

REPORT ON BIG DAM SLUICE GATE INSPECTION March 7, 2007

The sluice gate on the big dam has been partially blocked (estimated to be 70% reduced flow) for nearly three weeks. On Saturday, March 3, 2007, the Lakes Committee recommended to the Board and the Board approved going forward with an emergency inspection and cleaning project by a dive team and dive boat provided by Allied Technical Services out of Cincinnati, OH. Because of the hazard involved with the work around a partially plugged sluice gate, we needed a commercial company that was fully insured and bonded, as well as having specific training and extensive experience in this type of work.

They arrived first thing in the morning on Wednesday, March 7, 2007 and after a preliminary briefing, inspected the sluice gate structure (the concrete tower just inside the dam that everyone thinks of as the sluice gate). In the structure they checked out the two sluice gates. They then closed down the moveable sluice gate. (The second sluice gate is an emergency sluice gate that is bolted in place and is only closed in the event that the moveable sluice gate is somehow damaged or comes off its tracks, thus allowing for its repair without having to drain the entire lake.) They found the emergency sluice gate to be in good order. The moveable sluice gate cannot be checked from inside its pit safely without closing the emergency sluice gate. Therefore, it was only inspected as to the mechanism that opens and closes the sluice gate and the degree to which it functions properly. They found that the mechanism is in good condition and that the mechanism functions properly at this time. This concluded the inspection of the sluice gate structure.

The principle diver then went into the water and checked out the box end of the sluice intake which he found to be constructed of concrete, approximately 5 -6 inches thick in the shape of a box with the open end slanted from bottom to top. There were nine bars bolted to two pieces of angle iron that are, in turn, bolted into the open face of the concrete box. There was no blockage at the time of the inspection. Based upon what the diver observed while down there, the presumption is that the very low water level allowed a large mass of leaves and silt to pile up against the sluice gate intake opening and temporarily plug it. The normal water pressure when full, or near full, against the intake opening grate is sufficient to push the leaves and silt out through the sluice and down the stream below the dam. Sometime during the day on Monday, March 5th, it was observed that the lake level had risen to with about three feet or normal full height. That was apparently the point where the blockage was relieved naturally as we observed a progressive drop in the lake level beginning on Monday morning.

The inspection of the sluice intake opening and structure revealed that the structure is in good condition, the debris fence (bars) are not substantially corroded or deteriorated and the fastenings are still in good condition. The concrete structure is also in good condition. The only issue that was found was that the sluice pipe is 30 inches in diameter, not the 36 inches that was believed to be there, or the 60 inches that the state records show to be there.

The dive team inspection was not waived off as there is no known record of an inspection of the sluice gate structure and sluice intake at any point in the past thirty years. The value of this inspection is to provide a substantial level of peace of mind that the sluice gate and pipe do provide for a reasonable degree of lake level control for the immediate future. However, the smaller size of the sluice pipe forces us to be more diligent in our attention to controlling the level of the lake before a major rain event, rather than waiting until after a heavy rain has taken place.

A second value to the inspection is the Inspection Report that we should receive shortly will help us to document the emergency nature of the need for a dam replacement project that is proposed to be 100% funded by the Department of Homeland Security. The rationale for this item is that the correct design size for the sluice pipe under current permit requirements is apparently 60 inches. Our sluice pipe is one half that diameter which reduces the flow capacity by more than 75%. With the predicted weather changes associated with global warming predictions, our sluice pipe capabilities will be woefully inadequate in just a very few years. While there are other equally strong bases for the emergency grant application, this is a very strong one and helps our cause.

When the Inspection Report from Allied Technical Services arrives, I expect to post it on the website as well.

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