

# **PLAN OF OPERATIONS**

## ***INTERIM SOIL REMOVAL ACTION Continuation Soil Excavation and Disposal Plum Brook Ordnance Works – Pentolite Road Red Water Ponds Sandusky, Ohio***

***Contract No. W91237-07-C-0007***

*Prepared for:*

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*Contract No. W91237-07-C-0007*

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## DEFINITIONS AND ACRONYMS

CELRH	USACE Huntington District
COC	Contaminant of Concern
COR	Contracting Officer Representative
CPR	Cardio-Pulmonary Resuscitation
DERP-FUDS	Defense Environmental Restoration Program for Formerly Used Defense Sites
DNT	2,4-Dinitrotoluene and 2,6-Dinitrotoluene
DOD	Department of Defense
DOT	Department of Transportation
GSA	General Services Administration
HTRW	Hazardous, Toxic, and Radioactive Waste
HSWA	Hazardous and Solid Waste Amendments
IDW	Investigation Derived Waste
IQCT	Independent Quality Control Team
ISRA	Interim Soil Removal Action
MDL	Minimum Detection Level
NASA	National Aeronautics and Space Administration
OEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety & Health Administration
PBOSG	Plum Brook Operations Support Group
PBOW	Plum Brook Ordnance Works
PBS	Plum Brook Station
PCBs	Polychlorinated Biphenyls

## **DEFINITIONS AND ACRONYMS (continued)**

POC	Point of Contact
PPE	Personal Protective Equipment
PRGs	Preliminary Remediation Goals
PRRWP	Pentolite Road Red Water Ponds
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
QCFOCs	Quality Control Field Oversight Checklists
QCO	Quality Control Officer
QCP	Quality Control Plan
QCR	Quality Control Reports
RBCs	Risk Based Concentrations
RCRA	Resource Conservation and Recovery Act
RGOs	Remedial Goal Objectives
RI/FS	Remedial Investigation/Feasibility Study
RPDs	Relative Percent Differences
SAP	Sampling and Analysis Plan
SOW	Scope of Work
SPCC	Spill Prevention, Containment and Countermeasure
SSHO	Site Safety and Health Officer
SSHP	Site-Specific Safety and Health Plan
STL	Severn Trent Laboratory
SVOCs	Semi-Volatile Organic Compounds

## DEFINITIONS AND ACRONYMS (continued)

TAL	Target Analyte List
TAPP	Technical Assistance for Public Participation Program
TCLP	Toxicity Characteristic Leaching Procedure
TNT	2,4,6-Trinitrotoluene
TNT A	TNT Manufacturing Area A
TNT B	TNT Manufacturing Area B
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

# PLAN OF OPERATIONS

## ***INTERIM SOIL REMOVAL ACTION Continuation Soil Excavation and Disposal Plum Brook Ordnance Works –Pentolite Road Red Water Ponds Sandusky, Ohio***

***Contract No. W91237-07-C-0007***

### **1.0 PROJECT DESCRIPTION**

#### **1.1 Background and Purpose**

The purpose of this contract at Pentolite Road Red Water Ponds (PRRWP) is the continuation of an Interim Soil Removal Action (ISRA) to remove nitroaromatic contaminated soil found in the PRRWP area of the National Aeronautics and Space Administration (NASA) Plum Brook Ordnance Works (PBOW) site, located in Sandusky, Ohio. The United States Army Corps of Engineers (USACE) is the responsible agency for the investigation and remediation of Department of Defense -generated contamination at the former PBOW, under the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS) at PBOW. The results of the initial ISRA (WTI May 2006) provide analysis and evaluation of the PRRWP area.

The single Contaminant of Concern (COC), 2,4,6 Trinitrotoluene (TNT) is at concentrations that exceed the Preliminary Remediation Goals (PRGs) as identified in the *Final Action Memorandum for the Pentolite Road Red Water Ponds Interim Removal Action* (USACE 2003). The PRGs are based upon Remedial Goal Objectives (RGOs), which are chemical and receptor-specific, risk-based remedial criteria that capture all the exposure assumptions and toxicological data used in risk assessment. This ISRA will be done to minimize the threats to, and provide adequate protection to, human health and the environment from exposure to nitroaromatic-contaminated soil at PRRWP.

#### **1.2 Site Location and History**

The former PBOW is located approximately 4 miles south of Sandusky, Ohio and 59 miles west of Cleveland, Ohio. Although the PBOW site is primarily situated in Perkins and Oxford Townships, the eastern edge of the site extends into Huron and Milan Townships. The site is bounded on the north by Bogart Road, on the south by Mason Road, on the west by County Road 43, and on the east by U.S. Highway 250. The surrounding area is mostly agricultural and residential.

The 9,009 acre PBOW site was built by the United States Army in early 1941 as a manufacturing plant for TNT, Dinitrotoluene (DNT), and Pentolite. Production of explosives at PBOW began in December 1941 and continued until 1945.

PBOW PRRWP consists of an area of approximately 9 acres located at the north-central portion of the former PBOW. PRRWP is located just south of Pentolite Road, southeast of the former Pentolite Area and approximately one mile north of TNT Manufacturing Area B (TNT B). During the operation of the site by the Department of Defense (DOD), the wastewater produced by the purification of TNT within the TNT Manufacturing Area A (TNT A) and TNT B areas was discharged by means of wooden flumes and/or ceramic pipes into various settling ponds (West Area Red Water Ponds and PRRWP). This wastewater was then transported to a wastewater treatment and incineration area. PRRWP also received discharge from Wastewater Treatment Plant #1 that previously existed on site located approximately 700' east of the PRRWP area. Original PRRWP construction plans indicate pond dimensions of 200' wide (east-west) by 400' long (north-south) by 3' deep with a 1' high levee, which created a storage capacity of 182,000 cubic yards of wastewater. NASA had PRRWP filled in 1977 following a breach of the ponds.

NASA acquired the property on March 15, 1963 and currently utilizes the site. The General Services Administration (GSA) performed further decontamination efforts during the 1963 transfer. The decontamination process included removing contaminated surface soils above the drain tiles, flumes, etc., destruction of all buildings by fire, and the removal of all soil, debris, sumps, and concrete foundations. All materials, including the soil in those areas, were flashed. The area was then rough graded. The decontamination process also included the burning of excavated nitroaromatic-filled fumes.

NASA currently operates the Plum Brook Station (PBS) of the John Glenn Research Center at Lewis Field. Most of the aerospace testing facilities built at the site in the 1960's are on standby or inactive status. On April 18, 1978, NASA declared approximately 2,152 acres of PBOW as excess. The Perkins Township Board of Education acquired 46 acres of the excess acreage and uses this area as a bus transportation area. The remaining excess acreage in the Southwest area was sold to various private concerns. NASA currently controls approximately 6,400 acres of land which includes approximately 5,400 acres within the fence line. Of the acreage inside the fence line, NASA has a use agreement with the Ohio National Guard for 604 acres and the remainder is utilized for aerospace research as a satellite operation of the Glenn Research Center. The acreage outside the fence remains part of the test facility exclusion zone and is leased to various farmers and the Erie County Conservation League. The details of land transactions are listed in the Site Management Plan (IT, 1995) and can be found at the NASA PBS.

### **1.3 Overview of Remedy and Proposed Action**

The *Final Action Memorandum for the PRRWP Interim Removal Action* (USACE, 2003) provided the basis for taking initial action at the PRRWP site. The proposed action to remedy PRRWP was to excavate, stabilize, remove, and dispose of nitroaromatics-contaminated soil from the area.

To date, an ISRA has been conducted at the PRRWP area and a report prepared that addresses soil contamination limits that still remain in the area. The COC was identified as nitroaromatics, specifically, TNT. TNT existed in surface soil, subsurface soil, and groundwater, however surface water and pond sediment were not found to be contaminated.

The objective of the initial ISRA for PRRWP completed in 2003 and the current 2007 ISRA at PRRWP is to minimize threats to, and provide adequate protection to, human health and the environment from exposure to nitroaromatic-contaminants in soil. The remedial objectives identified for soils at PRRWP are to:

- 1.) Minimize the potential for human exposure via incidental ingestion, dermal contact, and inhalation of soil contaminated with nitroaromatics.
- 2.) Minimize the potential for nitroaromatics to migrate from soil at the site to the groundwater.

Due to funding limitations, only the 20' x 20' x 10' area identified in the *Final Action Memorandum for the Pentolite Road Red Water Ponds Interim Removal Action* (USACE 2003), has been excavated and backfilled with clean soil. The area was only excavated to a depth of 8' rather than the 10' specified because groundwater was encountered. Exploratory test pits were used in place of continued excavation to determine the horizontal limits of the contamination. Following the test pit activities, confirmation sampling and the calculation of the hazard index (HI) determined that the original extent of contamination was grossly underestimated. Further excavation or treatment is necessary to minimize threats to, and provide adequate protection to, human health and the environment from exposure to the nitroaromatic contamination in the soil.

In addition to the original excavation of 118 cubic yards, the estimated volume of contaminated soil to be removed from these areas is 7,600 cubic yards. Once these excavations are complete, the PRRWP area will be assumed "clean", based upon confirmation sampling from test pit and trenching activities, and will not require additional excavation. The volumes for these areas were calculated based on the establishment of a perimeter by using test pits and sampling (from both field screening and lab confirmation) to confirm when vertical and horizontal contamination limits were reached. Based on the analytical results from test pits excavated within the contaminated limits, it is assumed that the soil being removed will not be hazardous and therefore, not require stabilization, treatment or hazardous disposal, but can be disposed of at a non-hazardous landfill. In addition, analytical results from previous excavation indicate that the soil may possibly be used for daily cover at the landfill.

Once the soil has been excavated, it will be stockpiled in the same area used during the initial ISRA efforts and sampled (based on the landfill requirements of 1 sample per every 500 tons) for disposal. Refer to Table 3 Section 5.3 for sampling requirements. The stockpiled soil will be placed on a 6-mil plastic liner so as not to allow possible migration of contaminants into the ground. The stockpile will also be covered completely with 6-mil plastic liner to eliminate rain-fall run-off issues that may allow for migration of contaminants. An earthen berm will be placed around the perimeter of the stockpile area as well.

The PRRWP excavation will be backfilled with clean fill material and graded as necessary to achieve proper drainage, and reseeded. Backfill material will be acquired from an off-site source and sampled prior to use. Refer to Section 5.1 Table 2 for sampling requirements.

## 1.4 Overview of Tasks

McTech will provide all equipment, labor, materials and supervision necessary for the ISRA as described by the Scope of Work (SOW) at PRRWP. A copy of the SOW can be found in Appendix A. Activities generally consist of excavation, sampling and disposal of contaminated soil, backfilling with clean material and site restoration. Stabilization of soil, if necessary, will be accomplished with an Addendum to the Plan of Operations, pursuant to a modification of the SOW.

The following tasks are required to be performed under this SOW:

- Task 1** Preparation and submission of a Site Specific Safety and Health Plan.
- Task 2** Preparation and submission of a Quality Control Plan.
- Task 3** Preparation and submission of a Plan of Operations, which will include information on the disposal of Investigation Derived Waste (IDW), Erosion Control, Spill Containment, Sampling and Analysis, Environmental Protection and Materials Handling.
- Task 4** Notification/ scheduling of field activities and coordination of utility marking with NASA officials prior to site mobilization.
- Task 5** Survey site to identify limits of excavation.
- Task 6** Excavation of contaminated material.
- Task 7** Disposal of Investigation Derived Waste.
- Task 8** Preparation and submission of the Draft and Final ISRA Report.
- Task 9** Provide public meeting support for the USACE for the work defined by this contract.

The tasks outlined in Section 1.4 are described in detail in the following sections of this SOW. This work will be conducted by the McTech Corporation (McTech) in an environmentally acceptable manner conforming to existing federal, state, and local regulations under USACE Huntington District (CELRH) supervision.

### 1.4.1 (Task 1) Site-Specific Safety and Health Plan

McTech will prepare a Site-specific Safety and Health Plan (SSHP) that covers the field activities planned for the PRRWP. The plan will comply with the requirements of the U.S. Army Corps of Engineers, Safety and Health Requirements Manual, EM 385-1-1, latest version, and the Department of Labor, Occupational Safety and Health Administration (OSHA) as presented in Title 29 of the Code of Federal Regulations, Part 1910.120. At a minimum, the McTech SSHP will address the following items:

- Cover sheet. Identify company name, contract number, project location, signed and dated by plan developer.
- Responsibilities and lines of authority.
- Employee qualifications. Physical fitness, job competence, special skills, equipment operation.
- Employee training. First aid, cardiopulmonary resuscitation (CPR), back injury prevention.
- Safety meetings. "Tailgate" meetings.
- Job Hazard Analysis. Preparation and revision, discussion with employees.
- Emergency response plan. Emergency number, means of communication, route to nearest medical facility.
- Accident reporting and Project Manager responsibility. Report all accidents immediately to the Contracting Officer and submit ENG Form 3394 within two (2) working days.
- First aid kits.
- Personal protection equipment. As a minimum, employees must wear long-legged trousers, sleeved-shirt, and steel-toes shoes. Safety glasses with side shields and hard hats may also be appropriate, depending on activity.
- Hearing protection.
- Vehicles and equipment.
- Public safety.
- Fire safety.
- Environmental hazards.
- Housekeeping.
- Standard operating procedures.

McTech will read and conform to the SSHP when conducting this work. Documentation to this effect will be furnished to the Government Point of Contact (POC) prior to initiation of any work. The plan will also include the names, and qualifications of the Site- specific Safety and Health Officer (SSHO), including education, training and work experience.

#### **1.4.2 (Task 2) Quality Control Plan**

McTech will prepare the Quality control Plan (QCP) that covers field activities planned for PRRWP. The QCP will apply to all tasks/activities and products contained in the SOW. The QCP will be prepared according to the applicable ISO 9000 processes as identified at [www.lrh.usace.army.mil/ct/quality](http://www.lrh.usace.army.mil/ct/quality) developed for this type of work.

The QCP will define the responsibilities and roles of each member on the Independent Quality Control Team (IQCT), along with those preparing or performing the tasks/activities in the SOW. The QCP will also detail the methods and procedures for inspection of work, identifying and correcting deficiencies, maintenance of records, list of authorized Quality Control Inspectors, list of authorized McTech representatives, and security measures.

The draft and final versions of the various plans will include a separate quality control (QC) appendix that includes an activity review checklist (appropriate checks on those activities that were performed/reviewed) for the specific product, along with a signed sheet which designates the name, date and official work title of those persons performing/conducting the QC activities. All comments

and responses, from McTech's QC review and USACE's QC review, as well as contract compliance review comments of the plans will be included in the QC appendix of the final plans.

### **1.4.3 (Task 3) Plan of Operations**

McTech will prepare a Plan of Operations that covers the office and field activities planned for the PRRWP. McTech will also include in the Plan of Operations a Sampling and Analysis Plan (SAP) that will outline the sampling and analysis required for disposal of the contaminated soil and sampling and analysis of borrow material. This has been included in Section 5.0 of this Plan of Operations.

For all borrow sites (whether onsite or off-site), McTech will sample the borrow material to ensure that it is not contaminated. Analyses shall be for volatile organic compounds (VOC)s (Method 8260A), semi-volatile organic compounds (SVOC)s (Methods 3540C/8270), Target Analyte List (TAL) Metals (3050B/6010B/7471A) and Polychlorinated Biphenyls (PCBs) (8082/3540B) including Pesticides / Herbicides if from farmland. These were the same analytical parameters used in the Remedial Investigation. The sampling and analysis will be done in accordance with current United States Environmental Protection Agency (USEPA) SW-846 protocol and also in accordance with the SAP which is part of this Plan of Operations.

McTech will collect the waste from the excavation efforts, used personal protective equipment (PPE), decontamination liquids, and all waste generated from these activities. This media will be containerized in sealable drums and placed in a secured area on the site until the results of the soil analyses are known. All drums will be labeled as to project name, contents, and date of collection, and secured to prevent public access. The drums will be secured with tarps, ropes and pallets. Waste from different sites will not be mixed.

McTech will also include in the Plan of Operations an Investigative Derived Waste Plan (IDWP) for this project. Requirements for this plan can be found in Under Task 7, Section 1.4.7. Please reference this section for all IDW requirements.

### **1.4.4 (Task 4) Notification/Scheduling of Field Activities**

**Field Activities:** The site is currently owned by NASA PBS, however, rights of entry are not required for this removal action. Coordination with PBS personnel will be conducted by USACE to ensure that McTech is allowed access to/from the site to perform all activities during this removal action. McTech will be required to enter/exit through the PBS security gate and therefore, will follow all rules set forth by PBS security. McTech will coordinate their field activities with all appropriate authorities and agencies as required. No intrusive field work will be started until the QCP and SSHP have been approved by USACE and the Notice to Proceed has been given by the USACE Contracting Officer. McTech will prepare and submit to USACE a written response to all comments. McTech will also be responsible for providing an up-to-date, detailed time schedule for the field work to be performed.

**Utilities:** An excavation permit has been acquired and coordinated with the Plum Brook Operation Support Group (PBOSG) for the PRRWP area as well as additional excavation areas discovered through the trenching and test pit efforts. The excavation permit was submitted by McTech on September 3, 2007 and approved by PBOW NASA and PBOSG on September 6, 2007.

#### **1.4.5 (Task 5) Site Survey**

The Final ISRA Report for PRRWP (WTI, May 2006) identifies the surveyed limits for the proposed excavation limits for PRRWP. McTech will utilize this report in obtaining information concerning PRRWP as well as survey and stake the limits prior to excavation. PRRWP will also be surveyed once excavation is complete so as to get final quantities removed as well as obtain coordinates for preparation of final mapping.

#### **1.4.6 (Task 6) Excavation of Contaminated Material.**

McTech will excavate approximately 7,600 cubic yards of nitroaromatic-contaminated material from the PRRWP area. Contaminants, levels of cleanup and excavation limits have already been identified in the ISRA Report, dated May 2006 (WTI) as well as the Remedial Investigation (RI)/ Feasibility Study (FS) phase of this project (a focused RI was completed in 1997 by Dames and Moore, Risk Assessment and Direct Push Investigation was completed in 2001 by IT, and a FS was completed in 2002, collectively know as the RI/FS). All findings and recommendations have been verified and approved by Ohio Environmental Protection Agency (OEPA) and are therefore to be used during this construction effort. This material will be excavated in a safe manner and activities will adhere to all environmental and safety laws, regulations and ordinances. During excavation efforts, McTech will stop excavation of a particular area when encountering bedrock or groundwater. Any water generated during the excavation will be sampled and disposed of in accordance with local, state and federal regulations. McTech will decontaminate all equipment that comes in contact with the soil before moving to another area. Before excavation will begin McTech will submit a drawing to NASA PBS and USACE POC showing the proposed limits of excavation as they are given within the Final ISRA PRRWP Report, dated May 2006 (WTI).

#### **1.4.7 (Task 7) Disposal of Investigation Derived Waste**

McTech will arrange for sampling and analysis, transportation and disposal of material excavated from the PRRWP. Based on discussions with the local landfill, McTech will perform Full Toxicity Characteristic Leaching Procedure (TCLP), pH and paint filter testing of the stockpiled material per their disposal requirements. Due to the minimal IDW expected to be generated, an IDW Plan is not a separate Plan but rather is included as a distinct section, Section 6.0 within the Plan of Operations.

The IDW Plan will contain, at a minimum: analytical methods, management and containerization methods, and proposed disposal facilities. The IDW Plan will address IDW generated on the sites. Actual disposal of IDW will not occur until the test results are known and the IDW Plan has been approved by USACE. If analyses of the samples taken from the sites indicate that regulated concentrations of hazardous contaminants are present, then McTech will test the IDW material. If analyses of the IDW material indicate that regulated concentrations of hazardous contaminants are present, then McTech will dispose of the IDW material collected from the sampling activities in accordance with local, state and federal regulations as outlined in the IDW Plan.

McTech will immediately provide the lab analyses along with a letter stating which contaminants were found if the material has been designated as contaminated. McTech will send this letter with results to the USACE Technical POC through the USACE Contracting Officer Representative (COR). The letter will be included in the final IDW Plan. Once received, McTech will use this information to properly dispose of the IDW according to applicable state, federal and local regulations. McTech will be responsible for laboratory analyses and proper disposal of IDW. Actual disposal of the IDW will not occur until the test results are known. If the material is determined not to be a regulated waste, McTech will dispose of the material in accordance with the IDW Plan, at no additional cost to the Government.

McTech will collect the waste, any used PPE, decontamination liquids, and all waste generated from the construction activities. This media will be containerized and placed in a secured area on the site until the results of the analyses are known. All containers will be labeled as to project name, contents, and date of collection, and secured to prevent tampering. If drums are used, they will be secured with tarps, ropes and pallets. Waste from different sites will not be mixed.

#### **1.4.8 (Task 8) Draft and Final Interim Soil Removal Action Report**

McTech will prepare an ISRA Report, which details the complete efforts during all activities in the SOW. This report will follow the same format that was used for the Final ISRA for PRRWP (WTI, May 2006). This format was generated because there was so much information to include in the report. After OEPA, NASA and the Technical Assistance for Public Participation (TAPP) program reviewed this report, they each commented on the ease with which they were able to review it. Therefore, in keeping with the PBOW Team's thoughts, the McTech will use the format from the previous ISRA report as a guide in preparation for this Draft and Final ISRA Report. Once the draft report has been generated, McTech will submit it to USACE for review. Any comments arising from this review will be incorporated by McTech into the final report. See Section 3.2 of the SOW for QC review and documentation requirements, see also, McTech QCP, 2007. See Section 5.1 of the SOW for reporting requirements.

#### **1.4.9 (Task 9) Public Meeting Support**

McTech will support USACE project manager or Technical Coordinator during meetings necessary to discuss the work defined by this contract. It is assumed a maximum of 1 meeting outside of field activities time will be held to discuss the proposed work. This meeting will be held at a location in the Sandusky, Ohio area. McTech will be responsible for preparing slides, handouts, and coordinating this meeting and will also place a notice in the local newspaper announcing the meeting and inviting the public to attend. McTech will document the meeting minutes and supply these to the USACE project manager or technical coordinator. If necessary, McTech will give a presentation highlighting the results of the ISRA continuation.

## **2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES**

The collection of quality data and the completion of any given project are strongly affected by the project organization. A project that is properly organized with personnel responsibilities well-delineated results in a successful project conclusion. A listing of functional areas and qualified personnel are given for this project.

- A. Government COR**—This is USACE’s contracting officer’s representative, representing the Contracting Officer. (CO) who will direct the contractor, in writing, all instruction from the CO.

<u>USACE COR</u>	<u>Phone Number</u>
Shane Hall	(304) 399-5029

- B. Government Technical POC**—This is the technical POC representing the USACE who is the contract for technical issues regarding the SOW.

<u>USACE POC</u>	<u>Phone Number</u>
Lisa Humphreys	(304) 399-5953
Cellular	(304) 360-2558

- C. NASA Technical POC**— These are the technical POCs representing NASA.

<u>NASA POC</u>	<u>Phone Number</u>
Robert Lallier	(419) 621-3234
<u>NASA Alternate POC</u>	<u>Phone Number</u>
Rosemary Giesser	(419) 621-3342

- D. McTech Corp's Project Manager** – McTech’s Project Manager provides technical insight and provides supervision for the project. The Project Manager has overall responsibility to see that the project is completed in accordance with the SOW.

<u>McTech Corp Project Manager</u>	<u>Phone Number</u>
Kimberlie Chambers	(216) 391-7700
Cellular	(304) 215-0099
Alternate	(218) 330-6436

- E. On-site Project Supervisor**—The On-site Project Supervisor will be in charge of field activities in coordination with McTech’s Project Manager.

<u>McTech Corp On-site Project Supervisor</u>	<u>Phone Number</u>
Dan Cashbaugh	(216) 391-7700
Cellular	(216) 404-8109

- F. Site Safety and Health Officer (SSHO)** – The SSHO is responsible for safety on site. This person has the authority to stop work if unsafe conditions warrant.

<u>McTech Corp SSHO</u>	<u>Phone Number</u>
Dan Cashbaugh	(216) 391-7700
Cellular	(216) 404-8109

**G. Quality Control Officer (QCO)**—This person is responsible for QC at the site. This person has the authority to stop the work if QC is not being met. The QCO is an employee of McTech and is trained in QC.

<u>McTech Corp QCO</u>	<u>Phone Number</u>
Mischelle Stevens	(304) 201-2205
Cellular	(304) 374-8048

**H. Field Personnel** – These personnel are responsible for assisting the Project Managers in completing the tasks required under this contract.

<u>McTech Corp Field Personnel</u>	<u>Phone Number</u>
James Russel	(216) 391-7700
<u>C&amp;K Industrial Services, Inc. Field Personnel</u>	
Gary Cooper	(216) 642-0055
Cellular	(216) 701-4087
Karl Richmond	(216) 642-0055

**I. McTech Corp Independent Quality Control Team (IQCT)**— An internal quality control team will independently review the work plans and reports to ensure that they meet requirements of the SOW.

<u>McTech Corp IQCT</u>	<u>Phone Number</u>
Mark Perkins	(216) 391-7700
Rodney Bumgardner	(304) 722-6015

**J. GPL Laboratories, LLLP**—Samples will be sent to the following DoD Quality Systems Manual (QSM) certified laboratory. GPL is located in Fredrick, MD.

<u>GPL Laboratory Contact</u>	<u>Phone Number</u>
Pat Huebschman	(301) 620-0731

**K. Erie County Landfill**—Non-hazardous soil removed from the site will be disposed of at the Erie County Landfill.

<u>Erie County Landfill Contact</u>	<u>Phone Number</u>
Fred Dobbert	(419) 433-3624

**L. Barnes Nursery**—This company will be used for the transportation of any non-hazardous materials removed from the site. Additionally, this company will provide and transport clean backfill material to the site from their facility.

<u>Barnes Nursery Contact</u>	<u>Phone Number</u>
Jarrett Barnes	(419) 433-5525

**M. Mountain State**—Personnel from Mountain State will perform a survey of the areas to be excavated.

- N. **C&K Industrial Services, Inc.**—Non-hazardous IDW containing liquids will be managed by EnviroServe located in Cleveland, Ohio.

C&amp;K Industrial Services Inc.

Phone Number

Scott Dean

(216) 642-0055

Cellular

(216) 952-1375

### 3.0 APPLICABLE or RELEVANT AND APPROPRIATE REQUIREMENTS

Characterization activities at the PBOW PRRWP site have indicated soil contamination resulting from United States Department of Defense activities including the disposal of waste water in settling ponds from the manufacturing of TNT, DNT and pentolite. The *Final Action Memorandum for the PRRWP Interim Removal Action* (USACE, 2003) identified soil remediation goals for one COC. The COC was identified in surface and subsurface soils which include nitroaromatics.

The *Final Action Memorandum for the PRRWP Interim Removal Action* (USACE, 2003) addressed soil contamination only. WTI was contracted to perform the initial ISRA for the nitroaromatic-contaminated soil. The elements of the selected remedy(s) are presented in *Final Action Memorandum for the PRRWP Interim Removal Action* (USACE, 2003) and the Final ISRA Report (WTI May 2006). The overall objective of the ISRA for the PBOW site is to remove the remaining nitroaromatic-contaminated soil. Successfully meeting the soil remedial objectives would sufficiently address the principal threats at this site, which are nitroaromatics in the soil.

#### 3.1 Final PRRWP Action Memorandum

Based on the *Final Action Memorandum for the PRRWP Interim Removal Action* (USACE, 2003) and ISRA (2006), the USACE will continue an ISRA at PRRWP. One COC was identified in surface and subsurface soil. Corresponding Risk Based Concentrations (RBCs) were assigned. These are chemical- and receptor-specific risk based remedial criteria that capture all the exposure assumptions and toxicological data used in the risk assessment. Based on the results of the human health risk assessment, it was determined that remedial actions were to be taken to prevent human exposure via any exposure route (ingestion, inhalation, or dermal contact). Clean up criteria or Preliminary Remediation Goals (PRGs) were then identified in *Final Action Memorandum for the Interim Removal Action* (USACE, 2003). Refer to Table 1 below for the COC and corresponding PRG.

**Table 1—Contaminant of Concern**

Contaminants of Concern	PRG (mg/kg) <sup>1</sup>
<b>Nitroaromatics</b>	
2,4,6-TNT	13.8

<sup>1</sup> mg/kg is equal to parts per million (ppm)

### **3.2 Resource Conservation and Recovery Act**

Subtitle C of the Federal Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, authorizes USEPA to regulate the management of hazardous wastes. The designation of a waste as hazardous subjects all those charged with managing that waste to the stringent "cradle-to-grave" requirements of RCRA Subtitle C. It is crucial, therefore, for all those managing wastes to properly identify them and determine whether or not those wastes are in fact "hazardous". There are four kinds of hazardous wastes as defined by Subtitle C of RCRA:

- Solid wastes, which exhibit hazardous characteristics (i.e., ignitability, corrosivity, reactivity, or toxicity).
- Solid wastes specifically listed by the Agency as being hazardous.
- A waste that is considered a declared waste.
- A waste mixed with a known hazardous waste.

The toxicity characteristic identifies wastes that are likely to leach hazardous concentrations of certain toxic contaminants into groundwater under improper storage conditions. The toxicity of a waste can be determined by applying the TCLP, a test designed to simulate the leaching of toxic constituents. Full TCLP analysis (volatiles, semi-volatiles, metals, herbicides, and pesticides) will be performed on all soil and IDW that is to be removed from the project site. Because the requirements of the USEPA and RCRA apply to all wastes generated from PBOW, analytical data from the TCLP analysis will be compared to the RCRA regulatory levels for TCLP constituents as to determine the proper disposal method.

## **4.0 FIELD ACTIVITIES**

### **4.1 Borrow Area**

McTech will mobilize to the borrow site to collect samples of the borrow material for analysis. There is one borrow site that will be used, Barnes Nursery. The borrow site is not located at NASA PBS but is located in close proximity; therefore, access to the NASA PBS site will not be necessary for this sampling event. The borrow area will be sampled and analyzed to ensure that the borrow material is not contaminated. One sample per 1000 cubic yards of material needed will be collected. It is anticipated that approximately 7,600 cubic yards of borrow soil will be needed to fill the excavation; therefore, a total of 7 samples will be collected and analyzed. The samples will be 5 point composite samples, collected using dedicated disposable sampling equipment. The borrow material will be considered appropriate for use in backfill of excavated pits if the chemical constituent TNT is below the PRG listed in Table 1, Section 3.1 of this plan. Refer to Table 2 in Section 5.1 of this plan for the analytical parameters for the borrow material.

### **4.2 Storage/Staging Area Preparation**

McTech will notify the USACE POC and receive approval of the planned project schedule prior to mobilizing to the NASA PBS site. McTech will set up an office trailer on site to be used by McTech and USACE project personnel throughout the duration of the project.

McTech will begin clearing/grubbing activities for the staging/storage areas. Material grubbed from the staging/storage area will be placed in windrows for wildlife habitat if approved by NASA and USACE. If grubbed material is not approved for wildlife habitat it will be disposed of at a local landfill. McTech proposes to use two areas for storage/staging. One area is proposed for the storage of clean backfill material and one area is a staging area for nitroaromatic contaminated soils. The storage/staging areas will be constructed using earthen berms, and/or haybales and 6-mil plastic. An excavator and/or backhoe will be used to prepare the storage/staging areas with a minor depression to prevent possible problems with run-off from the areas. After the ground is prepared, 6-mil plastic will be laid down and earthen berms and/or haybales will surround the area with an opening in the front to allow for equipment access. Soils will be covered with plastic, as necessary, to prevent water from storms coming into contact with the stored soils.

Upon confirmation that the borrow soil is appropriate for use, McTech proposes to transport approximately 7,600 cubic yards of borrow soil into the site and store it for future use. It is anticipated that it will take five to six days to transport all of the borrow material to the site. Upon completion of the project, all soils will be removed (contaminated soils will be disposed and the backfill material will be placed in the excavations) from the areas and they will be seeded and mulched. The same storage areas will be used during this ISRA as in the ISRA continuation, TNT B, McTech 2007.

### **4.3 Excavation and Disposal of Contaminated Soil**

McTech applied for the digging and excavation permit on September 3, 2007. This permit was subsequently approved and issued on September 6, 2007. McTech will use an excavator to remove contaminated soils. As the nitroaromatic contaminated soil is removed, it will be transported to the stockpile area where it will be sampled for waste characterization purposes and stored until full TCLP analytical data is obtained. Non-hazardous nitroaromatic contaminated soil will be transported to the Erie County Landfill for disposal.

It is not expected that any of the excavated soil will be hazardous; however, if analysis of stockpiled soil indicates hazardous levels, a modification to the SOW will be necessary since it currently does not cover transportation, disposal, stabilization or bioremediation of any hazardous waste soils. McTech would propose to dispose of hazardous soils at a hazardous landfill unless USACE and/or NASA choose on site stabilization or bioremediation. The selection and procedures for a remediation process cannot be included in this Plan of Operations but, rather in an Addendum, in response to a modification of the SOW.

Refer to Section 5.3 for the parameters to be analyzed for the disposal of the excavated soil. McTech will collect 1, 5 point composite sample for waste characterization purposes per 500 tons of excavated contaminated soil. It is anticipated that a total of 23 soil samples will be collected for characterization purposes prior to disposal.

## **5.0 ANALYTICAL REQUIREMENTS**

McTech will use GPL Laboratories, LLLP of Fredrick, Maryland to perform the analytical testing for the confirmation and waste characterization samples associated with this project.

GPL Laboratory is a DoD Quality Systems Manual (QSM) certified laboratory. GPL's detection and quantitation limits are based upon their minimum detection limit (MDL) studies and are specific for each media and the instrumentation that is being used. The laboratory will follow the most currently promulgated USEPA methods.

### 5.1 Borrow Area

McTech will collect representative samples of the borrow material and have them analyzed for the parameters listed in Table 2.

**Table 2—Chemical Analyses of Borrow Material**

Analytical Parameter	Number of Samples	Method	Size & Container Type	Preservative	Maximum Holding Time
Target analyte list (TAL) metals	7	SW846/3050B, 6010B, 7471A	1 9-ounce glass	Ice 4°C	28 days for mercury, 6 months for other metals
Volatiles	7	SW846/5035	3 glass vials	2-Sodium Bisulfate; 1-Methanol	14 days
Semi-volatiles	7	SW846/8270C	1 9-ounce glass	Ice 4°C	7 days until extraction, analyze within 40 days of extraction
Polychlorinated biphenyls (PCBs)	7	SW846/8082A	1 4-ounce glass	Cool to 4°C	7 days until extraction; analyze within 40 days of extraction
Total Nitroaromatics	7	SW-846/8330	1 9-ounce glass	Ice 4°C	Extract 7 days Analyze 40 days

The borrow material will be considered appropriate for use in backfill of excavated pits if the chemical constituent is below the PRG listed in Table 1, Section 3.1 of this plan. *The decision was made to analyze the borrow soil for nitroaromatics so that there will be 3<sup>rd</sup> party documentation, in addition to generator knowledge, that the borrow soil did not contain nitroaromatics.*

### 5.2 Screening and Confirmation Sampling of Excavated Areas

McTech will excavate the PRRWP area to the horizontal and vertical limits described in Task 6 of the SOW and reiterated in Section 1.4.6 of this plan. Once these limits have been reached, the excavation will be considered clean for closure. Confirmation samples are not required as they were taken during the test pit and trench investigation following the initial ISRA. Results and a complete summary can be found in the *ISRA PRRWP* (WTI, May 2006).

### 5.3 Waste Characterization

Waste characterization for disposal of the contaminated soil and the IDW (PPE, and so forth) is required. TCLP methods will be utilized to characterize the waste from this site. Manifests must be signed by NASA (Bob Lallier for haz or non-haz manifests) or a NASA Representative (i.e., PBOSG, Gary Ponikvar for non-haz only). Holding times for the samples will not be exceeded. Pursuant to the SOW, one sample per 500 tons of contaminated soil will be collected for waste characterization analysis. The following table (Table 3) specifies the analytical method, sample containers, preservation procedure, and holding time requirements for samples collected for this project.

**Table 3—Chemical Analysis for Waste Characterization Purposes**

Analytical Parameter	*Number of Samples	**Number of QC Samples	Method	Size & Container Type	Preservative	Maximum Holding Time
<b>Contaminated Soil</b>						
Toxicity Characteristic Leaching Procedure (TCLP) metals	23	4	SW846/1311, 6010B, 7471A	250 grams/glass	Ice 4°C	28 days for mercury, 6 months for other metals
TCLP volatiles	23	4	SW846/1311, 8260B	250 grams/glass	Ice 4°C,	14 days
TCLP semi-volatiles	23	4	SW846/1311, 8270C	250 grams/glass	Ice 4°C	7 days until extraction, analyze within 40 days of extraction
TCLP herbicides and pesticides	23	4	SW846/1311, 8081, 8151	250 grams/glass	Ice 4°C	7 days until extraction, analyze within 40 days of extraction
Flashpoint	23	4	SW846/1030	250 grams/glass	Ice 4°C	7 days
pH	23	4	SW846/9045C	250 grams/glass	None required	7 days
Paint Filter	23	4	SW846/9095A	250 grams/glass	None required	7 days
<b>Investigation Derived Waste</b>						
Toxicity Characteristic Leaching Procedure (TCLP) metals	2	0	SW846/1311, 6010B, 7471A	250 grams/glass	Ice 4°C	28 days for mercury, 6 months for other metals
TCLP volatiles	2	0	SW846/1311, 8260B	250 grams/glass	Ice 4°C, no headspace	14 days
TCLP semi-volatiles	2	0	SW846/1311, 8270C	250 grams/glass	Ice 4°C	7 days until extraction, analyze within 40 days of extraction
TCLP herbicides and pesticides	2	0	SW846/1311, 8081, 8151	250 grams/glass	Ice 4°C	7 days until extraction, analyze within 40 days of extraction
Flashpoint	2	0	SW846/1030	250 grams/glass	Ice 4°C	7 days
PH	2	0	SW846/9045C	250 grams/glass	None required	7 days

\*The number of samples was estimated based on one sample per every 500 ton excavated. The number of IDW samples was estimated based upon IDW generation from the initial ISRA.

## 6.0 EQUIPMENT DECONTAMINATION AND INVESTIGATION DERIVED WASTE

Stainless steel sampling spoons/trowels, a stainless steel mixing bowl, and a backhoe bucket will be used for sampling. The stainless steel sampling spoons/trowels, mixing bowl, and backhoe bucket and/or truck bed will require decontamination. Stainless steel or disposable sampling spoons/trowels will be used to collect samples from the stockpiles.

All non-disposable sampling equipment will be thoroughly cleaned. Decontamination of all of the sampling equipment will be accomplished prior to and between sampling. All decontamination activities for the backhoe bucket and/or truck beds will be set up where the contaminated soil is stockpiled. All contaminated soil and water will be kept at this location and will be managed with stockpile material. The steps of the decontamination process for the backhoe bucket and/or truck bed will be as follows:

- Brush off the backhoe bucket and/or truck bed to remove gross contamination
- Wash equipment with soap and water
- Rinse equipment with water

Refer to Table 4 for general decontamination procedures for sampling equipment that will be reused at the site.

**Table 4—Decontamination Procedures for Non-disposable Sampling Equipment**

Parameter <sup>1</sup>	Detergent Wash	Tap Water Rinse	Inorganic Desorbing Agents	Tap Water Rinse	Organic Desorbing Agents	Deionized Water Rinse	Air Dry
Nitroaromatics	yes	yes	no	no	Hexane	yes	yes

<sup>1</sup> No inorganic desorbing agents (hydrochloric acid or nitric acid) will be used for the Total/TCLP metals since we are not looking for trace levels and we will use stainless steel or disposable sampling equipment.

In cases of gross contamination on sampling equipment, a tap water wash may first be performed to remove clumps of dirt in order to make the detergent wash more effective. The detergent wash will be a non-phosphate detergent solution, which will be used with brushing or circulating techniques to remove gross contamination. Potable tap water will be used as a rinse for the equipment. A solvent rinse using hexane will be used as an organic desorbing agent. The analytical laboratory performing the analysis as required will be consulted prior to sampling to ensure that decontamination procedures do not affect the subsequent analysis. It is recommended that all solvent rinses be made from an appropriate grade of chemical, such as pesticide or purge-and-trap grade quality. A triple rinse with deionized organic-free water will follow all other decontamination reagents.

All rinsates will be collected and properly disposed. Collection will occur in one of the designated decontamination areas. There will be one main decontamination area located by the stockpile area. It will be constructed using an earthen berm and lined with plastic. A second decontamination area may be set up if necessary and will be transportable (kiddie swimming pool or equivalent) between office trailer site and each excavation area as necessary. Drums, buckets, water, detergent, and brushes will be located in the work area. Drums will be available for containerizing the decontamination waste. A pump will be available to transfer decontamination liquids to the drums.

IDW (PPE, decontamination liquid, and all waste/media generated from the investigation activities) from the site will be disposed in accordance with this Plan of Operations and in compliance with USEPA's off-site disposal policy, RCRA regulations including the RCRA land disposal restrictions for on-site and off-site waste disposal, and the Department of Transportation's (DOT) regulations. McTech will arrange for all services necessary for transport and disposal of the waste at an appropriate disposal facility. Analysis of the waste will be performed to identify potential hazardous constituents prior to disposal. Personnel will adhere to the safety procedures as outlined in the Site-Specific Safety and Health Plan (SSHP). Personnel will wear, at a minimum, Level D PPE when performing waste sampling activities.

Representative samples of the IDW will be collected for characterization prior to disposal and

analyzed for the parameters shown in Table 3 of Section 5.3 of this plan. Flammable or other known hazardous waste will be segregated and stored separately. Waste will not be stored on site longer than 90 consecutive days. Waste from this site will not be combined with waste from another site. All waste will be transported in containers meeting DOT specifications. All drums/containers will be labeled with the project name, contents, and collection start date.

Non-hazardous liquid waste will be managed by C&K Industrial Services, Inc. and non-hazardous solid waste may be disposed at Erie County Landfill. All hazardous IDW will be transported to an appropriate disposal facility (EQ Environmental in Michigan) by Enviroserve, a licensed hazardous waste transporter.

McTech will be responsible for laboratory analyses and proper disposal of the IDW in accordance with applicable state and federal laws. Prior to disposal, manifests must be signed by NASA (Bob Lallier for haz or non-haz manifests) or a NASA Representative (i.e., PBOSG, Gary Ponikvar for non-haz only). McTech will provide the USACE with the following documentation concerning the disposal of all IDW from the site:

- Laboratory analysis
- Copies of waste profiles which include land disposal restriction notifications
- Signed manifests (hazardous and non-hazardous)
- Weigh slips for bulk transport

## **7.0 FIELD DOCUMENTATION PROCEDURES**

The following sections outline the standard practices and procedures for proper documentation of activities for this project. Standard documentation required on all USACE projects, including daily reports and field logs will be completed by the Quality Control Officer reviewed by the On-site Supervisor and submitted by the Project Manager.

### **7.1 Field Logbook/Field Activity Forms**

A bound notebook will be maintained by the QCO to provide daily records of significant events, observations, and measurements during field investigations. In addition, field records will be maintained regarding the various aspects of the sampling. All pertinent information regarding the site and sampling procedures must be documented in indelible ink. Notations should be made in logbook fashion, noting the time and date of all entries. The field records should include the following information:

- Site Location
- Project Number or Work Order Authorization
- Name and title of author
- Names and responsibilities of field personnel on site
- Names and titles of site visitors
- Sampling location and number of samples taken
- Sample description (color, odor etc.)
- Sample collection method and sample preservation methods

- Sample ID numbers
- Dates and times
- Matrix of sample
- Photograph logs
- Sampling changes, modifications or change orders
- Weather conditions
- Other applicable comments

Other field activity forms and checklist including equipment safety, HTRW sampling procedures and QCR's can be found in Appendix A and Appendix B of the Quality Control Plan developed for this project. These should be maintained in a 3 ring binder on site for the duration of the project.

## **7.2 Photographs**

Photographs will be taken by the QCO of all site activities. For each photograph taken, the following items should be noted in the field logbook:

- Date and time
- Photographer (signature)
- Name of site/Project number
- General direction faced and description of the subject taken

## **7.3 Sample Identification Labeling**

All sampling will be done in accordance with USEPA protocol. Sample labels are required to properly identify the samples. All samples will be labeled in the field and care will be taken to assure that each sample container is properly labeled. The samples will be placed in sealed plastic bags to prevent the labels from soaking off or becoming illegible from exposure to water during transport to the laboratory. Labels will contain the following information:

- Site location and project number
- Sample Identification number assigned sequentially as described below
- Description of the sample
- Time and date sample was taken
- Notation of whether preservatives were added to the sample and type of preservative
- Type of sample (such as a grab or composite)
- Type of analysis requested

All field documentation shall be done in indelible ink. Errors in field sampling documents will be corrected by drawing a single line through the error, writing in the correction, and initialing and dating. Sample numbers shall be assigned sequentially and include the project number from which the soil was excavated. For example: 200708-001, 200708M-002 for stockpile samples and BS1-1, BS1-2 for borrow material samples and so on.

## 7.4 Chain-of-Custody

Chain-of-custody procedures provide documentation of the handling of each sample from the time it is collected until analysis is completed. Chain-of-custody procedures are implemented so that a record of sample collection, transfer of samples between personnel, sample shipping, and receipt by laboratory that will analyze the sample is maintained. The chain-of-custody record serves as a legal record of possession of the sample. To simplify records and eliminate potential litigation problems, as few people as possible should handle the samples during the investigation. A sample is considered to be under custody if one or more of the following criteria are met:

- The sample is in the sampler's possession.
- The sample is in the sampler's view after being in possession.
- The sample was in the sampler's possession and then was locked up to prevent tampering.
- The sample is in a designated secure area.

A chain-of-custody shall be filled out on-site and will include the following information:

- Project number
- Project manager
- Site location
- Client contact
- Description of the sample
- Time and date sample was taken
- Notation of whether preservatives were added to the sample
- Type of preservative
- Type of sample such as a grab or composite
- Matrix of sample
- Amount of sample being transported to the laboratory
- Sample number or ID assigned in the field
- The appropriate analytical parameters to be tested
- Seals will be placed on each sample container (except Volatile Organic Compounds (VOCs))
- Any other information that the sampler feels is pertinent to the analysis of the sample(s).

The sampler must sign the chain-of-custody and all sample containers will be transported with a chain-of-custody form. Shipping containers will be sealed for shipment to the laboratory. The original chain-of-custody form will accompany the shipment and McTech will retain copies. A sample chain-of-custody form is located in Appendix C.

## 7.5 Corrections to Documentation

All original data recorded in field logbooks, on sample labels, and chain-of-custody records are to be written in indelible ink. If an error is made on any document related to this project, corrections should be made by drawing a single line through the error and entering the correct information. The erroneous information will not be obliterated. Any error discovered on a document should be corrected by the person who made the entry. All corrections will be initialed and dated.

## **8.0 SAMPLE PACKING AND TRANSPORTATION**

The following are procedures for packaging and shipping of samples for this project:

- All containers, except the VOC vials, will be taped shut.
- All samples will be chilled immediately after collection.
- Each sample container will be placed in a separate plastic bag and sealed. As much air, as possible will be squeezed from the bag prior to sealing. Sample containers and bags will be sealed with evidence tape or custody seals.
- A picnic cooler will be used as the shipping container. In preparation for shipping samples, the drain plug on the cooler will be taped shut from the inside and outside, and a large plastic bag will be used as a liner for the cooler. Inert packing material will be placed in the bottom of the liner.
- The sample containers will be placed upright in the lined picnic cooler in such a way that they do not touch and will not touch during shipping.
- All samples will be shipped to the laboratory on ice and chilled to 4 °C.
- Plastic ice packs or ice placed in double plastic bags will be placed around, among, and on top of the sample containers.
- The Chain-of-Custody form going to the laboratory will be placed inside a sealed plastic bag, which will be taped to the inside lid of the cooler.
- The cooler will be taped shut with strapping tape.
- At least two signed custody seals will be placed on the cooler lid (one in front, the other on the side).

## **9.0 MCTECH CORP CHEMICAL QUALITY CONTROL**

### **9.1 Data Quality Objectives**

The process of generating useful chemical data of acceptable quality begins with determining what the objectives of collecting the data are, and what decisions will be made based on the data that is generated. Next, the actual type of data that is required to meet these objectives is determined, along with the appropriate data collection methodologies and quality control procedures. The methodologies for collecting quality data must be consistent with accepted practices and standard operating procedures that have been developed for the specific type of data collection to insure quality chemical data. Generally, these steps have been predetermined by the USACE for this project and are delineated in the SOW.

Quality controls are incorporated into both the sample collection and analytical procedures. Quality controls utilized in sample collection include, but are not limited to, following the approved plans and procedures for sample collection, proper documentation of sample collection activities and site conditions, reporting and resolving any problems during sampling activities, and proper handling, preserving, packaging, and shipment of samples. In addition, quality control samples (duplicates and trip blanks) are collected to check the accuracy, completeness,

precision, and comparability of the actual field samples. The contract analytical laboratory will follow its internal quality control procedures to insure analytical data quality. The laboratory will use the precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) defined below to insure that their internal quality control objectives have been successfully met.

After the samples have been analyzed and the data reports have been generated, the resulting data will be reviewed, and compared. To assess the quality of the field activities, quality control samples (i.e. duplicates, trip blanks, matrix spikes) will be evaluated for completeness and duplicate relative percent differences (RPDs). The calculation of RPDs from field sample and field duplicate sample data indicates the precision of the sampling efforts as well as the sample media. RPDs are calculated by the following equation:

$$RPD = (C_f - C_d) / \{(C_f + C_d) / 2\} \times 100$$

Where  $C_f$  is the concentration of the compound found in the field sample and  $C_d$  is the concentration of the compound found in the field duplicate QC sample. The RPDs should equal 35% or lower for soils to indicate homogeneity of the sample and the reproducibility of the analytical data (a measure of precision). If the data does not meet the desired RPDs it may be necessary to re-analyze the samples in question, or re-sample if problems cannot be resolved. Decisions to re-analyze or to re-sample will be made with the joint input of the USACE, McTech, and the contract laboratory. In this process the PARCCS of the data will be evaluated and a joint determination of the data quality will be made accordingly.

Once all data has been received and analyzed in accordance with the above requirements, the results and recommendations will be forwarded onto USACE. The USACE will then use this information to make decisions regarding specific properties as they relate to project implementation.

The laboratory will use the following PARCCS to insure that their internal quality control objectives have been successfully met.

- **Accuracy:** This is the degree to which a measurement agrees with the actual value. The accuracy of an analytical procedure is determined by addition of a known amount of spike standard to a field sample matrix or a laboratory control matrix.
- **Precision:** This is a measure of the degree of reproducibility of an analytical value and it is used as a check of the quality of the sampling and analytical procedures. Precision is determined by analyzing replicate samples. Duplicate samples will be collected in the field for this project.
- **Completeness:** Completeness is a measure of the amount of the data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. The minimum level of completeness expected is 95% for each analytical method requested. This level is met in the laboratory by ensuring proper

sample extraction procedures. This level is met in the field by collecting enough sample that the laboratory has an ample amount in case they need to reanalyze the sample.

- **Representativeness:** Representativeness expresses the degree to which sample data accurately and precisely represents actual conditions. Representativeness is a qualitative determination. The representativeness objective of the quality assurance program is to eliminate conditions that may result in non-representative data. Maintaining sample integrity is of the utmost importance.
- **Comparability:** Comparability is the confidence with which one data set can be compared with another. When traceable standards and standard methodology are used, the analytical results can be compared to other laboratories with similar operating procedures. Quality Assurance samples will not be collected for this project.

All field activities will be performed in accordance with the protocols outlined in this Plan of Operations. Samples will be kept in ice filled coolers, under the custody of a McTech employee until they are shipped via overnight express or hand delivered to the laboratory.

## **9.2 Lab Quality Assurance for Chemical Data Measurement**

The overall Quality Assurance (QA) objective is to ensure that data of known and acceptable quality is generated from both field and laboratory activities. STL will be responsible for ensuring that their personnel adhere to their laboratory Quality Assurance Plan (QAP). The number and types of internal QC checks for each analytical method are defined in the laboratory's QAP, which is contained in Appendix D. The laboratory must follow the quality objectives for precision, accuracy, representativeness, comparability, completeness, and method detection limits as set forth in their laboratory QAP.

All data generated from the chemical analysis will be reported in accordance with the SOW. Any sample failing the method or laboratory quality control limit may be re-analyzed. The analytical laboratory, McTech, and the USACE will jointly make the decision regarding re-analysis. Internal QC results should include information about agreement between replicate analyses, spike and surrogate recoveries.

The Remedial Action Summary Report will include analytical results and a Level 2 Quality Control data report from the laboratory. The Level 2 data package will include the following:

- Case Narrative-Information should include number and type of samples received, analysis of those samples, any problems that occurred, whether quality control was within acceptable limits, etc.
- Analytical Report-Summary of all sample analysis information including surrogates for organic methods. Detection limits/reporting limits will be included
- Chain-of-custody

- Summary of Quality Control-A summary will be included of all quality control specific to the project. This may include method reagent blanks, midlevel calibration checks, spike and spike duplicates. All QC will include acceptance criteria and relative percent data where applicable.

### **9.3 Field Quality Control for Chemical Data Measurement**

Field QC is as vital to a project as is QC within the laboratory. Proper execution of each project task is needed in order to yield consistent reliable information that is representative of the media and conditions being measured. The overall quality assurance objective is to ensure that data of known quality is generated so that it will be useful in meeting the intended project objectives. The On-site Project Supervisor will be responsible for seeing that field personnel (McTech and subcontractors) adhere to McTech's QCP.

Quality control field oversight checklists (QCFOCs) to be used for field activities are provided in Appendix C as well as in the QCP. The QCFOCs should be completed for each project site. The On-site Project Supervisor will provide an explanation on the QCFOCs for any items that he marks were not completed. The On-site Project Supervisor will review the following items with the field crew prior to beginning on-site operations.

- Scope of Work
- Contents of this Plan of Operations
- Contents of Site-Specific Safety and Health Plan
- Contents of Quality Control Plan
- Field equipment to be used at project sites
- Sample collection equipment
- Labeling for sample containers
- Chain-of-custody forms
- Laboratory information
- Proper preservation methods for samples
- Proper packaging and shipping procedures for samples
- Proper equipment decontamination procedures
- Proper use of field screening and/or field monitoring equipment

### **10.0 DAILY QUALITY CONTROL REPORTS**

During the field investigation and excavation activities, daily Quality Control Reports (QCR) will be prepared daily, dated, and signed by the On-site Project Supervisor or the QCO. McTech will utilize the USACE QCR Report Form (see Appendix C). The following information will be recorded on the QCR:

- Work performed
- Preparatory, initial, and follow-up phase inspections
- Safety
- Samples taken and tests performed
- Weather information

- Field instrument measurements
- Departures from the approved plans (any deviation that may affect data quality objectives must be conveyed to the USACE immediately)
- Personnel on-site and their job activities
- Any problems encountered
- Instructions from government personnel
- Field photo descriptions

## **11.0 CORRECTIVE ACTION**

Corrective action measures may be required to be taken in the event a discrepancy is discovered in the field, during an audit, and/or the laboratory discovers a discrepancy or problem. Laboratory discrepancies, unrelated to field procedures, will be addressed by the laboratory's personnel and will be corrected in accordance with their QAP.

Any deviations from the approved plans will be fully documented. The USACE Contracting Officer's Representative (COR) will be notified if deviations from the approved plans are necessary. The USACE COR must approve the deviation prior to proceeding with the deviation. Deviations from the plans that compromise data quality or personnel safety will not be allowed.

## **12.0 SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE**

Although a formal Spill Prevention, Containment and Countermeasure (SPCC) Plan is not required for the ISRA McTech is performing on this site, it is important to ensure that the area is secured and that the situation is assessed quickly. Ventilation, vapor suppression, and dust suppression may be required prior to cleaning up a site. Trained personnel will clean up spills quickly unless safety reasons prevent it. All of McTech's personnel on-site have been trained in emergency response and clean-up operations. The Project Manager will immediately inform the USACE and NASA POCs of any spills, regardless of the spill location. Additionally, it may be appropriate to contact the OEPA, Northeast District Office (330-963-1200) and the National Response Center after contacting the USACE and NASA POCs.

### **12.1 Potential Spills**

Potential sources for spills on this project are:

- Spills or leaks of decontamination liquids from equipment decontamination activities.
- Spills or leaks of decontamination liquids from personnel decontamination activities.
- Petroleum leaks from trucks or heavy equipment used at the site.
- Spills of chemicals (acetone, nitric acid, Tornado-50 cleaner, hexane) used on site. It should be noted that only small amounts (1-2 gallons each) of Tornado-50 cleaner, and hexane will be used on-site.

Material Data Safety Sheets (MSDS) for the products that may be brought onsite will be posted at the site and can also be found in the SSHP for this project. Chemicals/petroleum products will

not be stored onsite without a current MSDS being provided and kept onsite. At this time, McTech does not intend to store diesel, motor oil, antifreeze, or any other petroleum product onsite. The following is a list of the materials anticipated to be stored on-site.

- Tornado-50 cleaner
- Hexane
- PPE and small amounts of lab waste (less than 5 gallons of lab waste)

## **12.2 Spill Prevention**

This plan represents a written commitment by McTech to supply the manpower, equipment, and materials required to expeditiously control and remove any potential harmful spills that may occur at the NASA PBS site due to project activities. The following are spill prevention procedures that will be implemented at the site:

- All drums used to store liquids that would be harmful to the environment if spilled will be checked on a weekly basis. The drums should be stored on a pallet for ease of transportation. The On-site Project Supervisor will perform the weekly inspections.
- Heavy equipment (trucks, excavators, etc.) will be inspected weekly prior to use to ensure that they are not leaking. A copy of the inspection form can be found in Appendix C of the SSHP.
- The drums should be covered with tarps and placed in a covered containment area.
- A secure area will be used for the storage of decontamination fluids.
- Personnel will be instructed as to their particular requirements as described in this Spill Control Plan

## **12.3 Spill Response**

In the event of a spill or a leak, site personnel will:

- Inform the Project Manager, Kimberlie Chambers immediately. Ms. Chambers will then immediately inform the USACE of any spills, regardless of the spill location and/or amount. In the event that the Project Manager is not on-site the On-site Project Supervisor will be informed of any spills.
- All nonessential personnel will be cleared from the area. Personnel trained in emergency response and spill control measures will be utilized to contain any spillage of materials.
- Personnel will isolate the area.
- If spill occurs outside of the exclusion (hot) zone, then personnel must designate the spill area as an exclusion zone to limit potential exposure to onsite personnel.
- Trained personnel will attempt to locate the source of the spillage and stop the flow if it can be done safely.
- Trained personnel will begin containment and recovery of the spilled materials.
- PPE required during spill response for this project will at a minimum be Level D PPE. Level C or higher PPE may be used if spill conditions so warrant.
- Spill clean up will be performed only by personnel who are trained with spill response procedures.
- MSDS will be posted for any potential hazardous materials that are used.

- Spills will be reported to the USACE and NASA POCs. If the spilled material reaches any navigable body of water, the OEPA, Northeast District Office (330) 963-1200 and the National Response Center (800) 424-8802 may be notified.
- Fire extinguishers will be available on-site and ready for use.
- Eye wash will be available on-site and ready for use.
- This Spill Control Plan will be posted at the site

#### **12.4 Spill Containment**

Spill containment equipment will be located on-site. Materials used for cleanup will be placed in drums for proper disposal according to appropriate state and federal regulations. Spill containment material that will be on-site is:

- Absorbent pads, booms, or rolls (sufficient number to absorb a minimum of 200 gallons of spilled liquids).
- Drums containing IDW waste or other materials will be stored within in a lined dike area capable of containing any spills or leaks.
- Fluorescent marking tape and/or orange construction fence.

The following are requirements for handling drummed materials on-site:

- All drums and containers used will meet DOT, OSHA, and USEPA regulations for the waste that they contain.
- Drums and containers will be inspected and their integrity assured prior to being moved. Drums or containers that cannot be inspected before being moved because of storage conditions, will be positioned in an accessible location and inspected prior to further handling.
- Operations for the site will be organized so as to minimize the amount of drum or container movement.
- Employees involved in the drum container operations will be warned of the hazards associated with the containers.
- Where spills, leaks or ruptures may occur, adequate quantities of spill containment equipment (absorbent, pillows, etc.) will be stationed in the immediate area.
- Drums or containers that cannot be moved without failure will be emptied into a structurally sound container.

#### **12.5 Spill Reporting**

McTech personnel are to immediately report any imminent or actual spills to the McTech Project Manager and/or On-site Project Supervisor. The Project Manager/On-site Project Supervisor will then report immediately to the USACE POC and NASA POC. The USACE POC will report the information to any regulatory agencies or authorize the Project Manager to do so if the spill amount is reportable. If appropriate, the OEPA, Northeast District Office (330) 963-1200 and the National Response Center (800) 424-8802 may be notified. Reportable Quantities of spilled material will be posted in the office trailer. It is of great importance for personnel to gather the following information if they encounter an imminent or actual spill.

- The location of the release or imminent release.
- The name and quantity of the material involved, to the extent known.

- The possible source or cause of the release.
- The date and time of the release.
- A description of any emergency response actions taken or currently being taken by others.

After the cleanup of a spill, the Project Manager will investigate to determine the possible cause of the spill. The Project Manager will implement corrective actions to prevent a reoccurrence of the spill.

## **12.6 Contingency**

In the event that on-site field personnel cannot handle the spill, NASA and McTech will dispatch their Emergency Response Teams. The Emergency Response Teams have been trained and have sufficient equipment to perform spill cleanup for this project.

## **13.0 PROTECTION OF RIVERS, STREAMS, AND IMPOUNDMENTS: EROSION AND SILT CONTROL**

McTech will exercise every reasonable precaution throughout the life of the project to prevent silting of ditches and streams at the site. Erosion and silt control measures will include, but are not limited to, the following:

- Prior to suspension of excavation operations for any appreciable length of time, McTech will shape the top of earthwork in such a manner as to permit the runoff of rainwater and construct earth berms along the top edges of embankments to intercept runoff water. The berm construction will not be permitted to decrease the stability of the embankment section. In addition, silt fence and straw bales may also be used to prevent erosion from runoff water.
- Preventive measures taken to adequately control any run-off or run-on of water to excavation areas or to the storage/staging areas. Should such preventive measures fail and an appreciable amount of material begins to erode into a waterway, McTech will act immediately to bring the silt under control.
- All excavated soil will be deposited in stockpile areas to prevent any contamination from migrating to waterways or washing away by high water or runoff.
- Diversion ditches will be constructed around areas where running or standing water is present.

## **14.0 AIR EMISSION CONTROLS**

If necessary, water will be used for dust control in areas of excavation and on haul roads. A water truck will remain on site for the duration of the project. The Project Manager/On-site Project Supervisor and the QCO will make visual observations of dust levels to determine if water suppression is necessary and/or working.

## 15.0 PROJECT SCHEDULE

McTech will furnish originals and copies of the work plans and response to comments in the quantities below. A written response to all comments will also be prepared by McTech and included in the final submittal document. Submittals are as follows:

- Draft and Final Addendums to the QCP, SSHP and Plan of Operations – 8 draft and 8 final copies of each plan to USACE
- Draft and Final ISRA Report – 8 draft and 8 final copies to USACE

Addresses for submittals:

U.S. Army Corps of Engineers  
Huntington District  
502 Eighth Street  
Huntington, WV 25701-2070  
ATTN: Shane Hall – CELRH

Due Dates, McTech Corp Submittals and Action Items

<u>McTech Corp Submittals / Action Items</u>	<u>No. Days</u>
Notice to Proceed	0
Submission of Draft QCP, SSHP and Plan of Operations	20 Days after NTP
Submission of Final QCP, SSHP and Plan of Operations	30 Days after NTP
Submission of Draft ISRA Report	180 days after NTP
Submission of Final ISRA Report	30 days following receipt of comments to Draft ISRA

## 16.0 REFERENCES

The following reference materials were used in compiling the information contained in this Plan of Operations and/or will be used in other documents associated with this project.

EM-200-1-3, "*Requirements for the Preparation of Sampling and Analysis Plans*," U.S. Army Corps of Engineers, February 2001

EM-200-1-6, "*Chemical Quality Assurance for Hazardous, Toxic and Radioactive Waste Projects (HTRW)*," U.S. Army Corps of Engineers, October 1997

ER-1110-1-263, "*Chemical Data Quality Management for Hazardous Waste Remedial Activities*," U.S. Army Corps of Engineers, April 1998

CELRHR 5-2-7, "*Quality Management Plan*," U.S. Army Corps of Engineers, May, 1999

ER 385-1-92, "*Safety and Health Document Requirements*," U.S. Army Corps of Engineers, March 1994

EM 385-1-1, "*Safety and Health Requirements Manual*," U.S. Army Corps of Engineers, November, 2003

EM 200-1-2, "*Technical Project Planning Process*," U.S. Army Corps of Engineers, August 1998

EM 200-1-1, "*Validation of Analytical Chemistry Labs*," U.S. Army Corps of Engineers, July 1994

ER 1165-2-132, "*HTRW Guidance for Civil Works Projects*," U.S. Army Corps of Engineers, June 1992

Final PRRWP Action Memorandum, Former Plum Brook Ordnance Works, Sandusky, Ohio, USACE, 2003

Final ISRA Report, Former Plum Brook Ordnance Works, Sandusky, Ohio, WTI, May 2006

**APPENDIX A**

**SCOPE OF WORK**

## Section C - Descriptions and Specifications

Final Scope of Work for the  
Interim Soil Removal Action Continuation  
Plum Brook Ordnance Works - Pentolite Road Red Water Ponds Area  
Sandusky, Ohio  
December 2006  
Contract No. \_\_\_\_\_

**1.0 Introduction / Authority.**

This work shall be awarded as Performance Based and issued as a firm fixed-price contract. The purpose of this Scope of Work (SOW) is for the continuation of a Non-time Critical Removal Action (NTCRA) within Pentolite Road Red Water Ponds (PRRWP) area of the Plum Brook Ordnance Works (PBOW) Project. The United States Army Corps of Engineers (USACE) is the responsible agency under the Defense Environmental Restoration Program (DERP) at the former PRRWP area. Based on the results of the completed Remedial Investigation/Feasibility Study (RI/FS - reference Section 2.0) for soils, the USACE will continue a NTCRA in the PRRWP area. The removal action will be taken to prevent human and ecological exposure to site soil containing 2,4,6-trinitrotoluene (TNT), the primary constituent of concern (COCs) at concentrations that exceed preliminary remediation goals. The remediation goal is chemical- and receptor-specific risk based remedial criteria that capture all the exposure assumptions and toxicological data used in the PRRWP risk assessment. The removal action will consist of the excavation of approximately an additional 7,600 cubic yards of nitroaromatic-contaminated soil, backfilling of the excavation pit with clean soil, ex-situ stabilization of the excavated contaminated soil (if needed), and off-site disposal of waste.

**1.1 Site History and Location.**

The site of the former Plum Brook Ordnance Works (PBOW) is located approximately 4 miles south of Sandusky, Ohio and 59 miles west of Cleveland, Ohio. Although primarily in Perkins and Oxford Townships, the eastern edge of the site extends into Huron and Milan Townships. PBOW is bounded on the north by Bogart Road, on the south by Mason Road, on the west by County Road 43, and on the east by U.S. Highway 250. The surrounding area is mostly agricultural and residential.

The 9,009-acre PBOW site was built by the Army in early 1941 as a manufacturing plant for 2,4,6-trinitrotoluene (TNT), dinitrotoluene (DNT), and pentolite. Production of explosives at PBOW began in December 1941 and continued until 1945. It is estimated that more than 1 billion pounds of nitroaromatic explosives were manufactured during the 4-year operating period. The three explosive manufacturing areas were designated TNT Area A (TNT A), TNT Area B (TNT B), and TNT Area C (TNT C).

## Former PBOW Vicinity Map (USGS Topographical Map July 1986)



PBOW Pentolite Road Red Water Ponds (PRRWP) consists of an area of approximately 9 acres located at the north-central portion of former PBOW. PRRWP is located just south of Pentolite Road, southeast of the former Pentolite Area and approximately one mile north of TNT B. Wastewater from TNT A and B were sent by wooden flumes and ceramic pipes to the Wastewater Treatment Plant #1 which were located about 700 feet east of the PRRWP. During the operation of the site by the Department of Defense (DOD), process wastewater resulting from the purification of the TNT was discharged to various settling ponds (West Area Red Water Ponds and the PRRWP) at the site. This wastewater (referred to as "red water" because of its color) was transported to a wastewater treatment and incineration area and discharged via wooden flumes and elevated discharge pipes into the settling ponds. The wastewater was then discharged from Wastewater Treatment Plant #1 through pipes to the PRRWP. Original PRRWP construction plans indicate pond dimensions of 200' wide (east-west) by 400' long by 3' deep with a 1' high levee and had a capacity of 182,000 cubic yards of wastewater. NASA had PRRWP filled in 1977 following a breach of the ponds.

The National Aeronautics and Space Administration (NASA) acquired the property on March 15, 1963 and currently utilizes the site. GSA performed further decontamination efforts during 1963 to facilitate this transfer. The decontamination process included removing contaminated surface soils above the drain tiles, flumes, etc., destruction of all buildings by fire, then removal of all soil, debris, sumps, and concrete foundations. All materials, including the soil in those areas, were flashed; the area was then rough graded. The decontamination process also included the burning of excavated nitroaromatic-filled flumes.

NASA currently operates the Plum Brook Station (PBS) of the John Glenn Research Center at Lewis Field. Most of the aerospace testing facilities built in the 1960s at the site are in standby or inactive status. On April 18, 1978, NASA declared approximately 2,152 acres of PBOW as excess. The Perkins Township Board of Education acquired 46 acres of the excess acreage and uses this area as a bus transportation area. GSA retains ownership of the remaining excess acreage and currently has a use agreement with the Ohio National Guard for 604 acres of this land. NASA presently controls approximately 6,400 acres and is using the site to conduct space research as a satellite operation of the John Glenn Research Center at Lewis Field in Cleveland, Ohio. The details of land transactions are listed in the site management plan (ICI, 1995) and can be found at the NASA PBS.

To date, an Interim Soil Removal Action (ISRA – reference Section 2.0) has been conducted at the PRRWP area and a report prepared that addresses soil contamination limits that still remain in the area. The COC was identified as a nitroaromatic, specifically, 2,4,6-Trinitrotoluene (TNT). TNT existed in surface soil, subsurface soil, and groundwater; however, surface water and sediment were not found to be contaminated.

The overall objective of the ISRA for PRRWP was to minimize threats to, and provide adequate protection to, human health and the environment from exposure to contaminants in soil. The remedial objectives identified for soils at PRRWP were:

- 1) Minimize the potential for human exposure via incidental ingestion, dermal contact, and inhalation of soil contaminated with nitroaromatics.
- 2) Minimize the potential for nitroaromatics to migrate from soil at the site to the groundwater.

Due to funding limitations, only the 20' x 20' x 10' area identified in the *PRRWP Final Action Memorandum* (USACE, 2003) has been excavated and backfilled with clean soil. The area was only excavated to a depth of 8' rather than the 10' specified because ground water was encountered at that depth. Exploratory test pits were used in place of continued excavation to determine the horizontal limits of the contamination. Following the test pit activities, confirmation sampling and the calculation of the hazard index (HI) determined that the original extent of contamination was grossly underestimated. Further excavation or treatment is necessary to minimize threats to, and provide adequate protection to, human health and the environment from exposure to the nitroaromatic contamination in soil. In addition to the original

excavation of 118 cubic yards, approximately 7,600 cubic yards of additional excavation or treatment would be required to remediate PRRWP.

Currently, funding has become available to conduct the ISRA continuation and that is the work effort outlined in this SOW.

## 1.2 Proposed Action Description

To provide a basis for taking further action at this site, an initial ISRA was conducted by WTI to address the original 20' x 20' x 10' area identified in the Feasibility Study (FS—reference Section 2.0). The original area was identified in the PRRWP RI/FS as requiring excavation, possible stabilization and final disposal. Results from the initial ISRA showed that the extent of nitroaromatic-contaminated soil identified in the PRRWP FS were greatly under estimated. Therefore, due to funding constraints, complete excavation of the contaminated area was not possible. To date, only the 20' x 20' x 8' area has been completed. As per Ohio EPA guidance, excavation was to be stopped upon encountering groundwater. Therefore the original depth of 10' outlined in the RI/FS was reduced to 8' because groundwater was encountered. Currently, USACE has been able to fund the additional excavation and disposal. Excavation for this area is based on the horizontal / vertical contamination limits identified during the trenching / test pitting investigation efforts conducted by WTI after the initial ISRA was completed. The findings for this area are detailed in the Final ISRA for Pentolite Road Red Water Ponds, dated May 2006 (reference Section 6.0). This report should be referenced (used in conjunction with) the continued ISRA for the remaining excavation.

The proposed approach, which is also the approved remediation method by Ohio EPA and NASA (regulators for the PBOW project) for this continued ISRA is to excavate the remaining area to the limits identified in the Final ISRA PRRWP dated May 2006 and dispose at a landfill-regulated / licensed to accept the waste. These limits will excavate the soil that contains concentrations of the COC that exceeds the PRG identified in the RI/FS. The estimated volume of contaminated soil from this area is 7,600 cubic yards. Once the excavation is complete, the area will be assumed "clean" and not require additional excavation. The volume for the area was calculated based on the findings from the test pit investigation. Based on the analytical results from test pits excavated within the contaminated limits, it is assumed that the soil being removed will not be hazardous and therefore, not require stabilization / treatment nor hazardous disposal, but can be disposed of at a non-hazardous landfill. Based on previous projects like the PBOW TNT B ISRA, the soil may possibly be used for daily cover at the landfill. Once the soil has been excavated, it will be stockpiled in the area used during the initial ISRA efforts and analyzed (based on the landfill requirements of 1 sample per every 500 tons) for disposal. The stockpiled soil (in stockpiles of 500 tons each) shall be placed on a 6-mil plastic liner so as not to allow possible migration of contaminants into the ground. The stockpile shall also be covered completely with 6-mil plastic liner to eliminate rain-fall run-off issues that may allow for migration of contaminants.

Here is the PRG level that was approved for project clean-up:

Chemical of Concern	PRGs (mg/kg)
<b>Nitroaromatics</b>	
2,4,6-TNT	13.8

Once the area has been excavated, clean fill material will be placed in the excavation pits, compacted, graded as necessary to achieve proper drainage, and reseeded.

This remediation method was the approved alternative (as outlined in the FS) by Ohio EPA, NASA, USACE and the Restoration Advisory Board (RAB - during public comment and approval of the Action Memorandum). Use of another remediation method may require regulator approval prior to remediation of the site.

## 2.0 Scope of Work / Objectives.

The Contractor shall provide all equipment, labor, materials and supervision necessary for the remediation of the PRRWP site. Remediation activities consist of excavation, stabilization (if necessary) and disposal of contaminated soil and backfill with clean material. Overall, this work shall consist of the following tasks:

- Task 1 Preparation/Submittal of a Site-Specific Safety and Health Plan (SSHP)
- Task 2 Preparation/Submittal of a Quality Control Plan (QCP)
- Task 3 Preparation/Submission of a Plan of Operations
- Task 4 Field Activities/Utilities
- Task 5 Site Survey
- Task 6 Excavation
- Task 7 Disposal/ Investigative Derived Waste (IDW)
- Task 8 Preparation/Submission of Draft and Final ISRA Report
- Task 9 Meeting Support

**3.0 Requirements / Performance Standards.** The tasks outlined in Section 2.0 are described in detail in the following sections of this Scope of Work (SOW). This work shall be conducted by the Contractor in an environmentally acceptable manner conforming to existing federal, state, and local

regulations under US Army Corps of Engineers (USACE)/Huntington District (CELRH) supervision.

### 3.1 (Task 1) Preparation and Submission of a Site-Specific Safety and Health Plan (SSHP)

The Contractor shall prepare a Site-Specific SSHP that covers the field activities planned for the area. The plan shall comply with the requirements of the U.S. Army Corps of Engineers, Safety and Health Requirements Manual, EM 385-1-1, latest version, and the Department of Labor, Occupational Safety and Health Administration (OSHA) as presented in Title 29 of the Code of Federal Regulations, Part 1910.120. As a minimum, the contractor SSHP shall address the following items:

- Cover sheet. Identify company name, contract number, project location, signed and dated by plan developer.
- Responsibilities and lines of authority.
- Employee qualifications. Physical fitness, job competence, special skills, equipment operation.
- Employee training. First aid, CPR, back injury prevention.
- Safety meetings. "Tool box" meetings.
- Job Hazard Analysis. Preparation and revision, discussion with employees.
- Emergency response plan. Emergency number, means of communication, route to nearest medical facility.
- Accident reporting and supervisor responsibility. Report all accidents immediately to the Contracting Officer and submit ENG Form 3394 within two (2) working days.
- First aid kits.
- Personal protection equipment. As a minimum, employees must wear long-legged trousers, sleeved-shirt, and steel-toes shoes. Safety glasses with side shields and hard hats may also be appropriate, depending on activity.
  - Hearing Protection
  - Vehicles and equipment.
  - Public safety.
  - Fire safety.
  - Environmental hazards.
  - Housekeeping.
  - Standard operating procedures.

The contractor shall read and conform to the SSHP when conducting this work. Documentation to this effect shall be furnished to the Government Point-of-Contact (POC) prior to initiation of any work. The plan shall also include the names, and qualifications of the Site Safety and Health Officer, including education, training and work experience.

### 3.2 (Task 2) Preparation and Submission of a Quality Control Plan (QCP)

The Contractor shall prepare a QCP that covers the office / field activities planned for the area. The QCP shall apply to all tasks/activities and products contained in this SOW. The QCP shall be prepared according to the applicable ISO 9000 processes as identified at [www.lrh.usace.army.mil/ct/quality](http://www.lrh.usace.army.mil/ct/quality) developed for this type of work.

The QCP shall define the responsibilities and roles of each member on the Independent Quality Control Team (IQCT), along with those preparing or performing the tasks/activities in this SOW.

The QC Plan shall also detail the methods and procedures for inspection of work, identifying and correcting deficiencies, maintenance of records, list of authorized Quality Control Inspectors, list of authorized Contractor representatives, and security measures.

The draft and final versions of the various plans shall include a separate QC appendix that includes an activity review checklist (appropriate checks on those activities that were performed/reviewed) for the specific product, along with a signed sheet which designates the name, date and official work title of those persons performing/conducting the QC activities. All comments and responses, from the Contractor's QC review and USACE's QA/QC review, as well as contract compliance review comments of the plans shall be included in the QC appendix of the final plans.

### 3.3 (Task 3) Preparation and Submission of a Plan of Operations

The Contractor shall prepare a Plan of Operations that covers the office and field activities planned for the area. This plan shall be submitted and approved by USACE prior to start-up of construction field activities.

The Plan of Operations shall follow the original ISRA Plan of Operations outline and include any information that is in addition to the work previously performed.

The Contractor shall also include in the Plan of Operations a Sampling and Analysis Plan (which includes the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP)) that will outline the sampling and analysis required for disposal of the contaminated soil as well as that required for confirmation/field screening efforts once excavation has been completed.

For all borrow sites (whether onsite or off-site), the Contractor shall sample the borrow material to ensure that it is not contaminated. Sampling shall be for VOCs (Method 8260A), SVOCs (Methods 3540C/8270), TAL Metals (3050B/6010B/7471A) and PCBs (8082/3540B) including Pesticides / Herbicides if from farmland. These were the same sampling parameters used in the Remedial Investigation (reference Section 2.0). The sampling and analysis shall be done in accordance with current USEPA SW-846 protocol.

The Contractor shall collect the potentially hazardous waste from the excavation efforts, used personal protective equipment (PPE), decontamination liquids, and all waste generated from these activities. This media shall be containerized in sealable drums and placed in a secured area on the site until the results of the soil analyses are known. All drums shall be labeled as to project name, contents, boring number and date of collection, and secured to prevent public

access. The drums shall be secured with tarps, ropes and pallets. Waste from different sites shall not be mixed.

The Contractor shall also include in the Plan of Operations an Investigative Derived Waste Plan (IDWP) for this project. Requirements for this plan can be found under Task 7, Section 3.7. Please reference this section for all IDW requirements.

### 3.4 (Task 4) Field Activities/Utilities

3.4.1 Field Activities. The site is currently owned by NASA Plum Brook Station (PBS), however, rights of entry are not required for this removal action. Coordination with PBS personnel will be conducted by USACE to ensure that the Contractor is allowed access to/from the site to perform all activities during this removal action. The Contractor shall be required to enter/exit through the PBS security gate, therefore, he shall follow all rules set forth by PBS security. The USACE shall be notified in writing at least two (2) weeks prior to commencement of any field work. The Contractor shall coordinate his field activities with all appropriate authorities and agencies as required. No field work shall be started until the QCP, SSHP and Plan of Operations have been approved by USACE. The Contractor shall prepare and submit to USACE a written response to all comments. The Contractor shall also be responsible for providing (with the notification) an up-to-date, detailed time schedule for the field work to be performed.

3.4.2 Utilities. An excavation permit was obtained for this area when the original ISRA was conducted as well as the test pit investigation efforts, however, it will need to be renewed with Plum Brook Operations Support Group (PBOSG is NASA's Contractor) for the PRRWP area as well as any additional excavation areas discovered through the trenching / test pitting efforts. Therefore, the Contractor shall coordinate with PBOW NASA and PBOSG to obtain this permit.

### 3.5 (Task 5) Site Survey

The Final ISRA for PRRWP, dated May 2006 identifies the surveyed limits for the proposed excavation limits for the area. The Contractor shall utilize this report in obtaining information concerning the area as well as survey/stake the limits prior to excavation. The coordinates outlined in the Final ISRA for PRRWP will be used for preparation of final mapping / as-built drawings for the Final ISRA Continuation report.

### 3.6 (Task 6) Excavation of Contaminated Material.

The Contractor shall excavate approximately 7,600 cubic yards of contaminated material from the PRRWP area. Contaminants, levels of cleanup and excavation limits have already been identified in the Final ISRA Report, dated May 2006. All findings and recommendations have been verified and approved by Ohio EPA and are therefore to be used during this construction effort. This material shall be excavated in a safe manner and activities shall adhere to all environmental and safety laws, regulations and ordinances. During excavation efforts, the Contractor shall stop excavation of that particular area when encountering bedrock or

groundwater. Any water generated during the excavation shall be containerized, sampled and disposed of in accordance with local, state and federal regulations. The Contractor shall decontaminate all equipment that comes in contact with the soil prior to equipment leaving the site. Before excavation begins, the Contractor shall submit a plan (within the Plan of Operations) showing the proposed limits of excavation as they are given within the Final ISRA PRRWP Report, dated May 2006. The Contractor shall complete all field activities for this project within 5 months of beginning the field efforts.

### 3.7 (Task 7) Disposal/Investigative Derived Waste (IDW)

The Contractor shall arrange for sampling and analysis, transportation and disposal of material excavated from the PRRWP area. Based on discussions with the local landfill, the Contractor shall perform Full TCLP, pH and paint filter testing of the stockpiled material per their disposal requirements.

The Contractor shall prepare an IDW plan. This plan shall contain, at a minimum: analytical methods; management and containerization methods; and proposed disposal facilities. The IDW Plan shall address IDW generated for this site. Actual disposal of IDW shall not occur until the test results are known and the IDW Plan has been approved by USACE. If analyses of the samples taken from the site indicates that regulated concentrations of hazardous contaminants are present, then the Contractor shall test the IDW material. If analyses of the IDW material indicate that regulated concentrations of hazardous contaminants are present, then the Contractor shall dispose of the IDW material collected from the sampling activities in accordance with local, state and federal regulations as outlined in the IDW Plan.

The Contractor shall immediately provide the lab analyses along with a letter stating which contaminants were found if the material has been designated as contaminated. The Contractor shall send this letter with results to the USACE Technical POC. The letter shall be included in the final IDW Plan. Once received, the Contractor shall use this information to properly dispose of the IDW/waste according to applicable state, federal and local regulations. The Contractor shall be responsible for laboratory analyses and proper disposal of IDW. Actual disposal of the IDW shall not occur until the test results are known. If the material is determined not to be a regulated waste, the Contractor shall dispose of the material in accordance with the IDW Plan.

Quality Assurance reviews shall be conducted by the USACE on the IDW Plan. The final IDW Plan shall include, as an appendix, all USACE review comments and Contractor's responses, Independent Quality Control Team (IQCT) comments/responses, activity checklists and signed signature sheets.

For IDW, the Contractor shall collect the waste, any used PPE, decontamination liquids, and all waste generated from the construction activities. This media shall be containerized and placed in a secured area on the site until the results of the analyses are known. All containers shall be labeled as to project name, contents, and date of collection, and secured to prevent tampering. If drums are used, they shall be secured with tarps, ropes and pallets. Actual disposal of IDW shall

not occur until the test results are known and the IDW Plan has been approved by USACE. If analyses of the samples taken from the sites indicate that regulated concentrations of hazardous contaminants are present, then the Contractor shall test the IDW material. If analyses of the IDW material indicate that regulated concentrations of hazardous contaminants are present, then the Contractor shall dispose of the IDW material collected from the sampling activities in accordance with local, state and federal regulations as outlined in the IDW Plan.

### **3.8 (Task 8) Preparation and Submission of Draft and Final ISRA Report**

The Contractor shall prepare an Interim Soil Removal Action Report, which details the complete efforts during all activities in the SOW. This report shall follow the same format that was used for the Final ISRA for PRRWP, dated May 2006. This format was generated because there was so much information to include in the report. After Ohio EPA, NASA and the TAPP contractor reviewed this report, they each commented on the easibility to which they were able to review it. Therefore, in keeping with the regulators thoughts, the Contractor shall use the format from the previous ISRA report as a guide in preparation for this Draft and Final ISRA Report. Once the draft report has been generated, the Contractor shall submit it to USACE for review. Any comments arising from this review shall be incorporated by the Contractor into the final report. See Section 3.2 for QC review and documentation requirements. See Section 5.1 for reporting requirements. The Contractor shall complete the draft report within 180 days (6 months) from the official "notice to proceed".

### **3.9 (Task 9) Meeting Support**

The Contractor shall support USACE Project Manager and/or the Technical Coordinator during meetings necessary to discuss the work defined by this contract. It is assumed a maximum of 1 meeting outside of field activities time will be held to discuss the proposed work. This meeting will be held at a location in the Sandusky, Ohio area and arranged by USACE (date and time). The Contractor shall be responsible for preparing slides, handouts, and coordinating this meeting. The Contractor shall place a notice in the local newspaper announcing the meeting and inviting the public to attend. The Contractor shall document the meeting minutes and supply these to the USACE Project Manager or Technical Coordinator. If necessary the Contractor shall plan to give a presentation highlighting the requirements of this work.

## **4.0 Contract Deliverables (Contractor Submittals / Schedule / Reporting / Other)**

### **4.1 Contractor Submittals**

The Contractor shall furnish originals and copies of the work plans and response to comments in the quantities below. A written response to all comments shall also be prepared by the Contractor and included in the final submittal document. Submittals are as follows:

Draft and Final QCP, SSHP and Plan of Operations – 8 draft and 8 final copies of each plan to USACE

Draft and Final Interim Soil Removal Action Report – 8 draft and 8 final copies to USACE

#### 4.2 Due Dates, Contractor Submittals and Action Items

<u>Contractor Submittals / Action Items</u>	<u>No. Days</u>
Notice to Proceed	0
Submission of Draft QCP, SSHP and Plan of Operations	20 Days after NTP
Submission of Final QCP, SSHP and Plan of Operations	30 Days after NTP
Submission of Draft ISRA Report	180 days after NTP
Submission of Final ISRA Report	30 days following receipt of comments to Draft ISRA

#### 5.0 Data Requirements

##### 5.1 Reports.

All work plans presenting data, analyses, recommendations, and drawings shall be prepared in a standard format for reports, as described herein. The Contractor shall submit copies of the draft and final versions of the work plans using MS Word. A CD ROM containing the text and drawings will be submitted along with the final work plan. A decimal paragraphing system shall be used. All site drawings shall be done in English units and of engineering quality with sufficient detail to show interrelations of major features on the site map (i.e. north arrows, keys, scales, etc.). When drawings are required, data may be combined to reduce the number of drawings, however, the drawings are not to be congested to the point that sight of the detail is lost. All drawings included in the reports shall be done on Microstation newest version, conform to the current USACE CADD Standards and shall be submitted to USACE along with the final work plan. The report shall consist of 8.5" by 11" pages with drawings folded, if necessary, to this size. If the Contractor must submit large drawings (42" by 29" size) folded to 8.5" by 11", use of top loading sheet protectors for the folded drawings will be required. The Draft and Final Work Plans shall be bound in three-ring binders and clearly labeled as "Draft" and "Final", respectively. Appendices in the work plans will be identified by tabs or other approved manner. A title page shall identify the title, the Contractor, the Corps of Engineer, Huntington District, and the date. Plastic photo holder sheets are to be used when including photos in report. All photos are to be at least 35mm or digital color photos and properly labeled and put on a CD for storage. Plastic loose-leaf media files are to be used when submitting CD ROMS. Photo documentation for the site shall be taken before, during and after construction activities. Contractor Quality Control Reports, Manifests, Analytical Results and any other large volume appendix may be put on CD to reduce size of report. Should this occur, the Contractor may need to put a summary of the data in the body of the report or as a cover to the

appendix. The Contractor shall also put the entire report on CD or DVD and include it in the final ISRA Report submission. The entire report shall be provided in the working files as well as .pdf format (Adobe 7 Professional) so that it can be easily incorporated into the electronic PBOW Administrative Record and Public Repository.

## 5.2 Other

The Contractor shall maintain a file documenting all correspondence, phone conversations, and meetings with the USACE and other elements. It shall be bound in an appropriate folder and filed in reverse chronological order. This correspondence file shall be available for inspection at any time by the USACE upon request and shall be submitted to the USACE upon the conclusion of this work order.

Additional responsibilities of the Contractor under this work order include, but are not limited to, the following items of work:

- 1) Depending on site conditions, the use of water may be required to control dust during construction activities. The amount of dust resulting from the construction activities shall be controlled to prevent the spread of dust to occupied areas near the construction site and to avoid creation of a nuisance in the surrounding area. Use of water shall not be allowed to result in, or create, hazardous or objectionable conditions such as flooding and pollution.
- 2) The Contractor is responsible for ensuring traffic safety in all work areas. Flagmen, temporary signage or other approved means shall be provided by the Contractor as needed to comply with the above requirement.
- 3) The use of burning at the project site for disposal of refuse and debris will not be permitted.
- 4) The Contractor shall be responsible for keeping the roads free from soil and other debris (i.e., swept periodically collect material (if dropped) and dispose of properly) as well as making sure the travel to/from the security gate by subcontractors (i.e., trucking requirements) as maintained to not destroy existing roads.
- 5) The Contractor shall have the following items on-site and available at any time: 1) SSHP, 2) QCP and 3) Plan of Operation and 4) Final ISRA Report for PRRWP, dated May 2006
- 6) The Contractor shall obtain all permits and licenses for this project and maintain these documents at the project site where work is to be performed and have such documents readily available. The Contractor shall insure that he meets all Federal, State and Local requirements for the safe removal, containment, hauling and disposal of materials related to the project activities.
- 7) Compliance with the provisions of this SOW by subcontractors will be the responsibility of the Contractor.

## 6.0 Appendices (Reference Documents)

The following references shall be used at a minimum for this project. References 6.1 through 6.5 can be found on the PBOW website at <http://www.lrh.usace.army.mil/projects/current/derp-fuds/pbow/documents>. References 6.6 and 6.7 can be found in the Engineering Manual section of <http://www.usace.army.mil/publications/eng-manuals/em.htm>

- 6.1 PRRWP Final Action Memorandum, dated June 2003, USACE
- 6.2 PRRWP Final Interim Soil Removal Action Report dated May 2006, WTI
- 6.3 PRRWP Focused Feasibility Study, dated 2002, IT Corp.
- 6.4 PRRWP Risk Assessment and Direct Push Investigation, dated 2001, IT Corp
- 6.5 PRRWP Focused Remedial Investigation, dated 1997, Dames and Moore 6.6  
US Army Corps of Engineers, Engineering and Design – Requirements for the Preparation of Sampling and Analysis Plans, 1 February 2001, EM 200-1-3:
- 6.7 US Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, latest version.

## 7.0 Payment

Construction work shall be negotiated as a lump sum to be billable periodically based on completion of activities and in accordance with the payments clause. This will include provision of backup documentation prior to payment as well as inspection of site for verification of activities performed. Upon construction completion, if it is determined that certain activities have not been performed or constructed, then costs for those shall not be billed by the Contractor. A final modification will be issued / negotiated to reflect actual work items and the work order will be reduced / modified to reflect work not completed.

## 8.0 Public Affairs

The Contractor shall not make available to the news media or publicly disclose any data generated or reviewed under this contract. When approached by the news media, the Contractor shall refer them to the USACE Contracting Officer (CO) for response. Reports and data generated under this contract shall become the property of the Government and distribution to any other source by the Contractor, unless authorized by the CO is prohibited.

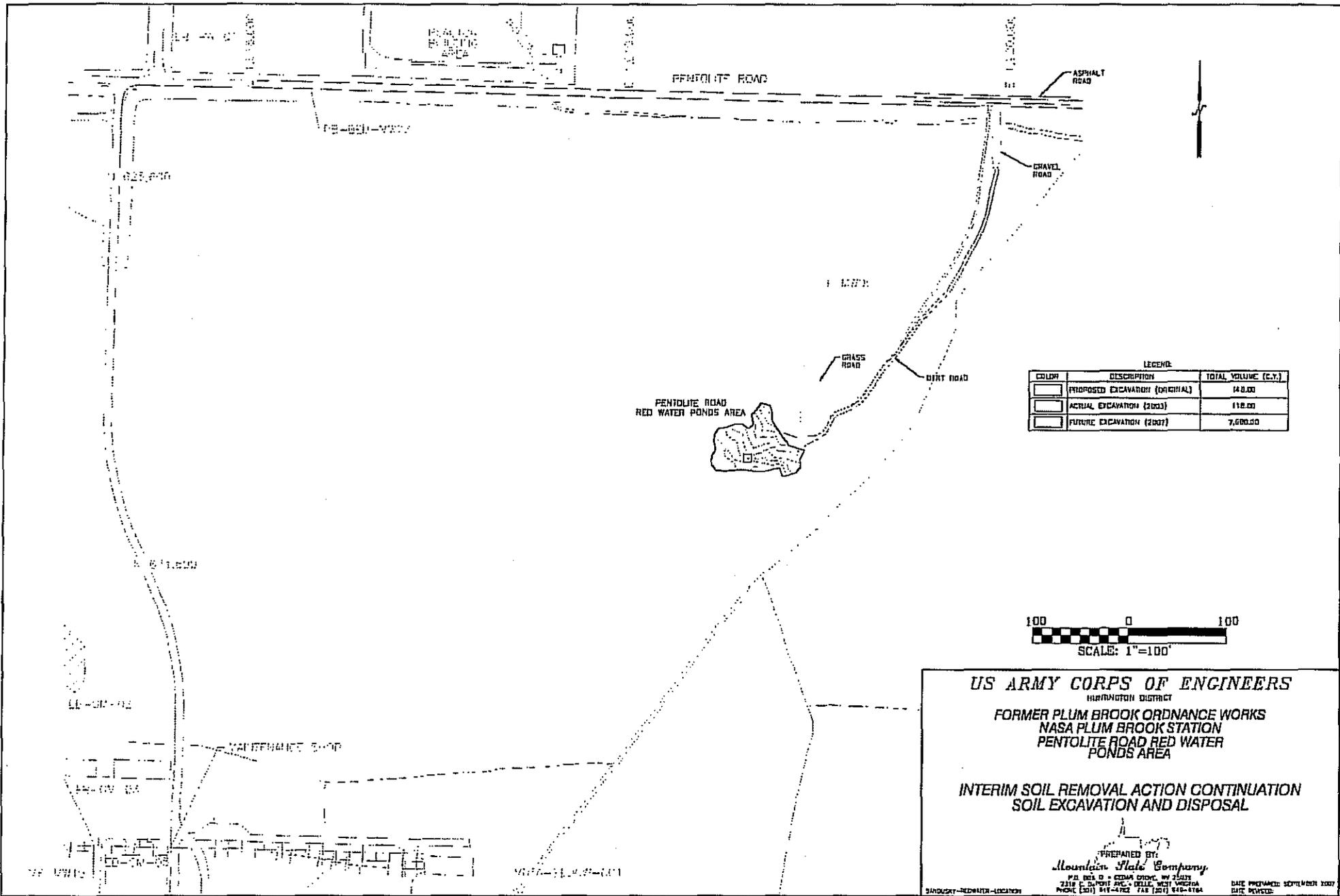
## 9.0 Point of Contact

The Contractor shall supply USACE a point-of-contact to facilitate communications. USACE's point-of-contact for the work is:

USACE, Huntington District  
502 8<sup>th</sup> Street  
Huntington, WV 25701-2070  
Attn: CELRH-EC-CE, Lisa Humphreys  
(304) 399-5953  
304-360-2558 (cell)

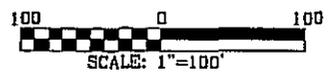
**APPENDIX B**

**SITE MAP**



LEGEND

COLOR	DESCRIPTION	TOTAL VOLUME (C.Y.)
[White Box]	PROPOSED EXCAVATION (ORIGINAL)	148.00
[Light Gray Box]	ACTUAL EXCAVATION (2003)	118.00
[Dark Gray Box]	FUTURE EXCAVATION (2007)	7,600.00



**US ARMY CORPS OF ENGINEERS**  
 HARRINGTON DISTRICT  
 FORMER PLUM BROOK ORDNANCE WORKS  
 NASA PLUM BROOK STATION  
 PENTOLITE ROAD RED WATER  
 PONDS AREA

**INTERIM SOIL REMOVAL ACTION CONTINUATION  
 SOIL EXCAVATION AND DISPOSAL**

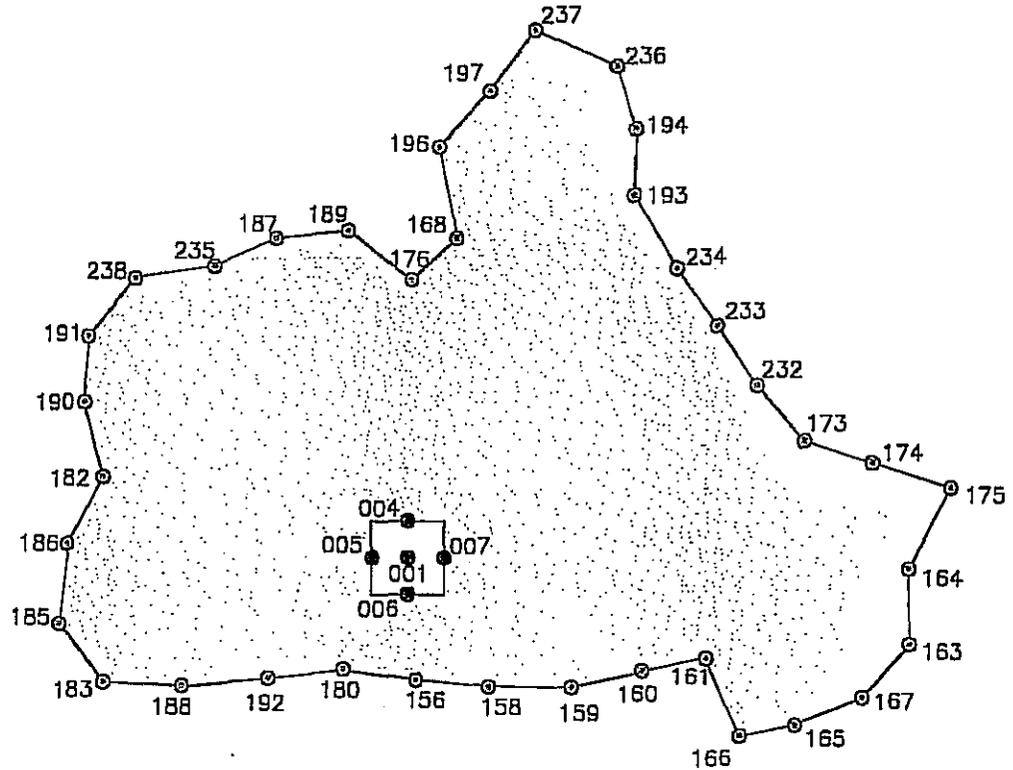
PREPARED BY:  
*Mountain State Company*  
P.O. BOX 10 • CEDAR CREEK, WV 26033  
 2018 S. SANDY CREEK • DELLS, WV 26038  
 PHONE (201) 948-4422 FAX (201) 948-8164

DATE PREPARED: SEPTEMBER 2007  
 DATE REVISED:

LEGEND:

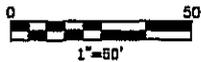
COLOR	DESCRIPTION	TOTAL VOLUME (C.Y.)
	PROPOSED EXCAVATION (ORIGINAL)	148.00
	ACTUAL EXCAVATION (2003)	118.00
	FUTURE EXCAVATION (2007)	7,600.00

- ⊙ SAMPLE NUMBER = 5879 - XXX
- SAMPLE NUMBER = 5536 - XXX



**US ARMY CORPS OF ENGINEERS**  
 HUNTINGTON DISTRICT  
 FORMER PLUM BROOK ORDNANCE WORKS  
 NASA PLUM BROOK STATION

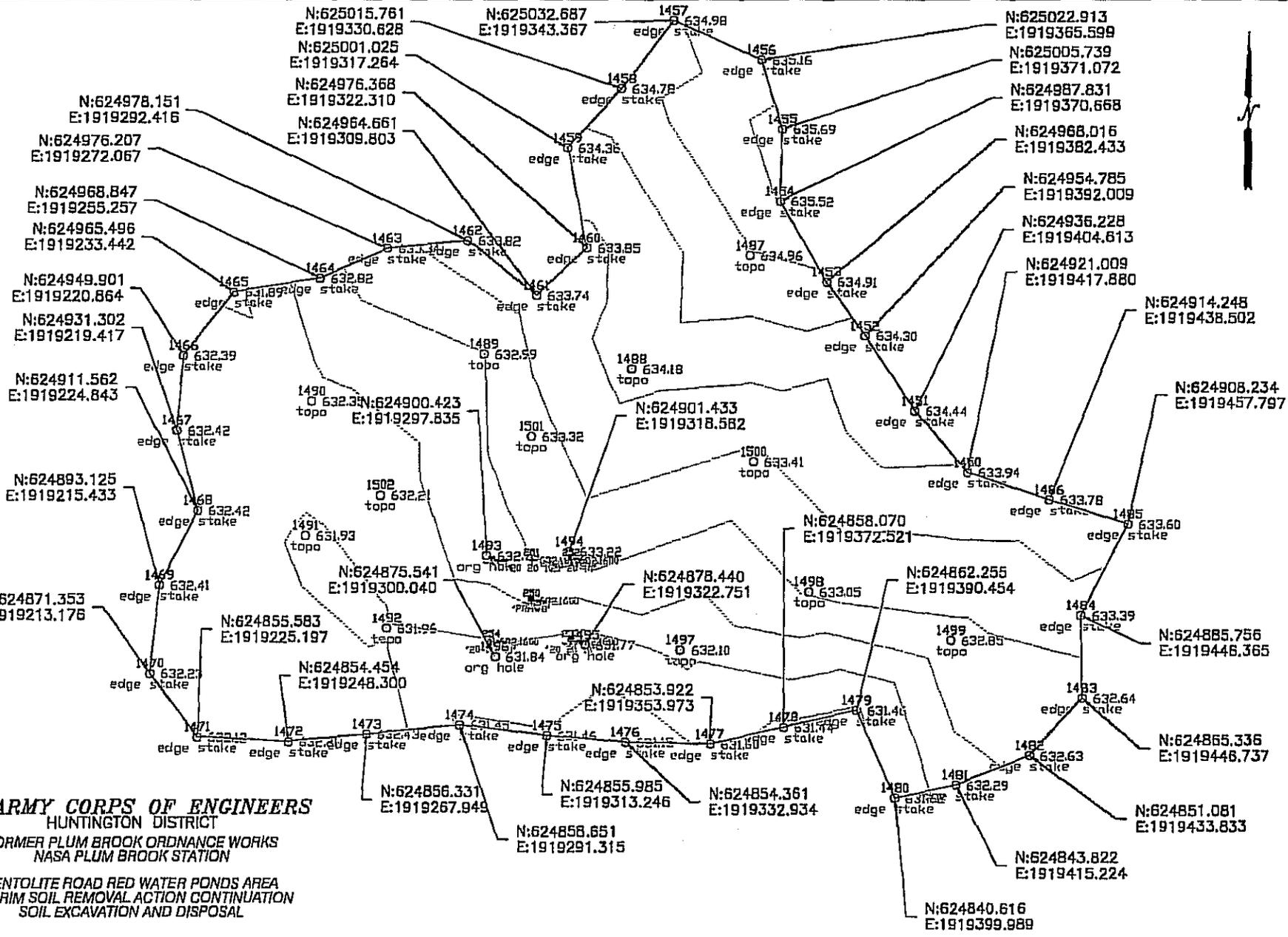
PENTOLITE ROAD RED WATER PONDS AREA  
 INTERIM SOIL REMOVAL ACTION CONTINUATION  
 SOIL EXCAVATION AND DISPOSAL



PREPARED BY:  
*Mountain State Company*  
 P.O. BOX 60 • CEDAR GROVE, WY 82408  
 2318 E. DUPONT AVE. • BELLEVILLE, WEST VIRGINIA  
 PHONE (304) 648-4762 FAX (304) 648-1764  
 WWW.MSCCOMPANY.COM

DATE PREPARED: SEPTEMBER 2007

PENTOLITE ROAD RED WATER PONDS AREA



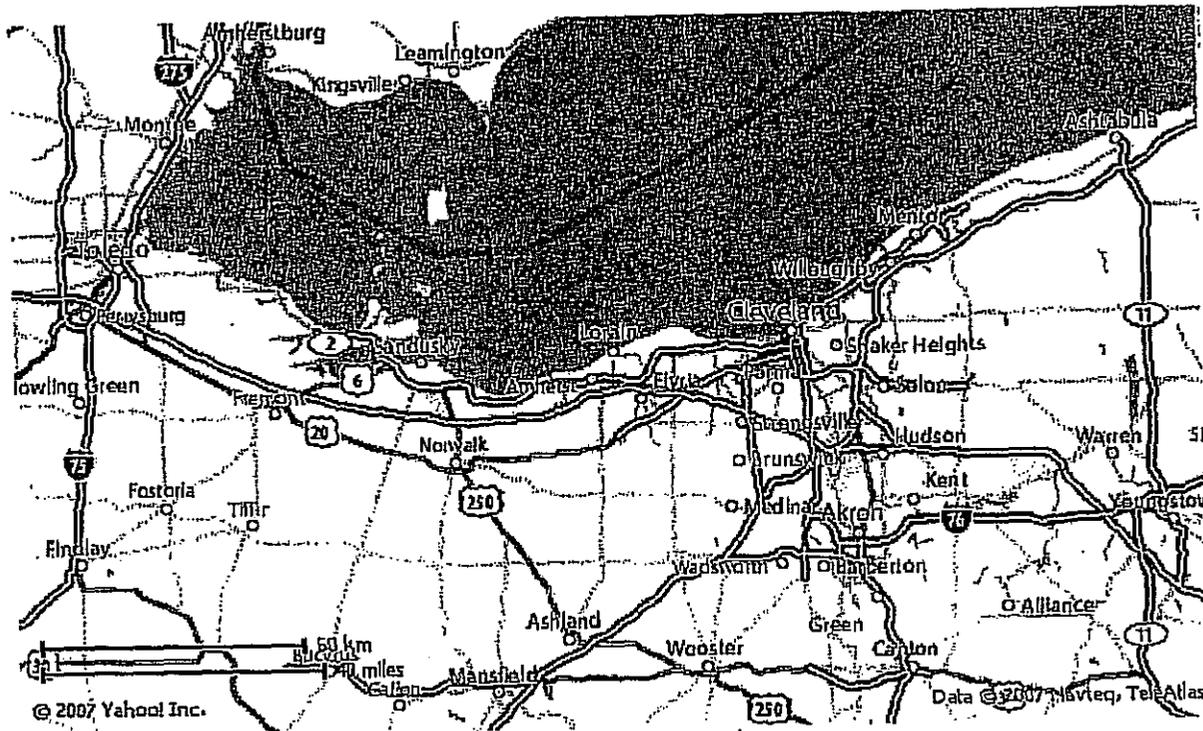
**US ARMY CORPS OF ENGINEERS**  
 HUNTINGTON DISTRICT  
 FORMER PLUM BROOK ORDNANCE WORKS  
 NASA PLUM BROOK STATION

PENTOLITE ROAD RED WATER PONDS AREA  
 INTERIM SOIL REMOVAL ACTION CONTINUATION  
 SOIL EXCAVATION AND DISPOSAL

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 PHONE (304) 918-4782 FAX (304) 918-1784  
 jms\_msc@earthlink.net

DATE PREPARED: SEPTEMBER 2007

CONFIRMATION SAMPLE COORDINATES  
 PENTOLITE ROAD RED WATER PONDS AREA



**NASA Plum Brook Station which is located in Sandusky, Ohio is 60 miles (1Hour 1 Minute) from Cleveland, Ohio.**

**Stay on I-90 west (south), take exit 118 right toward Sandusky/US 250/Norwalk.  
Stay on ramp (west) merge onto US-250 west (northwest).  
Turn left (west) onto Cr-120/Scheid Road, then turn right (north) onto road.  
Turn right (east) onto N Magazine Road.  
Arrive at NASA Plum Brook Station.**

**APPENDIX C**

**FIELD ACTIVITY FORMS**



GPL LABORATORIES  
7210A Corporate Ct.  
Frederick, MD 21703  
301-694-5310

# CHAIN OF CUSTODY

GPL Project Manager:	Client Name:	Phone:
Project Name:	Address:	Cell:
Purchase Order:	City, State:	Zip Code:

Comments: H=Hold Analysis Request X=Analyze	Preservatives and Containers											

Sample Information						Methods for Analysis												RUSH				DC (MS/MSD)	TOTAL BOTTLES
No.	Client Name, address and phone #	Date Sampled	Time Sampled	Matrix	Sampler's Initials																		
1						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

Sample Matrix: WG= Groundwater; SC= Soil; WS= Surface Water; AA= Ambient Air; WQ= Water Quality Total number of samples **4**

Relinquished By:	Date:	Time:	For Lab Use GPL WORK ORDER #: _____	COOLER RECEIPT CONDITION
Received By:	Date:	Time:		
Relinquished By:	Date:	Time:		
Received By:	Date:	Time:		
Relinquished By:	Date:	Time:		

**SAFETY INSPECTION CHECKLIST FOR CRAWLER TRACTORS, DOZERS, SCRAPERS, MOTOR GRADERS, BACKHOES,  
HEAVY HAULAGE UNITS**

U.S. Army Engineers, Huntington District

**INSTRUCTIONS**

**SECTION 1 -- GENERAL INFORMATION:**

- a. *Date:* enter month, day and year of Safety Inspection.
- b. *Owner/User:* Enter designated ownership of equipment (Corps, Corps leased or Contractor by name).
- c. *Contract Number:* Contractors enter the respective contract number
- d. *Type of Equipment :* Enter *Ford 515 Backhoe, ID 450 Bulldozer, etc.*
- e. *Number:* Enter equipment number which Contractor has issued on large scale operations.
- f. *Inspected By:* Enter signature and title of Corps or Contractor inspector (Corps inspector may be a maintenance leader, maintenance mechanic or operator and a Contractor inspector may be a mechanic, operator or service person).
- g. *Reviewed By:* Enter signature and title of Corps or Contractor reviewer (Corps reviewer may be the mechanic, shift leader, foreman or superintendent). Before a signature and title of Corps or Contractor reviewer is entered, the checklist must be reviewed by the next level of direct supervision and the equipment spot checked unannounced to insure inspections are performed.

**SECTION 2 -- SAFETY INSPECTION CHECKLIST:** Check **YES, NO** or **N/A** if question or statement does not apply.

**SECTION 3 -- RECEIPT OF ACKNOWLEDGMENT:** Sign, provide title and date checklist. If Corps personnel was the inspector and reviewer, a Corps manager, supervisor or responsible employee will sign the receipt of acknowledgment. If a Contractor personnel was the inspector and reviewer the checklist becomes a part of the official project file and a copy is furnished to the Contracting Officer Representative (COR). The COR will then sign the receipt of acknowledgment. The COR may request a copy of the checklist at any time. The COR or a representative may perform an unannounced spot check inspection to ensure compliance of safety inspection requirements. To determine if inspector and reviewer are Corps or Contractor personnel, see SECTION 1, Items f. and g.

**SECTION 1 GENERAL INFORMATION**

a. Date	b. Owner/User	c. Contract Number
d. Type of Equipment		e. Number
f. Inspected by (signature) (title)		g. Reviewed by: (signature) (title)

**SECTION 2 SAFETY INSPECTION CHECKLIST**

**NOTE:** Reference USACE Manual EM 385-1-1, April 1981, as revised. Equipment must be in full compliance with checklist and contract requirements.

1. Is protection (grills, screen, canopies) provided to shield the operator from falling or flying objects?			
2. Are adequate rollover protection and seat belts provided?			
3. Is a safe means of 3 point contact access to cab or operator's compartment provided -- steps, grab bars, non-slip surfaces, etc.?			
4. Are required head and tail lights, flashing lights and slow moving vehicle signs provided and properly positioned?			
5. Is the parking and service brake system capable of holding the equipment fully loaded on the grade of operation?			
6. Does the unit have an emergency brake system?			

SECTION 2, Cont.	YES	NO	NA
7. Does the emergency brake system work automatically when regular breaks fail?			
8. Can the emergency brake system be activated from the cab or operator's position?			
9. Are fuel tanks located so that spills or overflows do not run on the engine or electrical systems?			
10. Is the reverse alarm signal operable?			
11. Are cabs equipped with distortion free, shatterproof or safety glass?			
12. Are exhausts located so that discharges do not endanger or obstruct the view of the operator?			
13. Are moving parts, shafts, pulleys and belts adequately guarded?			
14. Are any of the units structural members bent, cracked or otherwise showing signs of physical damage?			
15. Are track rails, grouser, truck rollers, idlers and sprockets in good condition free from excessive wear, cracks, loose bolts or pins?			
16. Are hydraulic lines and cylinders adequately guarded and free of physical damage?			
17. Are tires on tire-mounted equipment free from excessive wear, breaks and of proper and equal size?			
18. Is the manufacturer-recommended tire inflation pressure maintained?			
19. Are all towing devices properly mounted and in good condition?			
20. Does the equipment have at least one dry chemical or CO2 fire extinguisher with minimal rating of 5 b:C available? (Corps owned or leased equipment must have extinguisher installed on the equipment)			
21. Is a 16 unit (minimum) first aid kit readily available in the equipment or on the job site? Corps owned or leased equipment must have first aid kits installed.			
22. Are all instruments, ammeters, pressure gauges, temperature gauges, tachometers or other critical systems operable and in good condition?			
23. Are all operating levers, pedals, etc., in good operating condition?			
24. Do all modifications, replacement parts and/or repairs to the equipment maintain the same safety factor as originally designed and manufactured?			
25. Is the equipment equipped with outriggers or leveling devices and are they in operable condition?			
26. Is the equipment operations manual available to the operator?			
27. Remarks:			

**SECTION 3 RECEIPT OF ACKNOWLEDGMENT**

Receipt Acknowledged by: *(Signature)* *(Title)* *(Date)*





## PPE CHECKLIST

All personnel shall perform an inspection of their PPE prior to performing activities on-site. The following items shall be checked.

- \_\_\_ Determine that the clothing material is that which has been designated for this project.
- \_\_\_ Visually inspect clothing for: imperfect seams, non-uniform coatings, tears, malfunctioning closures
- \_\_\_ Hold up to light and check for pinholes
- \_\_\_ Flex product and make observations for cracks or other signs of shelf deterioration
- \_\_\_ If the product has been used before, inspect inside and out for signs of chemical attack, discoloration, swelling, or stiffness.
- \_\_\_ Visually inspect gloves for imperfect seams, tears, and non-uniform coating
- \_\_\_ Pressurize gloves with air; listen for pinhole leaks
- \_\_\_ Check hardhat for cracks or other signs of stress
- \_\_\_ Check the suspension of your hardhat. Look for loose or torn cradle straps, loose rivets, broken sewing lines or other defects.
- \_\_\_ If using earmuffs, check the muffs for cracks, cuts or missing gaskets.
- \_\_\_ If using earplugs, check the plugs for cracks and or cuts.
- \_\_\_ Check safety glasses for scratches
- \_\_\_ If using a respirator, check for holes in filters
- \_\_\_ If using a respirator, check for cracks or scratches on the face piece
- \_\_\_ If using a respirator, check for loss of elasticity or tears in straps
- \_\_\_ If using a respirator, check for general cleanliness
- \_\_\_ If using an air purifying respirator, check for proper fit by performing the positive-pressure and negative pressure tests

## SAFETY EQUIPMENT CHECKLIST

\_\_\_\_\_ Fire Extinguisher (in office trailer)

\_\_\_\_\_ Fire Extinguisher (on heavy equipment)

\_\_\_\_\_ 16-unit first aid kit

\_\_\_\_\_ Eye wash bottle

\_\_\_\_\_ Cellular phone

CONTRACTOR'S QUALITY CONTROL REPORT (QCR) (ER 1180-1-6)

DATE: \_\_\_\_\_ REPORT NO. \_\_\_\_\_

CONTRACT NUMBER AND NAME OF CONTRACTOR \_\_\_\_\_

DESCRIPTION AND LOCATION OF THE WORK: \_\_\_\_\_

WEATHER CLASSIFICATION: \_\_\_\_\_

CLASS A No interruptions of any kind from weather conditions occurring on this or previous shifts.

CLASS B Weather occurred during this shift that caused a complete stoppage of all work.

CLASS C Weather occurred during this shift that caused a partial stoppage of work.

CLASS D Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather.

CLASS E Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.

OTHER Explain. CLASSIFICATION:

CLASS \_\_\_\_\_

TEMPERATURE:

MAX \_\_\_ MIN \_\_\_

PRECIPITATION:

INCHES \_\_\_\_\_

CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY: (Attach list of items of equipment either idle or working as appropriate.)

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_
- f. \_\_\_\_\_
- g. \_\_\_\_\_

1. WORK PERFORMED TODAY: (Indicate location and description of work performed. Refer to work performed by prime and /or subcontractors by letter in Table above.)

2. **TYPE AND RESULTS OF INSPECTION:** (Indicate whether: P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

3. **TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:**

4. **VERBAL INSTRUCTIONS RECEIVED:** (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. **REMARKS:** (Cover any conflicts in plans, specifications or instructions; acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.)

6. **SAFETY:** (Include any infractions of approved safety plan, safety manual or instructions from Government personnel. Specify corrective actions taken.)

---

**INSPECTOR**

**CONTRACTOR'S CERTIFICATION:** I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

---

**CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE**

## Quality Control Field Oversight Checklist General Procedures

The following checklist is provided for use in the field to assure that general QC procedures are followed. The Project Manager or his designee should complete and sign a checklist for the project site.

Project Site \_\_\_\_\_

Date: \_\_\_\_\_

Personnel on-site: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature: \_\_\_\_\_

		Yes	No	N/A
1.	Did the Field Supervisor or Project Manager discuss the following items with the field crew prior to beginning field activities?			
	Site Security issues	_____	_____	_____
	Contents of the Plan of Operations	_____	_____	_____
	Contents of Site-Specific Safety and Health Plan	_____	_____	_____
	Contents of Quality Control Plan	_____	_____	_____
2.	Was the USACE notified in writing 2 weeks prior to mobilizing to the site?	_____	_____	_____
3.	Was the USACE provided a time schedule for field work?	_____	_____	_____
4.	Were digging permits obtained from NASA prior to mobilizing to the site for excavation activities?	_____	_____	_____
5.	Did Waste Ron personnel and subcontractors view the safety/orientation video prior to beginning work?	_____	_____	_____

	Yes	No	N/A
6. Were digging permits limits strictly adhered to?	_____	_____	_____
7. Were excavation limits survey by a qualified surveyor prior to performing excavation activities?	_____	_____	_____
8. Were all drawings done in English units and of engineering quality with sufficient detail to show interrelations of major features on the site map (i.e. north arrows, keys, scales, etc.)?	_____	_____	_____
9. Were all drawings done in Microstation 95 (or the newest version) and in conformance with the current USACE CADD standards?	_____	_____	_____
10. If drawings are larger than 8.5" by 11" were they folded to 8.5" x 11" size?	_____	_____	_____
11. At a minimum, photos shall be taken of the following site activities.			
A. Surveying	_____	_____	_____
B. Sites prior to excavation (including Borrow Area)	_____	_____	_____
C. Excavation	_____	_____	_____
D. Stabilization of soil	_____	_____	_____
E. Loading of soil for transportation	_____	_____	_____
F. Sampling activities	_____	_____	_____
G. Decontamination activities	_____	_____	_____
H. Storage/handling of IDW	_____	_____	_____
I. Backfilling of the excavation pits	_____	_____	_____
J. Seed and mulching of all disturbed areas	_____	_____	_____
12. If water was generated during excavation, was it properly containerized, sampled, analyzed, and disposed in accordance with state and federal regulations?	_____	_____	_____
13. Prior to disposal, were excavated and stabilized soils properly stored until analytical results were available?	_____	_____	_____
14. Was clean fill material placed in the excavation pits? (Note: Borrow materials must be tested prior to use as fill)	_____	_____	_____
15. Were excavation areas rough graded as necessary to achieve proper drainage and reseeded/mulched?	_____	_____	_____
16. Was all IDW containerized and sampled?	_____	_____	_____

## Quality Control Field Oversight Checklist HTRW Sampling Procedures

The following checklist is provided for use in the field to assure that general QC procedures are followed. The Project Manager should complete and sign a checklist for the project site.

Project Site \_\_\_\_\_

Date: \_\_\_\_\_

Personnel on-site: \_\_\_\_\_

Signature: \_\_\_\_\_

What type and how many samples were collected? \_\_\_\_\_

Describe the sampling procedure. \_\_\_\_\_

	Yes	No	N/A
1. Were representative samples collected?	_____	_____	_____
2. Were samples properly placed into sample containers?	_____	_____	_____
3. Was the following information recorded on the sample labels?			
Site location	_____	_____	_____
Project number	_____	_____	_____
Sample Identification number assigned in field	_____	_____	_____
Description of the sample	_____	_____	_____
Time and date sample was taken	_____	_____	_____
Notation of whether preservatives were added to the sample	_____	_____	_____
Type of preservative	_____	_____	_____
Type of analysis requested	_____	_____	_____

**Quality Control Field Oversight Checklist**  
**HTRW Sampling Procedures**  
 Continued

	Yes	No	N/A
4. Were samples chilled with ice immediately after collection?	_____	_____	_____
5. Was a COC form filled out on-site?	_____	_____	_____
6. Was the following information recorded on the COC form?			
Project number	_____	_____	_____
Project manager	_____	_____	_____
Site location	_____	_____	_____
Client contact	_____	_____	_____
Description of the sample	_____	_____	_____
Time and date sample was taken	_____	_____	_____
Notation of whether preservatives were added to the sample	_____	_____	_____
Type of preservative	_____	_____	_____
Type of sample such as a grab or composite	_____	_____	_____
Matrix of sample	_____	_____	_____
Amount of sample being transported to the laboratory	_____	_____	_____
Sample number or ID assigned in the field	_____	_____	_____
The appropriate analytical parameters to be tested	_____	_____	_____
7. Were COC seals placed on each sample container (except samples for volatiles analysis)?	_____	_____	_____
8. Was the COC form signed and dated?	_____	_____	_____

**Quality Control Field Oversight Checklist**  
**HTRW Sampling Procedures**  
 Continued

	Yes	No	N/A
9. Were the following packing and shipping procedures performed?			
All containers, except the volatile organic analysis (VOA) vials, are to be taped shut.	_____	_____	_____
Was the drain plug taped shut on the picnic cooler from the inside and outside, and a large plastic bag used as a liner for the cooler?	_____	_____	_____
Was inert packing material placed in the bottom of the liner?	_____	_____	_____
Were the sample containers placed upright in the lined picnic cooler in such a way that they do not touch and will not touch during shipping?	_____	_____	_____
Were plastic ice packs or ice placed in double plastic bags placed around, among, and on top of the sample bottles?	_____	_____	_____
Was the paperwork going to the laboratory placed inside a sealed plastic bag, which was taped to the inside lid of the cooler?	_____	_____	_____
Was the cooler taped shut with strapping tape?	_____	_____	_____
Was at least two signed custody seals placed on the cooler (one in front, the other on the side)?	_____	_____	_____
10. Was the proper sampling procedure followed as outlined in the Sampling and Analysis Section of the Plan of Operations?	_____	_____	_____
11. Was sampling equipment properly decontaminated between samples?	_____	_____	_____
12. Was a decontamination area located where the cleaning activities would not cross-contaminate clean and/or drying equipment?	_____	_____	_____

**Quality Control Field Oversight Checklist**  
**HTRW Sampling Procedures**  
 Continued

		Yes	No	N/A
13.	Was cleaned equipment properly stored?	_____	_____	_____
14.	Were the cleaning and decontamination procedures conducted in accordance with the project plans?	_____	_____	_____
15.	Were sampling locations properly selected?	_____	_____	_____
16.	Were photographs taken of sampling/decon activities?	_____	_____	_____
17.	Was sampling equipment constructed of Teflon, polyethylene, glass, or stainless steel?	_____	_____	_____
18.	Were samples collected in proper order? (least suspected contamination to most contaminated?)	_____	_____	_____
19.	Were clean disposable latex or vinyl gloves worn during sampling and field screening tests?	_____	_____	_____
20.	Were gloves changed between sampling events and screening tests?	_____	_____	_____
21.	Were equipment rinse blanks collected after field cleaning?	_____	_____	_____
22.	Were proper sample containers used for samples?	_____	_____	_____
23.	Were duplicate and split samples collected?	_____	_____	_____
24.	Were samples properly field preserved?	_____	_____	_____
25.	Were field and/or trip blanks utilized?	_____	_____	_____
29.	Were field screening tests utilized for nitroaromatics and lead (where appropriate) prior to collection of the excavation pit confirmation samples?	_____	_____	_____
30.	Were the procedures for the field test kits, as described in the Plan of Operations followed?	_____	_____	_____
31.	Was all information generated during the field screening activities recorded in accordance with the Plan of Operations requirements?	_____	_____	_____

**APPENDIX D**

**LABORATORY QUALITY  
ASSURANCE PLAN**



LABORATORIES

Your *SUCCESS* is our *BUSINESS*.

# GPL Laboratories, LLLP

## Quality Assurance Program Plan

Document Version No: 14

Document Control No: \_\_\_\_\_

Date Issued: September 2005

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Document Title: Laboratory Quality Assurance Program Plan  
GPL Laboratories, LLLP

**UNCONTROLLED DOCUMENT  
AND  
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Document Version Number: 14

Document Control Number: \_\_\_\_\_

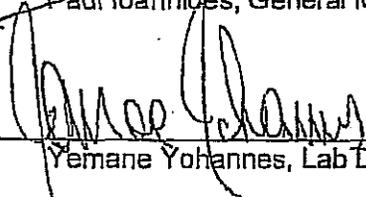
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Date: 9/29/05

Signature:   
Yemane Yohannes, Lab Director

Date: 09/29/05

Signature:   
Elsa Tai, Quality Assurance Manager

Date: 9/29/05

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# ***GPL Laboratories, LLLP***

## **8.0 Data Quality Assessment**

- 8.1 Introduction – Definition of Terms
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## **9.0 Corrective Action**

- 9.1 Introduction
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### **Appendices**

Appendix A – Resumes (available upon request)

Appendix B – Certifications status as of publication date of QAPP. (Most current and detailed certification status is available in the QA office upon request)

Appendix C – Equipment List

Appendix D – Method Detection Limits/Method Reporting Limits (available upon request)

Appendix E – Tables of Holding Times and Preservation Requirements for Routine Methods

Appendix F – Standard Operating Procedure Manual Index (as of publication date of QAPP)

**Due to the size of the document, GPL Laboratories LLLP  
Quality Assurance Plan is included only on the enclosed CD**

## **1.0 Introduction**

GPL Laboratories, LLLP is committed to providing the highest quality laboratory data available. All laboratory analyses are performed in full compliance within applicable State, Federal, or CLP Quality Control guidelines. The Quality Assurance (QA) and Quality Control (QC) program is defined in the Laboratory Quality Assurance Program Plan (QAPP) and the Laboratory Standard Operating Procedure (SOP) Manual. The QA program plan meets or exceeds EPA recommended guidelines with quality control samples accounting for at least 20% of the total number of samples analyzed. The Quality Assurance Manager ensures that facilities, equipment, personnel methods, records and Quality Control procedures are in conformance with GPL Standard Operating Procedures (SOPs) as well as with applicable EPA QC guidelines.

Each laboratory project is monitored through application of a QA/QC program, which includes the following elements:

- Centralized Project files
- Written Standard Operating procedures
- Rigorous Chain-of-Custody procedures
- Documentation of nonconformance events and corrective actions taken
- QC of data by analysis of reference samples, spiked samples, duplicates and surrogate spikes
- Periodic inspections of projects in progress
- Frequent equipment calibration and maintenance inspections
- Archiving of project records under controlled access

GPL has implemented a quality assurance program that is an integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that our services meet our standards of quality with stated level of confidence.

2.0 Quality Assurance Policy Statement

Statement of Authority and Responsibility

This document is the QAPP for GPL Laboratories, LLLP. This Plan describes the activities necessary to meet or exceed the data quality objectives of GPL clients. The policies and operational procedures are established in order to meet the NELAC standards.

The Management of GPL is dedicated to the quality assurance program described in this Plan, and procedures as defined in the SOP manuals. Each manager, and supervisor as well as their staff members, as assigned accordance with the Plan, are obligated to comply with its stated requirements, responsibilities, and objectives throughout all data generating and processing operations.

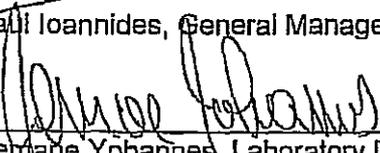
All laboratory personnel are familiar with the quality policies and procedures found in this document and/or in laboratory standard operation procedures. All laboratory personnel are responsible for the implementation of quality practices in all aspects of their work associated with preparing, processing and reporting analytical information.

The QAPP has been prepared by the Quality Assurance Manager (QAM), who shall be responsible for revisions as necessary to ensure all reportable data are of uncompromising quality. The QAM has the additional responsibility and authority to terminate nonconforming work.

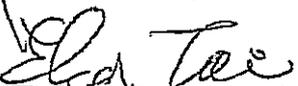
Approvals:

  
\_\_\_\_\_  
Paul Ioannides, General Manager

9/29/05  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Yemane Yohannes, Laboratory Director

09/29/05  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Elsa Tai, Quality Assurance Manager

9/29/05  
\_\_\_\_\_  
Date

**APPENDIX E**

**QUALITY CONTROL  
DOCUMENTATION**

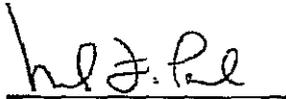
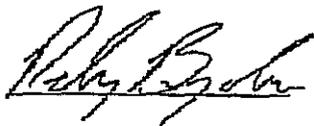
# Quality Control Certification

## PLAN OF OPERATIONS

***INTERIM SOIL REMOVAL ACTION Continuation  
Soil Excavation and Disposal  
Plum Brook Ordnance Works –Pentolite Road Red Water Ponds  
Sandusky, Ohio***

**Contract No. W91237-07-C-0007**

This document is provided to certify that the Independent Quality Control Team (IQCT) has reviewed the Plan of Operations in accordance with the Quality Control Plan. All comments resulting from the various reviews have been resolved and/or incorporated.

<u>Assignment</u>	<u>Name</u>	<u>Signature</u>	<u>Date</u>
<b><u>Senior Review</u></b>	Mark F. Perkins		<u>9-10-07</u>
<b><u>Peer Review</u></b>	Rodney Bumgardner		<u>9/10/07</u>

## Comments on Plan of Operations

### ***INTERIM SOIL REMOVAL ACTION Continuation Soil Excavation and Disposal Plum Brook Ordnance Works – Pentolite Road Red Water Ponds Sandusky, Ohio***

***Contract No. W91237-07-C-0007***

The following comments were provided by the McTech Independent Quality Control Team (IQCT). All comments resulting from this review has been resolved and/or incorporated.

#### General:

Check spacing and reconcile Table of Contents once all changes have been made.

*Response: Concur; spacing and Table of Contents were revised as necessary.*

Define all acronyms upon first appearance; do not write longhand afterward except in headings. Headings should be written out longhand.

*Response: Concur; all acronyms were defined upon first appearance and were not written long hand afterward. Any headings with acronyms were written out longhand.*

'The McTech Corp' should be changed to 'McTech' throughout the document with the exception of headings which should read: 'McTech Corps.'

*Response: Concur; 'The McTech Corps' was changed to 'McTech' throughout the document; headings were changed to 'McTech Corps.'*

#### Specific:

Section 1.4, last paragraph, first sentence, change 'outlined in Section 2.0' to 'outlined in Section 1.4'

*Response: Concur; changed to 'outlined in Section 1.4.'*

Section 1.4.1, fifth bullet, change 'toolbox meetings' to 'tailgate meetings' to agree with SSHP.

*Response: Concur; changed to 'tailgate meetings.'*

Section 1.4.4, Field Activities, last sentence, remove 'with the notification.' Phrase is not needed.

*Response: Concur; 'with the notification' removed.*

Section 1.4.6, last sentence, McTech will not be submitting a 'plan (within the Plan of Operations)' but rather a 'drawing to NASA PBS and USACE POC.'

*Response: Concur; changed to 'drawing to NASA PBS and USACE POC.'*

Section 3.1, change heading from 'Site RI/FS and Final Action Memorandum' to 'Final Action Memorandum.'

*Response: Concur; changed to 'Final Action Memorandum.'*

Section 6.0, add 'and/or truck bed' after 'backhoe bucket' throughout this section.

*Response: Concur; 'and/or truck bed' added after 'backhoe bucket' throughout section.*

Section 7.0, last sentence, field logs will not be completed by the 'Project Manager,' instead logs will be completed by the 'QCO, reviewed by the On-site Project Supervisor, and submitted by the Project Manager.'

*Response: Concur; this was changed to state that field logs will be completed by the 'QCO, reviewed by the On-site Project supervisor and submitted by the Project Manager.'*

Section 7.1, first sentence, change 'field crews' to 'QCO.'

*Response: Concur; changed to 'QCO.'*

Section 7.2, first sentence, add 'by the QCO' after 'Photographs will be taken.'

*Response: Concur; this sentence was changed to read: 'Photographs will be taken by the QCO of all site activities.'*

IQCT signature page, change Senior Review, 'Mark Perkins' to 'Mark F. Perkins.'

*Response: Concur; changed to Mark F. Perkins.*

## **Comments on Plan of Operations**

### ***INTERIM SOIL REMOVAL ACTION Continuation Soil Excavation and Disposal Plum Brook Ordnance Works – Pentolite Road Red Water Ponds Sandusky, Ohio***

***Contract No. W91237-07-C-0007***

The following comments were provided by the USACE Huntington District, OEPA, TAB Contractor and NASA PBS. All comments resulting from this review has been resolved and/or incorporated.

Response comments dated August 16 by Julie Weatherington-Rice.

#### **General Comments:**

1. Section 1.3 overview of Remedy and Proposed Action- last paragraph in the section, page 3.

Concur, this section is generic in regard to reseeded. The scope of work did not provide detail as to type how this should occur or what seed mixture would be used. However, it is McTech's intention to proceed as we did during the 2006 excavation and go above and beyond the requirements in the scope of work. At this juncture, McTech intends to work, as you suggest, with John Blakeman to ensure the site is reseeded with appropriate species. The reseeded activities will be captured in detail in the Final Report for this project.

2. Section 12.3 Spill response, toward the bottom of page 25.

Concur, the suggested is the more appropriate definition to use regarding spills occurring in the State of Ohio, "waters of the State" has now replaced, "navigable body of water".

3. Section 13.0 Protection of Rivers, Streams and Impoundments: Erosion and Silt Control, top of page 27.

Concur, this section is not hugely detailed in regard to storm water management. The area of disturbance is less than one acre, therefore requirements for storm water management are minimal.

MEMORANDUM FOR CELRH-EC-CE; ATTN: Lisa A. Humphreys

SUBJECT: Quality Assurance Review Comments for the Draft Quality Control Plan and Plan of Operations for Contract No. W91237-07-C-0007, Interim Soil Removal Action Continuation, Soil Excavation and Disposal, Plum Brook Ordnance Works, Pentolite Road Red Water Ponds, Sandusky, Ohio, July 2007

1. The subject plan have been reviewed and the following comments are provided:

Plan of Operations

1. Table of Contents. Sections 1.4.1 and 1.4.8 should be tabbed to the right to align beneath the other Section 1.4 subsections for consistent format.  
*Response: Concur; alignment made.*
2. Table of Contents, Sections 1.4.4, 1.4.5, and 1.4.9 need to be revised to "title" format.  
*Response: Concur; section titles were revised to "title" format.*
3. Table of Contents, Section 1.4.7. "Investigation" was misspelled.  
*Response: Concur; "Investigation" was revised to "Investigation".*
4. Table of Contents, Section 3. The title should be revised to "Applicable or Appropriate and Relevant Requirements"  
*Response: Concur; title was revised to "Applicable or Appropriate and Relevant Requirements".*
5. Table of Contents, Section 3.1. Recommend revising this to "Final Pentolite Road Red Water Pond Action Memorandum".  
*Response: Concur; section title was revised to "Final PRRWP Action Memorandum".*
6. Table of Contents, Definitions and Acronyms
  - a. DNT. DNT could be defined as "2,4-dinitrotoluene" and "2,6-dinitrotoluene".  
*Response: Concur; DNT is now defined as "2,4-dinitrotoluene" and "2,6-dinitrotoluene".*
  - b. EPA and USEPA. Recommend use of one or the other; please verify which acronym was used in the text and revise accordingly.  
*Response: Concur; "EPA" was removed and replaced with "USEPA".*
  - c. GSA. Please revise "Service" to "Services"  
*Response: Concur; "servive" was revised to "Services".*
  - d. OEPA. Ohio Environmental Protection Agency should be added.  
*Response: Concur; "OEPA" was added.*
  - e. TNT. TNT could be defined as "2,4,6-trinitrotoluene".  
*Response: Concur; TNT is now defined as "2,4,6-trinitrotoluene".*
  - f. TNT A and TNT B. Since "TNT" was previously defined, the definition of each of these should be "TNT Area A" and "TNT Area B".  
*Response: Concur; these are now defined as "TNT Manufacturing Area A" and "TNT*

*Manufacturing Area B*

7. Section 1.1, 1<sup>st</sup> paragraph, 1<sup>st</sup> sentence. Revise "Ordinance" to "Ordnance".
8. *Response: Concur; "Ordinance" was revised to "Ordnance".*
9. Section 1.1, 1<sup>st</sup> paragraph, 2<sup>nd</sup> sentence. Add "Army" after "United States". Recommend revising this sentence, as noted in comment 15 for the QCP, to that "United States Army Corps of Engineers (USACE) is the responsible agency for the investigation and remediation of DoD-generated contamination at the former PBOW, under the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS)", or something to that effect.  
*Response: Concur; sentence now reads "The United States Army Corps of Engineers (USACE) is the responsible agency for the investigation and remediation of Department of Defense-generated contamination at the former PBOW, under the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS)."*
10. Section 1.1, 1<sup>st</sup> paragraph, last sentence. As stated in comment 16 for the QCP, the meaning/intent of this statement is not understood. Since this project is a continuation of the ISRA, the use of "the completed ISRA" is a little misleading. Is this in reference to the test pitting work that was completed as part of the initial ISRA? Please elaborate to clarify this passage and for the reference, please add the contractor.  
*Response: Concur; "the completed ISRA" was revised to "the initial ISRA"*
11. Section 1.1, 2<sup>nd</sup> paragraph, next-to-last sentence. The terms "receptor specific" and "risk based" should be hyphenated.  
*Response: Concur; "receptor specific" was revised to "receptor-specific" and "risk based" was revised to "risk-based".*
12. Section 1.1, 2<sup>nd</sup> paragraph, last sentence. For clarification, please add "nitroaromatic-contaminated" before "soil".  
*Response: Concur; "nitroaromatic-contaminated" was added before "soil".*
13. Section 1.2, 2<sup>nd</sup> paragraph. Since 2,4,6-trinitrotoluene was defined in 1.1 as TNT, the term "TNT" should be used rather than "2,4,6-TNT".  
*Response: Concur; "2,4,6-TNT" was revised to "TNT".*
14. Section 1.2, 3<sup>rd</sup> paragraph, last sentence. Please revise the word "ponds" at the end to "pond", for I believe there was only one pond at the PRRWP area.  
*Response: Concur; Ponds will remain plural to remain consistent with the Final Action Memorandum for the PRRWP site in which USACE uses the word Ponds, instead of Pond.*
15. Section 1.2, 4<sup>th</sup> paragraph, last sentence. "nitroaromatic filled" should be hyphenated.  
*Response: Concur; "nitroaromatic filled" was revised to "nitroaromatic-filled"*
16. Section 1.2, last paragraph, last sentence. Section 3.4.2, 5<sup>th</sup> paragraph, last sentence. Please define "ICI" at this first occurrence. "site management plan" should be revised to be in "title" format.  
*Response: Concur; "ICI" was defined and "site management plan" was revised to "Site Management Plan".*
17. Section 1.3, 1<sup>st</sup> paragraph, last sentence. Recommend adding "nitroaromatic-" before the word "contaminated".  
*Response: Concur; "nitroaromatic-" was added before "contaminated".*
18. Section 1.3, 2<sup>nd</sup> paragraph, 2<sup>nd</sup> sentence, format. Since 2,4,6-trinitrotoluene was defined in Section 1.1 as TNT, the term "TNT" should be used rather than "2,4,6-TNT".  
*Response: Concur; "2,4,6-TNT" was revised to "TNT".*

19. Section 1.3, 3<sup>rd</sup> paragraph, 2<sup>nd</sup> sentence. Please add "nitroaromatic" before "contaminants".  
*Response: Concur; "nitroaromatic-" was added before "contaminants".*
20. Section 1.3, 6<sup>th</sup> paragraph, 3<sup>rd</sup> sentence. In addition to the 6-mil plastic liner, will hay bales, silt fence, etc., be placed around the stockpiles to control possible run on water or soil that may possibly erode from the stockpiles?  
*Response: Concur; revised, section now reads, "The stockpile will also be covered completely with 6-mil plastic liner to eliminate rain-fall run-off issues that may allow for migration of contaminants. An earthen berm will be placed around the perimeter of the stockpile area as well."*
21. Section 1.3, last paragraph, 1<sup>st</sup> sentence. Are there any special requirements to re-seed the disturbed and backfilled areas with native seed? This has been done on recent PBOW projects, per request of the Restoration Advisory Board (re-seeded with native prairie grasses); however, it is noted that this was not required in the scope of work.  
*Response: Concur; there are no special requirements to reseed the area with any native seed.*
22. Section 1.4, Task 5. Please reword to be consistent with other tasks' phrasing.  
*Response: Concur; bullet now reads, "Survey site to identify limits of excavation."*
23. Section 1.4, Task 9. To match other task phrasing, this could be revised to "Provide public meeting support for USACE for the work defined by this contract".  
*Response: Concur; bullet now reads "Provide public meeting support for the USACE for the work defined by the contract."*
24. Section 1.4.1, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents. If the title is revised, and the term "Interim Soil Removal Area" kept, please be aware that "Area" should be "Action".  
*Response: Concur; title now reads, "(Task 1) Site-Specific Safety and Health Plan".*
25. Section 1.4.1, 1<sup>st</sup> paragraph, 2<sup>nd</sup> sentence. The phrase "As always" does not appear to be necessary/appropriate and is recommended to be deleted.  
*Response: Concur; sentence now reads, "The plan will comply with the requirements of..."*
26. Section 1.4.2, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents.  
*Response: Concur; title now reads, "(Task 2) Quality Control Plan".*
27. Section 1.4.2, 1<sup>st</sup> paragraph, 2<sup>nd</sup> sentence and 2<sup>nd</sup> paragraph, 1<sup>st</sup> sentence. Please revise "...this SOW" to "...the SOW" at both occurrences.  
*Response: Concur; "this SOW" was revised to "the SOW".*
28. Section 1.4.3, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents. Also, the title should be "moved" to the following page since it is the only portion of Section 1.4.3 on this page.  
*Response: Concur; title now reads, "(Task 3) Plan of Operations". Title was also move to following page.*
29. Section 1.4.3, 1<sup>st</sup> paragraph, 2<sup>nd</sup> sentence. It is noted that the SAP also includes sampling and analysis requirements for soil borrow material; please add to this sentence.  
*Response: Concur; sentence now reads, "McTech will also include in the Plan of Operations a Sampling and Analysis Plan (SAP) that will outline the sampling and analysis required for disposal of the contaminated soil and sampling and analysis of borrow material."*

30. Section 1.4.3, 2<sup>nd</sup> paragraph, 2<sup>nd</sup> sentence. "Sampling will" should be revised to "Analyses shall".  
*Response: Concur; "Sampling will" was revised to "Analysis shall".*
31. Section 1.4.3, 2<sup>nd</sup> paragraph, 3<sup>rd</sup> sentence. "sampling" should be revised to "analytical".  
*Response: Concur; "sampling" was revised to "analytical".*
32. Section 1.4.3, 2<sup>nd</sup> paragraph, last sentence. You should also note that the sampling and analysis shall also be performed in accordance with the SAP, which is part of this plan.  
*Response: Concur; sentence now reads, "The sampling and analysis will be done in accordance with current United States Environmental Protection Agency (USEPA) SW-846 protocol and also in accordance with the SAP which is part of this Plan of Operations."*
33. Section 1.4.3, 3<sup>rd</sup> paragraph, 3<sup>rd</sup> sentence. "boring number" is not appropriate.  
*Response: Concur; "boring number" was removed.*
34. Section 1.4.4, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents.  
*Response: Concur; title now reads, "(Task 4) Notification/Scheduling of Field Activities".*
35. Section 1.4.4, Utilities, last sentence. This sentence is not complete, as far as the date; however, it is also not appropriate for this draft submittal. The pre-construction meeting is not held until this submittal, as well as the SSHP and QCP, have been reviewed and accepted by USACE; please revise accordingly. A statement that the excavation permit shall be approved prior to the excavation activities, or a similarly worded statement, would be more appropriate for this document.  
*Response: Concur; the digging permit approval date of September 6 was added.*
36. Section 1.4.5, 1<sup>st</sup> sentence. The reference should include the contractor reference.  
*Response: Concur; reference now includes "WTF".*
37. Section 1.4.6, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents. If the title is kept, the word "Nitroaromatic-" is recommended to be added before "Contaminated".  
*Response: Concur; title now reads, "(Task 6) Excavation of Contaminated Material" and "Nitromatic-" was added before "contaminated".*
38. Section 1.4.6, 1<sup>st</sup> sentence. Recommend adding "nitroaromatic-" before "contaminated".  
*Response: Concur; "nitroaromatic-" was added before "contaminated".*
39. Section 1.4.6, 2<sup>nd</sup> sentence. Please revise the ISRA report reference to be consistent. Also, "Remedial Design and Feasibility Study" should be "Remedial Investigation/Feasibility Study" to be consistent with this term. The appropriate reference for the RI/FS that has been conducted for this area should be added.  
*Response: Concur; "WTF" was added to the report reference. "Remedial Design and Feasibility Study" was revised to "Remedial Investigation/ Feasibility Study". The appropriate reference to the RI and FS has been added as follows, "a Focused Remedial Investigation (RI) was completed in 1997 by Dames and Moore, Risk Assessment and Direct Push Investigation was completed in 2001 by IT, and a feasibility study (FS) was completed in 2002, collectively known as the RI/FS)".*
40. Section 1.4.6, 3<sup>rd</sup> sentence. "EPA" should be revised to "OEPA".  
*Response: Concur; "EPA" was revised to "OEPA".*
41. Section 1.4.6, last sentence. Please revise the ISRA report reference to be consistent, per previous comments.  
*Response: Concur; "WTF" was added to the report reference.*

42. Section 1.4.7, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents.  
*Response: Concur; title now reads, "(Task 7) Disposal of Investigation Derived Waste".*
43. Section 1.4.7, 3<sup>rd</sup> paragraph, 2<sup>nd</sup> sentence. Per comments provided for the QCP, all correspondence, plans, etc. should be submitted through the USACE COR.  
*Response: Concur; "through the USACE Contracting Officer Representative (COR)" was added to this sentence. Although it should be noted that the original wording was per the SOW.*
44. Section 1.4.8, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents.  
*Response: Concur; title now reads, "(Task 8) Draft and Final Interim Soil Removal Action Report".*
45. Section 1.4.8, 2<sup>nd</sup> sentence. Please revise the ISRA report reference to be consistent, per previous comments.  
*Response: Concur; report reference was revised.*
46. Section 1.4.8, 3<sup>rd</sup> sentence. Revise "Ohio EPA" to "OEPA". The reference to "Technical Assistance Program (TAP)" is not correct. The contractor that reviewed the report is working under the Technical Assistance for Public Participation (TAPP) program, and provides this technical support for the PBOW RAB. Please revise the portion that states "...commented on the feasibility to which they were able to review it". Do you mean the ease with which they were able to review the report?  
*Response: Concur; "Ohio EPA" was revised to "OEPA", "Technical Assistance Program (TAP)" was revised to "Technical Assistance for Public Participation (TAPP) program", "feasibility" was revised to "ease".*
47. Section 1.4.8, 4<sup>th</sup> sentence. The term "regulators" is not appropriate for NASA and the TAPP contractor; they are PBOW team members; therefore, recommend you use the term "PBOW team's thoughts" or just simply "their thoughts".  
*Response: Concur; "regulators" was revised to "PBOW Team's".*
48. Section 1.4.8, next-to-last sentence. It is noted that you could also reference the McTech QCP for the QC requirements.  
*Response: Concur; sentence now reads, "...for QC review and documentation requirements, see also, McTech QCP, 2007."*
49. Section 1.4.9, Title. It is noted that the title of this section is not consistent with the title presented in the Table of Contents.  
*Response: Concur; title now reads, "(Task 9) Public Meeting Support".*
50. Section 1.4.9, 1<sup>st</sup> sentence. "work order" should be revised to "contract".  
*Response: Concur; "work order" was revised to "contract".*
51. Section 1.4.9, 3<sup>rd</sup> sentence. Please add a comma after "Sandusky".  
*Response: Concur; a comma was added after "Sandusky".*
52. Section 1.4.9, last sentence. Recommend revising "requirements of this work" to "results of the ISRA continuation".
53. *Response: Concur; "requirements of this work" was revised to "results of the ISRA continuation".*
54. Section 2.0.A. It is noted that the Government Technical POC is the USACE contact for technical issues regarding the scope of work and this contract; however, correspondence and direction of the

contractor must be in writing from the Contracting Officer's Representative. The COR for this project can be provided by the USACE technical POC and should be added to this section.  
*Response: Concur; added Government COR, Shane Hall, to the list of contacts. Also reworded the Government Technical POC description as above.*

55. Section 2.0.I. Please note previous regarding REIC's certification and CELRH-EC-CE approval for continued use of REIC for this project.  
*Response: Concur; Severn Trent Laboratories in Canton, OH. They have approval letter from the Louisville District and a letter stating their qualifications from the Navy.*
56. Section 3.0, 2<sup>nd</sup> paragraph, 3<sup>rd</sup> sentence. Add the appropriate reference for the work that WTI performed for the initial ISRA.  
*Response: Concur; "WTI" was added to the work reference.*
57. Section 3.0, 2<sup>nd</sup> paragraph, next-to-last sentence. Recommend revising "contaminants in soil" to "nitroaromatic-contaminated soil".
58. *Response: Concur; "contaminants in soil" was revised to "nitroaromatic-contaminated soil".*
59. Section 3.1. It is noted that the title of this section is not consistent with the title presented in the Table of Contents. Recommend revising this to "Final Pentolite Road Red Water Pond Action Memorandum".  
*Response: Concur; title now reads, "Final PRRWP Action Memorandum".*
60. Section 3.1, 1<sup>st</sup> sentence. The word "a" should be revised to "an", at "a ISRA".  
*Response: Concur; "a" was revised to "an".*
61. Section 3.1, next-to-last sentence. I don't believe that PRGs has been previously defined; please add.  
*Response: Concur; PRG's is now defined, "Preliminary Remediation Goals (PRGs)".*
62. Section 3.1, last sentence. Please delete "on the".  
*Response: Concur; "on the" was deleted.*
63. Section 3.2, 2<sup>nd</sup> paragraph, 2<sup>nd</sup> sentence. I don't believe that TCLP has been previously defined; please add.  
*Response: Concur; TCLP was previously defined in section 1.4.7, second sentence.*
64. Section 3.2, 2<sup>nd</sup> paragraph, last sentence. This sentence should be completed as "...to determine the proper disposal method", or some similar statement, to explain why the data will be compared to the regulatory levels.  
*Response: Concur; "...to determine the proper disposal method" was added to the end of the sentence.*
65. Section 4.1, next-to-last sentence. The borrow material will be considered clean if the constituents are below the regulatory levels of parameters in Table 2 of Section 5.1 of the Plan of Operations; please revise.  
*Response: Concur; "The borrow material will be considered appropriate for use in backfill of excavated pits if the chemical constituent TNT is below the PRG listed in Table 1, Section 3.1 of this plan. Refer to Table 2 in Section 5.1 of this plan for the analytical parameters for the borrow material."*
66. Section 4.2, 2<sup>nd</sup> paragraph, 2<sup>nd</sup> sentence. If placement of the grubbed material for wildlife habitat is not approved, how will the contractor dispose of grubbed/cleared material? Recommend that you expand to state that this material would be disposed offsite at a local landfill in this event.

*Response: Concur; sentence now reads, "If grubbed material is not approved for wildlife habitat it will be disposed of at a local landfill."*

67. Section 4.2, last paragraph, next-to-last sentence. Per previous comment, is there any consideration for re-seeding with local prairie grasses?  
*Response: Concur; there are no requirements for reseeding the area.*
68. Section 4.3, 1<sup>st</sup> paragraph, 1<sup>st</sup> sentence. The date is incomplete. Please delete for the final report if the permit has not yet been approved.  
*Response: Concur; the digging permit was approved and the date added.*
69. Section 4.3, 3<sup>rd</sup> paragraph, 2<sup>nd</sup> sentence. Please revise to "...one, 5-point composite sample..."; as stated, it appears there will be 1 to 5, point composite samples taken  
*Response: Concur; "1-5-point composite sample" was revised to "...one, 5-point composite sample...";*
70. Section 5.0. Please note previous regarding REIC's certification and CELRH-EC-CE approval for continued use of REIC for this project. "EPA" in the last sentence should be revised to "USEPA".  
*Response: Concur; "EPA" was revised to "USEPA" and a new lab was chosen, Severn Trent Laboratories in Canton, OH. The have approval letter from the Louisville District and a letter stating their qualifications from the Navy.*
71. Section 5.1, 1<sup>st</sup> sentence. Please revise "it" to "them".  
*Response: Concur; "it" was revised to "them".*
72. Section 5.1, Table 2. The SOW does not require that the borrow material be analyzed for nitroaromatics, and this material should only be analyzed for nitroaromatics if it is suspected to contain this contaminant. Please explain the reasoning for deviation from the SOW requirements.  
*Response: Concur; in correspondence with the Technical POC, the decision was made to analyze the borrow soil for nitroaromatics so that there will be 3<sup>rd</sup> party documentation, in addition to generator knowledge, that the borrow soil did not contain nitroaromatics. This fact was added to this section.*
73. Section 5.2, Title. The title is not consistent with the Table of Contents.  
*Response: Concur; title now reads, "Screening and Confirmation Sampling of Excavated Areas".*
74. Section 5.2, last sentence. Please revise the reference for consistency.  
*Response: Concur; reference was revised.*
75. Section 5.3, 1<sup>st</sup> sentence. "field test kit" does not appear to be appropriate. There has been no discussion regarding the use of field test kits for this project.  
*Response: Concur; "field test kit" was removed.*
76. Section 5.3, last sentence. "(table 3)" should be revised to "(Table 3)".  
*Response: Concur; "(table 3)" was revised to "(Table 3)".*
77. *Response: Concur; "(table 3)" was revised to "(Table 3)".*
78. Section 6.0, 1<sup>st</sup> paragraph, 2<sup>nd</sup> sentence. "field screening" is discussed, but is not part of the scope of work for this project.  
*Response: Concur; "field screening" was removed.*
79. Section 6.0, 2<sup>nd</sup> paragraph, 4<sup>th</sup> sentence. What is meant by "managed as stockpile"?  
*Response: Concur; sentence now reads, "...and will be managed with stockpile material."*
80. Section 6.0, 4<sup>th</sup> paragraph, 4<sup>th</sup> sentence. Revise "and" to "an", before "berm".  
*Response: Concur; "and earthen berm" was revised to "an earthen berm".*

81. Section 6.0, 5<sup>th</sup> paragraph, 1<sup>st</sup> sentence. "field test kits" are discussed.  
*Response: Concur; "field test kits" was removed.*
82. Section 6.0, 5<sup>th</sup> paragraph, last sentence. "Table 4" should be revised to "Table 3".  
*Response: Concur; "Table 4" was revised to "Table 3".*
83. Section 7.1, 1<sup>st</sup> paragraph. The word "bound" doesn't have to be boldface type.  
*Response: Concur; "bound" is no longer boldface.*
84. Section 7.1, general comment. Other fieldwork, in addition to the sampling activities, would also be documents in the field logbook and field activity forms, but are not discussed in this section; please elaborate/expand.  
*Response: Concur; the following paragraph was added, "Other field activity forms and checklist including equipment safety, HTRW sampling procedures and QCR's can be found in Appendix A and Appendix B of the Quality Control Plan developed for this project. These should be maintained in a 3 ring binder on site for the duration of the project."*
85. Section 7.3, 2<sup>nd</sup> paragraph. Please revise the words "should" and "will" in this paragraph to "shall". The sample identification numbers provided are not consistent; the numbering convention also needs to differentiate samples taken from the excavated soil from those taken from the borrow material.  
*Response: Concur; "should" and "will" were revised to "shall". Examples borrow sample numbering were included.*
86. Section 7.4. The word "should" in the statement before the second set of bullets "A chain-of-custody should..." needs to be revised to "shall".  
*Response: Concur; "should" was revised to "shall".*
87. Section 7.4, 2<sup>nd</sup> set of bullets, 3<sup>rd</sup> from the end. You could revise "paperwork" to "chain-of-custody form".  
*Response: Concur; "paperwork" was revised to "chain-of-custody form".*
88. Section 9.1, last paragraph, last sentence. In addition to keeping the samples in ice filled coolers, the samples/cooler need to be under the custody of a McTech employee until relinquishing the samples to the express delivery company.  
*Response: Concur; sentence now reads, "Samples will be kept in ice filled coolers, under the custody of a McTech employee until they are shipped via overnight express or hand delivered to the laboratory."*
89. Section 10.0. The bulleted list should contain all items that are included on the daily QCR form, which include work performed; samples taken; and preparatory, initial and follow-up inspections.  
*Response: Concur; bullets now include, "Work performed, Preparatory, Initial, and follow-up phase inspections, Safety, Samples taken and tests performed".*
90. Section 12.1, 1<sup>st</sup> and 2<sup>nd</sup> set of bullets. Acetone and nitric acid are not appropriate for these would be required for field test kits, which are not to be used for this project.  
*Response: Concur; "nitric acid" and "acetone" were removed.*
91. Section 12.1, 2<sup>nd</sup> paragraph. You could also note that the MSDS are included in the SSHP for this project.  
*Response: Concur; sentence now reads, "...will be posted at the site and can also be found in the SSHP for this project."*
92. Section 12.2, bulleted items, recommendation. You could also cover the drums with tarps and place the drums inside a covered containment area to catch any potential spills.

93. *Response: Concur; the following bullet was added, "The drums should be covered with tarps and placed in a covered containment area."*
94. Section 15.0. The SOW stated that 8 copies of the plans would be provided, not 7, as noted in the two bulleted items. This discrepancy should be discussed. The sentence "Address for submittals" and the partial POC address at the bottom of page 27 should be moved to page 28. Submittals should be addressed to the USACE COR. It is noted that the schedule shows submittal of the draft ISRA report 60 days earlier than the schedule that was allowed for in the SOW; however, if this is the contractor's proposed, revised schedule to shorten the project, this is fine and does not have to be discussed.  
*Response: Concur; changed to 8 per the SOW. Contract information for submittals was changed to Shane Hall-CELRH Huntington. 120 days was a typographical error, it now reads, "210 days".*
95. Appendix B.
- a. General. A vicinity/site location map is needed that shows the PBOW site in relationship to the state of Ohio and the Sandusky, OH area.  
*Response: Concur; a general vicinity map was added.*
  - b. 1<sup>st</sup> map. This map is not legible; the note that demarcates the PRRWP area is too small and hand-written; please revise.  
*Response: Concur; this map was additional from NASA. was requested as part of the digging permit by NASA, not available electronically and therefore removed.*
  - c. 2<sup>nd</sup> map. This map is not legible. It should be revised to add a note to reference which contract this plan came from, for it was not developed for this project.  
*Response: Concur; a clean copy of the map was printed and title block was changed*
  - d. 3<sup>rd</sup> map. The sample number and Historical Information below the Legend are not appropriate. The title of the map does not relate to this project phase/name. There is an errant "REDWATER AREA" note in the bottom right corner. If this map is not revised to be specific for this project, then a note needs to be added that references which contract/project this map is from.  
*Response: Concur; the changes were made as suggested.*
  - e. 4<sup>th</sup> map. Please see comments for the 3<sup>rd</sup> map and revise appropriately. This map is not consistent with the 3<sup>rd</sup> map, as far as color and clarity.  
*Response: Concur; this map is redundant and was removed.*
  - f. 5<sup>th</sup> map. Please see comments for the 3<sup>rd</sup> and 4<sup>th</sup> maps and revise, as appropriate.  
*Response: Concur; clarifications including the title block were made.*
96. Appendix C.
- a. Quality Control Field Oversight Checklist. (5). Revise "Waste Ron" to "McTech" and add "NASA PBS" before "safety/orientation video". (7). Revise "survey" to "surveyed". (8). Fix "the site map". (9). It is noted that the Huntington District currently utilizes *Microstation V.8*, so "95" could be revised. (11). Delete D, Stabilization of Soil. (13). Delete "and stabilized".  
*Response: Concur; all changes noted in this comment were change on the checklist.*
  - b. Quality Control Field Oversight Checklist HTRW Sampling Procedures. (29), (30) and (31) are not appropriate for this project and should be deleted  
*Response: Concur; these items were deleted.*