

MEMORANDUM

TO: Application for Permit File 47-17461 and Young Dam Complaint File

FROM: Corey Skinner

DATE: July 17, 2008

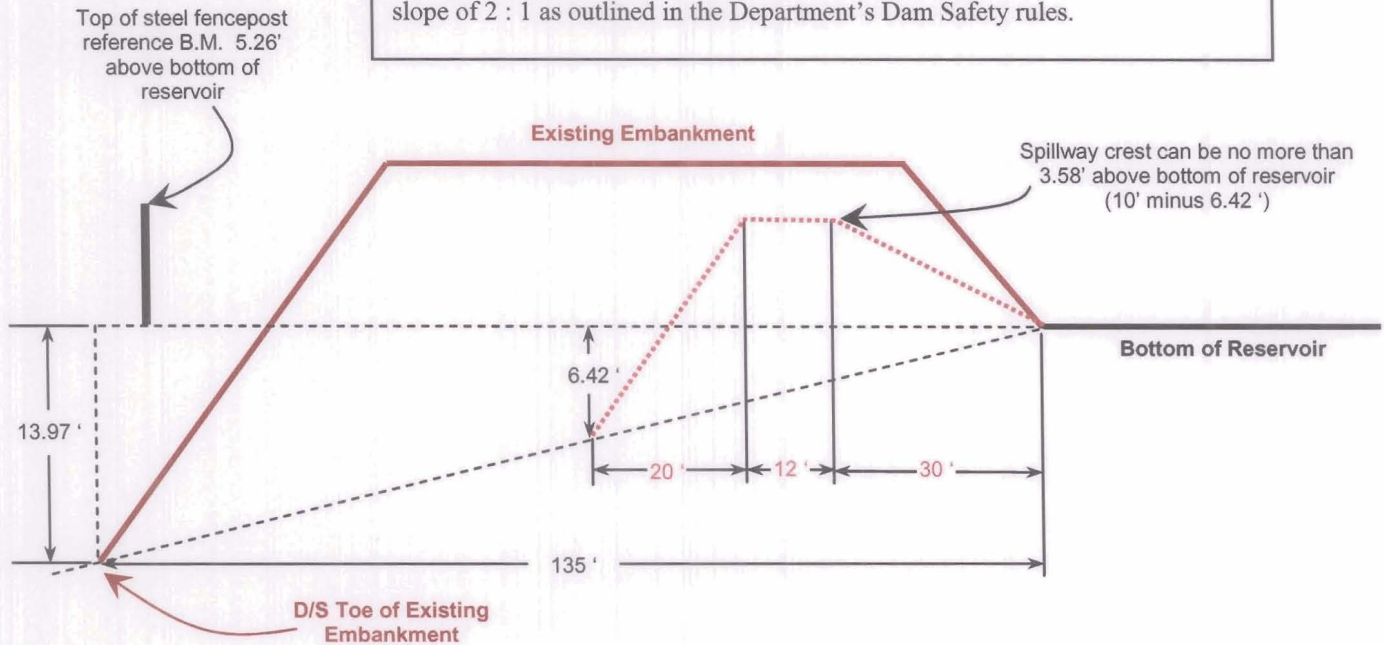
SUBJECT: Conference and Follow Up

On August 7th, 2007, a conference was held in the Southern Region office as a result of the Department's July 24, 2007 letter of inquiry following a complaint investigation related to a water storage facility located on property owned by Mickey and Lori Young. The water storage facility is located within the NWSW of Section 26 (T09S, R14E), northwest of Buhl.

One of the issues discussed during the conference relates to whether the embankment on the Young property is considered a dam that would be subject to IDWR dam safety regulation (see 7/19/2007 memo for more discussion relating to this issue). During the conference, Mr. Young decided that he wanted to remove the embankment from IDWR dam safety jurisdiction and regulation. The complaint investigation revealed that the embankment had a structural height of approximately 20 feet and the structure did not have a spillway (structural height = hydraulic height). Due to the structure not having a spillway, if the reservoir were to fill, it would fill to the top of the embankment. Idaho Code and the Department's dam safety rules define a dam as having a hydraulic height of more than 10 feet or storage capacity of more than 50 acre-feet. The hydraulic height of the dam is measured from the lowest point along the downstream toe, to the maximum storage elevation (spillway crest). While the reservoir had a relatively small storage volume, significantly less than 50 acre-feet, it appeared that the embankment could be considered a dam due to having a hydraulic height of more than 10 feet. Due to the unique location and the overall width of the embankment (crest width of more than 50 feet in places) the reservoir bottom is more than 10 feet higher than the elevation of the lowest point along the downstream toe of the embankment. Therefore, if a spillway were installed at the dam at an elevation of less than 10 feet above the lowest point along the downstream toe of the embankment, the spillway would be lower than the bottom of the reservoir and the reservoir would not hold any water, essentially breaching the embankment. Mr. Young indicated that he would like to store a minimal amount of water in the reservoir and that was part of the reason he purchased the property. He also indicated that he was willing to make the necessary water right filings to be able to legally store water behind the embankment. During the conference, it was agreed upon that because the dam's cross section was significantly larger than the minimum standards identified in the Department's Dam Safety Rules, the Department would determine the spillway crest elevation of a 10 foot high dam with a cross section built to the minimum standards identified in the Department's Dam Safety Rules and if a spillway were installed at an elevation less than this particular elevation, the Department would not consider the embankment to be a dam subject to IDWR dam safety regulation. It was agreed upon that the intersection of the upstream slope of the current embankment and the reservoir bottom would serve as the common point between the existing embankment and the dam with a cross section built to the minimum standards.

Shortly after the conference, Jeff Cooper and I visited the Young property and surveyed the embankment and staked the maximum elevation of a spillway that would have to be installed based on the agreed upon approach from the conference. The sketch on the following page shows the relative required spillway elevation to make the embankment non jurisdictional for IDWR Dam Safety regulation.

Note that the sketch below is not to scale. Also note that the **red** dimensions are assumed dimensions based on minimum dimensions for a 10 foot high dam with an upstream slope of 3 : 1, a crest width of 12 feet, and a downstream slope of 2 : 1 as outlined in the Department's Dam Safety rules.



On August 30th 2007, after being informed by Mickey Young that he had installed a spillway in the embankment, Jeff Cooper and I visited the Young property. We observed that Mr. Young had excavated into the existing embankment, installed a 14 inch diameter plastic pipe, and backfilled over the pipe. The new pipe would serve as an overflow spillway and a means for controlling the storage level in the pond. Using survey equipment, Jeff and I determined that the upstream (intake) end of the spillway pipe was 1.77 feet below the top of a steel fencepost that was used for a reference benchmark from the previous survey we conducted. The top of the steel fencepost had been previously surveyed as being 5.26 feet above the reservoir bottom, which results in the upstream (intake) end of the spillway pipe being 3.49 feet from the reservoir bottom. This elevation is less than the 3.58 feet required as shown in the drawing above, meaning that the hydraulic height of a dam constructed to minimum IDWR standards within the existing embankment would be 9.91 feet. An embankment having a hydraulic height of less than 10 feet and a storage capacity of less than 50 acre-feet is not defined as a "dam", and not subject to IDWR dam safety regulation. Using the concept agreed upon during the conference, the modification made by Mr. Young would result in his embankment not being considered a dam, and would not be subject to regulation by the Department's dam safety section.

The installation of a spillway at the dam significantly reduces the storage capacity of the embankment from what existed prior to the spillway being installed. It is estimated that the maximum storage capacity of the reservoir, with the spillway, is 4.15 acre-feet and the maximum depth of the water in the reservoir is 3.5 feet. Idaho Code and the Department's dam safety rules exempt embankments from IDWR's dam safety jurisdiction if they have a storage capacity of less than 10 acre-feet and are constructed in a low hazard area, regardless of height. Prior to the installation of the spillway, it was debatable if the embankment was constructed in a low hazard area, based on downstream development in relation to the potential maximum amount and height of water behind the embankment. However, with the reduction in storage capacity in the reservoir, and the reduction in height of water behind the embankment, due to the installation of the spillway, it is clear that there would be minimal property damage downstream of the embankment if it were to fail. Therefore, the embankment would be considered to be constructed in a low hazard area. Based on the dam having a storage capacity of less than 10 acre-feet and being constructed in a low hazard area, it would not be subject to regulation by the Department's dam safety section.

Last winter, Mickey Young and Lori Young, filed Application for Permit 47-17461 and transfer application # 74313 with the Department. Mr. and Mrs. Young own irrigation water right 47-2370 that allows for diversion of up to 0.40 cfs of water from an unnamed stream for stockwater and irrigation use on their property. Right 47-2370 allows for the irrigation of up to 15 acres on their property. The unnamed stream flows generally through the center of the property owned by Mr. and Mrs. Young and along the west edge of the embankment. Mr. Young indicated that he hopes to use the water from this unnamed stream to fill the pond behind the embankment on his property. His idea is to keep the pond full, to the spillway intake elevation, using the pond as wildlife habitat on his property. He will also be able to divert water through the full pond, through the new spillway and irrigate part of the 47-2370 place of use. Application for Permit 47-17461 proposes appropriating water to allow for the storage of 4.15 acre-feet of water for wildlife use in the pond. Transfer # 74313 proposes converting a 1.5 acre portion of right 47-2370 from irrigation use to wildlife use to cover the consumptive evaporative losses associated with the pond (approximately 1.5 acres of surface area). Application for Permit 47-17461 also identifies the wildlife use associated with the up to 0.40 cfs of water described by right 47-2370 that could be diverted through the pond (irrigation & /or stock water flowing through the wildlife pond). Transfer application # 74313 also identifies additional points of diversion from the unnamed stream. It was noted during our field visit(s) to the property that there are multiple diversions from the unnamed stream used to flood irrigate the land, rather than just a single point of diversion at the upper end of the property as reflected on the 47-2370 SRBA recommendation.

In summary, Mickey and Lori Young have made the necessary steps to address the items outlined in the Department's July 24, 2007 letter and if Application for Permit 47-17461 and transfer application # 74313 are approved, Mr. and Mrs. Young should be able to legally divert water into the pond on their property.