Contract No.: EP-W-09-002
WA #: 047-RICO-02PE, OU2

Region 2 RAC2
Remedial Action Contract

Supplemental Draft Work Plan, Volume 1

Old Roosevelt Field Contaminated Groundwater Site, Operable Unit 2 – Eastern Plume

Remedial Investigation/ Focused Feasibility Study

Garden City, New York

May 4, 2016

CDM Smith

REMEDIAL ACTION CONTRACT
EPA REGION 2

SUPPLEMENTAL DRAFT WORK PLAN
VOLUME 1

OLD ROOSEVELT FIELD CONTAMINATED GROUNDWATER AREA SUPERFUND SITE
REMEDIAL INVESTIGATION/ FOCUSED FEASIBILITY STUDY
Garden City, New York
Work Assignment No.047-RICO-02PE

U.S. EPA CONTRACT NO. EP-W-09-002
Document Control No.: 3323-047-02811
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May 4, 2016

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PROJECT: EPA Region 2 RAC2 Contract No.: EP-W-09-002
Work Assignment No.: 047-RICO-02PE

DOC. CONTROL NO.: 3323-047-02811

SUBJECT: Supplemental Draft Work Plan, Volume 1
Old Roosevelt Field Contaminated Groundwater Area Superfund Site
Remedial Investigation/ Focused Feasibility Study
Operable Unit 2 (OU-2) – Eastern Plume Area
Garden City, New York

Dear Ms. Eng and Ms. Henry:

CDM Federal Programs Corporation (CDM Smith) is pleased to submit this Supplemental Draft Work Plan, Volume 1, for the Remedial Investigation/Focused Feasibility Study at the Old Roosevelt Field Contaminated Groundwater Area Superfund Site (OU-2) in Garden City, New York.

If you have any questions regarding this work plan, please contact me at your earliest convenience at (212) 785-9123.

Very truly yours,
CDM FEDERAL PROGRAMS CORPORATION

Jeanne Litwin, PMP, REM
RAC2 Program Manager

Enclosure

cc: D. Butler, EPA Region 2
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RAC2 Document Control

REMEDIAL ACTION CONTRACT 2
FOR REMEDIAL RESPONSE, ENFORCEMENT OVERSIGHT,
CRITICAL REMOVAL ACTIVITIES AT SITES OF RELEASE OR
THREATENED RELEASE OF HAZARDOUS SUBSTANCES
IN EPA REGION 2

OLD ROOSEVELT FIELD CONTAMINATED GROUNDWATER AREA SUPERFUND SITE
REMEDIAL INVESTIGATION/ FOCUSED FEASIBILITY STUDY
Garden City, New York
Work Assignment No.047-RICO-02PE

SUPPLEMENTAL DRAFT WORK PLAN
VOLUME 1

U.S. EPA CONTRACT NO. EP-W-09-02
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May 4, 2016

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Acronyms

ASC	Analytical Services Coordinator
bgs	below ground surface
CDM Smith	CDM Federal Programs Corporation
CO	Contracting Officer
CSM	conceptual site model
DESA	Division of Environmental Science and Assessment
DQO	data quality objective
DQM	data quality manager
EDD	electronic data deliverable
EPA	United States Environmental Protection Agency
EQuIS	Environmental Quality Information Systems
FCR	field change request
GIS	Geographic Information System
H&S	health and safety
IDW	investigation derived waste
IFB	information for bidders
MEE	methane/ethane/ethane
MNA	monitored natural attenuation
OU	operable unit
PLOE	professional level of effort
PO	Project Officer
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
RAC	Remedial Action Contract
RACMIS	RAC Management Information System
RFP	Request for Proposal
RITM	remedial investigation task manager
RI/FS	remedial investigation/ feasibility study
RSCC	Regional Sample Control Center
SM	Site Manager
SMO	Sample Management Office
SOW	Statement of Work
TAL	Target Analyte List
TAT	turnaround time
TCL	Target Compound List
TOC	Total organic carbon
site	Old Roosevelt Field Contaminated Groundwater Site
VOC	volatile organic compound
µg/L	microgram/liter

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Section 1
Introduction

In 2012, CDM Federal Programs Corporation (CDM Smith) received Work Assignment 047-RICO-02PE, under the Remedial Action Contract (RAC) 2 Region 2, to conduct a Remedial Investigation/ Feasibility Study (RI/FS) for the United States Environmental Protection Agency (EPA), Region 2 at the Old Roosevelt Field Contaminated Groundwater Site (the site), Operable Unit (OU) 2. As such a negotiated Volume 1 and 2 work plan was submitted on September 13, 2013. On April 6, 2016 CDM Smith received a Supplemental Statement of Work (SOW) to incorporate additional requirements under Tasks 1 and 3 for (1) installation of a vertical profile boring and additional groundwater monitoring wells to delineate the groundwater plume south of monitoring well MW-16, and (2) installation of a vertical profile boring in an upgradient area to determine whether off-site sources are contributing to groundwater contamination. The Work Plans Volume 1 and 2 submitted previously will be used in conjunction with this supplemental work plan (Volume 1 and 2).

1.1 Site Location and Background

The site is an area of groundwater contamination within the Village of Garden City, in central Nassau County, New York. The site is located on the eastern side of Clinton Road, south of the intersection with Old Country Road; it includes the area of the former Roosevelt Field airfield. The former Roosevelt Field airfield area is currently developed as a large retail shopping mall with a number of restaurants, and a movie theater. A thin strip of open space along Clinton Road (known as Hazelhurst Park) serves as designated parkland and a buffer with the residential community. Several office buildings (including Garden City Plaza) are on the western perimeter of the mall and share parking space with the mall. Two recharge basins are directly east and south of the mall area. The eastern basin, Pembrook, is on property owned by the mall. The basin to the south is Nassau County recharge basin # 124.

1.2 Recent History

CDM Smith submitted a technical memorandum on November 2, 2015 and participated in a discussion with EPA on November 7, 2015 discussing all field investigations that have been performed to date pertaining to OU2. This supplemental work plan has been prepared to implement additional investigations at OU2 based on the conclusions and recommendation provided in the technical memorandum and the joint consensus between EPA and CDM Smith.

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Section 2
Work Plan Approach

2.1 Development of the Technical Approach

The effort on this work assignment is to install a vertical profile boring in an upgradient area, an additional vertical profile boring and monitoring wells to delineate the southern edge of the groundwater plume, collect synoptic water levels and conduct environmental sampling to understand the current distribution of the contamination at OU2. Additionally, data evaluation will be performed to present the data collected under this supplemental SOW.

2.2 Project Organization

The proposed project organization is shown in Figure 2-1.

2.3 Quality Assurance

All work by CDM Smith on this work assignment will be performed in accordance with the CDM Smith RAC2 Quality Management Plan (QMP) (September 2012).

The RAC2 Quality Assurance Specialist (QAS) will maintain quality assurance (QA) oversight for the duration of the work assignment. A CDM Smith QAS has reviewed this work plan for QA requirements. The CDM Smith site manager (SM) is responsible for implementing appropriate quality control (QC) measures on this work assignment. Such QC responsibilities include:

- Adhering to the CDM Smith RAC Management Information System (RACMIS) document control system
- Organizing and maintaining work assignment files
- Conducting planning meetings, as needed, in accordance with the RAC2 QMP
- Ensuring the proper data quality objectives (DQOs) are implemented for the work assignment

Document control aspects of the program pertain to controlling and filing documents. CDM Smith has developed a program filing system that conforms to EPA's requirements to ensure that the documents are properly stored and filed. This system will be implemented to control and file all documents associated with this work assignment. The system includes document receipt control procedures, a file review, an inspection system, and file security measures.

The RAC2 QA program includes self-assessments as checks on the quality of data generated on this work assessment. Self-assessments include management system audits, trend analyses, calculation checking, data validation, and technical reviews.

2.4 Project Schedule

A project schedule is included as Figure 2-2. The project schedule assumes the provision of adequate funding and timely review of documents by EPA throughout the project.

2.5 Green Remediation Practices

Green remediation is the practice of considering all environmental effects of the implementation of a remedy and incorporating options to maximize the net environmental benefit of cleanup actions. In accordance with EPA's strategic plan for compliance and environmental stewardship, EPA strives for cleanup programs that use natural resources and energy efficiently, reduce negative impacts on the environment, minimize or eliminate pollution at its source, and reduce waste to the maximum extent possible. EPA's Region 2 Superfund program supports the adoption of "green site assessment and remediation," which is defined as the practice of considering all environmental impacts of studies, selection, and implementation of a given remedy, and incorporating strategies to maximize the net environmental benefit of cleanup actions (see http://www.clu-in.org/greenremediation). In addition, EPA established a "Clean & Green" policy to enhance the environmental benefits of Superfund cleanups by promoting technologies and practices that are sustainable.

To the extent practicable, CDM Smith will explore and as appropriate implement green remediation strategies and applications in the performance of the requirements of this work assignment to maximize sustainability, reduce energy and water usage, promote carbon neutrality, promote industrial materials reuse and recycling, and protect and preserve land resources.

Section 3
Task Plans

The tasks identified in this section correspond to EPA's SOW for the site, dated August 22, 2012 and the supplement of SOW dated April 6, 2016. The task presentation order and numbering sequence correspond to the work breakdown structure provided in EPA's supplement of SOW.

3.1 Task 1 - Project Planning and Support

The project planning task generally involves several subtasks that must be performed in order to develop the plans and the corresponding schedule necessary to execute the additional investigation. These subtasks include project administration, conducting a site reconnaissance, attending technical meetings with EPA and other support agencies, preparing this supplemental work plan, preparing the Quality Assurance Project Plan (QAPP), and procuring and managing subcontractors.

3.1.1 Project Administration

The project administration activity involves regular duties performed by the CDM Smith SM and the program support personnel throughout the duration of this work assignment. CDM Smith will provide the following project administration support in the performance of this work assignment.

The SM will:

- Prepare the technical monthly report
- Review weekly financial reports
- Review and update the project schedule
- Attend quarterly internal RAC 2 meetings
- Communicate regularly with the EPA Remedial Project Manager (RPM)
- Prepare staffing plans

The program support personnel will:

- Review the work assignment technical and financial status
- Review the monthly progress report
- Provide technical resource management
- Review the work assignment budget
- Respond to questions from the EPA Project Officer (PO) and Contracting Officer (CO)

- Prepare and submit invoices

3.1.2 Develop Draft Work Plan and Associated Cost Estimate

CDM Smith has prepared this draft supplemental work plan in accordance with the contract terms and conditions. CDM Smith used existing site data and information, information from EPA guidance documents (as appropriate) and technical direction provided by the EPA RPM as the basis for preparing the work plan.

The draft supplemental work plan includes a comprehensive description of project tasks, the procedures to accomplish them, project documentation, and a project schedule. CDM Smith uses internal quality assurance/quality control (QA/QC) systems and procedures to insure that the work plan and other deliverables are of professional quality requiring only minor revisions (to the extent that the scope is defined and is not modified). Specifically, the draft supplemental work plan includes the following information:

- Identification of the supplemental project elements including planning and activity reporting documentation, field sampling, and analysis activities. A detailed work breakdown structure of the supplemental work corresponding to the work breakdown structure provided in the EPA SOW (dated April 6, 2016) and discussions with EPA.
- CDM Smith's technical approach for each task to be performed, including a detailed description of each task, the assumptions made, any information to be produced during and at the conclusion of each task, and a description of the work products to be submitted to EPA. Issues relating to management responsibilities, site access, site security, contingency procedures and storage and disposal of investigation derived wastes (IDW) are be addressed. Information is presented in a sequence consistent with the SOW.
- A schedule with dates for completion of each required activity, critical path milestones and submission of each deliverable required by the SOW and the anticipated review time for EPA.
- A list of key contractor personnel supporting the project (Section 4) and the subcontractor services required for the work assignment.

CDM Smith has prepared a draft work plan budget (as Volume 2 of the supplemental work plan) that follows the work breakdown structure in the SOW. The draft work plan budget contains a detailed cost breakdown, by subtask, of the direct labor costs, subcontractor costs, other direct costs, projected base fee and award fee, and any other specific cost elements required for performance of each of the subtasks included in the SOW. Other direct costs are broken down into individual cost categories as required for the work assignment, based on the specific cost categories negotiated under CDM Smith's contract. A detailed rationale describing the assumptions for estimating the professional level of effort (PLOE), professional and technical levels and skills mix, subcontract amounts, and other direct costs is provided for each subtask in the SOW.

3.1.3 Negotiate and Revise Draft Work Plan/Budget

CDM Smith personnel will attend a work plan negotiation meeting with EPA to discuss and agree upon the final technical approach and costs required to accomplish the tasks detailed in the work plan. CDM Smith will incorporate the agreements made in the negotiation meeting into a negotiated work plan budget. CDM Smith will submit the negotiated work plan and budget in both hard copy and electronic formats.

3.1.4 Quality Assurance Project Plan

CDM Smith will use the existing approved QAPP dated April 21, 2014 for Work Assignment 047-RICO-02PE in performing the requirements of this supplemental SOW. The new work will be described in a field change notification (FCN) addressing requirements not already covered in the QAPP.

3.1.5 Health and Safety Plan

CDM Smith will use the existing approved Health and Safety Plan dated May 19, 2014 to complete this additional investigation.

3.1.6 Meetings

CDM Smith will participate in additional meetings with EPA during the implementation of the supplemental SOW, and will prepare meeting minutes.

3.1.7 Subcontract Procurement

This subtask will include the procurement of all subcontractors required to complete the field investigation activities. Procurement activities include: preparing the technical SOW; preparing Information for Bidders (IFB) or Request for Proposal (RFP) packages; conducting pre-bid site visits (when necessary); responding to technical and administrative questions from prospective bidders; performing technical and administrative evaluations of bid documents; performing the necessary background, reference, insurance, and financial checks; preparing consent packages for approval by the EPA CO (when necessary); and awarding the subcontract.

To support the proposed field activities, the following subcontractors will be procured.

- A licensed driller to drill, install, sample, and perform downhole geophysical logging.
- A licensed surveyor to survey the newly-installed monitoring wells. A detailed topographic map will not be produced for the site. The locations of the three new monitoring wells will be displayed on existing ortho-rectified aerial photographs.
- A subcontractor to characterize, transport, and dispose of IDW, and to remove and properly clean out roll-off containers and storage tanks containing the generated waste liquids and solids will be assessed via an existing MSA.
- A subcontractor to sample the multi-port wells during the sampling program.

All subcontractor procurement packages will be subject to CDM Smith's technical and QA reviews.

3.1.8 Subcontract Management

The SM and CDM Smith's subcontracts managers will perform the necessary oversight of the subcontractors (identified under Section 3.1.11) needed to perform the supplemental SOW. CDM Smith will institute procedures to monitor progress, and maintain systems and records to ensure that the work proceeds according to the subcontract and RAC contract requirements. CDM Smith will review and approve subcontractor invoices and issue any necessary subcontract modifications.

3.2 Task 3 – Field Investigation

This section defines the objectives of the supplemental field investigation and describes the hydrogeologic investigation activities that will be performed to delineate the groundwater plume south of MW-16 and installation of vertical profile boring in an upgradient area to determine whether off-site sources are contributing to the groundwater contamination at the Old Roosevelt Field Site. This task includes all activities related to implementing the supplemental field investigation at the site. The main objectives of the field program are summarized below.

- Delineate the nature and extent of groundwater contamination in the eastern plume area of the Site, south of the MW-16 cluster
- Identify and investigate potential sources of groundwater contamination
- Refine the current OU2 conceptual site model (CSM) based on an understanding of the delineation and contamination in the eastern plume area of the site
- Identify and quantify potential human health and ecological risks, if any, posed by exposure to contaminated groundwater
- Provide adequate data for development of remedial alternatives in the FFS

Based on these objectives, the task descriptions have been developed after review and evaluation of the site background data and the previously conducted investigations under OU I. The major elements of the field investigation include the activities listed below, in the approximate order they will occur in the field.

- Site Reconnaissance (Section 3.2.1)
- Mobilization/Demobilization (Section 3.2.2)
- Hydrogeological Investigation (Section 3.2.3)
    - Vertical profile groundwater screening
    - Monitoring well installation
    - Synoptic water level measurement
- Groundwater Sampling (one round) (Section 3.2.4)

- Investigation-Derived Waste (Section 3.2.5)

3.2.1 Site Reconnaissance

A site reconnaissance will be performed prior to drilling to identify suitable locations for the monitoring wells and vertical profile boring. Oversight of a surveying subcontractor will also be performed.

3.2.1.1 Monitoring Well/Borehole Drilling Reconnaissance

EPA and CDM Smith will identify the specific locations of monitoring wells and vertical profile boring prior to drilling activities. The field team will visit proposed well and boring locations to identify and mark exact drilling locations and assess potential logistical issues and physical access constraints for the drill rig. Potential problem locations will be documented and photographed and locations may be adjusted to facilitate access.

It is anticipated that close coordination will be required with property owners and local authorities regarding access and safety issues. EPA will be responsible for obtaining access to public and private properties.

Prior to performing any drilling, CDM Smith's drilling subcontractor will request a utility markout to identify the locations of underground utilities. CDM Smith will verify that the utility markout was performed before drilling activities begin.

3.2.1.2 Topographic Survey Oversight

An ortho-rectified aerial photograph will be used as the base map for well and sample locations and figure development. Following monitoring well installation, well locations will be surveyed. Three elevations will be determined at each well: the ground surface, the top of the inner casing, and the top of the outer casing.

3.2.2 Mobilization and Demobilization

This subtask will consist of the following tasks: site access support; field personnel orientation; equipment mobilization and demobilization; establishment of health and safety zones; field supply ordering, staging, and transport to the site; decontamination and removal of equipment and supplies; and site restoration. It is anticipated that one major mobilization will be required at the beginning of the investigation and that a major demobilization will be required at the end of the investigation.

3.2.2.1 Site Access Support

Access to public areas (roads, parks, etc.) and private property will be needed to conduct the well installation and sampling. EPA will be responsible for obtaining site access; CDM Smith will assist with any logistical support. CDM Smith will provide a list of property owners (public and private) to be accessed during field activities. The list will include the mailing address and telephone number of the property owners. Once EPA has established that access has been granted, investigation activities can begin. CDM Smith will contact and coordinate with property owners and local officials (for work in public areas) to schedule field activities.

3.2.2.2 Field Planning Meetings

Prior to field activities, each field team member will review all project plans and participate in a field planning meeting conducted by the CDM Smith SM and remedial investigation task manager (RITM) to become familiar with the history of the site, site communication protocols, health and safety (H&S) requirements, roles and responsibilities, field procedures, field data collection and management procedures, sample location naming, sample naming, field data management procedures and related QC requirements. The required field data electronic data deliverables (EDD) will be identified and responsibility for preparation will be assigned. The analytical method codes being used in Scribe will be reviewed to ensure that they are consistent with the Environmental Quality Information Systems (EQuIS) database. CDM Smith assumes that two field planning meeting will be held – one covering the drilling phase of work and the second prior to the monitoring well sampling. All new field personnel will receive a comparable briefing if they do not attend the initial field planning meeting and/or the tailgate kick-off meeting. Supplemental meetings may be conducted as required by any changes in site conditions or to review field operation procedures.

3.2.2.3 Field Equipment and Supplies

Equipment and field supply mobilization will entail ordering, renting, purchasing, and decontamination/return of all equipment needed for each part of the field investigation. This will also include staging and transferring all equipment and supplies to and from the site. Measurement and Test Equipment forms will be completed for rental or purchase of equipment (instruments) that will be utilized to collect field measurements. The field equipment will be inspected for acceptability, and instruments calibrated as required prior to use. This task also involves the construction of a decontamination area for sampling equipment and personnel. A separate decontamination pad will be constructed by the drilling subcontractor for drilling equipment.

CDM Smith will use the existing treatment facility at the Garden City Wellfield for the command post area; a field trailer and associated utilities will not be needed. The command post area will accommodate 20-cubic-yard roll-off containers, a 21,000-gallon water tank, a decontamination area, drilling equipment and supplies, drill rigs and subcontractor support vehicles, and CDM Smith vehicles.

It will be necessary to erect temporary fencing at drilling locations in active parking lots and public areas; fencing will be provided by the drilling subcontractor.

H&S work zones including personnel decontamination areas will be established. Local authorities such as the police and fire departments will be notified prior to the start of field activities. Equipment will be demobilized at the completion of each field event, as necessary. Demobilized equipment will include sampling equipment, drilling subcontractor equipment, H&S equipment, and decontamination equipment.

3.2.2.4 Site Preparation and Restoration

CDM Smith will ground truth for overhead utilities and surface features around intrusive subsurface boreholes and sampling locations. The drilling subcontractor will be responsible for

contacting an appropriate utility location service to locate and mark out underground utilities, and, if necessary, excavate the first five feet either by hand of with a vac truck.

CDM Smith plans to use existing roadway rights-of-way, open space, and clearings to the maximum extent possible to access sampling locations. The drilling subcontractor will be responsible for clearing vegetation, if necessary. CDM Smith will direct and oversee any necessary clearing activities conducted by the drilling subcontractor.

Site Restoration
Some field activities are expected to occur on private and public properties. In the event that properties are impacted by field activities, the property will be restored, as near as practicable, to the conditions existing immediately prior to such activities. CDM Smith will maintain photographic documentation of site conditions prior to commencement of and after completion of field activities.

At the completion of the field activities, decontamination pad materials will be decontaminated and removed from the command post area, unless otherwise instructed by EPA. The decontamination and command post area will be restored, as near as practicable, to its original condition.

Site restoration will be performed by the drilling subcontractor under the direction of CDM Smith personnel who will perform field oversight and H&S monitoring.

3.2.3 Hydrogeological Assessment

The hydrogeological assessment will include vertical profile groundwater screening, well installation, and synoptic water level measurement.

3.2.3.1 Vertical Profile Groundwater Screening

Two boreholes (SVP-18 and SVP-19) will be advanced to approximately 550 feet bgs using the mud rotary drilling method (see Figure 3-1 for groundwater screening boring locations). At each location, an 8-inch diameter carbon steel outer casing will be installed to approximately 100 feet bgs to prevent borehole collapse in the upper glacial unit. Beginning at 100 feet bgs, groundwater screening samples will be collected every 30 feet to total depth using a Hydropunch™ sampler in conjunction with mud rotary drilling methods. Groundwater samples will be analyzed for Target Compound List (TCL) volatile organic compounds (VOC) using 24-hour turnaround time (TAT) in order to facilitate field decisions. Upon reaching the terminal depth of each boring, a natural gamma log will be run in the borehole to provide lithologic data. Drilling, sampling, and logging procedures, which will be consistent with those used in previous vertical profile borings, will be detailed in a Field Change Request (FCR).

3.2.3.2 Monitoring Well Installation

After SVP-18 has been installed and the downhole gamma log and groundwater screening results have been reviewed, a shallow, intermediate, and deep monitoring well (MW-18 S, I, D) will be installed to characterize the distribution of contamination (see Figure 3-1 for the well locations). The deep monitoring well will be installed in the SVP-18 vertical profile boring. Based on previous data, the monitoring wells will be installed to approximate depths of 225 feet bgs, 450 feet bgs and 530 feet bgs, respectively; however, the final screen intervals and depths will be

based on groundwater screening results from SVP-18. Well installation procedures, which will be consistent with those used to install previous conventional monitoring wells, will be detailed in the FCR.

The shallow well will be constructed of 4-inch diameter PVC casing with a 10-foot length of Schedule 10 0.010-slot PVC well screen. The intermediate and deep wells will be constructed of 4-inch diameter stainless steel casing with 10-foot lengths of 0.010-slot stainless steel screens. The newly-installed monitoring wells will be fully developed to remove drilling mud from the borehole and to provide a good hydraulic connection between the well and the aquifer materials.

3.2.3.3 Synoptic Water Level Measurement

One round of synoptic water level measurements will be collected to provide data to evaluate the groundwater flow direction. Water level measurements will be collected immediately prior to the groundwater sampling event described in Section 3.2.4. Water level measurements will be collected from 23 conventional wells (including the three newly installed wells) and 4 multi-port wells (39 ports) (see Table 3-1 for a list of synoptic measurement wells). Synoptic water level measurement procedures, which will be consistent with previous procedures, are detailed in the existing QAPP.

3.2.4 Environmental Sampling

One round of groundwater samples will be collected from 23 conventional wells (including the three newly installed wells) and 4 multi-port wells (39 ports), for a total of 62 environmental samples (see Table 3-1 for a list of wells and analyses). CDM Smith proposes that the monitoring well samples be analyzed for TCL VOCs (all samples/ports – 62 samples), Target Analyte List (TAL) inorganics at one-third of the ports/wells (18 samples), and monitored natural attenuation (MNA) parameters, including alkalinity, methane, ethane, ethane (MEE), nitrate/nitrite, sulfate, and total organic carbon (TOC) at one-third of the ports/wells (18 samples). Ferrous iron will be analyzed in the field using a field test kit. Analysis for cyanide and mercury are not recommended since these are not site-related contaminants. MNA parameters will be used to aid in the understanding on natural attenuation for the FS.

Earth Data, under subcontract to CDM Smith, will perform the water level measurement and sampling of multi-port wells using the Westbay specific sampling equipment and procedures. CDM Smith field personnel will perform the water level measurement and sampling of the conventional monitoring wells according to the site-specific, low-flow, minimal drawdown sampling procedure, which follows the EPA Standard Operating Procedure “Ground Water Sampling Procedure, Low Stress (Low Flow) Purging and Sampling” (EPA 1998b).

3.2.5 Investigation-Derived Waste

The IDW subcontractor will provide containers, characterize waste, and perform the transportation and proper disposal of all field generated waste soils, liquids, solids, and personal protective equipment. Representative waste samples will be collected and analyzed by a laboratory to characterize the IDW. CDM Smith will conduct field oversight and H&S monitoring during all waste disposal field activities.

3.3 Task 5 – Analytical Support and Data

EPA and the Division of Environmental Science and Assessment (DESA) will analyze and validate all analytical data for the RI.

3.3.1 Sample Management

The CDM Smith Analytical Services Coordinator (ASC) will be responsible for all CLP laboratory bookings and for coordination with the Regional Sample Control Center (RSCC) and DESA prior to and after sampling events. EPA RSCC will coordinate with Sample Management Office (SMO).

Coordination between CDM Smith and the DESA laboratory and/or the subcontract laboratory will be required. CDM Smith will notify RSCC and SMO or DESA of sample shipments on a daily basis, to enable them to resolve any issues or coordinate with the laboratory. The CDM Smith Sample Manager will track samples to ensure timely laboratory receipt. Sample trip reports will be sent to the RSCC and the EPA RPM within seven working days of final sample shipment.

The CLP laboratories will be responsible for providing analytical data packages to EPA for data validation.

3.4 Task 6 – Data Evaluation

This task includes evaluation of site data and compilation of analytical and field data to be loaded into CDM Smith's EQuIS database.

3.4.1 Data Usability Evaluation

CDM Smith will evaluate the usability of the field investigation data, including any uncertainties associated with the data. Field sampling techniques, laboratory analytical methods and techniques, and data validation results will all be considered in evaluating the usability of the data. Data usability will be evaluated against the DQOs for the RI, as defined in the QAPP, prior to use in any OU2 reports. Any qualifications to the data use will be discussed in the QA section of any reports presenting data.

3.4.2 Data Reduction, Tabulation and Evaluation

CDM Smith will evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. In accordance with the EPA SOW, the general guidelines listed below will be followed.

- Tables of analytical results will be organized in a logical manner such as by sample location number, sampling zone, or some other logical format.
- Analytical results will not be organized by laboratory identification numbers because these numbers do not correspond to those used on sample location maps. The sample location/well identification number will always be used as the primary location code for the analytical results.
- Analytical tables will indicate the sample collection dates.
- The detection limit will be indicated in instances where a parameter was not detected.

- Analytical results will be reported in the text, tables, and figures using a consistent and conventional unit of measurement such as microgram/liter (µg/L) for groundwater analyses.
- Protocol for eliminating field sample analytical results based on laboratory/field blank contamination results will be clearly explained.
- If the reported result has passed established data validation procedures, it will be considered valid.
- Field equipment rinsate blank analyses results will be discussed in detail if decontamination solvents are believed to have contaminated field samples.

Data Management

The data manager (DM) is responsible for coordinating data management tasks and working with data providers, the data team, the ASC and the end users. The DM ensures that data are managed efficiently, proper QA/QC procedures are followed, and the data are available for evaluation in a timely manner.

Upon receipt, the DM will log all analytical EDDs into a project tracking spreadsheet and track the status of each EDD from receipt through validation (if necessary) through upload to EQuIS. If necessary the DM will request from RSCC a list of analytical EDDs for the project and will compare this list to the tracking spreadsheet to identify missing EDDs. The DM will log all field data EDDs in the same EDD tracking spreadsheet. The DM will update EDD information in the tracking spreadsheet as they are reviewed and uploaded to EQuIS. Any problems with the EDDs will be documented.

During the field investigation various types of data will be supplied by different data providers as summarized below. In general, data will be stored in EQuIS and can be exported to a variety of software programs used to aide in data evaluation and interpretation. Data management will include checking that the data received are complete, uploading validated data into EQuIS and exporting to a variety of computer software programs for evaluation.

- Sample analytical data (laboratories)
- Sample, well location, and elevation data (CDM Smith or subcontractor)
- Field sample information (date/time of sample collection, from/to interval, analysis performed, sample type) (CDM Smith)
- Field results (water quality parameters, field analytical results) (CDM Smith)
- Water level data (CDM Smith)
- Lithologic data from gamma logs (CDM Smith)
- Well construction information (CDM Smith)
- Geophysical logging data (CDM Smith)

Well Logs
Monitoring well logs with gamma log data will be prepared for the three newly-installed monitoring wells.

Data Mapping/GIS Figures
Geographic Information System (GIS) software will be used to facilitate sample planning, well location selection, data presentation, and sample results. Geologic cross sections will be used to depict data in cross section and will be prepared using gINT software. Graphic illustrations for the data evaluation meeting and/or the RI report will include geological profiles, cross-sections, and contaminant isoconcentration maps. The GIS will include layers which depict regional and local cultural and physiographic features such as roads, buildings, water bodies, railroads, and topography.

GIS will be used to generate plan view maps to support the RI and FFS reports, presentations, and public meetings. GIS will be used to prepare potentiometric surface maps and maps depicting the extent of contamination at the site. Box maps will be prepared in Adobe Illustrator using a basemap generated in GIS.

Gamma logging data will be managed using WellCAD software. The subcontractor will provide raw instrument data files and WellCAD files. If necessary, data from gamma logs, will be exported from WellCAD and imported into gINT for use in cross sections and well logs. Borehole geophysical data will not be transferred to the EQuIS database. WellCAD and raw instrument data files will be provided to EPA.

Electronic Data Deliverable
CDM Smith will prepare a final project EDD in accordance with EPA Region 2 EDD requirements. The EDD will include the location, analytical, and geologic data generated during the course of the RI.

3.4.3 Data Evaluation Summary Report

CDM Smith will prepare a data evaluation summary report which will present an evaluation of data collected during the supplemental investigation, including an updated CSM, identification of data gaps, and identification of potential contaminant source areas or facilities. Input and comments from EPA and stakeholders will be recorded and incorporated into the RI Report.

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Tables

Table 3-1
Synoptic Water Level Measurement and Sampling Summary
Old Roosevelt Field Contaminated Groundwater Area Superfund Site, OU-2 Eastern Plume
Garden City, New York

Well Type	Well ID	Port Depth (feet bgs)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Trace VOCs	TAL Metals/ MNA Parameters*
OU2 - New Conventional Monitoring Wells	MW-18S	-	215	225	X	X
	MW-18I	-	440	450	X	X
	MW-18D	-	520	530	X	X
	MW-3D	-	490	500	X	X
	MW-15S	-	160	170	X	X
	MW-15I	-	300	310	X	X
	MW-16S	-	125	135	X	X
	MW-16I1	-	340	350	X	X
	MW-16I2	-	365	375	X	X
	MW-16D	-	400	410	X	X
	MW-17S	-	85	95	X	X
	MW-17I1	-	340	350	X	X
Existing Conventional Monitoring Wells	MW-17I2	-	365	375	X	X
	MW-17D	-	430	440	X	X
	N-8474	-	485	556	X	X
	N-8475	-	409	481	X	X
	N-9961	-	48	54	X	X
	N-9967	-	48	54	X	X
	GWX-10020	-	185	190	X	
	MW-2I	-	306	316	X	
	MW-2S	-	236	246	X	
	MW-3I	-	304	314	X	
	MW-3S	-	234	244	X	
	SVP-1-10	53	-	-	X	
	SVP-1-9	103	-	-	X	
	SVP-1-8	153	-	-	X	
	SVP-1-7	203	-	-	X	
	SVP-1-6	253	-	-	X	
	SVP-1-5	293	-	-	X	
	SVP-1-4	318	-	-	X	
	SVP-1-3	373	-	-	X	
Existing Multiport Wells	SVP-1-2	403	-	-	X	
	SVP-1-1	450	-	-	X	
	SVP-3-7	53	-	-	X	
	SVP-3-6	103	-	-	X	
	SVP-3-5	173	-	-	X	
	SVP-3-4	293	-	-	X	
	SVP-3-3	373	-	-	X	
	SVP-3-2	393	-	-	X	
	SVP-3-1	450	-	-	X	

Table 3-1
Synoptic Water Level Measurement and Sampling Summary
Old Roosevelt Field Contaminated Groundwater Area Superfund Site, OU-2 Eastern Plume
Garden City, New York

Well Type	Well ID	Port Depth (feet bgs)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Trace VOCs	TAL Metals/ MNA Parameters*
Existing Multiport Wells	SVP-6-6	50	-	-	X	
	SVP-6-5	105	-	-	X	
	SVP-6-4	180	-	-	X	
	SVP-6-3	250	-	-	X	
	SVP-6-2	370	-	-	X	
	SVP-6-1	447	-	-	X	
	SVP-13-6	245	-	-	X	
	SVP-13-5	295	-	-	X	
	SVP-13-4	355	-	-	X	
	SVP-13-3	405	-	-	X	
	SVP-13-2	485	-	-	X	
	SVP-13-1	520	-	-	X	
	SVP-14-10	85	-	-	X	
	SVP-14-9	100	-	-	X	
	SVP-14-8	145	-	-	X	
	SVP-14-7	185	-	-	X	
	SVP-14-6	250	-	-	X	
	SVP-14-5	300	-	-	X	
	SVP-14-4	360	-	-	X	
	SVP-14-3	410	-	-	X	
	SVP-14-2	490	-	-	X	
	SVP-14-1	530	-	-	X	
				Totals	**62**	**18**

Notes:

bgs = below ground surface

VOCs = volatile organic compounds

TAL = Total Analyte List

MNA = Monitored Natural Attenuation

*MNA Parameters include alkalinity, methane/ethane/ethane (MEE), nitrate/nitrite, sulfate, and total organic carbon (TOC)

Figures

Figure 2-1
Project Organization
Old Roosevelt Field Contaminated Groundwater Site, OU2-Eastern Plume
Garden City, New York

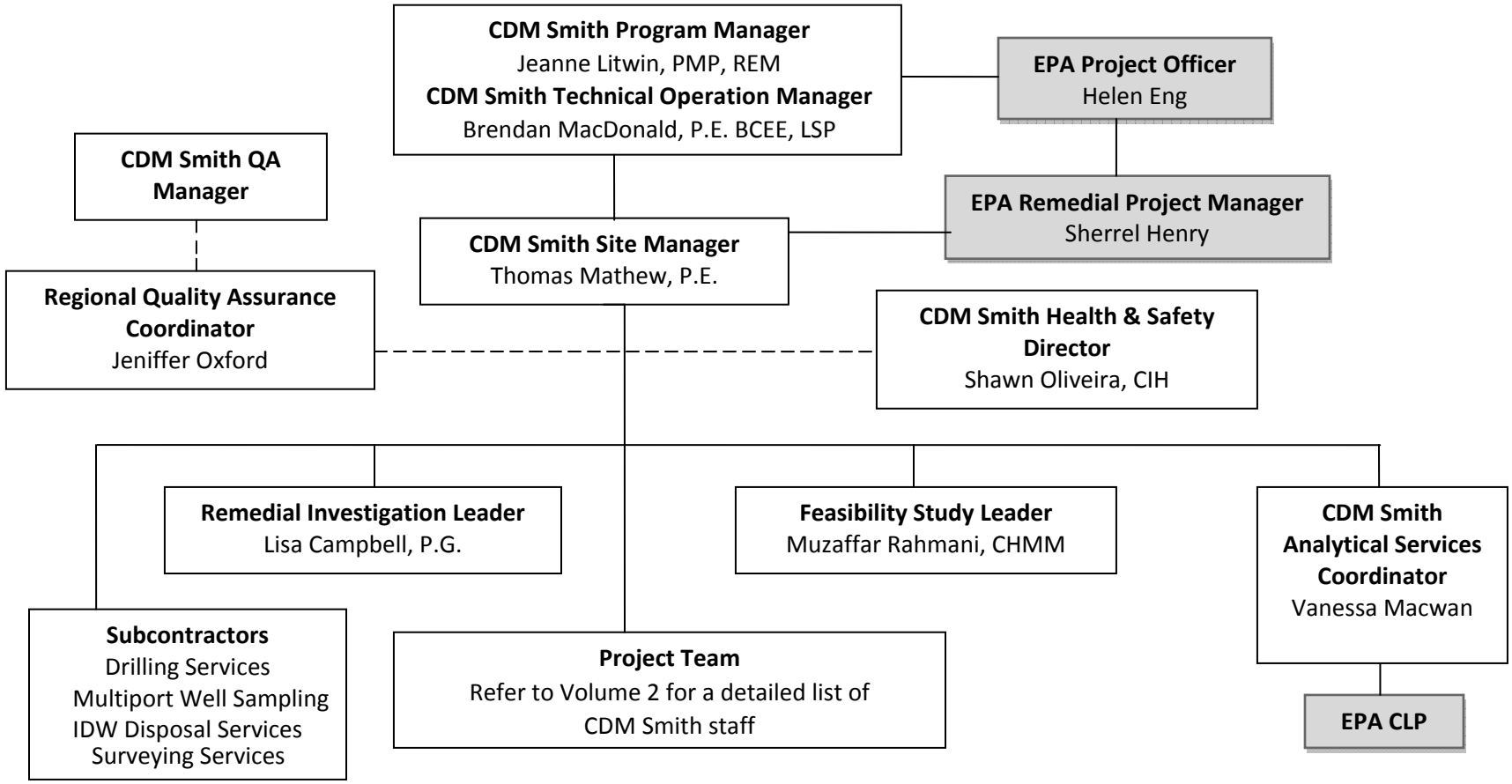
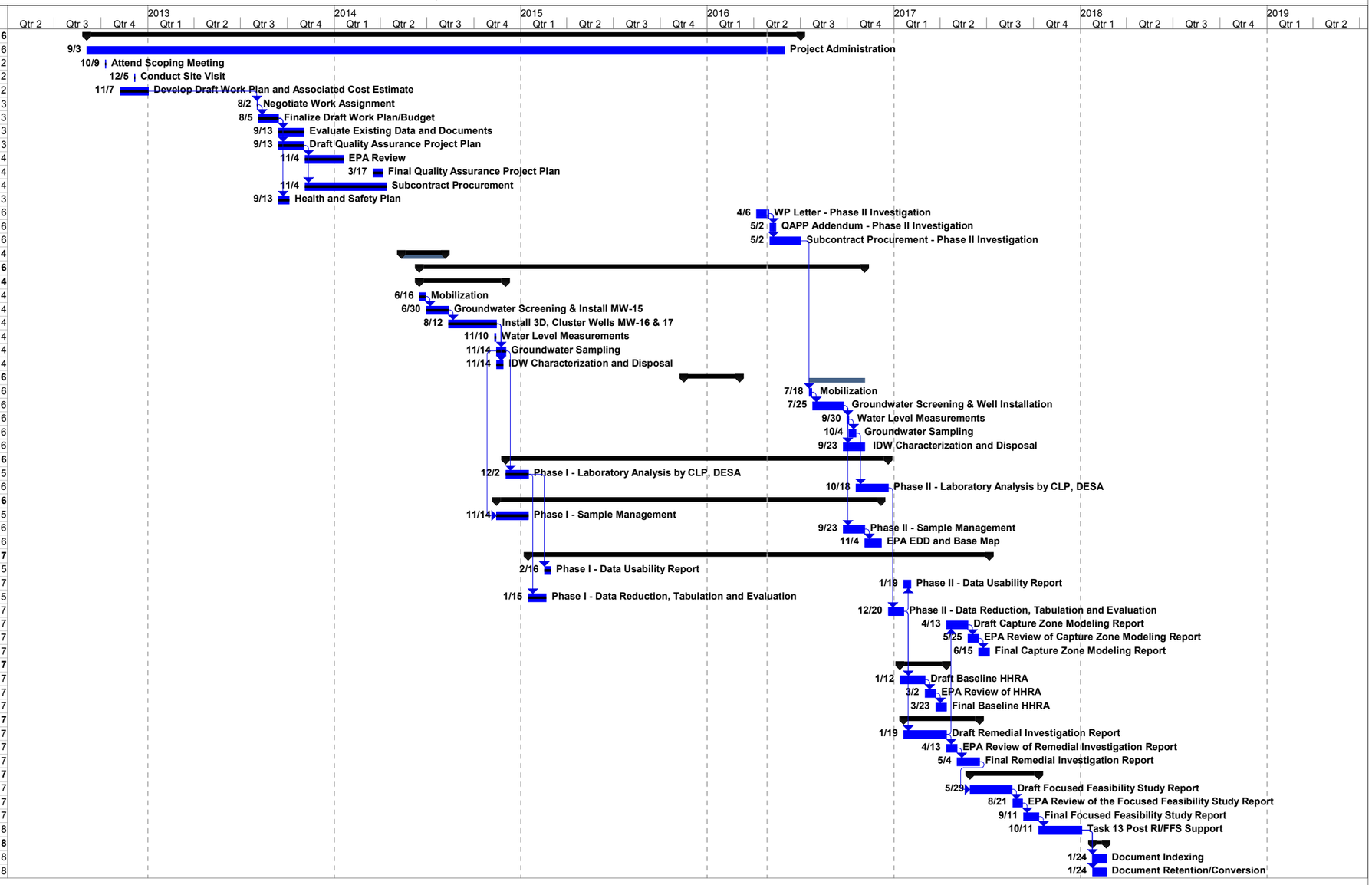


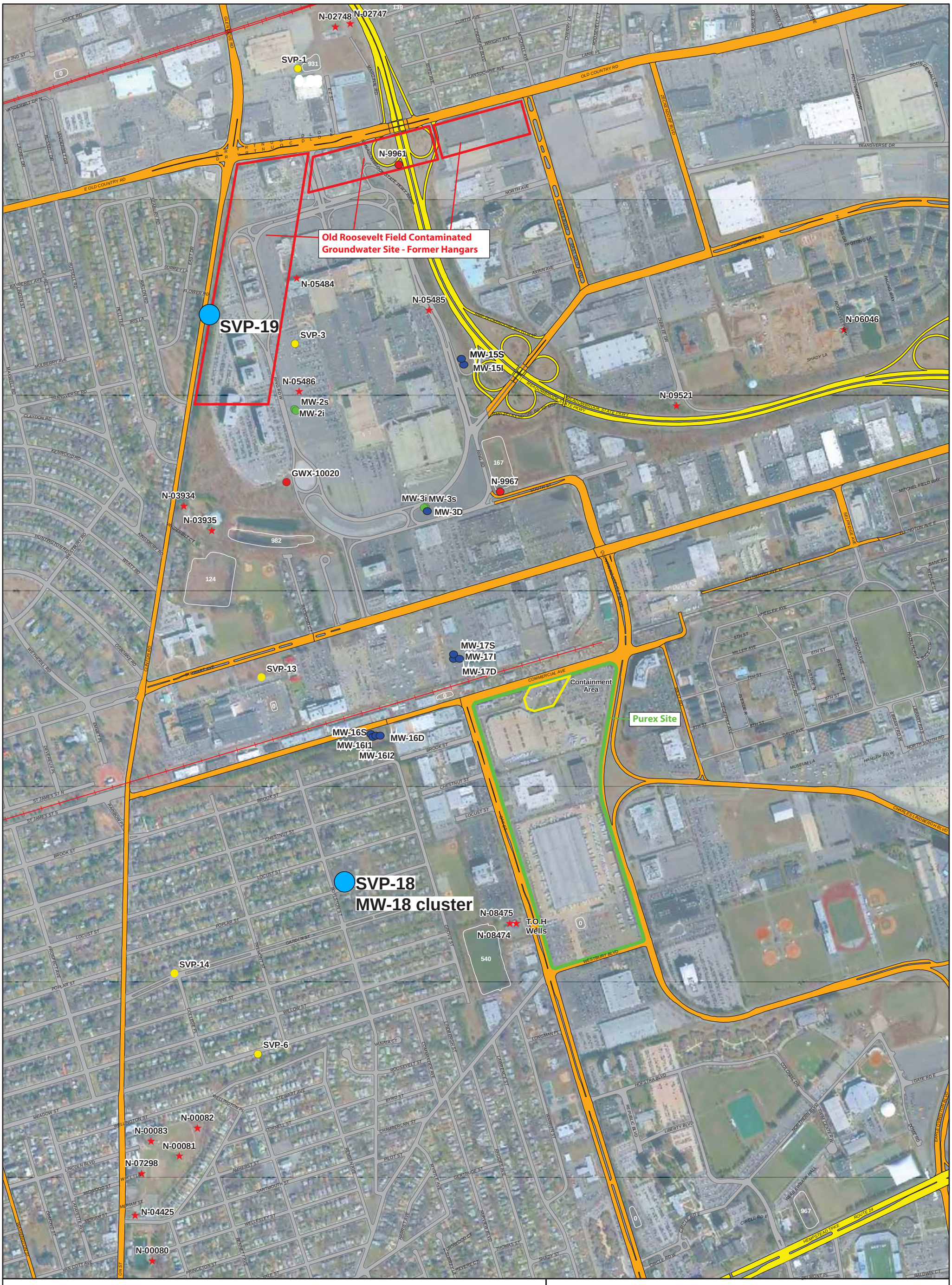
Figure 2-2
Proposed Project Schedule
Old Roosevelt Field Contaminated Groundater Area Site - Eastern Plume
Garden City, New York

ID	Task Name	Duration	Start	Finish
1	**Task 1 Project Planning and Support**	**974 days**	**Mon 9/3/12**	**Fri 7/1/16**
2	Project Administration	950 days	Mon 9/3/12	Mon 5/30/16
3	Attend Scoping Meeting	1 day	Tue 10/9/12	Tue 10/9/12
4	Conduct Site Visit	1 day	Wed 12/5/12	Wed 12/5/12
5	Develop Draft Work Plan and Associated Cost Estimate	36 days	Wed 11/7/12	Mon 12/31/12
6	Negotiate Work Assignment	1 day	Fri 8/2/13	Fri 8/2/13
7	Finalize Draft Work Plan/Budget	28 days	Mon 8/5/13	Thu 9/12/13
8	Evaluate Existing Data and Documents	35 days	Fri 9/13/13	Fri 11/1/13
9	Draft Quality Assurance Project Plan	35 days	Fri 9/13/13	Fri 11/1/13
10	EPA Review	50 days	Mon 11/4/13	Fri 1/17/14
11	Final Quality Assurance Project Plan	15 days	Mon 3/17/14	Fri 4/4/14
12	Subcontract Procurement	108 days	Mon 11/4/13	Fri 4/11/14
13	Health and Safety Plan	15 days	Fri 9/13/13	Thu 10/3/13
14	WP Letter - Phase II Investigation	18 days	Wed 4/6/16	Fri 4/29/16
15	QAPP Addendum - Phase II Investigation	10 days	Mon 5/2/16	Fri 5/13/16
16	Subcontract Procurement - Phase II Investigation	45 days	Mon 5/2/16	Fri 7/1/16
17	**Task 2 Community Involvement**	**60 days**	**Mon 5/12/14**	**Tue 8/5/14**
22	**Task 3 Field Investigation**	**616 days**	**Mon 6/16/14**	**Thu 11/3/16**
23	**Phase I Investigation**	**115 days**	**Mon 6/16/14**	**Mon 12/1/14**
24	Mobilization	10 days	Mon 6/16/14	Fri 6/27/14
25	Groundwater Screening & Install MW-15	30 days	Mon 6/30/14	Mon 8/11/14
26	Install 3D, Cluster Wells MW-16 & 17	65 days	Tue 8/12/14	Thu 11/13/14
27	Water Level Measurements	2 days	Mon 11/10/14	Wed 11/12/14
28	Groundwater Sampling	10 days	Fri 11/14/14	Mon 12/1/14
29	IDW Characterization and Disposal	9 days	Fri 11/14/14	Wed 11/26/14
30	**Phase II Investigation**	**79 days**	**Mon 11/16/15**	**Thu 3/3/16**
31	Mobilization	5 days	Mon 7/18/16	Fri 7/22/16
32	Groundwater Screening & Well Installation	44 days	Mon 7/25/16	Thu 9/22/16
33	Water Level Measurements	2 days	Fri 9/30/16	Mon 10/3/16
34	Groundwater Sampling	10 days	Tue 10/4/16	Mon 10/17/16
35	IDW Characterization and Disposal	30 days	Fri 9/23/16	Thu 11/3/16
36	**Task 4 Sample Analysis**	**533 days**	**Tue 12/2/14**	**Mon 12/19/16**
37	Phase I - Laboratory Analysis by CLP, DESA	30 days	Tue 12/2/14	Wed 1/14/15
38	Phase II - Laboratory Analysis by CLP, DESA	45 days	Tue 10/18/16	Mon 12/19/16
39	**Task 5 Analytical Support and Data Validation**	**533 days**	**Fri 11/14/14**	**Mon 12/5/16**
40	Phase I - Sample Management	40 days	Fri 11/14/14	Wed 1/14/15
41	Phase II - Sample Management	30 days	Fri 9/23/16	Thu 11/3/16
42	EPA EDD and Base Map	22 days	Fri 11/4/16	Mon 12/5/16
43	**Task 6 Data Evaluation**	**645 days**	**Thu 1/15/15**	**Wed 7/5/17**
44	Phase I - Data Usability Report	10 days	Mon 2/16/15	Fri 2/27/15
45	Phase II - Data Usability Report	10 days	Thu 1/19/17	Wed 2/1/17
46	Phase I - Data Reduction, Tabulation and Evaluation	25 days	Thu 1/15/15	Wed 2/18/15
47	Phase II - Data Reduction, Tabulation and Evaluation	22 days	Tue 12/20/16	Wed 1/18/17
48	Draft Capture Zone Modeling Report	30 days	Thu 4/13/17	Wed 5/24/17
49	EPA Review of Capture Zone Modeling Report	15 days	Thu 5/25/17	Wed 6/14/17
50	Final Capture Zone Modeling Report	15 days	Thu 6/15/17	Wed 7/5/17
51	**Task 7 Risk Assessment**	**65 days**	**Thu 1/12/17**	**Wed 4/12/17**
52	Draft Baseline HHRA	35 days	Thu 1/12/17	Wed 3/1/17
53	EPA Review of HHRA	15 days	Thu 3/2/17	Wed 3/22/17
54	Final Baseline HHRA	15 days	Thu 3/23/17	Wed 4/12/17
55	**Task 9 Remedial Investigation Report**	**107 days**	**Thu 1/19/17**	**Fri 6/16/17**
56	Draft Remedial Investigation Report	60 days	Thu 1/19/17	Wed 4/12/17
57	EPA Review of Remedial Investigation Report	15 days	Thu 4/13/17	Wed 5/3/17
58	Final Remedial Investigation Report	32 days	Thu 5/4/17	Fri 6/16/17
59	**Task 12 Feasibility Study**	**97 days**	**Mon 5/29/17**	**Tue 10/10/17**
60	Draft Focused Feasibility Study Report	60 days	Mon 5/29/17	Fri 8/18/17
61	EPA Review of the Focused Feasibility Study Report	15 days	Mon 8/21/17	Fri 9/8/17
62	Final Focused Feasibility Study Report	22 days	Mon 9/11/17	Tue 10/10/17
63	**Task 13 Post RI/FFS Support**	60 days	Wed 10/11/17	Tue 1/2/18
64	**Task 15 Work Assignment Closeout**	**19 days**	**Wed 1/24/18**	**Mon 2/19/18**
65	Document Indexing	19 days	Wed 1/24/18	Mon 2/19/18
66	Document Retention/Conversion	19 days	Wed 1/24/18	Mon 2/19/18



Project: ORF Eastern Plume RI_FS
Date: Wed 4/27/16

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



Legend

- Railroad
- Recharge Basins
- Purex Site
- Purex Site Containment Area
- Monitoring Wells
- Existing Multi-port Well
- Existing Nassau County Well
- Newly Installed Monitoring Well (OU2)
- Public Supply Well
- Proposed Groundwater Screening Boring and/or Monitoring Well Cluster

CDM Smith

Source: Nassau County Geographic Information System

N

0 80160 320 480 640 800 Feet

Figure 3-1
OU2 Groundwater Screeing Borings and Monitoring Well Locations
Old Roosevelt Field, OU2
Garden City, New York