

Public Comment on October 5, 2022 Idaho Administrative Bulletin 37.03.06 – Safety of Dams Rules and 37.03.05 - Mine Tailings Impoundment Structures Rules, Docket No. 37-0305-2201 (IDAPA 37.03.05 & IDAPA 37.03.06)

By Tami Thatcher, October 13, 2022.

Comments are due October 26 and can be submitted by email to rulesinfo@idwr.idaho.gov

BACKGROUND

The current regulations, “Safety of Dams Rules” (IDAPA 37.03.06) and “Mine Tailings Impoundment Structures Rules” (IDAPA 37.03.05), are being modified.

This set of comments is for the proposed rules published October 5, 2022 in the Idaho Administrative Bulletin.

No transcripts of the rulemaking meeting held August 19 have been provided by the Idaho Department of Water Resources (IDWR). No written response to comments for the previous August draft of the rules has been provided. And no redline-strikeout or summary of changes to the proposed rules has been provided since the August draft proposed changes.

The IDWR continues to make rule changes without explaining why it is making the change or what the intended impact will be. The IDWR proposed changes generally loosen its rules for the safety of dams and of mine tailings impoundments for release capability and for seismic design criteria.

The first round of comments for the first Strawman which had combined Safety of Dams Rules (“DS Rule”) and Mine Tailings Impoundment Structures Rules (“MT Rule”) into a single rule were previously submitted and were due June 17, 2022 and IDWR provided written responses to those comments on August 9, 2022. The first Strawman had incorporated many updates to the Mine Tailings Impoundment Structures (MTISs); however, these updates have now been removed from the rulemaking effort.

The first public (in person and virtual) meeting was held May 27, 2022. A second public (in person and virtual) meeting was held July 7, 2022; however, there was no written response to comments received and no revised Strawman. A third meeting was planned for July 28, but was postponed until August 19.

The May 4, 2022 Idaho Administrative Bulletin identified rulemaking for the Idaho Department of Water Resources and announced a May 27 meeting.¹

The dam safety rulemaking webpage, which includes previous comment submittals, is located at this <https://idwr.idaho.gov/legal-actions/rules/idwr-rulemaking-2022-2023/mine-tailings-impoundment-structure-safety-of-dams-rules/> .

¹ The May 4, 2022, Idaho Administrative Rules Bulletin, Volume 22-5, available in May 2022 at <https://adminrules/idaho.gov/bulletin/2022/05.pdf>

COMMENT SUBMITTAL FOR OCTOBER PROPOSED CHANGES TO THE SAFETY OF DAMS RULE

Several changes or corrections have been made to the Safety of Dams rules (DS rules) since August but the IDWR has not provided a redline-strikeout of the changes, nor a summary of the changes. A line-by-line comparison shows various improvements or corrections but some problems remain.

Specific comments for the proposed DS rules are listed below.

Rule 25, Hazard classification criteria are provided in a table for dams but no hazard classification criteria have been provided for mine tailings impoundments. This is especially problematic as the IDWR will be pressured to select the lowest hazard category in order for the owner of the dam to reduce analysis and design criteria costs. The Low hazard category should stipulate specifically that no environmental loss would occur.

Rule 45, Emergency Action and Operations Plans has been modified so that Low hazard dams are not required to have emergency plans but Significant hazard dams may waive the requirement for an emergency plan. Given that Significant hazard dams may involve “One or more permanent structures for human habitation” and “Significant damage to agricultural, commercial, or industrial facilities; damage to or the disruption of transportation, utilities, or other public facilities or values including environmental loss” it seems odd that Emergency plans can now be waived for Significant hazard dams.

Rule 50, New Dams and Reservoirs, has made an additional modification to the table that states the “Inflow Design Flood (IDF).” The High hazard, Intermediate size dam IDF is now Q500 where in previous drafts it had been Q100 to Q500. This is an improvement. However, overall, the IDWR has not provided written support for the reduction in IDF values, especially in light of more severe flooding that is occurring. Recent flooding in the neighboring state of Montana, which this June exceeded 1-in-500-year flood levels due to unexpected heavy snow followed by heavy rain this spring, despite a dry winter.² Western states can expect storms that produce more frequent and stronger precipitation extremes even while the frequency of light and moderate precipitation decreases, according to a recent report by Thomas W. Corringham and others.^{3 4} This rulemaking by the IDWR ignores this reality as they propose reducing design requirements for dam release capability from outlet works and spillways for all but the least hazard, smallest size dams and as they continue to allow the Director to accept dam release capabilities even below the stated inflow design flood levels. Even more problematic is the

² Associated Press, *The Idaho Falls Post Register*, “High and Fast – How heavy snow, rain flooded Yellowstone,” June 19, 2022.

³ Corringham, T.W., McCarthy, J., Shulgina, T. *et al.* “Climate change contributions to future atmospheric river flood damages in the western United States,” *Sci Rep* **12**, 13747 (2022). <https://doi.org/10.1038/s41598-022-15474-2>

⁴ Matthew Cappucci, *The Washington Post*, “A ‘megaflood’ in California could drop 100 inches of rain, scientists warn – It hasn’t happened since 1862, but California is due for another one,” August 12, 2022.

previous approach by the IDWR of “don’t ask – don’t tell” what IDF an existing dam can actually meet.

Rule 60, Existing Dams and Reservoirs, 060.01 Analyses Required, now states that “Where applicable, non-embankment dams shall comply with the following criteria.” An embankment is defined in Rule 10 as “An artificial barrier constructed of earth, sand, rock, or gravel used to impound water.” The question arises as to the changes in how the IDWR has assigned impoundment type over the years for the same dam. For example, the Mackay Dam has been stated in IDWR inspection reports to be a gravel dam, an earthen dam and more recently has been stated to be a concrete dam, presumably due to the partial height inner concrete wall. Is the Mackay Dam considered by IDWR an embankment dam or a non-embankment dam? And please provide clarification and explain if or how this affects the applicable regulations.

Rule 60, Existing Dams and Reservoirs, 060.01.d, states “Seismic loads shall be evaluated and applied to dam stability. The Director may require that evaluation of seismic loads for large and high hazard structures shall use the maximum ground motion/acceleration generated by the maximum credible earthquake. The Director may accept maximum ground motion/acceleration corresponding to specified return intervals using a probabilistic evaluation of earthquake history in accordance with USGS hazard maps for any existing dam regardless of size or hazard potential.” There is actually no minimum standard expressed here. It should be stated that the minimum return interval of 2 percent (2%) probability of exceedance in fifty (50) years, (which would be a 2475-year interval) or greater interval would be used. The maximum credible earthquake interval may not be known but is larger than the 2475-year interval. As currently stated, any recurrence interval, even one less than a 2475-year interval, and that could have reduced seismic loads, could be selected. The IDWR rules appear to be written to allow selection of any reduced recurrence interval that the structure can withstand.

Rule 60, Existing Dams and Reservoirs, 060.01.f and 060.01.g, allows for indefinite compliance periods for resolving safety problems. The problem of deteriorating dams is not even addressed by IDWR’s rulemaking,⁵ and the issue of never-ending compliance periods for correcting problems is only made worse in the proposed changes. See my Environmental Defense Institute September 2022 newsletter about the Mackay Dam safety problems at <https://www.environmental-defense-institute.org>.

Rule 65, Dams Storing Tailings and Water, states that new or existing mine tailings impoundment structures are to meet the applicable requirements in Rules 035 (Design reports), 045 (Emergency Action and Operation Plans) and 060 ((Existing Dams), basically. The current rules had also included the rules for New Dams, which is now Rule 50 (New Dams and Reservoirs). I repeat a previous comment and ask is the IDWR intentionally leaving out Rule 50 from the rules listed in Rule 65?

⁵ Maya Wei-Haas, National Geographic, “The problem America has neglected for too long: deteriorating dams,” May 27, 2020. <https://www.nationalgeographic.com/science/article/problem-america-neglected-too-long-deteriorating-dams>

COMMENT SUBMITTAL FOR OCTOBER PROPOSED CHANGES TO THE MINE TAILING IMPOUNDMENT STRUCTURES RULES

For the August 9 proposed rule changes, the IDWR has decided not to combine the Safety of Dams and the Mine Tailings Impoundment Structures Rules into a single rule. The rules will remain as separate rules. But for reasons unknown, the IDWR has decided to make only minimal changes to the Mine Tailings Impoundment Structures Rule (MT Rule).

The original MT Rule is about 30 years out-of-date and the understanding of seismicity in the state has changed considerably. The IDWR has also limited its changes to the outdated rule to effectively lengthen the duration of time between recertification of a mine tailings impoundment structure beyond 2 years (Rule 010.13). And to effectively lengthen the time a bond shall run, based on the certificate of approval (Rule 040.01).

By 2017 it had been recognized by professionals that climate change increases the risk of severe weather and flooding and the risk of failure of MTISs.⁶ Despite the problem, world-wide, of tailings dam failures and tailings dams being less reliable structures typically than dams that hold water, the IDWR chose not to review or strengthen design criteria for flooding or seismic events for new tailings dams, despite having developed changes in their first “Strawman” of proposed rule changes in June.

The schedules for inspections and recertification of mine tailings dams depend on hazard classification. **And yet there are no stated hazard classification criteria associated with the mine tailings rule nor does there appear to be an explicit requirement for the IDWR to perform hazard classification of MTISs.**

The proposed MT Rule does not specify where the criteria for hazard classification for mine tailings impoundment structures (MTISs) are found. In the June 2022 Strawman, the hazard criteria were the same for MTISs as for dams. Hazard classification categories of low, significant and high are not defined in Idaho statute, that I can find. The IDWR needs to explain specifically where the criteria for MTISs are to be found. In practice, the IDWR may have used the 2018 Administrator’s Memorandum which states, “...a High Hazard classification presumes that the downstream consequences of a dam failure and uncontrolled release of water will result in direct loss of human life. Significant Hazard implies that significant economic damage will occur to developed property, and includes also the potential for indirect loss of human life. A Low Hazard classification suggests that developed property may suffer minor damage, with a low potential for loss of life, or that damage will be limited to the dam owner’s property.”⁷ The 2018 Administrator’s Memorandum is not Idaho Statute and would be out of date, particularly when new changes to DS Rules are issued. So, the criteria for hazard classification to be used by the

⁶ Roche, C. Thygesen, K., Baker, E. (Eds.) *Mine Tailings Storage: Safety Is No Accident*. A UNEP Rapid Response Assessment. United Nations Environmental Programme and GRID-Arendall, Nairobi and Arendal, www.grida.no. 2017. ISBN: 978-82-7701-170-7

⁷ Administrator’s Memorandum, Dam Safety No. 1, From Jeff Peppersack, Water Allocation Bureau Chief to Water Allocation Bureau and Regional Offices, May 11, 2018.

IDWR in classifying MTISs is vague and ambiguous and does not appear to be adequately defined in existing statute or in the proposed MT Rule.

The IDWR removed draft rules that it had already developed for mine tailings impoundment structures proposed in the June “strawman.” The rules proposed in June would have imposed more stringent requirements for the selection of an appropriate design earthquake for MTISs, but now IDWR has chosen to retain outdated Zone 2 and Zone 3 language in the MT rule. Developments in seismic hazard studies by the U.S. Geological Survey have continued finding increased seismic hazard levels, above the levels recognized and located geographically differently than understood when these rules were originally developed.

The IDWR has admitted that the system that defined Seismic Zones (0,1,2,3,4) was used originally for building codes and is now obsolete. The IDWR must explain why it has chosen not to review and update the mine tailings impoundment structures rule for appropriate selection of seismic design criteria. The proposed MT rule continues to use language that only requires structures located east of Range 22 E., Boise Meridian, corresponding to Seismic Zone 3. This boundary has been explained as being approximately the 114th meridian, and IDWR recognizes that their MT rule only requires seismic analysis be conducted for structures located to the east of this boundary. As the U.S. Geological has made many revisions to its seismic hazard models, this obsolete boundary line may unjustifiably exclude appropriate seismic evaluations, see MT Rules 035.16(g) and also 045.01(b).

At least one new MTIS is currently planned to be built west of this boundary line, at Yellow Pine. It appears that it may not be held to appropriately stringent seismic design requirements because the outdated MT Rule is not being fully updated by the IDWR.

The geographical location of boundaries of seismic zones 2 and 3 have also changed (and are no longer used). The seismic hazard maps from 1970 depicting seismic zone 3 show zone 3 to be east of the Nevada-Utah boundary. More current maps of seismic hazards show high seismic hazards throughout Custer County in the center of Idaho and extending further west than previous maps.

The IDWR must also address whether it has required less than the maximum credible earthquake as the design earthquake for structures other than low hazard MITS structures. And IDWR needs to address whether the maximum value obtained from a probabilistic evaluation based on existing USGS Seismic Hazard maps would result in higher seismic loading than the maximum credible earthquake.

Importantly, mine tailings dam failures can release toxic material that cause prolonged environmental damage. The bonding money will not cover the cost of damage or cleanup following a tailings dam failure, as the bonding level is tied only to the most ideal closure conditions. So, the rule making for the “Mine Tailings Impoundment Structures Rules” was limited to only two changes and these changes are favorable to the mining industry but do not address the appropriateness of the selection of the design earthquake for new structures.

According to a 2017 report, *Mine Tailings Storage: Safety Is No Accident*,⁸ “If a catastrophic failure occurs, either the operator must be able to provide financial compensation, and/or that responsibility falls to government. If neither is able to provide compensation, then the environmental and social costs fall on those who live near the mine.”

The lack of financial assurance requirement for catastrophic failure of dams or MTISs continues to be true in Idaho. Importantly, IDWR regulates dams with inadequate designs and inadequate construction quality. And IDWR regulates MTISs, which continue to fail catastrophically at a high rate of failure, around the world.

In proposed (and existing) MT Rule 40.02, the “Bond provisions shall provide that the surety may be held liable for a period of up to five (5) years following notice of default of the bond.” Why only up to five years? As written, the bond provisions may be allowed to end far earlier than after five years. It is an example of mining industry favorable regulations, to the expense of property owners who may never be compensated or tax payers who pay for the abandonment.

Also, the Rule 40 for “current costs for abandonment” uses the present condition which seems designed to reduce the estimated costs for abandonment.

The bonding requirements do not pay for the cost of remediation should a mine tailings impoundment structure fail. Even if criminal charges are successful against mining engineers for faulty designs or quality, bankruptcy of the mining companies tends to mean that the mining companies don’t pay for their mistakes if a structure fails.

Costs of chronic problems at closed MTISs may require long-term or perpetual management, with the costs often borne by local communities and authorities. The true costs of managing mine tailings waste, even when no catastrophic tailings dam failure occurs, are often not revealed.

SUMMARY

Reductions in safety standards remain unexplained and deficiencies remain in both the Safety of Dams Rules (DS Rule) and the Mine Tailings Impoundment Structures Rules (MT Rules). Problems include the IDWR’s hazard classification criteria, selection of appropriate design flood release capability and selection of seismic design criteria.

Two very important design criteria for dams and Mine Tailings Impoundment Structures (MTISs) are for water release capacity and seismic capacity. Despite long known increasing risk of severe weather events due to climate change, the IDWR has proposed reducing the size of design probable flooding inflows to consider for selection of the design criteria for flooding inflows.

The selection of the maximum flooding inflows and the appropriate seismic criteria and also the inspection frequency depends on the Hazard Classification of the dam or MTIS. The proposed MT Rules does not clarify in any manner what hazard classification criteria are to be

⁸ Roche, C. Thygesen, K., Baker, E. (Eds.) *Mine Tailings Storage: Safety Is No Accident*. A UNEP Rapid Response Assessment. United Nations Environmental Programme and GRID-Arendall, Nairobi and Arendal, www.grida.no. 2017. ISBN: 978-82-7701-170-7

used. Mine tailings contain toxic materials that can cause prolonged environmental damage even if developed property is not damaged and even if no lives are lost due to the failure of the structure.

The Hazard Classification criteria that were added to the Safety of Dams Rule create ambiguity for low hazard structures and the level of harm from significant and from high hazard structures appear to both be very high, yet the IDWR's proposed rule changes generally relieve, inappropriately, the significant hazard structures of more stringent design criteria applied to high hazard structures.

The Mine Tailings rule excluded all changes developed by the agency this June that had addressed out-of-date seismic design criteria essentially giving a free pass to any existing tailings dam or new dam in the western half of the state.

The current and now-proposed MT Rule will retain the outdated seismic zones and won't require seismic analyses for structures west of the "Range 22E., Boise Meridian" or roughly, west of the 114th meridian or a line drawn south of Salmon, Idaho. While the proposed rule in June would have required all tailings dams to meet the maximum credible earthquake loading (a roughly 1-in-10,000-year return interval), there is no such requirement now. For structures east of the line delineated for Zone 3, the recurrence interval has not been specified. The seismic loads would decrease as the return interval is decreased to 1-in-2500 years or less.

The U.S. Geological Survey has continued to find higher seismic hazard levels and the proposed rules for seismic criteria were not updated in the MT Rule and are not appropriately specified in the DS Rule to assure appropriately stringent requirements.

There remains the lack of documentation of the reasoning behind the many changes and deletions of the current DS rule. The IDWR did not provide any written response to comments given at the August meeting or submitted regarding the August drafts.

Witnessing the gyrations in the rule changes proposed by the IDWR, the relaxing of requirements, and the refusal to provide a candid and comprehensive discussion of the changes and the rationale for the changes has been illuminating.

It all makes sense and only makes sense when you consider the money flowing from the mining industry into Idaho political campaigns and when you understand that by Idaho Statute, Title 42-1717, no legal action can be brought against the state or the IDWR for failure of dams or tailings dams, due to the IDWR's failure to issue or enforce effective rules.

