

## **Lake of the Four Seasons Dam Update (as of 8/13/2014)**

### **Frequently Asked Questions**

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**What is wrong with the dam?** There are cracks, also called slips, in the dam, because some of the dirt on the upstream side (lake side) has slid into the water. It is similar to a mudslide on a hill.

**How deep is the slip? How wide?** The toe of the slip goes 10 to 12 feet below the normal level of the water. It is primarily located between Docks 2 and 4 on the upstream face of the dam. The cracks are visible above the stone (rip-rap) face of the dam.

**Why did that happen?** The dam is 50 years old and it is typical for earthen dams like ours to need repairs. There are several possible explanations, but we do not know the specific reason for the slip.

**Is the Dam leaking?** No! The recent Dispatch headline was totally in error and they later corrected it. HAH lowered the lake per ODNR instructions.

**Will we have a lake in 2015?** Until we have the final and approved remediation plan we cannot answer that. Everything possible is being done to get the dam repaired and the lake open as soon as possible.

**When will we have the final remediation plan?** The answer to this is the most complex question we have been asked. The boring process has begun and the remediation plan is dependent on the data received from this effort. Diagnostic instruments called inclinometers and piezometers are also being installed and we may need to collect data for the next few months to develop a conclusive analysis. The engineers will need enough time to evaluate the data develop and submit a final proposal. The results of the data collection will determine the delivery of the plan. The engineers indicate this process may extend into the winter months. We have made it very clear that we want a plan that can be initiated as soon as possible.

**Why do we have to raise the height of the dam?** ODNR has new guidelines for the Probable Maximal Flood (PMF). A few years ago, they indicated we would likely need to raise the height of the dam to meet the guidelines in the near future. This project is actually independent of the slip repair, but it makes good sense to accomplish both goals within the same project.

**What material will be needed to raise the dam 3 feet?** Mostly clay.

**Can we get clay nearby?** Yes, a site has been identified.

**Is the dam in danger of collapsing?** No.

**How much will it cost to fix the dam?** We will know that when we get the final remediation plan and get bids from contractors.

**How will repairs be paid for?** Once we have cost projections for the project, we will explore various funding opportunities. The Management Committee will work with the Board of Trustees to evaluate proposals and make recommendations to present to the Members. The process will be transparent and there will be opportunity for discussion and comment. Please remember that we plan to include raising the height of the dam 3 to 5 feet to be in compliance with new ODNR specifications regarding the Probable Maximal Flood and this is a cost that HAH would have had to fund anyway.

**Will there be an assessment?** The Board cannot make a decision on that until we know the cost. Several options for funding will be considered. Members will be consulted.

**Can the cost be financed over 10 or 20 years?** There is financing available. Members would have to approve any loan over \$25,000 that is a lien against the personal property of the club.

**Is Government funding available?** We have checked and were told no. We will check again.

**Why do we have to keep the lake lowered?** The Ohio Department of Natural Resources (ODNR) has jurisdiction over all dams in the State of Ohio; because of the slip, they have ordered us to keep the lake at current levels.

**Is the lake lower than in the past?** We normally drop the water level in the lake three feet. That is measured by a gauge located on the principal spillway near the dam. In autumn 2013, we dropped the lake five feet to aid in the construction of the silt traps in the North Park. Once we discovered the slip, ODNR directed us to keep the lake five feet below the normal pool level. The normal pool level is 815.5 feet above sea level. It has dropped to 808 feet above sea level due to weather conditions.

**Is the lowered depth of the lake the reason for the problem?** The engineers and ODNR do not think so.

**Will the emergency spillway have to be raised?** We will not know for sure until we get the final plan. The height of the spillway has been calculated in the engineering study required in the Hydrologic and Hydraulic plan performed by 2LMN, our Lancaster-based civil engineering consultants.

**Is the dam slip the reason for the slip of the Natchez Rd. properties next to the dam?** The engineers have stated it is not. There was a slip in that same area in the 1970's. This year there were five freeze/thaws and an earthquake felt in Hocking County.

**Is HAH going to find out what caused the slip of the houses next to the dam?** Our focus is the dam. The deep borings that are to be done on the upstream side may help explain the cause. It is likely we may never know the exact cause.

**Does the low lake level affect the properties next to the dam? What effect will there be when the lake is returned to normal levels.** We will ask.

**Will you share the engineering reports with the members?** Most probably yes. We just need to check to see if there are any restrictions on a public disclosure.

**How much has the project cost thus far?** \$163,362, including the request for a remediation plan and borings that was approved on August 1st.

**Can that be part of the financing?** We will explore many financing options.

**Will insurance cover the cost?** The Club insurance policy does not cover that type of damage.

**Is there a need to replace the depreciation and capital funds at this time?** No, because of past decision to fund them we are in good shape with a combined total of over \$500,000 in both funds.

**Who is representing the Club in this process?** The Board and the Management Committee are representing HAH members with respect to the dam.

**Is ODNR “spooked” by the DLZ concern about dam foundation base?** Not really. They just want us to get testing and a recommendation done by a qualified geo technical firm. Terracon, the new firm we are using is certified. We will consider bringing in a third firm to evaluate the plan after we receive it.

**Is there any truth in the rumor that the dam is going to break and flood Sugar Grove?** Absolutely not.

**What maintenance do we do on the dam?** We do preventive maintenance on all of our dams. We follow ODNR requests. It was one of our regular checks that first spotted the small crack that preceded the slip.