

East Branch Dam Safety Initiative



US Army Corps of Engineers, Pittsburgh **STATUS REPORT** **October 15, 2008**

SUMMARY

The primary objective of our Dam Safety Program is to maintain public safety by ensuring the dams we own and operate are safe and risks to the public are minimized. East Branch Dam is considered to have unconfirmed, potentially unsafe issues which merit further analysis and evaluation. An interim water control plan consisting of a reduced operating pool was implemented in February 2008, as a reasonable and prudent measure. This allowed the district to provide immediate and substantial interim risk reduction while limiting negative impacts on project purposes, such as flood damage reduction.

Draper, Utah-based Willowstick Technologies Inc. recently conducted a geophysical survey to indicate possible seepage paths through and under the dam. The survey was conducted at the right abutment portion of the dam, which is the area of greatest concern. Results indicate that seepage is generally consistent with known conditions and supports the need to pursue long-term repairs. In addition, seepage mapping suggests the presence of several possible seepage paths not previously recognized. These locations are not believed to pose an imminent risk to dam stability and will be checked by drilling and sampling. The reservoir continues to be operated according to the approved interim water control plan.

Drilling and sampling is being planned to further explore possible seepage paths and gather data that will be used to develop alternatives for long-term repairs. Drilling will begin during Fall 2008 and will be completed in Spring 2009.

Even though the District has implemented interim measures to reduce risk, these measures cannot serve as long-term remediation. The results of the drilling and sampling will be used to develop long-term repair alternatives. A Dam Safety Modification Study will evaluate combinations of alternatives to optimize risk reduction and cost, and recommend an alternative for approval. The study will define the scope, cost and schedule of the approved long-term repair.

RECENT MILESTONES

- 31 July 2008 Received Willowstick Seepage Flow Path Mapping Final Report
- 21 August 2008 Emergency Phone Drill Conducted
- 22 August 2008 Corps Repair Party completes Control Tower maintenance work
- 27 August 2008 Lighting and Material Storage Contract awarded
- 20 September 2008 Contract for drilling and sampling awarded
- 23 September 2008 Contract for Advisory Panel awarded
- 3 October 2008 Number 4 intake extension installation complete

UPCOMING MILESTONES

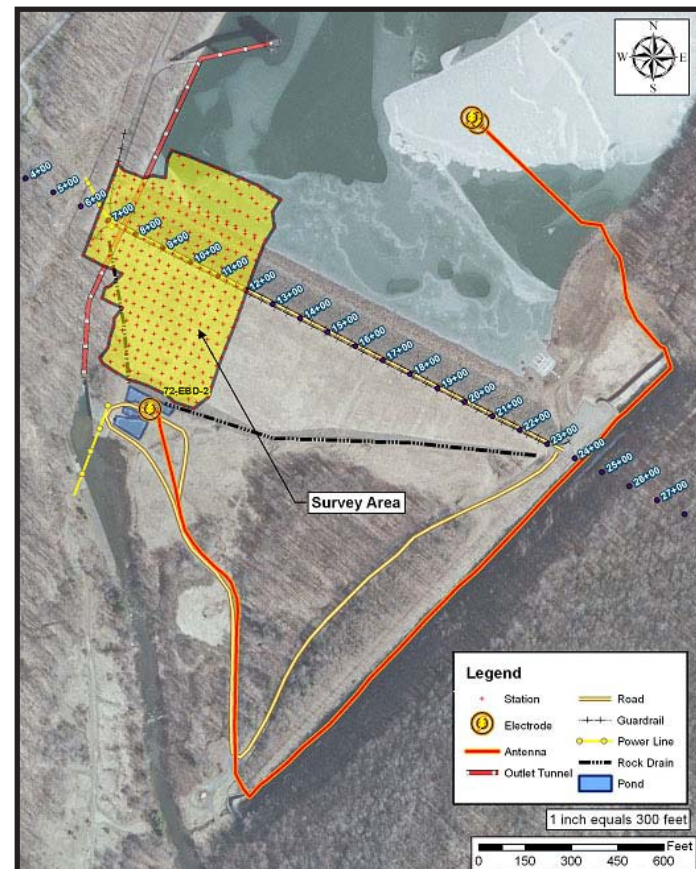
- February 2009 Draft Environmental Assessment ready for public review
- March 2009 Installation of lighting and storage bins complete
- June 2009 Geotechnical report complete
- July 2009 Draft Dam Safety Modification Study complete
- December 2009 Preliminary drilling findings complete

INTERIM RISK REDUCTION MEASURES

- Cross training of Corps personnel from other lake projects was completed in March 2008.
- The lake has been staffed 24 hours a day seven days a week since March 2008.
- Annual Dam Safety Refresher Training was completed in April 2008.
- Maintenance of the existing sluice gates and machinery was completed to improve reliability.
- Lighting will be installed to enhance monitoring and surveillance.
- An extension to the Control Tower number 4 intake has been installed
- On-Site equipment and supplies

ON-GOING INVESTIGATIONS

Seepage Flow Path Mapping: Draper, Utah-based Willowstick Technologies Inc. recently conducted a geophysical survey to indicate possible seepage paths through and under the dam. The survey was conducted at the right abutment portion of the dam, which is the area of greatest concern. The survey method uses a low voltage electric current to energize underground and surface water sources. Instruments on the ground surface detect magnetic fields produced by the electric currents which follow water saturated zones. The magnetic measurements are then interpreted and plotted on a map to indicate possible seepage paths. Results indicate that seepage is generally consistent with known conditions and supports the need to pursue long-term repairs. In addition, seepage mapping suggests the presence of several possible seepage paths not previously recognized. These locations are not believed to pose an imminent risk to the dam stability and will be checked by drilling and sampling. The results from the Seepage Flow Path Mapping support the Corps' decision to maintain the current interim water control plan.

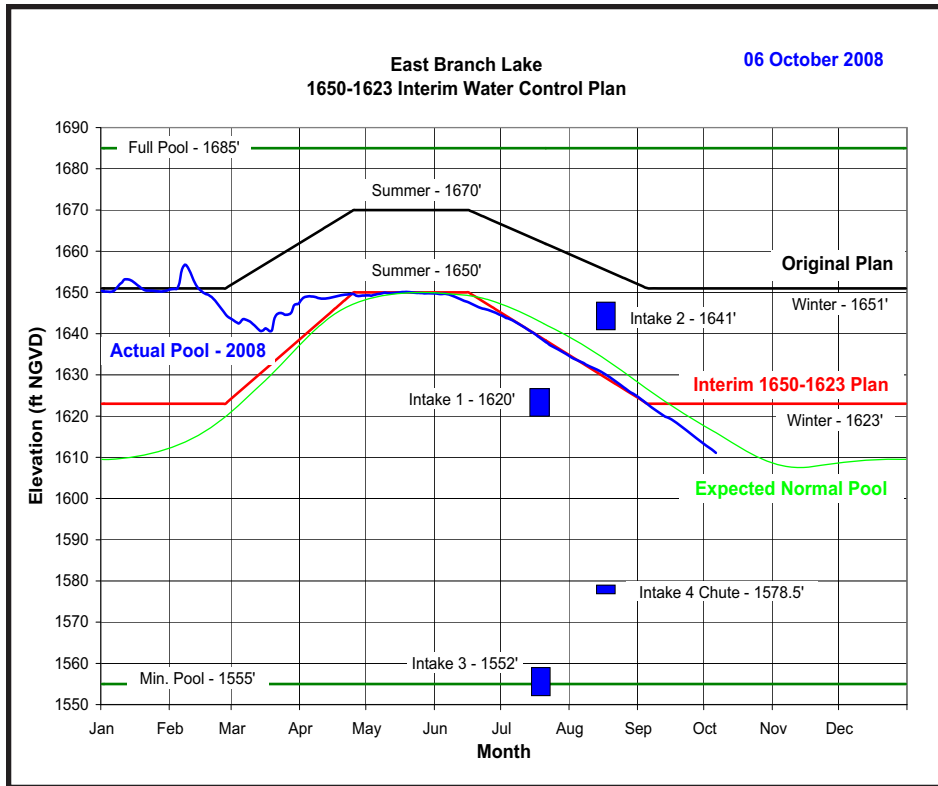


ON-GOING INVESTIGATIONS

DRILLING: Pittsburgh District's geotechnical engineering contractor for drilling and sampling soil and rock will be on site in October. The drilling will further explore possible seepage paths and provide data that will be used to develop alternatives for long-term repairs. Soil and rock will be sampled for laboratory testing and other measurements will be obtained on-site during the drilling process. Existing piezometers (instruments to measure groundwater pressure) will be tested and replaced if defective. Additional piezometers will be installed to improve monitoring and further define seepage conditions. Drilling will be completed in Spring 2009.

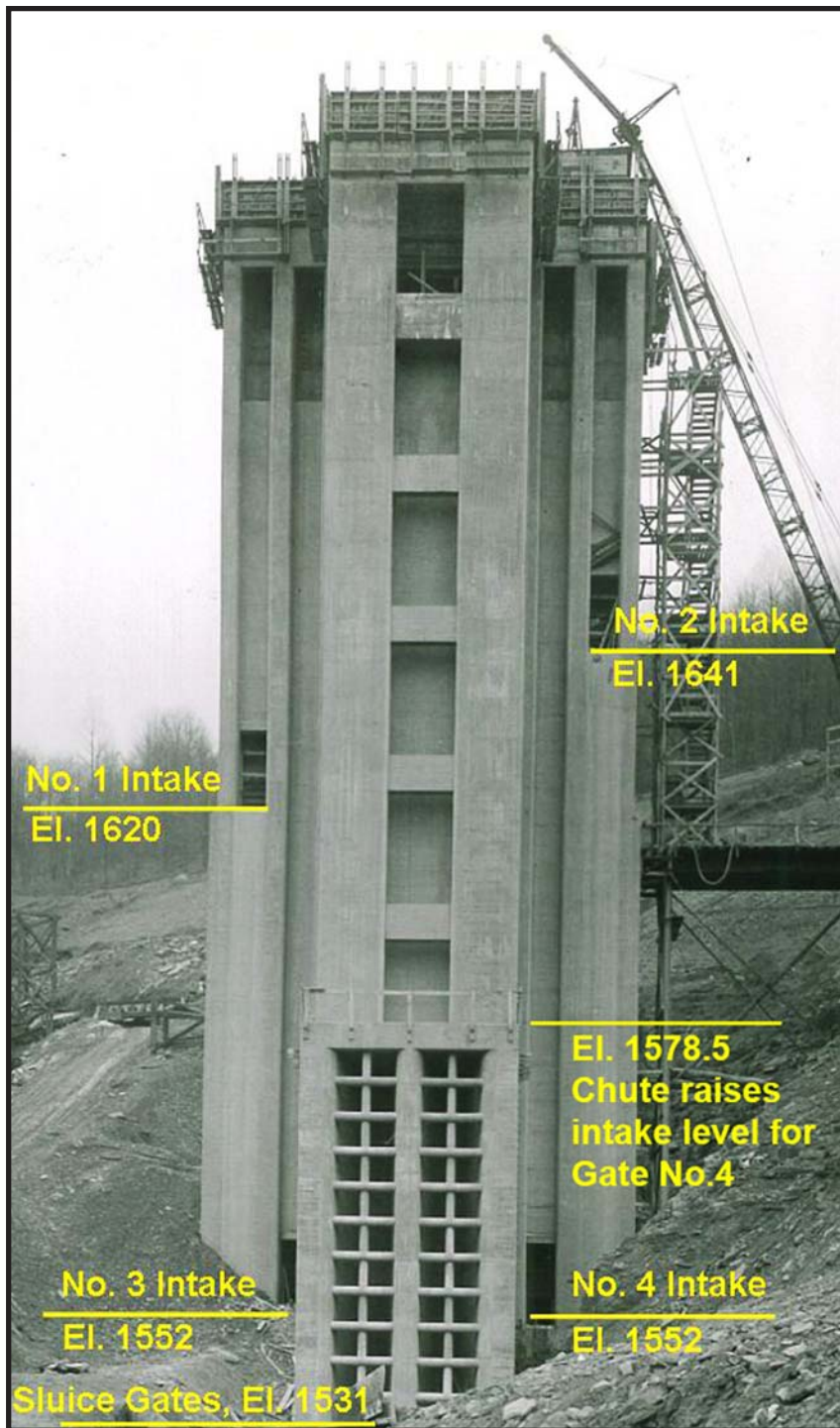
NEPA AND WATER QUALITY: The district has initiated an Environmental Assessment, in compliance with the National Environmental Compliance Act (NEPA), to assess environmental, cultural, and economic impacts related to implementation of the East Branch Dam interim water control plan. Studies initiated to support this effort include:

- An instream flow study by Mark Hartle, PA Fish & Boat Commission (PFBC), to assess impacts of various flow scenarios and dam operational schedules on trout habitat. Completed in August 2008.
- A model to assess impacts of various flow scenarios on existing Clarion River and East Branch Clarion River National Pollution Discharge Elimination System (NPDES) permits by Dave Balog, PA Department of Environmental Protection (PA DEP). Scheduled for completion in October 2008.
- Development of a water temperature model for the East Branch Clarion River Lake and River and the Clarion River, by the US Army Engineer Research and Development Center (ERDC), to assess impacts on lake and downstream water temperature. Scheduled for completion in late December 2008.
- Real-time water temperature monitoring at the dam outflow (To view water temperature information, visit: www.lrp.usace.army.mil/rec/lakes/eastbran.htm and click on the Dam Outflow Information link.
- Real-time lake water temperature profile monitoring at a location near the dam intake tower.
- Ongoing twice monthly water quality analyses at the dam outflow.
- Monthly East Branch Clarion River Lake limnological survey scheduled for October 2008.
- Draft Environmental Assessment to be ready for public review in February 2009.



RESERVOIR OPERATION

The Corps will continue to operate the reservoir pool level consistent with the approved interim water control plan, displayed above. No further changes in reservoir operations are anticipated at this time.



DAM SAFETY MODIFICATION STUDY

The Dam Safety Modification Study will evaluate combinations of alternatives to optimize risk reduction and cost and recommend an alternative for approval by Headquarters, U.S. Army Corps of Engineers. Once approved, the Study will define the scope, cost and schedule of the approved long-term repair. Following approval and funding, work will begin on final design and then construction. The District has retained a panel of independent experts who will advise our approach, review our results, and make recommendations at major milestones during the investigation and study process.

COMMUNICATION: The Pittsburgh District continues to communicate and partner with various private, local, state, and federal entities as well as our Corps of Engineers Division and Headquarters Offices. In addition, Stakeholder Teleconferences, Dam Tours and Public meetings will be scheduled as necessary. The district has implemented the following web updates to its East Branch Dam Safety Initiative site:

- Rumor Control Button: Allows interested parties to submit a query to the Corps on an item of concern or discussion with a follow-up answer within 48 hours.
- Link to the United States Geological Survey outflow information for East Branch Lake.

For more information, please contact the following:

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The East Branch Dam Safety Initiative Team has created a Rumor Control Website to ensure that proper information is being disseminated.

Visit www.lrp.usace.army.mil/rec/lakes/EBRumors.htm