SUPPLEMENTAL COMPREHENSIVE INVESTIGATION WORK PLAN

FOR
THE ALABAMA ARMY NATIONAL GUARD (AANG)
ORGANIZATIONAL MAINTENANCE SHOP 28 (OMS-28)
THE FORMER BROOKLEY AIR FORCE BASE
MOBILE, ALABAMA

MARCH 2008

PREPARED FOR:

U. S. ARMY CORPS OF ENGINEERS – MOBILE DISTRICT
MOBILE, ALABAMA
CONTRACT NO. W91278-06-D-0066
TASK ORDER 0015

PREPARED BY:

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AEROSTAR Project No. 0407-523-05

PREFACE

This Work Plan was prepared for the United States Army Corps of Engineers, (USACE), Mobile District for the purpose of implementing a Supplemental Comprehensive Investigation (CI) at the Alabama Army National Guard (AANG) Organizational Maintenance Shop (OMS) number 28, herein identified as OMS-28. The limited objective, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this plan.

This Plan was prepared by Aerostar Environmental Services, Inc. (AEROSTAR), for the OMS-28 Supplemental Comprehensive Investigation associated with the former Brookley Air Force Base, Mobile, Alabama.

AEROSTAR, is conducting the work under contract with the USACE, Mobile District, Mobile, Alabama. Ms. Melissa Shirley is the USACE Technical Manager. The AEROSTAR Program Manager is Mr. Bill Parrish.

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LIST OF ACRONYMS

AANG	Alabama Army National Guard
AEROSTAR	Aerostar Environmental Services, Inc.
ADEM	Alabama Department of Environmental Management
AFB	Air Force Base
ARBCA	Alabama Risk-Based Corrective Action
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
CDQO	Chemical Data Quality Objectives
CI	Comprehensive Investigation
CIH	Certified Industrial Hygenist
COPC	Chemical of Potential Concern
CQAR	Chemical Quality Assurance Report
CX	Center of Expertise
DoD	Department of Defense
DQO	Data Quality Objective
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FM	Field Manager
FOC	Fractional Organic Content
FSP	Field Sampling Plan
HQ	Head Quarters
HTRW	Hazardous Toxic or Radioactive Waste
IDW	Investigative-Derived Waste
IDWMP	Investigative-Derived Waste Management Plan
in/yr	Inches per Year
I-10	Interstate Highway 10
ISL	Initial Screening Level
MAA	Mobile Airport Authority
MCLs	Maximum Contaminant Levels
Mgal/d	Million Gallons per Day
MSL	Mean Sea Level
MTBE	Methyl Tertiary Butyl Ether
NAMR	Natural Attenuation Monitoring Report
OMS	Organizational Maintenance Shop
PD	Project Director
PI	Preliminary Investigation
PM	Project Manager
PRG	Preliminary Remediation Goals
PSV	Preliminary Screening Value
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QCM	Quality Control Manager
QSM	Quality Systems Manual for Environmental Laboratories

ROW	Right of Way
SAP	Sampling and Analysis Plan
SI	Secondary Investigation
SOW	Statement of Work
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SSTL	Site Specific Target Level
TCE	Trichloroethylene
TCL	Target Compound List
TM	Technical Manager
USA	University of South Alabama
USACE	United States Army Corps of Engineers
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WP	Work Plan

1.0 INTRODUCTION

AEROSTAR under contract to the U. S. Army Corps of Engineers (USACE)-Mobile District, will conduct a Supplemental Comprehensive Investigation (CI) at OMS-28 as part of the former Brookley Air Force Base (AFB), Mobile, Mobile County, Alabama (Figure 1-1).

This investigation is conducted under the authority of the USACE-Mobile District, Contract Number W91278-06-D-0066, Task Order Number 0015. All project activities will be conducted in accordance with this Work Plan (WP).

The objective of the Supplemental CI is to gather further data at the OMS-28 site and further determine the extent of contamination of soil and groundwater at the site.

The objective of the Supplemental Comprehensive Investigation will be accomplished by the following:

- Obtain a right of way (ROW) permit to drill adjacent to a highway;
- Install an exploratory boring, collecting soil samples for geotechnical analysis;
- Abandon five temporary wells that the AANG installed (TW-1 through TW-5). An abandonment report will be provided at the conclusion of the temporary well abandonment.
- Install up to four new shallow permanent Type II monitoring wells and up to three new Type III deep (to 120-feet below land surface) monitoring wells collecting soil and groundwater samples for laboratory analysis;
- Provide a supplemental CI report;
- Subsequent to the supplemental CI, perform three quarterly groundwater monitoring events sampling groundwater from existing and newly installed monitoring wells, and submit an Alabama Risk Based Corrective Action (ARBCA) Evaluation in accordance with the Alabama Department of Environmental Management (ADEM) June 2007 ARBCA Guidance Manual;
- Prepare abandonment WP and abandon all wells on site (6 existing, 7 new) and two piezometers (PZ-1 and PZ-2).

The objective of the WP is to describe how the investigation will be conducted and coordinated. The WP will follow investigation requirements utilizing the, “Alabama Environmental Investigation and Remediation Guidance”, March 2002, revised October 2002, revised September 2005, and the ARBCA Guidance Manual, June 2007. This WP will address at a minimum the following:

- Project purpose, scope and objectives;
- Description of the historical and current conditions;
- Physiography, Geology and Topography;
- Hydrology and Hydrogeology;
- Possible contamination;
- Determination and discussion criteria and standards to be used in making assessments of impacts;

- Sampling strategy;
- Project Management;
- Investigation Schedule;
- Handling, containment, and disposal of investigation derived wastes (IDW);

- Supplemental CI Report preparation and contents.

This WP also includes the following sub plans:

- Sampling and Analysis Plan (SAP)
- Site Safety and Health Plan (SSHP)
- Investigative-Derived Waste Management Plan (IDWMP)

The sub plans are located in the appendix of the WP. The SAP is found in Appendix A while the SSHP and IDWMP are found in Appendix B and Appendix C, respectively.

All field activities will be completed according to the specifications of the WP. The WP was prepared using the following documents:

- February 1, 2001, EM 200-1-3, Requirements for the Preparation of Sampling and Analysis Plans;
- November 1, 1998, EM 1110-1-4000, Monitoring Well Design, Installation, and Documentation at Hazardous, Toxic and Radioactive Waste Sites;
- November 2001, EPA Environmental Investigations Standard Operating Procedures and Quality Assurance Manual;
- November 3, 2003, USACE, EM 385-1-1, Safety and Health Requirements;
- Alabama Environmental Investigation and Remediation Guidance, March 2002, Revised October 2002, Revised September 2005;
- TCE Comprehensive Investigation at Organizational Maintenance Shop 28 Report, April 2007, Aerostar Environmental Services, Inc;
- Alabama Risk Based Corrective Action Guidance Manual, June 2007.

As specific conditions and/or additional information warrant, this WP will be amended or revised to address those conditions or additional information.

FIGURE 1-1 PROJECT LOCATION MAP

2.0 PROJECT DESCRIPTION

2.1 SITE DESCRIPTION

OMS 28 is located in Mobile County, near downtown Mobile, 1622 South Broad Street, between Interstate 10 and Mobile Bay. The property is relatively flat with an elevation of 20 to 30 feet above mean sea level (MSL). The subject property is located in Section 1, Township 4 South, Range 1 West and at approximate location Longitude 88°03' 42" West and Latitude 30°39' 11" North within the former Brookley AFB, Figure 2-1, Site Location Map, and Figure 2-2, Project Site Map. The OMS-28 site extends from U.S. Interstate Highway 10 to the west and north to the Fort Floyd A. McCorkle AANG facility building to the east and Farmer Fresh Produce, Masonite, Inc., and SpillTech, Inc. to the south on Nowlin Street as depicted in Figures 2-1 and 2-2. The surface features consist of vegetative cover comprised of oak trees, scrub trees, grasses, and brush. No structures are present on OMS-28 study site; however, the Alabama Army National Guard facility is located approximately 250 feet east of the site. The nearest residential structure is approximately 250 feet northeast of the site.

The former Brookley AFB, which encompasses 3,156 acres, was acquired by the Department of Defense (DoD) between 1940 and 1955, and was operated by the Air Force Base as a general support and supply base until 1969. Facilities at the former Brookley AFB included runways and maintenance areas for aircraft, underground and aboveground fuel storage facilities, associated buildings, roads, housing, and landfills. No human consumption or agricultural wells are located within the boundaries of the former Brookley AFB.

The former Brookley AFB is designated by the Federal Aviation Administration (FAA) as operating with a Part 139 certification. The property is now owned by the Mobile Airport Authority (MAA) and the University of South Alabama (USA). The former Brookley AFB is currently used as an industrial complex and airport by the MAA. The USA uses the facility as a learning center, golf course, and housing area.

Surface flow from stormwater runoff across the site varies due to vegetation and porous surface medium.

FIGURE 2-1 SITE LOCATION MAP

FIGURE 2-2 PROJECT SITE MAP

2.2 SITE BACKGROUND AND HISTORY

2.2.1 TCE Comprehensive Site Investigation at Organizational Maintenance Shop 28, April 2007

Following tank removal of a single 2,000 gallon gas/diesel underground storage tanks (USTs) at pit 2 in October 1992, a preliminary investigation (PI) was performed by the USACE for pit 2 in October 1993 and the report submitted to the Alabama Department of Environmental Management (ADEM). The PI did not fully determine the extent of soil or groundwater contamination. A secondary investigation (SI) of pit 2 was completed in December 1994, establishing the extent of soil and groundwater contamination at the site. The 1994 SI was followed by quarterly groundwater monitoring beginning in 1995. Additionally, a SI Addendum was performed by Bechtel-S was complet3ed in August of 2005.

During sampling for the SI Addendum, the reporting limits for MW-8 were higher than the other groundwater samples due to the dilution (by the laboratory) of this sample by a factor of 20. Dilution was required due to the interference by TCE in the sample. The TCE was not related to the gasoline/diesel fuel tank being investigated and was believed to be the result of a localized solvent spill. No other groundwater samples collected during that event required dilution by the laboratory.

In March 2005, all of the wells onsite were sampled and analyzed for a full volatile organic compound (VOC) scan. With the exception of monitor well MW-8, TCE was not detected in the groundwater samples collected from the other onsite monitor wells. TCE was detected in the groundwater samples collected from monitor well MW-8 and the duplicate (MW-8) at concentrations of 480 micrograms per liter (µg/L) and 430 µg/L, respectively; which was above the Maximum Contaminant Level (MCL) of 5 µg/L. Cis-1,2-dichloroethene was the only other volatile detected in the groundwater samples collected from monitor well MW-8 and the duplicate (MW-8) at concentrations of 11 µg/L and 10 µg/L, respectively; which was below its MCL of 70 µg/L. No other contaminants exceeded ISLs in the groundwater samples submitted for analysis.

In 2005, the AANG installed five temporary wells TW-1 through TW-5 at the site to further delineate the TCE plume based on sample results from MW-8. The wells were installed by hand with hand cut screen and a filter pack of sand. TCE was detected in the groundwater sample collected from one temporary well (TW-4) at an approximate concentration of 1.9 µg/L, which was below the MCL of 5 µg/L. None of the remaining wells sampled showed detectable concentrations of TCE. All monitor wells were sampled with a bailer during this event.

Along with the SI Addendum, Bechtel-S also submitted an ARBCA assessment in August 2005. The Site Specific Target Levels (SSTL) developed in the ARBCA were approved in November 2006.

On February 21, 2006, confirmatory groundwater samples were collected from temporary monitoring wells TW-1, TW-3, TW-4, TW-5, PZ-1, and PZ-2 and submitted for laboratory analysis of TCE. TCE was detected in one sample from TW-4 at 1.86 µg/L, while the other samples were non-detect. Based on the results of the confirmatory sampling of groundwater, ten hand auger soil borings and eight direct push borings to collect groundwater were installed in April 2006. In May of 2006 three additional hand auger borings were installed to collect soil samples and three additional direct push borings were installed to collect groundwater. Ten soil samples out of 23 resulted in a detection of TCE ranging from 0.00311J to 0.586J, mg/Kg, where "J" represents an estimated value. Three of the samples exceeded either a residential or commercial Preliminary Screening Value (PSV). Five out of 11 groundwater samples detected the presence of TCE ranging from 6.74 to 145 mg/L, all of which exceeded a PSV.

Based on the results of the February and May sampling activities, four monitoring wells (MW-9 through MW-12) were installed on October 22, 2006 using hollow stem auger drilling techniques. Groundwater samples were collected from monitoring wells MW-6 and MW-8 through MW-12 in October and November of 2006. The results of groundwater samples collected from these wells identified the presence of TCE in three of the wells, MW-8 (83 µg/L), MW-10 (11 µg/L), and MW-11 (63 µg/L). Each exceeded a tap water PSV. A TCE Comprehensive Investigation report detailing the findings of the February through November 2007 activities was submitted to the USACE in April of 2007.

2.3 PROJECT OBJECTIVES

The objective of the Supplemental CI is to further determine the horizontal and vertical extent of TCE contamination in soil and groundwater at the OMS-28 site

2.3.1 Scope of Work

Upon approval of the final WP AEROSTAR will perform the Supplemental CI. The following subsections provide a detailed description of the sampling and analyses to be performed during the investigation.

2.3.1.1 Field Investigation: Fieldwork will consist of all measures necessary to conduct a Supplemental CI of TCE at OMS 28 to provide the information called for in ADEM publication, "Alabama Environmental Investigation and Remediation Guidance" dated March 2002, Revised October 2002, Revised September 2005.

2.3.1.2 Permit: AEROSTAR will obtain a permit from the Alabama Department of Transportation to drill in the road right of way (ROW).

2.3.1.3 Exploratory Boring: Prior to installing the wells, AEROSTAR will install a boring to 120 feet below ground surface (BGS) in a clean area. This boring will be logged to determine if a confining layer is present and determine subsurface lithology for placement of the shallow and deep wells. The boring will be grouted closed after the soil is logged. This exploratory boring will be used to collect the geotechnical samples that will be used for the ARBCA assessment. See Figure 2-3 for the proposed location of the exploratory boring.

All necessary analysis to provide all information called for in the ADEM ARBCA guidance, Sections 4.6 and 4.7, Vadose Zone Soil Characteristics and Saturated Zone Characteristics respectively will be conducted. The information required includes porosity, water content, fractional organic carbon content, and soil bulk density. As per the ADEM ARBCA guidance, the samples will be located to "determine typical soil properties which are representative of the source area" and to "be representative of the soils through which the (chemicals of concern) migrate to reach groundwater." In addition, the samples will be so located to access native soils not impacted by release. The location of the exploratory boring may be used for the collection of these samples. The June 2007 ARBCA Guidance states that, "consideration must be given to collecting multiple samples if multiple litholigies are present which may affect transport of the contaminants of concern (COCs)." Based on the requirements of the ARBCA five samples will be collected from the exploratory boring for FOC, porosity, dry bulk density and moisture content. Samples will be collected from the vadose zone, first saturation zone, first confining unit, second zone of saturation and the second confining unit if encountered prior to 120 feet.

2.3.1.4 Temporary Monitoring Well Abandonment Temporary monitoring wells TW-1 through TW-5 will be properly abandoned. Abandonment procedures will include pulling the well screen and casing from the subsurface and grouting each well annulus with a neat grout cement mixture from the bottom of the annulus to approximately one foot below BGS with a tremie pipe. An abandonment report will be provided at the conclusion of the temporary well abandonment.

2.3.1.5 Groundwater Monitoring Well Installation: Shallow and deep permanent groundwater monitoring wells will be installed at the site. Wells will be labeled OMS28-1 through OMS28-7. The proposed locations are per the ADEM letter dated June 28, 2007 and subsequent discussions with ADEM. Wells will be stick-up except for the well proposed at the road ROW which will be a flush mount completion. See Figure 2-3 for the proposed locations of the monitoring wells. Monitoring wells MW-1 through MW-3 and MW-5 through MW-8 previously installed at the site have an average depth of 14.0 feet BGS, an average screened interval of 3.6 to 13.6 feet BGS, and an average top of casing elevation of 28.34 feet above mean sea level. It is anticipated that the newly installed shallow monitoring wells will have similar construction details.

2.3.1.6 Shallow Wells: Up to four shallow Type II monitoring wells (OMS28-2, OMS28-3, OMS28-5, and OMS28-7) will be installed with their screen in the uppermost aquifer and will be constructed of 2-inch PVC screen and riser. The wells will be installed in accordance with the technical requirements of the August 21, 2007, SOW and all local, State, and Federal requirements. After development and stabilization of the wells AEROSTAR will sample the wells. The wells will be installed and developed in accordance with Publication Number: EM 1110-1-4000, Title: Engineering and Design - Monitoring Well Design, Installation, and Documentation at Hazardous Toxic, and Radioactive Waste Sites, which says, in part, "The final development of monitoring wells should be initiated no sooner than 48 hours after or more than 7 days beyond the final grouting of the well" and "Well development should be completed at least 14 days before well sampling".

2.3.1.7 Deep Wells: Up to three deep Type III wells (OMS28-1, OMS28-4, and OMS28-6) will be double cased and the outer casing, i.e., surface casing, will be installed down to a maximum depth of approximately 120 feet BGS. The outer casing will be constructed using an 8-inch diameter schedule 40 PVC casing. The 8-inch casing will be installed to a depth indicative of confining strata – estimated at approximately 35 feet BGS. The surface casing will be grouted in place with Portland cement grout using a tremmie -pipe. After allowing the cement grout 24 hours to cure, the boring will be advanced to the next confining layer, not to exceed 120 feet BGS. Well installation will be completed using pre-assembled 2-inch diameter flush-threaded Schedule 40 PVC risers. Five feet of 0.01-inch factory slotted well screen will be attached. The remaining annular space will be grouted using a neat Portland cement. This method will enable the lower water bearing zone to be isolated.

2.3.1.8 Soil Sampling During Well Installation: All soil samples will be visually classified according to the Unified Soil Classification System (ASTM D 2487-92 and ASTM D 2488-90) and a boring log will be prepared using the visual classification of the samples. Soil samples will be collected at five-foot intervals from each boring and screened with an organic vapor analyzer (OVA).

Three soil samples from each shallow well will be selected for laboratory analysis, one surficial sample, one with the highest OVA reading, and one collected above the soil/groundwater interface. Four soil samples from each deep well will be selected for laboratory analysis, one surficial sample, one with the highest OVA reading above the water table, one with the highest OVA reading below the water table, and the soil sample collected from just above the soil/groundwater interface.

2.3.1.9 Groundwater Sampling: Permanent groundwater monitoring wells will be installed in each of the soil borings. Shallow wells will be constructed such that the screened interval of the well intersects the water table and the screen extends a minimum of 2 feet above the water table. Groundwater sampling and preservation will conform to EPA SW-846 methods. Monitoring wells will not be sampled until at least 24 hours after development. In addition to the 7 new wells (OMS28-1 through OMs28-7) there are 6 existing monitoring wells (MW6, and MW-8 through MW-12) to be sampled.

2.3.1.10 Analysis: The soil and groundwater samples will be analyzed for Target Compound List (TCL) Volatile Compounds. The testing laboratory and AEROSTAR will adhere to the quality control program, including spikes, blanks, and duplicates, of EPA SW-846 and ER 1110-1-263. This guidance will require the following:
a. 10% of all samples will be collected for duplicate/split
b. 10% for rinsate analysis
c. 10% of groundwater volatile sampling to be trip blanks (one per cooler)
Results will be reported in dry weight per EPA SW-846, which requires % solids determination.

2.3.1.11 Soil Analysis: Soil samples will be analyzed for volatile organic compounds (VOCs). The soil samples will consist of a total of 33 soil samples for analysis by 8260B and 5 samples for Fractional Organic Content (FOC) and physical properties i.e. specific gravity, density, grain size. The 33 soil samples include 3 duplicates, 3 splits and 3 rinsates.

2.3.1.12 Groundwater Analysis: One groundwater sample from each well (MW-6, MW-8 through MW-12, and OMS28-1 through OMS28-7) will be collected for laboratory analysis. Groundwater samples will be analyzed for VOCs. The groundwater samples consist of a total of 21 samples for analysis by 8260B. The GW samples include 2 duplicates, 2 splits, 2 rinstates and 2 trip blanks.

2.3.1.13 Sample Analysis and Validation: AEROSTAR will conduct defensible sampling, and analysis. The laboratories used during this project will be certified by the USACE. The laboratories will either have current validation, for all required parameters, by the USACEs' HTRW Center of Expertise (CX), or will be in compliance with the latest version of the Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories (QSM). The format for the data reporting will be in accordance with EM 200-1-3 (for labs currently validated by the HTRW CX), or Section 13.0 of the DoD QSM.

2.3.1.14 Data Quality Objectives (DQOs): Data Quality Objectives (DQO's) will be used by AEROSTAR to ensure that the data collected is of sufficient quantity and quality to be legally defensible under regulatory requirements. The DQO process culminates in the reduction of uncertainty associated with decisions related to remedial design and response actions. Three steps can be identified in the process: a) identify decision types; b) identify data needs; and c) specify data collection. AEROSTAR will fully discuss and justify the DQO's in the Work Plan.

2.3.1.15 Data Reporting Requirements: The following are the minimum data reporting requirements:

2.3.1.16 Sample ID's – AEROSTAR will prepare a table which matches contract laboratory sample IDs to quality assurance (QA) laboratory sample IDs. This table will identify all field duplicates and field blanks as such and match their corresponding field samples, where applicable.

2.3.1.17 Sample Receipt - AEROSTAR will provide a completed "Cooler Receipt Form" for all shipments to note problems in sampling packaging, chain-of-custody, and sample preservation.

2.3.1.18 General Organic and Inorganic Reporting - The laboratory will report all analytes for each sample as a detected concentration or as less than the specific limits of concentration for each analytical method run. Generally, all samples with out-of-control spike recoveries being blamed for matrix interference will be designated as such. Dilution factors will be reported for each sample as well as the extraction and analysis date.

2.3.1.19 Detection and Reporting Limits - Detection and reporting limits for all analytes will be below their respective EPA Region 9 PRG remediation goals and the ADEM MCLs and ISLs. The detection limits goals will be ½ of the screening level.

2.3.1.20 Internal Quality Control Reporting - Internal quality control samples will be analyzed at rates specified in the specific methods or higher rates if required to meet project specific Data Quality Objectives.

2.3.1.21 Laboratory Blanks - All analytes will be reported for each laboratory blank. All non-blank samples results will be designated as corresponding to a particular laboratory blank in terms of analytical branch processing.

2.3.1.22 Surrogate Spike Samples - Surrogate Spike Recoveries will be reported with organic method reports where appropriate. The report will also specify the control limits for surrogate spike results as well as the spiking concentration. Any out-of-control recoveries will result in resampling at no additional cost to the Government.

2.3.1.23 Matrix Spike Samples - Matrix Spike Recoveries will be reported for all organic and inorganic analyses. All general sample results will be designated as corresponding to a particular matrix spike sample. The report will indicate what field sample was spiked. The report will also specify the control limits for matrix spike results for each method and each matrix.

2.3.1.24 Laboratory Duplicates and/or Matrix-Spike Duplicate Pairs - Relative Percent Difference will be reported for all duplicate pairs as well as analyte/matrix specific control limits.

2.3.1.25 Data Validation. AEROSTAR will utilize an independent contractor to complete level 1 data validation of all data generated during the investigation. The Chemical Quality Assurance Report (CQAR) will describe any problems encountered and corrective actions taken.

2.3.1.26 Quality Control (QC) Samples. Quality Control (QC) samples will be collected and analyzed by a contract laboratory. The QC samples will include equipment rinsate blanks, trip blanks (VOCs only, 1 per cooler) and duplicates of field samples. QC samples will be taken from at least 10% of field sample locations with a minimum of one QC per sample matrix. Each water sample will be field tested for turbidity, pH, specific conductivity, and temperature. The AEROSTAR and the testing laboratory will adhere to the quality control program, including spikes, blanks, and duplicates, of EPA SW 846 and ER 1110-1-263. Results will be reported in dry weight per EPA SW-846, which requires % solids determination.

2.3.1.27 Hydrogeologic Testing. AEROSTAR will conduct slug testing to determine the horizontal hydraulic conductivity at the site.

2.3.1.28 Disposal of Waste: All Investigative Derived Waste (IDW) will be taken to an off-site treatment, storage or disposal facility in accordance with all State and Federal solid waste laws and disposal regulations. Analysis of the IDW will conform to the requirements of the facility. AEROSTAR will containerize all groundwater and it will be stored on Brookley Field until laboratory analysis is complete. While awaiting results from chemical testing, all IDW will be stored in properly labeled DOT drums provided by the AEROSTAR and placed on pallets on site. Other wastes, such as trash, Tyvek suits, gloves, respirator cartridges, etc., will be disposed of offsite in accordance with all applicable regulations at no additional cost to the

Government. The USACE POC will sign all waste manifests for the waste disposal. All IDW will be managed as hazardous waste until proven otherwise. However, AEROSTAR anticipates that all IDW will be non-hazardous and will have to be disposed of off site.

2.3.1.29 Field Work Area Restrictions: AEROSTAR understands OMS 28 is open for business from Tuesday thru Friday from 7:00 a.m. until 5:30 pm and that work at the site will only take place during that time.

2.3.1.30 Utility Locators: AEROSTAR will contact Alabama Line Locators to locate utilities at the site in advance of intrusive activities at the site.

2.3.1.31 Potentiometric Map: Depth to groundwater will be measured in each well to construct a potentiometric map for both the shallow and deep aquifers. The water level measurements will be referenced to surveyed elevations of the respective monitoring wells.

2.3.1.31 Survey: After the wells are installed the location of the wells, horizontal and vertical, will be determined by a site survey. The horizontal location of the wells will be determined to the nearest 1 foot. The ground surface elevation and the top of casing elevation will be determined to the nearest 0.01 foot. Direct-push locations will be located by GPS or survey.

2.3.1.32 Supplemental CI Report: AEROSTAR will prepare and submit for government review and approval draft and final reports in accordance with the Alabama Environmental Investigation and Remediation Guidance" dated March 2002, Revised October 2002, Revised September 2005 and ADEM Code 335-1-6-15.28 for the supplemental CI. AEROSTAR will provide the final report in electronic format on CD with each hard copy of the final report. The Draft report will have numbered lines to facilitate review.

2.3.1.33 Quarterly monitoring: AEROSTAR will conduct quarterly monitoring for 3 quarterly events following the first sampling event conducted for the supplemental CI. Sampling will be for 13 wells (MW-6, MW-8 through MW-12, and OMS28-1 through OMS28-7) and samples will be analyzed for VOCs. For quarterly groundwater sampling, AEROSTAR will prepare a short Quarterly Monitoring Report providing the analytical results, trend figures, and a table showing the exceedences, if any, for each sampling event. The report will follow Natural Attenuation Monitoring Report (NAMR) format for trend analysis.

2.3.1.34 ARBCA Reports: AEROSTAR will prepare and submit for government review and approval a draft and final ARBCA Report in accordance with the ADEM June 2007 ARBCA Guidance Manual.

2.3.1.35 Abandon Wells. AEROSTAR will provide an abandonment work plan to properly abandon the seven existing wells (MW5, MW-6, MW-8, MW-9, MW-10, MW-11, and MW-12) and six new wells OMS28-1 through OMS-7) wells on-site and two existing piezometers (PZ-1 and PZ-2). The entire casing will be removed using overdrilling if necessary. Deep wells will be abandoned in two steps, overdrilling the deep, inner casing first, filling with

grout, then, overdrilling the shallow, outer casing. AEROSTAR will provide an abandonment report at the completion of the well
abandonment effort.

2.3.1.36 Review Meetings/Coordination: AEROSTAR will anticipate attending a total of 3 meetings at the USACE, Mobile District office or the project site. Meeting dates will be scheduled through the USACE Technical Manager (TM). AEROSTAR will furnish written minutes to all attendees within 7 days after each review meeting.

FIGURE 2-3 PROPOSED SAMPLE LOCATION MAP

TABLE 2-1 SAMPLES BY MATRIX AND ANALYSIS

SAMPLING ACTIVITY	MATRIX	PARAMETER	ANALYTICAL METHODS (1)	NUMBER OF SAMPLES
OMS-28				
Installation of 4 New Shallow Type II Wells and 3 Deep Type II Wells	Soil	VOC	8260B	33
Initial Sampling (existing and newly installed wells)	Groundwater	VOC	8260B	21
First Quarterly Monitoring Event	Groundwater	VOC	8260B	15
Second Quarterly Monitoring Event	Groundwater	VOC	8260B	15
Third Quarterly Monitoring Event	Groundwater	VOC	8260B	15
IDW	Water	VOC	8260B	1
IDW	Soil	VOC	8260B	1

(USEPA, Office of Solid Waste and Emergency Response, Test Methods for Evaluating Solid Waste, SW-846, Third Edition, November 1986, Washington, D.C. Parentheses indicate method of extraction.

VOC – Volatile Organic Compounds

The "Number of Field Samples" presented in the last column of Table 2-1 includes quality control samples, i.e.: duplicates, rinsates, and splits

Note: If groundwater and soil samples are non-detect for contaminants analysis will not be required for IDW Water and Soil.

3.0 REGIONAL PHYSICAL CHARACTERISTICS

3.1 PHYSIOGRAPHY AND TOPOGRAPHY

The former Brookley AFB is located within Mobile County. Much of the land in Mobile County is used for industrial and agricultural purposes. Large areas along the Mobile and Tensaw Rivers and along the coast are characterized by low-lying, swampy terrain and brackish water. The OMS 28 site is included in this area.

The OMS 28 site lies entirely within the East Gulf Coastal Plain physiographic section, Alluvial-Deltaic Plain District and Coastal Lowlands District.

The Alluvial-Deltaic Plain District, which consists of alluvial and terrace deposits from the rivers, are areas with very little relief, and the surface topography ranges in altitude from 100 feet to sea level.

Coastal Lowlands District areas are characterized by flat to gently undulating, locally swampy plains underlain by terrigenous deposits of Holocene and late Pleistocene age. They include the mainland plain indented by many tidal streams and fringed by tidal marshes and barrier islands. The landward edge of the district is defined by the base of the Pamlico marine scarp at 25 to 30 feet of elevation. The barrier islands and tidal marshes in the area are undergoing continual modification by erosion and deposition.

3.2 REGIONAL GEOLOGY

Geologic units that occur within the study area range from Tertiary to Quaternary age. Alluvial and terrace deposits of Quaternary Age overlie Tertiary age deposits adjacent to the flood plains of the larger streams and river, and along the coastal areas, such as Mobile Bay.

Geologic units of Tertiary Age that are sources of potable groundwater are the Miocene Series Undifferentiated and the Citronelle Formation. The Miocene Series outcrops in central and northern Mobile and Baldwin Counties. The Miocene Series consists of sedimentary deposits of marine and estuarine origin. The sediments consist mainly of laminated to thinly-bedded clays, sands, and sandy clays. The sands range from fine- to coarse-grained and are locally cross bedded. In outcrops, the sands weather to a variety of colors, some distinctly mottled. At some exposures, beds of sand contain gravel and petrified plant fossils, and clays contain carbonized leaf remains.

The Citronelle Formation of Pliocene age overlies the Miocene Series and crops out in central and southern parts of the study area. The formation, which is relatively thin in northern parts of the study area, is about 200 feet thick in the subsurface in the southern part of the study area. The sediments consist of gravelly sands and sandy clays. In many areas, lenses of sandy clay and clayey sand, which range in thickness from 5 to 15 feet, are interbedded with gravelly sand. Sediments along the base of the Citronelle Formation have high clay content, indicating that they were deposited in an estuarine environment, whereas, overlying sediments were deposited by sediment-laden streams.

Pleistocene and Holocene Series of Quaternary age deposits overlie Miocene and Pliocene sediments. Alluvial, low terrace and coastal deposits represent complex beach, dune, lagoonal, estuarine, and deltaic depositional environments. The deposits consist of very fine- to coarse-grained sand that is gravelly in many exposures. Sandy clay is interbedded with the sand at some exposures. The thickness of the alluvial, low terrace and coastal deposits are estimated to range from 0 to 200 feet, based on the first occurrence of coarse siliclastic sediments.

The Quaternary sand and gravel beds represent buried channel deposits. Their width and depth are similar to that of the present river bed sediments. The length of individual sand and gravel beds probably ranges from a few hundred to a few thousand feet. These buried channel deposits are surrounded by silt and clay sediments similar to those being deposited on the present flood plain of the river.

3.3 REGIONAL HYDROGEOLOGY

The Pliocene-Miocene and the alluvial-coastal aquifer are the major aquifers in the study area. Although the aquifers are lithologically different, they are hydraulically connected and generally respond to stresses as a single aquifer.

Groundwater in the Pliocene-Miocene aquifer occurs in beds of sand and gravel which are lenticular in shape and of limited lateral extent. The sand and gravel beds in the Citronelle Formation and those at shallow depths in the Miocene Series Undifferentiated are hydraulically connected to land surface; therefore, the aquifer is unconfined. At depth clayey sediments in the Miocene Series are semi-confining, which reduces vertical infiltration of water. Thus, the aquifer in deeper portions of the Miocene Series responds to short-term pumpage as a confined aquifer. Wells properly constructed in the Pliocene-Miocene aquifer yield from 0.5 to 2.0 million gallons per day (Mgal/d).

The alluvial-coastal aquifer is hydraulically connected to the Pliocene-Miocene aquifer. Properly constructed wells in the alluvial-coastal aquifer have the potential to yield from 0.5 to 1.0 Mgal/d. Most high-yield wells are completed in beds of sand and gravel that originate from coastal deposits and buried river sediments. The buried channels are surrounded by silty and clayey sediments that do not yield significant amounts of water, but do allow slow infiltration of water to the sand and gravel beds. Individual buried channels may be directly connected to the present channels of the Mobile River.

The source of recharge to the aquifers is rainfall, which averages 62 inches per year (in/yr) in the study area. About 28 in/yr of rainfall runs off during and immediately after storms; a small amount of rainfall infiltrates the subsurface as recharge to the aquifers; and the remainder is returned to the atmosphere by evaporation and transpiration of trees and other plants.

Most recharge to the major aquifers in Mobile County occurs within the boundaries of the study area, and a small amount is contributed from Miocene outcrop areas to the north.

Groundwater discharges are primarily to streams, water bodies, and wells. Some of the larger groundwater pumping centers in the study area are the cities of Grand Bay, Fairview, Dauphin

Island, Theodore, Kushla, LeMoyne, Citronelle, Mt. Vernon, Bayou La Batre, Saraland, and St. Elmo in Mobile County.

In addition to public water supply, substantial quantities of groundwater are used for irrigation. Mobile County has several chemical and paper factories and other industries that use large quantities of groundwater.

Large withdrawals of water from an aquifer often cause a depression in the potentiometric surface of the aquifer. The extent of the depression depends on the amount of water withdrawn and the water-bearing characteristics of the sediments. A large depression exists around the Prichard-Mobile area in Mobile County. Most of the groundwater withdrawals in this area are for industrial purposes. Other smaller depressions occur in the vicinity of some industries along the Mobile River in northern Mobile County. The effects of the depressions are localized because of their proximity to the Mobile River, which is hydraulically connected to the aquifers in the area. The Mobile River has an average annual discharge of about 70,000 cubic feet per second (ft^3/s), which is more than adequate to recharge the aquifers as withdrawals occur. However, in tidal reaches of the Mobile River, the recharge could introduce saltwater into the aquifer.

Recharge areas for the major aquifers, which include the entire study area, are susceptible to surface contamination. The topography in the study area is flat to low rolling hills. This type of terrain minimizes surface runoff, allowing more time for water to infiltrate into the soil.

Areas that are highly susceptible to contamination from the surface are relatively flat terrain with very permeable soils. Many of these areas are used for intensive row-crop farming where pesticides are used extensively. Along the Mobile River in the northern part of Mobile County, chemical industries are potential sources of contamination to the groundwater. The regions of the study area that are not considered to be highly susceptible to surface contamination are where topographic relief is greater; this promotes increase surface runoff and dispersion and dilution of surface contaminants.

Regions underlain by the alluvial and coastal sediments generally are areas of groundwater discharge; this decreases the likelihood of a contaminant migrating into the deep groundwater system.

3.4 SITE GEOLOGY/HYDROGEOLOGY

Subsurface lithology was identified by visual inspection of soil samples during boring installation and information collected from earlier documents. In general, a brown medium grained clayey sand (SC) to sandy clay (SC) was observed from the surface to approximately 8 feet and a stiff clay to approximately 10 feet BGS. Below the clay layer is fine to medium grained sand (SP) to approximately 15 feet BGS that is saturated from 10.0 to 15.0 feet BGS.

Historically, groundwater was encountered between 10 and 12.0 feet BGS. Static water levels in the permanent monitoring wells ranged from 2 to 11 feet BGS. The general direction of groundwater movement at the site is reported to be toward the northwest.

4.0 LAND USE OF OMS-28 AND VICINITY

No structures are present on the portion of the OMS 28 site where the supplemental CI will occur. The nearest structure is the Fort Floyd A. McCorkle AANG facility building adjacent to the east. To the southeast is a building occupied by Masonite, Inc. and SpillTech, Inc. To the south is Farmer Fresh Produce. The east bound lanes of U.S. Interstate Highway 10 and the I-10 East Service Road are located to the west. Residential property borders the site to the north.

5.0 CHEMICAL DATA QUALITY OBJECTIVES

The primary objective of the Chemical Data Quality Objectives (CDQO) is to collect supplemental data from soil and groundwater, and to determine the vertical and lateral extent of TCE contamination in soil and groundwater at the OMS-28 site. To achieve the project objectives, a multi-step process is used to develop site specific CDQOs needs for this task. The CDQOs are developed to ensure that:

- Samples are analyzed using well defined methods that will provide confident detection limits.
- The precision and accuracy of data are well defined and adequate to provide defensible data.
- Samples are collected using approved techniques and are representative of existing environmental conditions.
- QA/QC procedures for both field and laboratory procedures meet the USACE guidance document requirements.
- All field work and laboratory work will be conducted according to U. S. Environmental Protection Agency's (EPA) Region IV Environmental Services Division, Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual and EPA, Region IV, Environmental Services Division, Laboratory Operations and Quality Control Manual.

The Chemical Data Quality Objectives are addressed specifically in the Field Sampling Plan, Part I, Appendix A, of this work plan.

6.0 PROJECT MANAGEMENT

6.1 PROJECT MANAGEMENT

AEROSTAR will assign an employee to serve as the Project Manager (PM) for this project. The PM will oversee the coordination and execution of the entire project. The PM will be in charge of administering all instructions from the USACE-Mobile District and will be responsible for obtaining answers to all questions related to the project during the course of the contract period.

6.2 PROJECT ORGANIZATION

The following is a list of key project personnel and their responsibilities:

Name and Company	Position	Job Description	Phone No.	Cell No.
Melissa Shirley, USACE, Mobile District	Technical Manager (TM)	Project Oversight	(251) 690-2616	(251) 591-8275
Marshall Eschete AEROSTAR	Project Director (PD) Field Manager/Site Safety and Health Officer (FM/SSHO)	Project Oversight Field direction	(251) 432-2664	(251) 604-1211
Prent Davis AEROSTAR	Project Manager (PM)/Quality Control Manager (QCM), Field Manager/Site Safety and Health Officer (FM/SSHO)	Project Oversight	(251) 432-2664	(228) 990-0662
Jeff Mitchell, CIH AEROSTAR	Safety and Health Officer (SSHO)	S&H Program Administration	(904) 565-2820	(904) 654-5813
Thalas Rattanaxay AEROSTAR	Alternate QCM/FM/SSHO)	Project Oversight Field direction, S&H Implementation	(251) 432-2664	(251) 802-8210

6.3 COORDINATION AND POINTS OF CONTACT

The AEROSTAR PM will coordinate through the USACE Technical Manager (TM) all project activities. The USACE TM will provide coordination of the work with other agencies. All requests made to the AEROSTAR PM by other agencies will be referred to the USACE TM for action. The AEROSTAR PM will coordinate with the USACE TM and AANG personnel for onsite activities.

The designated points of contacts for this project are:

U.S. Army Corps of Engineers,
Mobile District
ATTN: EN-GE (Melissa Shirley)
P. O. Box 2288
Mobile, Alabama 36628-0001
Phone: (251) 690-2616
Fax: (251) 690-2030
Cell: (251) 591-8275
E-Mail: Melissa.L.Shirley@sam.usace.army.mil

Mobile Airport Authority
Brookley Complex Manager
ATTN: Paul Faggard
Brookley Complex, Building 11
Mobile, Alabama 36615
Phone: (251) 438-7334
Fax: (251) 639-9465
Cell (251) 583-0293
E-Mail: Paul@mobairport.com

AANG Point of Contact

Chief Gibbs or SFC Uptagraph
Alabama Army National Guard
1622 South Broad Street
Mobile, Alabama 36605
Phone (251) 405-4926 (Chief Gibbs)
Phone (251) 405-4975 SFC (Uptagraph)

Alabama Department of Environmental Management
ATTN: Kathleen Keller
ADEM Hydrology Section
1400 Coliseum Blvd.
Montgomery, Alabama 36110-2059
Phone: (251) 270-5655
KKeller@adem.state.al.us

AEROSTAR Environmental Services, Inc
803 Government Street, Suite A
Mobile, Alabama 36602
Phone: (251) 432-2664
Fax: (251) 432-2685
Cell (B. Parrish) (904) 484-8251
Cell (M Eschette) (251) 604-1211
bparrish@aerostar.net
meschette@aerostar.net

6.4 PROJECT RECORDS

At the completion of the project, AEROSTAR will provide to the USACE TM a complete set of project records not previously submitted, including all correspondence, memorandums, trip reports, confirmation, notices, sampling plans, test results, submittals, well logs, photographs and any other records or documents generated as a result of the project.

6.5 REVIEW OF PROGRESS AND TECHNICAL ADEQUACY

At appropriate times, the USACE TM or representative may review the progress and technical adequacy of the work conducted by AEROSTAR. Such review will not relieve AEROSTAR

from performing all contract requirements, except as may be waived in writing by the USACE TM.

6.6 SITE VISITS

The AEROSTAR PM will notify the USACE TM at least five working days in advance of proposed site visits or immediately upon decision to visit the site. Confirmation of site visits will be made immediately prior to the site visit.

7.0 HAZARD CHARACTERIZATION AND IDENTIFICATION

Identification of contaminants selected as chemicals of potential concern (COPCs) will be based on comparison of data to PSVs. PSVs are conservative health-based concentrations of hazardous constituents determined to be indicators for the protection of human health or the environment. The ARBCA Guidance Manual, June 2007, will be used to develop and evaluate PSVs. PSVs will be developed for soil and groundwater in accordance with the following:

PSVs for soil and groundwater water will address exposure by ingestion, inhalation, dermal contact and the groundwater resource protection. PSVs to address ingestion, inhalation and dermal contact and groundwater resource protection will be calculated utilizing ADEM's May 2006 ARBCA software. It is appropriate to use the value that combines the direct exposure pathways (ingestion, inhalation and dermal contact) for the appropriate use exposure scenario (residential or industrial).

PSVs for constituents in groundwater are equivalent to Maximum Contaminant Levels (MCLs) listed in ADEM Admin. Code R 335-7-2 (Primary Drinking Water Standards) and as listed by the USEPA (http://www.epa.gov/waterscience/criteria/drinking/dwstandards.pdf). Where there is no MCL for comparison USEPA Region 9 Preliminary Remediation Goals (PRGs) for Tap Water will be used. ADEM guidance recommends the use of a hazard quotient (HQ) of 0.1. Region 9 PRGs use a HQ of 1.0. All constituents listed on the Region 9 PRG table that are calculated based on non-carcinogenic effects will be divided by a factor of 10 to reflect a HQ of 0.1. Table 2-2 located in the June 2007 ARBCA reflects the appropriate HQ.

7.1 EXPOSURE ASSESSMENT

An exposure assessment will be conducted to identify and describe populations which are exposed to, or have the potential to be exposed to, a contaminant. A full accounting of the ecosystems and populations potentially exposed to contamination will be included. Special attention will be paid to state and federal regulations regarding sensitive environments involving wetlands or endangered species.

Each pathway of exposure, by chemicals and media, will be described, and the pathway identified in space and time with respect to the site and the period of the investigation. If applicable, the following areas will be addressed in exposure characterization:

- The volume, physical, and chemical characteristics of all wastes known or suspected to be present on-site.
- Fate and transport characteristics of the waste, including its potential for migration.
- The hydrogeological characteristics of the site and surrounding land with special emphasis on mobility of groundwater and its potential for transporting contaminants off-site.
- The current and future use of groundwater in the area.
- Maps illustrating groundwater and soil contaminant, if present, for COPCs, based upon the sampling results.

- The potential for migration of contaminants from other sources surrounding the site.

8.0 SUBPLANS

The work plan will include the following sub plans that may act as "Stand Alone" plans:

- Sampling and Analysis Plan (SAP)
- Site Safety and Health Plan (SSHP)
- Investigation Derived Waste Management Plan (IDWMP)

8.1 SAMPLING AND ANALYSIS PLAN

The Sampling and Analysis Plan, which consists of a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP), details the procedures and methods that will be taken to ensure that all field sampling activities and analytical methods are of sufficient quality to meet the intended data uses. The FSP, Part I of the SAP, presents the sampling objectives and rational as well as the procedures and methods for conducting field activities; sample chain-of-custody, handling and shipment; field documentation; and corrective action planning. The FSP also presents the project schedule. The QAPP, Part II of the SAP, presents the data quality objectives, sampling locations and procedures, and field analytical procedures (including calibration procedures and frequencies). In addition, the QAPP details acceptable laboratory procedures, sample holding time and preservation requirements, as well as internal quality control (QC) checks, performance and system audits, preventive maintenance, and data reduction, validation, and reporting. The SAP is included in Appendix A.

8.2 SITE SAFETY AND HEALTH PLAN

The Site Safety and Health Plan provides information on project responsibilities and procedures for site safety and health. The SSHP details the specific hazards present at the site (including chemical, physical, and environmental hazards) and discusses the proper techniques, equipment, and monitoring requirements necessary to minimize personnel risk. The SSHP also presents site entry and exit requirements, visitor protocols, and emergency contingency plans. The SSHP is included in Appendix B.

8.3 INVESTIGATIVE-DERIVED WASTE PLAN

The Investigative-Derived Waste Plan provides guidance for the management of investigative-derived wastes (IDW) resulting from work conducted during Supplemental Comprehensive Investigation at OMS-28. The IDWMP describes the regulatory requirements for Investigative-Derived Waste (IDW) management, discusses the procedures for the identification and characterization of IDW resulting from investigation activities, and describes the generation and location of the anticipated investigation IDW. The IDWMP is included in Appendix C.

9.0 REPORTING REQUIREMENTS

9.1 DAILY QUALITY CONTROL REPORTS

These reports will be prepared daily during field investigations. The reports will describe all work performed by AEROSTAR and subcontractors on site. The reports will be prepared and signed each day by an on-site professional and the reports will be mailed or hand delivered to the USACE TM at the end of each week. An example of a Daily Quality Control Report is provided as Figure 9-1

9.2 SUBMITTALS

Table 9-1 identifies submittal distribution, frequency and number of submittals.

9.3 SUPPLEMENTAL COMPREHENSIVE INVESTIGATION REPORT

AEROSTAR will generate a Supplemental Comprehensive Investigation Report that will document all field activities and collection of associated data. The report will be prepared in accordance with the Alabama Environmental Investigation and Remediation Guidance, March 2002, Revised October 2002, Revised September 2005. The report will present all investigation activities and the information collected. The report will include a risk assessment in accordance with the June 2007 ARBCA guidance.

9.4 QUARTERLY GROUNDWATER MONITORING REPORTS

Three groundwater monitoring events will occur subsequent to the Supplemental CI. A quarterly monitoring report will be prepared following each quarterly monitoring event. Each report will provide analytical results, figures, and tabulated data identifying exceedences of a PSV if any. Each report will follow Natural Attenuation Monitoring Report (NAMR) format for trend analysis.

9.5 ARBCA REPORT

AEROSTAR will generate an ARBCA report. The ARBCA report will include an evaluation of the site conditions, potential receptors at the site, calculated site specific target levels for the receptors, and groundwater resource protections site specific target levels. The ARBCA report will be prepared according to the ADEM ARBCA June 2007 Guidance Manual and the ADEM ARBCA May 2006 computational software.

9.6 WELL ABANDONMENT REPORT

Following completion of all activities and approval of a well abandonment plan, well abandonment will occur for all existing and new monitoring wells installed at OMS-28. A well abandonment report will be prepared detailing the well abandonment activities

FIGURE 9-1 EXAMPLE DAILY QUALITY CONTROL REPORT

DAILY QUALITY CONTROL REPORT **DATE**_____

DAY | S | M | T | W | T | F | S |

USACE TM_____ **WEATHER**	Bright Sun	Clear	Overcast	Rain	Snow
PROJECT_____**TEMP**	0 - 30	35-50	50 – 70	70-85	85-90
JOB NO._____**WIND**	STILL				HIGH
CONTRACT NO._____**HUMIDITY**	DRY				HUMID

SUB-CONTRACTORS ONSITE:_____

EQUIPMENT ONSITE:_____

WORK PERFORMED INCLUDING SAMPLING:_____

FIGURE 9-1 EXAMPLE DAILY QUALITY CONTROL REPORT (CONTINUED)

DAILY QUALITY CONTROL REPORT **DATE**_____

DAY S M T W T F S

PROJECT_____
JOB NO._____
CONTRACT NO._____

QUALITY CONTROL ACTIVITIES (Including Field Calibrations):_____

HEALTH AND SAFETY LEVELS AND ACTIVITIES:_____

PROBLEMS ENCOUNTERED/CORRECTIVE ACTION TAKEN:_____

SPECIAL NOTES:_____

TOMMORROW'S EXPECTATIONS:_____

TABLE 9-1 SUBMITTAL DISTRIBUTION, FREQUENCY AND NUMBER

SUBMITTAL DISTRIBUTION	Draft Work Plan	Final Workplan	Draft Supplemental Comprehensive Investigation Report, ARBCA Report, NAMR Reports, Well Abandonment Report	Final Supplemental Comprehensive Investigation Report , ARBCA Report, NAMR Reports, Well Abandonment Report (with CDs)
Commander U.S. Army Corps of Engineers Mobile District Attn: Melissa L. Shirley, EN-GE P.O. Box 2288 Mobile, Alabama 36628-0001 (251) 690-2616	2	2	2	2
Alabama Department of Environmental Management Attn: Kathleen Keller ADEM Hydrology Section 1400 Coliseum Blvd. Montgomery, Alabama 36130-2059 (334) 270-5655	0	2	0	2
Buzz Turk Compliance Manager AL ARNG PO Box 3711 Montgomery, Alabama 36109-0711 (334)-213-7668	1	1	1	1
Rachel G. Riggins Environmental Engineer Joint Force Headquarters Alabama National Guard ALJ4-CFMO-ENV PO Box 3711 Montgomery, Alabama 36109-0711 (334)-271-8187	1	1	1	2

10.0 MEETINGS

Three meetings are anticipated at the USACE Mobile District office or the project site. AEROSTAR will be responsible for taking the minutes of the meeting and providing final typed minutes of the meeting within one week following the meeting. The minutes will include the date and location of the meeting and a list of attendees including the organizations(s) they represent and their telephone number.

11.0 PROJECT SCHEDULE

All major activities throughout the OMS-28 Supplemental Comprehensive Investigation will be conducted according to the schedule shown in Table 11-1.

The schedule for the soil borings, monitoring well installation, groundwater sampling and survey is dependent on the final approval of the Work Plan.

The schedule chart will be updated to show actual progress as well as any modifications or any other approved changes.

TABLE 11-1 PROJECT SCHEDULE

Action	Date
Notice to Proceed	08/31/2007
Submit Draft WP and Subplans	10/30/2007
Submit Final WP and Subplans	12/29/2007
Exploratory Boring & Geotechnical Sampling	01/08/2008
Monitoring Well Installation and Soil sampling	03/24/2008 – 04/04/2008
Survey New Wells	04/07/2008
Water Table Gauging	04/11/2008
Well Development	04/14/2008
Groundwater Sampling	04/17-18/2008
Draft Supplemental Comprehensive Investigation Report	06/23/2008
Final Supplemental Comprehensive Investigation Report	08/25/2008
1st Quarterly Groundwater Monitoring Report	10/06/2008
2nd Quarterly Groundwater Monitoring Report	01/13/2009
3rd Quarterly Groundwater Monitoring Report	04/23/2009
Draft ARBCA Report	06/12/2009
Final ARBCA Report	08/03/2009
Monitoring Well Abandonment	08/10/2009

APPENDIX A SAMPLING AND ANALYSIS PLAN

APPENDIX B SITE SAFETY AND HEALTH PLAN

APPENDIX C INVESTIGATIVE DERVIVED WASTE MANAGEMENT PLAN