Oregon
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MEMORANDUM

TO: Water Resources Commission

FROM: E. George Robison, Dam Safety Coordinator
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SUBJECT: Agenda Item I, February 19, 2010
Oregon Water Resources Commission Meeting

Dam Safety Program Activity Report

I. Issue Statement

This staff report provides information about the dam safety program including its core programs and some of the key initiatives and tasks that have been and will be accomplished in the near future. Dams ten or more feet in height and storing 3,000,000 or more gallons of water (9.2 acre-feet) are subject to program oversight. 9.2 acre-feet of water will cover a football playing field to a depth of 8.35 feet.

II. Background

Dam safety laws in Oregon were first adopted in 1909, and then modified in 1927, and again in 1929 following the catastrophic failure of California's St. Francis Dam. Since 1929, there has been only minor modification of the statutes and core functions of the program. The program includes:

- Review of design and specifications for new dams, and repair and modifications of existing dams including review of construction practices;
- Inspections of existing dams with recommendations for maintenance and repair;
- Keeping track of dams and being a repository for information;
- Provide recommendations and information to dam owners, consultants, and the public about dams, and keeping them safe.

The overall goal of this program is to create an environment where the likelihood of a catastrophic dam failure is greatly diminished because dams are designed, built, and maintained properly. The program helps to detect problems early and make repairs before the structure can become a threat to safety.

Dams subject to the program are given a hazard rating based on the likely level of damage caused by a catastrophic failure. Failure of a "high hazard" dam would likely result in the loss of human life. Failure of a "significant hazard" dam would result in significant damage to infrastructure such as roads or buildings. There would be minimal damage from failure of a "low hazard" dam.

III. 2009 Core Activities

In 2009, the following core program activities were completed:

1) Design, specification review, and approval for 16 projects involving new dams or significant modifications to existing dams.
2) Inspection of approximately 285 dams. This was the most dams inspected since accurate compilations of inspections have been recorded (Figure 1). Dam owners were given feedback regarding maintenance and repair needs. Of significance, all non-federally controlled high hazard dams have been inspected at least once since January 2008. The inspection backlog (dams due or overdue for an inspection) has also been reduced from an estimated 804 dams in 2008 to 502 dams in a recent compilation.
3) The database for dams has undergone significant revision since January 2008, with location information for more than 1,000 dams reviewed and 300 revisions made. In addition, the Department reviewed the hazard ratings for more than 800 dams and reclassified several as a result. Hazard rating is a crucial database parameter because it helps determine the frequency of inspection and the general scrutiny that a dam receives. The Department also scanned historic dam related information including drawings, old inspection reports, and correspondence, along with other hard copy records. Much of this effort is being done with an intern who was hired using federal grant money.
4) In March 2009, the Department hosted a very successful dam safety conference with nearly 200 people attending.
5) Completion of (12) Emergency Action Plans (EAPs) on high hazard dams.
6) Adoption of updated administrative rules.

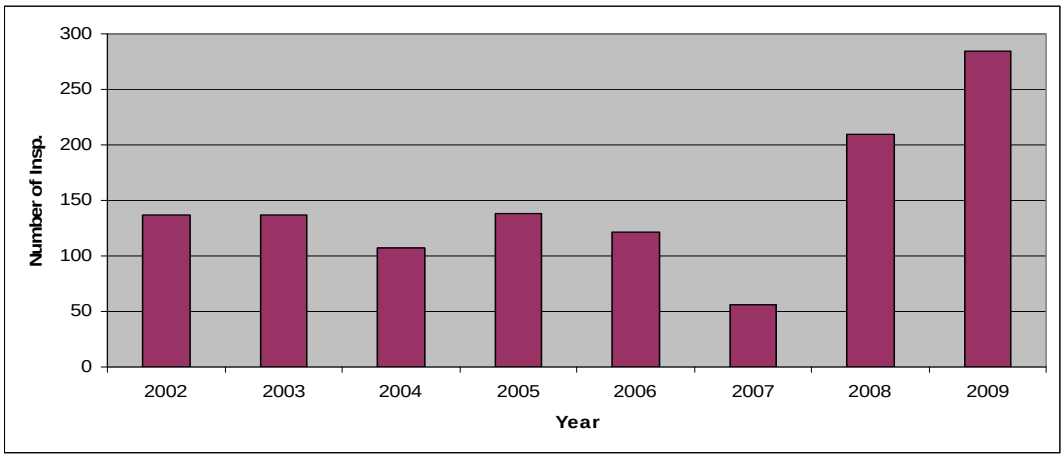

Figure 1. Number of dam inspections per year since 2002.

IV. Program Initiatives/Current Events

Newer initiatives include trying to get dam owners for high hazard dams to complete emergency action plans. These are important because high hazard dams by their definition are dams that would likely lead to casualties if they failed. Studies of past dam failures have shown that planning and notification can save literally hundreds or thousands of lives in a dam failure situation.

The emergency action plan is a proactive way to develop actions and notification that will occur in a crisis situation. Dam safety program actions include awarding assistance grants of up to $5,000 each to help dam owners complete plans, as well as improving information in correspondence and on the Department's website about how to create plans. Since these measures have been implemented, the number of high hazard dams needing these plans has been reduced from 50 in mid-2007 to only 27 in 2010. Approximately $80,000 in federal grant monies has been awarded, since these grants were instituted in 2008.

Another key event was the passage of an annual dam safety program maintenance fee in Senate Bill 788. This fee led to rule revisions because the fees were based on a dam's hazard rating and clarification was needed on how hazard ratings were determined. New rule language also helped define and clarify which dams were subject to the fee based on clear criteria. The revisions marked the first changes in dam safety rules since 1994. The fees were estimated to generate approximately $40,000 per calendar year, including structures exempt from the fee. The fees were created to allow the Department to better address dam safety issues, such as the inspection backlog and public outreach which were dependent on monies from the General Fund.

An initiative, which began in 2008 and recently finished, used federal grant monies to study spillway capacity for all high and significant hazard dams in Oregon. This study resulted in a report and an article in the Journal of Dam Safety. This study of spillway capacity highlighted several dams with capacity problems and these results will be incorporated into future inspection reports for these dams. A copy of the article is attached.

V. Summary

The safety of dams is a paramount need for the State of Oregon. Dam failures can result in loss of human life along with infrastructure and environmental damage. Dam failures also often result in a general loss of confidence and increased disdain for water storage projects. The dam safety program has made significant progress in improving its database and file systems, reducing the number of dams that need to develop emergency action plans and in reducing the number of dams that are overdue for an inspection. In the coming year, the Department plans to continue to reduce the number of dams needing emergency action plans, continue to reduce the inspection backlog, improve the accuracy of the database for dams and do a fair and efficient job in collecting the new dam safety fee.

VI. Recommendation

This is an informational item only. No Commission action is requested.

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503-986-0840

Attachment: "Room to Spare" Article