



State of Idaho

DEPARTMENT OF WATER RESOURCES

322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098

Phone: (208) 287-4800 • Fax: (208) 287-6700 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

October 31, 2017

Harry L. Bettis
PO Box 7
Emmett, ID 83617

COPY

RE: Aikman Dam
Spillway Examination & Recommendations

IDWR File: 63-12361
NATDAM: ID00491

Dear Mr. Bettis,

On October 25, representatives from the Idaho Department of Water Resources (IDWR) Dam Safety Program visited the referenced dam located in Section 31, T6N, R1E, Gem County. The purpose for the site visit was to verify reports regarding the extent of damage to the emergency spillway which resulted from sustained runoff that occurred earlier this past spring.

At the time of our arrival, the weather was warm, clear and dry. The pool level per the reservoir staff gage was ± 3186 feet, approximately equal to 480 acre-feet volume. Both the concrete flashboard structure and the erodible fuse-plug appeared intact. Immediately downstream from the concrete sill that defines the spillway crest, we observed that nearly all larger sized rock had been removed to a depth of 2-3 feet, exposing the underlying geotextile; presumably caused by water flowing through/across the 6-bay flashboard spillway earlier this year. Approximately 180 feet further downstream, the channel plunged precipitously into a narrow ravine nearly thirty (30) feet deep. Presently, the side walls of the deeply incised channel are nearly vertical, and were observed to consist predominately of individual grains of poorly cemented quartz sand. Compounded by the relatively steep channel gradient, such friable material is highly susceptible to future erosion by flowing water.

Aikman Dam is classified as a High hazard structure, which is defined to mean that downstream loss of life is likely to occur if the dam were to fail catastrophically. Based on our observations, the naturally occurring soils are unsuitable for resisting significant, uncontrolled erosion if again subjected to sustained flow of water. Due to the potential for catastrophic failure of the spillway and sudden release of reservoir contents, any and all attempts to repair this feature must be performed according to a design prepared by an Idaho licensed professional engineer and subsequently approved for construction by IDWR Dam Safety (42.1712). Please do not attempt to perform repair or to modify the spillway absent an approved design.

A cursory review of the approved design drawings indicates the volume of water in the reservoir when filled to capacity is 2010 acre-feet @ elevation 3216 feet MSL. Review of existing water rights indicates that water right License 63-12361 authorizes reservoir storage equal to 707 acre-feet, and that Permit 63-12417 issued on October 2, 1998 was voluntarily relinquished on March 6,

2017 and therefore is no longer valid.¹ Accordingly, the State of Idaho does not recognize impoundment of stored water exceeding 707 acre-feet at this facility. This volume (707 AF) corresponds approximately to elevation 3193 feet MSL, absent any adjustment that may be given to the presence of sediments naturally deposited in the reservoir since the dam was built in 1999.

Due both to the high downstream hazard potential of this structure and the apparent lack of a valid water right or other recognized agreement authorizing reservoir storage in excess of 707 acre feet, the following options are offered for your consideration and action:

- i. Open permanently the low-level outlet and do not attempt to impound or otherwise store any water in the reservoir whatsoever.
- ii. Reduce the crest of the emergency spillway from 3216 feet to approximately 3191 feet, thereby physically limiting the reservoir storage capacity to a volume consistent with License 63-12361. Lowering the spillway crest will require that you engage the services of an Idaho licensed professional engineer to prepare design plans and specifications for IDWR review and approval prior to beginning construction. Until such time the design is approved, open temporarily the low level outlet and do not attempt to store any water in the reservoir whatsoever.
- iii. Make application with IDWR for a permit to store water equal to the difference between the authorized volume (707 acre feet) and the existing reservoir capacity (2010 acre-feet). Safe repair of the eroded channel necessary to restore the spillway crest to elevation 3216 feet MSL will require that you engage the services of an Idaho licensed professional engineer to prepare design plans and specifications for IDWR review approval prior to beginning construction. Until such time the design is approved, open temporarily the low level outlet and do not attempt to store any water in the reservoir whatsoever.

IDWR will consider any other option(s) that you may propose; however, the safety of the dam relative to downstream life and property is paramount. Thank you for your cooperation and patience. Should you have any questions or other concerns regarding safe repair of the dam and disposition of water rights, please do not hesitate to contact me, or one or more of the following individuals cc'd below.

Sincerely,



Jeff Peppersack
Water Allocation Bureau Chief

Cc: Shelley Keen – Water Rights Section Manager
John Falk – Dam Safety Program
Nick Miller – Western Region Office Manager

¹ Idaho Code § 42-202(3) limits storage of water “for irrigation purposes” to “five (5) acre feet of stored water per acre of land to be irrigated.” Water Right 63-12361 authorizes the storage of 702 acre feet of water to irrigate 139.4 acres, or 5.0 acre feet per acre. Water Right 63-12361 authorizes the storage of an additional 5.0 acre feet of water for stock watering purposes, bringing the total authorized storage to 707 acre feet of water.