



COMMONWEALTH of VIRGINIA
Lake Barcroft Watershed Improvement District

Operations Director's Report
(Aug. 2011 – Oct. 2011)

Engineering/Projects

Concrete Restoration for the Dam *(update)*

- On July 29th, 2011 LBWID received the alteration permit for the project from the State of Virginia's Division of Dam Safety.
- On August 2nd, 2011 the project was advertised on the State of Virginia's government procurement website.
 - The advertisement was emailed to over 3,000 companies that have various types of experience with concrete construction.
 - These companies are registered with the State of Virginia's government procurement website.
- On September 6th, 2011 a mandatory pre-proposal conference was held at the LBWID compound.
 - 8 companies responded to the advertisement by attending the mandatory pre-proposal conference
- Proposals were received on October 6th, 2011.
 - The proposals that were received are currently being evaluated by LBWID and Whitman, Requardt & Associates.
 - All proposals that were received were lacking some important information; therefore, LBWID is currently waiting for a response to our request for that information.

New Hydraulic Pumps for the Dam *(update)*

- LBWID has awarded the project to Advanced Fluid Systems Inc. (from Yorktown, PA) for upgrading the two primary hydraulic pumps that power the dam's massive hydraulic cylinders that move the bascule gate.
 - The existing pumps are roughly 30 years old and have been rebuilt twice.
 - They were last rebuilt roughly 7 years ago.
 - The new pumps that are being installed are a similar style (vane pumps) but more efficient, and are more readily available.
- The cost of the project is \$17,000 and it is scheduled for the last week of November, 2011

Computer and Network Infrastructure upgrades for office and dam (new)

- LBWID has awarded a project to Applied Controls Engineering (ACE) to perform some upgrades to the computer and network infrastructure for the office and dam. The upgrades include the following items:
 - Upgrading the internet router to one that has more robust internet security capabilities.
 - This will reduce the risk and exposure that office computers and the dam control system have to outside security threats.
 - Move the LBWID website from an in-house server to an outsourced website hosting service.
 - This will further reduce the risk and exposure that office computers and the dam control system have to outside security threats.
 - In addition the dam webcam configuration will be upgraded so that residents will not have to use passwords to gain access to the webcam.
 - Upgrade the desktop computer that is in the office that serves as a back up Human Machine Interface (HMI) to the dam's pro-logic control system.
 - This computer also serves as a secondary storage location for all of the data that the dam's sensors are recording.
 - In addition the special system software that both HMIs use will be upgraded to most the recent version.
 - Upgrade the custom software program that allows LBWID staff to access dam's historical data and generate performance reports.
- The cost of the total upgrades will be \$14,000 and they are expected to be completed during December of 2011 and January of 2012.

Operations

Annual Owners Inspection of the Dam (new)

- On October 4th, 2011 LBWID staff performed the annual owner's inspection of the dam.
 - This required deploying the suspended scaffolding system to access the large hydraulic cylinders (and the hydraulic line and valves) and the downstream face of the bascule gate.
- Staff also removed all of the vegetation that grows in the crevices of the downstream face of the dam.
- All in all the inspection went well and everything checked out to be normal.
- In February of 2012 the inspection report will be submitted to the Virginia Division of Dam Safety.
 - The actual inspection is always performed in the early fall of the year prior to when the inspection report is submitted because snow and ice can make the inspection very dangerous during winter months.

Annual Dam Cathodic Protection System Inspection (new)

- On October 27th, Russell Corrosion Consultants Inc. performed the annual inspection the dam's cathodic protection system.
 - The inspection went well and it was determined that the system is operating properly.

New Dump Truck (update)

- In July, 2011 LBWID purchased a new larger dump truck to replace the old dump truck that it has been using for the last 14 years.
- So far the new dump truck is performing well and has increased the efficiency of the in-house dredging program and the debris removal program.
 - The new dump truck balances the load of the truck and barge increasing efficiency of the process.
 - The new dump truck is also much better suited for pulling the trailer that moves the LBWID's big excavator between beaches 3 and 5.

2011 Bathymetry Survey (update)

- In early August LBWID received the results of the June 7th annual bathymetry survey.
- The results of the survey were good and confirmed that LBWID's in-house dredging program is working well.
 - Since the survey there has been a major storm (Tropical Storm Lee) that has altered the bathymetry of the upper reaches of the lake, see more information on Tropical Storm Lee and dredging below.
- The bathymetry maps from the June 7th survey are posted on the LBWID website.

Tropical Storm Lee (new)

- Performance of the dam
 - Over 10 inches of rain fell (most of it fell on September 8th).
 - The dam's bascule gate opened to 44% (largest opening in the last 15 years) (4,617 cubic feet of water per sec).
 - This was a larger opening than the large storm in June of 2006 (the dam opened to 42% during that storm).
 - LBWID activated the dam's stage 1 Emergency Action Plan (notified the emergency management officials from Fairfax County and the City of Alexandria).
 - Stage 1 simply warns the emergency management officials that the flow coming into and ultimately out of the lake is at such a level that downstream flooding is possible.

- The dam performed as designed.
 - 2 WID staff personnel actively monitored the dam around the clock.
- Debris cleanup effort
 - The cleanup started immediately on morning of September 9th.
 - 150 harvester loads of debris removed.
 - 300,000 lbs. of debris.
 - 99% of the debris was removed from the lake within 7 days.
 - This storm was very taxing on LBWID's debris removal equipment.
 - LBWID staff had to make several repairs to the equipment during the cleanup effort.
 - The community's investment into the in-house dredging equipment and the trash harvester in the recent years is one of the key reasons that the cleanliness of the lake was able to be restored to normal within 7 days.
 - The other key reason is that LBWID employees Ken Kopka, Sam Ellis, and Brooks Wallace did whatever was necessary to get the lake cleaned.
 - Worked long hours
 - Worked on broken down equipment
 - Improvised when certain key equipment was broken down
 - They were truly a jack of all trades during that week long cleanup effort.

Fall In-House Dredging Season (new)

- Dredging is currently taking place on the Holmes Run side of the lake.
 - Specifically on the upstream side of Swift Island.
 - As a result of the Tropical Storm Lee a massive sand/gravel bar formed immediately upstream of Swift Island.
 - Approximately 500 to 600 cubic yards of sand and gravel was deposited there.
 - Prior to the storm the area was 4 feet deep, after the storm the areas was as shallow as 1 foot deep.
 - LBWID will be restoring that area to the depth of 4 feet.
 - LBWID will also be dredging some areas of the canals on both the north and south side of Swift Island.
- This fall dredge season will be completed by the end of November.
- As always LBWID's goals is to remove between 1,250 and 1,500 cubic yards of sediment each dredge season (fall and spring) (2,500 to 3,000 cubic yards per year).
- In the spring of 2012 LBWID will start the spring dredge season on Tripps Run side of the lake.
 - The impacts from Tropical Storm Lee on the Tripps Run side of the lake are mostly limited to the area around Roth Island; in the spring of 2012 LBWID will dredge the sediment that accumulated there.

Dredging Spoil Disposal (new)

- In September LBWID contracted with G.D.C. Trucking to truck away the dredge spoils that were removed from the lake during the fall 2010 dredge season and the spring 2011 dredge season.
 - Roughly 2,750 cubic yards of dried dredge spoils were trucked to Lorton Construction Landfill.
- The cost of the trucking was \$29,640.

Emergency Action Plan (EAP) Orientation/Review Seminar (update)

- Due to the earth quake in August the orientation/review seminar that was scheduled for August 26th had to be postponed.
 - The Office of Emergency Management Coordinators for Fairfax County and the City of Alexandria were dealing with earthquake related issues.
- This orientation/review seminar has now been rescheduled for November 18, at 8:30am.
 - The purpose of this meeting is to make sure that all of the information in the EAP is up to date and to make sure that everyone is familiar with their agencies responsibilities as stated within the EAP.

Other Matters

LBWID No-Phosphorous Fertilizer and Soil Testing Program (update)

- Soil testing on about 35 properties throughout the community has revealed that there are very few lawns that need fertilizer.
- That finding and last years' experience with the fertilizer give-away that seemed to encourage people to use more fertilizer than they normally would, has caused LBWID to drop the fertilizer program altogether.
- In the future LBWID will discourage the application of lawn fertilizer through community events such as Earth Day and various other promotional efforts to emphasize environmentally friendly alternatives.

Respectfully,
Davis Grant
LBWID Operations Director