REPORT TO THE CITY COUNCIL FROM THE CITY MANAGER

April 5, 2010

Subject: Designation of the Stoney Mountain Off-line Water Impoundment Facility as a Low Hazard Structure.

Purpose. The purpose of this paper is to provide information.

Background. The Office of Dam Safety is part of the Water Resources Division. They did the final inspection of the Stoney Mountain Reservoir on November 18, 2009 and informed us that the work has passed inspection. We received an email on December 2nd from the Office of Dam Safety saying that we can begin filling the reservoir since they have inspected it and determined that it was built in conformance with plans and specification and the constructed outlet meets their criteria.

There are 92 dams in Yamhill County that are inspected or regulated by the Office of Dam Safety. Stoney Mountain is the 9th largest with a dam face of 77 feet and a capacity of 184 acre feet of water (60 million gallons).

Dams are rated as low hazard, significant hazard and high hazard. Hazard ratings do not reflect the condition of the dam or how it is maintained. Hazard ratings are determined by considering the extent to which people and infrastructure downstream are threatened by a catastrophic failure. Low hazard dams pose little or no risk to infrastructure or human life if they fail. Significant hazard would most likely result in significant property damage, and/or the potential for causing the indirect loss of human life. High hazard means a failure would likely result in direct loss of human life along with severe or widespread property damage.

SB 788 was passed by the 2009 Oregon Legislature which authorizes the Oregon Water Resources Department to charge annual fees for dams. We received a letter from the Water Resources Department about dam safety fees.

Discussion. The Stoney Mountain Off-line Water Impoundment Facility is rated as a low hazard structure.

Recommendation. NA

Francis D. Sheridan
City Manager

Attachments:
Letter from Oregon Water Resources Department, dated March 22, 2010, Re: Stoney Mountain, Low Hazard (2 pages)
Extract: draft Yamhill County Natural Hazard Plan, August 2008, Hazard Profiles, Chapter 5, pages 36-37.

Oregon
Theodore R. Kulongoski, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1266
503-986-0900
FAX 503-986-0904

March 22, 2010

City of Sheridan
120 SW Mill St
Sheridan, OR 97378

Re: Stoney Mountain, Low-Hazard

You are receiving this letter because our records list you as the responsible party for the dam(s) specified above. Oregon's Dam Safety Program was established in 1929 to protect lives, property, and infrastructure below dams through the development of construction standards and inspection protocols for dams 10 or more feet in height and storing 3,000,000 or more gallons. The Department provides information, inspections, and assistance to dam owners who have the responsibility to maintain their structures.

The 2009 Oregon Legislature enacted Senate Bill 788 which authorizes the Oregon Water Resources Department to charge annual fees for dams. The fees are to be used to support the state dam safety program. The amount of fee for each dam is based on the hazard rating as follows:

- $75 per year for low hazard dams
- $150 per year for significant hazard dams
- $500 per year for high hazard dams

The name of your dam and the hazard rating are listed above. Hazard ratings do not reflect the condition of a dam or how it is maintained. Hazard ratings are determined by considering the extent to which people and infrastructure downstream are threatened by a catastrophic failure. Failure of a high hazard dam would likely result in loss of life. A dam is classified as significant hazard if failure would result in significant damage to infrastructure including roads or power lines. Loss of life would not be likely. Low hazard dams pose little or no risk to infrastructure or human life if they fail. High and significant hazard dams have higher fees because they require more scrutiny from the state dam safety program.

This letter is not an invoice for payment. This letter is to provide you information about the fee that will be assessed starting in 2010. An invoice will be sent in the next several weeks. This letter is specifically in reference to dams that have a "low" hazard rating. A separate letter has already been sent to owners of "high" and "significant" hazard dam owners.

We realize our records may not be complete, or you may not be the current owner or responsible party of the dam. In other cases, the dam may have been breached or reduced in size to a level where it is exempt from the program fee. Please let us know of any important changes such as these so we can update our records and assess the fee to the correct party. Contact information is given below.

Finally, you may have questions as to how the hazard rating was applied to your dam. Recently adopted dam safety rules prescribe a method for determining a hazard rating. Information about the dam safety program, including information on how to revise hazard ratings can be found at:

http://www.wrd.state.or.us/OWRD/SW/dams_in_oregon.shtml

Please let us know if you have additional information you want us to consider or you have questions. For complete information regarding the dam safety program and specific questions about fees please contact:

Heather Reece, Dam Safety Administrative Support: Phone 503-986-0885
Email: damsafety@wrd.state.or.us

Extract from the August 2008 draft Yamhill County Natural Hazard Plan, Hazard Profiles, Chapter 5, pages 36-37.

The extent of dam failure effects in Yamhill County can be assessed region-wide or by each body of impounded water. Effects depend a great deal on the nature of the failure—for instance, whether a dam fails when retaining a normal level of water, or whether water influx is involved in the dam failure, which then involves a greater-than-usual volume of impounded water. Likewise, whether a dam is overtopped, damaged, or fails will make a great difference in volume of water released, and therefore in effects. An isolated dam failure, even a significant release, may have less significant impact than a series of dam failures caused by region-wide flooding.

The City of Sheridan's Stony Mountain Impoundment Facility is a spring-fed reservoir, retained by a [reinforced] earthen dam approximately 10 miles outside of town. The emergency spillway empties into La Toutena Mary Creek. The dam embankment, if breached, will spill into a La Toutena Mary Creek tributary, and the flood hydrograph will travel 3.37 miles to the La Toutena Mary Creek and East Creek confluence, with an additional 3.15 miles to East Creek's confluence with Willamina Creek. Based on a clear day piping failure stimulated by the City of Sheridan, if the dam embankment was breached, it would take approximately 35 minutes for the dammed water to travel the 3.37 miles to the East Creek confluence and an additional 100 minutes to travel to the Willamina Creek confluence. Under normal conditions, the flood wave would start with approximately 10,670 cubic feet per second (cfs) at the dam and end with approximately 1,090 cfs at Willamina Creek. Due to the limited size of the watershed, the limited inflow to the reservoir, and the height of the dam compared to the emergency spillway (1657 feet vs. 1653 feet), an overtopping failure is unlikely. Thus, a catastrophic failure of the dam would not present a threat to human life downstream. Neither the road nor any residential structures would likely be inundated by the flood wave generated by a piping failure.

Even when the clear-day scenario was tested using more extreme assumptions, such as increased water levels, a dam failure still did not pose a threat to residential structures. Possible developments that could cause piping failure include rapid drawdown, seismic activity, or slope failure. As water flows through the dam, the passage could continue to grow as material is eroded away. Eventually the size of the passage could compromise the structural integrity of the dam and cause it to collapse. (City of Sheridan Dam Failure Analysis, 2007)