

Final Project Management Plan for Sampling & Closure of
Load Lines 1, 2, 3, 4, 12 (RVAAP - 08, 09, 10, 11, and 12) and
Other Areas of Concern

Ravenna Army Ammunition Plant
Ravenna, Ohio

Contract No. W912QR-10-P-0037

Prepared for:



**US Army Corps
of Engineers®**

U.S. Army Corps of Engineers
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TABLE OF CONTENTS

LIST OF FIGURES	III
LIST OF TABLES	III
LIST OF APPENDICES	III
1.0 INTRODUCTION	1-1
1.1 GENERAL FACILITY DESCRIPTION	1-1
1.2 PROJECT BACKGROUND AND SUMMARY	1-3
1.3 PROJECT OBJECTIVES	1-3
1.4 PROJECT TASKS	1-4
1.5 PRIMARY PROJECT CONSTRAINTS	1-4
2.0 – PROJECT EXECUTION	2-1
2.1 FIELD SAMPLING PLAN (FSP) ADDENDUM.....	2-1
2.2 QUALITY ASSURANCE PROJECT PLAN (QAPP).....	2-1
2.3 SITE SAFETY AND HEALTH PLAN (SSHP) ADDENDUM.....	2-1
2.4 UNEXPLODED ORDNANCE (UXO)/MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) AVOIDANCE PLAN	2-1
2.5 CONTRACTOR QUALITY ASSURANCE PLAN (CQAP).....	2-1
2.6 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AMENDMENT	2-1
2.7 REMEDIAL DESIGN	2-2
2.8 SITE LOGISTICS AND COORDINATION.....	2-2
2.9 PROJECT RESOURCES	2-2
3.0 – PROJECT COORDINATION / REPORTING	3-1
3.1 PROJECT STAKEHOLDERS	3-1
3.2 REGULATORY COORDINATION	3-1
3.3 PUBLIC INVOLVEMENT	3-1
3.4 PROJECT REPORTING	3-2
3.4.1 Monthly Status Reports.....	3-2
3.4.2 Bi-Weekly Status Updates	3-2
3.4.3 Records of Conversations	3-2
3.4.4 Records / Data Management.....	3-2
4.0 – PROJECT ORGANIZATION	4-1
4.1 PROJECT ORGANIZATION, ROLES, AND RESPONSIBILITIES	4-1

4.2 SUBCONTRACTOR MANAGEMENT 4-2

5.0 – DELIVERABLES5-1

5.1 DISTRIBUTION OF DELIVERABLES 5-1

5.2 PROJECT DOCUMENT DELIVERABLES 5-1

6.0 – QUALITY MANAGEMENT.....6-1

6.1 FIELD QUALITY MANAGEMENT 6-1

6.2 LABORATORY QUALITY MANAGEMENT..... 6-1

6.3 DOCUMENT QUALITY MANAGEMENT 6-1

7.0 – REFERENCES.....7-1

LIST OF FIGURES

Figure 1-1 - RVAAP Location and General Vicinity Maps 1-2
Figure 2-1 – Example Monthly Progress Report 3-3
Figure 3-1 – Organization Chart 4-3

LIST OF TABLES

Table 5-1 - Project Deliverable Submittals and Approvals 5-2
Table 5-2 - Deliverables Distribution List 5-3

LIST OF APPENDICES

Appendix A – Project Schedule A-1

ACRONYMS AND ABBREVIATIONS

ADR	Automated Data Review
AEC	Army Environmental Center
AOC	Areas of Concern
BRACD	Base Realignment and Closure Division
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CO	Contracting Officer
COR	Contracting Officer's Representative
CQAP	Contractor Quality Assurance Plan
CQM	Construction Quality Management
DFFO	Director's Final Findings and Orders
DoD	U.S. Department of Defense
EDD	Electronic Data Deliverables
ELAP	Environmental Laboratory Review
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
FW	Facility-Wide
GOCO	Government-owned, contractor-operated
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDW	Investigative Derived Waste
IRP	Installation Restoration Program
ITR	Independent Technical Review
MEC	Munitions and explosives of concern
MI	Multi-increment
MMRP	Military Munitions Response Program
NCP	National Contingency Plan
NGB	National Guard Bureau
PDF	Portable Document Format
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
Prudent	Prudent Technologies, Inc.
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
REIMS	Ravenna Environmental Information Management System
ROD	Record of Decision
RVAAP	Ravenna Army Ammunition Plant
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments & Reauthorization Act
SOW	Statement of Work
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SWPPP	Storm Water Pollution Prevention Plan
TNT	Trinitrotoluene
USACE	U.S. Army Corps of Engineers

USACHPPM
USCS
USP&FO
UXO
WP

U.S. Army Center for Health Promotion & Preventive Medicine
Unified Soil Classification System
United States Property & Fiscal Officer
Unexploded ordnance
Work Plan

1.0 INTRODUCTION

1.1 GENERAL FACILITY DESCRIPTION

When the RVAAP Installation Restoration Program (IRP) began in 1989, RVAAP was identified as a 21,419-acre installation. The property boundary was resurveyed by OHARNG over a 2-year period (2002 and 2003) and the total acreage of the property was found to be 21,683.289 acres. As of February 2006, a total of 20,403 acres of the former 21,683-acre RVAAP has been transferred to the National Guard Bureau (NGB) and subsequently licensed to OHARNG for use as a military training site.

The current RVAAP consists of 1,280 acres scattered throughout the OHARNG Camp Ravenna Joint Military Training Center (Camp Ravenna). Camp Ravenna is in northeastern Ohio within Portage and Trumbull Counties, approximately 3 miles (4.8 km) east-northeast of the City of Ravenna and approximately 1 mile (1.6 km) northwest of the City of Newton Falls. The RVAAP portions of the property are solely located within Portage County. RVAAP/Camp Ravenna is a parcel of property approximately 11 miles (17.7 km) long and 3.5 miles (5.6 km) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east. Camp Ravenna is surrounded by several communities: Windham on the north; Garrettsville 6 miles (9.6 km) to the northwest; Newton Falls 1 mile (1.6 km) to the southeast; Charlestown to the southwest; and Wayland 3 miles (4.8 km) to the south. The property location is depicted in Figure 1-1.

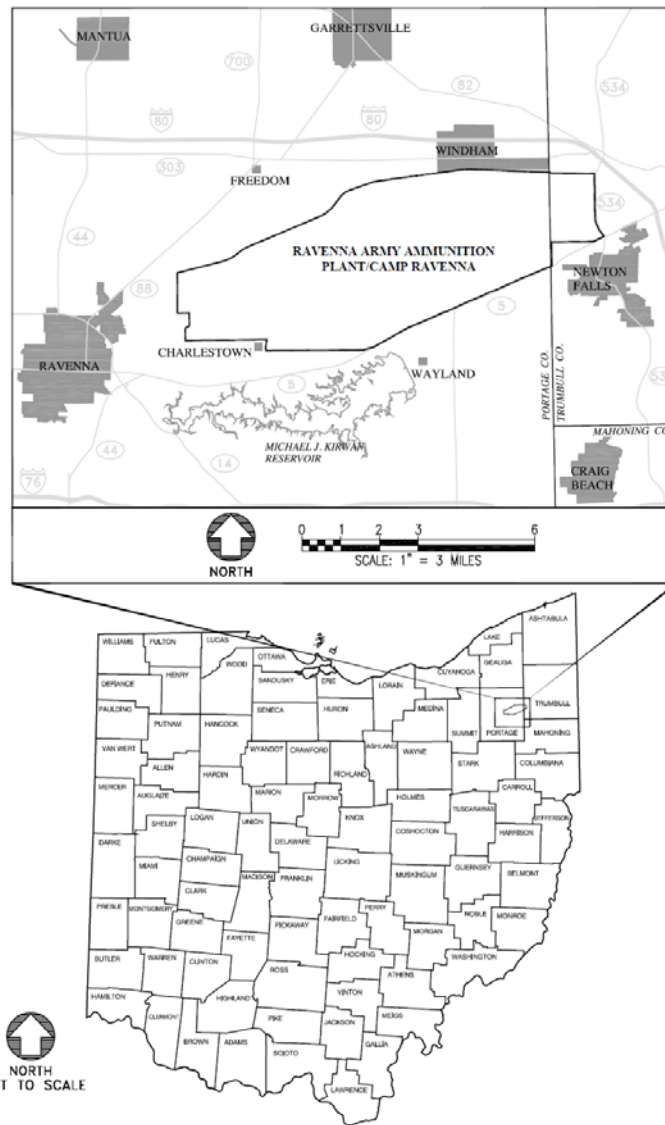
When RVAAP was operational, Camp Ravenna did not exist and the entire 21,683-acre parcel was a government-owned, contractor-operated industrial facility. The RVAAP IRP encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP. References to RVAAP in this document are considered to be inclusive of the historical extent of RVAAP, which is inclusive of the combined acreages of the current Camp Ravenna and RVAAP, unless otherwise specifically stated.

Industrial operations at the former RVAAP consisted of 12 munitions-assembly facilities referred to as "load lines." Load Lines 1 through 4 were used to melt and load 2,4,6-trinitrotoluene (TNT) and Composition B into large-caliber shells and bombs. The operations on the load lines produced explosive dust, spills, and vapors that collected on the floors and walls of each building. Periodically, the floors and walls were cleaned with water and steam. Following cleaning, the wastewater, containing TNT and Composition B, was known as "pink water" for its characteristic color. Scupper systems were used to collect pink water, which was contained in concrete holding tanks, filtered, and pumped into unlined ditches for transport to earthen settling ponds. However, in some instances, pink water was swept from doorways, or scupper systems overflowed onto the ground surface. Load Lines 5 through 11 were used to manufacture fuzes, primers, and boosters. Potential contaminants in these load lines include lead compounds, mercury compounds, and explosives. From 1946 to 1949, Load Line 12 was used to produce ammonium nitrate for explosives and fertilizers prior to use as a weapons demilitarization facility.

In 1950, the facility was placed in standby status and operations were limited to renovation, demilitarization, and normal maintenance of equipment, along with storage of munitions. Production activities were resumed from July 1954 to October 1957 and again from May 1968 to August 1972. In addition to production missions, various demilitarization activities were conducted at facilities constructed at Load Lines 1, 2, 3, and 12. Demilitarization activities included disassembly of munitions and explosives melt-out and recovery operations using hot water and steam processes. Periodic demilitarization of various munitions continued through 1992.

In addition to production and demilitarization activities at the load lines, other facilities at RVAAP include AOCs that were used for the burning, demolition, and testing of munitions. These burning and demolition grounds consist of large parcels of open space or abandoned quarries. Potential contaminants at these AOCs include explosives, propellants, metals, and waste oils. Other types of AOCs present at RVAAP include landfills, an aircraft fuel tank testing facility, and various general industrial support and maintenance facilities.

Figure 1-1 - RVAAP Location and General Vicinity Maps



1.2 PROJECT BACKGROUND AND SUMMARY

About twelve years ago, the buildings at Load Lines 1-4 were demolished, but with massive elevated floor slabs and foundations left in place. About seven years ago, large-scale remediation began at Load Lines 1-4 with an assumed future land use of National Guard training and with the floor slabs assumed to be left in place. Remediation of areas outside of the building footprints was conducted to facilitate training of the Ohio Army National Guard under a set of exposure assumptions for that training. About the time that remediation was being completed, additional Army funding became available which allowed for the removal of the floor slabs and foundations; additionally, the set of assumptions associated with the National Guard training had to be modified to account for changes in mission and training. Within the past several years, the floor slabs and most of the foundations have been removed (by PIKA International, Inc., 2008-2009), and another contractor (URS Corporation, 2008-2010) tested, and where necessary, is remediating the soils beneath the former building slabs. Subsurface characterization was restricted to a depth of 4 feet due to the sampling method utilized. Remediation of all areas (both within and outside building areas) and all media except groundwater is currently taking place at Load Line 12.

In this project, Prudent Technologies, Inc. (Prudent) is tasked with performing deeper characterization of the subsurface materials beneath the former building slabs via subsurface multi-increment sampling. Innovative means of performing this comprehensive sampling will be performed in an efficient and cost effective manner. Subsequent to that sampling, Prudent will compile all previous environmental sampling and evaluate that data against a more stringent set of cleanup goals that will reduce the land use restrictions for the OHARNG. Should additional remediation be required, Prudent will perform that work. The results of this work will be presented in a closure document, which will be adequate to transfer the property to the NGB with the goal of Unrestricted National Guard Trainee Use.

1.3 PROJECT OBJECTIVES

This project has multiple objectives. The first is to provide additional environmental characterization of subsurface materials below the former floor slabs of the buildings at Load Lines 1, 2, 3, and 4. This additional information will complement previous explosives field screening results that were determined in the recent past at these same locations. The results of this investigation will be presented in a final report, which will also include previous explosive field screening measurements and the results of recent United States Army Corps of Engineers (USACE) sampling activities outside of former building footprints at the referenced load lines to investigate if contamination was spread during building demolition activities. The second objective is to obtain site closure at Load Lines 1, 2, 3, 4, and 12. This will be done by reviewing previous investigation documents and analytical results and then assessing land use controls at each of the subject AOC. The primary goal is to achieve an Unrestricted National Guard Trainee Land Use for surface soil, subsurface soil, dry sediment, wet sediment, and surface water media. Prudent will submit a final report which summarizes its evaluation of previous environmental work in relation to recent land use control guidance. A proposed path forward will be presented to achieve the desired land use. Additional investigation and remediation may be required and will be conducted by Prudent. The results of this work will be presented in a final closure document which will present the land use, hopefully, as adequate to transfer the property to the NGB for Unrestricted National Guard Trainee Use.

1.4 PROJECT TASKS

Specifically, the following tasks are prescribed in the contract to accomplish the overall project objectives.

- Task 1 Project Management
- Task 2 Project Work Plan
- Task 3 Project Execution / Client Correspondence
- Task 4 A Collect Subsurface Multi-Increment* (MI) Samples
- B Analyze Subsurface MI Samples
- C Prepare Sampling Report
- Task 5 Land Use Control Assessment
- Task 6 **Characterization / Confirmatory Sampling (if needed)
- Task 7 Analyses of Characterization / Confirmatory Sampling (if needed)
- Task 8 Soil Remediation (if needed)
- Task 9 Closure Report

*Multi-Increment© is a registered trademark of EnviroStat, Inc.

****To expedite the schedule, characterization sampling may begin prior to approval of the final LUC Assessment Report**

1.5 PRIMARY PROJECT CONSTRAINTS

Prudent will conduct this project in general compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Contingency Plan (NCP); and specifically with relevant U.S. Department of Defense (DoD) and Army Policy and the Ohio Environmental Protection Agency (EPA) Director's Final Findings and Orders (DFFOs).

2.0 – PROJECT EXECUTION

2.1 FIELD SAMPLING PLAN (FSP) ADDENDUM

Prudent will prepare a project specific FSP Addendum, as a portion of the Project Work Plan, to describe in detail those actions related to subsurface MI sampling in Task 4A and surface soil and dry sediment MI sampling, wet sediment MI sampling, and discreet surface water sampling in Task 6 not already covered by the Facility-Wide (FW) SAP (USACE, 2001b). USACE recently conducted subsurface MI sampling at RVAAP. Because this type of sampling is new, much detail will be presented about the new and unique features of this work. See Appendix A of Prudent's Work Plan (WP)

2.2 QUALITY ASSURANCE PROJECT PLAN (QAPP)

Prudent will prepare a project specific Quality Assurance Project Plan (QAPP) Addendum for the portion of the project for those actions not already covered by the Facility-Wide QAPP (SAIC, 2001b). See Appendix B of Prudent's WP.

2.3 SITE SAFETY AND HEALTH PLAN (SSHP) ADDENDUM

Prudent will prepare a project specific SSHP Addendum for each field portion of the project for those actions not already covered by the FW SSHP (USACE, 2001c). The SSHP Addendum will provide an activity hazard analysis evaluation of all potentially adverse health or safety activities, an emergency response plan, contingency plan, and emergency contacts. Prudent will ensure that all employees, subcontractors, and other on-site personnel related to this project follow all provisions established in the FW SSHP and the project specific SSHP Addendum. Prudent understands that the USACE and Ohio EPA maintain Stop Work Authority for any observed violations or non-compliance with the FW SSHP and Project Specific Addendum. See Appendix D in Prudent's WP.

2.4 UNEXPLODED ORDNANCE (UXO)/MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) AVOIDANCE PLAN

A UXO/MEC Avoidance Plan will be prepared to guide intrusive activities. That plan will be approved by a USACE Military Munitions Response Program (MMRP) Design District. Where appropriate, any remediation work will be conducted under previously approved URS and/or PIKA Explosive Safety Submission amendments. See Appendix C in Prudent's WP.

2.5 CONTRACTOR QUALITY ASSURANCE PLAN (CQAP)

Prudent will develop a CQAP that will be incorporated into the project and guide investigative and remedial work activities by all personnel, including subcontractors. Applicable requirements of the USACE Contractor Quality Management Program will be integrated into the CQAP. Implementation of the CQAP will ensure investigative and remedial activities are performed in accordance with cost and schedule specifications. See Appendix F in Prudent's WP.

2.6 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AMENDMENT

Prudent will prepare a SWPPP Amendment to the facility's permit for work associated with Prudent remedial activities. The SWPPP will establish procedures and controls to prevent storm water run-on and run-off, to minimize erosion of site soils, to prevent sediment transport and accumulation, and to protect

adjacent drainage ways during intrusive fieldwork in accordance with all applicable federal, state, and local requirements. See Appendix E in Prudent's WP.

2.7 REMEDIAL DESIGN

General provisions for remediation, if required, are included in the Project Work Plan. Once Tasks 6, 7, and 8 are complete, additional specific measures will be amended to the Work Plan.

2.8 SITE LOGISTICS AND COORDINATION

During any week in which Prudent personnel (including Prudent subcontractors) are performing any site work at RVAAP/Camp Ravenna, a representative will attend the weekly contractor meeting. These meetings are designed to facilitate coordination of various contractor activities occurring at RVAAP/Camp Ravenna and with those of Army or OHARNG activities. Prudent and its subcontractor(s) will coordinate to the best of its ability with other subcontractors, Army, and OHARNG personnel.

Prudent will not perform any site work during weekends when deer or turkey hunts are occurring at Camp Ravenna.

In order to ensure the security and orderly operation of RVAAP/Camp Ravenna, Prudent will follow procedures established by RVAAP/Camp Ravenna, and the facility caretaker contractor regarding access to the facility of contractors, consultants, or visitors. Prudent will notify the facility caretaker contractor at least 24 hours ahead of any deliveries to RVAAP/Camp Ravenna.

All personnel associated with this project will adhere to posted speed limits or default to 35 mph during daylight hours and 25 mph during nighttime hours.

Smoking will be permitted in designated areas of RVAAP/Camp Ravenna and food will be consumed only in designated areas.

Communication among Prudent personnel will be primarily by cell phones, with backup by radios.

Prudent will remove all non-hazardous trash brought to or generated at RVAAP/Camp Ravenna during its work. Any manifests for removal of non-RCRA (Resource Conservation and Recovery Act) hazardous waste will be signed by Jim McGee, manager for the facility-operating contractor; and any manifests for removal of RCRA hazardous waste will be signed by Mark Patterson, the facility manager.

2.9 PROJECT RESOURCES

Army Furnished Resources - The Army will provide specified resources to Prudent for investigation and remediation purposes, including:

- Explosive Safety Submission
- Access to Army-maintained records, reports, data, analyses, and information in their current format, i.e., paper copy, electronic, tape, disc, compact disks.
- Access to DoD and Army policy and guidance documents.
- Access and use of the facility sampling building, Bldg 1036, as available, in coordination with other contractors or Army personnel, and as per policies of the facility operating contractor.

Contractor Furnished Resources - Prudent will provide all required expertise, knowledge, equipment and tools needed to meet or exceed the government's objectives delineated in the scope of work (SOW) for this project in accordance with established industry standards.

3.0 – PROJECT COORDINATION / REPORTING

3.1 PROJECT STAKEHOLDERS

The project stakeholders identified in the SOW include the following:

- Army
 - Facility Manager
 - USACE-Louisville
 - Army Environmental Command (AEC) Project Manager
 - USACE MMRP Design District, as applicable
 - US Army Center for Health Promotion and Preventive Medicine (USACHPPM), as applicable
- Ohio Army National Guard (OHARNG)
- Ohio Environmental Protection Agency (Ohio EPA)
- National Guard Bureau (NGB), as applicable
- Restoration Advisory Board (RAB), as applicable
- General Public, as applicable

3.2 REGULATORY COORDINATION

All regulatory coordination will be approved by the Army through the Contracting Officer's Representative (COR). Prudent will provide the necessary support to initiate, schedule, and address regulatory aspects of the project. All communication to stakeholders and regulators will be coordinated with the USACE and the RVAAP Facility Manager. Prudent will keep a record of phone conversations and written correspondence affecting decisions relating to the project. The COR, or other COR designee, will attend and represent the Army at all meetings with the regulators if they so choose. Prudent will prepare and submit minutes of all significant meetings attended, as appropriate. With approval of the COR, Prudent may also informally discuss issues with regulators and provide an after-action report back to the COR. Prudent will not contact regulators without prior approval of the COR.

In addition, communications that contain information that could affect the project that occur between the Army and the regulators, without the presence of Prudent, will be transmitted to Prudent through the COR. After reviewing such information, Prudent will provide the Army with comments on any items or issues that may impact Prudent's execution of the work. Documentation of all meetings and conference calls will be completed by Prudent and circulated within ten business days to the appropriate stakeholders, as determined by the Army.

3.3 PUBLIC INVOLVEMENT

All public participation coordination will be approved by the Army through the COR. Prudent will provide necessary support to initiate, schedule, and manage public involvement activities of the project. Public comments will be requested and addressed consistent with CERCLA/SARA and NCP. The COR, or other Army designee, shall attend and represent the Army at all public meetings. Prudent will provide

support for two RAB meetings and present project-related information to the RAB, as requested by the COR in accordance with the SOW.

If the results of the additional investigation and evaluation of existing other data determine that changes to in-place Record of Decision (RODs) are warranted, such changes would be considered fundamental. ROD Amendment(s) will be required for the already in-place RODs for LLs 1, 2, 3, 4, and 12. Thirty-day public review periods would be required and Prudent, in consultation with the Army and Ohio EPA, will prepare responses to those review comments.

3.4 PROJECT REPORTING

3.4.1 Monthly Status Reports

Prudent will provide monthly status reports for inclusion in the overall monthly reports provided to the Ohio EPA per Paragraph XVI of the DFFOs. A template for these reports is provided as Figure 3-1. These monthly status reports will be submitted to the COR by the close of business on the 5th calendar day of the following month.

3.4.2 Bi-Weekly Status Updates

Starting the week of 12 April 2010, Prudent will participate in bi-weekly status meetings with interested stakeholders to provide project status updates. Schedule updates will also be provided to the USACE project scheduler prior to these teleconferences.

3.4.3 Records of Conversations

Prudent will prepare and maintain records of telephone conversations and other significant verbal communications conducted in support of this project. These records will be forwarded with the monthly progress reports.

3.4.4 Records / Data Management

All deliverable documents will be submitted in electronic and printed format in accordance with the latest version of the "Ravenna Army Ammunition Plant Deliverable Document Formatting Guidelines". Final electronic documents will be in text-searchable format and be accompanied by defined metadata for upload into the Ravenna Environmental Information Management System (REIMS). The COR will provide the metadata field requirements for REIMS to Prudent. All deliverable documents will be provided in electronic format suitable for posting to REIMS.

All electronic data submitted by the contract laboratory will be error-free, and in complete agreement with the hardcopy data. Data files are to be delivered by e-mail and/or high density CD accompanying the hardcopy data reports. The disk(s) will be submitted with a transmittal letter by the laboratory certifying that the file is in agreement with the hardcopy data reports and has been found to be free of errors using the latest version of the automated data review (ADR) evaluation software provided to the laboratory. All analytical data will be provided in EDD format for posting to REIMS.

Figure 2-1 – Example Monthly Progress Report

1 April 2010 – 5 May 2010
 Monthly Report No. 2
 (Activities related to Findings & Orders)
 Date: 5 May 2010

Monthly Report
 Prudent Technologies, Inc.
 (dba) Prudent Environmental Services, Inc.
 4242 Medical Dr., Suite 4250
 San Antonio, TX 78229
 (210) 822-9588

Contract No. W912QR-10-P-0037
 Contractor: Prudent Environmental Services, Inc.

Project Name: Sampling and Closure of Load Lines 1, 2, 3, 4, 12 and Other Areas of Concern

- **SUMMARY OF FINDINGS AND ORDERS ACTIVITIES:**
- **SUMMARY OF NON-FINDINGS AND ORDERS ACTIVITIES:**
- **HEALTH AND SAFETY PERFORMANCE:**
- **PROBLEMS ENCOUNTERED/RESOLUTION:**
- **PLANNED ACTIVITIES (Month, Year):**
- **ACTIVITY AND PROGRESS COMPLETION TABLE:**

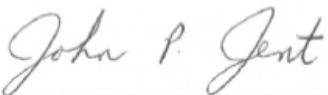
This table presents summarized past, current and future events.

Task No - Name	Orig Scheduled Completion Date	Last Month's Schedule Completion Date	Actual/Projected Completion Date	Status/ % Complete
1 - 9				

- **CHANGES IN KEY PERSONNEL:**
- **DEVIATION IN SCHEDULE (with explanation):**
- **INVESTIGATIVE DERIVED WASTE (IDW):**
- **ANY CONTAMINATED SOIL OR GROUND WATER REMOVED? (If so, how much and where disposed of ?)**

REMARKS:

PRUDENT PROJECT MANAGER:
 John P. Jent, PE



4.0 – PROJECT ORGANIZATION

4.1 PROJECT ORGANIZATION, ROLES, AND RESPONSIBILITIES

Prudent is responsible for the execution of this project. The project team and organizational structure is shown in Figure 4-1. The project team organizational chart displays the management and technical roles for this project, as well as the personnel assigned to those roles. Prudent will utilize a two-tiered project management structure for execution of this project; with the Program Manager servicing all contractual elements and the Project Manager responsible for all technical work.

Program Manager – Prudent’s Program Manager (Prakash Raja, CHMM) will be the principal point of contact for all matters relating to the USACE Contracting Officer (CO) or his/her representative (COR). The Program Manager will ensure that the necessary resources will be made available to the Project Manager for execution of the work. The Program Manager reports directly to the President of the firm on the competent execution and the satisfaction of customer and project stakeholders with Prudent’s performance. Any changes in the SOW, schedule, and/or costs, which require action by Prudent with the CO or COR, will be handled exclusively by the Program Manager supported by the Project Manager and other key personnel as needed.

Project Manager – Prudent’s Project Manager (John P. Jent, PE) will serve as the single point of contact and liaison for all technical work, executing the SOW in compliance with the required schedule. Day-to-day technical activities will be managed by the Project Manager with support from field and other key personnel.

Deputy Project Manager – Prudent’s Deputy Project Manager (Tomas Hernandez, Jr, PG) will assist the Project Manager in ensuring project execution in accordance with the contract and regulatory requirements. The Deputy Project Manager will serve as the project scheduler and site supervisor during investigative fieldwork.

Project Quality Assurance Officer – Prudent’s Project Quality Assurance Officer (Mark Snyder, PE) will be the principal officer ensuring that the quality of all products adhere to the requirements of the CQAP.

Remediation Engineer/Site Manager – Prudent’s Remediation Engineer (Dennis Kirsch) will be responsible for development of the remedial design and completion of that work per the design.

Project Chemist – Prudent’s Project Chemist (Dr. Joe Fernando) will be responsible for preparing the project QAPP, coordination with the analytical lab, and data verification per the ADR software.

Project Data Analyst – Prudent’s Project Data Analyst (Maureen Leavitt of Newfields) will perform the multiple evaluations of existing environmental data to the three sets of human health clean-up goals associated with this project to determine feasible remediation approaches and then to document how completed remedial actions have facilitated sufficient clean up to allow transfer of the subject AOCs from the Army to the NGB for unrestricted national guard training.

Project Risk Assessor – Prudent’s Project Risk Assessor (Dr. Robin Rodriguez) will assist the Project Data Analyst in preparing risk calculations associated with the project.

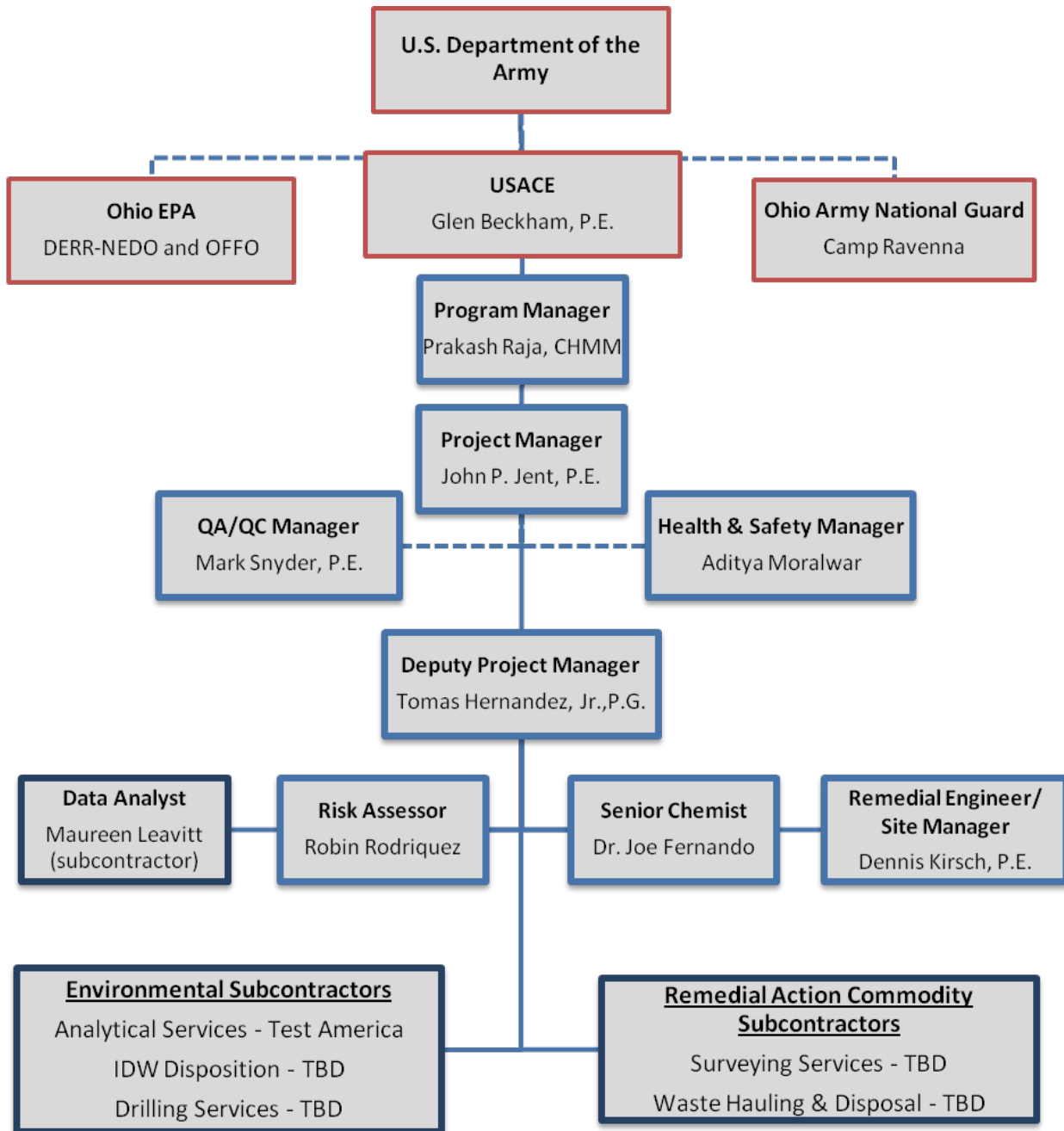
Site Safety and Health Officer - Prudent’s Project Site Safety and Health Officer (SSHO) (Aditya Morlarwar) will prepare the project SSHP/Addendum for the necessary site work. The SSHO, or his representative, is responsible for implementation of the SSHP and conducts site inspections to ensure compliance with Federal, State, and Occupational Safety & Health Administration (OSHA) regulations

and all aspects of the SSHP/Addendum including activity hazard analyses, air monitoring, use of personal protective equipment (PPE), decontamination, site control, standard operating procedures used to minimize hazards, safe use of engineering controls, the emergency response plan, and spill containment program. The SSHO ensures all personnel are properly trained for their assigned tasks. The SSHO has full authorization to stop work and to demand corrective action for non-compliance with the SSHP/Addendum.

4.2 SUBCONTRACTOR MANAGEMENT

Prudent will implement this project using contractors for surveying, geoprobe drilling, chemical laboratory services, data evaluation, and waste removal services. Subcontracts will be carefully developed by the Project Manager to reflect detailed scope and realistic performance objectives and specifications. Performance of all subcontractors will be monitored by the Project Manager, the Deputy Project Manager, Remediation Engineer/Site Manager, and the SSHO who will record observations of progress. Deviations will be addressed in accordance with the protocols specified in the relevant WP. Negative performance trends will instigate a negative performance evaluation and a correction action plan will be developed as required to bring schedule/cost performance back in line.

Figure 3-1 – Organization Chart



5.0 – DELIVERABLES

5.1 DISTRIBUTION OF DELIVERABLES

Deliverables for this project will be produced in Preliminary Draft, Draft, and Final versions and in hard copy and electronic Portable Document Format (PDF). All documents will comply with the latest version of the *RVAAP Deliverable Document Format Guidelines*. Preliminary draft versions of the documents will be prepared and submitted to the Army for review. The Army will provide comments to Prudent within 15 calendar days. It is expected that the Army will provide Prudent one set of consolidated comments through the COR, or his designee, and inform Prudent when all comments have been transmitted. Once these Army comments are addressed, a Draft version of the document will be prepared for review by the regulators and the Army. Following receipt and resolution of stakeholder comments on the draft document, it will be revised and a Final version of the document issued. All documents submitted to the Ohio EPA will be identified as “draft” until completion of stakeholder coordination, when they will be signed and finalized (if required).

- Preliminary Draft Deliverables: Army, OHARNG review only: up to 15 calendar days
- Address Army, OHARNG comments and submit Draft Deliverable: up to 10 calendar days
- Stakeholder review of Draft documents: up to 45 calendar days
- Resolve stakeholder comment from Draft document: up to 10 calendar days
- Prepare and submit Final document: up to 10 calendar days.
- Stakeholder review of Final document: up to 10 calendar days

5.2 PROJECT DOCUMENT DELIVERABLES

Table 5-1 summarizes project document deliverables submittals and approvals. Table 5-2 details the recipients of project document deliverables and forms of those deliverables.

Table 5-1 - Project Deliverable Submittals and Approvals

Deliverable	Army	Ohio EPA	Public
Project Kick-Off Meetings			
Final Meeting Minutes	Approve	Approve	---
Project Management Plan			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Monthly Progress Reports	Approve	Approve	
Investigation Sampling Report			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
LUC Assessment/Cost Analysis Report			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Revised Proposed Plan			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Remedial Design/Addendum			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
ROD Addendum			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Final Closure Report			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment

Table 5-2 - Deliverables Distribution List

Agency Contact/Address	Preliminary Draft	Draft	Final
Louisville District Corps of Engineers Attn: Derek Kinder; CELRLED-E 600 Martin Luther King, Jr Place Louisville, KY 40202 (502) 315-6393	HC: 3 EC: 3	HC: 2 EC: 2	HC: 2 EC: 2
Ravenna Army Ammunition Plant Attn: Mark Patterson, Facility Manager Building 1037 8451 State Route 5 Ravenna, OH 44266 (330) 358-7312	HC: 2 EC: 2	HC: 4 EC: 2	HC: 4 EC: 2
U.S. Army Environmental Command Attn: Mark Krivansky, AEC Site Lead E4480 Beal Road Aberdeen Proving Ground, MD 21010-5401 (410)	HC: 0 EC: 1	HC: 0 EC: 1	HC: 0 EC: 1
Ohio Army National Guard Attn: Katie Elgin, Environmental Specialist 1438 State Route 534, SW Newton Falls, OH 44444 (614) 336-6136	HC: 1 EC: 1	HC: 1 EC: 1	HC: 2 EC: 2
Ohio EPA – NE District, DERR Attn: Eileen Mohr, Facility Coordinator 2110 E. Aurora Road Twinsburg, OH 44087 (330) 963-1221	HC: 0 EC: 0	HC: 2 EC: 2	HC: 2 EC: 2
REIMS	HC: 1 EC: 1	HC: 1 EC: 1	HC: 1 EC: 1
Others may be needed as directed by the COR			

HC = Hard Copy

EC = Electronic copy or compact disk

6.0 – QUALITY MANAGEMENT

6.1 FIELD QUALITY MANAGEMENT

Prior to the start of field sampling activities, Prudent will prepare a quality control (QC) plan tiered under the existing RVAAP Facility-Wide QAPP to ensure field sampling activities are conducted according to the approved Sampling and Analysis Plan Addendum. The use of triplicate surface and subsurface MI samples will provide an overall evaluation of the total (field sampling plus laboratory sample preparation plus laboratory analysis) sampling and measurement process. Geotechnical logging of the geoprobe cores under stable, controlled conditions within the sampling building will promote more valid geotechnical logging. Prior to the logging of such samples from any given AOC, geotechnical information (as unified soil classification system (USCS) classifications) from previous investigations will be reviewed to know what types of soils were encountered previously at that AOC. Once a portion of a geoprobe boring log has been completed, the geologist or geotechnical engineer performing the logging will sign his/her name to the log.

Prior to the start of any remediation activities, Prudent will prepare a CQAP to guide the performance of work activities by all personnel, including subcontractors. Applicable requirements of the USACE Construction Quality Management (CQM) Program will be integrated into the CQAP.

6.2 LABORATORY QUALITY MANAGEMENT

High quality laboratory data quality will be promoted by use of an approved QAPP addendum tiered to the FW QAPP, conformance with the DoD Quality Systems Manual, version 4.1, and by selection of a DoD Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

6.3 DOCUMENT QUALITY MANAGEMENT

Document quality, including both content and presentation, will be promoted by matching appropriate personnel or subcontractors to portions of the work related to their interests, while maintaining continuity of the deliverable by the Project Manager assembling such work into an organized and easily understood form. Where appropriate, document deliverables will be in the format prescribed in the latest version of the RVAAP Submission Format Guidelines. Finally, a comprehensive Independent Technical Review (ITR) will be performed by senior personnel on all major document deliverables, and documents will be revised until the ITR Team deems the quality of the document suitable for distribution.

7.0 – REFERENCES

MKM Engineers, Inc. 2005. Explosives Safety Submission for the Thermal Decomposition and 7 Demolition of Load Lines 1-5, 7, 8, 10, 11 Buildings 1039, F-15, 1200 S-4605, and T- 8 4602. February 2005.

Ohio Environmental Protection Agency (Ohio EPA) 2004. Director's Final Findings and Orders in the Matter of United States Department of the Army, Ravenna Army Ammunition Plant. June 2004

Science Applications International Corporation (SAIC) 2010. Final Facility-Wide Human Health Remediation Goals, Ravenna Army Ammunition Plant, Ravenna, Ohio. March 2010.

United States Army Corps of Engineers (USACE) 2001a. Facility-Wide Safety and Health Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, OH. March 2001.

USACE 2001b. Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ohio. March 2001.

USACE 2003a. RVAAP Facility Wide Ecological Risk Work Plan. April 2003.

USACE 2003b. Community Relations Plan for the Ravenna Army Ammunition Plant. September 2003.

USACE 2005. Ravenna Army Ammunition Plant Facility-Wide Human Health Risk Assessor Manual, Amendment 1. November 2005.

USACA CW-CE 2006. ER 1110-1-12 *Quality Management*. July 2006

USACE 2009. Ravenna Army Ammunition Plant (RVAAP) Position Paper for the Application and Use of Facility-Wide Human Health Cleanup Goals at Ravenna Army Ammunition Plant, Ravenna, Ohio. June 2009.

USACE 2010. Draft Guidance for the Evaluation of Land Use Controls at Ravenna Army Ammunition Plant, Ravenna, Ohio. February 2010.

www.epa.gov/superfund/policy/remedy/rods/ Guide to Preparing Superfund Proposed Plans, Records of Decision and Other Remedy Selection Decision Documents, Chapter 7 Documenting Post-ROD Changes: Minor Changes, Explanations of Significant Differences, and ROD Amendments. March 2010.

Appendix A – Project Schedule

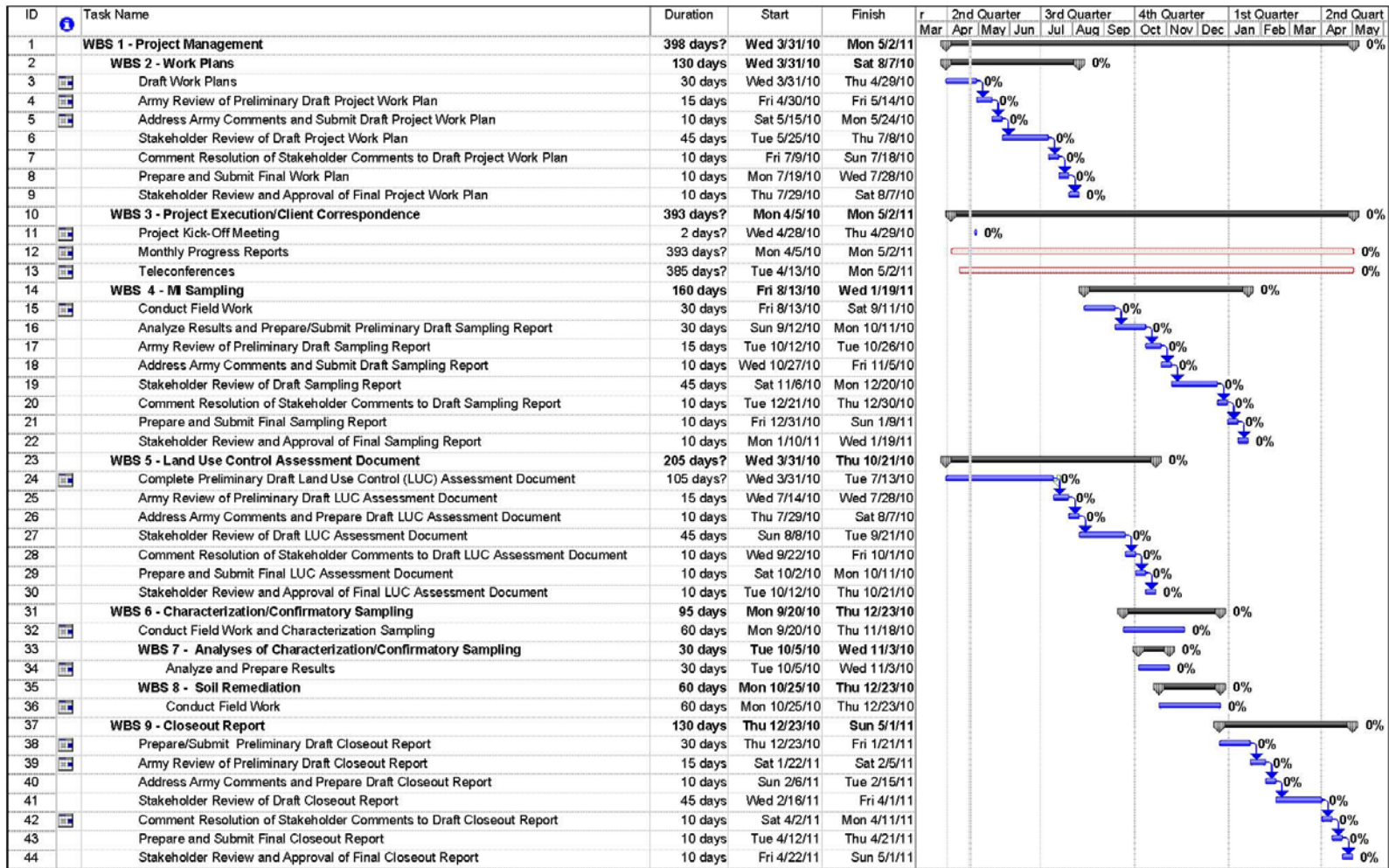


Figure 3-1 Project Schedule

Project: Sampling and Closure of Load Lines 1,2,3,4,12 and Other Areas of Concern
Date: Fri 4/23/10

