

**USACE Huntington District  
Huntington, West Virginia**



## **FINAL REPORT**

### **QUALITY CONTROL PLAN**

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

**Contract No. W91237-09-P-0026**

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Stillwater Environmental Services, Inc.  
March 2009

# **QUALITY CONTROL PLAN**

## **Operation and Maintenance Services for Groundwater Monitoring Wells**

### **Plum Brook Ordnance Works Sandusky, Ohio**

**Contract No. W91237-09-P-0026**

**Prepared for**

**USACE Huntington District  
502 Eighth Street  
Huntington, West Virginia 25701**

**Prepared by**

**Stillwater Environmental Services, Inc.  
724 South Miami Street  
West Milton, Ohio 45383  
937.478.2322**

**March 2009**

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# QUALITY CONTROL PLAN

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

Contract Number: W91237-09-P-0026

### 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:

### Groundwater Monitoring Well O&M and Water Level Measurements

#### 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

The mowing team will consist of Andrew Owens and David Swigart. Mr. Owens and Mr. Swigart will be responsible for providing the mowing and maintenance services as outlined below:

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.

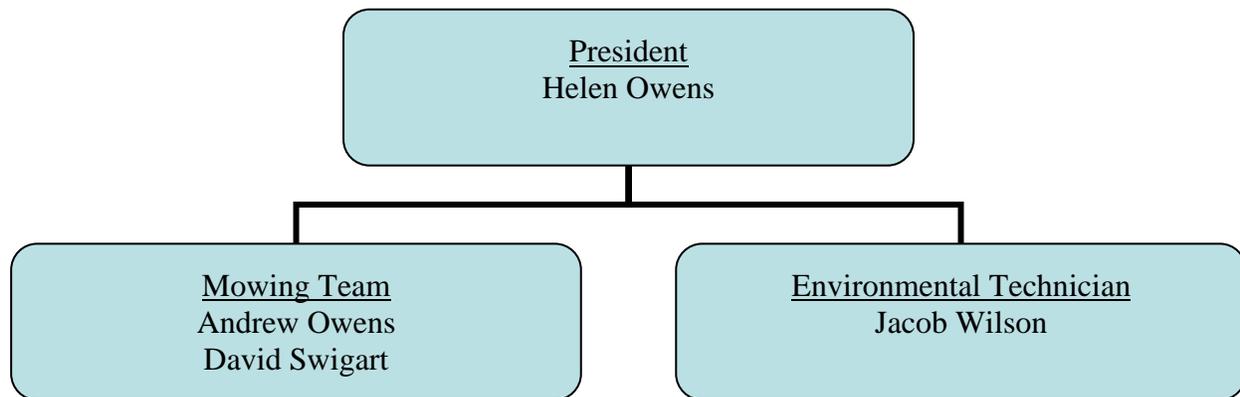
4. Photographs of each well will be taken during the last mowing activity to document the condition of the well and the adjacent area.

#### Groundwater Level Measurements

The groundwater level measurements will be conducted by Helen Owens and will be conducted as outlined below:

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 team members are included in Appendix A of 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 2009-March 2010
Contract Number	W91237-09-P-0026
Review Team Members	Helen Owens, Project Manager
	Jacob Wilson, Environmental Technician

# **APPENDIX A**

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

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

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.

**Andrew H. Owens**  
724 South Miami Street  
West Milton, Ohio 45383  
Home - (937) 698-5090 Cell - (937) 694-8128

**Years of Experience:** 45

**Summary of Experience and Qualifications:**

Mr. Owens has been in the work force for over 45 years. He has been involved in numerous assignments wrecker operations, delivery driver, mechanic duties, wastewater and storm water sampling, and grounds maintenance.

Mr. Owens is currently retired and seeking beneficial use of his time in assisting Stillwater Environmental Services, Inc. to provide mowing and maintenance on the groundwater monitoring wells at Plum Brook Ordnance Works in Sandusky, Ohio.

**Special Skills**

- Equipment operation
- Troubleshooting equipment

**David Swigart**  
1311 Lehman Road  
Troy, Ohio 45373  
Home - (937) 846-0808 Cell - (937) 608-5889

**Education:**

Milton Union High School – Graduation 1998

**Summary of Experience and Qualifications:**

Mr. Swigart is currently the Assistant Farm Manager at Swigart Farms in West Milton, Ohio. Swigart farms is a family-owned and operated business and produces crops such as corn, soybeans, and wheat, as well as livestock including cattle and hogs. Mr. Swigart manages all aspects of planting and harvesting activities. He assists in determining the types of crops to be planted, as well as fertilizer and chemicals to be applied to the fields. At harvest time, Mr. Swigart is responsible for crop delivery to the end user for the highest value and profit. Mr. Swigart also maintains the financial records for the farming operation.

In addition to farming, Mr. Swigart is employed part-time with Stillwater Environmental Services, Inc. (SES). His duties there include project support for the PBOW Groundwater Monitoring Wells O&M activities. Mr. Swigart is responsible for equipment operation and insuring the O&M activities are completed as specified in the contract.

**Special Skills**

- Farm/Soils management
- Equipment operation
- Troubleshooting equipment
- Equipment maintenance

**APPENDIX B**  
**Review Comments**

# USACE Review Comments

Review Comments on Quality Control Plan  
Operations & Maintenance Services  
PBOW, Sandusky Ohio  
Contract No. W91237-09-P-0026

1. Title sheet – Please make sure the “January 2009” is on the title page and not continued by itself on the next page.
2. Pg 2, Section VI. Quality Control (QC) Review Team – This section shows Jacob Wilson and David Swigart as being the Environmental Technician. Please revise section to show correct person in this role. May also need to add a “Review Team” person and their duties since you list Jacob Wilson on the review team in Section VIII. Organizational Chart. Please correct the inconsistencies.
3. Pg 4, VII. Organizational Chart – May want to show Jacob Wilson as the environmental technician as in section IX. Quality Control Review Team designation.
4. General – QCP should include a section showing the Contractor’s Independent Team Review comments and signature page.
5. You include Andrew Owens and David Swigart’s resumes in the QCP but do not state who they are in the body of the QCP. Please include narrative in report as to their function in the project and/or include them in the VII. Organization Chart.

Response to USACE Review Comments  
Operations & Maintenance Services  
PBOW, Sandusky Ohio  
Contract No. W91237-09-P-0026

**Comment** - Title sheet – Please make sure the “January 2009” is on the title page and not continued by itself on the next page.

**Response – Concur.** *The title page has been revised to show the date on the title page.*

**Comment** - Pg 2, Section VI. Quality Control (QC) Review Team – This section shows Jacob Wilson and David Swigart as being the Environmental Technician. Please revise section to show correct person in this role. May also need to add a “Review Team” person and their duties since you list Jacob Wilson on the review team in Section VIII. Organizational Chart. Please correct the inconsistencies.

**Response – Concur.** *This section has been revised to show Jacob Wilson as the Environmental Technician and as a member of the Review Team. David Swigart is designated as a member of the mowing team.*

**Comment** - Pg 4, VII. Organizational Chart – May want to show Jacob Wilson as the environmental technician as in section IX. Quality Control Review Team designation.

**Response – Concur.** *Jacob Wilson is designated as Environmental Technician, consistent with Section IX.*

**Comment** - General – QCP should include a section showing the Contractor’s Independent Team Review comments and signature page.

**Response – Concur.** *The Independent Team review comments on the draft QCP have been included in the final document.*

**Comment** - You include Andrew Owens and David Swigart’s resumes in the QCP but do not state who they are in the body of the QCP. Please include narrative in report as to their function in the project and/or include them in the VII. Organization Chart.

**Response – Concur.** *Section VII has been revised to include a narrative on the responsibilities of Andrew Owens and David Swigart. They have also been designated as the Mowing Team in the Organizational Chart.*

## Internal Review Comments

Internal Review Comments and Responses

Operations & Maintenance Services  
PBOW, Sandusky Ohio  
Contract No. W91237-09-P-0026

**Comment** – Page 1, Section 1 – Purpose. In the second line of the paragraph, the word Environmental is misspelled. Please correct the spelling.

**Response** – *Concur. The spelling of the word “Environmental” has been corrected.*

**Comment** – The contract number should appear on the cover page.

**Response** – *Concur. The cover page has been revised to include the contract number.*

**Comment** – Include resumes of all team members in the plan.

**Response** – *Concur. Resumes of all team members have been included in the plan.*

Reviewer’s Certification Statement

I have reviewed this document and submit the comments above.

Jacob Wilson

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Printed Name

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Signature

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Date