

## **APPENDIX B**

### **Project Quality Assurance Summary**

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## ATTACHMENT

Attachment 1. Field Change Requests

## ACRONYMS AND ABBREVIATIONS

DoD	U.S. Department of Defense
FCR	Field Change Request
FWSAP	Facility-wide Sampling and Analysis Plan
M&TE	Measuring and Testing Equipment
NCR	Nonconformance Report
Ohio EPA	Ohio Environmental Protection Agency
PBA08 SAP	Performance-based Acquisition 2008 Sampling and Analysis Plan
QA	Quality Assurance
QC	Quality Control
QSM	Quality Systems Manual
RI	Remedial Investigation
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
TAR	Training Assignment Record
TestAmerica	TestAmerica Laboratories, Inc.
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

## **B.0 PROJECT QUALITY ASSURANCE SUMMARY**

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This summary presents the actions and methodologies undertaken to meet the quality assurance/quality control (QA/QC) goals and objectives during the remedial investigation (RI) at the C Block Quarry (RVAAP-06) area of concern within the former Ravenna Army Ammunition Plant (RVAAP). These goals and objectives were established in the following:

- *Facility-wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant* (USACE 2001), herein referred to as the FWSAP;
- *Performance-based Acquisition 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1* (USACE 2009), herein referred to as the PBA08 SAP;
- Leidos, formerly Science Applications International Corporation (SAIC) QA Program; and
- U.S. Army Corps of Engineers (USACE) Louisville District QA requirements.

The RI was conducted under one mobilization. The QA/QC objectives were implemented through project-specific procedures and requirements, focusing on field and analytical laboratory activities and project administration.

### **B.1 FIELD QUALITY ASSURANCE**

#### **B.1.1 Readiness Review**

Leidos conducted an internal readiness review on January 28, 2010. The purpose of the readiness review was to ensure the following:

1. Project documents [e.g., sampling and analysis plans and field change requests (FCRs)] and procedures were approved, controlled, and properly distributed;
2. Assigned personnel were trained prior to field activities;
3. Mobilization and site logistics were established;
4. Laboratories were ready to accept samples;
5. Subcontractors were ready to begin work; and
6. QA systems were implemented.

All elements of the readiness review were completed prior to initiating field activities. The readiness review was approved by the Leidos QA/QC Officer and Project Manager.

#### **B.1.2 Procedures**

Standard operating methods for field activities are incorporated into the governing documents for the project. The FWSAP describes the overall approach and methodologies to be used for projects at RVAAP, and the PBA08 SAP details project-specific requirements for field implementation. USACE and the Ohio Environmental Protection Agency (Ohio EPA) reviewed and approved these documents prior to implementing field activities.

Clarifications and/or planned deviations from either plan were documented as FCRs. Prior to executing a field change, each FCR was reviewed and approved by USACE and Ohio EPA. A description of each FCR is presented in Section B.3.1, and copies of FCRs are included in Attachment 1 to this appendix.

Any variances from the approved plans were documented as Nonconformance Reports (NCRs). There were no variances identified during the implementation of the RI at C Block Quarry.

### **B.1.3 Training**

Field team personnel were trained in all procedures applicable to assigned tasks. Training was accomplished through a combination of project kickoff meetings, reading assignments, and on-the-job training. Training was documented by completing training assignment records (TARs) and verified by the Leidos Field Operations Manager. Copies of TARs and training certificates are in the project file. Copies of training records required for Occupational Safety and Health Administration and U.S. Department of Transportation compliance were on site during field activities.

### **B.1.4 Equipment Calibration**

Various types of measuring and testing equipment (M&TE) were used during the field investigation. All M&TE was categorized and assigned unique identifiers. An inventory was maintained in an M&TE logbook.

Only equipment with verifiable traceability to nationally recognized standards was used in the field. Instruments were calibrated in accordance with manufacturer's instructions and frequency. Calibration activities and results were documented in the M&TE logbook, as well as source information for all calibration standards and reagents.

Equipment that did not calibrate within manufacturer's specifications or operate properly in the field was taken out of service and replaced promptly. Replacement equipment was placed into service upon calibration. The M&TE logbook maintains documentation of all replaced equipment.

### **B.1.5 Quality Control Samples**

Field QC samples collected for this project included trip blanks, equipment rinsate blanks, source water, and field duplicates, as specified in the PBA08 SAP. Field QA split samples were also collected and sent to a USACE contracted QA laboratory, RTI Laboratories, Inc., of Livonia, Michigan. The USACE QA laboratory performed an independent analysis and evaluation of analytical results by the contracted laboratory. Appendix C of the RI Report and Feasibility Study presents an evaluation of data quality and analytical performance with respect to field QC results. Appendix D presents field QC data and analyses of QC samples.

### **B.1.6 Field Records**

Field data, observations, activities, and information were recorded on daily activity logs and sampling forms. These logs and forms were bound in 3-ring binders. Each field team possessed a binder with applicable sampling forms and activity logs. This ensured all necessary data were entered consistently. Logbook entries were checked for accuracy and completeness by independent reviewers. Field records were collected upon completion of the project and maintained by the Leidos Field Operations Manager.

## **B.2 ANALYTICAL LABORATORY QUALITY ASSURANCE**

Leidos subcontracted White Water Associates, Inc., of Amasa, Michigan, who subcontracted TestAmerica Laboratories, Inc. (TestAmerica) of North Canton, Ohio and West Sacramento, California, to perform chemical analysis of samples collected. The laboratories performing the analyses were certified by the National Environmental Laboratory Accreditation Conference and have submitted a Self Declaration Statement for compliance to U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories Version 3.0 requirements. QA split samples were collected and submitted to an independent USACE Louisville District QA laboratory (RTI Laboratories, Inc., located in Livonia, Michigan).

### **B.2.1 Readiness Review**

Laboratory QA/QC activities were initiated during the readiness review, which verified the following:

1. Governing documents and approved analytical methods were controlled and properly distributed,
2. The laboratory was scheduled and ready to conduct the analysis,
3. Logistical coordination was established between the laboratory and the field team, and
4. Laboratory QA programs were consistent and compatible with the project requirements.

### **B.2.2 Procedures**

Prior to initiating analytical support, Leidos outlined project-specific requirements for White Water Associates, Inc. and TestAmerica that included the following:

- Parameters to be measured,
- Analytical methods,
  - Adherence to U.S. Environmental Protection Agency (USEPA) SW-846 protocols
  - USACE Shell for Analytical Chemistry Requirements, Appendix I EM200-1-3, 1 February 2001
  - DoD QSM for Environmental Laboratories Version 3.0 requirements
  - Louisville QSM Supplement requirements
- Project quantitation goals (sensitivity), and
- Data deliverables requirements.

### **B.2.3 Laboratory Quality Control**

To document laboratory data quality and measure the quality of the analytical process, laboratory QC samples (e.g., method blanks, laboratory control samples, laboratory duplicates, and matrix spike/matrix spike duplicates) and data verification/validation were employed. The results of laboratory QC are discussed in the Data QC Summary Report (Appendix C). Analytical results of laboratory QC samples are included in Appendix D and form the basis of the data verification and validation process (Section B.2.5).

### **B.2.4 Laboratory Documentation**

White Water Associates, Inc. and TestAmerica maintain comprehensive information regarding the entire analytical process. The laboratory delivered summary data packages and electronic deliverables to Leidos consistent with those identified in the USEPA SW-846 protocol for validation and verification. Laboratory QC sample analyses were cross-referenced to the appropriate environmental field sample analyses in the laboratory deliverables.

### **B.2.5 Data Verification/Validation**

Analytical data generated were subjected to data verification by Leidos, as specified in the Facility-wide Quality Assurance Project Plan (USACE 2001) and PBA08 SAP. To verify data, analytical results were compared to established criteria to which judgment was rendered regarding the acceptability and qualification of the data (Appendix C). Upon receiving the data packages from the laboratory, the information was subjected to a systematic examination following standardized checklists and procedures to ensure content, presentation, administrative validity, and technical validity. Routine data changes were documented through data change forms. Data deficiencies or formal laboratory-related nonconformances were documented through an NCR process, as required.

In addition to the Leidos data review, USACE performed a 10% validation of all data to evaluate data usability. This review constitutes comprehensive validation of 10% of the primary data set, comprehensive validation of the QA split sample data set, and a comparison of primary sample, field duplicate sample, and field QA split sample information (Appendix C).

## **B.3 QUALITY ASSURANCE DOCUMENTATION**

Primary methods for documenting QA were completing FCRs requiring and obtaining USACE and Ohio EPA concurrence and generating NCRs in accordance with Leidos QA procedures. Copies of FCRs completed during the investigation are included in Attachment 1. There were no NCRs generated for C Block Quarry during the implementation of this RI.

### **B.3.1 Field Change Requests**

FCRs were submitted to present the rationale and document approval for any anticipated variances from protocols specified in the FWSAP and/or PBA08 SAP. The FCRs clarified or refined the scope



in the procedural approach to a specific field activity. All FCRs were reviewed and approved by designated technical representatives of USACE and Ohio EPA prior to implementation. None of the FCRs resulted in an adverse impact to project quality, schedule, or scope. Copies of the approved FCRs are included in Attachment 1 of this appendix. The following four FCRs were executed during RI activities at C Block Quarry:

- FCR-RVAAP PBA08RI-002 documented the changes in sampling procedures and analytical methods presented in the approved PBA08 SAP,
- FCR-RVAAP PBA08RI-003 documented using sodium bentonite chips for backfilling surface and subsurface boreholes,
- FCR-RVAAP PBA08RI-006 revised the investigation-derived waste management procedure for this project, and
- FCR-RVAAP PBA08RI-007 increased the survey accuracy for sampling locations from 0.2–3 ft.

### **B.3.2 Nonconformance Reports**

NCRs and/or corrective action reports are generated to identify and correct conditions adverse to quality, as described in the field and laboratory QA plans. No NCRs were generated during the C Block Quarry RI.

#### **B.4 REFERENCES**

USACE (U.S. Army Corps of Engineers) 2001. *Facility-wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. March 2001.

USACE 2009. *PBA 2008 Supplemental Investigation Sampling Analysis Plan Addendum No. 1 Ravenna Army Ammunition Plant, Ravenna, Ohio*. December 2009.

**ATTACHMENT 1**

**Field Change Requests**

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FIELD CHANGE REQUEST (FCR)

FCR NO. FCR-RVAAP PBA08RI-002 DATE INITIATED 02/17/10  
PROJECT PBA 2008 Remedial Investigation  
CONTRACT NO. GSA Contract No. W912QR-04-D-0028 Delivery Order No. 0001

REQUESTOR IDENTIFICATION  
NAME Heather Miller ORGANIZATION SAIC PHONE 330-573-8571

TITLE SAIC Field Operations Manager SIGNATURE 

BASELINE IDENTIFICATION  
BASELINE(S) AFFECTED  Cost  Scope  Milestone  Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION)  
PBA 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1.

DESCRIPTION OF CHANGE:  
SAIC would like to request the approval of a field change to the following sample procedures and analytical methods presented in the approved RI SAP. This request includes all changes discussed on the 2/8/2010 call with USACE, SAIC and RTI. Table 1 presents the requested changes, the justification and concurrence with RTI (USACE split lab) and the impact of not implementing request.

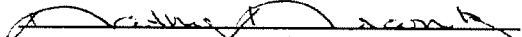
JUSTIFICATION:  
These items are being requested to clarify, adjust, and revise the implementation of the PBA08 RI given new information since its "final" submittal and approval. The attached Table 1 presents the additional information on the justification of each requested change.


IMPACT OF NOT IMPLEMENTING REQUEST:  
Please see Table 1 for the impact of each requested change.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:  
SAIC Field Manager, SAIC Field Teams, Laboratory and USACE Split Laboratory

COST ESTIMATE (\$) 0 ESTIMATOR SIGNATURE No cost impact to USACE  
PHONE NA DATE NA

PREVIOUS FCR AFFECTED  YES  NO; IF YES, FCR NO.     

USACE COTR  DATE: 18 Feb 2010

OHIO EPA PROJECT MANAGER  DATE: 18 Feb 2010

SAIC H&S MANGER SIGNATURE: Not Applicable DATE:

**FIELD CHANGE REQUEST (FCR-RVAAP PBA08 RI-002)**

**Table 1**

<b>Item Number</b>	<b>Description of Requested Change</b>	<b>Justification of Change</b>	<b>Impact of Not Implementing</b>	<b>Cost of Not Implementing</b>
1	<p><u>Nitrate Sampling at Load Line 12</u> SAIC would like to have surface water and wet sediment samples at Load Line 12 analyzed for nitrates to support assessments presented in the Load Line 12 Groundwater Feasibility Study. Wet sediment and Surface Water samples for nitrate will be analyzed by SW-846, 9056A.</p>	<p>Although nitrates were not identified above screening criteria CUGs in surface water and wet sediments samples, SAIC would like to add nitrates to the list of analytes to support the groundwater FS and verify there are no groundwater impacts to surface waters. These methods will also be consistent with methods used by the USACE split laboratory</p>	<p>At this point, it is assumed there is no groundwater and surface water interface of potential nitrate contamination. The additional samples will confirm or deny this assumption.</p>	<p>No cost impact to USACE.</p>
2	<p><u>Part II QAPP Table 2-1. Sampling and Analytical Requirements</u> SAIC would like to remove cyanide from the list of parameters for all media.</p>	<p>Cyanide was inadvertently not removed from Table 2-1 after USACE and Ohio EPA provided guidance (in September 2009) that cyanide was not part of the RVAAP full suite of parameters. These methods will also be consistent with methods used by the USACE split laboratory</p>	<p>No documentation that cyanide was not included during the implementation of the RI SAP.</p>	<p>No cost impact to USACE.</p>
3	<p><u>Part II QAPP Table 2-1. Sampling and Analytical Requirements</u> SAIC would like clarify that 43 of the soil samples and one wet sediment sample presented on Table 2-1 as Metals TAL should have been included as a separate analysis for only total chromium (only). Analysis for total chromium by SW-846, 6020 will be added.</p>	<p>Table 2-1 in the QAAP presented total chromium samples within the Metal TAL samples for wet sediment and soil. Only total chromium and hexavalent chromium are required for chromium speciation samples. As in Section 4.1.3 on page 4-4 of the PBA08 RI Work Plan, field duplicates (and associated splits) samples will not be collected for chromium speciation samples.</p>	<p>Total chromium and all other metals in the TAL metals suite would be reported.</p>	<p>No cost impact to USACE.</p>
4	<p><u>Part II QAPP Table 2-1. Sampling and Analytical Requirements</u> SAIC would like to: - Add method 3541 to pesticides and PCBs to soil and wet sediment. - Replace method 8310 to 8270C for PAHs</p>	<p>Analytical methods were revised to achieve low detection limits for comparisons to CUGs and/or to meet the requirements of the DOD QSM 3.0.. These methods will also be consistent with methods</p>	<p>Actual analytical methods used not documented during implementation of RI SAP</p>	<p>No cost impact to USACE.</p>

**FIELD CHANGE REQUEST (FCR-RVAAP PBA08 RI-002)**

Item Number	Description of Requested Change	Justification of Change	Impact of Not Implementing	Cost of Not Implementing
	for soil and wet sediment. - Add the following analytical methods to liquid and solid IDW samples: TCLP VOC: 8260B and 5030B TCLP SVOC: 8270C/3620C/3510C TCLP Pesticides: 8081A/3520C/3510C TCLP Herbicides: 8151A/3520C/3510C TCLP Metals: 6010B/7470A Total Cyanide: 9010B	used by the USACE split laboratory.		
5	<u>Part II QAPP Table 2-1. Sampling and Analytical Requirements</u> SAIC would like to clarify that our VOC method of analysis is 8260B/5021.	Analytical method 8260B/5035 requires the use of EnCore or TerraCore samplers which is not consistent with the sampling procedures or containers presented in the PBA08 SAP and QAPP (Table 5-1). These methods will also be consistent with methods used by the USACE split laboratory.	Actual analytical methods used not documented during implementation of RI SAP	No cost impact to USACE.

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FCR NO. FCR-RVAAP PBA08RI-003

DATE INITIATED 02/17/10

PROJECT PBA 2008 Remedial Investigation

CONTRACT NO. GSA Contract No. W912QR-04-D-0028 Delivery Order No. 0001

REQUESTOR IDENTIFICATION

NAME Heather Miller ORGANIZATION SAIC PHONE 330-573-8571

TITLE SAIC Field Operations Manager

SIGNATURE



BASELINE IDENTIFICATION

BASELINE(S) AFFECTED  Cost  Scope  Milestone  Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION)

PBA 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1.

DESCRIPTION OF CHANGE:

SAIC requests approval of the following borehole backfilling procedure to supplement guidance presented in the approved PBA 2008 RI SAP.

All discrete surface locations collected with a bucket hand auger, all subsurface boreholes completed using direct push technology, and all geotechnical samples drilled using 4 1/4" hollow stem augers will be backfilled with USACE approved sodium bentonite chips at the completion of sampling activities. Sodium bentonite chips will be added through the augers as they are removed to prevent bridging within the borehole. Care will be taken to ensure that bridging does not occur in any soil boreholes by tamping and thoroughly hydrating the chips with an USACE approved water source every 5 feet until the boring is filled. Each location will be covered lightly with surrounding soil.

JUSTIFICATION:

The PBA 2008 RI SAP and FW SAP do not provide guidance on the abandonment process with respect to surface soil and subsurface direct push boreholes. SAIC requests using abandonment guidance presented in the current Ohio EPA Technical Guidance Manual for Ground Water Investigations, Chapter 9 (February 2009). This document provides guidance that sodium bentonite chips or pellets should be utilized for boreholes completed above the water table, as the use of a cement or cement-bentonite mixture may shrink when installed above the water table.

All geotechnical borings will be completed above the water table. In addition, all surface soil and subsurface direct push borings are anticipated to be completed above the water table. However, if the water table is encountered in surface soil and subsurface direct push borings, sodium-bentonite chips are still the preferred abandonment method, as they will sink through water. This text clarifies SAICs abandonment approach.

IMPACT OF NOT IMPLEMENTING REQUEST:

Surface and subsurface soil borehole (direct push) backfilling activities will not be formally documented/approved.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:

SAIC Field Manager, SAIC Field Teams and Drilling Subcontractor.

COST ESTIMATE (\$) 0

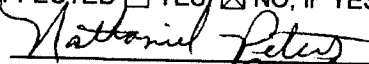
ESTIMATOR SIGNATURE No cost impact to USACE

PHONE NA

DATE NA

PREVIOUS FCR AFFECTED  YES  NO; IF YES, FCR NO.     

USACE COR



DATE: 2/17/2010

OHIO EPA PROJECT MANAGER



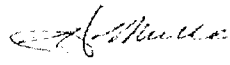
DATE: 02/18/2010

SAIC H&S MANAGER SIGNATURE Not applicable

DATE:

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FIELD CHANGE REQUEST (FCR)

FCR NO. <u>FCR-RVAAP PBA08RI-006</u>		DATE INITIATED <u>02/22/10</u>
PROJECT <u>PBA 2008 Remedial Investigation</u>		
CONTRACT NO. <u>GSA Contract No. W912QR-04-D-0028 Delivery Order No. 0001</u>		
REQUESTOR IDENTIFICATION		
NAME <u>Heather Miller</u>	ORGANIZATION <u>SAIC</u>	PHONE <u>330-573-8571</u>
TITLE <u>SAIC Field Operations Manager</u>	SIGNATURE 	
BASELINE IDENTIFICATION		
BASELINE(S) AFFECTED <input type="checkbox"/> Cost <input type="checkbox"/> Scope <input type="checkbox"/> Milestone <input checked="" type="checkbox"/> Method of Accomplishment		
AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION) <u>PBA 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1.</u>		
DESCRIPTION OF CHANGE: <u>SAIC would like to request the approval of a field change to the following IDW procedures and analytical methods presented in the approved RI SAP. Table 1 presents the requested changes, the justification and the impact of not implementing request.</u>		
JUSTIFICATION: <u>These items are being requested to clarify, adjust, and revise the implementation of the PBA08 RI given new information since its "final" submittal and approval. The attached Table 1 presents the additional information on the justification of each requested change.</u>		
IMPACT OF NOT IMPLEMENTING REQUEST: <u>Please see Table 1 for the impact of each requested change.</u>		
PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST: <u>SAIC Field Manager, SAIC Field Teams, Laboratory and USACE Split Laboratory</u>		
COST ESTIMATE (\$) <u>0</u>	ESTIMATOR SIGNATURE <u>No cost impact to USACE</u>	PHONE <u>NA</u> DATE <u>NA</u>
PREVIOUS FCR AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO; IF YES, FCR NO. <u>    </u>		
USACE COTR <u>Mal W. Muller</u>	DATE: <u>2/23/2010</u>	
OHIO EPA PROJECT MANAGER <u>Scott J. Jeli</u>	DATE: <u>2/23/2010</u>	
SAIC H&S MANGER SIGNATURE <u>NA</u>	DATE: <u>02/22/2010</u>	

**FIELD CHANGE REQUEST (FCR-RVAAP PBA08RI-006)**

**Table 1**

<b>Item Number</b>	<b>Description of Requested Change</b>	<b>Justification of Change</b>	<b>Impact of Not Implementing</b>	<b>Cost of Not Implementing</b>
1	<p><u>IDW- PPE and Expendable Sampling Equipment</u>                      SAIC would like to request that only potentially contaminated PPE and expendable sampling equipment be drummed and disposed as non-hazardous waste. These items would be field screened and segregated as specified in Section 7.1 of the FWSAP. Non-contaminated PPE and expendable sampling equipment will be disposed of in sanitary trash.</p>	<p>The PBA 08 RI SAP does not distinguish between potentially contaminated and non-contaminated expendables/solid waste.</p>	<p>Non-contaminated wastes would have to tracked, labeled, sampled, and disposed of as potentially contaminated material.</p>	<p>No cost impact to USACE.</p>
2	<p><u>IDW - Soil Cuttings</u>                      SAIC would like to request combining soil cutting from the various AOCs as a best management practice to reduce the number of partially filled soil IDW drums. One composite IDW sample from all drums containing soil cuttings will be collected in accordance with Section 7.4.1 of the FWSAP and characterized for waste disposal at the end of the field cycle.</p>	<p>SAIC does not anticipate large quantities of soil IDW being generated during the investigation given soil borings will be accomplished using direct push technology.</p> <p>Combining the soil cuttings will maximize the use of each drum and minimize the potential for partially filled drums.</p> <p>Based on the sampling results of the previous investigations at the 17 AOCs, the concentrations of potential COCs in soil would not be classified as hazardous waste.</p>	<p>Many of the drums of IDW soil would contain as little as five gallons of soil.</p>	<p>No cost impact to USACE.</p>

FCR NO. FCR-RVAAP PBA08RI-007 DATE INITIATED 02/22/10  
PROJECT PBA 2008 Remedial Investigation  
CONTRACT NO. GSA Contract No. W912QR-04-D-0028 Delivery Order No. 0001

REQUESTOR IDENTIFICATION  
NAME Heather Miller ORGANIZATION SAIC PHONE 330-573-8571

TITLE SAIC Field Operations Manager SIGNATURE 

BASELINE IDENTIFICATION  
BASELINE(S) AFFECTED  Cost  Scope  Milestone  Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION)  
PBA 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1.

DESCRIPTION OF CHANGE:

**Survey Precision**

The horizontal coordinates of all sampling locations and the corners of MI sample areas presented in the site specific appendices will be marked in the field utilizing a GPS unit within 1 m (3 ft). Elevations of these locations will not be recorded.

For the installation of any future monitoring wells, the location and elevation will be surveyed to an accuracy of 0.06 m (0.2 ft).

JUSTIFICATION:

This change would be to clarify the intention of using a GPS unit to stake locations for the identified MI sampling areas.  
A higher resolution survey of monitoring wells (if installed) would be used as presented in the approved PBA 08 RI SAP.

IMPACT OF NOT IMPLEMENTING REQUEST:

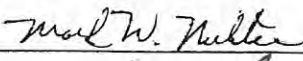
As presented, the level of accuracy for obtaining MI sample area corners could only be met utilizing a licensed surveyor. This change clarifies that a GPS unit would be acceptable to mark sample locations. Well installations would be surveyed by a licensed surveyor.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:

SAIC Field Manager and SAIC Field Teams.

COST ESTIMATE (\$) 0 ESTIMATOR SIGNATURE No cost impact to USACE  
PHONE NA DATE NA

PREVIOUS FCR AFFECTED  YES  NO; IF YES, FCR NO.     

USACE COTR  DATE: 2/24/10


OHIO EPA PROJECT MANAGER  DATE: 2/25/10

SAIC H&S MANGER SIGNATURE NA DATE: 02/22/2010

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FCR NO. FCR-RVAAP PBA08RI-008 DATE INITIATED 02/23/10  
PROJECT PBA 2008 Remedial Investigation  
CONTRACT NO. GSA Contract No. W912QR-04-D-0028 Delivery Order No. 0001

REQUESTOR IDENTIFICATION  
NAME Heather Miller ORGANIZATION SAIC PHONE 330-573-8571

TITLE SAIC Field Operations Manager SIGNATURE 

BASELINE IDENTIFICATION  
BASELINE(S) AFFECTED  Cost  Scope  Milestone  Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION)  
PBA 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1.

DESCRIPTION OF CHANGE:

36 Surface Water (SW) and co-located Wet Sediment (WS) samples are to be collected at 10 AOCs as presented in the PBA 2008 RI SAP. The plan also states that duplicate and split QA samples will be collected at a frequency of 10% per AOC. For SW and WS only, duplicate and split QA samples will be collected at a frequency of 10% for samples collected at all the AOCs. (COMBINED) - MNW

JUSTIFICATION:

The number of SW and WS samples to be collected at each of the 10 AOCs range from 1 to 5. Due to the small number of samples collected per AOC, duplicate and split QA samples would be collected at AOCs where only 1 or 2 Surface Water and Wet Sediment Sample are collected. By collecting the QA samples (for SW and WS only) at a frequency of 10% for all the AOCs, the total number of duplicate and split QA samples will ne reduced.

IMPACT OF NOT IMPLEMENTING REQUEST:

Excessive duplicate and split QA samples will be collected and analyzed at a frequency greater than 10% for Surface Water and Wet Sediment Samples.

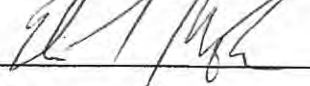
PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:

SAIC Field Manager and SAIC Field Teams. SAIC and USACE laboratories.

COST ESTIMATE (\$) 0 ESTIMATOR SIGNATURE No cost impact to USACE  
PHONE NA DATE NA

PREVIOUS FCR AFFECTED  YES  NO; IF YES, FCR NO.     

USACE COTR  DATE: 2/24/10

OHIO EPA PROJECT MANAGER  DATE: 2/25/10

SAIC H&S MANGER SIGNATURE NA DATE: 02/23/2010

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