USACE Huntington District
Huntington, West Virginia

FINAL REPORT

QUALITY CONTROL PLAN

Operation and Maintenance Services
Groundwater Monitoring Wells
Plum Brook Ordnance Works
Sandusky, Ohio

Stillwater Environmental Services, Inc.
April 2007

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QUALITY CONTROL PLAN

Operation and Maintenance Services
for
Groundwater Monitoring Wells

Plum Brook Ordnance Works
Sandusky, Ohio

Contract No. W91237-07-P-0078

Prepared for

USACE Huntington District
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Huntington, West Virginia 25701

Prepared by

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QUALITY CONTROL PLAN

Operation and Maintenance Services for Groundwater Monitoring Wells
Plum Brook Ordnance Works, Sandusky, Ohio

Contract Number: W91237-07-P-0078

I. Purpose

This Quality Control Plan (QCP) presents the policy and specific actions that are being implemented by Stillwater Environmental Services, Inc. (Stillwater) on this program to insure that high quality products are produced on time, within budget, and within U. S. Army Corps of Engineer (USACE) standards. It defines the responsibilities and roles of each member of the project team.

II. References

A. CELRH 5-2-7 Quality Management Plan.
B. ER 1110-1-2 Engineering and Design Quality Management
C. CELRDC 5-1-1 Quality Management Plan
D. Applicable ISO 9000 processes - based on procedures and work instructions from Huntington District Corps of Engineers, Engineering /Construction Division (http://www.lrh.usace.army.mil/ct/quality/)

III. General

A. Type of Project

This project requires the contractor to provide operation and maintenance (O&M) services for approximately 100 groundwater monitoring wells in and around the former Plum Brook Ordnance Works located in Sandusky, Ohio. The O&M services include mowing and weed removal in areas leading to the well and immediately adjacent to the well. Maintenance of the wells is also part of the scope of this project. Maintenance includes painting, labeling, replacing caps, etc. In addition to the maintenance, the contractor is required to collect groundwater levels of each monitoring well. Upon the completion of the field activities, a final report will document maintenance activities and seasonal groundwater fluctuations.

B. Location

Activities associated with this project will be carried out in West Milton and Sandusky, Ohio.

C. Customer/Sponsor

The customer for this project is the Huntington District of the U.S. Army Corps of Engineers (USACE).

D. Project Description

Stillwater will provide O&M services by completing the following tasks:

(1) Mowing of areas leading to the wells and areas immediately adjacent to the wells.
(2) Weed removal around the wells.
(3) Well maintenance, including painting, labeling, lubrication of hinges, lock replacement, and cap replacement.
(4) Measuring water levels in the groundwater monitoring wells. The measurements are collected quarterly.
(5) Prepare a Well Maintenance report to summarize the maintenance activities and to document the seasonal groundwater fluctuations.

IV. Quality Control Plan

An effective QCP is important to the undertaking of this program due to the various degrees of technical applications. An effective QCP will ensure that high quality products and services will be produced that satisfy USACE standard practices, policies and guidelines.

V. Internal Quality Control

All required tasks shall be performed by qualified representatives of Stillwater Environmental Services, Inc. Each individual will be responsible for ensuring a quality product through internal checks, review and interaction with the other internal members assigned to the project and applicable USACE points of contact. Each task will be conducted with full communication between team members and USACE contacts. Only quality products and services approved by appropriate USACE contacts will be released from the review team.

VI. Quality Control (QC) Review Team

The QC Review Team shall consist of Helen Owens - Project Manager (PM) and Jacob Wilson – Environmental Technician. The QC review team and their responsibilities are:

1. Helen Owens - Works directly with the USACE Point of Contact (POC) on the assigned project, and acts as the prime contact for the contractor. Reviews all documents, correspondence, materials produced and services provided to USACE as part of the specific contractual agreement, verifying that all project aspects are conducted in accordance with standard practices, policies and guidelines.

2. Jacob Wilson – Will work in conjunction with the PM by reviewing completed work to insure accuracy of work completed and insure that all USACE requirements are met.

VII. Quality Assurance Work Plan

Quality assurance (QA) review of all products and services provided by the contractor will be reviewed by the appropriate contractor manager, Helen Owens. Ms. Owens will ensure quality within standard USACE practices, policies and guidelines, prior to official submittal.

Independent technical reviews will be conducted by technically qualified professionals, who have not been directly involved with product development and who will ensure that:

- The concepts, assumptions, features, methods, analyses, and details are appropriate, fully coordinated, and correct,
- An appropriate range of feasible alternatives was evaluated,
- The problems, opportunities, and issues are properly defined and scoped,
- The analytical methods used are appropriate and yield reliable results,
- The results and recommendations are reasonable, within policy guidelines, and supported by the presentation,
- Any deviations from policy, guidance, and standards are appropriately identified and have been properly approved,
- The products meet the customers' needs

All reports, documents, products, and related materials that are prepared by the contractor will be on file in their office. All reports, documents, products and related materials will be sent to the POC or approved USACE entity for review and approval.

The following QA Work Plan will be followed:

<u>Groundwater Monitoring Well O&M and Water Level Measurements</u>

Site Access

1. The contractor will coordinate all field activities with the USACE POC.
2. The contractor will make all arrangements required to access the PBOW site. Notification to the appropriate NASA Point-of-Contact (POC) will be made approximately one week prior to the field activities.
3. The contractor and their employees or subcontractors will comply with all NASA requirements for entrance and on-site activities.

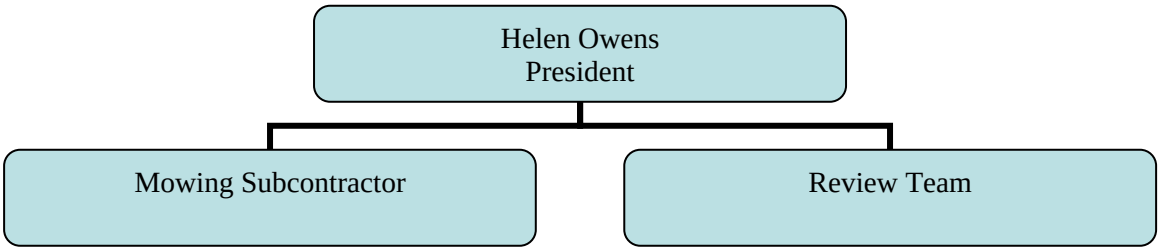
Mowing and Maintenance Activities

1. The contractor will document all maintenance activities which will be summarized in the final groundwater monitoring report.
2. Mowing will be performed in the areas leading to the wells and a 10-foot radius area around the well. Weed eating will be used to remove weeds around the base of the well and around bollards, platforms, etc.
3. Routes to the well will be cleared to allow uninhibited access to the well.
4. Photographs of each well will be taken during the last mowing activity to document the condition of the well and the adjacent area.

Groundwater Level Measurements

1. Water levels will be measured using a Solinst water-level meter capable of determining the presence of oil on the water surface.
2. The water levels and maintenance will be documented in a bound notebook.
3. All water levels and maintenance data will be documented and presented in a report to the POC upon completion of field activities.

VIII. Organizational Chart



Resumes of Review Team members are included as an attachment to this Quality Control Plan.

IX. Quality Control Review Team

Project Name	Operations and Maintenance Services for Groundwater Monitoring Wells at Plum Brook Ordnance Works, Sandusky, Ohio
Timeframe	April 2007-March 2008
Contract Number	W91237-07-P-0078
Review Team Members	Helen Owens, Project Manager
	Jacob Wilson, Environmental Technician

Team Member Resumes

Helen J. Owens
724 South Miami Street
West Milton, Ohio 45383
Home - (937) 698-5090 Cell - (937) 478-2322

Education:
A.A.S., Environmental Quality Assurance, 1977
B.S., Business Management, June 2004

Years of Experience: 30

Active Registrations:
Class I Wastewater Operator, Ohio
Class I Laboratory Analyst, Ohio

Summary of Experience and Qualifications:
With over 30 years experience as an environmental consultant and technician, Ms. Owens has diverse experience in air and water pollution evaluations including protocol development, management of field activities, data collection, industrial and municipal wastewater treatment, process evaluations, and compliance consulting.

Ms. Owens is currently providing technical support to the US Army Corps of Engineers-Huntington District on the Restoration Advisory Board for the Plum Brook Ordnance Works, Sandusky, Ohio. Her responsibilities include public outreach activities, coordination of public meetings, newsletters, development of the Community Relations Plan, and other tasks as directed by the USACE Project Manager. Also for the Huntington District, Ms. Owens provides technical support in the collection of seasonal groundwater level fluctuations to support groundwater modeling development, and collection and interpretation of monitoring well water levels, coordination and implementation of an off-site well survey to determine migration patterns of contaminants. In addition to the Huntington District, Ms. Owens also provides contractor support to USACE–Nashville District on the Remedial Investigation / Feasibility Study of the former Plum Brook Ordnance Works (PBOW), located in Sandusky, Ohio. PBOW manufactured TNT and DNT in WWII and investigations have identified 16 areas of concern with regard to soil and groundwater contamination.

Ms. Owens currently provides program support to the City of Marysville, Ohio where she is responsible for the implementation of the Industrial Pretreatment Program (IPP). Ms. Owens provides similar support services to the City of Mason, Ohio. Her services include development of an industrial user survey; permit writing, and coordination of industrial compliance activities, enforcement and development of Local Limit parameters. Ms. Owens has served as the Contract Pretreatment Coordinator for the City of Middletown, Ohio.

Ms. Owens provided technical guidance to industrial operations in troubleshooting specific wastewater treatment problems, including the development and implementation of an industrial wastewater operator training seminar, evaluation of industrial wastewater treatment operations

Resume – Helen J. Owens, continued

and making recommendations to achieve and maintain regulatory compliance. She has also been responsible for the day-to-day operation of sanitary wastewater treatment plants as a contractor to the USACE, and small municipal and industrial facilities.

Ms. Owens' experience includes numerous projects, such as groundwater monitoring well and soil sampling, storm water monitoring, Phase I environmental assessments, preparation of air and wastewater permit applications, development of Spill Prevention, Control and Countermeasure (SPCC) Plans under the direction and review of a Professional Engineer, air emissions monitoring programs and environmental audits of industrial facilities.

In addition to working full-time as a consultant, in 2005 Ms. Owens opened her own business to support USACE in maintaining electronic documents in a database and on the Huntington Districts' Formerly Used Defense Site (FUDS) website. This activity is on-going and is conducted on a part-time schedule.

Jacob Wilson
648 S. Miami St.
West Milton, Ohio 45383
(937) 753-9686

Education:

A.A.S., Wildlife Management, 2005
Hocking Technical College, Nelsonville, Ohio

A.A.S., Natural Resources Conservation, 2005
Hocking Technical College, Nelsonville, Ohio

High School Diploma, 2000
Environmental Science
Miami Valley Career Technology Center, Clayton, Ohio

Summary of Experience and Qualifications:

February 2006 to Present – Community Oil Station, West Milton, Ohio
Commercial Truck Driver

- Hazmat endorsed
- Inventory and ordering of product
- Money handling and deposit
- Customer relations

June 2005 to December 2005 – Ohio Division of Wildlife, Oak Harbor, Ohio
Natural Resource Specialist

- Construction
- Water level management
- Equipment operations
- Public relations
- Waterfowl check station
- Building and grounds maintenance
- Event planning and setup
- Worked with and around different watercrafts

March 2005 to May 2005 – U.S. Forest Service, Nelsonville, Ohio
Volunteer Internship

- Trail maintenance
- Forestry equipment operation
- Safety training and practice
- GIS/GPS mapping
- Campground maintenance

Resume – Jacob Wilson, continued

April 2001 to September 2001 – U.S. Fish and Wildlife Service, Bethel Alaska
Field Technician

- Collected field data to determine the nesting success of waterfowl
- Identification of migrating waterfowl to support migration count
- Entered field data into database
- Use of hand held GPS for ground navigation
- Conducted daily check in using satellite phone
- Established and constructed remote field camp
- Communication of ground and weather conditions with bush pilots
- Conducted safe practices in extreme backcountry situations
- Worked in and around small aircraft

Special Skills

- Training and experience with GIS/GPS operations.
- Ability to operate diverse types of machinery to accomplish the goals of the project.
- Have had technical training in Microsoft office programs.
- Focused on accomplishing the objectives of the project.
- Ability to identify native plant species of the eastern deciduous forests.