



US Army Corps  
of Engineers ®  
Pittsburgh District

# THE MONONGAHELA PACKET

Historical Bulletin for the Lower Mon Project

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## **REPORTING ON THE PROGRESS OF THE LOWER MON PROJECT**

*During the period since our last newsletter many of the objectives of the project to modernize Locks and Dams 2, 3, and 4 on the Monongahela River have been accomplished. This issue will bring you up-to-date on them. As with any project of this size, a number of objectives are still in progress and many are still ahead. We will also inform you of their status and planned completion dates.*

### **Construction Progress**

#### ***Completion of Braddock Dam***

As we previously reported in Monongahela Packet No. 7, the two segments of the new Braddock Dam were cast along the Ohio River at Leetsdale. Upon completion, the segments were floated up the Ohio and Monongahela Rivers to a waiting outfitting pier two miles upstream of the dam site: Segment 1 in July 2001 and Segment 2 in February 2002. Once in place at the outfitting pier in Duquesne, the segments were prepared for movement into position to be set down on previously constructed foundations at the bottom of the Monongahela River. Outfitting each section took three months. Set down of Segment 1 took place in December 2001 and Segment 2 in June 2002. Following successful placement, the two segments were grouted into place and filled with concrete. Late in 2002, construction began for the tailrace, followed by completion of the dam's five piers. Installation of four steel tainter gates started in the summer of 2003 and was complete by November of that year. Once the new dam was able to hold the navigation pool, the breach and demolition of the existing fixed-crest Dam 2, constructed in 1906, began. Demolition of old Dam 2 was completed in March 2004. The new Braddock Dam was dedicated on May 27, 2004 marking the successful completion of the first installation of an inland navigation dam using in-the-wet construction.



*The new Braddock Dam.*

The new Braddock Dam was selected to receive the 2005 American Society of Civil Engineers (ASCE) Pittsburgh Civil Engineering Achievement Award. *Engineering News Record* named Braddock Dam as one of the “top 25 newsmakers of 2002” and it was a finalist in the 2004 National ASCE Outstanding Civil Engineering Achievement Award. Its significance in engineering and construction achievement was recognized in the magazine *Civil Engineering*, while *Popular Science* magazine featured the Braddock Dam in the engineering category of its 2004 “Best of What’s New” edition. Additionally, the construction of the Braddock Dam was highlighted by television’s History Channel on its *Modern Marvels* documentary on the history of the U.S. Army Corps of Engineers.

## ***Initiation of Work on Charleroi Locks***

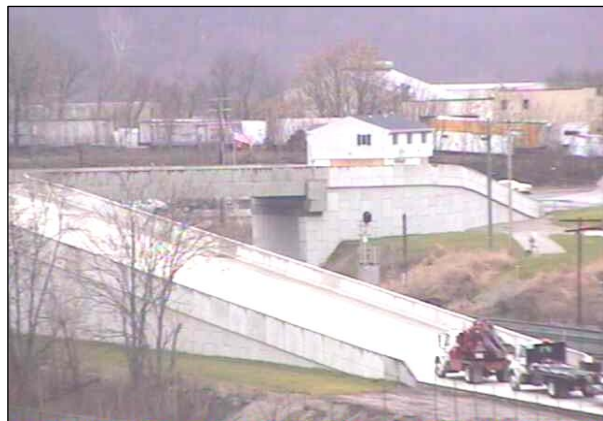
### ***Work Begins at Locks 4 in Charleroi, Pennsylvania***

*New access road and bridge from State Route 906 crossing railroad tracks toward Locks 4 at Charleroi.*

With the completion of the Braddock Dam, the focus of the Lower Mon Project has shifted to Charleroi Locks and Dam, located at river mile 41.5. As part of the plan to modernize the three oldest operating navigation facilities on the Mon River, work began at Locks and Dam 4 for the new “Charleroi” Locks. Work on this phase of the Lower Mon Project began in October 2002 with the award of a construction contract to complete new site infrastructure, an access road and bridge, and new operations and service buildings.

The River Chamber Demolition contract began in October 2003 to prepare the existing lock river chamber for construction of the new locks. This contract includes construction of upstream pivot and protection cells, downstream diversion dike and stabilizing cells, fabrication and installation of stabilizing struts, installation of an instrumentation system, and removal of the miter gates, floor struts, chamber floor and concrete sills.

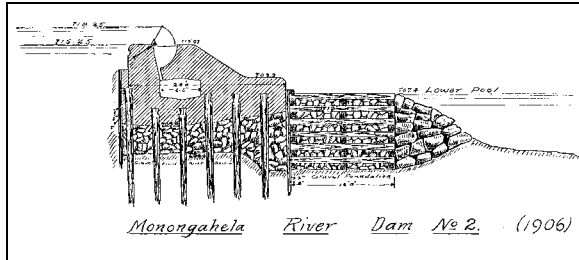
In September 2004, the Pittsburgh District awarded a contract to begin construction of the new lock river wall. Work began on this contract in May 2005 and the remainder of the locks will be completed under multiple contracts. The new Charleroi Locks are scheduled to be completed in 2019.



Construction of the stabilizing struts and downstream closure as part of the River Chamber Demolition contract.

## UPDATE ON LOWER MON CULTURAL RESOURCES STUDIES

### **Historic American Engineering Record (HAER) Recordation**



Construction drawing for 1906 Dam 2.

The Lower Mon Project is replacing the last remaining elements of pre-World War II waterways technology on the Monongahela River System. Historic American Engineering Record (HAER) documentation was included in the project's historic mitigation plan to preserve significant information about this technology. The HAER documentation encompasses the evolution of waterways technology dating from the 1840s.

The innovative construction of the new Braddock Dam is considered an exceptional component of the system's technological evolution. In addition to the HAER recordation of existing and historic Locks and Dams 2, 3, and 4, the new Braddock Dam, with its innovative construction technologies, was deemed by the National Park Service as worthy of recordation as part of the documentation for the Monongahela Navigation System.

Nearly 250 large format black and white photographs taken over the four-year construction process, and a descriptive written text, will be included in the Monongahela Navigation System documentation package in the Library of Congress. Photographs recorded all of

the significant features of construction beginning with the fabrication process at the Leetsdale casting basin, pre-launch, launch, transport, outfitting, and set down of Segments 1 and 2, the concrete plant and delivery system, the gate and tailrace installations, and concluding with demolition and removal of old Monongahela River Dam 2.



New Braddock Dam with breached old Dam 2 in foreground.

The remaining work on the HAER documentation of the Monongahela Navigation System includes finalizing drawings, photographs, and written text, with submittal of the final study to the National Park Service anticipated in late 2005.

### **Archaeology Site at Leetsdale**

The archaeological site 36AL480, discovered at the location of the casting basin for the dam segments for the new Braddock Dam, was the subject of intensive field excavation from 2000 to 2003. The challenge the District met was to continue the tight construction schedule while safely accommodating the excavation and study of a significant archaeological site, with both an historic and prehistoric component. Through consultations with the Pennsylvania



Bureau for Historic Preservation (Pa. BHP), a plan was formulated in which three separate areas would be set aside and fenced off for the archaeological excavations. As we reported in Monongahela Packet No. 7, archaeological investigations were completed in 2001 for the historic component in Area 1 and the prehistoric component in the south part of Area 3.



*Archaeologists excavating at deeply stratified site 36AL480.*

The year 2002 was the busiest period of the archaeological excavations to recover data from 36AL480. During the summer and fall of 2002, excavations on the prehistoric component at Areas 1 and 2 were undertaken. Fieldwork in Area 2, which began in August and was scheduled to end in December, uncovered a rich and deeply stratified deposit of archaeological materials. The area of excavation was, therefore, expanded to a depth of five meters (16 feet) which extended time at the site into June 2003.

The second of two volunteer sessions took place during the fall season, 2002. The chance to participate in the excavations was publicized in local news media such as the *Pittsburgh Post-Gazette* and *Sewickley Herald Star*.



*Volunteers at Leetsdale archaeology site screening for artifacts during fall 2002.*

Over 150 people reported for the sessions, including four school groups and six volunteers who returned from the first volunteer session in 2001.



*Group tours archaeological site during 2002 excavation.*

Another feature of the 2002 field season was a tour of the archaeological excavations. About 450 people, including five school groups, toured the site. These volunteer and tour sessions coincided with Pennsylvania Archaeology Month (October 2002), in which archaeological activities are conducted throughout the Commonwealth. With the approval of the Pa. BHP earlier in the year, the District partnered with the Society for Pennsylvania Archaeology to feature the excavations at Leetsdale on the Pennsylvania Archaeology Month poster.



The poster and accompanying bookmark were distributed throughout the state school system, at Pennsylvania Historical and Museum Commission properties and at Corps of Engineers facilities.

the *Pittsburgh Post-Gazette*, *Pittsburgh Tribune Review*, and Pittsburgh Airport Chamber of Commerce display images.

During 2004, drafts of the report sections covering the pre-historic and historic contexts, Area 3 geomorphology study, and some of the different excavation areas, were

The excavations at 36AL480 required a number of different contract archaeology firms working in separate areas of the site at different times. To maintain continuity in the overall study approach, meetings were held with archaeological contractors and the Pa. BHP during the project's field phase. The first meeting was held in November 2002 and the second in March 2003. This allowed direct interaction between contractors looking at different areas of the site to compare and contrast findings and preliminary interpretations.

submitted and reviewed by District archaeologists. Final area reports and the master site report are scheduled to be completed later in 2006. Upon completion, distribution of the final report will be made to the Pa. BHP, with electronic copies to go to archaeology interest groups and libraries. Artifacts recovered at the site are being curated at the Pennsylvania State Museum in Harrisburg.

During the spring of 2003, work resumed on the expanded portion of Area 2. After the deepest anticipated cultural level had been excavated, a machine trench to expose underlying glacially deposited gravels encountered yet another, deeper cultural level just above five meters (16 feet) depth. Fieldwork in this area was concluded by early June. Final fieldwork in Area 1 of a feature exposed at a deep level the previous year was also conducted and completed in spring 2003.

### ***Interesting Discoveries at Archaeological Site 36AL480***

Several outlets of the local media covered the excavation story at the Leetsdale archaeological site in 2003:



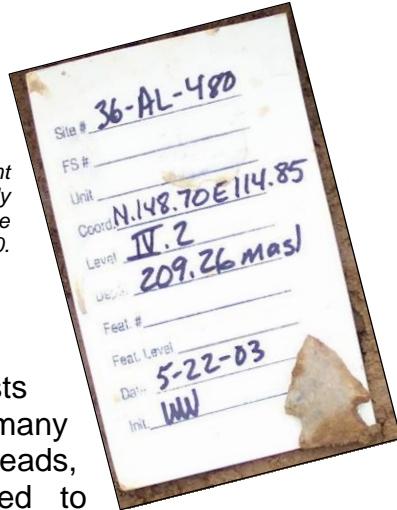
*This sandstone bowl was a major find for archaeologists at 36AL480.*

One extremely exciting find for the archaeologists was an unbroken sandstone bowl. Since steatite, the stone often used for carving bowls, was not readily available in this area, the local population was trying to create a bowl using a local material. Gouge marks made in carving the bowl were visible. Steatite fragments were found at the site and would indicate the people were



either trading with groups or traveling to eastern Pennsylvania or Maryland where this type of rock is found. A disc made of steatite was also recovered.

A projectile point from an early component of site 36AL480.



The archaeologists also found many little arrowheads, often referred to as “bird points” because of their small size. This discovery would indicate the inhabitants at Leetsdale were traveling or trading with Ohio to the west where these are more commonly found.

An unexpected find, which totally surprised the archaeologists, was uncovering an ancient peat bog below sediment deposits on glacially deposited gravels under the area where the Braddock Dam segments were constructed. Well-preserved plant parts and pollen obtained from the peat bog will provide information on climate and weather as well as plants in prehistoric Pennsylvania.



Archaeologists excavate portion of ancient peat bog found at 36AL480 for further study.

## **Cultural Resources Activities for Charleroi Lock and Dam**

The Lock 4 access and work area and disposal area offloading site were addressed in our report “Phase 1A Literature Search and Pedestrian Reconnaissance, Monongahela River Locks and Dam 4 Access and Work Areas, and Victory Hollow Offloading/Staging Area.” The report was submitted to the Pa. BHP for review. The study concluded that the lands were historically disturbed and had no potential for archaeological sites. Historic structures, railroads and one bridge were identified but were either not considered eligible for the National Register of Historic Places or would not be affected by the project. The Pa. BHP concurred with our findings

## **National Register Nomination of Monongahela River System**

We submitted our thematic nomination of the locks and dams of the Monongahela River to the West Virginia Division of Culture and History and the Pa. BHP for final review and endorsement in late 2004. The package consisted of a Multiple Property Documentation Form for the Mon River system, individual nomination forms for Locks and Dams 2 and 4, Historic Resource Survey Forms for all present and former individual navigation facility sites along the Pennsylvania and West Virginia portions of the river, and a Composite Survey Form summarizing all the sites by state. We anticipate receiving the state endorsements later in 2005, after which we will submit the nomination package to the Keeper of the National Register.

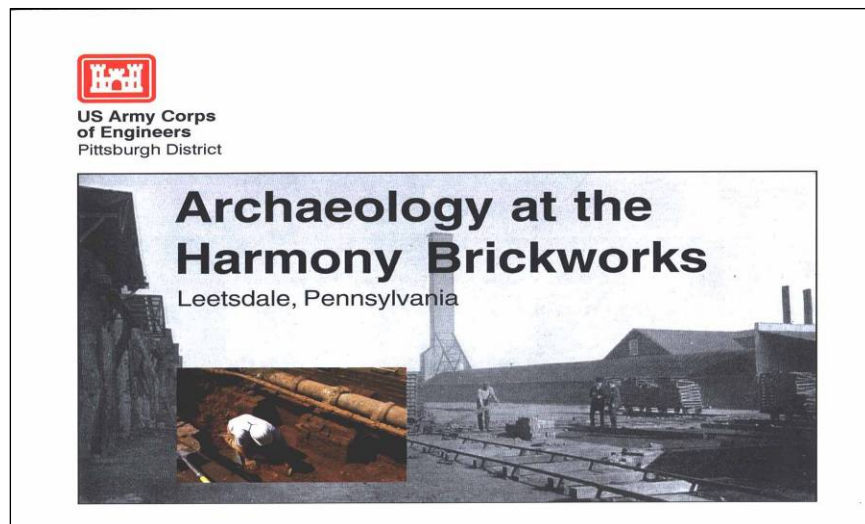
## ***Outreach to the Public for the Lower Mon Project***

In keeping with the significance and magnitude of the Leetsdale archaeological data recovery project, the innovative construction of the new Braddock Dam, and the overall scope of the cultural resources work associated with the entire Lower Mon Project, we have attempted to keep the public informed. In addition to *The Monongahela Packet* newsletter, our efforts have included media coverage, tours, volunteer sessions, information provided by webcam, and internet coverage. The archaeological contractors for Leetsdale have given presentations at professional meetings, including the Society for Historical Archaeology, the Society for Industrial Archaeology, the Society for Pennsylvania Archaeology, and the Pennsylvania Archaeological Council. All of these professional meetings have public attendance sessions. By request, the District has spoken at the Sons and Daughters of Pioneer Rivermen Annual Banquet in Marietta, Ohio, and the Pennsylvania Canal Society Annual Meeting in Pittsburgh. We also presented a detailed talk on the Leetsdale archaeology to the annual Corps of Engineers archaeologists'

session in advance of the Society for American Archaeology Annual Meeting in 2003. District representatives were interviewed on local morning radio and local television news programs concerning the excavations at Leetsdale. As a mitigation feature of the Leetsdale site excavation, we published a booklet on the historic Harmony Society Brickworks component of the Leetsdale archaeology site for distribution to the public at Old Economy Village, a Pennsylvania Historical and Museum Commission facility.

## ***Upcoming Cultural Resource Studies on Lower Mon Project***

The District continues to study the shorelines of Pools 2 and 3 between Braddock and Charleroi for potential historic properties that may be affected by the future permanent pool changes. The Phase IA Historic Literature Studies for Pools 2 and 3 of the Lower Mon Project will be finalized and sent to the Pa. BHP in 2005. The next study phase is a Phase IB archaeological field survey of the shoreline of Pool 2 between the new Braddock Dam and Locks and Dam 3 at Elizabeth.

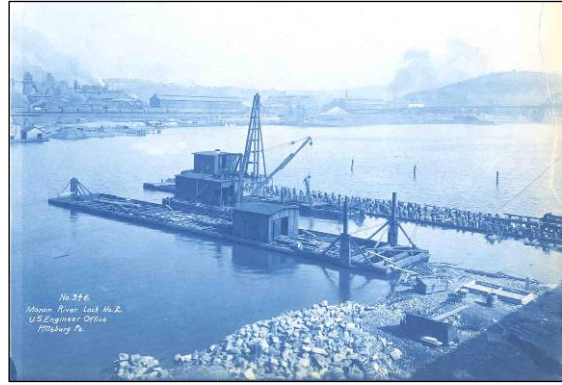


*Cover of Harmony Brickworks booklet.*

*Construction of 1906 Lock 2, from a cyanotype photograph.*

## **PRESERVING PHOTOGRAPHS OF EARLY RIVER LOCKS AND DAMS**

The District has initiated a contract to preserve about 165 deteriorating cyanotype photographs of the early construction of Locks and Dams 2 and 3 between 1904 and 1920. The cyanotype or blue print, one of photography's oldest printing methods, was made as early as 1842. It was a very popular process during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. The cyanotype image is less stable than traditional black and white (silver halide) prints and the deteriorating condition of this collection necessitated giving it priority treatment. The preservation work consists of traditional photographic copying and reprinting to an archivally stable product which will guarantee preservation of this rare and historically significant collection.



Additional photographs and information on the Lower Mon Project and associated cultural resources work is available at [www.lrp.usace.army.mil/pm/lowermon.htm](http://www.lrp.usace.army.mil/pm/lowermon.htm). The Lower Mon Project Manager is Jeanine Hoey (Jeanine.Hoey@usace.army.mil, 412-395-7289); the Public Affairs Officer is Karen Auer (Karen.L.Auer@usace.army.mil, 412-395-7106).

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