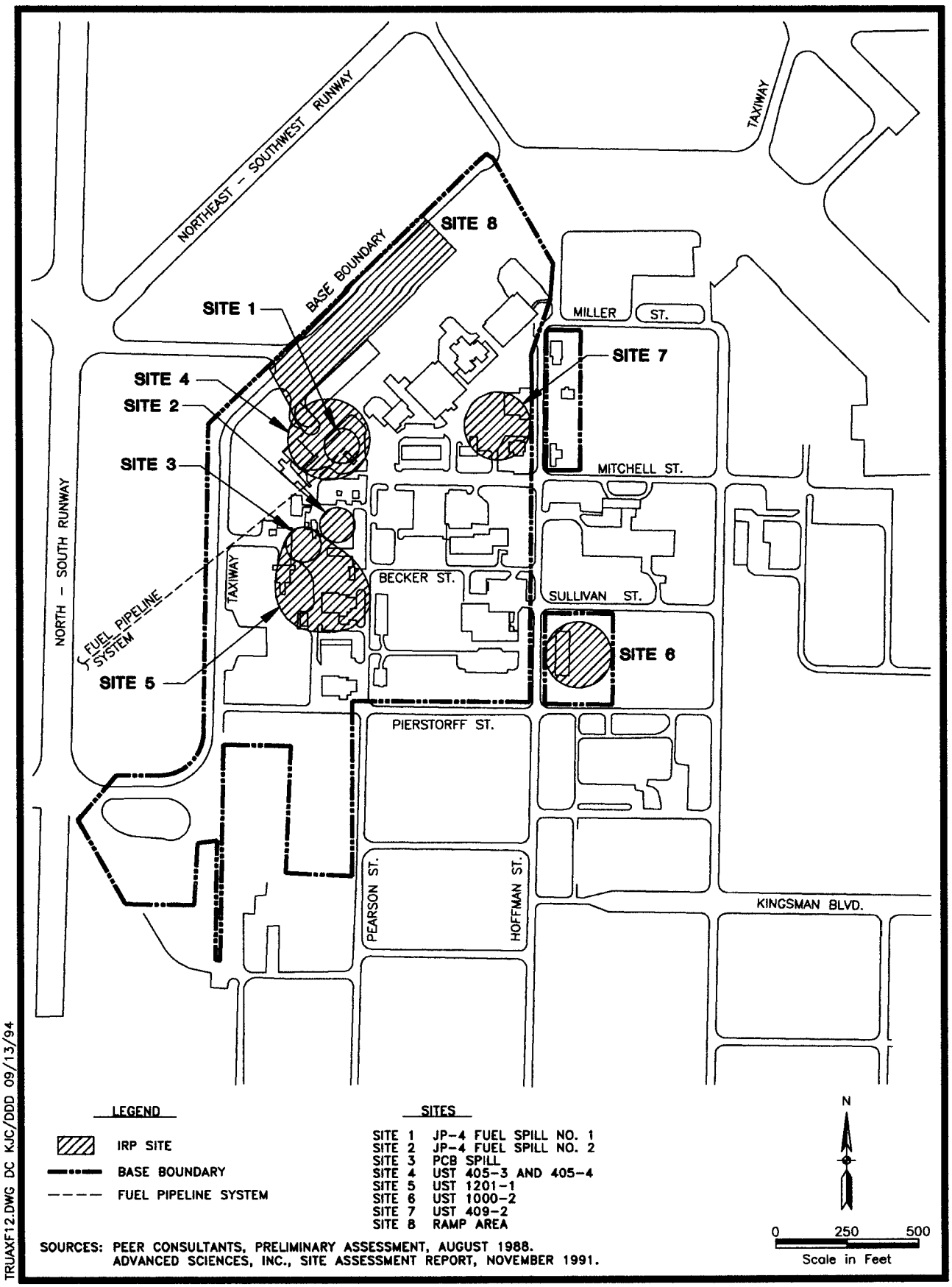


Figure A-1. Locations of IRP Sites, 128th Fighter Wing, Wisconsin ANG

2.0 SITE DESCRIPTIONS

Descriptions of the IRP sites at the Base are presented in Sections 2.1 through 2.8. Each site description presents an overall summary of the status of the site. This summary is designed to provide the following information: a physical description of the site, including its location at the Base; a brief history of the site, including how it was identified as an IRP site and what IRP activities have been conducted at the site; the environmental setting of the site, including geological and hydrogeological information, if available; a summary of the highest contaminant concentrations detected in samples collected from various media at the site; and a brief description of the IRP activities that are planned at the site.

In addition, the site descriptions include any scores that have been generated for the sites using hazard ranking models. The three major hazard ranking models applicable to ANG IRP sites include: the Hazard Ranking System (HRS), the Hazard Assessment Rating Methodology (HARM), and the Defense Priority Model (DPM). The HRS is used by the U.S. Environmental Protection Agency to identify sites for inclusion on the National Priorities List (NPL). The HARM was developed by the U.S. Air Force to prioritize sites for investigation and cleanup. The Air Force later developed an improved version of this model, HARM II, to prioritize sites for Remedial Action (RA) after the completion of a Remedial Investigation (RI). In 1988, the U.S. Department of Defense decided to use the HARM II model to prioritize IRP sites for RA, and changed the name of this model to the DPM. None of the eight IRP sites at the Base have been assigned a score using the HARM or the DPM.

Based on referenced documents, the basewide geological profile generally includes a surficial layer of silty clay that extends to a depth of approximately 5 feet below ground surface (BGS). This surficial layer is underlain by a fine- to medium-grained stratified sand layer that extends to an unknown depth. Gravelly sands are encountered more frequently at increasing depths, but are discontinuous. Groundwater beneath the Base is found in two aquifers. The lower aquifer, located approximately 250 feet BGS, is used as a water supply for municipal and private wells in the vicinity of the Base. The upper aquifer, which is

generally encountered at 5 to 15 feet BGS, reportedly recharges the lower aquifer. Groundwater in the upper aquifer flows to the southeast. Surface water at the Base drains through drainage ditches and culverts and eventually discharges into Starkweather Creek south of the Base.

A background monitoring well was installed in the area north of Building 414 and east of the taxiway. One groundwater sample was collected and analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Dimethyl phthalate was the only constituent detected in the groundwater sample at a concentration of 12 micrograms per liter (µg/L).

2.1 Site 1 - JP-4 Fuel Spill No. 1

Site 1 (JP-4 Fuel Spill No. 1) is located adjacent to Building 405 in the petroleum, oil, and lubricant (POL) area. Four 50,000-gallon jet propulsion fuel #4 (JP-4) underground storage tanks (USTs) are located in the vicinity of the site. On March 6, 1981, approximately 2,000 gallons of JP-4 spilled onto the ground when one of the USTs overflowed during filling. The fire department flushed the fuel toward a nearby drainage ditch that was dammed off. The fuel soaked into the ground and was covered with straw. Under the direction of the Wisconsin Department of Natural Resources (Wisconsin DNR), the contaminated soil was removed in 1981 to a depth of 6 feet BGS in the ditch and to the limit of odor detection on the ditch side slopes. The soil was spread onto concrete pads and hauled off base the following year. In 1982, the site was paved with asphalt.

The site is presently covered with asphalt. Based on the referenced documents, surficial soil at the site consists of a sandy gravel fill layer that is approximately 1 foot thick. This fill layer is underlain by a layer of clay that is approximately 1 foot thick. The clay layer is underlain by a layer of very fine to fine silty clay that extends to a depth of approximately 4 feet BGS. Below the silty clay layer, fine- to medium-grained sand extends to an unknown depth. Groundwater at the site is encountered at approximately 5 to 9 feet BGS.

Site 1 was identified as an IRP site and is eligible for Defense Environmental Restoration Account (DERA) funding based on the results of a Preliminary Assessment (PA) completed in August 1988. During the PA, the possible pathways of contaminant migration from the JP-4 spill were determined to be surface water and groundwater. Since the terrain was flat, the spill was confined, and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since the contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. Therefore, it was concluded that no further action was required at the site. A Decision Document (DD) recommending no further response action at Site 1 was prepared in November 1988.

2.2 Site 2 - JP-4 Fuel Spill No. 2

Site 2 (JP-4 Fuel Spill No. 2) is located east of Building 1201. On August 3, 1985, approximately 100 gallons of waste JP-4 spilled onto the ground during filling of a 3,000-gallon waste oil UST. The fuel was contained and absorbed with blotters. Three 55-gallon drums of contaminated soil were removed two days after the incident. The UST was removed in October 1991.

No site-specific geological information is available for this site. Groundwater in the vicinity is located approximately 9 feet BGS.

Site 2 was identified as an IRP site and is eligible for DERA funding based on the results of a PA completed in August 1988. During the PA, the possible pathways of contaminant migration from the JP-4 spill were determined to be surface water and groundwater. Since the terrain was flat, the spill was confined, and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since the contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. Therefore, it was concluded that no further response action was required at the site. A DD recommending no further response action at Site 2 was prepared in November 1988.

2.3 Site 3 - PCB Spill

Site 3 (PCB Spill) is located south of Building 1201 at an electrical training station. In 1983, one of three pole-mounted transformers leaked dielectric fluid onto the ground. The polychlorinated biphenyl (PCB) concentration in the fluid that leaked was determined to be 1,800 parts per million (ppm). Three 55-gallon drums of PCB-contaminated soil were removed from the site. The transformers were also removed to prevent further contamination.

No site-specific geological information is available for this site. Groundwater in the vicinity is located at a depth of approximately 11 feet BGS.

Site 3 was identified as an IRP site and is eligible for DERA funding based on the results of a PA completed in August 1988. During the PA, the possible pathways of contaminant migration from the PCB spill were determined to be surface water and groundwater. Since the terrain was flat and there is no surface water in the immediate area, surface water was not considered a likely pathway. Since contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. After the soil removal, analysis of soil samples collected from the area confirmed that levels of PCBs in the soil were less than 0.1 ppm and below the action level specified in the Toxic Substances Control Act (TSCA). Therefore, it was concluded no further response action was required at this site. A DD recommending no further response action at Site 3 was prepared in November 1988.

2.4 Site 4 - UST 405-3 and 405-4

Site 4 (UST 405-3 and 405-4) is located at the POL facility near the taxiway. Site 4 covers an area of approximately 3 acres. There are four 50,000-gallon JP-4 USTs adjacent to Building 405 and four USTs adjacent to Building 414. The area of the site also includes a bulk fuel intake system, a former refueling station, and an abandoned underground fuel pipeline and hydrant system. The pipeline and hydrant system was taken out of service in 1973; it is not known

if the fuel was purged from the pipeline or hydrant system. The 1981 JP-4 fuel spill (Site 1) is also included within the area of this site.

Based on referenced documents, the surficial soil at Site 4 consists of semiconsolidated clay to a depth of approximately 2 feet BGS. In areas where construction activities have taken place, the clay layer is covered with a sandy gravel fill. The clay layer is underlain by very fine to fine silty clay to a depth of 4 feet BGS. The silty clay is underlain by a fine- to medium-grained sand layer to an unknown depth. Groundwater at the site flows to the southeast and is located at 5 to 9 feet BGS.

Site 4 was identified as an IRP site and is eligible for DERA funding based on the results of a Site Investigation (SI) completed in September 1990. During the SI, total petroleum hydrocarbons (TPH) were detected in soil samples at a depth of 5 to 7 feet BGS at a maximum concentration of 494 milligrams per kilogram (mg/kg). Site 4 was further investigated in a 1991 Site Assessment (SA). The SA field activities included the completion of a soil gas survey, the drilling of 15 soil borings, and the sampling of groundwater in six monitoring wells.

Analytical results of groundwater samples collected at Site 4 indicated the presence of benzene at a maximum concentration of 5.7 milligrams per liter (mg/L), xylenes at a maximum concentration of 3.9 mg/L, ethylbenzene at a maximum concentration of 0.52 mg/L, and naphthalene at a maximum concentration of 0.42 mg/L. The concentration of benzene detected in groundwater samples exceeded the Wisconsin Maximum Contaminant Level (MCL). Detected concentrations of xylenes and naphthalene exceeded the Wisconsin Enforcement Standard. The detected concentration of ethylbenzene exceeded the Wisconsin Preventive Action Limit. Several additional polynuclear aromatic hydrocarbons (PAHs) were also detected in the groundwater samples. The former refueling station was identified as a potential source of contamination. Site 4 will be investigated further during a Remedial Investigation/Feasibility Study (RI/FS) scheduled to begin in FY94.

2.5 Site 5 - UST 1201-1

Site 5 (UST 1201-1) is located in the vicinity of Building 1201 and covers an area of approximately 3 acres. The site includes the location of a former waste oil tank, UST 1201-1, that was removed in October 1991. UST 1201-1 failed a volumetric tightness test in 1990. The 1985 JP-4 fuel spill (Site 2) is also included within the area of this site.

Based on referenced documents, the surficial soil at Site 5 consists of a fine- to medium-grained stratified silty sand layer that extends to a depth of 5 feet BGS. This silty sand layer is underlain by a clayey sand-sandy clay layer that extends to a depth of 7 feet BGS. Below this layer, a fine-grained sand layer is encountered to an unknown depth. Groundwater at the site is located approximately 9 to 14 feet BGS.

Site 5 was identified as an IRP site and is eligible for DERA funding based on the results of an integrity test conducted prior to December 22, 1993, during the 1990 SI. The SI also included groundwater sampling of two monitoring wells. Tetrachloroethene was detected at a maximum level of 2 µg/L. The concentration of tetrachloroethene detected during the SI exceeded the Wisconsin Enforcement Standard. The site was further investigated during a 1991 SA. The SA included the completion of a soil gas survey, the sampling of soil in three soil borings, and sampling of groundwater in one monitoring well. No volatile or semivolatile constituents, including tetrachloroethene, were detected in the soil or groundwater samples. Site 5 will be investigated further during a RI/FS scheduled for FY94.

2.6 Site 6 - UST 1000-2

Site 6 (UST 1000-2) is located in the vicinity of Building 1000, the motor pool area, and covers an area of approximately 3 acres. In the past, waste oil and solvent storage operations were conducted at the site. Five USTs were formerly located at the site.

Based on referenced documents, the surficial soil at Site 6 consists of a layer of sandy gravel fill to a depth of approximately 2 feet BGS. The fill layer is underlain by a mixture of silty clays, clayey silt, and silt to a depth of approximately 6 to 7 feet BGS. This layer is underlain by a fine- to medium-grained sand unit to an unknown depth. Groundwater in the upper aquifer is located approximately 9 to 10 feet BGS.

Site 6 was identified as an IRP site and is eligible for DERA funding based on the results of a SI completed in September 1990. Soil samples were analyzed for TPH during the SI; no TPH were detected in these samples. The site was investigated further in a 1991 SA. The SA included the sampling of groundwater in three monitoring wells. 1,2-Dichloroethene was detected in groundwater samples collected from the wells at concentrations as high as 33 µg/L. The concentration of 1,2-dichloroethene detected during the SA exceeded the Wisconsin Preventive Action Limit. Site 6 will be investigated further during a RI/FS scheduled for FY94.

2.7 Site 7 - UST 409-2

Site 7 (UST 409-2) is located at the aircraft maintenance facility, which includes Buildings 400, 401, 409, and 410. This site covers an area of approximately 3 acres. Five USTs were originally located at this site. Four of these tanks have been removed. A 550-gallon used oil tank is located at this site. No known leaks have occurred at the site.

Based on referenced documents, the geology of Site 7 consists of approximately 4 feet of sandy gravel fill that is underlain by fine- to medium-grained sand. Discontinuous layers of clayey silt and clay are encountered within the sand layer at a depth of 2 to 4 feet BGS. Groundwater at the site is located at a depth of approximately 7 to 9 feet BGS.

Site 7 was identified as an IRP site and is eligible for DERA funding based on the results of a SI completed in September 1990. The site was further investigated during a 1991 SA. The SA included the completion of a soil

gas survey, the sampling of soil in two soil borings, and the sampling of groundwater in four monitoring wells. No volatile or semivolatile organic constituents were detected in the soil samples collected at the site. Trichloroethene was detected at a maximum concentration of 17 µg/L in groundwater samples collected at the site; this concentration exceeded the Wisconsin MCL. A RI/FS is scheduled to begin in FY94 to determine the source and extent of contamination in groundwater at the site.

2.8 Site 8 - Ramp Area

Site 8 (Ramp Area) is located adjacent to the taxiway and Hangar 412 and covers an area of approximately 3 acres. Periodic spills of fuel and oil have occurred at the site.

No site-specific geological information is available for this site. Groundwater in the vicinity of the site is located approximately 4 to 7 feet BGS.

Site 8 was identified as an IRP site and determined to be eligible for DERA funding during a construction project at the ramp in 1990. According to the Form 1391 Funding Request submitted for this site, contaminated soil was detected in the vicinity of the Base apron and the ramp. Soil was sampled at the site in 1990, and TPH, benzene, toluene, ethylbenzene, and xylenes were detected in soil samples at concentrations exceeding Wisconsin action levels. A portion of the soil at the site was remediated in 1993 using low-temperature thermal desorption. An additional 18,000 cubic yards of soil will be remediated using soil vapor extraction in FY94.

3.0 ESTIMATED COSTS AND SCHEDULES

This section presents estimated costs and schedules for the IRP sites at the Base. The methodology used to develop these estimates is described in Section 3.1. The cost estimates are provided in Section 3.2, and the schedules are provided in Section 3.3. The information presented in this appendix is based on information reported in the referenced documents, and on input from the Air National Guard Readiness Center (ANGRC) Project Manager (PM). Subsequent updates to the estimated costs and schedules will be made by the ANG as additional information and/or estimating tools become available.

3.1 Methodology Used to Develop Estimated Costs and Schedules

The estimated costs and schedules for the IRP sites were generated using two computer software application packages. The RACER cost model, developed by the U.S. Air Force for estimating IRP investigation and remediation costs, was used to develop the cost estimates. Microsoft Project, a commercially available project management program, was used to present the investigation and remediation schedule for each IRP site at the Base that may require a further response action.

The RA selected as the basis for estimating the costs and schedules may be altered or augmented for many of the sites; however, the cost and timeframe presented for each site are considered to be reasonable order-of-magnitude estimates. The future RAs selected for each site at the Base are listed in Table A-1.

Cost estimates for the IRP sites were prepared by calibrating the cost model based on information obtained from referenced documents, the ANG Year 2000 Plan, and interviews with the ANGRC PM. (The ANG Year 2000 Plan lists projected funds through the end of fiscal year 2000 (FY2000) for anticipated

Table A-1

Future Remedial Actions Selected for IRP Sites
128th Fighter Wing, Wisconsin ANG

Site Name	Future Remedial Action	Comments
Site 1 - JP-4 Fuel Spill No. 1	No further remedial action	Decision Document recommending no further response action was prepared in November 1988
Site 2 - JP-4 Fuel Spill No. 2	No further remedial action	Decision Document recommending no further response action was prepared in November 1988
Site 3 - PCB Spill	No further remedial action	Decision Document recommending no further response action was prepared in November 1988
Site 4 - UST 405-3 and 405-4	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 8
	Long-term monitoring	Semiannual groundwater sampling
Site 5 - UST 1201-1	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 3
	Long-term monitoring	Semiannual groundwater sampling
Site 6 - UST 1000-2	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 3
	Long-term monitoring	Semiannual groundwater sampling
Site 7 - UST 409-2	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 2
	Long-term monitoring	Semiannual groundwater sampling
Site 8 - Ramp Area	Soil vapor extraction	Volume: 18,000 cubic yards

IRP activities.) This calibration process was implemented to develop costs consistent with previous ANG experience in conducting investigation and remediation activities. Attachment 1 to this appendix presents these estimated costs.

Schedules for the IRP sites were developed based on ANG input and on information presented in the ANG Year 2000 Plan. Costs were then entered to create a complete schedule for each site by fiscal year. The schedules are based on continuous progress toward completion of the IRP process at each site and do not consider staff or budgetary limitations. Attachment 2 to this appendix presents these projected schedules.

3.1.1 General Assumptions

RACER was developed to estimate costs for investigating and remediating IRP sites which are also NPL sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Therefore, for sites which are not on the NPL, significant overestimation of costs will occur unless the standard modeling parameters are modified. The methodology implemented to calibrate the cost model included the following assumptions:

- To accurately estimate the number of hours required to complete specific tasks, the professional labor hours were reduced by modifying the "percent complete" entry associated with the task.

- For NPL sites, the model assumes that the "first round" of sampling requires 100% Contract Laboratory Program (CLP) data and that the "second round" of sampling requires 20% CLP data. Estimated costs for both rounds of sampling were included for the IRP sites where sampling was required.

- For non-NPL sites, the model assumes no CLP data are required. Estimated costs for one round of sampling were included for the IRP sites where sampling was required.

RACER uses standard CERCLA investigation and remediation terminology. As such, the model outputs list RI/FS, Remedial Design (RD), and RA costs, independent of the actual activities costed. Based on ANG input, the following rationale was used to estimate costs for selected IRP activities:

- For a SI, Abbreviated SI (ASI), or Expanded SI (ESI), the model's RI/FS cost estimate was modified to consist of a scaled-down investigation and no FS.

- For an Engineering Evaluation/Cost Analysis (EE/CA), the model's RI/FS cost estimate was modified to consist of no RI and a scaled-down FS.

- For a DD or Action Memorandum, the Remedy Selection portion of the RI/FS was used.

- For a RA under a Rapid Response Initiative (RRI), the RA portion of the model was used.

The standard modeling parameters were modified in accordance with the above procedures to keep the site-specific cost estimates for investigation and remediation of non-NPL sites within the range specified by the ANG for investigating and remediating such sites.

3.1.2 Base-Specific Assumptions

The base-specific assumptions that were used to develop the cost estimates for the major RAs to be conducted at the IRP sites are discussed in Sections 3.1.2.1 through 3.1.2.3.

3.1.2.1 Bioremediation (Saturated Zone)

Saturated-zone bioremediation was selected to remove VOCs from groundwater at the following sites:

- Site 4 - UST 405-3 and 405-4;
- Site 5 - UST 1201-1;
- Site 6 - UST 1000-2; and
- Site 7 - UST 409-2.

This type of in-situ bioremediation consists of installing wells in the area of contamination and using the wells to introduce nutrients into the groundwater. This process enhances the natural biodegradation of contaminants in the groundwater. The following parameters were used to develop the saturated-zone bioremediation costs:

- Startup period of 12 weeks;
- Operation and maintenance (O&M) (implementation) period of 92 weeks;
- 4-inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) injection wells; and
- Addition of nutrients to the groundwater.

3.1.2.2 Long-Term Monitoring

Long-term monitoring was selected to monitor groundwater at the following sites:

- Site 4 - UST 405-3 and 405-4;
- Site 5 - UST 1201-1;
- Site 6 - UST 1000-2; and
- Site 7 - UST 409-2.

A cost estimate was developed for semiannual groundwater sampling at these sites. The total cost estimate for long-term monitoring is presented on the schedules in Attachment 2 to this appendix. The cost estimate includes groundwater sampling costs through the second quarter of FY2000, even though a 5-year monitoring period (which would extend beyond FY2000) is planned for these sites.

3.1.2.3 Soil Vapor Extraction

Soil vapor extraction (SVE) was selected to treat soil at Site 8 (Ramp Area). SVE consists of the installation of vapor extraction wells at equal spacing around the site. The wells are connected to a network of piping and vacuum blowers. By removing air from the subsurface, volatile compounds are stripped from the soil and brought to the surface. These compounds can be discharged directly to the air, if allowed, or they can be captured in an air pollution control device (e.g., a carbon adsorption canister).

The following key parameters were used to develop the SVE cost estimate:

- Startup period of 12 weeks;
- O&M period of 92 weeks;
- Contaminated area of 12,000 square feet; and
- 4-inch ID Schedule 40 PVC piping and well casing.

3.2 Cost Estimates

The cost estimate for each IRP site that requires further action is presented in Attachment 1 to this appendix. The cost estimates for major tasks are shown on the schedules in Attachment 2 to this appendix.

3.3 Schedules

The schedule for each IRP site that requires further action is presented in Attachment 2 to this appendix. The schedules are divided by fiscal

year for each of the IRP sites. The project duration is presented in weeks required for each task. Each schedule also includes the total costs for major tasks and the total costs for each IRP site.

Attachment 1

COST ESTIMATES
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

ESTIMATE SUMMARY REPORT

Project:

Project ID: 128FW
Location: Madison WI
Studies Option: RI/FS
Site Option: Multiple Sites
Project Name: 128th Fighter Wing
Project Comments: Wisconsin ANG
Prepared By: Radian Corporation
Date: 12/17/93

Site:

Site ID: 04
Category: Actual Site
Site Name: UST 405-3 and 405-4
Site Comments: RI; FS; DD; RD; RA: Bioremediation(Saturated Zone) LTM; PCO
Prepared By: Radian Corporation
Date: 12/17/93

	Total Cost ($000)
RI/FS:	
RI/FS Scoping	$ 0
Development of Alternatives	$ 2
Site Characterization	$ 26
Screening of Alternatives	$ 4
Treatability Investigations	$ 1
Analysis of Remedial Alternatives	$ 4
Remedy Selection	$ 4
Groundwater Monitoring Wells	$ 25
Sampling and Analysis	$ 139
RI/FS Total Direct Cost	$ 205
Indirect, Overhead, & Profit (44.8%)	$ 92
Subtotal	$ 296
Escalation (0.0%) (1994/12)	$ 0
Total Contract Cost	$ 297
Contingencies (0.0%)	$ 0
Project Management (10.0%)	$ 30
Total RI/FS	$ 327
REMEDIAL DESIGN:	$ 30

ESTIMATE SUMMARY REPORT

	Capital Costs ($000)	O&M Costs ($000)	Total Cost ($000)
REMEDIAL ACTION:			
In Situ Biodegrad (Saturated Zone)	$ 86	$ 144	$ 230
Monitoring	$ 23		$ 23
RA Total Direct Cost	$ 109	$ 144	$ 253
Indirect, Overhead, & Profit (20.7%)			$ 53
Subtotal			$ 306
Escalation (0.0%) (1995/12)			$ 0
Total Contract Cost			$ 306
Contingencies (0.0%)			$ 0
Project Management (10.0%)			$ 31
Total Remedial Action			$ 337
TOTAL SITE 04			$ 694

ESTIMATE SUMMARY REPORT

Project:

Project ID: 128FW
Location: Madison WI
Studies Option: RI/FS
Site Option: Multiple Sites
Project Name: 128th Fighter Wing
Project Comments: Wisconsin ANG
Prepared By: Radian Corporation
Date: 12/17/93

Site:

Site ID: 05
Category: Actual Site
Site Name: UST 1201-1
Site Comments: RI; FS; DD; RD; RA: Bioremediation(Saturated Zone) LTM; PCO
Prepared By: Radian Corporation
Date: 12/20/93

	Total Cost ($000)
RI/FS:	
RI/FS Scoping	$ 0
Development of Alternatives	$ 1
Site Characterization	$ 21
Screening of Alternatives	$ 3
Treatability Investigations	$ 1
Analysis of Remedial Alternatives	$ 3
Remedy Selection	$ 3
Groundwater Monitoring Wells	$ 20
Sampling and Analysis	$ 86
RI/FS Total Direct Cost	$ 138
Indirect, Overhead, & Profit (50.4%)	$ 71
Subtotal	$ 210
Escalation (0.0%) (1994/12)	$ 0
Total Contract Cost	$ 209
Contingencies (0.0%)	$ 0
Project Management (10.0%)	$ 21
Total RI/FS	$ 230
REMEDIAL DESIGN:	$ 17

ESTIMATE SUMMARY REPORT

	Capital Costs ($000)	O&M Costs ($000)	Total Cost ($000)
REMEDIAL ACTION:			
In Situ Biodegrad (Saturated Zone)	$ 47	$ 67	$ 114
Monitoring	$ 28		$ 28
RA Total Direct Cost	$ 75	$ 67	$ 142
Indirect, Overhead, & Profit (21.7%)			$ 31
Subtotal			$ 173
Escalation (0.0%) (1995/12)			$ 0
Total Contract Cost			$ 173
Contingencies (0.0%)			$ 0
Project Management (10.0%)			$ 17
Total Remedial Action			$ 190
TOTAL SITE 05			$ 437

ESTIMATE SUMMARY REPORT

Project:

Project ID: 128FW
Location: Madison WI
Studies Option: RI/FS
Site Option: Multiple Sites
Project Name: 128th Fighter Wing
Project Comments: Wisconsin ANG
Prepared By: Radian Corporation
Date: 12/17/93

Site:

Site ID: 06
Category: Actual Site
Site Name: UST 1000-2
Site Comments: RI; FS; DD; RD; RA: Bioremediation(Saturated Zone) LTM; PCO
Prepared By: Radian Corporation
Date: 12/20/93

	Total Cost ($000)
RI/FS:	
RI/FS Scoping	$ 0
Development of Alternatives	$ 1
Site Characterization	$ 21
Screening of Alternatives	$ 3
Treatability Investigations	$ 1
Analysis of Remedial Alternatives	$ 3
Remedy Selection	$ 3
Groundwater Monitoring Wells	$ 16
Sampling and Analysis	$ 68
RI/FS Total Direct Cost	$ 116
Indirect, Overhead, & Profit (56.5%)	$ 66
Subtotal	$ 182
Escalation (0.0%) (1994/12)	$ 0
Total Contract Cost	$ 182
Contingencies (0.0%)	$ 0
Project Management (10.0%)	$ 18
Total RI/FS	$ 200
REMEDIAL DESIGN:	$ 16

ESTIMATE SUMMARY REPORT

	Capital Costs ($000)	O&M Costs ($000)	Total Cost ($000)
REMEDIAL ACTION:			
In Situ Biodegrad (Saturated Zone)	$ 47	$ 67	$ 114
Monitoring	$ 23		$ 23
RA Total Direct Cost	$ 70	$ 67	$ 137
Indirect, Overhead, & Profit (21.8%)			$ 30
Subtotal			$ 167
Escalation (0.0%) (1995/12)			$ 0
Total Contract Cost			$ 167
Contingencies (0.0%)			$ 0
Project Management (10.0%)			$ 17
Total Remedial Action			$ 184
TOTAL SITE 06			$ 400

ESTIMATE SUMMARY REPORT

Project:

Project ID: 128FW
Location: Madison WI
Studies Option: RI/FS
Site Option: Multiple Sites
Project Name: 128th Fighter Wing
Project Comments: Wisconsin ANG
Prepared By: Radian Corporation
Date: 12/17/93

Site:

Site ID: 07
Category: Actual Site
Site Name: UST 409-2
Site Comments: RI; FS; DD; RD; RA: Bioremediation(Saturated Zone) LTM; PCO
Prepared By: Radian Corporation
Date: 12/21/93

	Total Cost ($000)
RI/FS:	
RI/FS Scoping	$ 0
Development of Alternatives	$ 1
Site Characterization	$ 21
Screening of Alternatives	$ 3
Treatability Investigations	$ 1
Analysis of Remedial Alternatives	$ 3
Remedy Selection	$ 3
Groundwater Monitoring Wells	$ 20
Sampling and Analysis	$ 76
RI/FS Total Direct Cost	$ 128
Indirect, Overhead, & Profit (53.0%)	$ 68
Subtotal	$ 197
Escalation (0.0%) (1994/12)	$ 0
Total Contract Cost	$ 196
Contingencies (0.0%)	$ 0
Project Management (10.0%)	$ 20
Total RI/FS	$ 216
REMEDIAL DESIGN:	$ 13

ESTIMATE SUMMARY REPORT

	Capital Costs ($000)	O&M Costs ($000)	Total Cost ($000)
REMEDIAL ACTION:			
In Situ Biodegrad (Saturated Zone)	$ 39	$ 51	$ 90
Monitoring	$ 20		$ 20
RA Total Direct Cost	$ 59	$ 51	$ 110
Indirect, Overhead, & Profit (22.4%)			$ 25
Subtotal			$ 135
Escalation (0.0%) (1996/06)			$ 0
Total Contract Cost			$ 135
Contingencies (0.0%)			$ 0
Project Management (10.0%)			$ 14
Total Remedial Action			$ 149
TOTAL SITE 07			$ 378

ESTIMATE SUMMARY REPORT

Project:

Project ID: 128FW
Location: Madison WI
Studies Option: RI/FS
Site Option: Multiple Sites
Project Name: 128th Fighter Wing
Project Comments: Wisconsin ANG
Prepared By: Radian Corporation
Date: 12/17/93

Site:

Site ID: 08
Category: Actual Site
Site Name: Ramp Area
Site Comments: RA: Soil Vapor Extraction, Closure Sampling; PCO
Prepared By: Radian Corporation
Date: 12/21/93

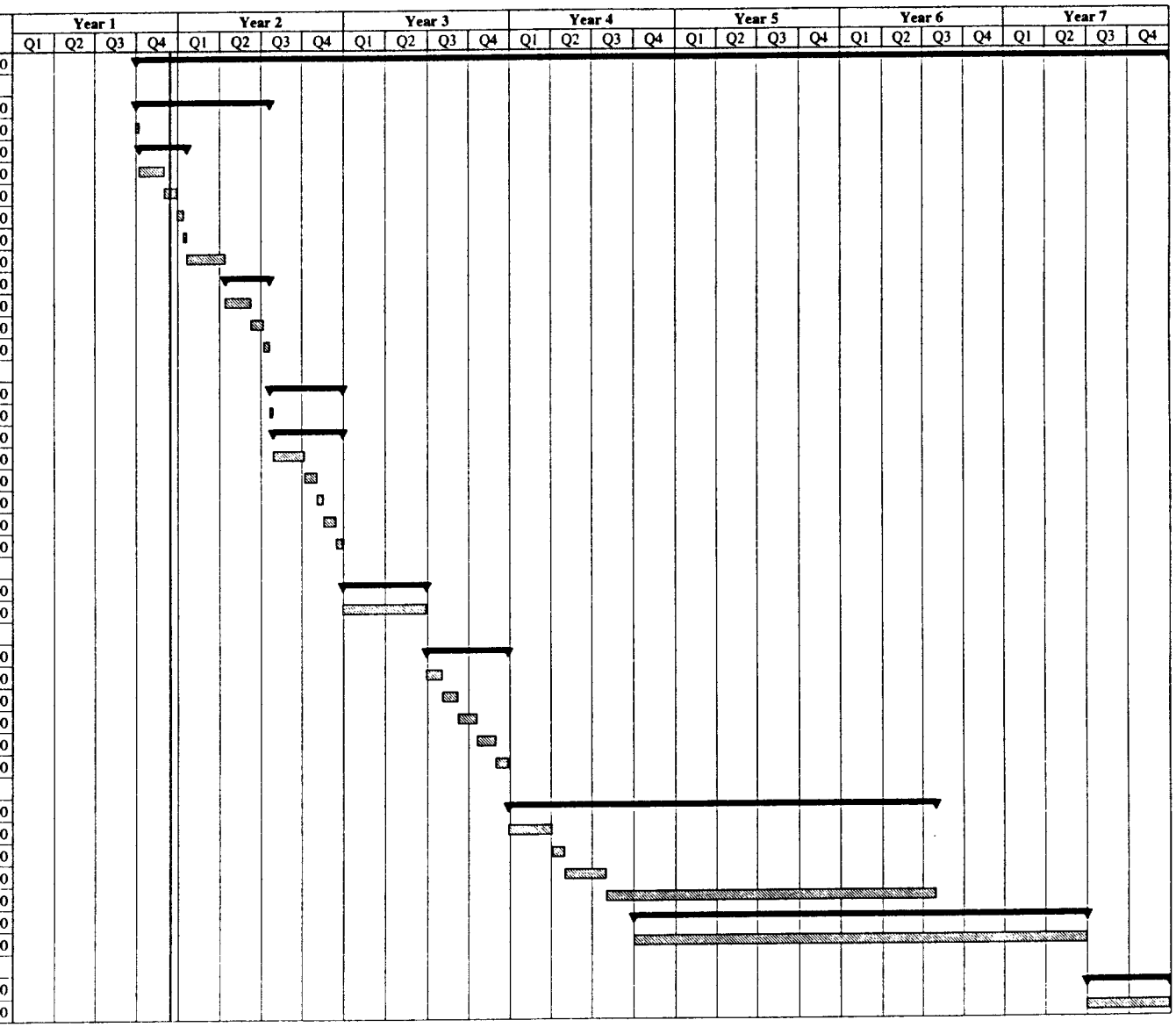
	Capital Costs($000)	O&M Costs($000)	Total Cost($000)
REMEDIAL DESIGN:			$ 32
REMEDIAL ACTION:			
Sampling & Analysis	$ 10		$ 10
Soil Vapor Extraction	$ 212	$ 36	$ 248
RA Total Direct Cost	$ 222	$ 36	$ 258
Indirect, Overhead, & Profit (24.9%)			$ 64
Subtotal			$ 322
Escalation (0.0%) (1995/06)			$ 0
Total Contract Cost			$ 322
Contingencies (0.0%)			$ 0
Project Management (10.0%)			$ 32
Total Remedial Action			$ 354
TOTAL SITE 08			$ 386
TOTAL PROJECT 128FW			$ 2,295

Attachment 2

SCHEDULES
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

128th Fighter Wing, Wisconsin ANG

ID	Name	Duration	Cost
1	Site 4 - UST 405-3 and 405-4	326w	$694,000.00
2			
3	Remedial Investigation	42w	$302,000.00
4	Contracting	1w	$0.00
5	RI Work Plan	15w	$0.00
6	Internal Draft	8w	$0.00
7	Draft Final	4w	$0.00
8	Final Work Plan Review	2w	$0.00
9	Work Plan Distribution	1w	$0.00
10	Field Work	12w	$0.00
11	RI Report	14w	$0.00
12	Internal Draft	8w	$0.00
13	Draft Final	4w	$0.00
14	RI Final Report/Distribution	2w	$0.00
15			
16	Feasibility Study	23w	$15,000.00
17	Contracting	1w	$0.00
18	FS Report	22w	$0.00
19	Internal Draft	10w	$0.00
20	Draft Final	4w	$0.00
21	FS Final Report/Distribution	2w	$0.00
22	Public Comment Period	4w	$0.00
23	Response To Public Comment	2w	$0.00
24			
25	Decision Document	26w	$10,000.00
26	DD Process	26w	$0.00
27			
28	Remedial Design	26w	$30,000.00
29	Contracting	5w	$0.00
30	30% Design	5w	$0.00
31	60% Design	6w	$0.00
32	95% Design	6w	$0.00
33	100% Design	4w	$0.00
34			
35	Remedial Action	135w	$297,000.00
36	Advertising	14w	$0.00
37	Award	4w	$0.00
38	Construction	13w	$0.00
39	Operation and Maintenance	104w	$0.00
40	Long-Term Monitoring	143.8w	$30,000.00
41	Periodic Reporting	143.8w	$0.00
42			
43	Project Close Out	26w	$10,000.00
44	PCO Process	26w	$0.00

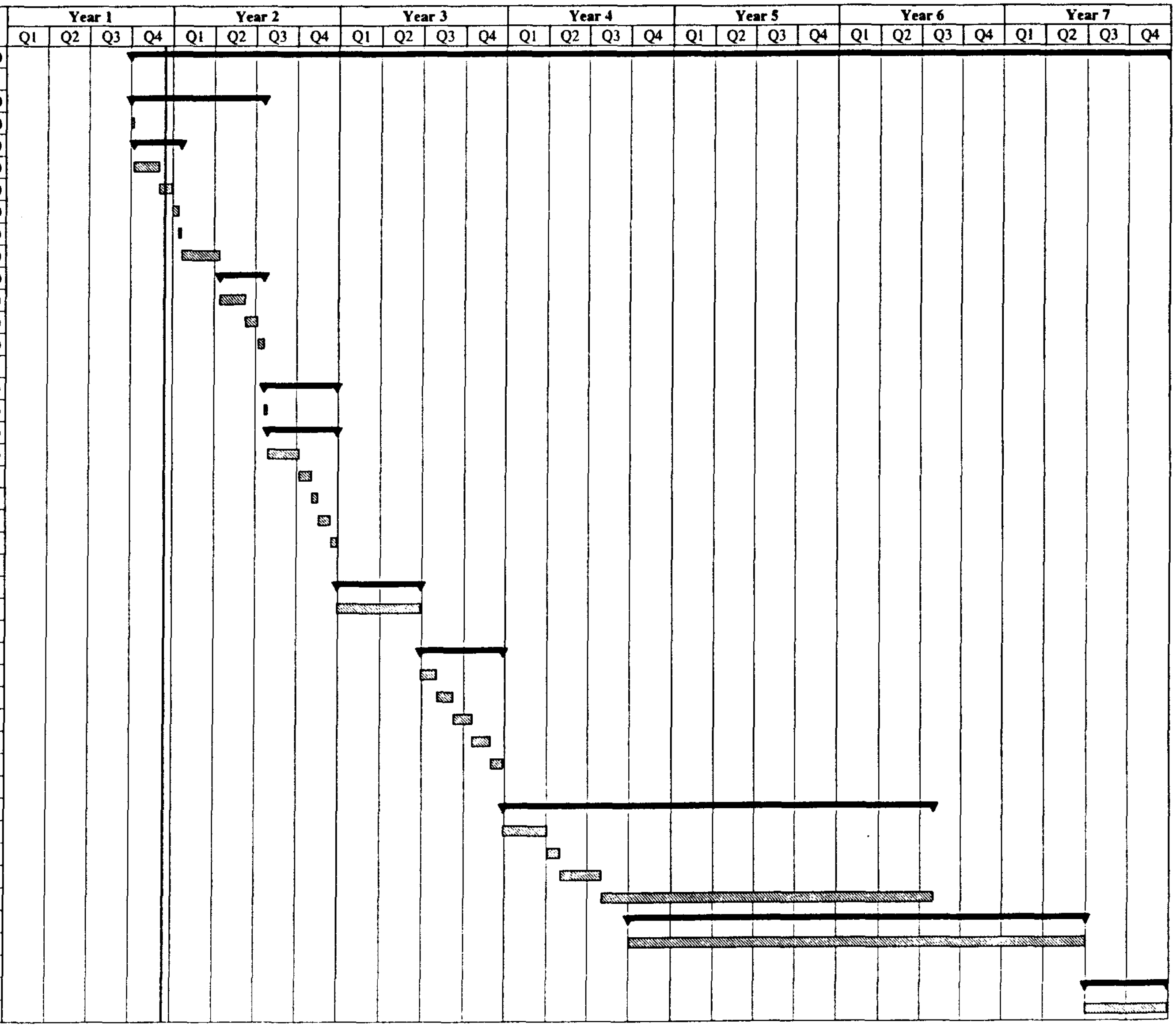


9/13/94 TRUAX4.MPP

Lm= 30K for 11 yrs 3 K/yr 12K/yr

128th Fighter Wing, Wisconsin ANG

ID	Name	Duration	Cost
1	Site 5 - UST 1201-1	326w	$437,000.00
2			
3	Remedial Investigation	42w	$210,000.00
4	Contracting	1w	$0.00
5	RI Work Plan	15w	$0.00
6	Internal Draft	8w	$0.00
7	Draft Final	4w	$0.00
8	Final Work Plan Review	2w	$0.00
9	Work Plan Distribution	1w	$0.00
10	Field Work	12w	$0.00
11	RI Report	14w	$0.00
12	Internal Draft	8w	$0.00
13	Draft Final	4w	$0.00
14	RI Final Report/Distribution	2w	$0.00
15			
16	Feasibility Study	23w	$10,000.00
17	Contracting	1w	$0.00
18	FS Report	22w	$0.00
19	Internal Draft	10w	$0.00
20	Draft Final	4w	$0.00
21	FS Final Report/Distribution	2w	$0.00
22	Public Comment Period	4w	$0.00
23	Response To Public Comment	2w	$0.00
24			
25	Decision Document	26w	$10,000.00
26	DD Process	26w	$0.00
27			
28	Remedial Design	26w	$17,000.00
29	Contracting	5w	$0.00
30	30% Design	5w	$0.00
31	60% Design	6w	$0.00
32	95% Design	6w	$0.00
33	100% Design	4w	$0.00
34			
35	Remedial Action	135w	$143,000.00
36	Advertising	14w	$0.00
37	Award	4w	$0.00
38	Construction	13w	$0.00
39	Operation and Maintenance	104w	$0.00
40	Long-Term Monitoring	143.8w	$37,000.00
41	Periodic Reporting	143.8w	$0.00
42			
43	Project Close Out	26w	$10,000.00
44	PCO Process	26w	$0.00

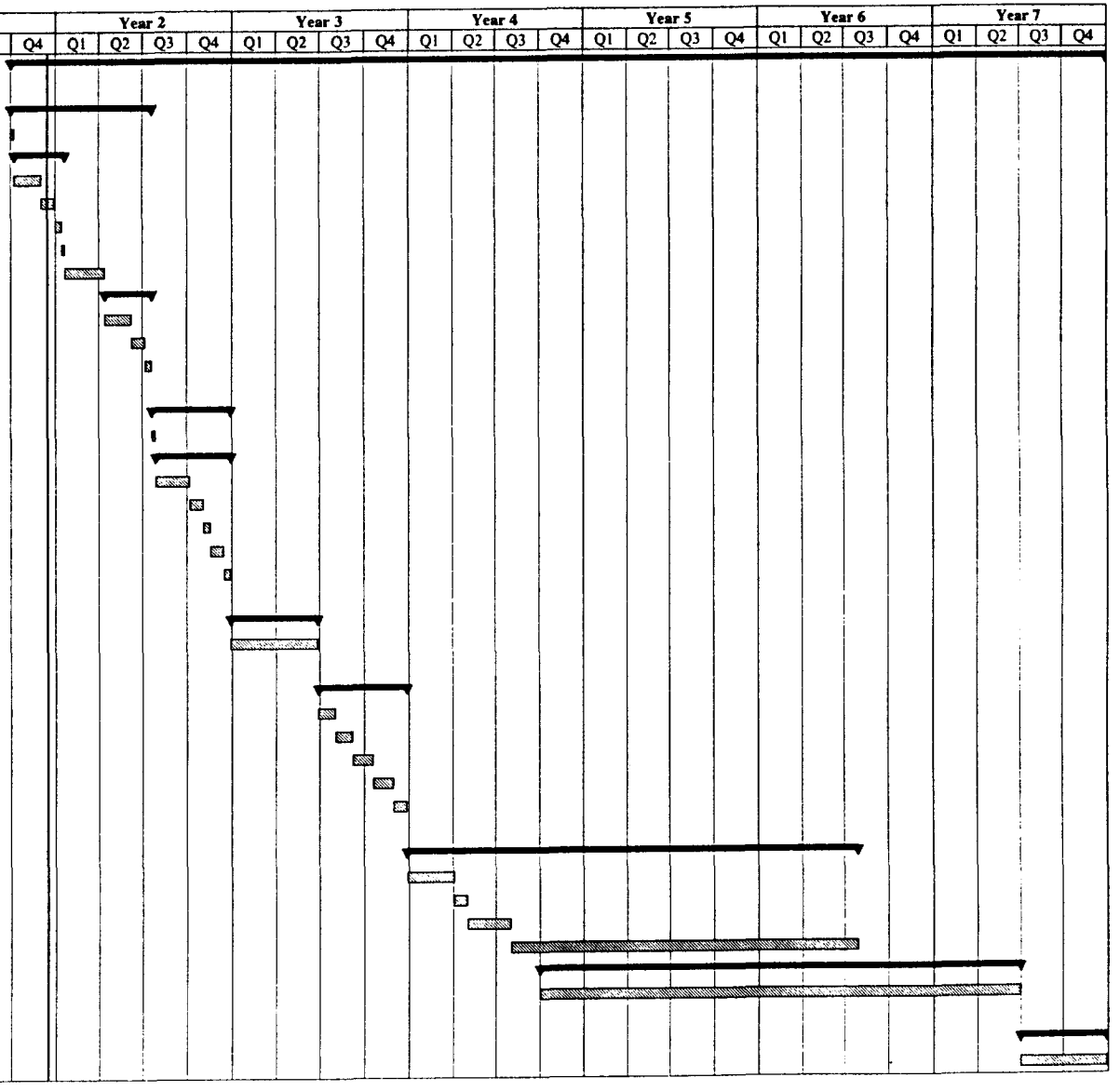


9/13/94 TRUAX5.MPP

LTM - 37K FOR 11 qtrs 3K/qtr = 12K/yr

128th Fighter Wing, Wisconsin ANG

ID	Name	Duration	Cost
1	Site 6 - UST 1000-2	326w	$400,000.00
2			
3	Remedial Investigation	42w	$180,000.00
4	Contracting	1w	$0.00
5	RI Work Plan	15w	$0.00
6	Internal Draft	8w	$0.00
7	Draft Final	4w	$0.00
8	Final Work Plan Review	2w	$0.00
9	Work Plan Distribution	1w	$0.00
10	Field Work	12w	$0.00
11	RI Report	14w	$0.00
12	Internal Draft	8w	$0.00
13	Draft Final	4w	$0.00
14	RI Final Report/Distribution	2w	$0.00
15			
16	Feasibility Study	23w	$10,000.00
17	Contracting	1w	$0.00
18	FS Report	22w	$0.00
19	Internal Draft	10w	$0.00
20	Draft Final	4w	$0.00
21	FS Final Report/Distribution	2w	$0.00
22	Public Comment Period	4w	$0.00
23	Response To Public Comment	2w	$0.00
24			
25	Decision Document	26w	$10,000.00
26	DD Process	26w	$0.00
27			
28	Remedial Design	26w	$16,000.00
29	Contracting	5w	$0.00
30	30% Design	5w	$0.00
31	60% Design	6w	$0.00
32	95% Design	6w	$0.00
33	100% Design	4w	$0.00
34			
35	Remedial Action	135w	$143,000.00
36	Advertising	14w	$0.00
37	Award	4w	$0.00
38	Construction	13w	$0.00
39	Operation and Maintenance	104w	$0.00
40	Long-Term Monitoring	143.8w	$31,000.00
41	Periodic Reporting	143.8w	$0.00
42			
43	Project Close Out	26w	$10,000.00
44	PCO Process	26w	$0.00



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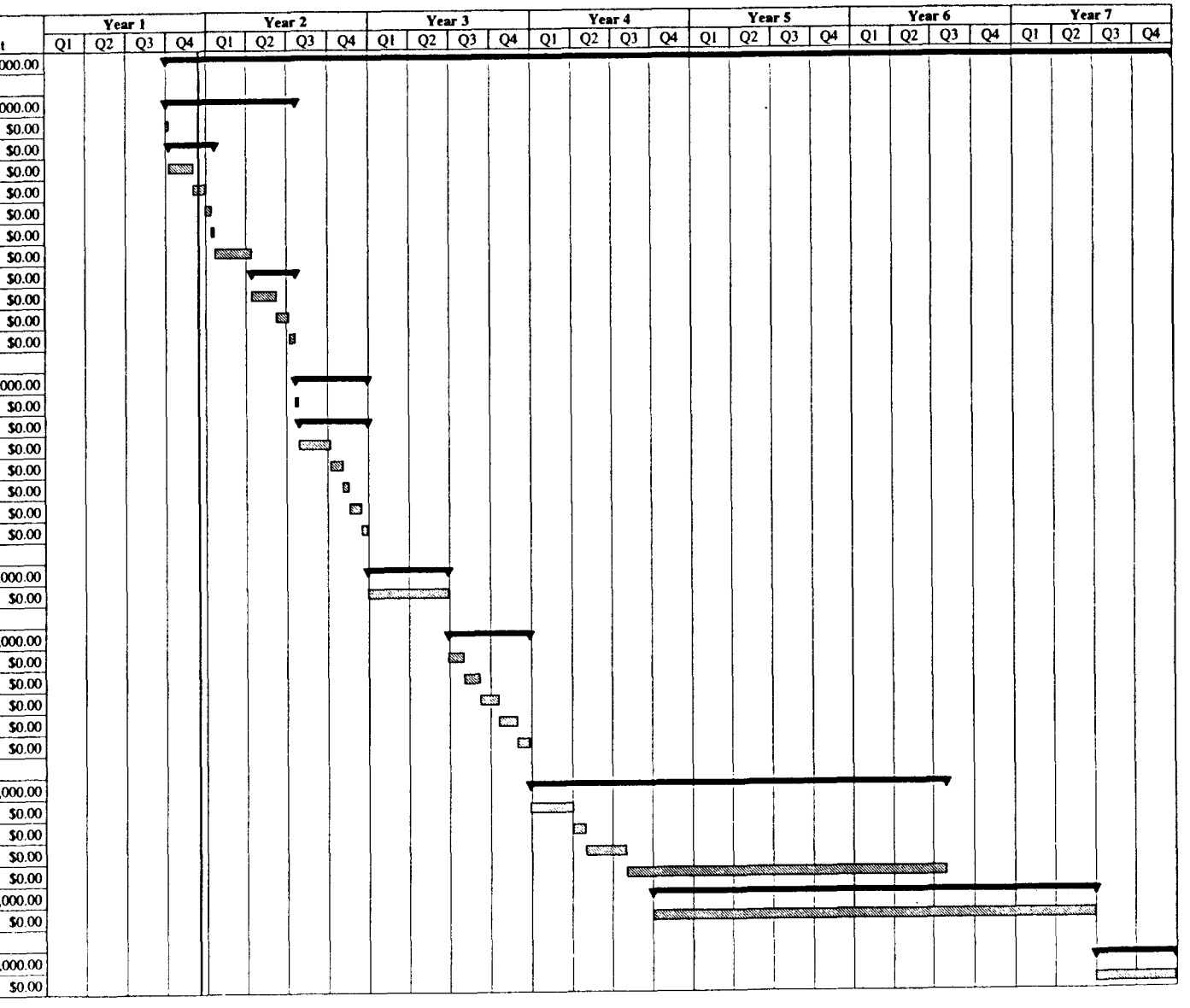
31K for 11 yrs
3K/yr
12K/yr.

128th Fighter Wing, Wisconsin ANG

ID	Name	Duration	Cost
1	Site 7 - UST 409-2	326w	$378,000.00
2			
3	Remedial Investigation	42w	$196,000.00
4	Contracting	1w	$0.00
5	RI Work Plan	15w	$0.00
6	Internal Draft	8w	$0.00
7	Draft Final	4w	$0.00
8	Final Work Plan Review	2w	$0.00
9	Work Plan Distribution	1w	$0.00
10	Field Work	12w	$0.00
11	RI Report	14w	$0.00
12	Internal Draft	8w	$0.00
13	Draft Final	4w	$0.00
14	RI Final Report/Distribution	2w	$0.00
15			
16	Feasibility Study	23w	$10,000.00
17	Contracting	1w	$0.00
18	FS Report	22w	$0.00
19	Internal Draft	10w	$0.00
20	Draft Final	4w	$0.00
21	FS Final Report/Distribution	2w	$0.00
22	Public Comment Period	4w	$0.00
23	Response To Public Comment	2w	$0.00
24			
25	Decision Document	26w	$10,000.00
26	DD Process	26w	$0.00
27			
28	Remedial Design	26w	$13,000.00
29	Contracting	5w	$0.00
30	30% Design	5w	$0.00
31	60% Design	6w	$0.00
32	95% Design	6w	$0.00
33	100% Design	4w	$0.00
34			
35	Remedial Action	135w	$112,000.00
36	Advertising	14w	$0.00
37	Award	4w	$0.00
38	Construction	13w	$0.00
39	Operation and Maintenance	104w	$0.00
40	Long-Term Monitoring	143.8w	$27,000.00
41	Periodic Reporting	143.8w	$0.00
42			
43	Project Close Out	26w	$10,000.00
44	PCO Process	26w	$0.00

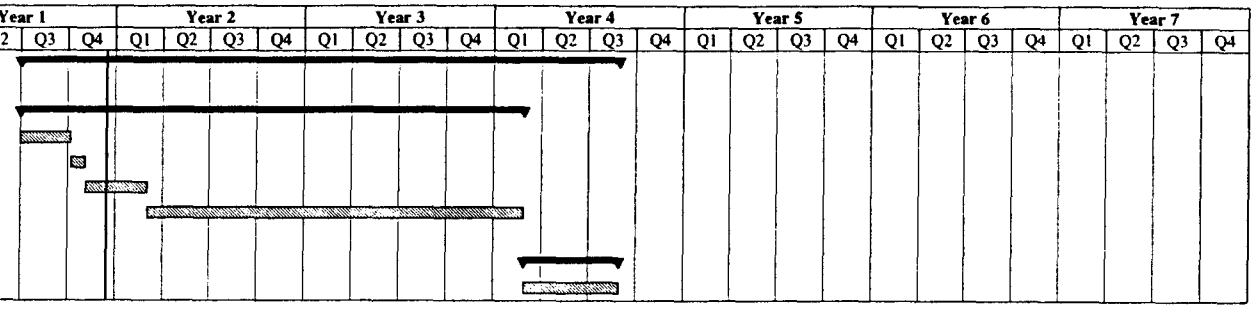


9/13/94 TRUAX7.MP

27K FOR 11 yrs
3K/yr
12K/yr

128th Fighter Wing, Wisconsin ANG

ID	Name	Duration	Cost
1	Site 8 - Ramp Area	165w	$386,000.00
2			
3	Interim Remedial Action	139w	$376,000.00
4	Advertising	14w	$0.00
5	Award	4w	$0.00
6	Construction	17w	$0.00
7	Operation and Maintenance	104w	$0.00
8			
9	Project Close Out	26w	$10,000.00
10	PCO Process	26w	$0.00



Appendix A

COST ESTIMATE AND SCHEDULE CONFIRMATION
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

1.0 INTRODUCTION

This appendix presents the estimated costs and schedules for completing the investigation and remediation of Installation Restoration Program (IRP) sites at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin. The investigation and remediation of ANG property at the Base are being conducted under the IRP.

Eight IRP sites have been identified at the Base. These sites are shown on Figure A-1 and are listed below:

- Site 1 - JP-4 Fuel Spill No. 1;
- Site 2 - JP-4 Fuel Spill No. 2;
- Site 3 - PCB Spill;
- Site 4 - UST 405-3 and 405-4;
- Site 5 - UST 1201-1;
- Site 6 - UST 1000-2;
- Site 7 - UST 409-2; and
- Site 8 - Ramp Area.

Descriptions of the IRP sites at the Base are presented in Section 2.0 of this appendix. The estimated costs and schedules for the IRP sites are presented in Section 3.0 of this appendix.

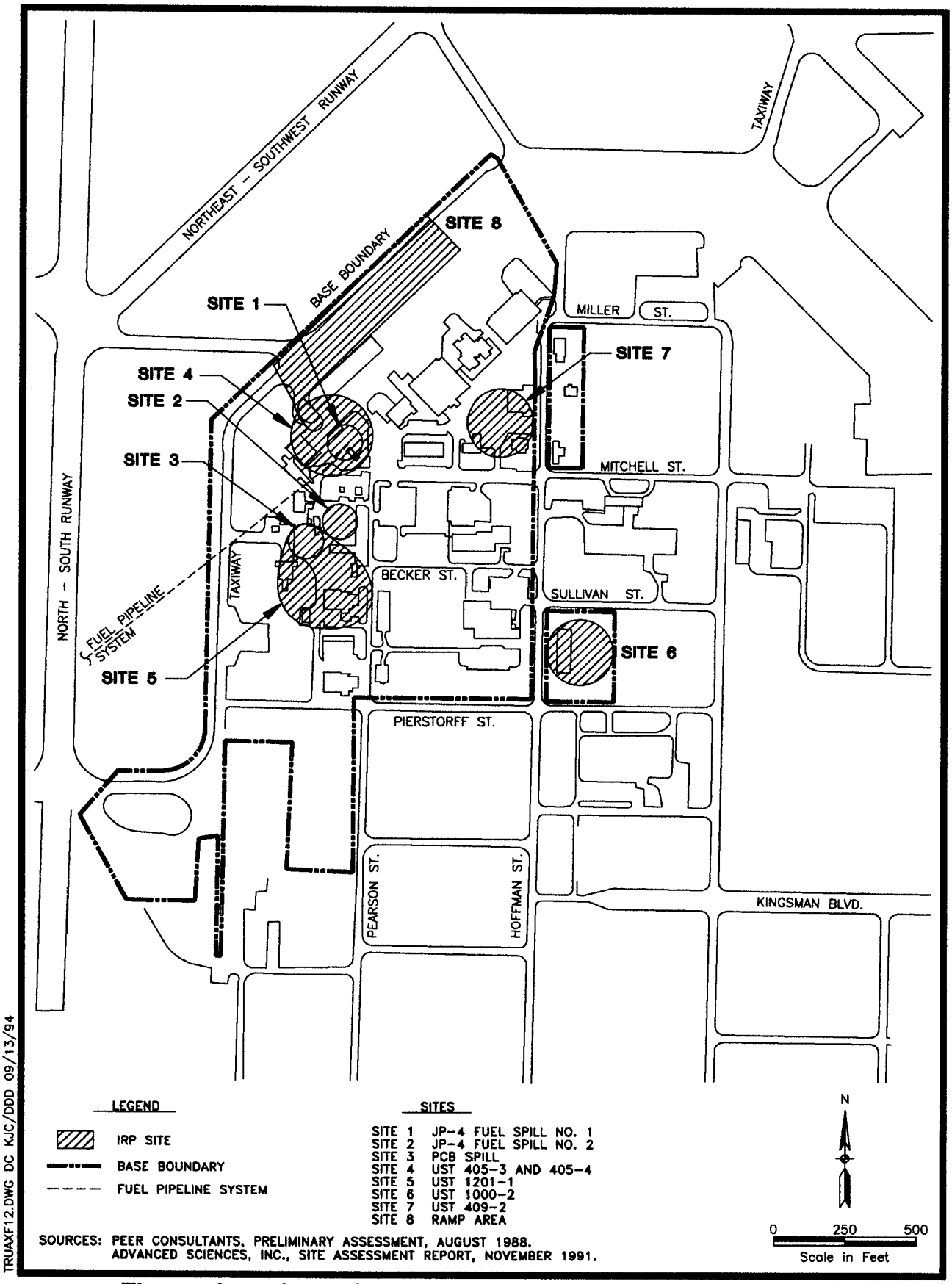


Figure A-1. Locations of IRP Sites, 128th Fighter Wing, Wisconsin ANG

2.0 SITE DESCRIPTIONS

Descriptions of the IRP sites at the Base are presented in Sections 2.1 through 2.8. Each site description presents an overall summary of the status of the site. This summary is designed to provide the following information: a physical description of the site, including its location at the Base; a brief history of the site, including how it was identified as an IRP site and what IRP activities have been conducted at the site; the environmental setting of the site, including geological and hydrogeological information, if available; a summary of the highest contaminant concentrations detected in samples collected from various media at the site; and a brief description of the IRP activities that are planned at the site.

In addition, the site descriptions include any scores that have been generated for the sites using hazard ranking models. The three major hazard ranking models applicable to ANG IRP sites include: the Hazard Ranking System (HRS), the Hazard Assessment Rating Methodology (HARM), and the Defense Priority Model (DPM). The HRS is used by the U.S. Environmental Protection Agency to identify sites for inclusion on the National Priorities List (NPL). The HARM was developed by the U.S. Air Force to prioritize sites for investigation and cleanup. The Air Force later developed an improved version of this model, HARM II, to prioritize sites for Remedial Action (RA) after the completion of a Remedial Investigation (RI). In 1988, the U.S. Department of Defense decided to use the HARM II model to prioritize IRP sites for RA, and changed the name of this model to the DPM. None of the eight IRP sites at the Base have been assigned a score using the HARM or the DPM.

Based on referenced documents, the basewide geological profile generally includes a surficial layer of silty clay that extends to a depth of approximately 5 feet below ground surface (BGS). This surficial layer is underlain by a fine- to medium-grained stratified sand layer that extends to an unknown depth. Gravelly sands are encountered more frequently at increasing depths, but are discontinuous. Groundwater beneath the Base is found in two aquifers. The lower aquifer, located approximately 250 feet BGS, is used as a water supply for municipal and private wells in the vicinity of the Base. The upper aquifer, which is

generally encountered at 5 to 15 feet BGS, reportedly recharges the lower aquifer. Groundwater in the upper aquifer flows to the southeast. Surface water at the Base drains through drainage ditches and culverts and eventually discharges into Starkweather Creek south of the Base.

A background monitoring well was installed in the area north of Building 414 and east of the taxiway. One groundwater sample was collected and analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Dimethyl phthalate was the only constituent detected in the groundwater sample at a concentration of 12 micrograms per liter (µg/L).

2.1 Site 1 - JP-4 Fuel Spill No. 1

Site 1 (JP-4 Fuel Spill No. 1) is located adjacent to Building 405 in the petroleum, oil, and lubricant (POL) area. Four 50,000-gallon jet propulsion fuel #4 (JP-4) underground storage tanks (USTs) are located in the vicinity of the site. On March 6, 1981, approximately 2,000 gallons of JP-4 spilled onto the ground when one of the USTs overflowed during filling. The fire department flushed the fuel toward a nearby drainage ditch that was dammed off. The fuel soaked into the ground and was covered with straw. Under the direction of the Wisconsin Department of Natural Resources (Wisconsin DNR), the contaminated soil was removed in 1981 to a depth of 6 feet BGS in the ditch and to the limit of odor detection on the ditch side slopes. The soil was spread onto concrete pads and hauled off base the following year. In 1982, the site was paved with asphalt.

The site is presently covered with asphalt. Based on the referenced documents, surficial soil at the site consists of a sandy gravel fill layer that is approximately 1 foot thick. This fill layer is underlain by a layer of clay that is approximately 1 foot thick. The clay layer is underlain by a layer of very fine to fine silty clay that extends to a depth of approximately 4 feet BGS. Below the silty clay layer, fine- to medium-grained sand extends to an unknown depth. Groundwater at the site is encountered at approximately 5 to 9 feet BGS.

Site 1 was identified as an IRP site and is eligible for Defense Environmental Restoration Account (DERA) funding based on the results of a Preliminary Assessment (PA) completed in August 1988. During the PA, the possible pathways of contaminant migration from the JP-4 spill were determined to be surface water and groundwater. Since the terrain was flat, the spill was confined, and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since the contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. Therefore, it was concluded that no further action was required at the site. A Decision Document (DD) recommending no further response action at Site 1 was prepared in November 1988.

2.2 Site 2 - JP-4 Fuel Spill No. 2

Site 2 (JP-4 Fuel Spill No. 2) is located east of Building 1201. On August 3, 1985, approximately 100 gallons of waste JP-4 spilled onto the ground during filling of a 3,000-gallon waste oil UST. The fuel was contained and absorbed with blotters. Three 55-gallon drums of contaminated soil were removed two days after the incident. The UST was removed in October 1991.

No site-specific geological information is available for this site. Groundwater in the vicinity is located approximately 9 feet BGS.

Site 2 was identified as an IRP site and is eligible for DERA funding based on the results of a PA completed in August 1988. During the PA, the possible pathways of contaminant migration from the JP-4 spill were determined to be surface water and groundwater. Since the terrain was flat, the spill was confined, and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since the contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. Therefore, it was concluded that no further response action was required at the site. A DD recommending no further response action at Site 2 was prepared in November 1988.

2.3 Site 3 - PCB Spill

Site 3 (PCB Spill) is located south of Building 1201 at an electrical training station. In 1983, one of three pole-mounted transformers leaked dielectric fluid onto the ground. The polychlorinated biphenyl (PCB) concentration in the fluid that leaked was determined to be 1,800 parts per million (ppm). Three 55-gallon drums of PCB-contaminated soil were removed from the site. The transformers were also removed to prevent further contamination.

No site-specific geological information is available for this site. Groundwater in the vicinity is located at a depth of approximately 11 feet BGS.

Site 3 was identified as an IRP site and is eligible for DERA funding based on the results of a PA completed in August 1988. During the PA, the possible pathways of contaminant migration from the PCB spill were determined to be surface water and groundwater. Since the terrain was flat and there is no surface water in the immediate area, surface water was not considered a likely pathway. Since contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. After the soil removal, analysis of soil samples collected from the area confirmed that levels of PCBs in the soil were less than 0.1 ppm and below the action level specified in the Toxic Substances Control Act (TSCA). Therefore, it was concluded no further response action was required at this site. A DD recommending no further response action at Site 3 was prepared in November 1988.

2.4 Site 4 - UST 405-3 and 405-4

Site 4 (UST 405-3 and 405-4) is located at the POL facility near the taxiway. Site 4 covers an area of approximately 3 acres. There are four 50,000-gallon JP-4 USTs adjacent to Building 405 and four USTs adjacent to Building 414. The area of the site also includes a bulk fuel intake system, a former refueling station, and an abandoned underground fuel pipeline and hydrant system. The pipeline and hydrant system was taken out of service in 1973; it is not known

if the fuel was purged from the pipeline or hydrant system. The 1981 JP-4 fuel spill (Site 1) is also included within the area of this site.

Based on referenced documents, the surficial soil at Site 4 consists of semiconsolidated clay to a depth of approximately 2 feet BGS. In areas where construction activities have taken place, the clay layer is covered with a sandy gravel fill. The clay layer is underlain by very fine to fine silty clay to a depth of 4 feet BGS. The silty clay is underlain by a fine- to medium-grained sand layer to an unknown depth. Groundwater at the site flows to the southeast and is located at 5 to 9 feet BGS.

Site 4 was identified as an IRP site and is eligible for DERA funding based on the results of a Site Investigation (SI) completed in September 1990. During the SI, total petroleum hydrocarbons (TPH) were detected in soil samples at a depth of 5 to 7 feet BGS at a maximum concentration of 494 milligrams per kilogram (mg/kg). Site 4 was further investigated in a 1991 Site Assessment (SA). The SA field activities included the completion of a soil gas survey, the drilling of 15 soil borings, and the sampling of groundwater in six monitoring wells.

Analytical results of groundwater samples collected at Site 4 indicated the presence of benzene at a maximum concentration of 5.7 milligrams per liter (mg/L), xylenes at a maximum concentration of 3.9 mg/L, ethylbenzene at a maximum concentration of 0.52 mg/L, and naphthalene at a maximum concentration of 0.42 mg/L. The concentration of benzene detected in groundwater samples exceeded the Wisconsin Maximum Contaminant Level (MCL). Detected concentrations of xylenes and naphthalene exceeded the Wisconsin Enforcement Standard. The detected concentration of ethylbenzene exceeded the Wisconsin Preventive Action Limit. Several additional polynuclear aromatic hydrocarbons (PAHs) were also detected in the groundwater samples. The former refueling station was identified as a potential source of contamination. Site 4 will be investigated further during a Remedial Investigation/Feasibility Study (RI/FS) scheduled to begin in FY94.

2.5 Site 5 - UST 1201-1

Site 5 (UST 1201-1) is located in the vicinity of Building 1201 and covers an area of approximately 3 acres. The site includes the location of a former waste oil tank, UST 1201-1, that was removed in October 1991. UST 1201-1 failed a volumetric tightness test in 1990. The 1985 JP-4 fuel spill (Site 2) is also included within the area of this site.

Based on referenced documents, the surficial soil at Site 5 consists of a fine- to medium-grained stratified silty sand layer that extends to a depth of 5 feet BGS. This silty sand layer is underlain by a clayey sand-sandy clay layer that extends to a depth of 7 feet BGS. Below this layer, a fine-grained sand layer is encountered to an unknown depth. Groundwater at the site is located approximately 9 to 14 feet BGS.

Site 5 was identified as an IRP site and is eligible for DERA funding based on the results of an integrity test conducted prior to December 22, 1993, during the 1990 SI. The SI also included groundwater sampling of two monitoring wells. Tetrachloroethene was detected at a maximum level of 2 µg/L. The concentration of tetrachloroethene detected during the SI exceeded the Wisconsin Enforcement Standard. The site was further investigated during a 1991 SA. The SA included the completion of a soil gas survey, the sampling of soil in three soil borings, and sampling of groundwater in one monitoring well. No volatile or semivolatile constituents, including tetrachloroethene, were detected in the soil or groundwater samples. Site 5 will be investigated further during a RI/FS scheduled for FY94.

2.6 Site 6 - UST 1000-2

Site 6 (UST 1000-2) is located in the vicinity of Building 1000, the motor pool area, and covers an area of approximately 3 acres. In the past, waste oil and solvent storage operations were conducted at the site. Five USTs were formerly located at the site.

Based on referenced documents, the surficial soil at Site 6 consists of a layer of sandy gravel fill to a depth of approximately 2 feet BGS. The fill layer is underlain by a mixture of silty clays, clayey silt, and silt to a depth of approximately 6 to 7 feet BGS. This layer is underlain by a fine- to medium-grained sand unit to an unknown depth. Groundwater in the upper aquifer is located approximately 9 to 10 feet BGS.

Site 6 was identified as an IRP site and is eligible for DERA funding based on the results of a SI completed in September 1990. Soil samples were analyzed for TPH during the SI; no TPH were detected in these samples. The site was investigated further in a 1991 SA. The SA included the sampling of groundwater in three monitoring wells. 1,2-Dichloroethene was detected in groundwater samples collected from the wells at concentrations as high as 33 µg/L. The concentration of 1,2-dichloroethene detected during the SA exceeded the Wisconsin Preventive Action Limit. Site 6 will be investigated further during a RI/FS scheduled for FY94.

2.7 Site 7 - UST 409-2

Site 7 (UST 409-2) is located at the aircraft maintenance facility, which includes Buildings 400, 401, 409, and 410. This site covers an area of approximately 3 acres. Five USTs were originally located at this site. Four of these tanks have been removed. A 550-gallon used oil tank is located at this site. No known leaks have occurred at the site.

Based on referenced documents, the geology of Site 7 consists of approximately 4 feet of sandy gravel fill that is underlain by fine- to medium-grained sand. Discontinuous layers of clayey silt and clay are encountered within the sand layer at a depth of 2 to 4 feet BGS. Groundwater at the site is located at a depth of approximately 7 to 9 feet BGS.

Site 7 was identified as an IRP site and is eligible for DERA funding based on the results of a SI completed in September 1990. The site was further investigated during a 1991 SA. The SA included the completion of a soil

gas survey, the sampling of soil in two soil borings, and the sampling of groundwater in four monitoring wells. No volatile or semivolatile organic constituents were detected in the soil samples collected at the site. Trichloroethene was detected at a maximum concentration of 17 µg/L in groundwater samples collected at the site; this concentration exceeded the Wisconsin MCL. A RI/FS is scheduled to begin in FY94 to determine the source and extent of contamination in groundwater at the site.

2.8 Site 8 - Ramp Area

Site 8 (Ramp Area) is located adjacent to the taxiway and Hangar 412 and covers an area of approximately 3 acres. Periodic spills of fuel and oil have occurred at the site.

No site-specific geological information is available for this site. Groundwater in the vicinity of the site is located approximately 4 to 7 feet BGS.

Site 8 was identified as an IRP site and determined to be eligible for DERA funding during a construction project at the ramp in 1990. According to the Form 1391 Funding Request submitted for this site, contaminated soil was detected in the vicinity of the Base apron and the ramp. Soil was sampled at the site in 1990, and TPH, benzene, toluene, ethylbenzene, and xylenes were detected in soil samples at concentrations exceeding Wisconsin action levels. A portion of the soil at the site was remediated in 1993 using low-temperature thermal desorption. An additional 18,000 cubic yards of soil will be remediated using soil vapor extraction in FY94.

3.0 ESTIMATED COSTS AND SCHEDULES

This section presents estimated costs and schedules for the IRP sites at the Base. The remedial actions (RAs) selected for the IRP sites are listed in Section 3.1. The cost estimates are provided in Section 3.2, and the schedules are provided in Section 3.3. Subsequent updates to the estimated costs and schedules will be coordinated by the Air National Guard Readiness Center (ANGRC) Project Manager (PM) as additional information and/or estimating tools become available.

3.1 Remedial Actions Selected for IRP Sites

The future RAs selected for each IRP site at the Base are listed in Table A-1. The RAs were selected based on input obtained from the ANGRC PM and on information contained in the referenced documents. The RAs listed in Table A-1, along with the associated site investigation activities, provide the basis for the cost estimates and schedules for the IRP sites.

3.2 Cost Estimates

Table A-2 presents a summary of estimated costs for anticipated IRP investigation and remediation activities at the Base, for each of the IRP sites. The cost estimates were generated using the Remedial Action Cost Engineering and Requirements (RACER) cost model (Version 2.0), which was developed by the U.S. Air Force for estimating IRP investigation and remediation costs. The cost model was calibrated based on information contained in referenced documents and the ANG Year 2000 Plan, and on input obtained from the ANGRC PM. (The ANG Year 2000 Plan lists projected funds through the end of fiscal year 2000 (FY2000) for anticipated IRP activities.) This calibration process was implemented to develop costs consistent with previous ANG experience in conducting investigation and remediation activities.

Table A-1

Future Remedial Actions Selected for IRP Sites
128th Fighter Wing, Wisconsin ANG

Site Name	Future Remedial Action	Comments
Site 1 - JP-4 Fuel Spill No. 1	No further remedial action	Decision Document recommending no further response action was prepared in November 1988
Site 2 - JP-4 Fuel Spill No. 2	No further remedial action	Decision Document recommending no further response action was prepared in November 1988
Site 3 - PCB Spill	No further remedial action	Decision Document recommending no further response action was prepared in November 1988
Site 4 - UST 405-3 and 405-4	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 8
	Long-term monitoring	Semiannual groundwater sampling
Site 5 - UST 1201-1	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 3
	Long-term monitoring	Semiannual groundwater sampling
Site 6 - UST 1000-2	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 3
	Long-term monitoring	Semiannual groundwater sampling
Site 7 - UST 409-2	Bioremediation (saturated zone)	Depth: 10 feet Number of wells: 2
	Long-term monitoring	Semiannual groundwater sampling
Site 8 - Ramp Area	Soil vapor extraction	Volume: 18,000 cubic yards

Table A-2

Summary of Estimated Costs for Anticipated IRP Activities
128th Fighter Wing, Wisconsin ANG

Site Number	Estimated Costs (Thousands of Dollars)							
	FY94	FY95	FY96	FY97	FY98	FY99	FY2000	Total
4	302	15	337	30			10	694
5	210	10	170	37			10	437
6	180	10	169	31			10	400
7	196	10	135	27			10	378
8	376			10				386
Total	$1,264	$45	$811	$135	$0	$0	$40	$2,295

3.3 Schedules

Schedules for the IRP sites that require further action are presented on Figures A-2 through A-6. The schedules were prepared using Microsoft® Project for Windows (Version 3.0) and are divided by fiscal year for each of the sites. The schedules were developed based on input obtained from the ANGRC PM and on information contained in the ANG Year 2000 Plan. The schedules assume continuous progress toward completion of the IRP process at each site and do not consider staff or budgetary limitations.

ID	Name	Duration
1	Site 4 - UST 405-3 and 405-4	326w
2		
3	Remedial Investigation	42w
4	Contracting	1w
5	RI Work Plan	15w
6	Internal Draft	8w
7	Draft Final	4w
8	Final Work Plan Review	2w
9	Work Plan Distribution	1w
10	Field Work	12w
11	RI Report	14w
12	Internal Draft	8w
13	Draft Final	4w
14	RI Final Report/Distribution	2w
15		
16	Feasibility Study	23w
17	Contracting	1w
18	FS Report	22w
19	Internal Draft	10w
20	Draft Final	4w
21	FS Final Report/Distribution	2w
22	Public Comment Period	4w
23	Response To Public Comment	2w
24		
25	Decision Document	26w
26	DD Process	26w
27		
28	Remedial Design	26w
29	Contracting	5w
30	30% Design	5w
31	60% Design	6w
32	95% Design	6w
33	100% Design	4w
34		
35	Remedial Action	135w
36	Advertising	14w
37	Award	4w
38	Construction	13w
39	Operation and Maintenance	104w
40	Long-Term Monitoring	143.8w
41	*Periodic Reporting*	143.8w
42		
43	Project Close Out	26w
44	PCO Process	26w

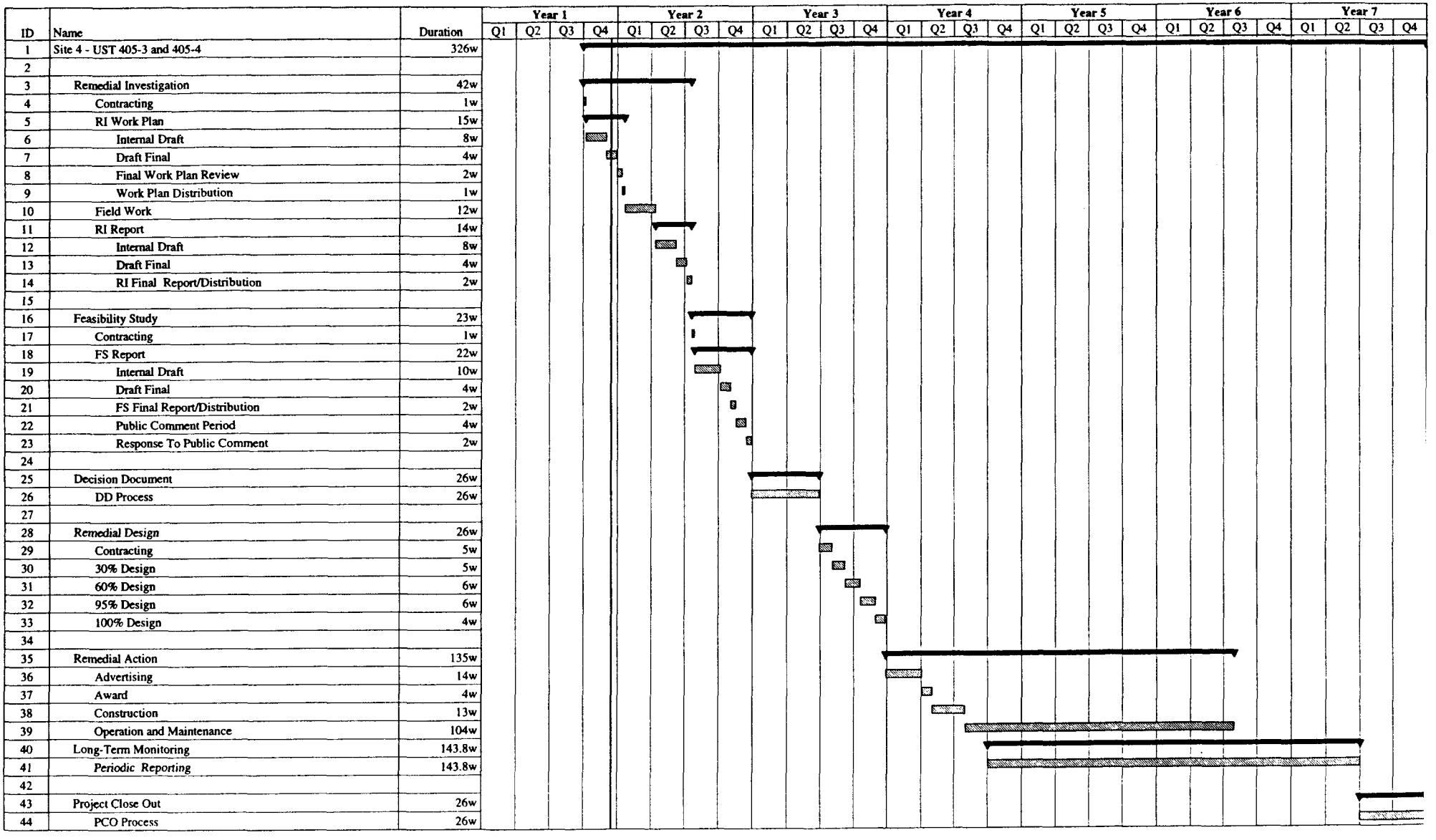


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Figure A-2. Scheduled IRP Activities, Site 4
128th Fighter Wing, Wisconsin ANG

ID	Name	Duration
1	Site 5 - UST 1201-1	326w
2		
3	Remedial Investigation	42w
4	Contracting	1w
5	RI Work Plan	15w
6	Internal Draft	8w
7	Draft Final	4w
8	Final Work Plan Review	2w
9	Work Plan Distribution	1w
10	Field Work	12w
11	RI Report	14w
12	Internal Draft	8w
13	Draft Final	4w
14	RI Final Report/Distribution	2w
15		
16	Feasibility Study	23w
17	Contracting	1w
18	FS Report	22w
19	Internal Draft	10w
20	Draft Final	4w
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26	DD Process	26w
27		
28	Remedial Design	26w
29	Contracting	5w
30	30% Design	5w
31	60% Design	6w
32	95% Design	6w
33	100% Design	4w
34		
35	Remedial Action	135w
36	Advertising	14w
37	Award	4w
38	Construction	13w
39	Operation and Maintenance	104w
40	Long-Term Monitoring	143.8w
41	Periodic Reporting	143.8w
42		
43	Project Close Out	26w
44	PCO Process	26w

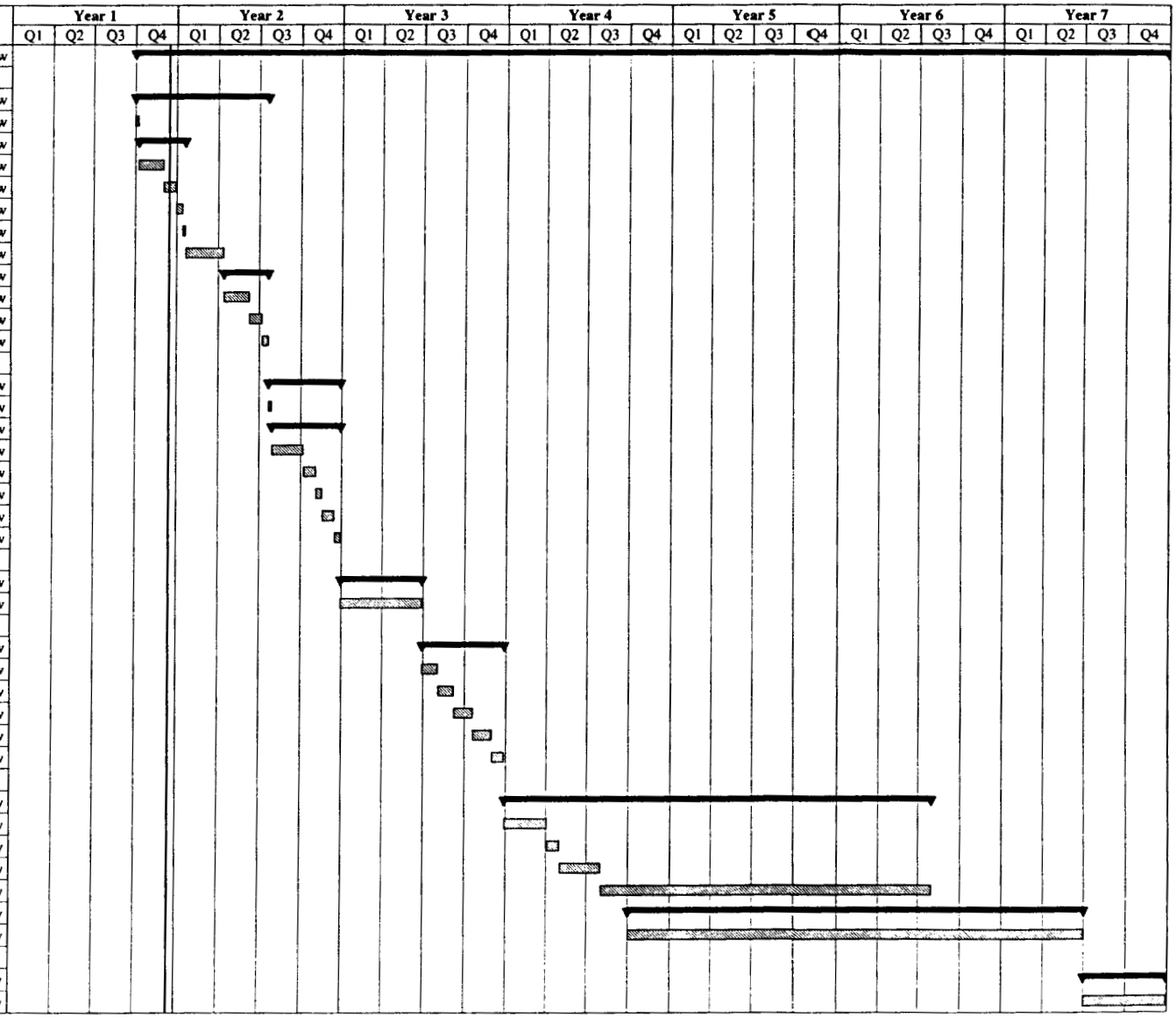

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Figure A-3. Scheduled IRP Activities, Site 5
128th Fighter Wing, Wisconsin ANG

ID	Name	Duration
1	Site 6 - UST 1000-2	326w
2		
3	Remedial Investigation	42w
4	Contracting	1w
5	RI Work Plan	15w
6	Internal Draft	8w
7	Draft Final	4w
8	Final Work Plan Review	2w
9	Work Plan Distribution	1w
10	Field Work	12w
11	RI Report	14w
12	Internal Draft	8w
13	Draft Final	4w
14	RI Final Report/Distribution	2w
15		
16	Feasibility Study	23w
17	Contracting	1w
18	FS Report	22w
19	Internal Draft	10w
20	Draft Final	4w
21	FS Final Report/Distribution	2w
22	Public Comment Period	4w
23	Response To Public Comment	2w
24		
25	Decision Document	26w
26	DD Process	26w
27		
28	Remedial Design	26w
29	Contracting	5w
30	30% Design	5w
31	60% Design	6w
32	95% Design	6w
33	100% Design	4w
34		
35	Remedial Action	135w
36	Advertising	14w
37	Award	4w
38	Construction	13w
39	Operation and Maintenance	104w
40	Long-Term Monitoring	143.8w
41	Periodic Reporting	143.8w
42		
43	Project Close Out	26w
44	PCO Process	26w

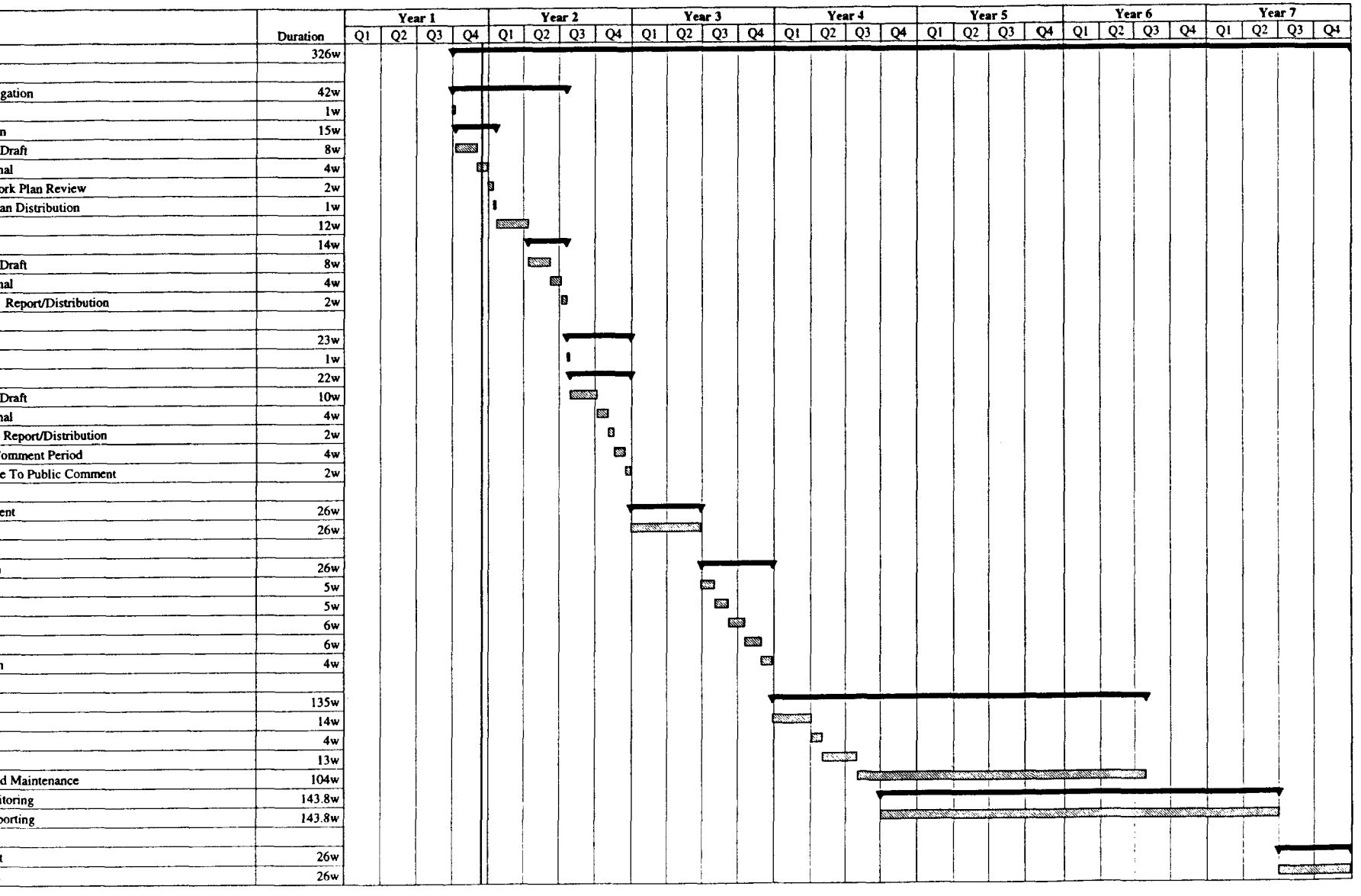

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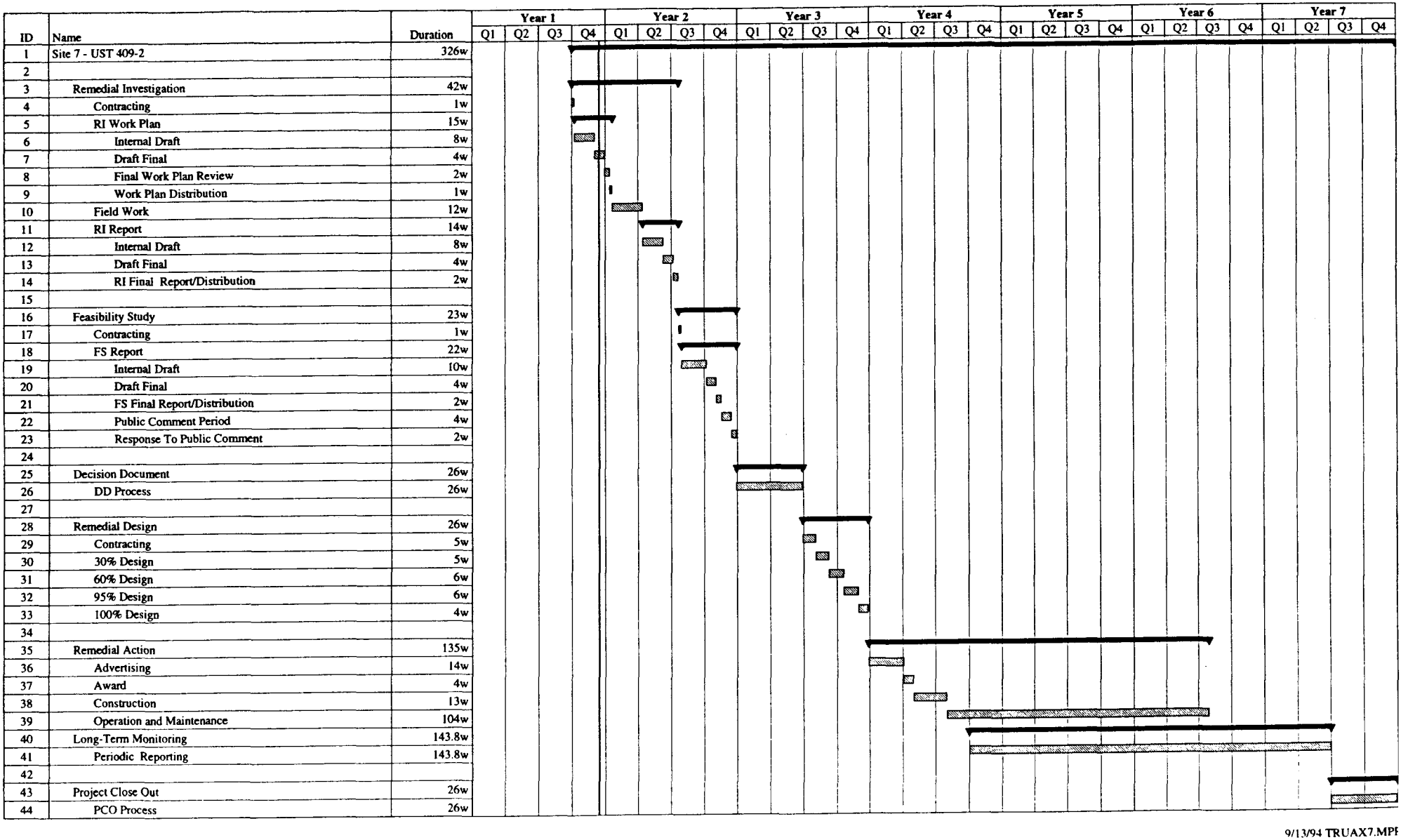
Figure A-4. Scheduled IRP Activities, Site 6
128th Fighter Wing, Wisconsin ANG

ID	Name	Duration
1	Site 7 - UST 409-2	326w
2		
3	Remedial Investigation	42w
4	Contracting	1w
5	RI Work Plan	15w
6	Internal Draft	8w
7	Draft Final	4w
8	Final Work Plan Review	2w
9	Work Plan Distribution	1w
10	Field Work	12w
11	RI Report	14w
12	Internal Draft	8w
13	Draft Final	4w
14	RI Final Report/Distribution	2w
15		
16	Feasibility Study	23w
17	Contracting	1w
18	FS Report	22w
19	Internal Draft	10w
20	Draft Final	4w
21	FS Final Report/Distribution	2w
22	Public Comment Period	4w
23	Response To Public Comment	2w
24		
25	Decision Document	26w
26	DD Process	26w
27		
28	Remedial Design	26w
29	Contracting	5w
30	30% Design	5w
31	60% Design	6w
32	95% Design	6w
33	100% Design	4w
34		
35	Remedial Action	135w
36	Advertising	14w
37	Award	4w
38	Construction	13w
39	Operation and Maintenance	104w
40	Long-Term Monitoring	143.8w
41	Periodic Reporting	143.8w
42		
43	Project Close Out	26w
44	PCO Process	26w



9/13/94 TRUAX7.MPP

Figure A-5. Scheduled IRP Activities, Site 7
128th Fighter Wing, Wisconsin ANG

ID	Name	Duration
1	Site 8 - Ramp Area	165w
2		
3	Interim Remedial Action	139w
4	Advertising	14w
5	Award	4w
6	Construction	17w
7	Operation and Maintenance	104w
8		
9	Project Close Out	26w
10	PCO Process	26w

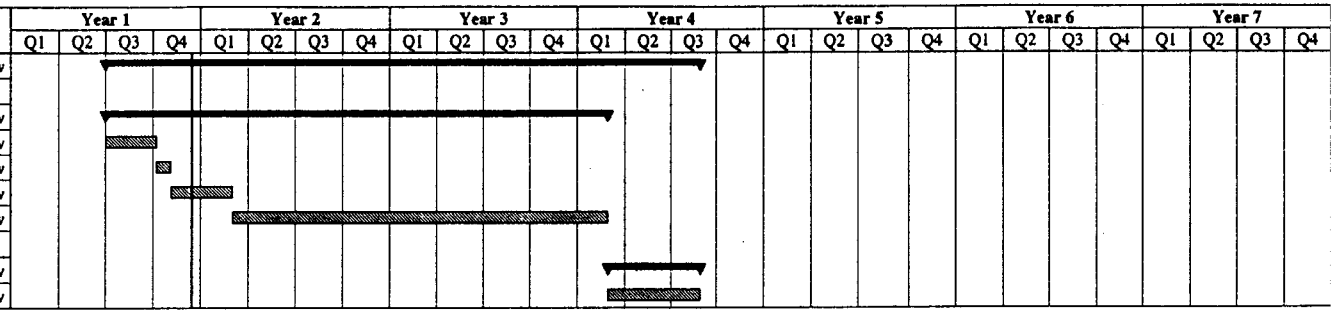


Figure A-6. Scheduled IRP Activities, Site 8
128th Fighter Wing, Wisconsin ANG

Appendix B

TECHNICAL DOCUMENTS/DATA LOADING SUMMARY
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

This appendix presents a summary of the technical documents that have been prepared for Installation Restoration Program (IRP) activities conducted at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin. Table B-1 contains a list of these documents.

Table B-1

Technical Documents/Data Loading Summary
128th Fighter Wing, Wisconsin ANG

Date	Project Title	Sites	Contractor[a]	Service Center[a]	Installation Restoration Program Input Status[b]
1988	Preliminary Assessment	1, 2, 3	PEER Consultants	HAZWRAP, Oak Ridge, TN	
1988	Decision Document	1	PEER Consultants and HAZWRAP	HAZWRAP, Oak Ridge, TN	
1988	Decision Document	2	PEER Consultants and HAZWRAP	HAZWRAP, Oak Ridge, TN	
1988	Decision Document	3	PEER Consultants and HAZWRAP	HAZWRAP, Oak Ridge, TN	
1990	Site Investigation	4, 5, 6, 7	Kapur & Associates, Inc.	Not Applicable	
1991	Site Assessment Work Plan	4, 5, 6, 7	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	
1991	Site Assessment Report	4, 5, 6, 7	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	
1993	Draft Site Assessment/Closure Assessment Report, Underground Storage Tank 1201-1	5	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	
1993	Draft Site Assessment/Closure Assessment Report, Underground Storage Tank 1000-3	6	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	

[a]HAZWRAP - Hazardous Waste Remedial Actions Program, managed by Martin Marietta Energy Systems, Inc.
[b]This column is reserved for future use.

Table B-1

(Continued)

Date	Project Title	Sites	Contractor[a]	Service Center[a]	Installation Restoration Program Input Status[b]
1993	Draft Site Assessment/Closure Assessment Report, Underground Storage Tank 1000-5	6	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	
1993	Draft Site Assessment/Closure Assessment Report, Underground Storage Tank 401-2	7	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	
1993	Draft Site Assessment Report, Hangar 414 Proposed Expansion Area	4	Advanced Sciences, Inc.	HAZWRAP, Oak Ridge, TN	

[a]HAZWRAP - Hazardous Waste Remedial Actions Program, managed by Martin Marietta Energy Systems, Inc.
[b]This column is reserved for future use.

Appendix C

PROPERTY RECORDS
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

This appendix presents information on property that is currently used by the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin. Table C-1 contains records of owned and leased property used by the Base. Table C-2 contains a list of Airport Joint-Use Agreements which allow governments to provide payment to airports for substantial use of jointly-used facilities (e.g., runways, taxiways, and navigational aids).

Table C-1

Property Records
128th Fighter Wing, Wisconsin ANG

Location	Area (acres)	Property Transaction[a]	Activation Date[b]	Operation Date	Lease Expiration Date	Source[c]
On-Base	59	Lease	May 1942	May 1942 to Present	October 3, 2032	1, 2

[a]Easements are not included.
[b]Refers to the date on which the Base has established jurisdiction, control, and accountability of property.
[c]Sources: 1) Air Force Form 1192, U.S. Air Force Installations Characteristic Report, Real Property Record Information File, July 1994.
2) U.S. Air Force Real Property Inventory Change Report, HAF-LEE (AR) 7115, Real Property Record Information File, July 1994.

Table C-2

Airport Joint-Use Agreements
128th Fighter Wing, Wisconsin ANG

Location	Beginning Term	Expiration Date	Source[a]
Madison, Wisconsin	June 1, 1990	May 31, 2001	1

[a]Source: 1) Ms. Kay Parker, National Guard Bureau/Civil Engineering Installation, Airport Joint-Use Agreement Information Files, June 1993.

Appendix D

DOCUMENTATION FOR REMEDIAL ACTIONS
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

This appendix provides summaries for sites at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin, with documentation for remedial actions. The status of this documentation is summarized in Table D-1.

Table D-1

Documentation for Remedial Actions[a]
128th Fighter Wing, Wisconsin ANG

Site Number	Site Name	Document Status	Date Written

[TABLE IS RESERVED FOR FUTURE USE.]

[a]No documentation for remedial actions at the Base has been completed.

Appendix E

DECISION DOCUMENTS FOR NO FURTHER RESPONSE ACTION
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

This appendix provides summaries of Decision Documents (DDs) supporting no further response action planned (NFRAP) decisions for Installation Restoration Program (IRP) sites at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin. The status of these DDs is summarized in Table E-1. NFRAP DDs can be prepared at any stage in the IRP process if it is determined that there is not an unacceptable risk to human health or the environment.

Table E-1

Decision Documents Supporting No Further Response Action
128th Fighter Wing, Wisconsin ANG

Site Number	Site Name	Date Written
1	JP-4 Fuel Spill No. 1	November 1988
2	JP-4 Fuel Spill No. 2	November 1988
3	PCB Spill	November 1988

INSTALLATION RESTORATION PROGRAM
DECISION DOCUMENT SUMMARY
SITE 1
JP-4 FUEL SPILL NO. 1

INSTALLATION:

128th Fighter Wing, Wisconsin Air National Guard
Madison, Wisconsin

SITE IDENTIFICATION:

Site 1 (JP-4 Fuel Spill No. 1) is located adjacent to Building 405 in the petroleum, oil, and lubricant (POL) area. Four 50,000-gallon jet propulsion fuel #4 (JP-4) underground storage tanks (USTs) are located in the vicinity of the site. On March 6, 1981, 2,000 gallons of JP-4 spilled onto the ground when one of the USTs overflowed during filling. The fire department flushed the fuel toward a nearby drainage ditch that was dammed off. The fuel soaked into the ground and was covered with straw. Under the direction of the Wisconsin Department of Natural Resources, the contaminated soil was removed in 1981 to a depth of 6 feet below ground surface in the ditch and to the limit of odor detection on the ditch side slopes. The soil was spread onto concrete pads and hauled off base the following year. In 1982, the site was paved with asphalt.

IRP ACTIVITIES AND FINDINGS:

Site 1 was identified during a Preliminary Assessment (PA) completed in August 1988. During the PA, the possible pathways of contaminant migration from the JP-4 spill were determined to be surface water and groundwater. Since the terrain was flat, the spill was confined, and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since the contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway. Monitoring of private wells 1.5 miles southwest of the Base revealed no reported contamination.

Site 1 (Continued)

CONCLUSIONS:

Based on available data, the Air National Guard Readiness Center believes that Site 1 poses no threat to surface water or groundwater and that no further response action is required at the site.

INSTALLATION RESTORATION PROGRAM
DECISION DOCUMENT SUMMARY
SITE 2
JP-4 FUEL SPILL NO. 2

INSTALLATION:

128th Fighter Wing, Wisconsin Air National Guard
Madison, Wisconsin

SITE IDENTIFICATION:

Site 2 (JP-4 Fuel Spill No. 2) is located east of Building 1201. On August 3, 1985, approximately 100 gallons of waste jet propulsion fuel #4 (JP-4) spilled onto the ground while a 3,000-gallon waste oil underground storage tank (UST) was being filled. The fuel was contained and absorbed with blotters. Three 55-gallon drums of contaminated soil were removed two days after the incident. The UST was removed in October 1991.

IRP ACTIVITIES AND FINDINGS:

Site 2 was identified during a Preliminary Assessment (PA) completed in August 1988. During the PA, the possible pathways of contaminant migration from the JP-4 spill were determined to be surface water and groundwater. Since the terrain was flat, the spill was confined, and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since the contaminated soil was removed in a timely manner, groundwater was also not considered a likely pathway.

CONCLUSIONS:

Based on available data, the Air National Guard Readiness Center believes that Site 2 poses no threat to surface water or groundwater and that no further response action is required at the site.

INSTALLATION RESTORATION PROGRAM
DECISION DOCUMENT SUMMARY
SITE 3
PCB SPILL

INSTALLATION:

128th Fighter Wing, Wisconsin Air National Guard
Madison, Wisconsin

SITE IDENTIFICATION:

Site 3 (PCB Spill) is located south of Building 1201 at an electrical training station. In 1983, one of three pole-mounted transformers leaked dielectric fluid onto the ground. The polychlorinated biphenyl (PCB) concentration in the fluid that leaked was determined to be 1,800 parts per million (ppm). Three 55-gallon drums of PCB-contaminated soil were removed from the site. The transformers were also removed to prevent further contamination.

IRP ACTIVITIES AND FINDINGS:

Site 3 was identified during a Preliminary Assessment (PA) completed in August 1988. During the PA, the possible pathways of contaminant migration from the PCB spill were determined to be surface water and groundwater. Since the terrain was flat and there was no surface water in the immediate area, surface water was not considered a likely pathway. Since contaminated soil was removed in a timely manner and the spill amount was small, groundwater was also not considered a likely pathway. After the soil removal, analyses of soil samples collected from the area confirmed that levels of PCB in the soil were less than 0.1 ppm and below the action level specified in the Toxic Substances Control Act.

CONCLUSIONS:

Based on available data, the Air National Guard Readiness Center believes that Site 3 poses no threat to surface water or groundwater and that no further response action is required at this site.

Appendix F

CONCEPTUAL SITE MODELS
128th FIGHTER WING
WISCONSIN AIR NATIONAL GUARD

This appendix presents a Conceptual Site Model (CSM) for each of the Installation Restoration Program (IRP) sites at the 128th Fighter Wing, Wisconsin Air National Guard (ANG), Truax Field, Madison, Wisconsin, for which analytical data were available. A CSM is a brief, illustrated summary of historical, geological, and analytical data for an IRP site.

Each CSM includes the following elements: a figure that shows the location of the site; a figure that shows a geologic cross-section of the site (or a descriptive geological profile of the site if no cross-section was available); and a table that provides a brief history of the site, as well as a summary of the IRP activities and findings for the site. For IRP sites at which further action is anticipated, the CSM also includes contour and/or concentration maps (if available) for contaminants of concern that have been detected at the site.

CSMs were prepared for the following sites at the Base:

- Site 3 - PCB Spill;
- Site 4 - UST 405-3 and 405-4;
- Site 5 - UST 1201-1;
- Site 6 - UST 1000-2; and
- Site 7 - UST 409-2.

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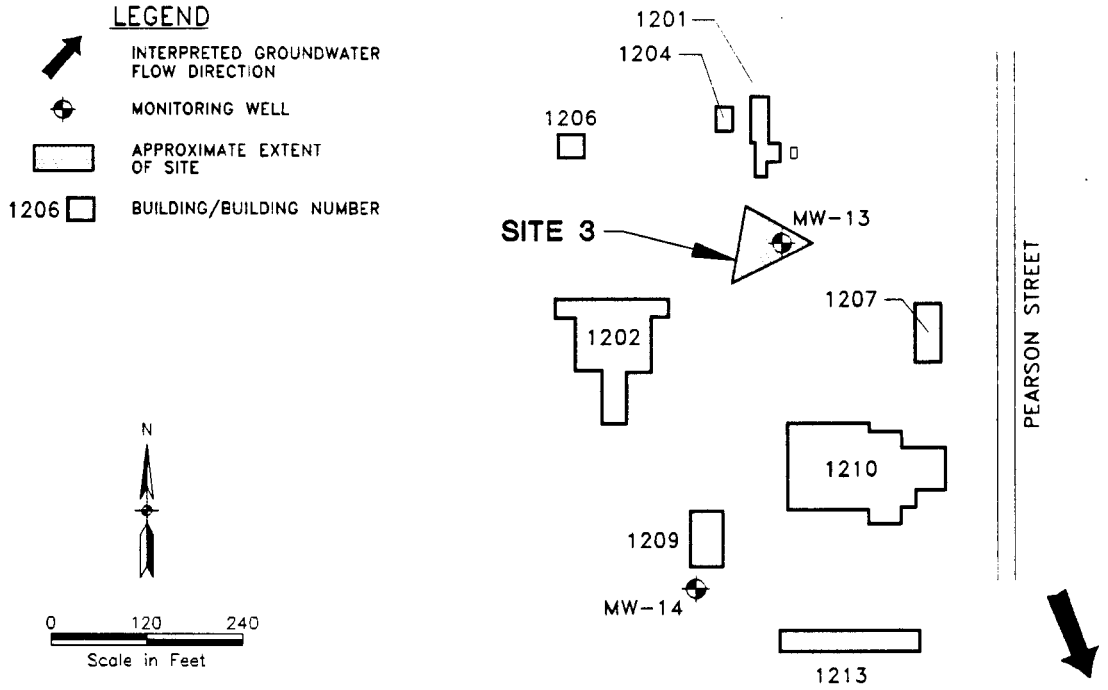
Site Location



Geologic Profile

- No site-specific geologic cross section is available.
- A generalized base wide geologic profile is as follows:
  A surficial layer of silty clay was encountered from the ground surface to a depth of 5 feet below the ground surface. This surficial layer is underlain by a fine- to medium-grained stratified sand layer that extends to an unknown depth. Some gravelly sands were encountered at increasing depths, but were discontinuous throughout the investigation area.
- Depth to groundwater: 11 feet below ground surface.

CONCEPTUAL SITE MODEL
Site 3 - PCB Spill
128th Fighter Wing, Wisconsin ANG

SOURCE: PEER CONSULTANTS, PRELIMINARY ASSESSMENT, AUGUST 1988.

CONCEPTUAL SITE MODEL
Site 3 - PCB Spill
128th Fighter Wing, Wisconsin ANG

Site Description and Source Characterization:	Site 3 (PCB Spill) is located south of Building 1201 at an electrical training station. In 1983, one of three pole-mounted transformers leaked dielectric fluid onto the ground. The PCB concentration in the fluid was determined to be 1,800 parts per million. Three 55-gallon drums of PCB-contaminated soil were removed from the site. The transformers were also removed from the site.							
Selected Analytes	**Maximum Detected Concentration (and Sample Location)**	**Background Concentration**	**Potential ARAR**	**Source of ARAR**	**ARAR Exceeded**	**Potential Risks**	**Field Activities Completed**	**IRP Status**
Groundwater							• Removal of three 55-gallon drums of PCB-contaminated soil • Removal of transformers • Soil sampling	• PA completed in August 1988 • NFRAP DD completed in November 1988
No sampling required; contaminant source removed.								
Soil[a]								
Polychlorinated Biphenyls	<0.1 (Location Not Available)	*	*	*	*	No significant risk to human health due to low levels of contaminants detected		
Surface Water								
No sampling required; surface water not proximate to site.								
Sediment								
No sampling required; sediment not proximate to site.								

Source: PEER Consultants, Preliminary Assessment, August 1988.

[a]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
DD - Decision Document.
NFRAP - No Further Response Action Planned.
PA - Preliminary Assessment.
PCB - Polychlorinated Biphenyl.

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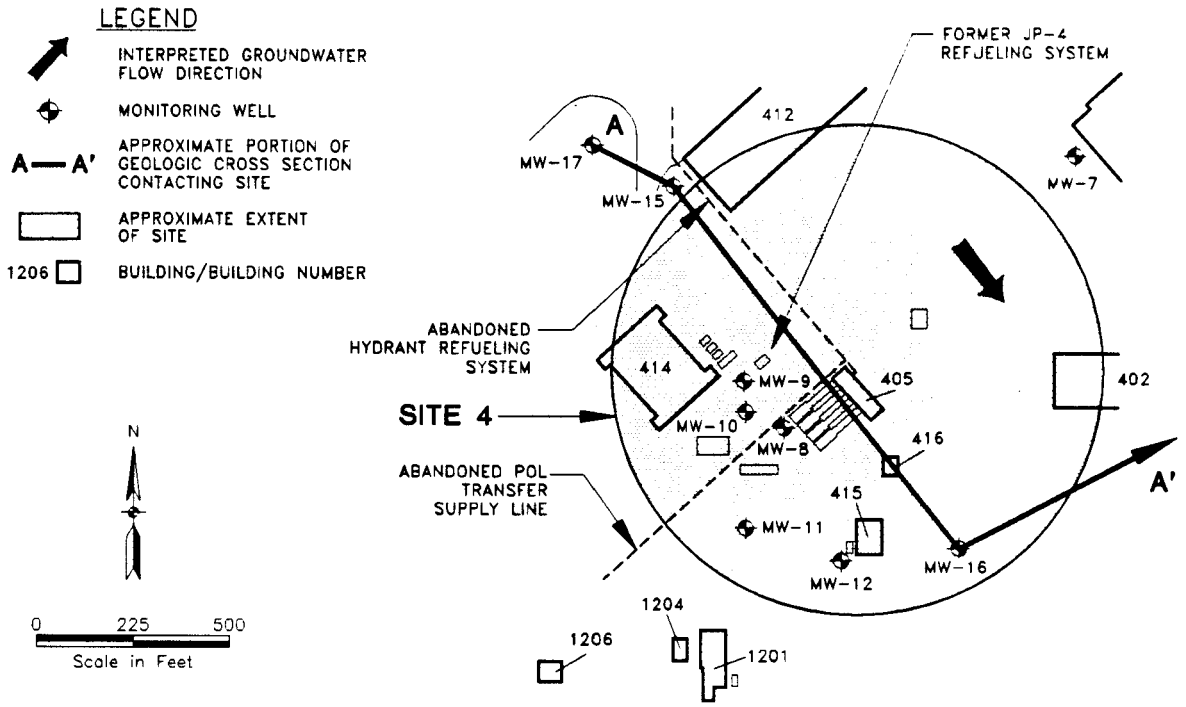
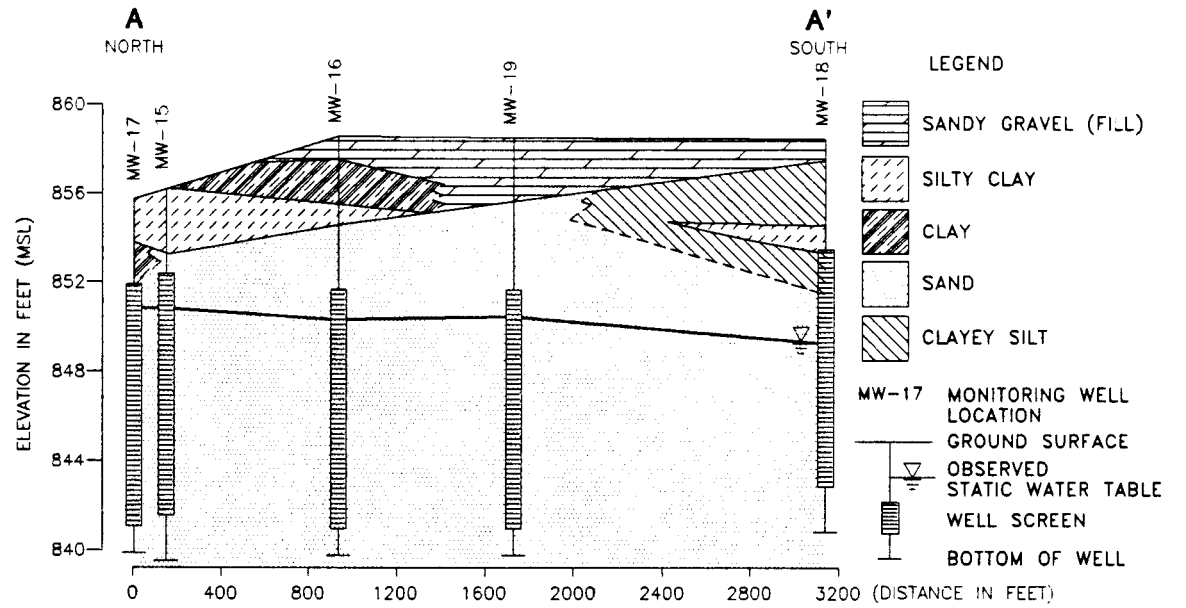
Cross Section Location



Geologic Cross Section



CONCEPTUAL SITE MODEL

Site 4 - UST 405-3 and 405-4
128th Fighter Wing, Wisconsin ANG

SOURCES: ADVANCED SCIENCES, INC., SITE ASSESSMENT REPORT, NOVEMBER 1991.
KAPUR & ASSOCIATES, SITE INVESTIGATION REPORT, SEPTEMBER 1990.

CONCEPTUAL SITE MODEL
Site 4 - UST 405-3 and 405-4
128th Fighter Wing, Wisconsin ANG

Site Description and Source Characterization:	Site 4 (UST 405-3 and 405-4) is located at the POL facility near the taxiway. Site 4 covers an area of approximately 3 acres. There are four 50,000-gallon jet propulsion fuel #4 (JP-4) underground storage tanks (USTs) adjacent to Building 405 and four USTs adjacent to Building 414. The area of the site also includes a bulk fuel intake system, a former refueling station, and an abandoned underground fuel pipeline and hydrant system. The pipeline and hydrant system was taken out of service in 1993. A 1981 JP-4 fuel spill (Site 1) is also included within the area of Site 4.							
Selected Analytes	**Maximum Detected Concentration (and Sample Location)**	**Background Concentration**	**Potential ARAR**	**Source of ARAR**	**ARAR Exceeded**	**Potential Risks**	**Field Activities Completed**	**IRP Status**
Groundwater[a]							**SI**	• SI completed in September 1990
Benzene	5.7 (MW-8)	ND	0.005	MCL	Yes	Ingestion of, and dermal contact with, contaminated groundwater; contact with contaminated groundwater during potential future construction activities	• Installation of 5 monitoring wells • Groundwater sampling • Soil sampling	• SA completed in November 1991
Benzo(a)anthracene		ND	*	*	*		**SA** • Soil gas survey • Installation of 1 monitoring well • Drilling of 15 soil borings • Groundwater sampling • Soil sampling	• RI/FS anticipated
Chrysene	0.10	ND	*	*	*			
Ethylbenzene	0.52 (MW-8)	ND	0.272	PAL	Yes			
Fluoranthene	0.26	ND	*	*	*			
2-Methylnaphthalene	0.46 (MW-8)	ND	*	*	*			
Naphthalene	0.42 (MW-8)	ND	0.040	ES	Yes			
Phenanthrene	0.31	ND	*	*	*			
Pyrene	0.11	ND	*	*	*			
Toluene	ND	ND	0.0686	PAL	No			
Total Petroleum Hydrocarbons	NA	*	*	*	*			
Xylenes (Total)	3.9 (MW-8)	ND	0.620	ES	Yes			
Soil[b]								
Benzene	ND	*	*	*	*	Dermal contact, incidental ingestion, and inhalation of contaminated soil during potential future construction activities		
Benzo(a)anthracene	ND	*	*	*	*			
Chrysene	ND	*	*	*	*			
Ethylbenzene	ND	*	*	*	*			
Fluoranthene	ND	*	*	*	*			
2-Methylnaphthalene	ND	*	*	*	*			

Sources: Advanced Sciences, Inc., Site Assessment Report, November 1991; and Kapur & Associates, Site Investigation Report, September 1990.

[a]Groundwater concentrations reported in mg/L.
[b]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
ES - Enforcement Standard, Wisconsin Administrative Code NR 140.
FS - Feasibility Study.
MCL - Maximum Contaminant Level.
NA - Not Analyzed.
ND - Not Detected.
PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.
RI - Remedial Investigation.
SA - Site Assessment.
SI - Site Investigation
UST - Underground Storage Tank.

CONCEPTUAL SITE MODEL
Site 4 - UST 405-3 and 405-4
128th Fighter Wing, Wisconsin ANG

Selected Analytes	Maximum Detected Concentration (and Sample Location)	Background Concentration	Potential ARAR	Source of ARAR	ARAR Exceeded	Potential Risks	Field Activities Completed	IRP Status
Soil[b] (Continued)							SI • Installation of 5 monitoring wells • Groundwater sampling • Soil sampling SA • Soil gas survey • Installation of 1 monitoring well • Drilling of 15 soil borings • Groundwater sampling • Soil sampling	• SI completed in September 1990 • SA completed in November 1991 • RI/FS anticipated
Naphthalene	ND	*	*	*	*			
Phenanthrene	ND	*	*	*	*			
Pyrene	ND	*	*	*	*			
Toluene	ND	*	*	*	*			
Total Petroleum Hydrocarbons	494 (MW-8)	*	*	*	*			
Xylenes (Total)	ND	*	*	*	*			
Surface Water								
No sampling required; surface water not proximate to site.								
Sediment								
No sampling required; sediment not proximate to site.								

Sources: Advanced Sciences, Inc., Site Assessment Report, November 1991; and Kapur & Associates, Site Investigation Report, September 1990.

[a]Groundwater concentrations reported in mg/L.
[b]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
ES - Enforcement Standard, Wisconsin Administrative Code NR 140.
FS - Feasibility Study.
MCL - Maximum Contaminant Level.
NA - Not Analyzed.
ND - Not Detected.
PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.
RI - Remedial Investigation.
SA - Site Assessment.
SI - Site Investigation.
UST - Underground Storage Tank.

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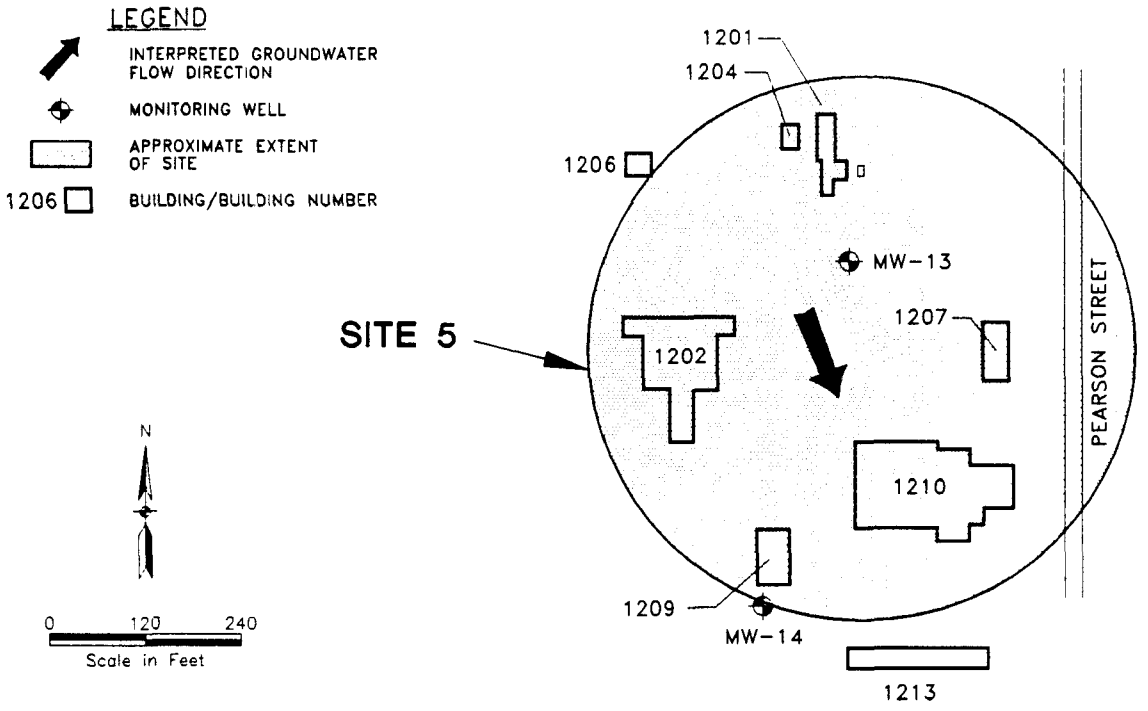
Site Location



Geologic Profile

- No site-specific geologic cross section is available.
- A site-specific geologic profile is as follows:

  A fine- to medium-grained stratified silty sand layer was encountered from the ground surface to a depth of 5 feet below the ground surface. A clay fraction was observed between 5 and 7 feet below the ground surface, which increased with depth to form a clayey sand-sandy clay layer. Below this layer, the clay fraction decreased to form a fine-grained sand layer.
- Depth to groundwater: 9 - 14 feet below ground surface.

CONCEPTUAL SITE MODEL

Site 5 - UST 1201-1

128th Fighter Wing, Wisconsin ANG

SOURCES: ADVANCED SCIENCES, INC., SITE ASSESSMENT REPORT, NOVEMBER 1991.
KAPUR & ASSOCIATES, SITE INVESTIGATION REPORT, SEPTEMBER 1990.

CONCEPTUAL SITE MODEL
Site 5 - UST 1201-1
128th Fighter Wing, Wisconsin ANG

Site Description and Source Characterization:	Site 5 (UST 1201-1) is located in the vicinity of Building 1201 and covers an area of approximately 3 acres. The site includes the location of a former waste oil tank, Underground Storage Tank (UST) 1201-1, that was removed in October 1991. UST 1201-1 failed a volumetric tightness test in 1990. The 1985 jet propulsion fuel #4 (JP-4) spill (Site 2) is also included within the are of Site 5.							
Selected Analytes	**Maximum Detected Concentration (and Sample Location)**	**Background Concentration**	**Potential ARAR**	**Source of ARAR**	**ARAR Exceeded**	**Potential Risks**	**Field Activities Completed**	**IRP Status**
Groundwater[a]							**SI** • Installation of 2 monitoring wells • Groundwater sampling • Soil sampling **SA** • Soil gas survey • Drilling of 3 soil borings • Groundwater sampling • Soil sampling	• SI competed in September 1990 • SA completed in November 1991 • RI/FS anticipated
Benzene	ND	ND	0.005	MCL	No	Ingestion of, and dermal contact with, contaminated groundwater; contact with contaminated groundwater during potential future construction activities		
Ethylbenzene	ND	ND	0.272	PAL	No			
Tetrachloroethene	0.002 (MW-13)	ND	0.001	ES	Yes			
Toluene	ND	ND	0.0686	PAL	No			
Total Petroleum Hydrocarbons	NA	*	*	*	*			
Xylenes	ND	ND	0.124	PAL	No			
Soil[b]								
Benzene	ND	*	*	*	*	No significant risk anticipated due to absence of contamination		
Ethylbenzene	ND	*	*	*	*			
Tetrachloroethene	ND	*	*	*	*			
Toluene	ND	*	*	*	*			
Total Petroleum Hydrocarbons	ND	*	*	*	*			
Xylenes	ND	*	*	*	*			

Sources: Advanced Sciences, Inc., Site Assessment Report, November 1991; and Kapur & Associates, Site Investigation Report, September 1990.

[a]Groundwater concentrations reported in mg/L.
[b]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
ES - Enforcement Standard, Wisconsin Administrative Code NR 140.
FS - Feasibility Study.
MCL - Maximum Contaminant Level.
NA - Not Analyzed.
ND - Not Detected.
PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.
RI - Remedial Investigation.
SA - Site Assessment.
SI - Site Investigation.
UST - Underground Storage Tank

CONCEPTUAL SITE MODEL
Site 5 - UST 1201-1
128th Fighter Wing, Wisconsin ANG

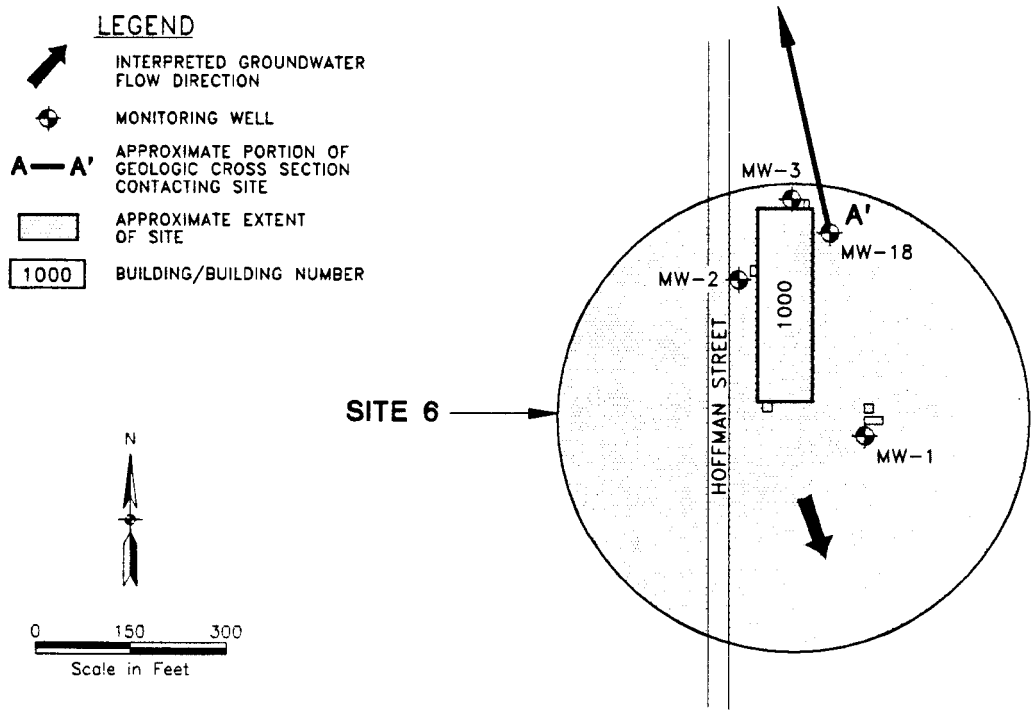
Selected Analytes	Maximum Detected Concentration (and Sample Location)	Background Concentration	Potential ARAR	Source of ARAR	ARAR Exceeded	Potential Risks	Field Activities Completed	IRP Status
Surface Water							SI • Installation of 2 monitoring wells monitoring well • Groundwater sampling • Soil sampling SA • Soil gas survey • Drilling of 3 soil borings • Groundwater sampling • Soil sampling	• SI competed in September 1990 • SA completed in November 1991 • RI/FS anticipated
No sampling required; surface water not proximate to site.								
Sediment								
No sampling required; sediment not proximate to site.								

Sources: Advanced Sciences, Inc., Site Assessment Report, November 1991; and Kapur & Associates, Site Investigation Report, September 1990.

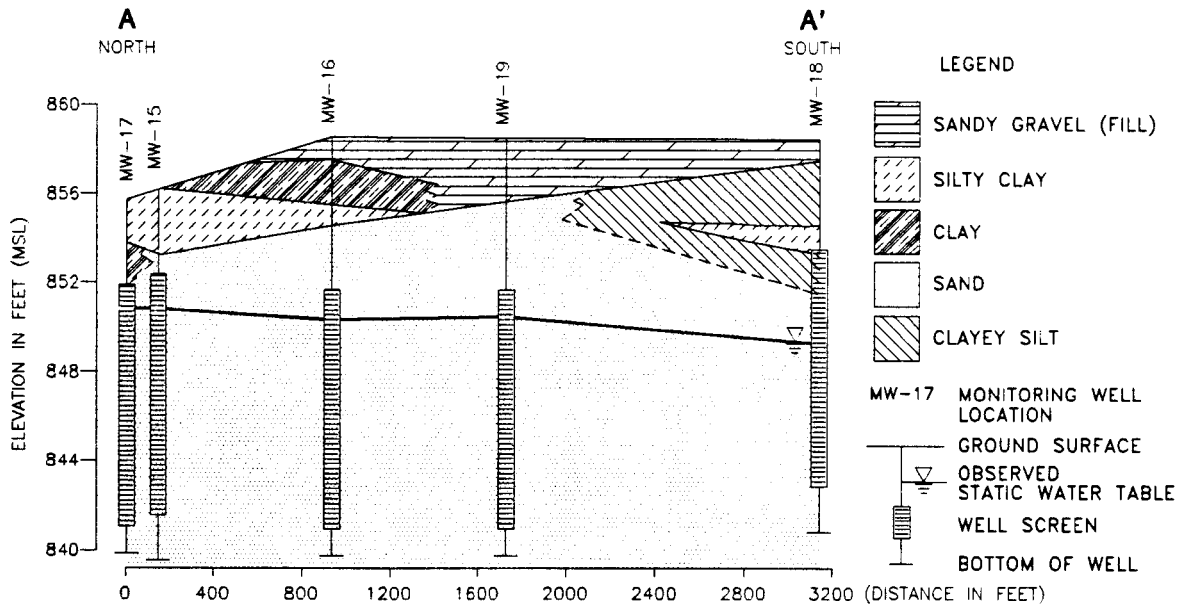
[a]Groundwater concentrations reported in mg/L.
[b]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
ES - Enforcement Standard, Wisconsin Administrative Code NR 140.
FS - Feasibility Study.
MCL - Maximum Contaminant Level.
NA - Not Analyzed.
ND - Not Detected.
PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.
RI - Remedial Investigation.
SA - Site Assessment.
SI - Site Investigation.
UST - Underground Storage Tank.

CSM67F.DWG DDD DC 09/13/94

Cross Section Location



Geologic Cross Section



CONCEPTUAL SITE MODEL

Site 6 - UST 1000-2

128th Fighter Wing, Wisconsin ANG

SOURCES: ADVANCED SCIENCES, INC., SITE ASSESSMENT REPORT, NOVEMBER 1991.
KAPUR & ASSOCIATES, SITE INVESTIGATION REPORT, SEPTEMBER 1990.

CONCEPTUAL SITE MODEL
Site 6 - UST 1000-2
128th Fighter Wing, Wisconsin ANG

Site Description and Source Characterization:	Site 6 (UST 1000-2) is located in the vicinity of Building 1000, the motor pool area, and covers an area of approximately 3 acres. In the past, waste oil and solvent storage operations were conducted at the site. Five underground storage tanks (USTs) were formerly located at the site.							
Selected Analytes	**Maximum Detected Concentration (and Sample Location)**	**Background Concentration**	**Potential ARAR**	**Source of ARAR**	**ARAR Exceeded**	**Potential Risks**	**Field Activities Completed**	**IRP Status**
Groundwater[a]							**SI** • Installation of 3 monitoring wells • Groundwater sampling • Soil sampling **SA** • Installation of 1 monitoring well • Groundwater sampling	• SI completed in September 1990 • SA completed in November 1991 • RI/FS anticipated
Benzene	ND	ND	0.005	MCL	No	Ingestion of, and dermal contact with, contaminated groundwater; contact with contaminated groundwater during potential future construction		
1,2-Dichloroethene	0.033 (MW-1)	ND	0.01	PAL	Yes			
Ethylbenzene	ND	ND	0.272	PAL	No			
Toluene	ND	ND	0.0686	PAL	No			
Total Petroleum Hydrocarbons	NA	*	*	*	*			
Xylenes	ND	ND	0.124	PAL	No			
Soil[b]								
Benzene	NA	*	*	*	*	No significant risk anticipated due to absence of contamination		
1,2-Dichloroethene	NA	*	*	*	*			
Ethylbenzene	NA	*	*	*	*			
Toluene	NA	*	*	*	*			
Total Petroleum Hydrocarbons	ND	*	*	*	*			
Xylenes	NA	*	*	*	*			
Surface Water								
No sampling required; surface water not proximate to site.								
Sediment								
No sampling required; sediment not proximate to site.								

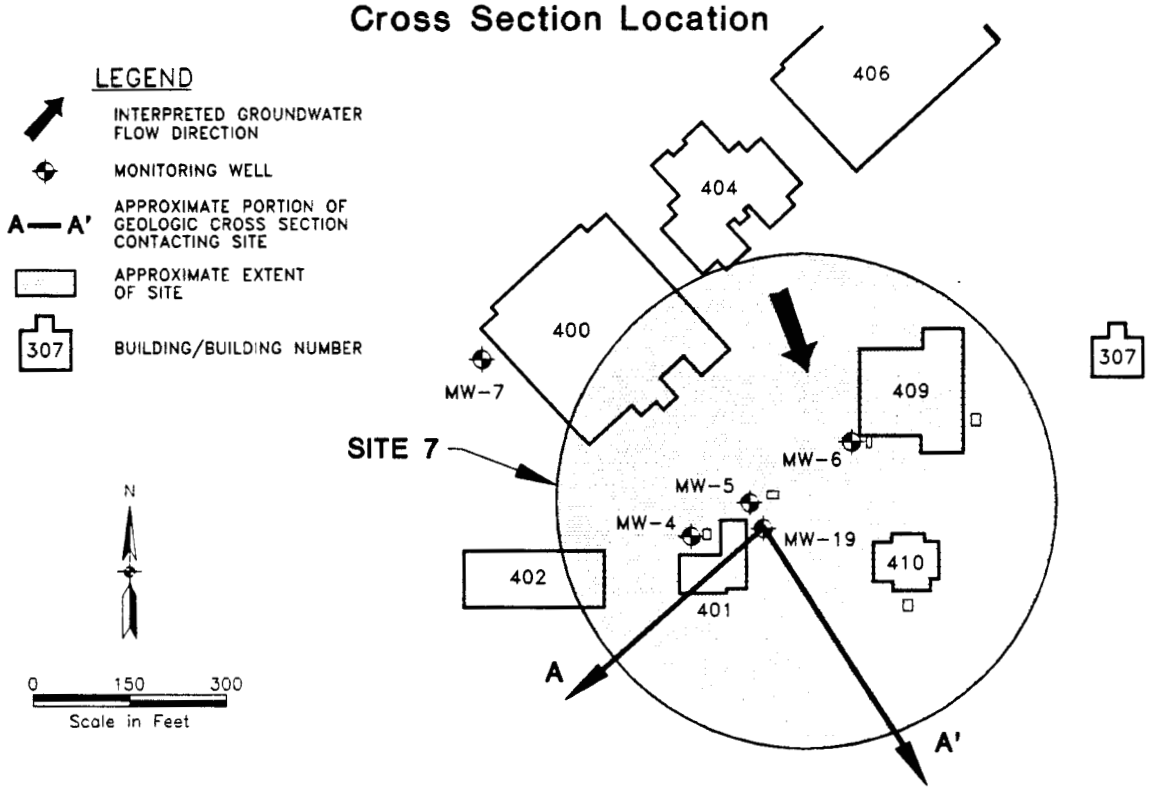
Sources: Advanced Sciences, Inc., Site Assessment Report, November 1991; and Kapur & Associates, Site Investigation Report, September 1990.

[a]Groundwater concentrations reported in mg/L.
[b]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
FS - Feasibility Study.
MCL - Maximum Contaminant Level.
NA - Not Analyzed.
ND - Not Detected.
PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.
RI - Remedial Investigation.
SA - Site Assessment.
SI - Site Investigation.
UST - Underground Storage Tank.

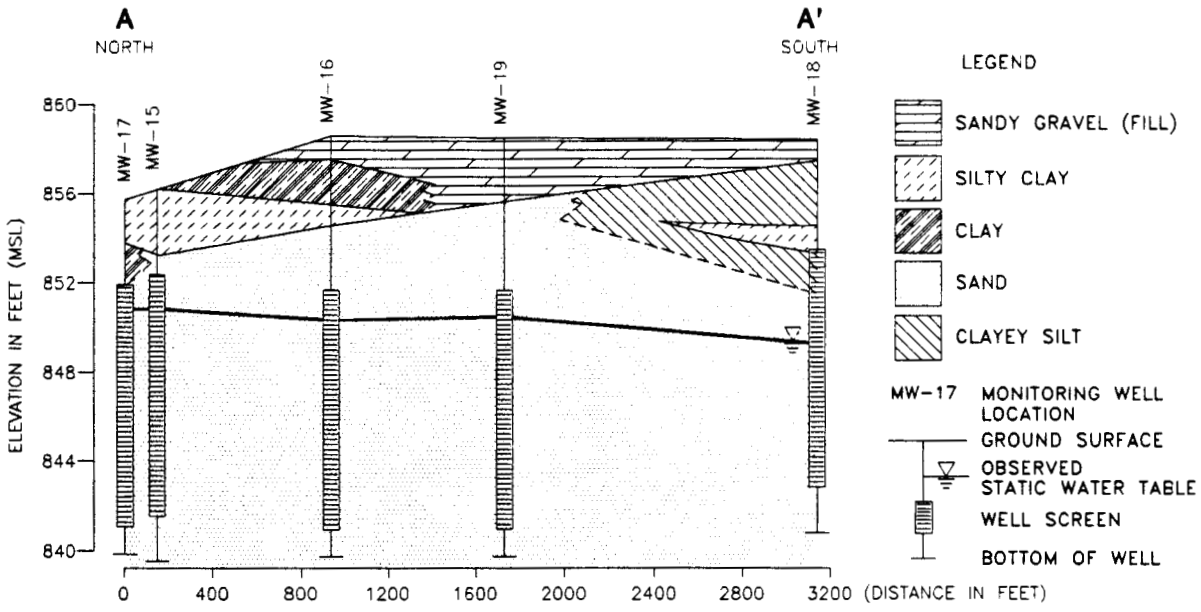
128FW.Truax Field
September 1994

CSM67G.DWG DDD DC 09/13/94

Cross Section Location



Geologic Cross Section



CONCEPTUAL SITE MODEL

Site 7 - UST 409-2

128th Fighter Wing, Wisconsin ANG

SOURCES: ADVANCED SCIENCES, INC., SITE ASSESSMENT REPORT, NOVEMBER 1991.
KAPUR & ASSOCIATES, SITE INVESTIGATION REPORT, SEPTEMBER 1990.

CONCEPTUAL SITE MODEL
Site 7 - UST 409-2
128th Fighter Wing, Wisconsin ANG

Site Description and Source Characterization:	Site 7 (UST 409-2) is located at the aircraft maintenance facility, which includes Buildings 400, 401, 409, and 410. This site covers an area of approximately 3 acres. Five underground storage tanks (USTs) were originally located at this site. Four of these USTs have been removed. A 550-gallon used oil tank is currently located at this site.							
Selected Analytes	**Maximum Detected Concentration (and Sample Location)**	**Background Concentration**	**Potential ARAR**	**Source of ARAR**	**ARAR Exceeded**	**Potential Risks**	**Field Activities Completed**	**IRP Status**
Groundwater[a]							**SI** • Installation of 4 monitoring wells • Groundwater sampling • Soil sampling **SA** • Soil gas survey • Installation of 1 monitoring well • Installation of 1 basewide background monitoring well • Drilling of 2 soil borings • Groundwater sampling • Soil sampling	• SI completed in September 1990 • SA completed in November 1991 • RI/FS anticipated
Benzene	ND	ND	0.005	MCL	No	Ingestion of, and dermal contact with, contaminated groundwater; contact with contaminated groundwater during potential future construction activities		
Toluene	ND	ND	0.0686	PAL	No			
Ethylbenzene	ND	ND	0.272	PAL	No			
Xylenes	ND	ND	0.620	PAL	No			
Trichloroethene	0.017	ND	0.005	MCL	Yes			
Total Petroleum Hydrocarbons	ND	NA	*	*	*			
Soil[b]								
Benzene	ND	*	*	*	*	No significant risk anticipated due to absence of contamination		
Ethylbenzene	ND	*	*	*	*			
Toluene	ND	*	*	*	*			
Total Petroleum Hydrocarbons	ND	*	*	*	*			
Trichloroethene	ND	*	*	*	*			
Xylenes	ND	*	*	*	*			
Surface Water								
No sampling required; surface water not proximate to site.								
Sediment								
No sampling required; sediment not proximate to site.								

Sources: Advanced Sciences, Inc., Site Assessment Report, November 1991; and Kapur & Associates, Site Investigation Report, September 1990.

[a]Groundwater concentrations reported in mg/L.
[b]Soil concentrations reported in mg/kg.
* - Information Not Available.
ARAR - Applicable or Relevant and Appropriate Requirement.
FS - Feasibility Study.
MCL - Maximum Contaminant Level.
NA - Not Analyzed.
ND - Not Detected.
PAL - Preventive Action Limit, Wisconsin Administrative Code NR 410.
RI - Remedial Investigation.
SA - Site Assessment.
SI - Site Investigation.
UST - Underground Storage Tank.

128FW.Truax Field
September 1994

FY 1998
PROJECT NUMBER: XGFG987143
PROJECT TITLE: Remedial Action Operation (RAO)
PROJECT PRIORITY: 5A

1. **INSTALLATION:** Truax Field, Madison, WI (Air National Guard)

2. **REQUIREMENT:** Remedial Action Operation (RAO)

3. **PURPOSE:** Continue operation of soil vapor extraction system under aircraft parking apron. Conduct sampling and analysis in accordance with State requirements.

4. **ESTIMATED COSTS FOR FY98 & OUTYEARS:**

Site ID	RISK	FY/Qtr	PH	Est Cost (000)
SS08	AR	98/2	RAO	$25
		Totals:		$25

ESTIMATED COSTS FOR OUTYEARS: See attached.

5. **WORK TO BE PERFORMED**: Operate and maintain the soil vapor extraction system constructed in FY94. Conduct appropriate sampling and analysis in accordance with State requirements.

6. **BACKGROUND**: Site 8 - Ramp Area (SS008) was identified during a ramp maintenance project in 1990. A subsequent investigation determined that approximately 18,000 cubic yards of soil were contaminated with TPH, benzene, toluene, ethylbenzene, and xylenes above State action levels. 3000 cubic yards of soil were remediated in 1993 using low-temperature thermal desorption. A soil vapor extraction system was installed in 1994 to remediate the remaining 15,000 cubic yards of soil. Operation began in FY96 and will continue for 3 years.

7. **REGULATORY BASIS**: Wisconsin NR 720 (soil cleanup standards). The Legal Driver is E (Consent Orders under State Laws). The Milestone Code is 15 (Continue Cleanup).

8. **WORK SCHEDULE**: Goal is to continue operation in FY98.

9. **CONTRACTING AGENT**: BCO

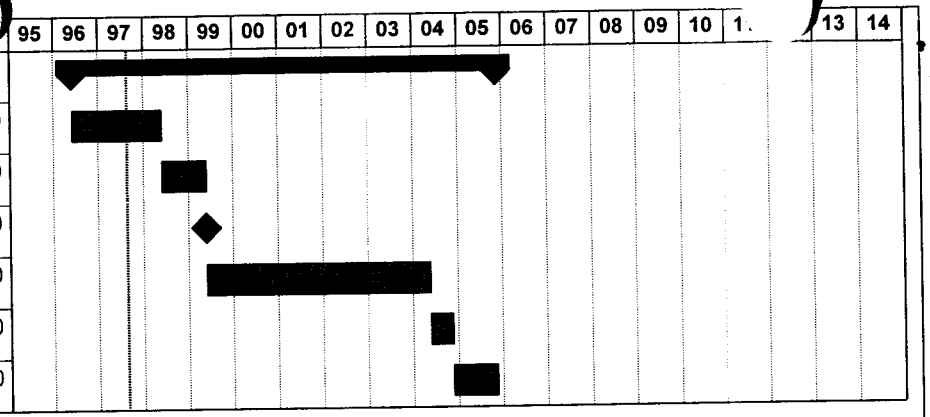
10. I have reviewed this requirement and certify that it meets the eligibility criteria for use of DERA funds.

DAVID C. VAN GASBECK, Chief
Environmental Division

GARY L. HINKLE, Chief
Installation Restoration Program Branch
Reviewer

RUTH LINDSLEY LODDER
Project Manager

ID	Task Name	Duration	Start	Finish	Cost
26	**Site 8 - Ramp Area (SS008)**	**494w**	**3/1/96**	**8/18/05**	**$225,000.00**
27	Remedial Action Operation (ongoing - Nine Springs)	104w	3/1/96	2/26/98	$0.00
28	Remedial Action Operation (FY98)	52w	2/27/98	2/25/99	$25,000.00
29	Response Complete	0w	2/25/99	2/25/99	$0.00
30	Long Term Monitoring	260w	2/26/99	2/19/04	$125,000.00
31	NFRAP Decision Document	26w	2/20/04	8/19/04	$10,000.00
32	Project Close Out	52w	8/20/04	8/18/05	$65,000.00



Project: 115 FW, Truax Field
Date: 5/13/97
Project Manager: R. L. Lodder

Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 3/31/15

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

FY 1998
PROJECT NUMBER: XGFG987142
PROJECT TITLE: Remedial Investigation, Feasibility Study (RI/FS)
PROJECT PRIORITY: 3B

1. **INSTALLATION:** Truax Field, Madison, WI (Air National Guard)

2. **REQUIREMENT:** Remedial Investigation, Feasibility Study (RI/FS)

3. **PURPOSE:** The RI will determine the lateral and vertical extent of contamination in the soil and groundwater. Soil borings will be completed; monitoring wells and piezometers will be completed to allow for sufficient sample collection. Analytical testing of soil and groundwater samples, geological analysis and organic vapor analysis will be accomplished. The Feasibility Study will evaluate appropriate remedial alternatives based on public health effects, environmental impact, engineering, regulatory requirements, and cost; the most effective alternative will be selected. A comprehensive report will be compiled and published.

4. **ESTIMATED COSTS FOR FY98:**

Site ID	RISK	FY/Qtr	PH	Est Cost (000)
ST04	Low	98/1	RI/FS	$725
		Totals:		$725

ESTIMATED COSTS FOR OUTYEARS: See attached.

5. **WORK TO BE PERFORMED:** Soil and groundwater samples will be taken and analyzed for GRO, DRO, VOCs, SVOCs, and metals. Piezometers and additional monitoring wells will be installed. Soil borings will be completed. The Feasibility Study (FS) will examine the alternatives and select the appropriate alternative for remediation.

5. **BACKGROUND**: Site 4 - UST 405 3 & 4 (ST004) is located at the POL facility. A Site Investigation Report was completed by Kapur and Associates, Inc. and Warzyn Engineering Inc. in September 1990. Addional investigation of the extent of volatile and semivolatile compounds within the boundaries of the base was recommended. A Site Assessment was completed by Advanced Sciences, Inc. in November 1991. The Site Assessment recommended aquifer testing to assist in determining the migration rates of contaminants and hydraulic parameters of the shallow aquifer, excavation and removal of the abandoned fuel pipelines for Site 4, development of a Corrective Action Plan to remediate soil and groundwater at Site 4, and closure of all UST systems scheduled to be removed/replaced following WIDNR UST Permanent Closure requirements.

Advanced Sciences, Inc. completed a Site Assessment for the Hanger 414 Expansion Area in July 1994 to determine the presence or absence and extent, if any, of petroleum hydrocarbon contamination in the soils at the proposed hanger expansion area. Soil contamination was found in the vicinity of the vadose zone/saturated zone interface. Groundwater contamination was also found. The source of the contamination is believed to be an up-gradient source, possibly the abandoned fuel hydrant pipeline and Hanger 412. A detailed groundwater investigation to determine the extent of petroleum hydrocarbon contamination, a risk based study to determine the potential alternatives for corrective actions, and removal of the abandoned fuel hydrant pipeline were recommended.

Parsons Engineering-Science completed a Treatability Study in Support of Intrinsic Remediation (Natural Attentuation) in January 1997. Comparison of BTEX data from the September 1994 and June 1996 sampling events provide qualitative evidence of biodegradation of BTEX compounds at the site. Based on a review of the draft document WIDNR is threatening a Unilateral Order at Site 4 unless active remediation is conducted.

7. **REGULATORY BASIS**: Wisconsin NR 720 (soil cleanup standards) and NR 140 (groundwater cleanup standards). The Legal Driver is Z (No Agreement). The Milestone Code is 7 (FS Report).

8. **WORK SCHEDULE**: Goal is to complete the RI/FS in FY 2000.

9. **CONTRACTING AGENT**: NGB-AQC-E

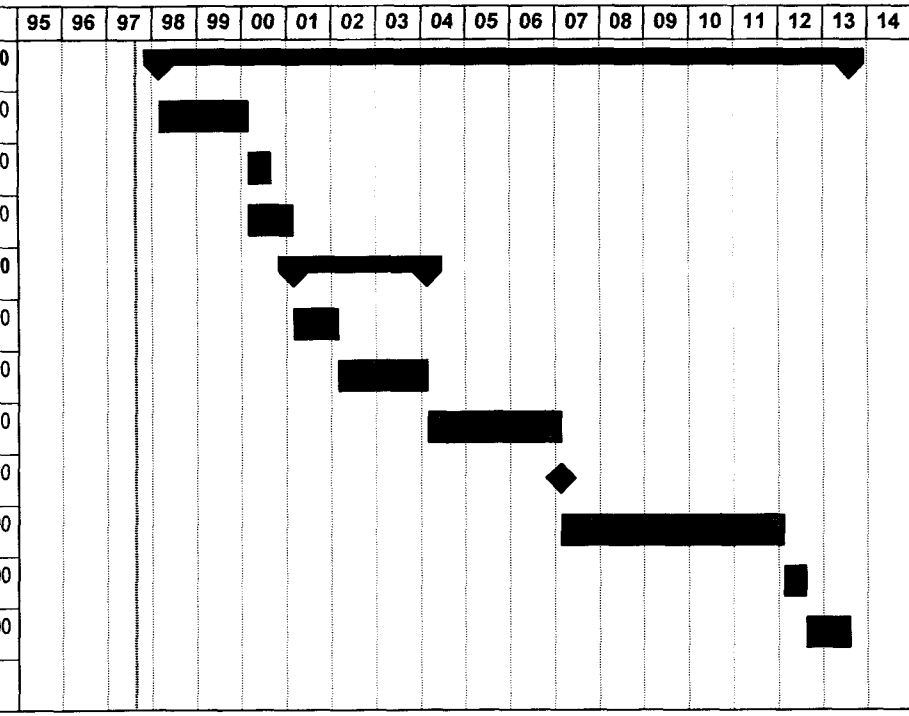
10. I have reviewed this requirement and certify that it meets the eligibility criteria for use of DERA funds.

_____
DAVID C. VAN GASBECK, Chief
Environmental Division

_____
GARY L. HINKLE, Chief
Installation Restoration Program Branch
Reviewer

_____
RUTH LINDSLEY LODDER
Project Manager

ID	Task Name	Duration	Start	Finish	Cost
1	**Site 4 - UST 405 3 & 4 (POL facility) (ST004)**	**806w**	**12/1/97**	**5/10/13**	**$4,686,288.00**
2	Remedial Investigation/Feasibility Study	104w	12/1/97	11/26/99	$725,037.00
3	Decision Document for Further Action	26w	11/29/99	5/26/00	$10,000.00
4	Remedial Design	52w	11/29/99	11/24/00	$293,275.00
5	**Remedial Action**	**156w**	**11/27/00**	**11/21/03**	**$2,932,754.00**
6	Remedial Action Construction	52w	11/27/00	11/23/01	$2,604,545.00
7	Remedial Action Operation	104w	11/26/01	11/21/03	$328,209.00
8	Long Term Operation	156w	11/24/03	11/17/06	$492,314.00
9	Response Complete	0w	11/17/06	11/17/06	$0.00
10	Long Term Monitoring	260w	11/20/06	11/11/11	$157,908.00
11	NFRAP Decision Document	26w	11/14/11	5/11/12	$10,000.00
12	Project Close Out	52w	5/14/12	5/10/13	$65,000.00
13					



Project: 115 FW, Truax Field
Date: 5/13/97
Project Manager: R. L. Lodder

Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 5/10/13

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

RELATIVE RISK EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation Name: TRUAX FIELD (AIR FORCE)
Location (City/County and State): Madison/Dane Co./WI
Site Name / Site ID: UST 405-3&-4 / ST004
Name/Phone: Ruth Lodder/(301) 836-8504
NPL/Proposed NPL (Y/N): N

Date Entered (day month year): 30 Oct 96
Media Evaluated (GW, SW, Soil, Sediment): GW
Site Type: US - Underground Storage Tanks - TU
Phase of Execution (SI, RI, FS, EE/CA, IRA, RD, RA, LTM or LTO): RD
Agreement Status (appropriate DERP regulatory agreement code): Z - No agreementsZ -

Overall Relative Risk: LOW

SITE SUMMARY

Brief Site Description(include site type, materials disposed of, dates of operation, and other relevent information):

Site 4 (UST 405-3&-4) located at the POL facility near the taxiway, covers an area of approximately 3 acres. There are four steel 50,000 gallon JP-4 USTs adjacent to Building 405 which have been in operation since 1952. Next to Building 415 there are three 550 gallon USTs containing detergent, waste oil, and waste solvent, and a fourth, abandoned 2,000 gallon waste oil tank. The area of the site also includes a bulk fuel intake system, a former refueling station, and an abandoned underground fuel pipeline and hydrant system. The pipeline and hydrant system were taken out of service in 1973, but it is not known if the fuel was purged from the pipeline or hydrant system. The 1981 JP-4 fuel spill (Site 1) is also included within the area of this site. (Radian Corporation, September 1994, Management Action Plan, p. A-6)

Brief Description of Pathways (Groundwater, Soil, Surface Water (human), Surface Water (ecological), Sediment (human), Sediment (ecological)):

The base is located on a wedge of glacial drift (predominantly sands and silts with interbedded clays and gravels) approximately 300 feet thick which overlies the Mt. Simon Sandstone. (Advanced Sciences, November 1991, SA Report, p. 8) Surficial soil at the site consists of semiconsolidated clay to a depth of approximately 2 feet below ground surface (BGS). In areas where construction activities have taken place, the clay layer is covered with a sandy gravel fill. The clay layer is underlain by a very fine to fine silty clay to a depth of 4 feet BGS. The silty clay is underlain by a fine to medium grained sand layer to an unknown depth. Groundwater in the vicinity of the site flows to the southeast and is located at 5 to 9 feet BGS. (Radian Corporation, September 1994, Management Action Plan, p. A-7) Drainage on the base is channeled by excavated ditches and culverts which are routed into Starkweather Creek; the outfall is located just south of the base. Starkweather Creek discharges into Lake Monona south of the facility. (Advanced Sciences, November 1991, SA Report, p. 9)

Brief Description of Receptors(Human and Ecological):

Madison's municipal water supply, from which the base receives all of its water, is obtained from production wells completed in the Mt.

SUMMARY (continued)

Simon Sandstone aquifer. (Advanced Sciences, 1994, SA Report Hangar 414 Expansion Area, p. 1-4) Groundwater from the shallow aquifer at Truax Field is not extracted for potable uses. The nearest potable supply wells are high capacity wells at the Oscar Mayer processing plant, approximately 1.5 miles southwest of the site. These wells draw from the bedrock aquifer units. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, p. 3-11) No species listed as endangered or threatened are present or likely to be present in the vicinity of the base. The Cherokee Marsh State Fishery Area is located approximately 2.5 miles north of the base. No other publicly-owned nature preserves, wilderness areas, or wildlife sanctuaries have been identified within a three mile radius of the base. A large wetland area is located one to three miles north of the base and a smaller wetland area is located approximately one mile west of the base. (Radian Corporation, September 1994, Management Action Plan, p. 2-6)

GROUNDWATER

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
Benzene	5.10	39.00	0.13
Xylene (Mixed)	2 20	1400.00	0.00
1,2,4-Trimethylbenzene	2.40	3.00	0.80
		Total =	**0.93**

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2): X

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source.

POTENTIAL - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls).

Brief Rationale for Selection:

The groundwater plume originating from the source areas has migrated approximately 20 feet downgradient of Site 4, and has impacted groundwater in an area extending from the vicinity of Buildings 412 and 414 and just beneath the parking lot. Site 4 is located downgradient of Site 8 and may be influenced by contaminants migrating from Site 8. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 4-3, 6-8)

(Place an "X" next to one below)

Evident:
Potential: X
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - There is a threatened or potentially threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agricultures (equivalent to Class I or IIA aquifer).

POTENTIAL - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agricultures, but is not presently used (equivalent to Class IIB aquifer).

LIMITED - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).

Brief Rationale for Selection:

Closest potable supply well is in the bedrock aquifer 1.5 miles cross gradient from the site. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 3-11, 4-9)

(Place an "X" next to one below)

Identified:
Potential:
Limited: X

Groundwater Category: LOW

SURFACE WATER - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Human Category: NE

SURFACE WATER - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

(Place an "X" next to one below)

Evident:
Potential:
Confined:

Brief Rationale for Selection:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Brief Rationale for Selection:

Surface Water - Ecological Category: NE

SOIL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence that contamination is present at, is moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient ot make a determination of Evident or Confined.

CONFINED - Low possibility for contamination to be present at or migrate to a point of exposure.

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to contaminated soil.

POTENTIAL - Potential for receptors to have access to contaminated soil.

LIMITED - Little or no potential for receptors to have access to contaminated soil.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Soil Category: NE

SEDIMENT - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Human Category: NE

SEDIMENT - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Ecological Category: NE

RELATIVE RISK EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation Name: TRUAX FIELD (AIR FORCE)
Location (City/County and State): Madison/Dane Co./WI
Site Name / Site ID: UST at Building 1201 / ST005
Name/Phone: Ruth Lodder/(301) 836-8504
NPL/Proposed NPL (Y/N): N

Date Entered (day month year): 30 Oct 96
Media Evaluated (GW, SW, Soil, Sediment): GW
Site Type: US - Underground Storage Tanks - TU
Phase of Execution (SI, RI, FS, EE/CA, IRA, RD, RA, LTM or LTO): RA
Agreement Status (appropriate DERP regulatory agreement code): Z - No agreementsZ

Overall Relative Risk: LOW

SITE SUMMARY

Brief Site Description(include site type, materials disposed of, dates of operation, and other relevent information):

Site 5 (UST 1201-1) is located in the vicinity of Building 1201 and covers an area of approximately 3 acres. The site includes the location of a former waste oil tank, UST 1201-1, that was removed in October 1991 after failing a volumetric tightness test in 1990. The 1985 JP-4 fuel spill (Site 2) is also included within the area of this site. (Radian Corporation, September 1994, Management Action Plan, p. A-8)

Brief Description of Pathways (Groundwater, Soil, Surface Water (human), Surface Water (ecological), Sediment (human), Sediment (ecological)):

The base is located on a wedge of glacial drift (predominantly sands and silts with interbedded clays and gravels) approximately 300 feet thick which overlies the Mt. Simon Sandstone. (Advanced Sciences, November 1991, SA Report, p. 8). Surficial soil at the site consists of fine- to medium-grained stratified silty sand layer that extends to a depth of 5 feet below ground surface. This silty sand layer is underlain by a clayey sand-sandy clay layer that extends to a depth of 7 feet below ground surface. Below this layer, a fine-grained sand layer is encountered to an unknown depth. Groundwater at the site is located approximately 9 to 14 feet below the ground surface. (Radian Corporation, September 1994, Management Action Plan, p. A-8) Drainage on the base is channeled by excavated ditches and culverts which are routed into Starkweather Creek; the outfall is located just south of the base. Starkweather Creek discharges into Lake Monona south of the facility. (Advanced Sciences, November 1991, SA Report, p. 9)

Brief Description of Receptors(Human and Ecological):

Madison's municipal water supply, from which the base receives all of its water, is obtained from production wells completed in the Mt. Simon Sandstone aquifer. (Advanced Sciences, 1994, SA Report Hangar 414 Expansion Area, p. 1-4) Groundwater from the shallow aquifer at Truax Field is not extracted for potable uses. The nearest potable supply wells are high capacity wells at the Oscar Mayer processing plant, approximately 1.5 miles southwest of the site. These wells draw from the bedrock aquifer units. (Parsons Engineering Science,

SUMMARY (continued)

February 1995, Remedial Action Option Evaluation, p. 3-11) No species listed as endangered or threatened are present or likely to be present in the vicinity of the base. The Cherokee Marsh State Fishery Area is located approximately 2.5 miles north of the base. No other publicly-owned nature preserves, wilderness areas, or wildlife sanctuaries have been identified within a three mile radius of the base. A large wetland area is located one to three miles north of the base and a smaller wetland area is located approximately one mile west of the base. (Radian Corporation, September 1994, Management Action Plan, p 2-6)

GROUNDWATER

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source.

POTENTIAL - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls).

(Place an "X" next to one below)

Evident:
Potential:
Confined: X

Brief Rationale for Selection:
No contamination was detected in the groundwater. (Advanced Sciences, November 1991, SA Report, p. 38)

RECEPTOR FACTOR (RF)

IDENTIFIED - There is a threatened or potentially threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agricultures (equivalent to Class I or IIA aquifer).

POTENTIAL - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agricultures, but is not presently used (equivalent to Class IIB aquifer).

LIMITED - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).

(Place an "X" next to one below)

Identified:
Potential:
Limited: X

Brief Rationale for Selection:
Closest potable supply well is in the bedrock aquifer 1.5 miles cross gradient from the site. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 3-11, 4-9)

Groundwater Category: LOW

SURFACE WATER - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Human Category: NE

SURFACE WATER - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Ecological Category: NE

SOIL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence that contamination is present at, is moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient ot make a determination of Evident or Confined.

CONFINED - Low possibility for contamination to be present at or migrate to a point of exposure.

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to contaminated soil.

POTENTIAL - Potential for receptors to have access to contaminated soil.

LIMITED - Little or no potential for receptors to have access to contaminated soil.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Soil Category: NE

SEDIMENT - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Human Category: NE

SEDIMENT - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Ecological Category: NE

RELATIVE RISK EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation Name: TRUAX FIELD (AIR FORCE)
Location (City/County and State): Madison/Dane Co./WI
Site Name / Site ID: UST 1000-2 / ST006
Name/Phone: Ruth Lodder/(301) 836-8504
NPL/Proposed NPL (Y/N): N

Date Entered (day month year): 30 Oct 96
Media Evaluated (GW, SW, Soil, Sediment): GW
Site Type: US - Underground Storage Tanks - TU
Phase of Execution (SI, RI, FS, EE/CA, IRA, RD, RA, LTM or LTO): RA
Agreement Status (appropriate DERP regulatory agreement code): Z - No agreementsZ -

Overall Relative Risk: LOW

SITE SUMMARY

Brief Site Description(include site type, materials disposed of, dates of operation, and other relevent information):
Site 6 (UST 1000-2) is located in the vicinity of Building 1000, the motor pool area, and covers an area of approximately 3 acres. In the past, waste oil and solvent storage operations were conducted at the site. Five USTs were formerly located at the site. (Radian Corporation, September 1994, Management Action Plan, p. A-8)

Brief Description of Pathways (Groundwater, Soil, Surface Water (human), Surface Water (ecological), Sediment (human), Sediment (ecological)):
The base is located on a wedge of glacial drift (predominantly sands and silts with interbedded clays and gravels) approximately 300 feet thick which overlies the Mt. Simon Sandstone. (Advanced Sciences, November 1991, SA Report, p. 8) Surficial soil at the site consists of a layer of sandy gravel fill to a depth of approximately 2 feet below the ground surface. The fill layer is underlain by a mixture of silty clays, clayey silt, and silt to a depth of approximately 6 to 7 feet below ground surface. This layer is underlain by a fine- to medium-grained sand unit to an unknown depth. Groundwater in the upper aquifer is located approximately 9 to 10 feet below ground surface. (Radian Corporation, September 1994, Management Action Plan, p. A-9) Drainage on the base is channeled by excavated ditches and culverts which are routed into Starkweather Creek; the outfall is located just south of the base. Starkweather Creek discharges into Lake Monona south of the facility. (Advanced Sciences, November 1991, SA Report, p. 9)

Brief Description of Receptors(Human and Ecological):
Madison's municipal water supply, from which the base receives all of its water, is obtained from production wells completed in the Mt. Simon Sandstone aquifer. (Advanced Sciences, 1994, SA Report Hangar 414 Expansion Area, p. 1-4) Groundwater from the shallow aquifer at Truax Field is not extracted for potable uses. The nearest potable supply wells are high capacity wells at the Oscar Mayer processing plant, approximately 1.5 miles southwest of the site. These wells draw from the bedrock aquifer units. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, p. 3-11) No species listed as endangered or threatened are present or likely to be

SUMMARY (continued)

present in the vicinity of the base. The Cherokee Marsh State Fishery Area is located approximately 2 5 miles north of the base. No other publicly-owned nature preserves, wilderness areas, or wildlife sanctuaries have been identified within a three mile radius of the base. A large wetland area is located one to three miles north of the base and a smaller wetland area is located approximately one mile west of the base. (Radian Corporation, September 1994, Management Action Plan, p. 2-6)

GROUNDWATER

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
1,2-Dichloroethylene (cis)	33.00	61.00	0.54
		Total =	0.54

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2): X

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source

POTENTIAL - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls).

(Place an "X" next to one below)

Evident:
Potential: X
Confined:

Brief Rationale for Selection:

DCE was detected in monitoring well MW-1, which is located within the boundaries of the site. (Advanced Sciences, November 1991, SA Report, p. 40)

RECEPTOR FACTOR (RF)

IDENTIFIED - There is a threatened or potentially threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agricultures (equivalent to Class I or IIA aquifer).

POTENTIAL - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agricultures, but is not presently used (equivalent to Class IIB aquifer).

LIMITED - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).

(Place an "X" next to one below)

Identified:
Potential:
Limited: X

Brief Rationale for Selection:

Closest potable supply well is in the bedrock aquifer 1.5 miles cross gradient from the site. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 3-11, 4-9)

Groundwater Category: LOW

SURFACE WATER - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Human Category: NE

SURFACE WATER - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Ecological Category: NE

SOIL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence that contamination is present at, is moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient ot make a determination of Evident or Confined.

CONFINED - Low possibility for contamination to be present at or migrate to a point of exposure.

Brief Rationale for Selection:
Site 6 was not included in the soil boring program. (Advanced Sciences, November 1991, SA Report, p. 38)

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to contaminated soil.

POTENTIAL - Potential for receptors to have access to contaminated soil.

LIMITED - Little or no potential for receptors to have access to contaminated soil.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Soil Category: NE

SEDIMENT - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Human Category: NE

SEDIMENT - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Ecological Category: NE

RELATIVE RISK EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation Name: TRUAX FIELD (AIR FORCE)
Location (City/County and State): Madison/Dane Co./WI
Site Name / Site ID: UST 409-2 / ST007
Name/Phone: Ruth Lodder/(301) 836-8504
NPL/Proposed NPL (Y/N): N

Date Entered (day month year): 30 Oct 96
Media Evaluated (GW, SW, Soil, Sediment): GW
Site Type: US - Underground Storage Tanks - TU
Phase of Execution (SI, RI, FS, EE/CA, IRA, RD, RA, LTM or LTO): RA
Agreement Status (appropriate DERP regulatory agreement code): Z - No agreementsZ

Overall Relative Risk: LOW

SITE SUMMARY

Brief Site Description(include site type, materials disposed of, dates of operation, and other relevent information):
Site 7 (UST 409-2) is located at the aircraft maintenance facility, which includes Buildings 400, 401, 409, and 410. This site covers an area of approximately 3 acres. Five USTs were originally located at this site, Four of these tanks have been removed. A 550 gallon used oil tank is located at this site. No known leaks have occurred at the site. (Radian Corporation, September 1994, Management Action Plan, p. A-9)

Brief Description of Pathways (Groundwater, Soil, Surface Water (human), Surface Water (ecological), Sediment (human), Sediment (ecological)):
The base is located on a wedge of glacial drift (predominantly sands and silts with interbedded clays and gravels) approximately 300 feet thick which overlies the Mt. Simon Sandstone. (Advanced Sciences, November 1991, SA Report, p. 8) The geology of the site consists of approximately 4 feet of sandy gravel fill that is underlain by fine- to medium-grained sand. Discontinuous layers of clayey silt and clay are encountered within the sand layer at a depth of 2 to 4 feet below ground surface. Groundwater at the site is located at a depth of approximately 7 to 9 feet below ground surface. (Radian Corporation, September 1994, Management Action Plan, p. A-9) Drainage on the base is channeled by excavated ditches and culverts which are routed into Starkweather Creek; the outfall is located just south of the base. Starkweather Creek discharges into Lake Monona south of the facility. (Advanced Sciences, November 1991, SA Report, p. 9)

Brief Description of Receptors(Human and Ecological):
Madison's municipal water supply, from which the base receives all of its water, is obtained from production wells completed in the Mt. Simon Sandstone aquifer. (Advanced Sciences, 1994, SA Report Hangar 414 Expansion Area, p. 1-4) Groundwater from the shallow aquifer at Truax Field is not extracted for potable uses. The nearest potable supply wells are high capacity wells at the Oscar Mayer processing plant, approximately 1.5 miles southwest of the site. These wells draw from the bedrock aquifer units. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, p. 3-11) No species listed as endangered or threatened are present or likely to be

SUMMARY (continued)

present in the vicinity of the base. The Cherokee Marsh State Fishery Area is located approximately 2 5 miles north of the base. No other publicly-owned nature preserves, wilderness areas, or wildlife sanctuaries have been identified within a three mile radius of the base. A large wetland area is located one to three miles north of the base and a smaller wetland area is located approximately one mile west of the base. (Radian Corporation, September 1994, Management Action Plan, p. 2-6)

GROUNDWATER

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
Trichloroethylene (TCE)	17.00	160.00	0.11
		Total =	0.11

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2): X

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source.

POTENTIAL - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls).

(Place an "X" next to one below)

Evident:
Potential: X
Confined:

Brief Rationale for Selection:
TCE was detected in monitoring wells MW-5 and MW-19, which are located within the site boundaries. (Advanced Sciences, November 1991, SA Report, p. 43)

RECEPTOR FACTOR (RF)

IDENTIFIED - There is a threatened or potentially threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agricultures (equivalent to Class I or IIA aquifer).

POTENTIAL - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agricultures, but is not presently used (equivalent to Class IIB aquifer).

LIMITED - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).

(Place an "X" next to one below)

Identified:
Potential:
Limited: X

Brief Rationale for Selection:
Closest potable supply well is in the bedrock aquifer 1.5 miles cross gradient from the site. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 3-11, 4-9)

Groundwater Category: LOW

SURFACE WATER - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Human Category: NE

SURFACE WATER - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Ecological Category: NE

SOIL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence that contamination is present at, is moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient ot make a determination of Evident or Confined.

CONFINED - Low possibility for contamination to be present at or migrate to a point of exposure.

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to contaminated soil.

POTENTIAL - Potential for receptors to have access to contaminated soil.

LIMITED - Little or no potential for receptors to have access to contaminated soil.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Soil Category: NE

SEDIMENT - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Human Category: NE

SEDIMENT - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Ecological Category: NE

RELATIVE RISK EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation Name: TRUAX FIELD (AIR FORCE)
Location (City/County and State): Madison/Dane Co./WI
Site Name / Site ID: Ramp Area / SS008
Name/Phone: Ruth Lodder/(301) 836-8504
NPL/Proposed NPL (Y/N): N

Date Entered (day month year): 30 Oct 96
Media Evaluated (GW, SW, Soil, Sediment): GW
Site Type: SS - Spill Site Area - SS
Phase of Execution (SI, RI, FS, EE/CA, IRA, RD, RA, LTM or LTO): LTO
Agreement Status (appropriate DERP regulatory agreement code): E - Consent OrderE

Overall Relative Risk: LOW

SITE SUMMARY

Brief Site Description(include site type, materials disposed of, dates of operation, and other relevent information):
Site 8 (Ramp Area) is located adjacent to the taxiway and Hangar 412 and covers an area of approximately 3 acres. Periodic spills of fuel and oil have occurred at the site. (Radian Corporation, September 1994, Management Action Plan, p. A-10)

Brief Description of Pathways (Groundwater, Soil, Surface Water (human), Surface Water (ecological), Sediment (human), Sediment (ecological)):
The base is located on a wedge of glacial drift (predominantly sands and silts with interbedded clays and gravels) approximately 300 feet thick which overlies the Mt. Simon Sandstone. (Advanced Sciences, November 1991, SA Report, p. 8) Groundwater in the vicinity of the site is located at a depth of approximately 4 to 7 feet below ground surface. (Radian Corporation, September 1994, Management Action Plan, p. A-10) Drainage on the base is channeled by excavated ditches and culverts which are routed into Starkweather Creek; the outfall is located just south of the base. Starkweather Creek discharges into Lake Monona south of the facility. (Advanced Sciences, November 1991, SA Report, p. 9)

Brief Description of Receptors(Human and Ecological):
Madison's municipal water supply, from which the base receives all of its water, is obtained from production wells completed in the Mt. Simon Sandstone aquifer. (Advanced Sciences, 1994, Site Assessment Report Hangar 414 Expansion Area, p. 1-4) Groundwater from the shallow aquifer at Truax Field is not extracted for potable uses. The nearest potable supply wells are high capacity wells at the Oscar Mayer processing plant, approximately 1.5 miles southwest of the site. These wells draw from the bedrock aquifer units. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, p. 3-11) No species listed as endangered or threatened are present or likely to be present in the vicinity of the base. The Cherokee Marsh State Fishery Area is located approximately 2.5 miles north of the base. No other publicly-owned nature preserves, wilderness areas, or wildlife sanctuaries have been identified within a 3-mile radius of the base. A large wetland area is located 1 to 3 miles north of the base and a smaller wetland area is located approximately 1 mile west of the base.

SUMMARY (continued)

(Radian Corporation, September 1994, Management Action Plan, p 2-6)

GROUNDWATER

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
Toluene	0.40	720.00	0.00
1,2,4-Trimethylbenzene	0.60	3.00	0.20
1,3,5-Trimethylbenzene	0.60	2.40	0.25
		Total =	0.45

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2): X

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source.

POTENTIAL - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls).

(Place an "X" next to one below)

Evident: X
Potential:
Confined:

Brief Rationale for Selection:

The groundwater plume originating from the source areas has migrated approximately 150 feet downgradient from Site 8, and has impacted groundwater in an area extending from the vicinity of Buildings 412 and 414 and just beneath the parking lot. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 4-3, 6-8)

RECEPTOR FACTOR (RF)

IDENTIFIED - There is a threatened or potentially threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agricultures (equivalent to Class I or IIA aquifer).

POTENTIAL - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agricultures, but is not presently used (equivalent to Class IIB aquifer).

LIMITED - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).

(Place an "X" next to one below)

Identified:
Potential:
Limited: X

Brief Rationale for Selection:

Closest potable supply well is in the bedrock aquifer 1.5 miles cross-gradient from the site. (Parsons Engineering Science, February 1995, Remedial Action Option Evaluation, pp. 3-11, 4-9)

Groundwater Category: LOW

SURFACE WATER - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Human Category: NE

SURFACE WATER - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/L)	Standard (µg/L)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Surface Water - Ecological Category: NE

SOIL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence that contamination is present at, is moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient ot make a determination of Evident or Confined.

CONFINED - Low possibility for contamination to be present at or migrate to a point of exposure.

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to contaminated soil.

POTENTIAL - Potential for receptors to have access to contaminated soil.

LIMITED - Little or no potential for receptors to have access to contaminated soil.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Soil Category: NE

SEDIMENT - HUMAN

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Human Category: NE

SEDIMENT - ECOLOGICAL

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Maximum Concentration (µg/Kg)	Standard (µg/Kg)	Ratio
(No contaminant data)			

(Place an "X" next to one below)

Significant (If Total > 100):
Moderate (If Total 2-100):
Minimal (If Total < 2):

MIGRATION PATHWAY FACTOR (MPF)

EVIDENT - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure.

POTENTIAL - Contamination in the surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.

CONFINED - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls).

Brief Rationale for Selection:

(Place an "X" next to one below)

Evident:
Potential:
Confined:

RECEPTOR FACTOR (RF)

IDENTIFIED - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move.

POTENTIAL - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

LIMITED - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move.

Brief Rationale for Selection:

(Place an "X" next to one below)

Identified:
Potential:
Limited:

Sediment - Ecological Category: NE

Air National Guard

115th Fighter Wing
Wisconsin Air National Guard
Truax Field
Madison, Wisconsin

Mission: Organize, train and equip personnel to augment Air Force forces in joint exercises or when mobilized in contingency environments.

Air National Guard

Truax ANG
Site Status

Site	Relative Risk	Phase
SS-01 JP-4 Fuel Spill No. 1	Not Evaluated	NFRAP
SS-02 JP-4 Fuel Spill No. 2	Not Evaluated	NFRAP
SS-03 PCB Spill	Not Evaluated	NFRAP
ST-04 UST 405 3 & 4	Low	MCP Remediation
ST-05 UST at Bldg 1201	Low	MCP Remediation
ST-06 UST 1000-2	Low	MCP Remediation
ST-07 UST 409-2	Low	MCP Remediation
SS-08 Ramp Area	Low	LTO

Air National Guard

Truax ANG
Inventory Control Matrix

Areas of Concern		Cleanup - IRP Sites							
Total	Study/ Removal	Total	Awaiting Action	Study	ROD	Cleanup	LTO	LTM	NFRAP
0	0	8	1	0	0	3	1	0	3

ROD - Record of decision

LTO - Long Term Operation

LTM - Long Term Monitoring

NFRAP - No Further Response Action Planned

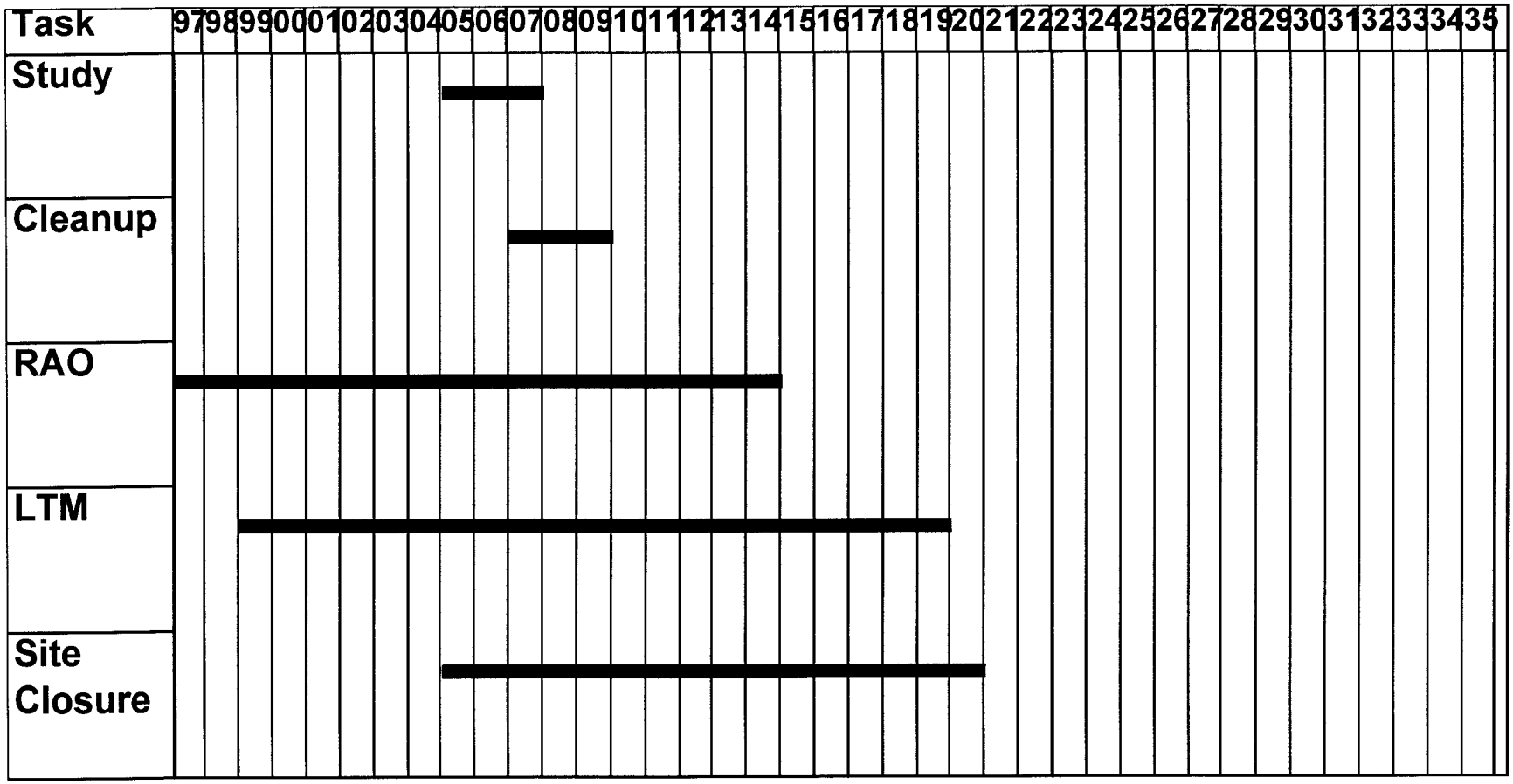
Air National Guard

Truax ANG
Cost To Complete

Funding in FY 97	$15,000
FY 98	$25,000
FY99	$25,000
FY 00	$25,000
FY 01 - completion	$4,956,380
Total Projected Project Cost	$6,477,280

Air National Guard

Truax ANG
Schedule To Complete



Air National Guard

Truax ANG
FY97 - FY00 Plan Of Action

FY97: Continue LTO at Site 8

FY98: Continue LTO at Site 8

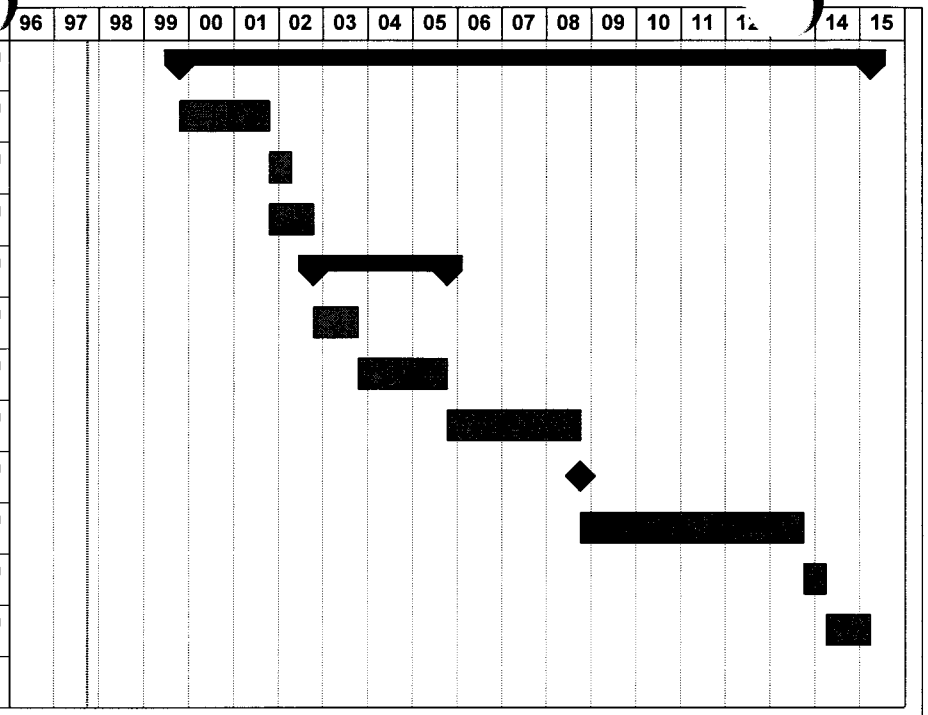
FY99: Complete LTO, begin LTM at Site 8

FY00: Continue LTM at Site 8

Truax ANG Issues

WIDNR is threatening a Unilateral Order at Site 4 unless active remediation is conducted. Site is low relative risk with an estimated RI start date of 2005. MCP Remediation is programmed to occur with demolition of existing POL facility. New POL construction is a DFSC project not under ANG control.

ID	Task	Duration	Start	Finish	Cost
1	**Site 4 - UST 405 3 & 4 (POL facility) (ST004)**	**806w**	**10/20/99**	**3/31/15**	**$4,686,288.00**
2	Remedial Investigation/Feasibility Study	104w	10/20/98 05	10/16/01	$725,037.00
3	Decision Document for Further Action	26w	10/17/01	4/16/02	$10,000.00
4	Remedial Design	52w	10/17/01	10/15/02	$293,275.00
5	**Remedial Action**	**156w**	**10/16/02**	**10/11/05**	**$2,932,754.00**
6	Remedial Action Construction	52w	10/16/02	10/14/03	$2,604,545.00
7	Remedial Action Operation	104w	10/15/03	10/11/05	$328,209.00
8	Long Term Operation	156w	10/12/05	10/7/08	$492,314.00
9	Response Complete	0w	10/7/08	10/7/08	$0.00
10	Long Term Monitoring	260w	10/8/08	10/1/13	$157,908.00
11	NFRAP Decision Document	26w	10/2/13	4/1/14	$10,000.00
12	Project Close Out	52w	4/2/14	3/31/15	$65,000.00
13					



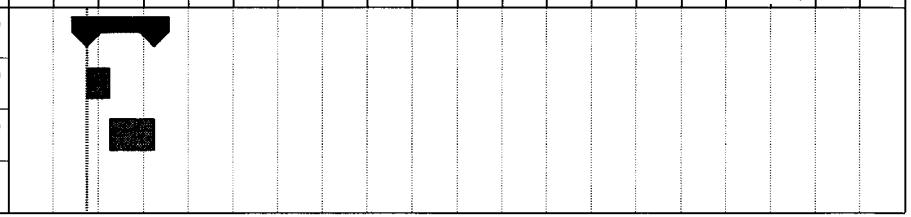
Project: 115 FW, Truax Field
Date: 9/23/97
Project Manager: R. L. Lodder

Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 3/31/15

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

ID	Task	Duration	Start	Finish	Cost
14	**Site 5 - UST at Building 1201 (ST005)**	**78w**	**10/1/97**	**3/30/99**	**$40,000.00**
15	NFRAP Decision Document	26w	10/1/97	3/31/98	$0.00
16	Project Close Out	52w	4/1/98	3/30/99	$40,000.00
17					



Project: 115 FW, Truax Field
Date: 9/23/97
Project Manager: R. L. Lodder

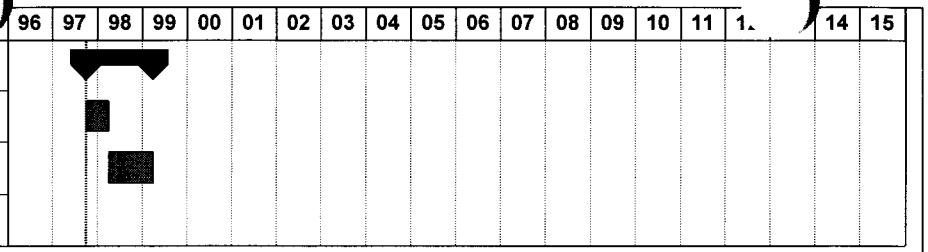
Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 3/31/15

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

ID	Task	Duration	Start	Finish	Cost
18	**Site 6 - UST 1000-2 (ST006)**	**78w**	**10/1/97**	**3/30/99**	**$40,000.00**
19	NFRAP Decision Document	26w	10/1/97	3/31/98	$0.00
20	Project Close Out	52w	4/1/98	3/30/99	$40,000.00
21					



Project: 115 FW, Truax Field
Date: 9/23/97
Project Manager: R. L. Lodder

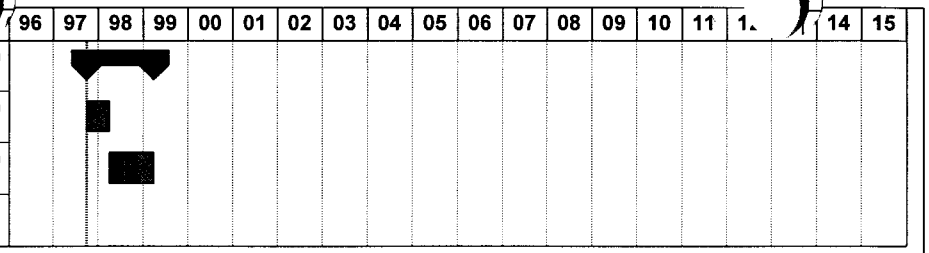
Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 3/31/15

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

ID	Task	Duration	Start	Finish	Cost
22	**Site 7 - UST 409-2 (ST007)**	**78w**	**10/1/97**	**3/30/99**	**$40,000.00**
23	NFRAP Decision Document	26w	10/1/97	3/31/98	$0.00
24	Project Close Out	52w	4/1/98	3/30/99	$40,000.00
25					



Project: 115 FW, Truax Field
Date: 9/23/97
Project Manager: R. L. Lodder

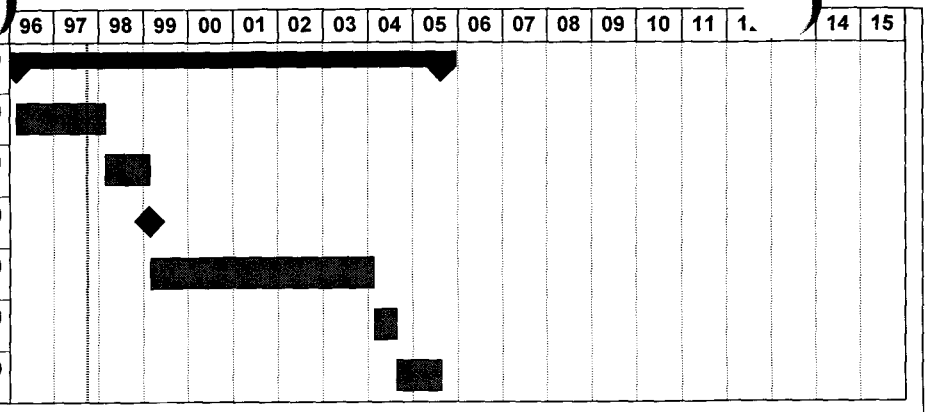
Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 3/31/15

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

ID	Task	Duration	Start	Finish	Cost
26	**Site 8 - Ramp Area (SS008)**	**494w**	**3/1/96**	**8/18/05**	**$225,000.00**
27	Remedial Action Operation (ongoing - Nine Springs)	104w	3/1/96	2/26/98	$0.00
28	Remedial Action Operation (FY98)	52w	2/27/98	2/25/99	$25,000.00
29	Response Complete	0w	2/25/99	2/25/99	$0.00
30	Long Term Monitoring	260w	2/26/99	2/19/04	$125,000.00
31	NFRAP Decision Document	26w	2/20/04	8/19/04	$10,000.00
32	Project Close Out	52w	8/20/04	8/18/05	$65,000.00



Project: 115 FW, Truax Field
Date: 9/23/97
Project Manager: R. L. Lodder

Tech Support Review:
Team Leader Review:
Branch Chief Review:

Project Start: 3/1/96
Project Finish: 3/31/15

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

PROJECT COST REPORT

AX FIELD (A.F.)
Truax Field (Air Force)
Madison WI
Radian International
10/14/96

	Start	Duration	Escalation Date
Studies:	Oct 1996	24 months	Oct 1997
RA Construction:	Sep 1999	52 weeks	Mar 2000
O&M:	Sep 2000	60 months	Mar 2003

* Escalation from Jan 1995

Project Comments:

	Studies	RD/RA Construction	O&M
ON RI/FS			
/FS	$ 7,166	$ 0	$ 0
ST004			
Air Sparging	0	997,371	507,911
Monitoring	0	0	58,127
RA Professional Labor	0	140,472	0
Soil Vapor Extraction	0	217,357	96,173
RI/FS	370,086	0	0
Total Direct Cost for Project:	$ 377,252	$ 1,355,200	$ 662,211

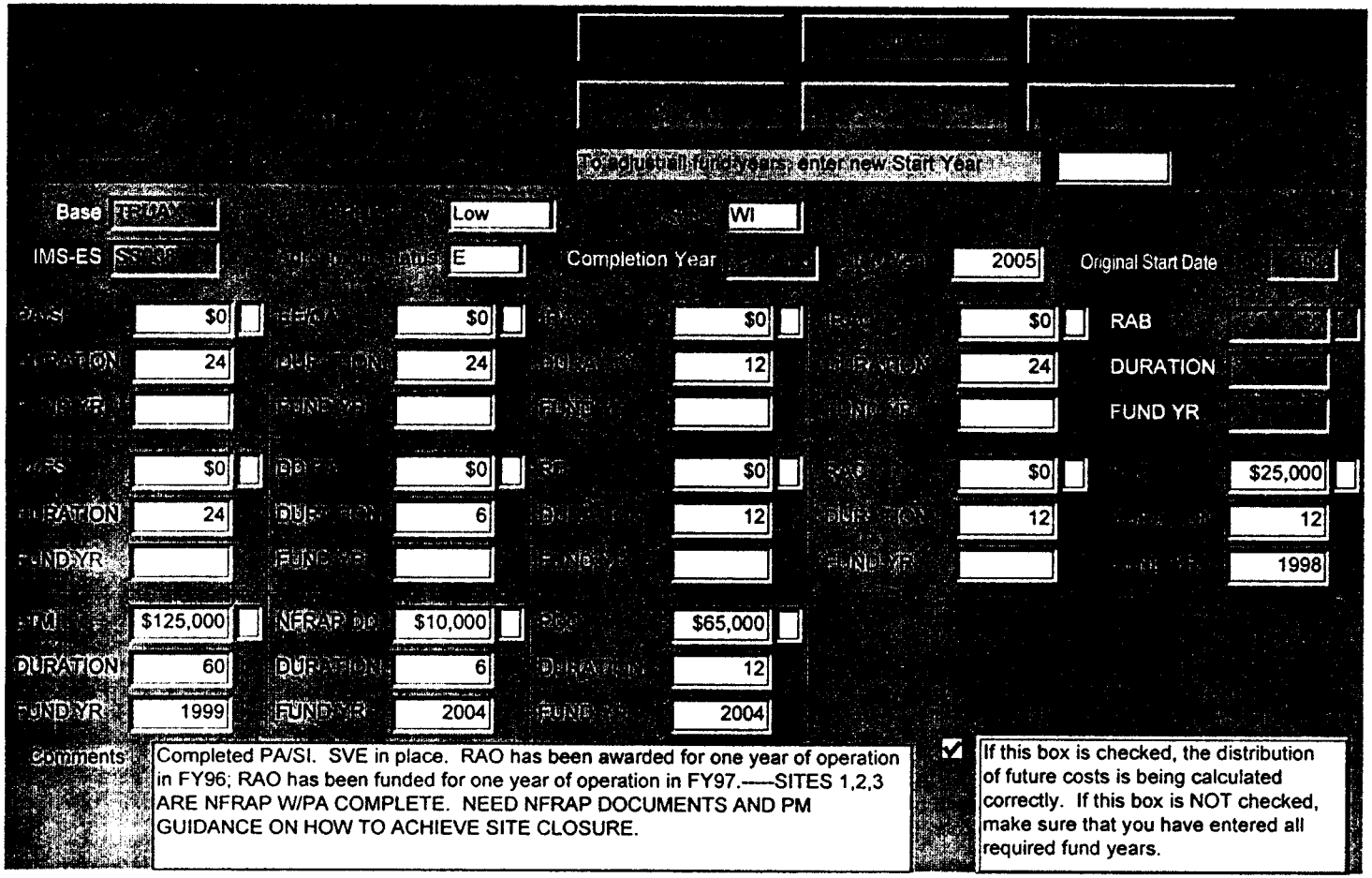
PROJECT COST REPORT

X FIELD (A.F.)
Truax Field (Air Force)
Madison WI
Radian International
10/14/96

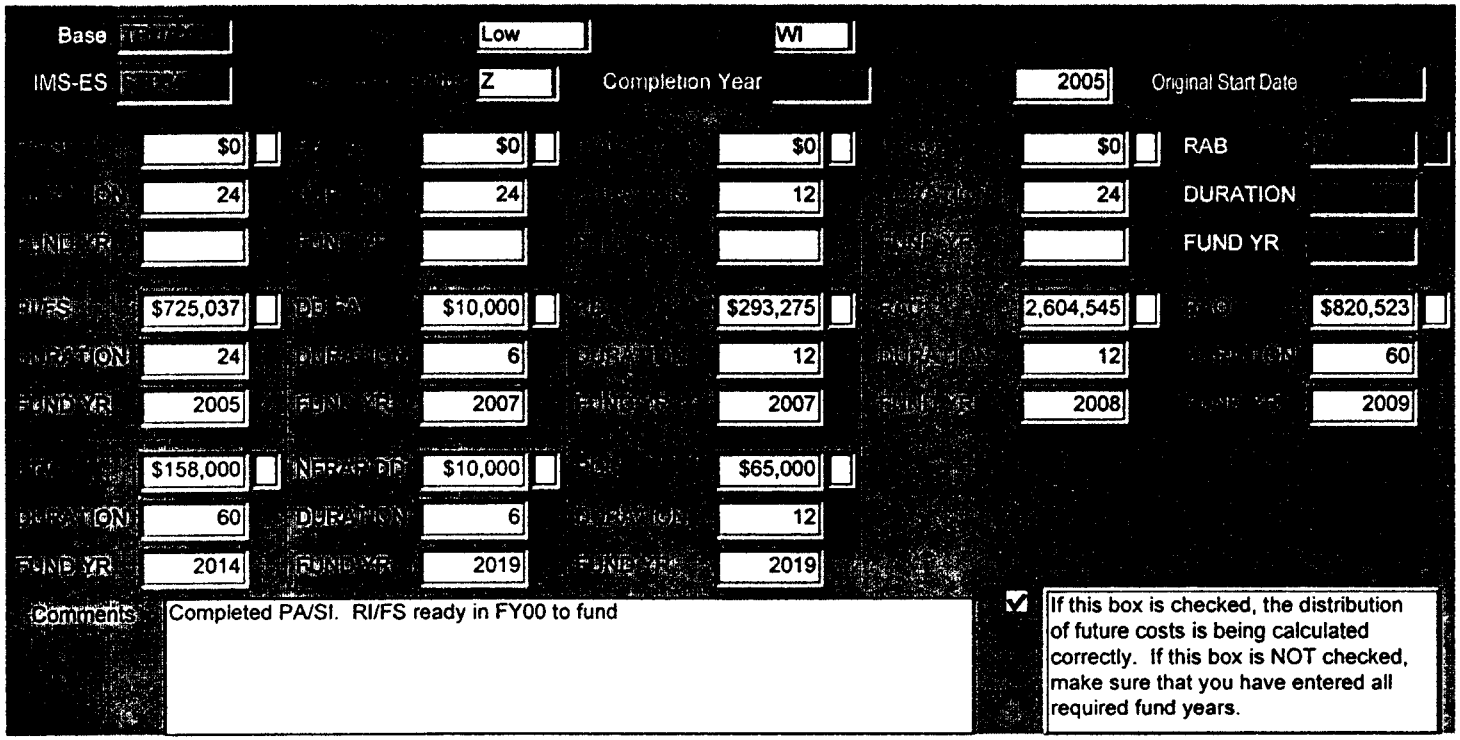
	Studies/RD/ RA Construction	O&M
Total Direct Cost	$ 1,732,452	$ 662,211
Sales Tax:	58,166	31,323
General Conditions:	335,035	
Subcontractor Overhead:	138,467	
Subcontractor Profit:	60,078	
Bonds & Insurance:	197,475	33,111
Prime Contractor		
Professional Labor Overhead:	229,516	
Home Office Expense:	90,271	39,733
Prime Contractor Profit:	185,434	51,329
Subtotal	$ 3,026,894	$ 817,707
Escalation:	0	0
Total Contract Cost	$ 3,026,894	$ 817,707
Contingency (5.0%):	151,344	40,885
Project Management (5.0%):	151,344	40,885
Total Project Amount	$ 3,329,582	$ 899,477

********** END OF REPORT **********

* * * * This System Intended For Government Use Only * * * *



16 April 1997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2009
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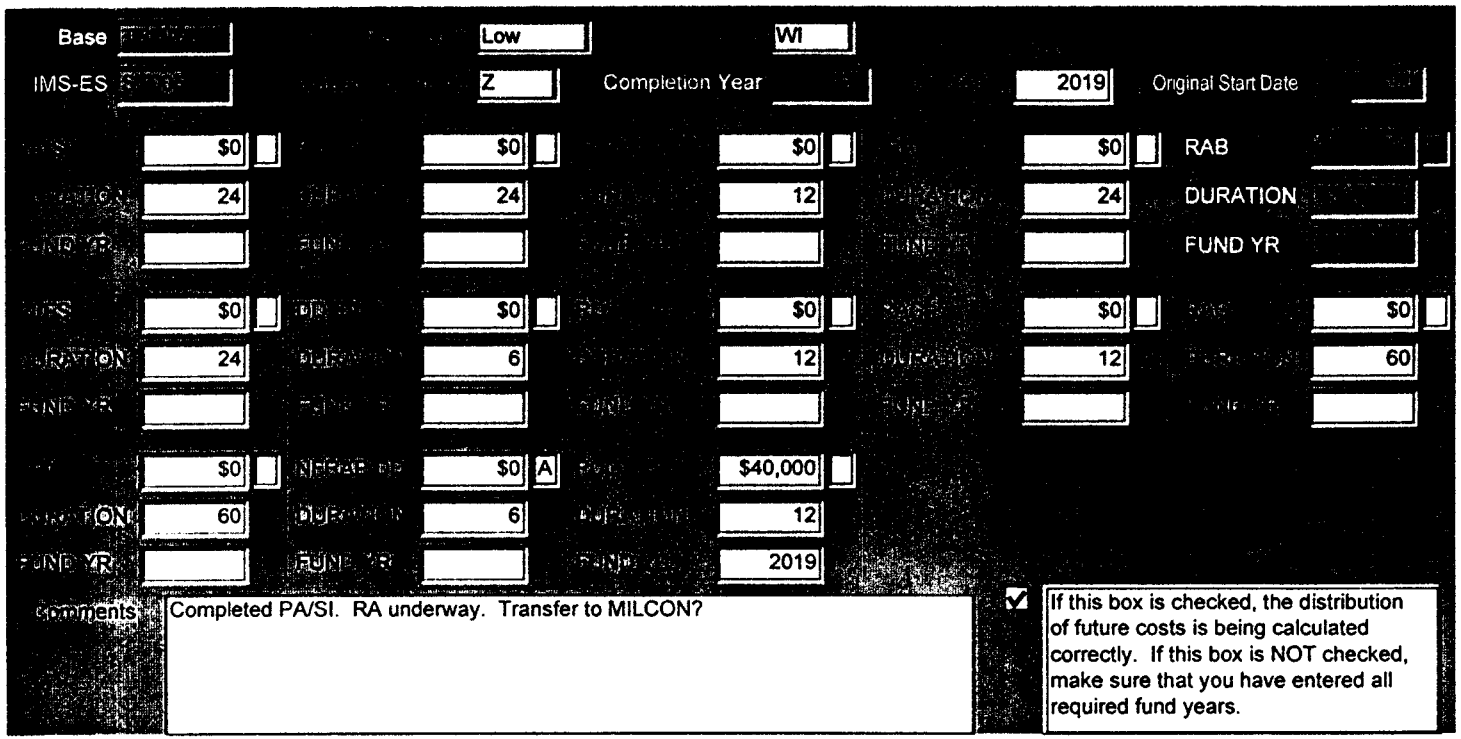
2014
2019
2019
Comments
Completed PA/SI. RI/FS ready in FY00 to fund
If this box is checked, the distribution of future costs is being calculated correctly. If this box is NOT checked, make sure that you have entered all required fund years.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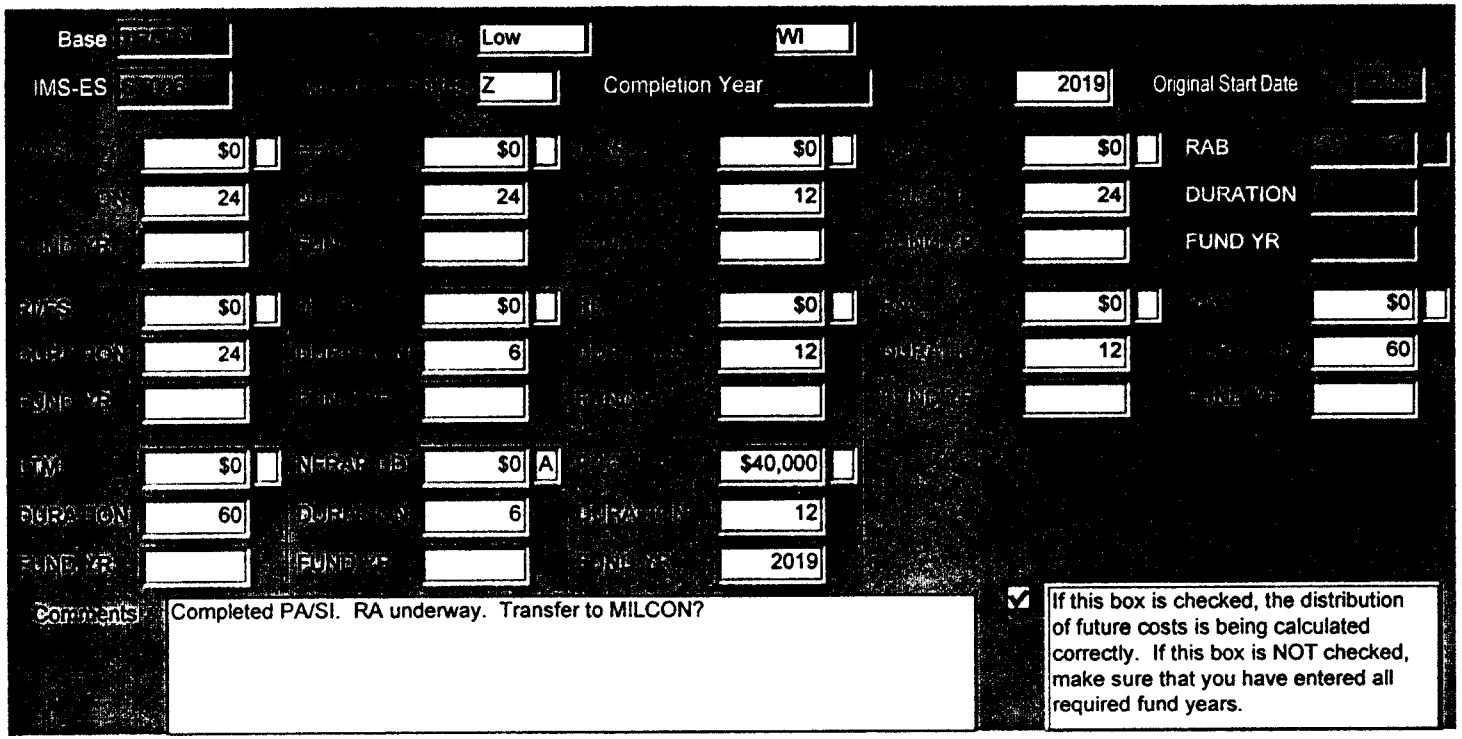
Comments
Completed PA/SI. RA underway. Transfer to MILCON?
If this box is checked, the distribution of future costs is being calculated correctly. If this box is NOT checked, make sure that you have entered all required fund years.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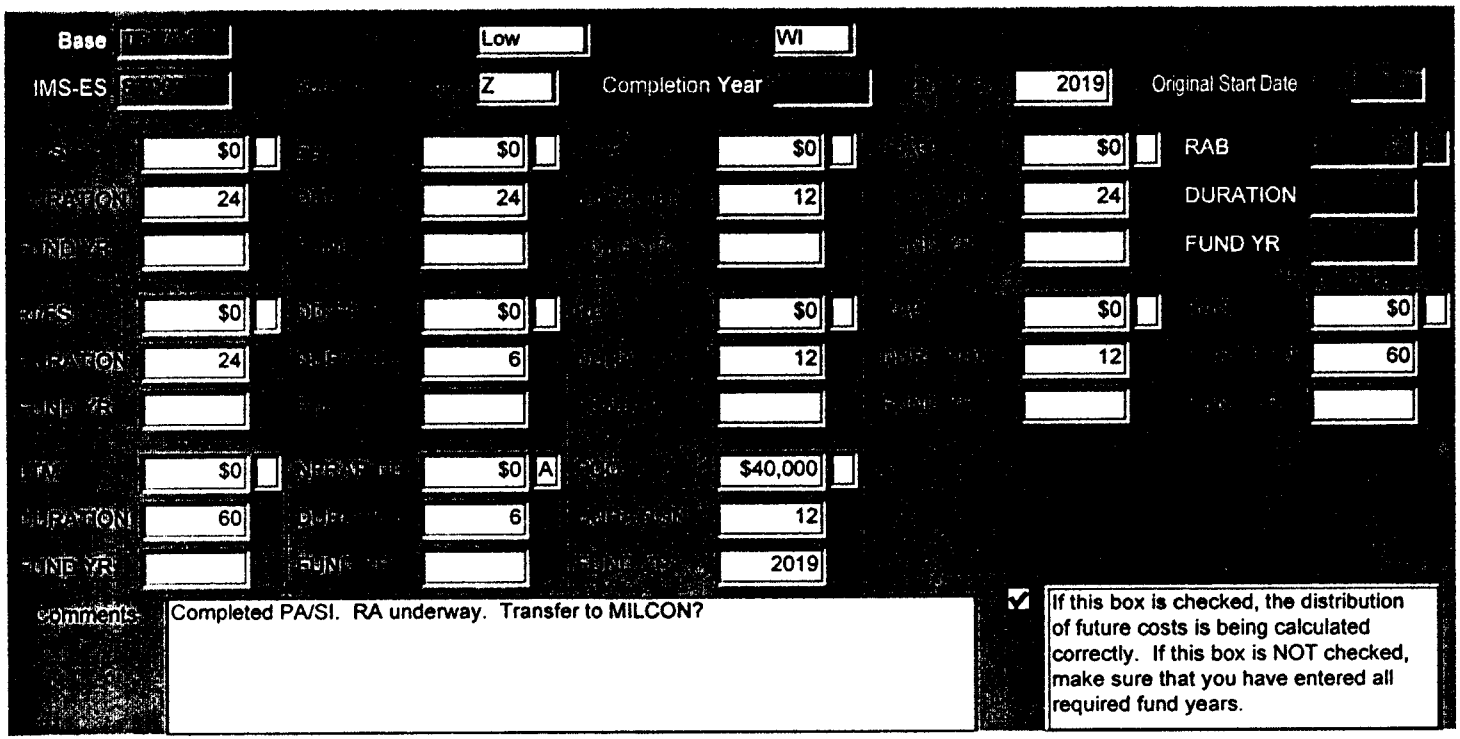
Comments
Completed PA/SI. RA underway. Transfer to MILCON?
If this box is checked, the distribution of future costs is being calculated correctly. If this box is NOT checked, make sure that you have entered all required fund years.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2019
Completed PA/SI. RA underway. Transfer to MILCON?
If this box is checked, the distribution of future costs is being calculated correctly. If this box is NOT checked, make sure that you have entered all required fund years.

AIR FORCE INSTALLATIC... ESTORATION PROGRAM
WORK IN PROGRESS - BASE INVENTORY CONTROL AND MANAGEMENT
TRUAX, WI

DATE	Area of Concern: Total #	Awaiting Action	PA	NFRA I	Awaiting Action	SI	FRA II	Awaiting Action	Removal Action	NFRAP IV	Validated IRP Site: Total #	Awaiting Action	PA	NFRAP I	Awaiting Action	SI	NFRAP II	Awaiting Action	RI	FS	ROD/DD	NFRA III	Awaiting Action	RD	Awaiting Action	RA	LT	LTM	NFRA IV	Total NFRAP	SC
Sep-96	0	0	0	0	0	0	0	0	0	0	8	0	0	3	0	0	0	4	4	0	0	0	0	0	0	1	0	0	0	3	0
Qtr 1											8			3				1	0							3	1			3	
Qtr 2																															
Qtr 3																															

Site Totals by Study, Interim Action, or Cleanup Status

	AOC: Total #	Awaiting Action	PA	NFRA I	Awaiting Action	SI	FRA II	Awaiting Action	Removal Action	NFRAP IV	IRP: Total #	Awaiting Action	PA	NFRAP I	Awaiting Action	SI	NFRAP II	Awaiting Action	RI	FS	ROD/DD	NFRA III	Awaiting Action	RD	Awaiting Action	RA	LT	LTM	NFRA IV	Total NFRAP	SC
Study	0	0	0		0	0		0			1	0	0		0	0		1	0	0	0										
Cleanup	IRA								0		0	0	0		0	0		0	0	0											
	IRA In LTO/LTM								0		0	0	0		0	0		0	0	0											
	RA										4												0	0	0	3	1	0			

RELATIVE RISK STATUS FOR SITES

	AOC: Total #	Awaiting Action	PA	NFRA I	Awaiting Action	SI	FRA II	Awaiting Action	Removal Action	NFRAP IV	IRP: Total #	Awaiting Action	PA	NFRAP I	Awaiting Action	SI	NFRAP II	Awaiting Action	RI	FS	ROD/DD	NFRA III	Awaiting Action	RD	Awaiting Action	RA	LT	LTM	NFRA IV	Total NFRAP	SC
High											0							0	0	0	0		0	0	0	0	0	0	0		
Medium											0							0	0	0	0		0	0	0	0					
Low											5							1	0	0	0		0	0	0	3					
NE											0	0	0		0	0															
AR											3			3			0					0							0		

NOTES:

		LTM	&	Total NFRAP
RC equals	3	0		3

1. RC = Response Complete = LTM + Total NFRAP
2. Total NFRAP = NFRAP I + NFRAP II + NFRAP III + NFRAP IV under Validated IRP Site
3. SC = Site Closeout is a SUBSET of Total NFRAP
4. PA and SI under validated IRP site reflects the OLD definition of a site prior to the designation of Areas of Concern (AOCs).
5. Sites undergoing a CONCURRENT RI and IRA should be counted under RI in the top table and in IRA in the center table.
6. September 1996 represents the baseline to measure work in progress to site closeout.
7. Column headings stating "Awaiting Funds" refer to AOCs or sites where work is required, but the requirement is currently unfunded.
8. The middle and bottom table should only be completed for the most recent data, i.e. if submitting data for the second quarter, only display the second quarter numbers for the middle and bottom table.
9. Total # of AOCs equals the sum of columns from "Awaiting Funds" through "NFRAP IV" under the Area of Concern heading.
10. Total # of sites equals the sum of columns from "Awaiting Funds" through "NFRAP IV" under the Validated IRP Site heading.
11. The middle table shows the study/cleanup status for active sites only. Sites in NFRAP status are not broken out in the middle table.
12. The numbers in the bottom table, Relative Risk Status, shall include numbers for all AOCs and sites.
12.a. AOCs or sites prior to completion of PA and SI should be designated as NE, not evaluated.
12.b. Sites in NFRAP status, LTO, and LTM should be designated as NR, not required.
13. Sites under RD, RA, LTO, and LTM refer to the final remedy.
14. AR = Acceptable Risk. Same as Not Required