DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

SEP 27 2007

MEMORANDUM FOR NEW MEXICO ENVIRONMENT DEPARTMENT
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RECEIVED
OCT 2007
NMED Hazardous Waste Bureau

FROM: 49 CES/CD
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Holloman AFB NM 88330-8458

Subject: Work Plan Submittal Accelerated Closure Measures at Site SS-13 Holloman AFB, EPA ID# NM6572124422

1. The subject work plan is hereby submitted to NMED for review and approval.

2. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

3. If you have any questions, please contact Ms. Deborah Hartell at 505-572-5395.

A. DAVID BUDAK
Deputy Base Civil Engineer

Attachment:
Work Plan for Accelerated Closure Measures at Site SS-13, Holloman Air Force Base

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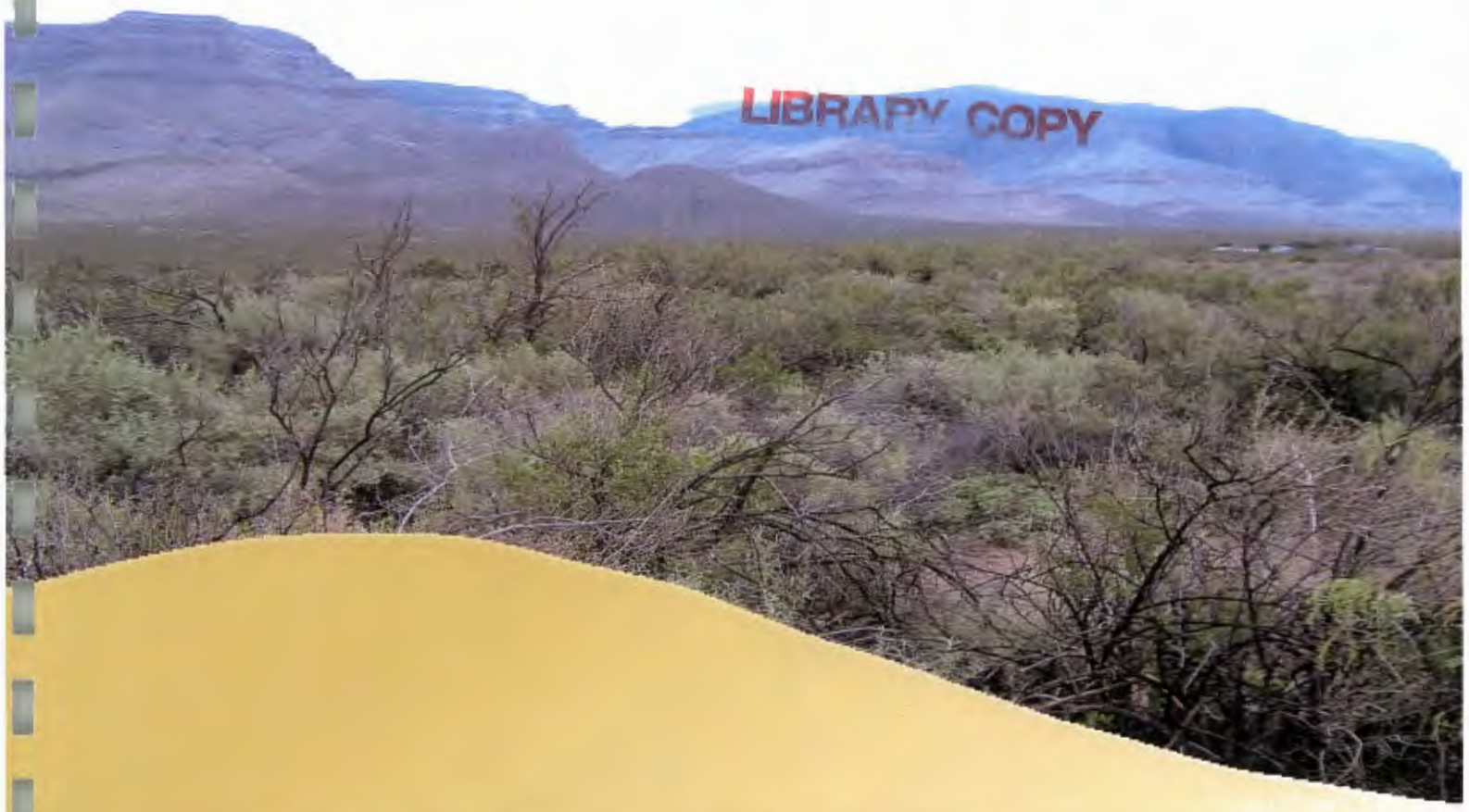

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Work Plan for Accelerated Closure Measures at Site SS-13, Holloman Air Force Base, New Mexico

Prepared for:

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Environmental Engineering Branch
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July 2007

NWI-5020-001

Work Plan for Accelerated Closure Measures at Site SS-13, Holloman Air Force Base, New Mexico

July 2007

Contract No. W9128F-04-D-0017

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ACRONYMS and ABBREVIATIONS

AFB	Air Force Base
amsl	above mean sea level
bgs	below ground surface
CoC	Chain-of-Custody
CQCSM	Contractor Quality Control Site Manager
DRMO	Defense Reutilization Management Office
ENVP	Environmental Procedure
EPA	U.S. Environmental Protection Agency
ft	feet
FTL	field team leader
HAFB	Holloman Air Force Base
HSP	Health and Safety Procedure
HSWA	Hazardous and Solid Waste Amendments
IDW	investigation derived waste
IRP	Installation Restoration Program
mg/L	milligrams per liter
ml	milliliter
NMED	New Mexico Environmental Department
North Wind	North Wind, Inc.
oz.	ounce
PID	photoionization detector
PM	Project Manager
POC	point of contact
QA	quality assurance
QAPP	quality assurance project plan

QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SSHO	site safety and health officer
SVOC	semi-volatile organic compound
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound

1. INTRODUCTION

This Work Plan establishes the technical approach, procedures, and requirements for conducting the Accelerated Closure Measures at the Sodium Arsenite Spill Site (SS-13) located on Holloman Air Force Base (HAFB). The purpose of these activities is to characterize soil and groundwater and remove contaminated soil at SS-13 prior to site closure. North Wind, Inc. (North Wind) prepared this Work Plan under Contract No. W9128F-04-D-0017 for the U.S. Army Corps of Engineers (USACE), Omaha District. This document satisfies the corrective action requirements of the Hazardous and Solid Waste Amendments (HSWA) portion of the Holloman Air Force Base (AFB) Resource Conservation and Recovery Act (RCRA) permit.

1.1 General Site Description

Holloman AFB is located in Southern New Mexico, approximately 50 miles northeast of Las Cruces, NM. HAFB was originally established in 1942 as Alamogordo Air Field just six miles west of Alamogordo, New Mexico (see Figure 1-1). Initial construction began at the airfield February 6, 1942. The base was re-named in 1948 after Col. George Holloman who was a pioneer in early rocket and pilot-less aircraft research. The site has a rich history of aeronautical accomplishments ranging from military planes to jets to missile defense research. The site lays at an elevation of approximately 6,300 feet above mean sea level (amsl). The terrain is relatively flat with a slight slope to the east. Groundwater occurs at approximately 10 to 15 ft below ground surface (bgs). The hydraulic gradient at the site is relatively flat and varies but generally flow to the south.

1.2 Site History

SS-13 is located in the Civil and Engineering Complex next to the Defense Reutilization Management Office (DRMO) storage facility. The approximate location of SS-13 is shown on Figure 1-2. The site was a two foot deep depression used to store sodium arsenite, a weed killer used to sterilize runway areas. Approximately 83, 30-gallon containers of sodium arsenite were stored at this location in 1979. In August of 1979, one of the cans was found empty and had a hole in the bottom. It is assumed that approximately 30 gallons of sodium arsenite was release at the site. All containers of sodium arsenite not needed at HAFB were removed from this site. The depression was backfilled and capped with asphalt in the early 1990s. The site is currently used as a storage area.

1.3 Previous Investigations

A 1983 Phase I Records Search reported that the release had occurred and that site cleanup operations could not be confirmed (CH2M HILL, 1983). In 1987 two soil borings and one monitoring well were installed and sampled during the Phase II Installation Restoration Program (IRP) investigation (Dames and Moore, 1987). The Phase II IRP results identified arsenic in groundwater at 0.01 milligram per liter (mg/L) and a maximum of 0.04 mg/L arsenic in five soil samples. The samples were analyzed for arsenic only. Volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides, or other metals were not analyzed. Based on the low levels of arsenic found at the site, the Phase II IRP recommended no further action.

A 1993 decision document concluded that the SS-13 site does not present significant threat to the environment; therefore, the No Action alternative recommendation was approved and the decision document for closure was signed by New Mexico Environment Department (NMED) in April 1993 (EA 1993). In 1999, a petition to close the SS-13 site was rejected by the NMED due to lack of

characterization and delineation of the site. A data gap analysis, removal of contaminates and documentation of site conditions is required prior to closure of the site.

1.4 Purpose and Objective

The purpose and objective of the Accelerated Closure Activities is to characterize current soil and groundwater conditions at the SS-13 site and remove any identified contaminated soil at the SS-13 site prior to site closure. A staged approach will be used to first identify areas of soil contamination using soil borings and soil sampling. Once the approximate vertical and horizontal extent of the soil contamination has been identified the affected soil will be excavated and disposed, up to 10 cubic yards. Finally groundwater monitoring wells will be installed and sampled in order to determine the potential impacts to groundwater at the site.

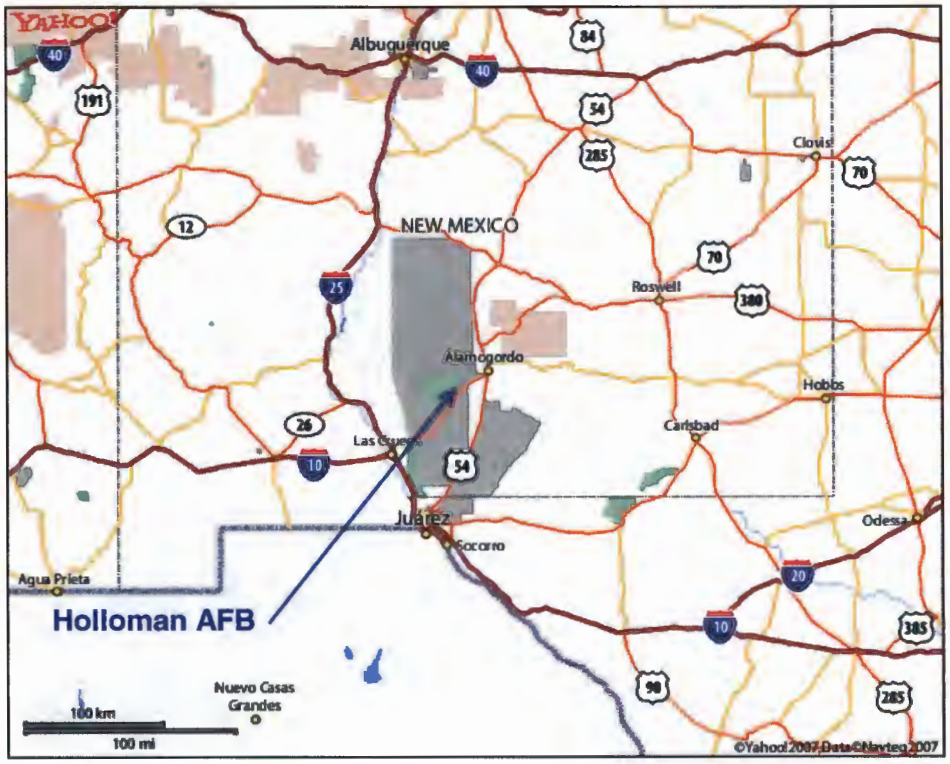


Figure 1-1. Holloman AFB Location Map.

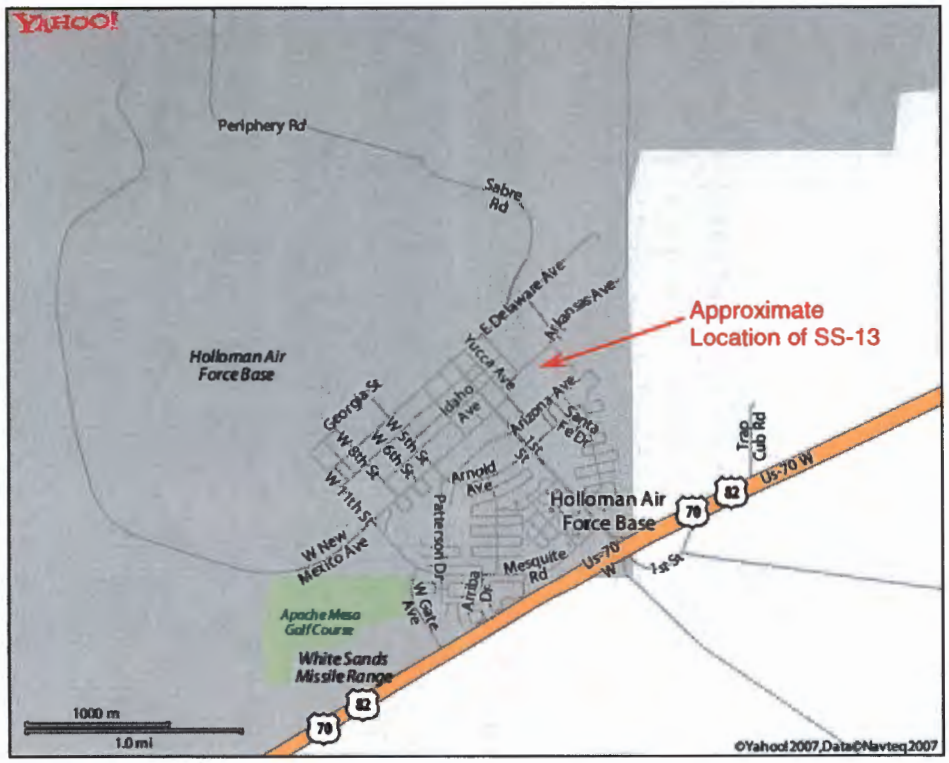


Figure 1-2. Approximate Location of SS-13 on Holloman AFB.

2. PROJECT ORGANIZATION

To manage and execute task orders, North Wind will employ an integrated program organization. Our proposed organizational structure is clearly illustrated in Figure 2-1. The roles and responsibilities described below clearly identify which employees will conduct drilling, sampling, laboratory review, health and safety oversight, and deliverable and report preparation for this project.

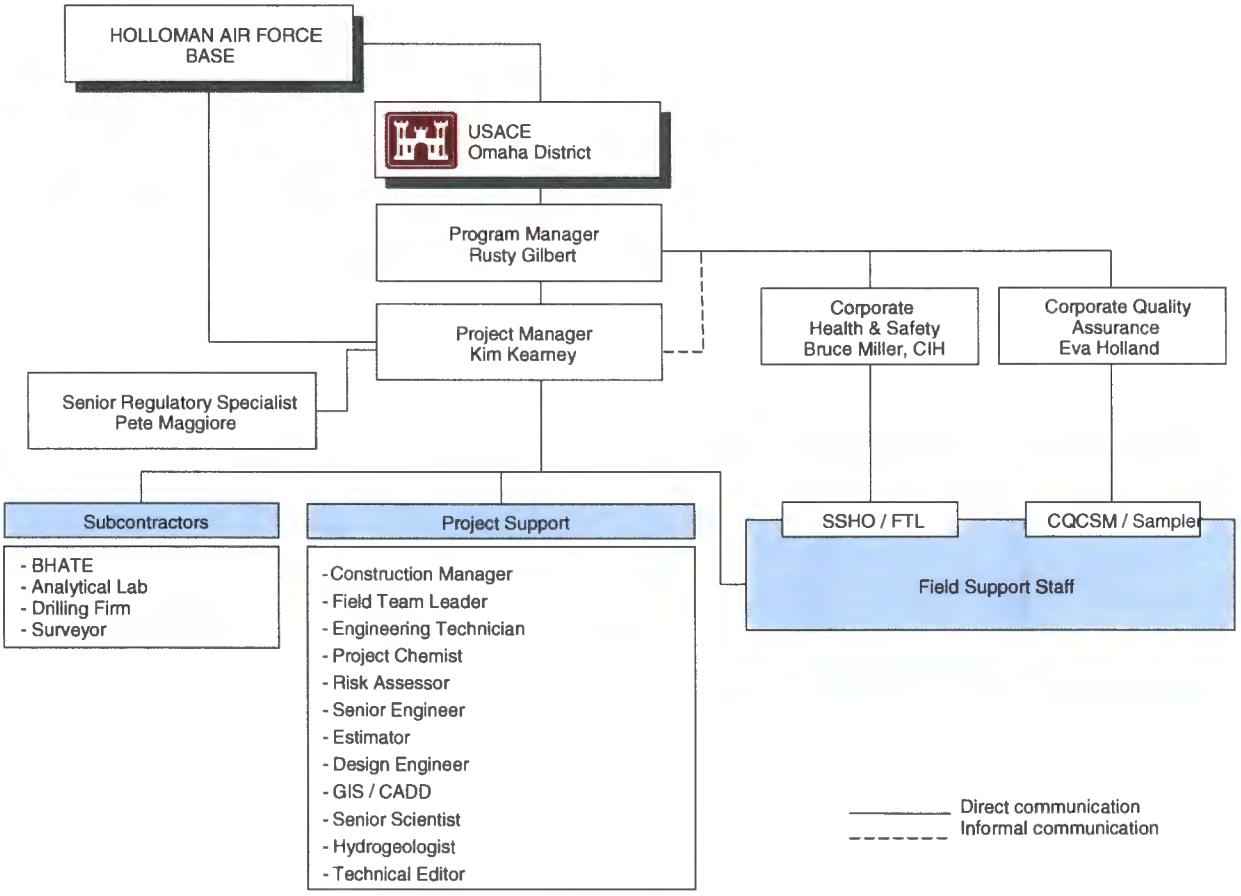


Figure 2-1. Project Organizational Structure.

The proposed structure is "flat" to allow for efficient execution and empower management. It represents a streamlined management approach that will result in optimal use of resources, that is cost-effective, and that is highly responsive to the interests of the USACE.

North Wind has routinely demonstrated that a two-person field team, consisting of a sampler/Contractor Quality Control Site Manager (CQCSM) specialist and a combined Site Safety and Health Officer (SSHO)/Field Team Leader (FTL), can consistently deliver quality results on schedule and on budget. As discussed further below, the SSHO/FTL serves a dual role overseeing the safety of the operations and ensuring that the field work is accomplished according to approved project plans. More detailed descriptions of roles and responsibilities for key project personnel are provided in the following sections.

2.1 Roles and Responsibilities

All personnel are responsible and obliged to personally stop any work they determine unsafe. Project personnel are also responsible for identifying practices or conditions that are or may be adverse to quality and for recommending cessation of work to a Line Manager, Project Manager (PM), or the Quality Assurance Manager. Line Managers and PMs are responsible for assessing conditions potentially adverse to quality and for taking appropriate action, including stopping work. In all cases, these responsibilities override planning and scheduling considerations.

The following sections describe specific roles and responsibilities for key project personnel, (i.e., PM, SSHO/FTL and CQCSM/Sampler).

2.1.1 Project Manager

Ms. Kim Kearney will serve as the PM. Ms. Kearney will provide day-to-day supervision and ensure that the scope is executed according to schedule and budget. Ms. Kearney will frequently communicate with the USACE and HAFB, as appropriate, to discuss progress and/or to resolve any issues that may arise and will be responsible to provide required project reporting and final closeout of the project. Other duties of the PM include:

- Serving as the primary POC to client for all aspects of task order execution,
- Ensuring routine compliance with the project work plans,
- Verifying training and qualifications of personnel conducting quality-affecting work,
- Responding and correcting quality problems and deviations,
- Directing staff to prepare deliverables and execute field work,
- Coordinating, managing, and overseeing all subcontractors involved in each project,
- Negotiating subcontract agreements and approving subcontractor invoices,
- Reviewing and approving all task order submittals, and
- Ensuring compliance with all applicable federal, state, and local regulations.

2.1.2 Site Safety Health Officer/Field Team Leader

The SSHO/FTL will be a duel role on site when work is being performed. The SSHO/FTL is responsible for safety of the field team and oversees implementation of the work plan. The SSHO/FTL is often a working team member and may contribute to any aspect of the fieldwork as necessary. The SSHO/FTL is required to work cooperatively with the CQCSM to accomplish the work safely, on schedule, and in accordance with applicable quality requirements. Specific duties include:

- Supervising field activities, ensuring that health and safety procedures are understood and followed by all field personnel, and reporting and correcting any violations of policy or regulation.
- Conducting daily meetings where the tasks for the day will be outlined and explained (as necessary) and safety issues discussed.

- Verifying that all safety and health training requirements have been met.
- Ensuring that health and safety procedures are understood and followed by field personnel, and for reporting and correcting any violations of policy or regulation.
- Serving as the emergency coordinator for any safety related incidents.
- Implementing the work scope according to approved work plans. Ensuring that all procedures and QA/QC provisions are adhered to in the field.
- Ensuring that field equipment is properly calibrated and maintained and that records are maintained.
- Ensuring that individual samples are properly handled and appropriate custody documentation is prepared to allow for tracking sample possession from field collection through laboratory receipt.
- Directing all subcontractor activities in the field, ensuring that subcontractors adhere to site-specific installation requirements as well as contractual requirements.

2.1.3 Contractor Quality Control Site Manager

The CQCSM, or alternate, will be on-site when definable features of work are being performed. The CQCSM is accountable for the quality of the fieldwork and reports directly to the PM. Responsibilities of the CQCSM include:

- Monitoring the methods used to meet the level of quality.
- Maintaining acceptable records of the QC activities, including daily QC reports.
- Communicating and coordinating any corrective actions taken with the USACE on-site representative and North Wind QA Manager as applicable.
- Verifying that work performed is in compliance with USACE and approved site-specific work plans.
- Ensuring that documentation (i.e., chain of custody forms, sample request forms, and labels) are complete and accurate.
- Ensuring that there are no uncorrected deviations from approved procedures.
- Ensuring that corrective actions are taken.

3. FIELD ACTIVITIES

The objective of the field activities is to assess the soil and groundwater conditions at the SS-13 site and remove areas of soil contamination if found. The field activities are broken down into the following tasks:

- Subsurface soils investigation
- Contaminated soil remediation
- Monitoring well installation

- Groundwater investigation

This Work Plan along with the Site Safety and Health Plan (NWI, 2007e) govern all field activities. The following sections include the sampling methods, locations and a summary of the number and type of samples to be collected.

3.1 Subsurface Soil Investigation

Two soil samples will be collected from each boring and analyzed for VOCs, SVOCs, Resource Conservation and Recovery Act (RCRA) Metals, herbicides, and pesticides. Soil samples will be collected in accordance with *ENVP-008, Soil Sampling (NWI 2006a).*

All personnel handling sampling equipment or opening sample containers will don a new pair of nitrile gloves prior to collecting each sample. Soil samples will be collected with decontaminated or unused disposable equipment. A photoionization detector (PID) may be used as a screening tool to measure the organic vapor concentrations during soil sampling and soil excavation activities. If used, PID monitoring will be conducted according to procedure *ENVP-019, MiniRAE Photoionization Detector* (NWI 2007a).

In general, near-surface soil will be collected with unused disposable spoons and placed into appropriate sample containers. Soil obtained from borings using split spoons or direct push tooling will be collected from freshly opened tubes or sleeves. Samples to be analyzed for VOCs will be collected first followed by samples to be analyzed for less volatile parameters. Samples will be collected and placed into appropriate containers using the sampling methods outlined in Sections 3.1.1 and 3.1.2. The anticipated soil boring locations are discussed in Section 3.1.3.

3.1.1 VOC Samples, Methanol Preservation

1. Collect samples in one (1) tared 4 oz glass jar with septa lined lid.
2. Ensure empty jars are weighed with lid and label in place and mark weight on container if not already done so by laboratory.
3. Add entire contents of methanol preservative provided by laboratory (if not already placed in jar by laboratory).

   NOTE: *Only use methanol specified for VOC analysis and provided by the appropriate laboratory.*

4. Fill the container approximately 1/4 full of soil using a disposable spoon (soil must be completely submerged). Use caution to not splash preservative.

   NOTE: *As with any sampling procedure for volatiles, care must be taken to minimize the disturbance of the sample in order to minimize the loss of the volatile components. The sample should be collected as soon as possible after the surface of the soil or other solid material has been exposed to the atmosphere; generally in less than a few minutes at most.*

5. Place lid on sample container (ensure lid and top of jar are free of soil particles).
6. Place container on flat surface and mark meniscus on sample label.
7. Complete sample label.

   NOTE: *Do not add custody seal, tape, parafilm, or other material to tared sample container.*

3.1.2 Non-Volatile Samples

1. Collect all other soil samples in 8 oz glass amber jars with no preservative.
2. Remove lid from sample container.
3. Fill container completely full of soil using a disposable spoon.
4. Replace container lid (make sure lid and top of jar are free of soil particles).
5. Complete sample label.
6. Place container in cooler with ice or refrigerator until it can be packaged for shipment.

3.1.3 Anticipated Soil Boring Locations

The anticipated soil boring locations are shown on Figure 3-1. The borings are centered around the location of the previous soil boring (13B-1). This area is assumed to be near the release site. All anticipated soil boring locations are approximate and may be adjusted based on overhead, surface or subsurface factors. The actual locations of all soil borings will be surveyed.

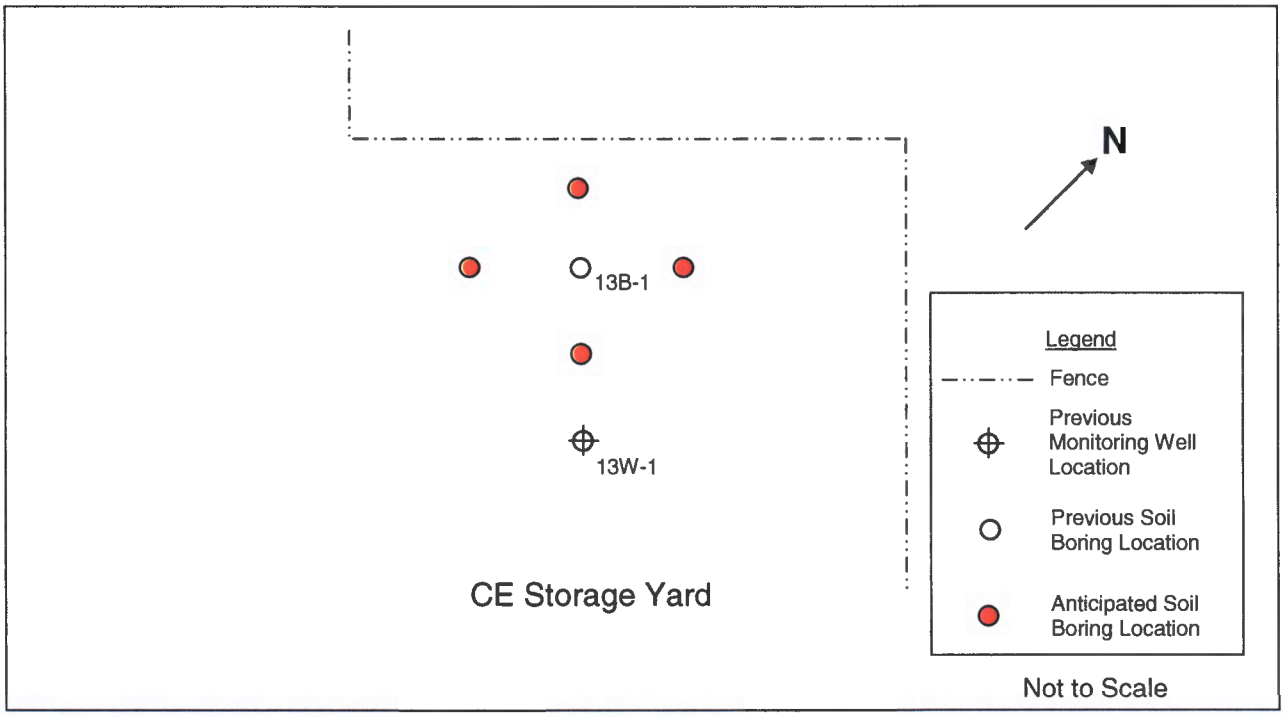


Figure 3-1. Anticipated Soil Boring Locations

3.2 Contaminated Soil Remediation

The location and amount of soil (up to 10 cubic yards) to be excavated and disposed of will be based on the results from the soil borings. Contaminated soil will be excavated using standard construction equipment and in compliance with USACE EM 385-1-1 Section 25 Excavations (USACE 2003), and

with *HSP-011, Excavations* (NWI 2006b). The soil will be stockpiled onsite or placed directly into shipping containers. Confirmation samples will be collected following contaminated soil excavation. During excavation activities, sidewall and excavation closure sample collection and analysis will be performed in accordance with NMED regulations. Confirmation samples will be analyzed for arsenic under an expedited turn around time. Once the confirmation sample results are received the excavation will be backfilled with clean fill and re-graded to its original condition.

3.3 Groundwater Monitoring Well Installation

Groundwater monitoring activities will be performed with the use of direct push and/or hollow stem auger technology. Drilling equipment will be operated under manufactures guidelines, and will be operated by qualified and experienced personnel. Monitoring wells may be installed using pre-packed well casings. Upon completion of well installation activities, monitoring wells will be developed. Well development is necessary to restore the aquifer's hydraulic conductivity and remove drilling fluids and fine grained material. Well installation and development procedures will comply with *ENVP-005, Design, Installation, and Development of Monitoring Wells* (NWI 2006c).

3.3.1 Anticipated Monitoring Well Locations

The anticipated monitoring well locations are shown on Figure 3-2. All anticipated monitoring well locations are approximate and may be adjusted based on overhead, surface or subsurface factors. The actual monitoring well locations will be determined by results and observations gathered during the soil boring investigation. The direction of groundwater flow is reported and assumed to be generally to the south, although groundwater flow direction may vary depending on a variety of factors.

One nested groundwater well pair comprised of one shallow well (approximately 30 ft total depth) and one deep well (approximately 100 ft total depth) will be installed. Two additional shallow groundwater monitoring wells will also be installed. The elevation and location of all monitoring wells will be surveyed.

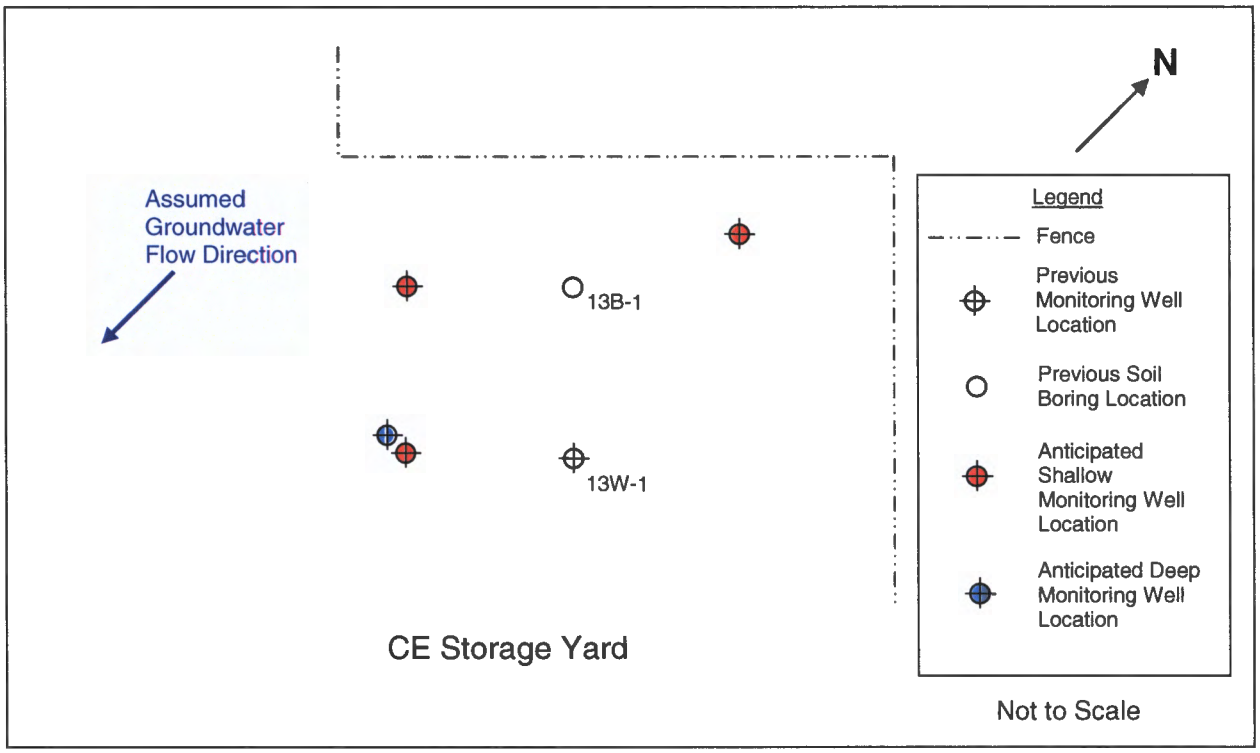


Figure 3-2. Anticipated Monitoring Well Locations.

3.4 Groundwater Investigation

Groundwater samples will be collected by use of disposable bailers or pumps with disposable tubing. Groundwater sampling activities shall comply with *ENVP-006, Ground Water Sampling* (NWI 2006d). The groundwater level will be measured in each monitoring well prior to sampling by following *ENVP-007, Water Level Measurements* (NWI 2006e). Various instruments will be utilized to measure groundwater quality during the purging of monitoring wells prior to sampling. These instruments may be individual sensors or a multi-probe system. Water quality measurement procedures will be conducted in accordance with Section 5 of procedure *ENVP-006, Ground Water Sampling*. In general, pH, temperature, conductivity, turbidity, Eh, and dissolved oxygen will be monitored to determine when the well has stabilized during purging.

Reusable sampling equipment (pumps, water level meter, etc.) will be decontaminated prior to mobilization to the sampling site and in between each well in accordance with *ENVP-014, Sampling Equipment Decontamination* (NWI 2006f). All groundwater wells will be sampled and analyzed for VOCs, SVOCs, RCRA metals, herbicides and pesticides.

4. FIELD OPERATIONS DOCUMENTATION

The SSHO/FTL will be responsible for controlling and maintaining all field documents and records. Sample documentation, shipping, and custody procedures for this project are based on U.S. Environmental Protection Agency (EPA) -recommended procedures that emphasize careful documentation of sample collection and sample transfer. Any necessary changes to forms, labels, or logbooks will be made by striking out the error with a single straight line and re-entering the correct information. The new entries will be initialed and dated by the person making the change. The following sections describe requirements for maintaining field logbooks, photographs, and chain-of-custody (CoC) records during sampling.

4.1 Field Logbooks

All field logbooks will be constructed from bound, waterproof, serial numbered pages and will be used to record field activities. Typically, one field logbook will be maintained; however, any number of logbooks may be maintained if the need arises and the SSHO/FTL determines it is necessary.

NOTE: *Preprinted field forms, separate from the field logbook, may be used by any member of the field team to record repetitive information (e.g., equipment checklists, sample information, well logs, etc.). Completed field forms may be transcribed into electronic form or simply retained in the North Wind project file.*

Only the SSHO/FTL may authorize the start of a new logbook. The project name, project number, SSHO/FTL name, telephone number, and office address will be listed on the inside cover of all field logbooks. The logbook will only be used to document daily field activities in sufficient detail to allow field personnel to reconstruct events that transpired during the project. This document will contain information pertaining to:

- Daily activities and chronology,
- Observations made during the environmental investigation,
- Equipment calibration results, and
- Significant events.

Logbook entries must be dated, legible, made in black, indelible, ink, and contain accurate documentation. Language used will be objective, factual, and free of personal opinions. Hypotheses for observed phenomena may be recorded; however, they must be clearly indicated as such and only relate to the subject observation. Corrections to erroneous data will be made by crossing through the entry and entering the correct information. The person making the correction must initial and date where the error occurred. Unused portions of logbook pages will be crossed out, signed, and dated at the end of each workday. Care should be taken to ensure that no lines are skipped on a page. In the event that lines are skipped they should be lined out, signed, and dated.

Only field team members may be in custody of the logbook during field activities. Personnel with custody of a logbook will sign and date the logbook prior to initiation of each day's fieldwork. If it is necessary to transfer custody of the logbook during the course of fieldwork, the person relinquishing the logbook will sign and date the logbook at the time the logbook is transferred, and the person receiving the logbook will do likewise.

4.2 Photographs

Photographs will be used to supplement written descriptions of field activities. Photographs will be recorded on digital media and backed up to secondary media on a daily basis. The first photograph of a new location series will include the site name or location identifier as appropriate. Photographs will be stored as individual JPG files. All photograph files will be named with site name or location identifier, date of photograph, and sequential photograph number.

4.3 CoC Documentation

CoC forms will be used to document the transfer of samples from one person's custody to another (e.g., from the sampler to the laboratory) in accordance with *ENVP-021, Chain of Custody Documentation* (NWI 2007b). Sample information may also be recorded in field logbooks or field forms. All sample information will be checked to minimize transcription errors prior to sample shipment. Because the CoC is the formal record of sample identification information and custody, the information contained on the CoC will take precedence over other field documentation.

When custody of the samples is transferred, or when samples are relinquished to a common carrier, the sampler will sign, date, and note the time on the form. A separate form will accompany each delivery of samples to the laboratory. The CoC form will be included inside the cooler used for transport of the samples. In addition to the requirements of ENVP-021, the following project specific requirements apply:

- Include the laboratory subcontract number
- Include the USACE project number (obtained from USACE chemist)
- Include the Location Identifier for purposes of completing the electronic deliverable
- Indicate the sample collection type (e.g., grab vs. composite)
- Use a checklist to verify the accuracy and completeness of the form prior to sample shipment.

North Wind will use a laboratory CoC form, ensuring it complies with the procedures outlined in ENVP-021. All entries on the CoC must be recorded in indelible, black ink. Any necessary changes to the CoC will be made by striking out the error with a single straight line and re-entering the correct information. The new entries will be initialed and dated by a sampler.

NOTE: *It is common for multiple North Wind personnel to work together to collect, package, and ship samples. In such a case, any single member of the immediate sampling team is considered "the sampler" for purposes of completing CoC forms or other documentation.*

5. SAMPLE HANDLING

The following sections describe requirements for sample identification, sample containers and preservation, and sample packaging and shipping.

5.1 Sample Identification

Sample labels are required for properly identifying samples. All field samples will be labeled with the label affixed to the container before or shortly after it is filled and prior to transportation to the laboratory. The sample label will include the following information:

- Sample identification number
- Location identification
- Date and time of sample collection
- Initials of person collecting the sample
- Analysis requested
- Preservation method
- Any other information pertinent to the sample.

A sample number will be used to identify each sample collected and submitted for analysis. Samples will be numbered in such a manner as to prevent the laboratory from distinguishing the QC samples from other site samples. The sample identification number will be a unique number to which all information pertaining to the sample can be correlated.

5.2 Sample Containers and Preservation

Sample container types will be consistent with EPA and NMED requirements for the specific parameters of interest, and are identified in Tables 5-1 and 5-2 for the associated analytical methods. Sample containers will be obtained directly from the analytical laboratory in sealed boxes and will be verified as pre-cleaned by the analytical laboratory with the appropriate certificates. Extra containers will be available in case of breakage, contamination, or collection of additional samples.

All samples collected will be preserved according to EPA and NMED protocols. Chemical preservatives and chilling will be used for samples, where required. Appropriate measures will be taken to ensure that storage requirements, with respect to temperature, are maintained in the field, during transport to the laboratory, and during storage at the laboratory. Tables 5-1 and 5-2 identify required sample container types, preservative requirements, and hold times for soil and groundwater samples, respectively, collected under this project.

Table 5-1. Sample containers, preservation, and holding times for soil samples.

Analysis	Method Number	Container[a]	Preservative	Maximum Holding Times
VOCs	EPA SW8260B	4 oz. septa, tared amber glass	Methanol	14 days
SVOCs	EPA SW8270C	4 oz. amber glass	4°C +/- 2°C	14 days to extraction, 40 days to analysis
RCRA Metals	EPA 6010B, EPA 7470A	8 oz. glass, 4 oz. glass	4°C +/- 2°C	180 days, 28 days for mercury
Pesticides	EPA SW8081A	8 oz. amber glass	4°C +/- 2°C	14 days to extraction, 40 days to analysis
Herbicides	EPA SW8151	8 oz. amber glass	4°C +/- 2°C	14 days to extraction, 40 days to analysis
a. Sample material for multiple non-volatile analyses may be combined as approved by the laboratory.				

Table 5-2. Sample containers, preservation, and holding times for groundwater samples.

Analysis	Method Number	Container	Preservative	Maximum Holding Times
VOCs	EPA SW8260B	Three 40-ml VOA vials	No headspace, HCl to pH < 2; 4°C +/- 2°C	14 days
SVOCs	EPA SW8270C	Two 1-L amber jars	4°C +/- 2°C	7 days to extraction; 40 days to analysis
RCRA Metals	EPA 6010B, EPA 7471B	500 ml HDPE, 250 ml HDPE	HNO_3 to pH <2; 4°C +/- 2°C	180 days, 28 days for mercury
Pesticides	EPA SW8081A	Two 1-L amber jars	4°C +/- 2°C	7 days to extraction; 40 days to analysis
Herbicides	EPA SW8151	Two 1-L amber jars	4°C +/- 2°C	7 days to extraction; 40 days to analysis

5.3 Sample Packaging and Shipping

Sample packaging, sample shipping, and sample security will be conducted in accordance with *ENVP-002, Sample Handling, Packaging and Shipping* (NWI 2006g). North Wind will use properly trained samplers to collect, package, and ship all environmental samples. An experienced SSHO/FTL will provide oversight of all sampling activities to ensure that all samples are properly preserved and protected from breakage or loss. Prior to every sampling event, the SSHO/FTL will ensure that the laboratories are aware of the pending shipments and are prepared to meet all requirements of the quality assurance project plan (QAPP). Prior to the end of each sampling event, the SSHO/FTL will review all field documentation to ensure that instructions to the analytical laboratory are clear and complete and that all of the necessary information to interpret the results is properly recorded (a checklist should be used).

6. REPORTING

Upon completion of the field activity, North Wind will submit a Site Closure Report. The report will contain, at a minimum, the following information:

- A detailed description of the site activities performed in support of the investigation,
- A photographic log that details site activities,
- Maps of soil borings, test pits, and groundwater wells,
- Maps with soil sample locations and results,
- Tables with sample results, and a
- Risk Based Evaluation of the site.

North Wind will submit the report in Draft, Draft -Final, and Final versions. If there are no comments provided on the Draft-Final version within an established review period, then the Draft-Final version will become Final by distribution of a notification letter.

7. WASTE DISPOSAL

Wastes generated during this investigation will include excavated soil, general refuse, soil cuttings from soil borings, groundwater retrieved during well development and sampling activities, and decontamination wastes, including wash water, plastic sheeting, etc. Potentially hazardous investigation derived waste (IDW) will be containerized (e.g., 55-gallon drums, over-packs, supersacks, etc.) or otherwise secured. Hazardous waste determinations will be made in accordance with *ENVP-018, Hazardous Waste Determinations* (NWI 2007c). Table 7-1 summarizes the anticipated waste streams and disposal paths.

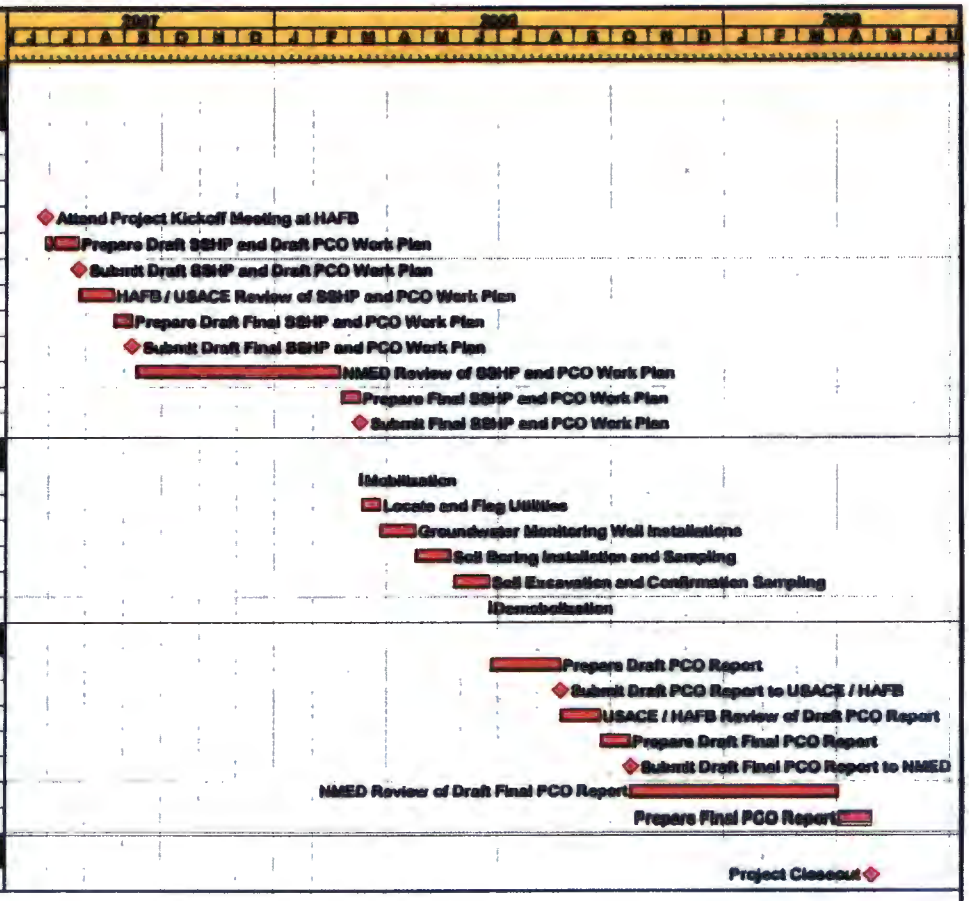
Table 7-1. Anticipated waste streams and disposal paths.

Waste Stream	Disposition
Refuse	All general refuse such as personal protective equipment, gloves, paper towels, plastic sheeting, scrap metal, etc., that do not have the potential to contain hazardous material will be placed in a base dumpster.
Waste water	Waste water from decontamination operations, well development, groundwater sampling, etc., will be containerized and managed on site until analytical results are available after which it will be properly disposed. It is anticipated that project waste water will be disposed of at the base waste water treatment plant.
Soil	Excavated soil and soil cuttings generated during drilling will be containerized and managed on site until analytical results are available after which it will be properly disposed. Non-contaminated and petroleum contaminated soil may be spread on site. RCRA hazardous soil will require transportation off-site for appropriate disposal.

8. PROJECT SCHEDULE

The anticipate project schedule is shown in Figure 8-1.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Accelerated Closure Measure at Site SS-13				
Project Planning				
1000	Notice to Proceed	0	01MAY07	
1005	Prepare Project Schedule	9	08MAY07	18MAY07
1015	Submit Project Schedule	0		18MAY07
1020	Attend Project Kickoff Meeting at HAFB	0	28JUN07*	
1025	Prepare Draft SSHP and Draft PCO Work Plan	19	28JUN07	25JUL07
1030	Submit Draft SSHP and Draft PCO Work Plan	0		25JUL07
1035	HAFB / USACE Review of SSHP and PCO Work	20	26JUL07	22AUG07
1040	Prepare Draft Final SSHP and PCO Work Plan	11	23AUG07	07SEP07
1045	Submit Draft Final SSHP and PCO Work Plan	0		07SEP07
1050	NMED Review of SSHP and PCO Work Plan	120	10SEP07	22FEB08
1055	Prepare Final SSHP and PCO Work Plan	11	25FEB08	10MAR08
1060	Submit Final SSHP and PCO Work Plan	0		10MAR08
Post Closure Operation - Construction Field Work				
2000	Mobilization	1	11MAR08	11MAR08
2005	Locate and Flag Utilities	11	12MAR08	26MAR08
2010	Groundwater Monitoring Well Installations	21	27MAR08	24APR08
2015	Soil Boring Installation and Sampling	21	25APR08	23MAY08
2020	Soil Excavation and Confirmation Sampling	21	28MAY08	23JUN08
2025	Demobilization	1	24JUN08	24JUN08
PCO Report				
3000	Prepare Draft PCO Report	40	25JUN08	19AUG08
3010	Submit Draft PCO Report to USACE / HAFB	0		19AUG08
3020	USACE / HAFB Review of Draft PCO Report	24	20AUG08	22SEP08
3030	Prepare Draft Final PCO Report	18	23SEP08	16OCT08
3040	Submit Draft Final PCO Report to NMED	0		16OCT08
3050	NMED Review of Draft Final PCO Report	120	17OCT08	02APR09
3060	Prepare Final PCO Report	18	03APR09	28APR09
Project Closeout				
4000	Project Closeout	0		28APR09



Start Date	01MAY07	SS13	Sheet 1 of 1
Finish Date	28APR09	North Wind Inc	
Data Date	01MAY07	Holloman Air Force Base	
Run Date	05JUL07 16:45		

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Figure 8-1. Anticipated Project Schedule.

9. REFERENCES

CH2M Hill, 1983. Installation Restoration Program Records Search for Holloman Air Force Base, CH2M Hill, August 1983.

Dames and Moore, 1987. *Installation Restoration Program, Phase II – Confirmation/Quantification Stage 1*, Holloman Air Force Base, Dames and Moore, March 6, 1987.

EA, 1993. *Site SS-13, Sodium Arsenite Spill Site Holloman Air Force Base, New Mexico, Decision Document*, EA Engineering, Science, and Technology, Inc., April 1993.

NWI, 2006a. *Soil Sampling,* North Wind, Inc., ENVP-008, August 2006, Revision 3.

NWI, 2006b. *Excavations,* North Wind, Inc., HSP-011, August 2006, Revision 1.

NWI, 2006c. *Design, Installation, and Development of Monitoring Wells,* North Wind, Inc., ENVP-005, August 2006, Revision 2.

NWI, 2006d. *Ground Water Sampling,* North Wind, Inc., ENVP-006, December 2006, Revision 3.

NWI, 2006e. *Water Level Measurements,* North Wind, Inc., ENVP-007, August 2006, Revision 2.

NWI, 2006f. *Sampling Equipment Decontamination,* North Wind, Inc., ENVP-014, August 2006, Revision 1.

NWI, 2006g. *Sample Handling, Packaging and Shipping,* North Wind, Inc., ENVP-002, August 2006, Revision 1.

NWI, 2006h. *Corrective, Preventive, and Improvement Actions,* North Wind, Inc., QAP-161, August 2006, Revision 1.

NWI, 2007a. *MiniRAE Photoionization Detector,* North Wind, Inc., ENVP-019, February 2007, Revision 3.

NWI, 2007b. *Chain of Custody Documentation,* North Wind, Inc., ENVP-021, May 2007, Revision 4.

NWI, 2007c. *Hazardous Waste Determinations,* North Wind, Inc., ENVP-018, January 2007, Revision 0.

NWI, 2007d. *Control of Nonconforming Items,* North Wind, Inc., QAP-151, April 2007, Revision 2.

NWI, 2007e. *Site Safety and Health Plan for SS-13 and DP-64 at Holloman Air Force Base*, North Wind, Inc., July 2007

USACE, 2003. USACE Safety and Health Requirements Manual, EM 385-1-1, November 2003.