

SPECIALIST: Diane Stewa 72630

PROOFER: _____

RETENTION DATE: Nov 14, 86

34420(3/11/86)

October 29, 1986

Memo

To: Governor Vic Atiyeh

From: William H. Young, Director WRD

RE: Winchester Dam
Dam Safety

The dam was originally constructed in 1904 as a hydroelectric project. Original construction consisted of a "log crib" dam which can be described as a system of logs stacked somewhat like the walls of a log house with rocks and miscellaneous debris dumped in the center for weight. The dam was later raised by building a timber flashboard on top of the crib. Around 1935 the dam was modified to essentially what it is today by adding a timber wall or bulkhead on the downstream side. The wall holds back the rest of the dam with anchor rods that angle from the front of the wall back into bedrock. Extensive repairs were made by PP&L in 1968 including removal of the hydroelectric facilities, and the structure was taken over by the Winchester Water Control District. Since that time this department has worked with the district to establish some type of maintenance program that would provide for the future.

A timber structure of this type may have, at the outside, a design life of 40 years. This means that the structure was not designed to exist beyond that time without an extensive operation and maintenance program. The district has at various times performed repairs, and various reports prepared by different consultants have indicated the need for a continual inspection and maintenance program. Historically, maintenance has not been performed by the district without encouragement by this department.

The hazard potential of this structure is primarily the potential for loss of life of people using the river immediately below the dam, and the environmental concerns associated with the silt and debris deposits that would result from an uncontrolled breach. There is a park located on the south bank of the river just below the dam, and fishermen make use of the river immediately below the dam. Other concerns include potential for damage to a water intake structure owned by Roseburg and possible damage to the two highway bridges and the railroad bridge located immediately downstream.

Dam safety efforts at working with the district culminated in the fall of 1985 with receipt of an inspection report and video tape prepared by the hydroelectric developer ASEA STAL, INC. ASEA STAL was at that time attempting to block some large leaks through the dam in an effort to divert the water through their hydroelectric facility. The report documented an underwater

investigation which revealed extensive erosion that had developed beneath the south end of the structure. The report also concluded the dam had reached a point where, due to erosion and deterioration, structural failure was quite likely.

In accordance with the dam safety enforcement action available to this department Winchester Water Control District was notified of the threat to life and property, and a contested case hearing was scheduled to examine the issue. As a result of the hearing, a Dam Safety Final Order was issued by this department March 13, 1986. The order consisted of recommendations for further operation made by the district's attorney and engineer (a copy of the order is attached).

During the course of the hearing the Steamboaters applied for, but were denied, party status. When the Steamboaters appealed that action an automatic stay of the Dam Safety Order was in effect. Where the issue involved safety to life and property, it was then necessary for me to issue an Order Denying Stay of the Dam Safety Order which I did on June 25. On July 22 the Steamboaters filed a Petition for Reconsideration of the Order Denying Stay. After thorough consideration by this department and legal counsel I issued, on August 15, Order for Reconsideration of Order Denying Stay. The purpose of this action was to (1)continue the requirements of the Dam Safety Order, and (2)entertain submittal of a proposed Revised Denial of Stay Order from Steamboaters and, also, to entertain a response to that proposal from the district. Steamboaters were given 90 days to make their submittal.

The Dam Safety Order contains provisions for design and construction of a concrete "ogee dam" for a permanent structure. These provisions result from the fact that the application for license for hydroelectric development submitted by the developer contained information proposing the concrete dam as part of the project. The license was granted with that provision as a condition of the complete project. On September 4 the district requested an extension of time for that portion of the Dam Safety Order. I replied on September 11 that the request would be considered under the terms of the Order for Reconsideration of Order Denying Stay.

To date the requirements of the Dam Safety Order have, with the exception of submittal of final plans and specifications for the concrete "ogee dam", been substantially fulfilled. The dam has been monitored by the district's engineer with reports to this department, and the structure has been operated at an acceptable level of risk. Emergency repairs as recommended by the district's engineer have been made which include placement of approximately 80 yards of concrete beneath the south end of the dam. The new concrete is intended to correct the erosion problem and instability found by the divers. A report was submitted on October 14 describing an inspection performed by the district's engineer during repairs. That report also contains notification

that the engineer is no longer connected with the project. This might be a problem since a primary element of the Dam Safety Order provides for a monitoring program to be performed by the district's engineer.

This department's dam safety position is that, in the event of a failure, the structure could cause loss of life and damage to property. Considering the many unknowns about the actual physical condition of the structural members, and the age of the dam, the possibility of a failure is significant. The risk of failure has been reduced with the recent repairs, but the dam continues to deteriorate. In order to continue operation of the dam at an acceptable level of risk, it should either be reconstructed with a modern, well engineered structure; or it should remain under a routine monitoring and inspection program that is carried out by a qualified engineer employed by the district. Reconstruction could then be delayed until an engineering evaluation recommended otherwise. The problem with enforcing any inspection & monitoring program on the district is that the only option open to this department in the event of noncompliance is an order requiring removal of the structure. Nothing else can be done to insure compliance with individual terms of an order such as monthly reports from the district's engineer or completion of repairs recommended by the district's engineer.

ASEA STAL, INC is still working on regaining their FERC exemption and recently submitted supplemental data in support of their application. That data clearly indicates the developer now does not intend to reconstruct the dam structure with the new concrete dam. Apparently, the reason is that the revenue generated from the project is simply not sufficient. In conversation with the developer's representative, indications are that available revenue will be sufficient to provide a maintenance and monitoring program. The fact that our permit requires the concrete structure could be a problem if FERC approves the application.