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Final Project Management Plan for 2010 Phase I Remedial Investigation Services Compliance Restoration Sites CC RVAAP-78 Quarry Pond Surface Dump & CC RVAAP-80 Group 2 Propellant Can Tops

Ravenna Army Ammunition Plant
Ravenna, Ohio

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None.

14. ABSTRACT

The Project Management Plan describes activities to be performed by Prudent to conduct a Phase I RI of CC RVAAP-78 Quarry Pond Surface Dump & CC RVAAP-80 Group 2 Propellant Can Tops, comprising the comprehensive background historical review and research of available pertinent data and limited intrusive sampling.

15. SUBJECT TERMS

Project Management Plan, CC RVAAP-78 Quarry Pond Surface Dump & CC RVAAP-80 Group 2 Propellant Can Tops, Remedial Investigation

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Final Project Management Plan for 2010 Phase I Remedial Investigation Services Compliance Restoration Sites CC RVAAP-78 Quarry Pond Surface Dump & CC RVAAP-80 Group 2 Propellant Can Tops

Ravenna Army Ammunition Plant
Ravenna, Ohio

Contract No. W912QR-10-P-0052

US Army Corps of Engineers®

Prepared for:
U.S. Army Corps of Engineers
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September 30, 2010

CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Prudent Technologies, Incorporated (Prudent) has completed the Project Management Plan for 2010 Phase I Remedial Investigation (RI) Services Compliance Restoration Sites CC-RVAAP-78 and CC-RVAAP-80 at the Ravenna Army Ammunition Plant, Ravenna, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of data quality objectives; technical assumptions; methods, procedures, and materials to be used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing United States Army Corps of Engineers policy.

John P. Jent

John P. Jent, P.E.
Project Manager

September 30, 2010
Date

Mark Snyder, P.E.
Independent Technical Review Team Leader

September 30, 2010
Date

Prakash Raja, CHMM
Program Manager

September 30, 2010
Date

DOCUMENT DISTRIBUTION

Name / Organization	Number of Printed Copies	Number of Electronic Copies
COR / USACE	2	2
Facility Manager / RVAAP	4	2
OEPA	2	2
Enviro Spec 2 / OHARNG	2	2
REIMS	0	1
Program Manager / USAEC	0	1

COR – Contracting Officer's Representative
USACE – U.S. Army Corps of Engineers
RVAAP – Ravenna Army Ammunition Plant
OEPA – Ohio Environmental Protection Agency
OHARNG – Ohio Army National Guard
REIMS – Ravenna Environmental Information System
USAEC – U.S. Army Environmental Command

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ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Material
ADR	Automated Data Review
AEC	Army Environmental Center
AOC	Areas of Concern
APA	Abbreviated Preliminary Assessment
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CHSM	Corporate Health and Safety Manager
CO	Contracting Officer
COPC	Chemical of Potential Concern
COR	Contracting Officer's Representative
CR	Compliance Restoration
DFFO	Director's Final Findings and Orders
DLA	Defense Logistics Agency
DoD	U.S. Department of Defense
DQO	Data Quality Objectives
EDD	Electronic Data Deliverables
EDMS	Environmental Data Management System
ELAP	Environmental Laboratory Review
EPA	Environmental Protection Agency
FW	Facility-Wide
GSA	General Service Administration
HTRW	Hazardous Toxic Radioactive Waste
IDW	Investigative Derived Waste
IRP	Installation Restoration Program
ITR	Independent Technical Review
MC	Munitions of Concern
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
PM	Project Manager
PMP	Project Management Plan
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
QAM	Quality Assurance Manager
QA/QC	Quality Assurance/Quality Control
QCP	Quality Control Plan
QSM	Quality Systems Manual
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
REIMS	Ravenna Environmental Information Management System

RI	Remedial Investigation
RRD	Range-related debris
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
SVOC	Semi-Volatile Organic Compound
TNT	Trinitrotoluene
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion & Preventive Medicine
USGS	United States Geologic Survey
USFWS	United States Fish and Wildlife Services
UXO	Unexploded ordnance
VOC	Volatile Organic Compound
WP	Work Plan

1.0 - INTRODUCTION

1.1 - GENERAL FACILITY DESCRIPTION

When the Ravenna Ammunition Plant (RVAAP) Installation Restoration Program (IRP) began in 1989, RVAAP was identified as a 21,419-acre installation. The property boundary was resurveyed by the Ohio Army National Guard (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.

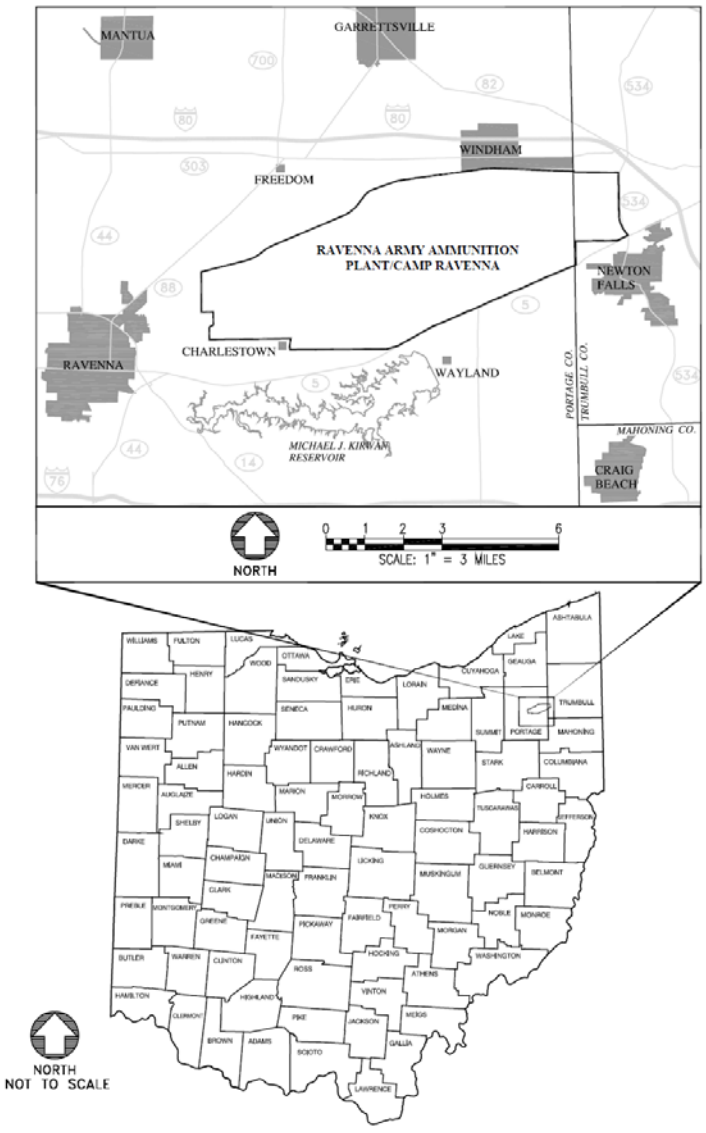
When RVAAP was operational, Camp Ravenna did not exist and the entire 21,683-acre parcel was a government-owned, contractor-operated industrial facility. The RVAAP IRP encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP. References to RVAAP in this 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 areas of concern (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

Environmental work at the RVAAP under the IRP began in earnest in 1995, with 32 environmental AOCs identified and prioritized according to U.S. Army Center for Health Promotion & Preventive Medicine (USACHPPM) relative risk protocols into high, medium, and low priority AOCs. Environmental restoration work has proceeded primarily by addressing the highest priority sites first, with sites of medium and low priority receiving attention later. In 2000, the number of environmental AOCs was increased from 32 to 51. Relative risk ranking was again performed to prioritize those additional environmental AOCs. Two areas identified for investigation for this project are Compliance Restoration (CR) sites: CC RVAAP-78 Quarry Pond Surface Dump and CC RVAAP-80 Group 2 Propellant Can Tops (see Fig. 1-2).

The previously mentioned sites are considered to potentially have munitions and explosives of concern (MEC). The following sections provide brief descriptions of each of these sites.

CC RVAAP-78, Quarry Pond Surface Dump – The Quarry Pond Surface Dump consists of an area of former dumping at the base of an approximately vertical rock cut slope. The surface dump is located north and northeast of the northern-most quarry pond within the Fuze and Booster Quarry. The potentially impacted area consists of approximately 8,750 square feet (250' long x 35' wide). The debris pile appears to have an average thickness of about five feet. Contents of the debris pile appear to consist of potential asbestos-containing materials (ACM), construction debris, scrap metal, and unidentified materials. One 55-gallon metal drum (contents unknown) is located at the ground surface within this area. A former burn pile location is also present along the northeastern portion of the surface dump. The burn pile location is characterized by ground charring.

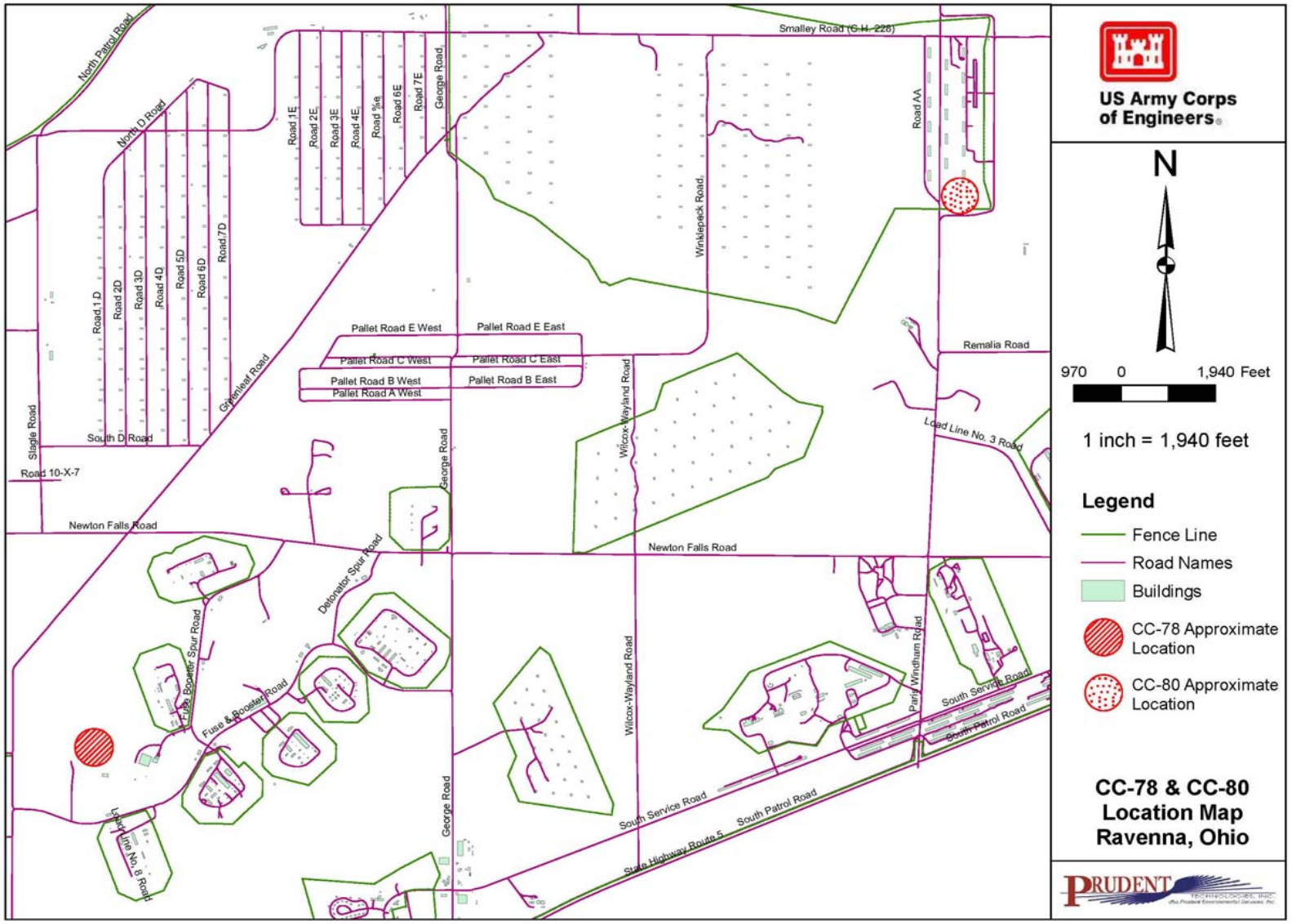
The Quarry Pond Surface Dump appears to be a possible northern extension of the existing Fuze and Booster Quarry AOC (RVAAP-16), which operated from 1945 through 1993. Prior to 1976, the quarry was reportedly used for open burning and as a landfill. The debris from the burning/landfill was reportedly removed during pond construction during the late 1970's. In 1998, the Fuze and Booster Quarry site was expanded to include three other shallow settling ponds to the west and two debris piles to the northeast.

Limited soil sampling (surface and subsurface if possible) will be conducted and the results compared with cleanup goals, as prescribed in the Position Paper for the Application and Use of Facility-Wide Human Health Cleanup Goals (USACE 2009), to determine chemicals of potential concern (COPCs). As per the limited scope of a Phase I Remedial Investigation (Preliminary Assessment), no sampling of groundwater is provided within this project. However, brief summaries of existing related surface and groundwater data will be presented. MEC avoidance procedures will be needed during intrusive investigations. A remedial action for soil and dry sediment was completed at the adjacent Fuze and Booster Quarry Landfill/Ponds in 2009.

Prior to the development of the Sampling and Analysis Plan for this project, a reconnaissance of adjacent and nearby areas will be conducted to determine if additional investigation is required. The results of that reconnaissance will be provided to the Corps for its determination of what, if any, additional investigation/work is required.

CC RVAAP-80, Group 2 Propellant Can Tops – Propellant can tops were identified on the ground surface at the southern end of the former Group 2 Ammunition Storage Area. The propellant can tops at the south end of Group 2 were initially observed by OHARNG trainees in the fall of 2008. The propellant can tops were encountered in the vegetative area located immediately south of the

Figure 1-2 – CC RVAAP78 & CC RVAAP-80 Location Map



ammunition storage magazines in the vicinity of the railroad spur lines. This area consists of approximately 539,572 square feet (12.4 acres). While propellant can tops are likely not present in the northern end, as the historical research is conducted regarding the observed propellant cans in the southern end, any references to propellant can tops in the northern end will be documented and included in the Historical Records Review Report. As a result, the Louisville District US Army Corps of Engineers (USACE) performed an initial geophysical delineation of the ground surface at the southern area. Results of the initial delineation revealed multiple magnetic anomalies in the surface and near surface soils. The on-site unexploded ordinance officer (UXO) visually identified the surface anomalies as propellant can lids or tops.

Munitions debris related to past activities at these sites is a potential environmental concern. A geophysical delineation by a UXO technician will be conducted under separate contract. No chemical constituents of concern are known to exist at the site. However, suspected munitions constituents (MC) and scrap metal are of concern at this AOC.

The work to be performed will consist of a Phase I Remedial Investigation (RI) of the AOCs and will include a comprehensive background historical review and research of available data pertaining to the two subject AOCs. The background historical review will follow the guidance and requirements of a CERCLA (Comprehensive Environmental Response, Compensation & Liability Act) Abbreviated Preliminary Assessment (APA) where possible.

The Phase I RI will also include an initial intrusive investigation of possible environmental impacts to the applicable media at CC RVAAP-78, the Quarry Pond Surface Dump. The initial intrusive investigation will be performed to confirm the presence or absence of contaminants.

1.3 - PROJECT OBJECTIVES

The objective of this project is to conduct a Phase I RI of the two sites, including a comprehensive background historical review and research of available pertinent data. The background historical review will generally follow the guidance and requirements of a CERCLA APA where possible. The Phase I RI will also include an initial intrusive investigation of possible environmental impacts to the surface soil at CC RVAAP-78. The background historical review is intended to better identify the historic uses and potential environmental concerns at these locations with respect to possible HTRW and/or MMRP issues. Data quality objectives (DQOs) will be identified in background historical review to support the initial intrusive investigation at the AOC.

1.4 - PROJECT TASKS

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

Task 1	Project Management
1.1	Project Management Plan (PMP)
1.2	Site Safety and Health Plan (SSHP) Addendum, including UXO/MEC Anomaly Avoidance Plan
1.3	Project Execution/Client Correspondence
Task 2	Historical Review and Research of Available Data

2.1	Research
2.2	Historical Records Review Report
Task 3	Phase I RI Initial Intrusive Investigation
3.1 - 2	Preparation of Work Plan Support Documents
	Work Plan
	Sampling and Analysis (SAP) Addendum
	Quality Assurance Project Plan (QAPP) Addendum
3.3	Implementation of Phase I RI Work Plan
3.4	Disposal of Investigation Derived Wastes (IDW)
3.5	Data Management/Data Validation
3.6	Phase I RI Report
3.7	Surveying and Mapping
Task 4	Optional Tasks
4.1	Vegetation Removal
4.2	Snow Removal
4.3	Road Improvements/Temporary Road Installations

1.5 - PRIMARY PROJECT CONSTRAINTS

Prudent will conduct this project in general compliance with the 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). The background historical review will generally follow the guidance and requirements of a CERCLA APA where possible. Finally, the work associated with this project will be conducted per the scope of work associated with USACE Contract No. W912QR-10-P-0052.

2.0 – PROJECT EXECUTION

2.1 - SITE SAFETY AND HEALTH PLAN (SSHP) ADDENDUM

Utilizing the Facility Wide Health and Safety Plan as much as possible, a Site-Specific Health and Safety Plan Addendum will be prepared to address each major field activity, primarily the property visit and intrusive investigations. Specifically, the addendum will present an emergency response plan, contingency plans, emergency contacts, and a hazard analyses for each of the major field activities. The SSHP Addendum will meet the requirements of federal, state, and local regulations and will identify safety and health regulations applicable to the work. The development of the SSHP will be closely coordinated with the USACE Project Safety and Health Manager.

2.2 - HISTORICAL REVIEW AND RESEARCH OF AVAILABLE DATA

Research

Research for this portion of the project will be conducted in three basic stages, including initial review of historical records (annual reports, any remaining SOPs for the subject facilities, cold storage boxes, etc). Other sources of information may include US Geological Survey (USGS), Unites States Fish and Wildlife Service (USFWS), General Services Administration (GSA), Defense Logistics Agency (DLA) – including the Lordstown Facility, US EPA, any other archival information generated by inquires on the Ravenna Environmental Information Management System (REIMS) of historical documents, etc, facility mapping (original and post construction), and aerial photography throughout the history of the facility; interviews of known personnel who might have some knowledge of the activities within the subject AOCs (including Jim McGee, Tom Chanda, Susan McCauslin, Gary Wolfgang – former RVAAP Safety and Surveillance, and Tim Morgan). Mark Patterson and Gail Harris through their intimate knowledge of historical records are also applicable sources of information. A template will be prepared to document the interviewees' information. The interviews will be conducted with the responses to the questions viewed by the interviewees for their immediate approval of the interview. The interviewees will be asked if their information can be shared with the other interviewees to verify or substantiate information. Eight additional interviews are included in this proposal to account for individuals the initial interviewees suggest as further sources of information. Finally, facility records will be researched again to find additional information that may have surfaced during the interview process. Depending upon the results of the interviews, requests for information from the general public regarding this project may be solicited in local newspapers. The OHARNG will be contacted to determine the availability of information regarding sensitive habitats, natural resources, and cultural resources.

Site/Property Visit

A site/property visit as per the SOW will be conducted at the two subject AOCs. Photographs of typical conditions and any unusual conditions will be taken. Since the AOCs have a history of munitions use, a UXO technician will accompany the field team during the site/property visit. No field effort will be provided for the locations of sensitive habitats. The site/property visit will be conducted in accord with the SSHP Addendum prepared near the beginning of the project along with the PMP.

Historical Records Review Report

A Historical Records Review report will be prepared in accordance with the SOW, specifically following the CERCLA APA report format, with the addition of data quality objective (DQO) development. This report will document the results of the historical records review and the site inspection.

2.3 - PREPARATION OF WORK PLAN AND SUPPORT DOCUMENTS

Preparation of Work Plan (WP) and Support Documents

The work plan for intrusive work conducted at site CC RVAAP-78 will present detailed discussions of the major components of work related to this project. Use of facility-wide documents will be maximized both to minimize review times and to highlight unique project components.

Sampling and Analysis Plan (SAP) Addendum

A detailed sampling and analysis plan addendum for site CC RVAAP-78 will be prepared primarily by the project manager, with consultation of other pertinent disciplines, as senior geologist, senior chemist, and safety and health officer. The SAP Addendum will address sampling of surface soils immediately adjacent to the debris pile, sampling of the debris pile, and sampling of the 55-gallon drum.

Quality Assurance Project Plan (QAPP) Addendum

Prudent will prepare a QAPP Addendum to foster high quality in the performance of work activities, including those of subcontractors. Applicable requirements of the USACE Contractor Quality Management Program will be integrated into the QAPP. Additionally, the requirements of the FW Quality Assurance Project Plan will be followed, except as noted; for instance, the use of triplicate *multi-increment ® (MI) surface soil and trench samples instead of field QC and QA splits. The quality of document deliverables will be enhanced by the use of senior personnel as independent technical reviewers. General concerns like the lack of coordination between the contractor and the sub-contract analytical lab, failure to perform according to agreed upon schedules, low quality document deliverables, and lack of coordination with Environmental Team Members, especially the OH EPA and the OHARNG will be addressed.

Unexploded Ordnance/ Munitions and Explosives of Concern Avoidance Plan (UXO/MEC Avoidance Plan)

Prudent will prepare a UXO/MEC Avoidance Plan to cover field activities during the property visit and intrusive investigations. The plan will be approved by a USACE Military Munitions Response Program (MMRP) Design District.

*Multi-increment ® is a registered trademark of Envirostat, Inc.

2.4 - IMPLEMENTATION OF PHASE I RI WORK PLAN

Field Work

Field work (to be conducted at site CC RVAAP-78 only), including, multi-increment sampling of surface soils immediately adjacent to the debris pile(s) and at isolated locations (if any) along the debris pile alignment where no debris is present, three discrete samples of transite (if allowed by the OH EPA), multi-increment surface soil sampling of the area of ground charring, drum sampling and overpacking, and drum transport will be conducted as described in the approved Final Work Plan Addendum. Three

field days with the Project Manager, Senior and Mid-Level Geologists will be utilized for the field effort. Initially up to one day is planned for vegetation removal (via Subconractor) to allow access to the site to allow triplicate MI sampling of surface and possibly subsurface soils immediately adjacent to the debris pile. Both of these operations will require UXO avoidance support. Because there is much metallic debris anticipated, much of the UXO Technician's work will be visual. Additionally, one VOC field blank sample will also be collected for quality control purposes.

Once the sampling of the surface and possibly subsurface soils immediately adjacent to the trench is done, the drum sampling and overpacking, and subsequent transport to an on-sight location for temporary storage will be performed. Drum sampling and overpacking will be performed per US EPA SOP #2009 and US EPA-600/2-86-013.

Analytical Work

The sub-contract laboratory will analyze the surface and possibly subsurface soil MI samples for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), TAL metals (including mercury), PCBs, explosives, propellants, pesticides/herbicides, and asbestos-containing material (ACM). Additionally the work will be conducted with the following enumerations:

- Blind triplicate trench samples will be used for QC/QA instead of the normal 10 percent split, if approved by the Ravenna Environmental Team. (With only one set of samples, the blind triplicates will be collected at that sample.)
- After air-drying, coarse grinding will be performed at the sub-contract lab for all analyses except explosives, propellants, and VOCs.
- Between 20 and 30 percent, by weight, of the air-dried, coarse ground sample, or a minimum of 30g, shall be representatively selected and forwarded to the sub-contractor's facility where grinding and analyses for explosives and propellants will be conducted as per Method 8330B.
- Surface soil VOC analyses will be conducted by Method 5035, with field collection by methanol preserved discrete plugs.
- Multi-increment VOC analyses will be conducted by the methanol jar collection Method 5035.
- Asbestos content determined as per EPA Method 600/R-93/116 to meet the requirements of 40 CFR Part 763, Subpart E, Appendix E, Section 1 Polarized Light microscopy.
- Low-level Method 8270 will be utilized for analyses of the remaining SVOCs to achieve lower reporting limits as per the low cleanup goals.

Representative samples of the materials within the 55-gallon drum will be analyzed for full TCLP, ignitability (Flashpoint), reactivity, and corrosivity (pH) with the intent to assist proper disposal of the drum.

Prudent will secure a USACE approved laboratory that can provide analytical data in the USACE Automatic Data Review (ADR) electronic format. Samples collected and analyzed will be provided in electronic data deliverable (EDD) format. The project-specific library file will be maintained to accurately reflect the analytical quality and will be provided to both the USACE and the sub-contract laboratory for use in screening EDD submittals. Data review will comply with the procedures outlined in the Louisville Quality System Manual (QSM) Supplement and provide compatibility with data management software, at a minimum, the Environmental Data Management System (EDMS) software.

Disposal of Investigation Derived Wastes (IDW)

Within 90 days of the generation of IDW, Prudent will characterize and properly dispose of IDW at approved off-site waste disposal facilities in compliance with applicable Federal, state, and local rules, laws and regulations. Prudent will maintain applicable waste characterization and disposal records, and produce a waste disposal report for submittal to and approval by the Ohio EPA. IDW disposal will be coordinated with the RVAAP Facility Manager and Ohio Army National Guard.

Data Management / Data Validation

Electronic data submitted by the sub-contract laboratory will be error-free, and in complete agreement with the hardcopy data. Data files will be delivered by e-mail and/or high density CD accompanying the hardcopy data reports.

Working with the sub-contract lab, analytical data will be verified according to the Louisville QSM Version 4.1 requirements via ADR. The completed data validation report (prepared by a separate USACE contractor) will be included as an appendix to the final report.

Surveying and Mapping

Significant points related to the project will be located according to the requirements of the project specific SOW, and the facility-wide (FW) SAP, as follows:

Surface soil/debris pile/55-gallon drum

- Horizontal Control - accuracy within one meter
- Vertical Control - estimated from the facility 2-foot contour interval topographic

2.5 - PHASE I RI REPORT

Prudent will prepare a Phase I RI report that includes findings and investigation results for AOC CC RVAAP-78 Quarry Pond Surface Dump, including the 55-gallon drum. At a minimum, the report will include:

- Description of the history and nature of waste handling practices,
- Description of known HTRW and suspected MMRP issues,
- Description of potential pathways and receptors for HTRW,
- Description of human population and environmental targets,
- Analytical data and results,
- Comparison of analytical results to the most recent facility Clean Up Goals (CUGs),
- Determination of chemicals of potential concern will be ascertained,
- Data Validation Report, and
- Recommendations for further action.

2.6 - 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. All on-site personnel of both Prudent and its subcontractors will have completed 40-hr Hazwoper training and be current with

associated 8-hour refresher training. 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. Prudent will notify the OHARNG range control at least 72 hours ahead of any field related activity in the Group 2 area.

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.

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 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.

2.7 - PROJECT RESOURCES

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

- 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 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
    - RVAAP BRAC-D Facility Manager
    - USACE-Louisville
    - Army Environmental Center (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

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. 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 meetings with the regulators if they so choose. Prudent will prepare and submit minutes of 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 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

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 public meetings. Prudent will provide

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

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 from 27 May 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

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). Deliverable documents will be provided in electronic format suitable for posting to REIMS.

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. Analytical data will be provided in EDD format for posting to REIMS.

Figure 3-1 – Example Monthly Progress Report

27 May 2010 – 5 Jun 2010
Monthly Report No. 1
(Activities related to Findings & Orders)
Date: 4 Jun 2010

Monthly Report
Contract No. W912QR-10-P-0052
Contractor: Prudent Environmental Services, Inc.
Project Name: 2010 Phase I RI Services Compliance Restoration Sites CC RVAAP-78,80

SUMMARY OF FINDINGS AND ORDERS ACTIVITIES:

- None

SUMMARY OF NON-FINDINGS AND ORDERS ACTIVITIES:

- Preparing preliminary drafts of PMP and SSHP

HEALTH AND SAFETY PERFORMANCE:

- No issues to date

PROBLEMS ENCOUNTERED/RESOLUTION:

- None

PLANNED ACTIVITIES (Jun, 2010):

- Prepare preliminary draft of PMP w/QCP
- Prepare preliminary draft of SSHP

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
0 - Project Management	On Going			
1.0 Contr Identify PM	11 Jun 2010			100
1.1 – Proj Management				
Pre Draft PMP	26 Jun 2010			0
Draft PMP	5 Aug 2010			0
Final PMP	9 Oct 2010			0
1.2 - SSHP				
Pre Draft PMP	26 Jun 2010			0
Draft PMP	5 Aug 2010			0
Final PMP	9 Oct 2010			0
2.1 Conduct Historical Records Review	23 Dec 2010			0
2.2 Historical Records Review Report(HRRR)				
Pre Draft HRRR	21 Dec 2010			0
Draft HRRR	30 Jan2011			0
Final HRRR	5 Apr 2011			0
3.1.a SAP				
Pre Draft SAP	15 May 2011			0
Draft SAP	24 Jun 2011			0
Final SAP	28 Aug 2011			0
3.1.b QAPP				
Pre Draft QAPP	15 May 2011			0
Draft QAPP	24 Jun 2011			0
Final QAPP	28 Aug 2011			0
3.2 Work Plan (WP)				
Pre Draft WP	15 May 2011			0
Draft WP	24 Jun 2011			0
Final WP	28 Aug 2011			0
3.3 Implem Field Work	9 Oct 2011			0
3.4 Dispose of IDW	6 Jan 2012			0
3.5 Data Verification	7 Dec 2011			0
3.6 Phase I RI Report				
Pre Draft RI Report	6 Jan 2012			0
Draft RI Report	15 Feb 2012			0
Final RI Report	20 Apr 2012			0

CHANGES IN KEY PERSONNEL: NA

DEVIATION IN SCHEDULE (with explanation): NTP 27 May 2010 Initial Schedule

INVESTIGATIVE DERIVED WASTE (IDW): No IDW generated to date

ANY CONTAMINATED SOIL OR GROUND WATER REMOVED? No
(If so, how much and where disposed of ?)

REMARKS: Initial Monthly Report

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 are 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 contractual elements and the Project Manager responsible for technical work.

Program Manager – Prudent's Program Manager (Prakash Raja, CHMM) will be the principal point of contact for 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 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.

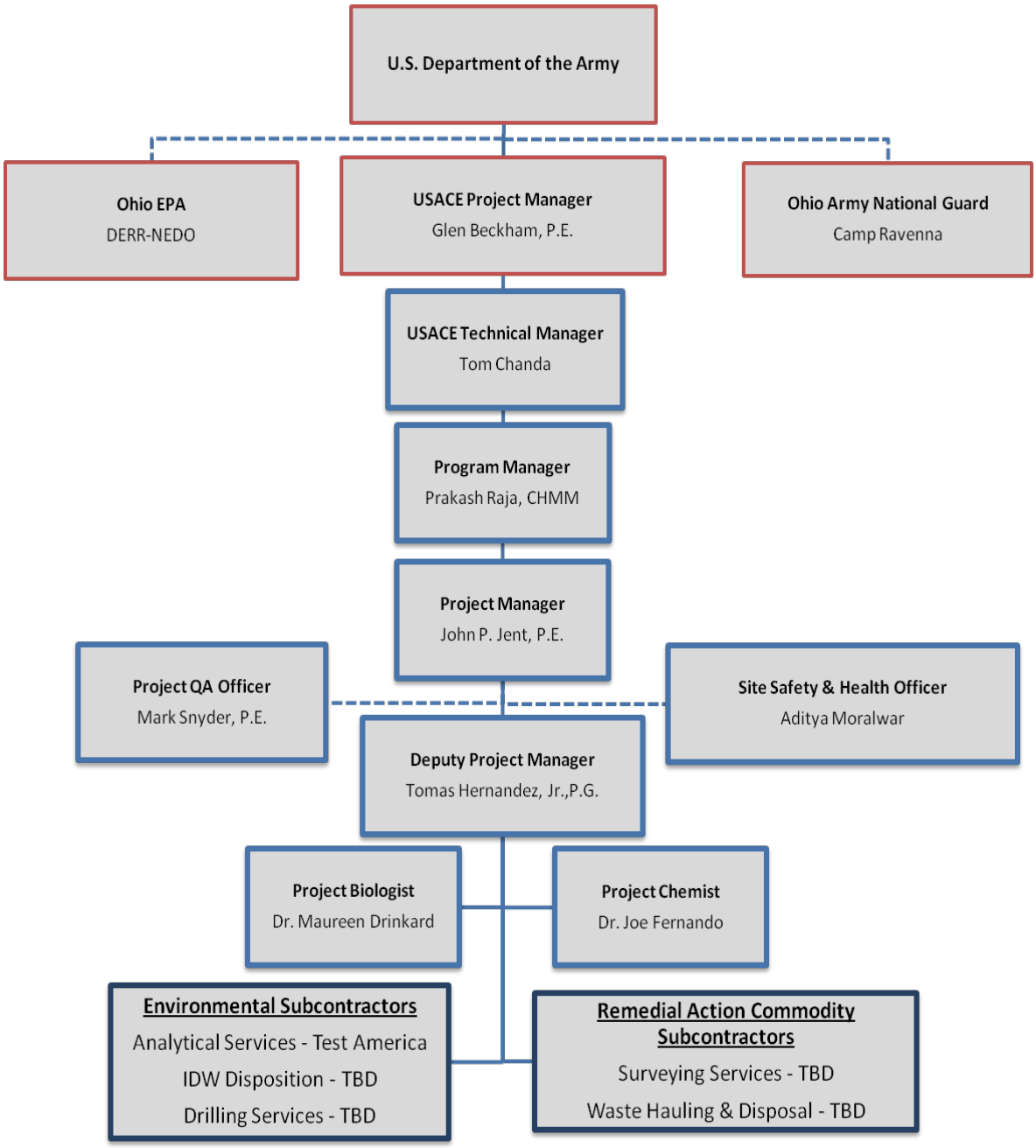
Project Quality Assurance Officer – Prudent's Project Quality Assurance Officer (Mark Snyder, PE) will be the principal officer ensuring that the quality of products adhere to the requirements of the Quality Control Plan (QCP).

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 Biologist- Prudent's Project Biologist (Dr. Maureen Drinkard) will be responsible for researching and reporting on biological data available at RVAAP regarding sensitive habitats at the two subject AOCs.

Site Safety and Health Officer - Prudent's Project Site Safety and Health Officer (SSHO) (Aditya Moralwar) 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 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 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.

Figure 4-1 – Organization Chart



4.2 - SUB-CONTRACTOR MANAGEMENT

Prudent will implement this project using contractors for site clearing, surveying, trench drilling, chemical laboratory services, biological evaluation, and drum/waste removal services. Subcontracts will be carefully developed by the Project Manager to reflect detailed scope and realistic performance objectives and specifications. Performance of subcontractors will be monitored by the Project Manager, the Deputy Project 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.

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). Documents will comply with the latest version of the *RVAAP Submission Format Guidelines Version 18.0.* Preliminary draft versions of the documents will be prepared and submitted to the Army for review. The Army will provide comments to Prudent within 30 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 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. 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 30 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 Meeting Final			
Meeting Minutes	Approve	Approve	---
Monthly Progress Reports	Approve	Approve	
Project Management Plan			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Site Safety and Health Plan Addendum			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Historical Records Review Report			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Work Plan			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
Phase I RI Report			
Preliminary Draft	Comment	---	---
Draft	Comment	Comment	---
Final	Approve	Approve	Comment
IDW Report	Approve	Approve	

Table 5-2 - Deliverables Distribution List

Agency Contact/Address	Preliminary Draft	Draft	Final
Louisville District Corps of Engineers Attn: Thomas M. Chanda; CELRL PM-P-E 600 Martin Luther King, Jr Place Louisville, KY 40202 (502) 315-6868	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	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: 0 EC: 1	HC: 0 EC: 1
Others may be needed as directed by the COR			

HC = Hard Copy
EC = Electronic copy or compact disk

6.0 – QUALITY CONTROL PLAN (QCP)

6.1 - OVERVIEW

This Quality Control Plan (QCP) describes the approach and methods that Prudent will take to ensure high quality of work associated with this project.

6.2 - QUALITY CONTROL ORGANIZATION

The following section describes the structure of the quality management team for Prudent's work at AOCs CC-78 and 80. Personnel were selected based on previous experience and their familiarity with the Prudent Quality Assurance/Quality Control (QA/QC) system. The project team will provide the specific technical and management capabilities and qualifications to perform the contract work.

The Prudent Quality Control organization chart of positions responsible for establishing Prudent's QCP is shown in Figure 6-1. It includes the President, Corporate Quality Assurance Manager (QAM), Program and Project Manager (PMs), and Corporate Health and Safety Manager (CHSM).

Project staff members will be qualified to perform their assigned tasks in accordance with terms outlined in the work plan (WP).

President

The President is ultimately responsible for the effective implementation of the QCP for operations. The President issues the Corporate Policy Statement and directs management and workers to follow the requirements of the QCP.

The President has chosen to delegate QA authority as defined in the following paragraphs. Each designee is held accountable for delegated authorities.

Program Manager

The Program Manager has overall authority and responsibility for quality for quality achievement of assigned projects and project support programs. He will foster a culture of excellence for quality and safety and assign responsible personnel to the Program and PM Positions in support of the QA management direction of the President and QA Manager.

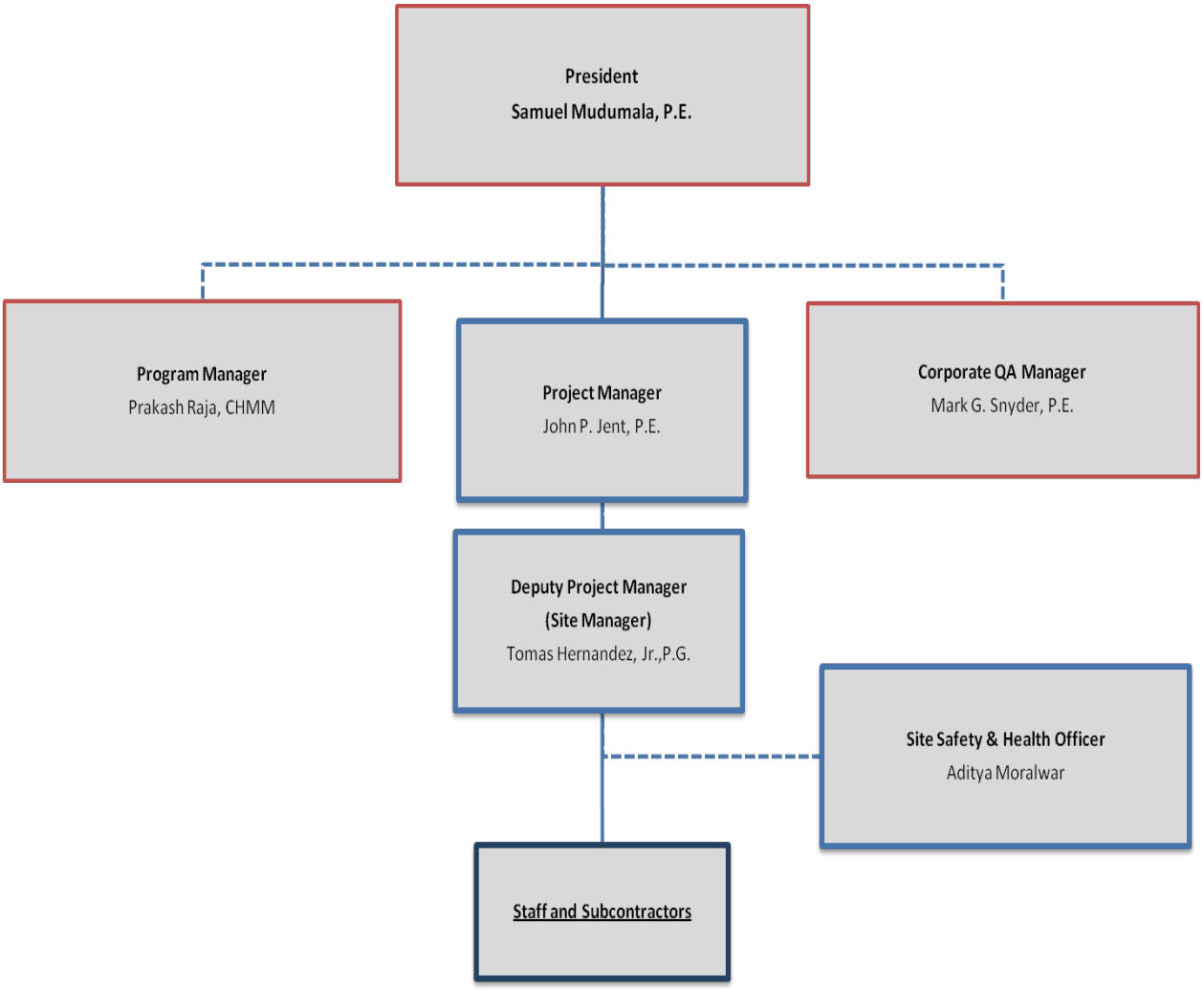
Corporate QA Manager

The QA Manager reports to the President and has the authority and overall responsibility for independently verifying that quality is achieved. The QA Manager is responsible for development, maintenance and implementation of the quality program. This responsibility includes overseeing activities under the guidance of this QCP, performing periodic reviews of the processes being implemented, evaluating any recommendations made by the project team of the course of the program regarding use of these process, and implementing continuous improvement evaluations of the program.

The QA Manager will:

- Foster a culture of excellence for quality,
- Manage the QA Organization and maintain the QCP,

Figure 5-1 – Prudent's Quality Control Organizational Chart



- Approve QA requirement documents, project and program implementing procedures, and subcontractor QCP,
- Assess the effective implementation of the QCP,
- Ensure that personnel are properly trained and adequately experienced for the duties,
- Establish guidelines to assist in the development of program, project, site and task specific Quality Control (QC) policies and procedures,
- Ensure corrective actions are documented and acknowledged by the PM and field personnel, as well as communicated to the client, when adverse situations or defective work result from a project activity,
- Conduct periodic field audits of the programs, projects and sites and submitting a report of findings to the President,
- Monitor results of the site audits,

- Conduct project audits,
- Conduct training,
- Ensure project deliverables are defined prior to initiation of field operations and are submitted as required by the WP and project schedule, and
- Report regularly to the President of Prudent on the adequacy, status and effectiveness of the QC program.

Project Manager

The PM is responsible for ensuring the availability of the resources needed to implement the project QCP and will ensure the QC processes are incorporated in the project plans, procedures, and training for the specific project. The primary responsibility of the PM is the overall direction of the project and accountability for work activities undertaken as part of the WP. The PM is responsible for the quality and timeliness of project activities, including those performed by subcontractors and suppliers.

The PM's global quality related responsibilities include:

- Understanding the Contract and project objectives for the specific project,
- Overall Project Quality Management,
- Maintaining contact with the client,
- Scheduling of activities and preparing documents and reports associated with the project,
- Ensuring that submittals are completed and submitted as required,
- Ensuring project staff are knowledgeable of client requirements and Prudent's QC processes,
- Review and approval of sampling, testing, and field investigation methods and QCP,
- Preparation of progress reports with the assistance of key support personnel,
- Organization of project staff and assigning tasks,
- Developing Project Plans and associated documentation,
- Technical review of project deliverables,
- Approving project documents,
- Communicating project related information from the client,
- Liaison between the project staff and subcontractors,
- Investigation of nonconformance and implementation of corrective actions,
- Evaluation of the effects that nonconformance has on the project and the appropriateness of reporting these issues with the client,
- Providing appropriate documentation of nonconformance when reporting to the client,
- Serving as final reviewer prior to release of project information, and
- Approving and signing outgoing correspondence.

Corporate Health and Safety Manager (CHSM)

Prudent's CHSM will be responsible for:

- Implementing the Corporate Health and Safety Program,
- Reviewing and monitoring compliance with site safety and health plans (SSHPs),
- Implementing corrective measures for health and safety deficiencies, and
- Ensuring required training and medical monitoring of personnel.

The CHSM has the authority to implement corrective measures related to health and safety issues and to stop work, if required, to ensure a safe working environment.

6.3 - FIELD QUALITY MANAGEMENT

Prior to the start of field sampling activities, Prudent will prepare a WP tiered under existing RVAAP Facility-Wide guidances to ensure field sampling activities are conducted according to approved established Ravenna standards. Specifically, a project specific Sampling and Analysis Plan Addendum will be prepared. The use of triplicate surface and debris pile MI samples will provide an overall evaluation of the total (field sampling, plus laboratory sample preparation, plus laboratory analysis) sampling and measurement process. Field logging will be performed by either a geologist.

6.4 - 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.

Prudent will secure a USACE approved laboratory that can provide analytical data in the USACE ADR electronic format. Samples collected and analyzed will be provided in EDD format. The project-specific library file will be maintained to accurately reflect the analytical quality and will be provided to both the USACE and the sub-contract library for use in screening EDD submittals. Data review will comply with the procedures outlined in the Louisville QSM Supplement and provide compatibility with data management software, at minimum, Environmental Data Management System (EDMS) software.

6.5 - 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 major document deliverables, and documents will be revised until the ITR Team deems the quality of the document suitable for distribution. Additionally, the Compliance Checklist provided in the RVAAP Submission Format Guidelines will be completed to ensure documents are prepared according to those guidelines.

7.0 – REFERENCES

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.

US EPA 1984, Drum Handling Practices at Hazardous Waste Sites, EPA/600/2-86/013. January 1986.

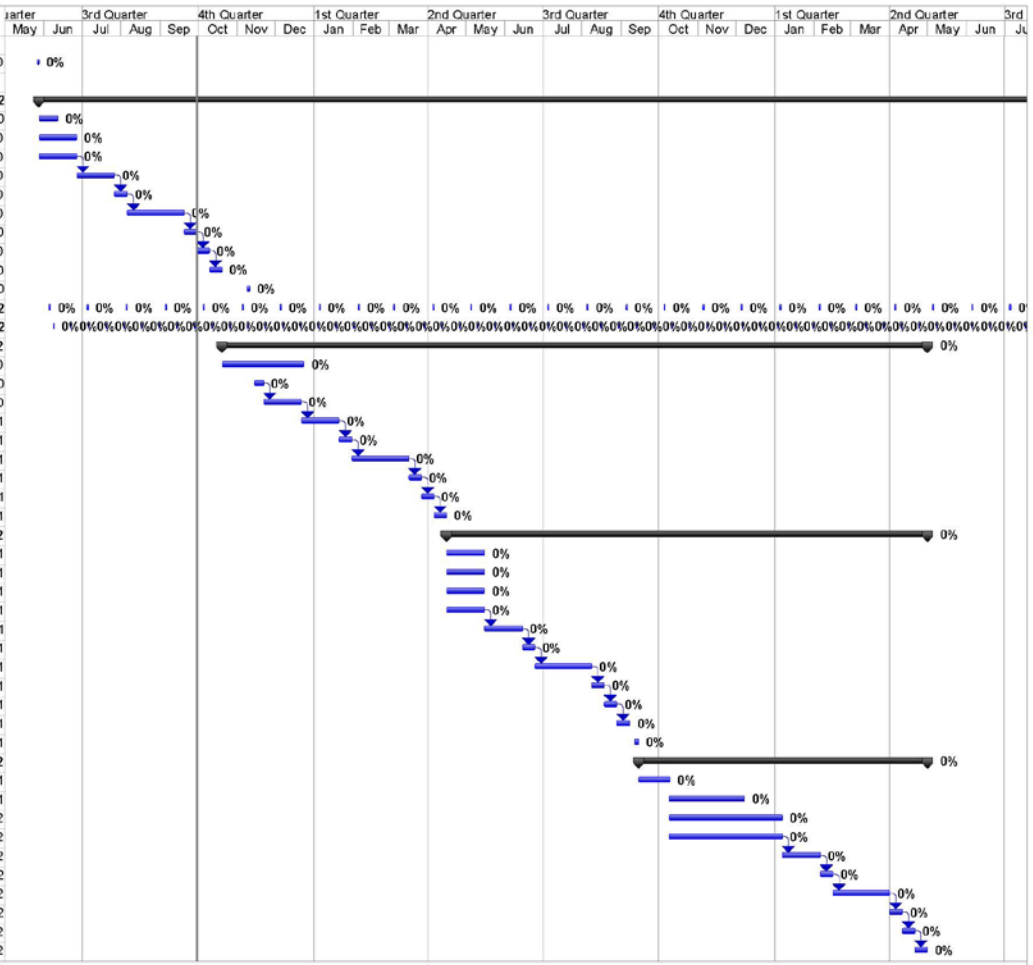
US EPA 1994, Drum Sampling, Environmental Response Team SOP # 2009. November 1994.

US EPA 1999. Improving Site Assessment: Abbreviated Preliminary Assessments, Office of Emergency and Remedial Response Site Assessment Team, EPA-540-F-98-037, October 1999.

US EPA 2007, Waste Sampling, Region 4 Science and Ecosystem Support Division. November 2007.

Appendix A – Project Schedule

ID	Task Name	Duration	Start	Finish
1				
2	Notice to Proceed (NTP) / Contract Award	1 day?	Thu 5/27/10	Thu 5/27/10
3				
4	**WBS 1 - Project Management Plans and Project Execution/Client Correspondence**	**908 days**	**Fri 5/28/10**	**Tue 11/20/12**
5	Contractor Identification of Project Manager (PM)	15 days	Fri 5/28/10	Fri 6/11/10
6	Preliminary Draft Project Management Plan (PMP) with QCP	30 days	Fri 5/28/10	Sat 6/26/10
7	Preliminary Draft Site-Safety and Health Plan (SSHP)	30 days	Fri 5/28/10	Sat 6/26/10
8	Army Review of Preliminary Draft PMP and SSHP	30 days	Sun 6/27/10	Mon 7/26/10
9	Prepare and Submit Draft PMP and SSHP	10 days	Tue 7/27/10	Thu 8/5/10
10	Stakeholder Review of Draft PMP and SSHP	45 days	Fri 8/6/10	Sun 9/19/10
11	Comment Resolution of Stakeholder Comments to Draft PMP and SSHP	10 days	Mon 9/20/10	Wed 9/29/10
12	Prepare and Submit Final PMP and SSHP	10 days	Thu 9/30/10	Sat 10/9/10
13	Stakeholder Review and Approval of Final PMP and SSHP	10 days	Sun 10/10/10	Tue 10/19/10
14	Project Meeting	2 days	Tue 11/9/10	Wed 11/10/10
15	**Monthly Progress Reports and Records of Conversations**	**885 days**	**Sat 6/5/10**	**Mon 11/5/12**
46	**Teleconference Progress Updates**	**897 days**	**Tue 6/8/10**	**Tue 11/20/12**
112	**WBS 2 - Historical Review and Research of Available Data**	**559 days**	**Wed 10/20/10**	**Mon 4/30/12**
113	Conduct Historical Records Review	65 days	Wed 10/20/10	Thu 12/23/10
114	Conduct Site Visit	7 days	Mon 11/15/10	Sun 11/21/10
115	Preliminary Draft - Historical Records Review Report	30 days	Mon 11/22/10	Tue 12/21/10
116	Army Review of Preliminary Draft Historical Records Review Report	30 days	Wed 12/22/10	Thu 1/20/11
117	Prepare and Submit Draft Historical Records Review Report	10 days	Fri 1/21/11	Sun 1/30/11
118	Stakeholder Review of Draft Historical Records Review Report	45 days	Mon 1/31/11	Wed 3/16/11
119	Comment Resolution of Stakeholder Comments to Draft Historical Records Review	10 days	Thu 3/17/11	Sat 3/26/11
120	Prepare and Submit Final Historical Records Review Report	10 days	Sun 3/27/11	Tue 4/5/11
121	Stakeholder Review and Approval of Final Historical Records Review Report	10 days	Wed 4/6/11	Fri 4/15/11
122	**WBS 3 - Phase I RI Initial Intrusive Investigation**	**381 days**	**Sat 4/16/11**	**Mon 4/30/12**
123	Preliminary Draft Sampling and Analysis Plan (SAP)	30 days	Sat 4/16/11	Sun 5/15/11
124	Preliminary Draft UXO/MEC Avoidance Plan	30 days	Sat 4/16/11	Sun 5/15/11
125	Preliminary Draft Quality Assurance Project Plan (QAPP)	30 days	Sat 4/16/11	Sun 5/15/11
126	Preliminary Draft Investigation Work Plan	30 days	Sat 4/16/11	Sun 5/15/11
127	Army Review of Preliminary Draft Work Plan	30 days	Mon 5/16/11	Tue 6/14/11
128	Prepare and Submit Draft Work Plan	10 days	Wed 6/15/11	Fri 6/24/11
129	Stakeholder Review of Draft Work Plan	45 days	Sat 6/25/11	Mon 8/8/11
130	Comment Resolution of Stakeholder Comments to Draft Project Work Plan	10 days	Tue 8/9/11	Thu 8/18/11
131	Prepare and Submit Final Work Plan	10 days	Fri 8/19/11	Sun 8/28/11
132	Stakeholder Review and Approval of Final Project Work Plan	10 days	Mon 8/29/11	Wed 9/7/11
133	Project Meeting	3 days	Mon 9/12/11	Wed 9/14/11
134	**Implement Phase I RI Work Plan**	**229 days**	**Thu 9/15/11**	**Mon 4/30/12**
135	Conduct RI - Field Work	25 days	Thu 9/15/11	Sun 10/9/11
136	Analyze, Data Validation, and Prepare Results	60 days	Sun 10/9/11	Wed 12/7/11
137	Disposal of Investigation Derived Wastes (IDW)	90 days	Sun 10/9/11	Fri 1/6/12
138	Preliminary Draft Phase I RI Report (RVAAP-78)	90 days	Sun 10/9/11	Fri 1/6/12
139	Army Review of Preliminary Draft Phase I RI Report	30 days	Sat 1/7/12	Sun 2/5/12
140	Prepare and Submit Draft Phase I RI Report	10 days	Mon 2/6/12	Wed 2/15/12
141	Stakeholder Review of Draft Phase I RI Report	45 days	Thu 2/16/12	Sat 3/31/12
142	Comment Resolution of Stakeholder Comments to Draft Phase I RI Report	10 days	Sun 4/1/12	Tue 4/10/12
143	Prepare and Submit Final Phase I RI Report	10 days	Wed 4/11/12	Fri 4/20/12
144	Stakeholder Review and Approval of Final Phase I RI Report	10 days	Sat 4/21/12	Mon 4/30/12



Project: Phase I Remedial Investigation CC-RVAAP 78
Date: Thu 9/30/10

Critical	Baseline Split	External Milestone	Manual Summary
Critical Split	Baseline Milestone	Inactive Task	Start-only
Critical Progress	Milestone	Inactive Milestone	Finish-only
Task	Summary Progress	Inactive Summary	Deadline
Split	Summary	Manual Task	
Task Progress	Project Summary	Duration-only	
Baseline	External Tasks	Manual Summary Rollup	

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Appendix B – Comment Response Table

Draft Project Management Plan for 2010 Phase I Remedial Investigation Services Compliance Restoration Sites
CC-RVAAP-78 & CC-RVAAP 80 at the Ravenna Army Ammunition Plant, Ravenna Ohio
Comment Response Table
09/20/2010

Comment No. #	Pg. No. # Line No. #	Comment	Recommendation	Response
O-1	Pages 1-3,1-4 Lines 40 -20	The text states that propellant can lids were identified on the ground surface at the southern and northern ends of former Group 2 Ammunition Storage Area. Based on the conference call held on September 20, 2010 with USACE, OHARNG, RVAAP, and Ohio EPA, it was determined that no propellant cans were ever identified in the northern area of Group 2.	Please make appropriate changes to this document so that it is consistent with the discussions and conclusions resulting from the conference call held on 09/20/2010 between USACE, OHIO EPA, OHARNG, and RVAAP.	Pg 2-1, Line 39; Will change to --- at the southern end of the former Group 2 ---. Pg 2-2, Line 4; Will delete sentences "Additional --- OHARNG." and "The reported northern --- 1 acre)." Pg 2-2, Line 4; After --- (12.4 acres), will add, "While propellant can lids are likely not present in the northern end, as the historical research conducted regarding the observed propellant cans in the southern end is conducted, any references to propellant can lids in the northern end will be documented and included in the Historical Records Review Report."
O-2	Page 4-1 Figure 4-1	The Ohio EPA box shows DERR-NEDO and OFFO. OFFO no longer exists.	Please remove OFFO from this figure.	Will remove OFFO from the figure.