

# ***PLUM BROOK ORDNANCE WORKS***

## ***Restoration Advisory Board***

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***Quarterly Fact Sheet***

***April thru June 2007***

### **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 accountable agency 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**

An interim soil removal action is complete at Pentolite Road, however additional excavation is required to obtain clean closure of the contaminated areas. In late 2006-early 2007, a bench-scale study was conducted at PRRWP to determine the effectiveness of lime-treatment on the reduction of nitroaromatics. Additional soil remediation, using lime application is planned for late 2007, funding has been obtained and the contract is in place.

### **TNT Area B**

The field work for the additional excavation began in June-July 2006. The excavations, backfilling with clean soil and disposal of excavated soil is complete. Due to pending Potentially Responsible Party (PRP) issues at PBOW, Nashville District will proceed with completing the Decision Document and Proposed Plan for soils.

### **TNT Area A and TNT Area C**

USACE will pursue the Interim Soil Removal Action as funding becomes available. The Preliminary Draft Decision Document and Proposed Plan for Area A and Area C were received in late May 2005 and late June 2005, respectively. The districts (LRH and LRN) reviewed the documents and the contractor submitted the revised documents in August 2005. Nashville District will proceed with finalizing the Decision Document and Proposed Plan for soils. See Groundwater Remedial Investigations below for an update on groundwater activities for these areas.

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

The Final Groundwater Report of Findings was submitted in late April 2005. The Final Baseline Human Health Risk Assessment of Groundwater Work Plan was submitted for review in late January 2005. Comments were received in January 2005 and Revision 1 was submitted in early October 2005. 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. A Draft Feasibility Study was submitted in March 2007. The PBOW Team requested an extension of the document review period. A final report is scheduled to be submitted in September 2007.

Work on the FS is expected to begin as soon as the districts' review of the Groundwater Risk Assessment is completed. The Final Baseline Human Health Risk Assessment of Groundwater Report was submitted in late September 2006.

### **Reservoir No. 2 Burning Ground**

#### **Remedial Investigation Part 1**

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 in mid-January 2006.

#### **Engineering Evaluation/Cost Analysis (EE/CA)**

Based on discussions in the September 2005 PBOW Team meeting, an EE/CA was scoped and Delivery Order was awarded in late October 2005. Field activities were completed in early December 2005 and the Treatability Summary Report was delivered in April 2006. The alternatives were presented at the Team Meeting and RAB Meeting in May 2006. The draft EE/CA was submitted for review in mid-June and is being revised based on comments received from the HTRW-CX. The EE/CA will be finalized and the findings may be incorporated in the CERCLA process in the future. This action is pending decision on status of the PBOW project.

### **Acid Areas**

#### **Acid Areas 2 and 3**

The Draft Soils Remedial Investigation Report was submitted in early August 2005, comments on the report were received in late September 2005. The comment responses were discussed at the PBOW Team Meeting in December 2005. Based on the discussions, USACE decided to delay the delivery of the final document and modify the Delivery Order to include additional sediment and surface water sampling in the Acids Areas. Surface water sampling was conducted in mid-May 2006 and sediment sampling was conducted in early June 2006. The Final Site Characterization Report, Remedial Investigation, Part 1 at Acid Areas 2 and 3 was submitted in March 2007. The modification required the contractor to run and report the necessary project risk assessments which will be issued as separate documents. The final Risk Assessment work plans were submitted in April 2007.

#### **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 June 2007 and groundwater sampling is planned for August 2007.

### **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. The next RAB Meeting is scheduled for September 2007. In addition to RAB Meetings, USACE conducts Poster Sessions at local fairs and festivals.

The PBOW RAB booth was displayed at the Erie County Fair and is scheduled to be displayed at the Harvest Happenings Festival in mid-October 2007. Both venues provide an opportunity to update the community on the progress of the restoration projects at PBOW.

### **Project Team Meetings**

Team meetings are conducted several times throughout the year to discuss project issues. A Full Team Meeting includes representatives from NASA, OEPA, USACE and USACE contractors. A USACE Team Meeting includes only project participants from LRH, LRN and other USACE representatives as appropriate. The next Team Meeting is expected in mid-2007.

### **PBOW WEBSITE**

USACE Huntington continues to maintain the website which is dedicated to keeping the public informed about the PBOW activities. This site is updated regularly with project information, as well as the PBOW fact sheets, investigation schedules and the Annual FUDS Newsletter. Currently, USACE is making the Administrative Record (AR) accessible on the FUDS website. To date, most of the documents have been posted but this is a continuous process as new documents are generated. To find out the latest news on the PBOW project, please visit the website at the following address: [www.lrh.usace.army.mil/projects/current/derp-fuds/pbow](http://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, so call toll free (800) 822-8413 and ask for Lisa Humphreys.

### **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@Lrh01.usace.army.mil](mailto:Richard.L.Meadows@Lrh01.usace.army.mil). He may be reached during the hours of 8:00 a.m. to 5:00 p.m, Monday - Friday. You may also call the toll free number listed above and ask to be transferred directly to his office.