US Army Corps of Engineers
Huntington District

PLUM BROOK ORDNANCE WORKS
Restoration Advisory Board

Quarterly Fact Sheet *April-June 2010*

SITE DESCRIPTION
The former Plum Brook Ordnance Works is located four (4) miles south of Sandusky, Ohio, near Lake Erie. Nitroaromatic explosives produced at the site included TNT, DNT, and pentolite; other products produced at the ordnance works included nitric and sulfuric acid. The plant operated for four years from 1941 to 1944, and was decontaminated by the end of 1945. Possession of the property was transferred to the Ordnance Department in 1946, then to the War Assets Department, and finally to the GSA in 1949. NASA acquired the property in 1963 and presently maintains and utilizes 6453.5 of the original 9009 acres.

SITE HISTORY
The U.S. Army entered into a contract with Trojan Powder Company for the purpose of manufacturing this ordnance. The official title for the site during this time was the Plum Brook Ordnance Works (PBOW). Groundbreaking to construct the facilities to support the manufacturing of ordnance began on April 15, 1941. Production began on December 16, V-J Day (1941). During the production period more than one billion pounds of ordnance was manufactured.

PBOW was placed in standby condition from 1945 to 1946. Throughout this time, the Army conducted decontamination and decommissioning (D&D) of many of the buildings and structures associated with the manufacturing of ordnance. Decontamination efforts on all TNT and DNT lines began in September 1945. Decontamination of TNT lines, acid lines, pentolite lines, and DNT lines was halted during the last quarter of 1945. Typical D&D methods for buildings and structures involved removal and relocation of all explosives to a burning ground where they were burned. Where possible, remaining buildings and structures were burned to the ground. Steam lines, drain lines, etc., were flushed and dismantled. There is no indication in PBOW historical records of where lines were flushed.

It is estimated that 65 percent of the necessary decontamination of PBOW was completed by December 1945. On midnight of December 17, the physical custody of the PBOW was transferred from Trojan Powder Company to the U.S. Army Ordnance Department. The Ordnance Department became the agency accountable for the property and the U.S. Army Corps of Engineers assumed responsibility for maintenance and custodial duties at the PBOW from January 1 through June 30, 1946.

After further decontamination efforts were completed, and the extent of contamination certified, PBOW was transferred to the War Assets Administration in August 1946. From 1946 to 1949 the property was protected and maintained by Matthew-Levio and Sons. In 1949 it was transferred to the General Services Administration (GSA), which maintained oversight of the facility. Ravenna Arsenal conducted further decontamination efforts from 1945 to 1958. NASA accepted the facility in 1963 after Ravenna Arsenal certified that the PBOW had been completely decontaminated and was suitable for unrestricted future use. After acceptance of the PBOW, NASA identified further areas that required decontamination. In 1964, NASA continued site decontamination and the removal of structures.

In 1956 an agreement was made to lease 500 acres of the north portion of the site to construct and operate the Plum Brook Reactor Facility (PBRF). NASA operated the PBRF from 1963-1973 under a license agreement with the Atomic Energy Commission (AEC). NASA currently has a license agreement with the Nuclear Regulatory Commission (NRC) for the safe protective storage of the PBRF. NASA acquired an additional 6,000 acres of the former PBOW on March 15, 1963, for the purpose of conducting various aerospace research activities. NASA continues to use the site today.

SUMMARY OF ACTIVITIES

Red Water Ponds Area (Soils)

A Non-Time Critical Removal Action (NTCRA) began in 2005 but could not be completed at that time because of insufficient funding. The removal action continued in spring 2007 and was completed in the fall of 2008. The Removal Action Construction Completion Report was completed and presented to the public at the March 2009 Restoration Advisory Board (RAB) meeting. The project returned to the CERCLA process (RI/FS Phase) and evaluations are being made to determine if additional remedial response actions are required to address any residual risk that may be present at the project. Any future restoration requirement will be defined in the Proposed Plan and Decision Document.

TNT Area A (Soils)

The FS was submitted in August 2003. The Preliminary Draft Decision Document and Proposed Plan for Area A were prepared in August 2005. Submittal of the FS addendum and draft proposed plan for TNT Area A was delayed pending future land-use decision. Per discussion/agreement with LRH and LRL OC on 10 April 2009, the PDT moved forward with unrestricted future use at TNT Area A. The final Feasibility Study Addendum and revised draft Proposed Plan was submitted 21 August 2009. The final Proposed Plan was made available for public review on November 30, 2009 through January 13, 2010. No comments were received from the public review. The draft Decision Document was submitted in late February 2010 and review comments are currently being addressed.

TNT Area B (Soils)

During the RI/FS phase, LRN and LRH agreed to complete an action memorandum for a NTCRA for the soils. An Interim Soil Removal Action was completed and removed the contaminated soils that exceeded the RGOs. The Final Interim Soil Removal Action Report was submitted in July 2007. The preliminary Draft Decision Document and Proposed Plan were completed in early 2005 and have been held until completion of the groundwater Feasibility Study. The Draft Proposed Plan was reviewed by the team and a public meeting was held on 16 July 2009, which initiated the 30-

day public comment period. No public comments were received and the Decision Document, which approved the "No Further Action (NFA)" decision, was signed in September 2009. The Project Closeout Report (PCO) documenting Ohio EPA concurrence for the NFA was completed and approved by 31 March 2010.

TNT Area C (Soils)

The FS was submitted in August 2003. The Preliminary Draft Decision Document and Proposed Plan for Area C were prepared in August 2005. Revised Draft Proposed Plan for TNT Area C and addendum to the FS was submitted in May 2008 for review. Based on comments received and to support the evaluation of remedial alternatives for soil at the TNT manufacturing areas, a bench-scale treatability study using alkaline hydrolysis for nitroaromatic contaminants was conducted during the summer of 2008. The addendum to the FS (FFA) and final Proposed Plan for TNT Area C was reviewed. The final Proposed Plan was submitted 10 March 2009 and a public meeting was held 12 March 2009. The draft decision document was reviewed by the team and the final document was submitted 28 July 2009. A Remedial Action Construction (RA-C) contract was awarded 24 December 2009 to implement Alternative 5 of the FFS for Excavation, Stabilization (if necessary), Alkaline Hydrolysis and/or Composting, and On-site / Off-site Disposal. Ohio EPA concurrence letter was signed on January 15, 2010. Construction work plans were approved, field efforts are underway and scheduled for completion in September 2011 with the final closure report in January 2012.

Groundwater - TNT A, B and C & Red Water Ponds Areas

The Final Groundwater Report of Findings was submitted in April 2005 and quarterly groundwater elevation monitoring continues to be conducted. A Task Order was awarded to Shaw Environmental in late November 2005 for the Groundwater Feasibility Study (FS) in TNT Areas A, B, C, and Red Water Ponds Areas. The Final Baseline Human Health Risk Assessment of Groundwater Report was submitted on 28 September 2006. The Revised Final Feasibility Study was submitted in December 2008. The Draft Proposed Plan for Groundwater for the TNT Areas and the Red Water Ponds Areas was submitted to the EMCX on April 6, 2009. Currently, there are several issues the team is addressing before the PP can be finalized. Those issues are:

- Poor natural groundwater quality means that water is non-potable;
- Perceived lack of a legal driver to remediate, monitor, or place an institutional control on non-potable groundwater;
- Questions concerning the ability to implement an environmental covenant on the NASA facility that would restrict groundwater use;
- Identification of an appropriate "exit strategy" for USACE groundwater monitoring;

Upon resolution of these issues, the Proposed Plan will be submitted for review.

A meeting of USACE team members was held in late February to discuss progress toward resolution of comments. As a result, an FS addendum addressing the above concerns will be prepared for review prior to continuation of the Proposed Plan and Decision Document. Scoping and schedule for the proposed work is being developed. Upon resolution of these issues, the Proposed Plan will be submitted for review.

Reservoir No. 2 Burning Ground

In late February 2005, the Delivery Order was modified to include additional soil samples to further define a specific portion of the burning grounds. This additional soil sampling was conducted in late April 2005. The Interim Final Report was submitted in early July 2005 and included all soils and groundwater results. Comments on the report were received and discussed at the PBOW Team meeting in early December 2005. The final report was received on 12 January 2006. A contract was awarded on 29 January 2008 to conduct a risk assessment at this site. Final risk assessment report was submitted on 26 February 2010 and additional delineation sampling will be conducted this summer to support the feasibility study which is currently being developed.

Acid Areas

Acid Area 1

A contract was awarded in late September 2006 to Jacobs Engineering, Inc. to continue the Remedial Investigation at Acid Area 1. Field work began in spring 2007 with soil sampling, piezometers installation and surface water reconnaissance, and surface water and sediment sampling in late spring 2007. Bedrock wells were installed in July 2007. Groundwater sampling was delayed until early November due to the absence of groundwater in the area. A contract was awarded in late January 2008 to complete a Risk Assessment for Acid Area 1. The final Site Characterization Report (part 1) was submitted July 20, 2009. The final Risk Assessment work plans were submitted in early April 2009. Comments from OEPA disputing responses to USACE Risk Assessor's comments on the document have been resolved. A draft Risk Assessment is expected in July 2010.

Acid Areas 2 and 3

The Final Site Characterization Report, Remedial Investigation, Part 1 at Acid Areas 2 and 3 was submitted in March 2007. Final risk assessment / screening level documents were submitted in February 2008. A contract was awarded in late January 2008 to complete delineation sampling, the Feasibility Study, Proposed Plan and Decision Document. Delineation sampling began in November 2008 and was completed the last week of May 2009. It was determined additional delineation was necessary, and the field work was completed in November 2009. After reviewing the data it has been recommended that additional sampling be conducted this summer. Completion of the Feasibility Study is dependent upon results of delineation sampling which is needed to determine contamination volumes. The draft report is planned for late 2010.

Waste Water Treatment Plants

Waste Water Treatment Plants 1 and 3 with Wooden Sewer Lines

Based on Limited Site Investigations (LSI) performed in 2000 for these areas, a contract was awarded in June 2008 to conduct a Remedial Investigation, a Human Health Risk Assessment and Ecological Risk Screening. Field data collection began in early 2009 and will continue through fall 2009. The draft Site Characterization report is expected for review in the spring 2010.

Several thousand feet of the sewer line remain intact. A contract was awarded in June 2008 to conduct an RI to delineate the traces of these sewer lines and to investigate potential nitroaromatic contamination which may have affected soil and groundwater along these traces. The contract was modified in April 2009 to include investigation of the sewer line from the TNT B area to WWTP No. 1. The data will be utilized in a Baseline Human Health Risk Assessment and a screening level

Ecological Risk Assessment. Field data collection began in winter 2008-2009 with draft Site Characterization report to be submitted mid-2010.

Waste Water Treatment Plant #2 with Sewer Lines
This project is currently waiting funding and will begin the RI/FS phase once funding is available.

Ash Pits
Ash Pits 1 and 3
Based on Limited Site Investigations (LSI) performed in 2000 for these areas, a contract was awarded in June 2008 to conduct a Remedial Investigation, a Human Health Risk Assessment and Ecological Risk Screening. Field data collection began in early 2009 and will continue through fall 2009. The draft Site Characterization report is expected for review in the spring 2010.

Powerhouse 2 Ash Pit
A contract was awarded in September 2008 to conduct Remedial Investigation, Human Health Risk Assessment and Ecological Risk Screening for this AOC. Field collection was completed in 2009. Draft characterization report was submitted 30 March 2010 and responses to review comments are currently being addressed.

Garage Maintenance (Locomotive Bldg) Area
A contract was awarded in October 2008 to conduct Remedial Investigation, Human Health Risk Assessment and Ecological Risk Screening for this AOC. Field data collection has begun and the draft characterization report is expected in spring 2010.

Restoration Advisory Board
Restoration Advisory Board (RAB) meetings are scheduled when sufficient technical information is available to present to the community members, or at the request of the RAB. A RAB meeting was held on June 15, 2010 and the next RAB (site visit) is planned for September 9, 2010.

Project Team Meetings
Team meetings are conducted several times throughout the year to discuss project issues. A Full Team Meeting includes representatives from USACE, NASA, OEPA, and USACE contractors. A USACE Team Meeting includes only project participants from LRH, LRN and other USACE representatives as appropriate.

PBOW WEBSITE

USACE Huntington continues to maintain the website which is dedicated to keeping the public informed about the PBOW activities. This site is continuously updated. Currently, USACE is working to have the Administrative Record (AR) accessible on the FUDS website, which is an ongoing process. The website is located at: www.lrh.usace.army.mil/projects/current/derp-fuds/pbow.

PBOW TOLL FREE NUMBER

USACE Huntington has a toll-free number in place for your use. If you have any information such as personal knowledge, photographs, maps, newspaper articles of past activities or other information you would be willing to share, or if you have questions about current activities at the site, please feel free to use the toll free number. USACE is interested in hearing from you. You may call toll free (800) 822-8413 to speak with Lisa Humphreys, USACE PBOW Technical Coordinator.

PROJECT CONTACT

The PBOW Project Manager is Richard L. Meadows in the Huntington District (CELRH-PM-P). You may contact Mr. Meadows at (304) 399-5388, fax (304) 399-5715 or via email at Richard.L.Meadows@usace.army.mil. He may be reached during the hours of 8:00 a.m. to 5:00 p.m, Monday - Friday.