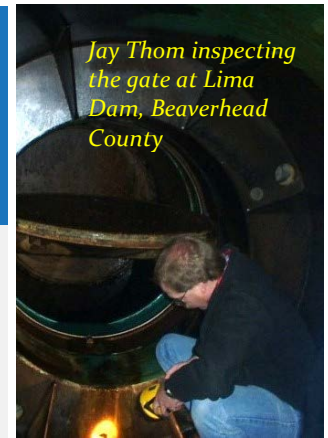


Montana Dam Safety Program Bulletin



May 2024



In this issue:

- Dam Safety Assistance Grant to DNRC Approved - *What this means to Dam Owners, Engineers, & Emergency Managers*
- Tribute to Jason Thom, PE; Long time Montana dam engineer passes away.
- Upcoming Administrative Rules Update – Additional Red Tape Relief

DAM SAFETY ASSISTANCE GRANTS AND DNRC'S FIVE YEAR PLAN:

The Federal Emergency Management Agency (FEMA) awarded DNRC an \$893,165 grant for improvement of Dam Safety in Montana on April 29, 2024. This grant is the first of five consecutive yearly grants, available to states as part of the Bipartisan Infrastructure Law. To smartly utilize the funding, DNRC developed a Five-Year plan based on feedback received from the Dam Safety Community from surveys and a listening session held in January 2024. Read on to learn more:

WHAT DOES THE GRANT MEAN FOR DAM OWNERS?

- ◆ If you own a dam with a reservoir that provides public benefits, DNRC will consider sharing the costs of completing your **Five-Year Dam Evaluation**. DNRC will contact owners with five-year dam inspections/evaluations due this summer soon.
- ◆ DNRC will hire engineering contractors to work one-on-one with dam owners to produce quality dam **Operation & Maintenance (O&M) Manuals**. This may involve obtaining bathymetry and updating stage / storage / discharge tables; important information for dam owners to optimize water distribution.
- ◆ **The Montana Association of Dam and Canal Systems (MADCS)** is an important resource for dam owners. Comprised mainly of irrigators and small municipalities, financial support is needed to continue their mission. DNRC will use the grant to assist with annual workshop expenses.
- ◆ Dam owners are responsible for inspecting their dams between five-year inspections. During the listening session, dam owners asked for **Improved Owner Inspection Tools** to assist with this task. DNRC plans to hire a contractor to produce improved inspection forms and templates. In addition, DNRC will purchase outlet conduit cameras and confined space entry equipment, locating these in regional offices for dam owners to borrow.
- ◆ There is broad agreement that Emergency Action Plans (EAPs) need improvement. Many dams have old, hard to read evacuation maps, and the federal template used to develop the EAPs is too complex to be practical in an emergency. In the **EAP Modernization Project** DNRC intends to hire engineering contractors to work one-on-one with dam owners and county emergency managers to produce EAPs specific to the dam, the county, the downstream area, and the dam owner.

Note: DNRC was recently informed that the Dept. of Homeland Security cut into the allocation of dam safety assistance funding to states for years 2 to 5. Unfortunately, we will not be able to complete all the projects we discussed in the January 2024 listening session. DNRC has prioritized projects that will provide the most assistance to dam owners. More information to come as we learn more how this impacts Montana dam owners.

WHAT DOES THE GRANT MEAN FOR ENGINEERS?

- ◆ DNRC will hire engineering contractors to complete much of the work funded with this grant.
- ◆ **Five-Year Dam Evaluation Project:** For 2024, DNRC will contract with the dam owners' engineers directly. This grant is not set up to pass funding through to the dam owners. For subsequent years, DNRC will investigate other options to make this process more efficient.
- ◆ For the **O&M Enhancement Project** and **EAP Modernization Project**, the general plan is to hire a contractor this summer to develop a scope, schedule, cost estimates and prioritize dams. Over the remaining four years of this funding opportunity, DNRC will be hiring contractors to work one-on-one with dam owners (and emergency responders) to produce quality O &M manuals and functional EAPs.
- ◆ **The Montana Association of Dam & Canal Systems** also provides valuable training opportunities to engineers! This grant funding assures continued financial support of the MADCS annual workshop.
- ◆ Montana's 1997-1998 extreme **precipitation estimation studies** will be updated for use in spillway evaluations and design.
- ◆ DNRC will increase **training opportunities for engineers** by bringing industry leading experts to Montana to teach courses on outlet conduit design, geotechnical modeling, spillway design, and other important dam topics.

Note: DNRC will be conducting another Qualification Based Selection for engineering services in the fall of 2024. Please refer to: https://dnrc.mt.gov/Water-Resources/WOB/Contracting_DNRC_WOB

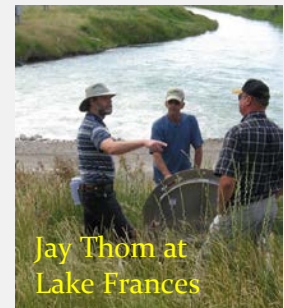
WHAT DOES THE GRANT MEAN FOR COUNTY EMERGENCY MANAGERS?

- ◆ Dam Emergency Action plans will be improved to reflect resources available within the county to respond to dam emergencies.
- ◆ Evacuation maps will be modernized and improved in collaboration with county emergency managers.
- ◆ DNRC facilitated dam emergency exercises will be available to counties, upon request.



The Montana dam safety community recently lost one of our founders. It is with great sadness we convey to this community the passage of Jason Thom.

When we lose someone that for so long has been a stalwart in the industry, our thoughts drift between the person we worked with and the collection of earth and concrete that serve as a monument to their legacy. There are so many of us to whom Jay was a peer, a mentor, a friend. There are so many projects that bear his distinctive integrity and timelessness: Ackley, Bair, Cooney, Cottonwood, North Fork of Smith River, Nevada, Lima, Lake Frances, Martinsdale, Beaver Creek, and far too many Bureau of Indian Affairs and Bureau of Land Management dams to list in this short tribute.



Jay's contributions to dam safety extends beyond dam rehabilitation. So many of our design standards and industry practices are a derivative of his thoughts. Few people have had a such a profound impact on the safety and future of Montana like Jay Thom. The next time you stand looking out over the blue reflection of Montana's public reservoirs, think about the hands and mind that made the moment possible. Jay, we thank you for your wisdom and your vision.

NEXT STEPS FOR SELECT PROJECTS

Project Name	Next Steps	Schedule	Comment
Five Year Dam Evaluations - Assistance with Expenses	DNRC will produce a letter template for dam owners to use to request assistance from DNRC. Dam owners with Five Year Evaluations due in 2024 will send request to DNRC.	May-June 2024	<ul style="list-style-type: none"> ◆ Dams with public benefits only. ◆ DNRC will work to improve this process for evaluations due in years 2025 to 2028.
	Dam owner's engineer will conduct visual inspection of dam - Dam owner is responsible for this expense.	May - Oct. 2024	
	DNRC contracts with dam owner's engineer to complete the evaluation and reports.	July - Aug. 2024	
	Engineer evaluates dam and writes report. DNRC uses grant to pay engineer.	Fall 2024	
Operation & Maintenance (O&M) Manual Enhancement	DNRC will hire contractor to develop O&M manual templates & prioritize dams according to need & risk	2024 to 2025	◆ May include bathymetry
	Contractor conducts pilot study on select dam to better understand issues and create templates.		
	DNRC will hire multiple engineering contractors to work with dam owners one-on-one to customize and fine tune O & M Manuals using the templates.	2025 to 2028	
Emergency Action Plan Modernization	DNRC will hire contractor to produce a variety of customizable templates for specific dams and dam owners	2024 to 2025	<ul style="list-style-type: none"> ◆ May also include conducting exercises of the emergency plans. ◆ May include developing emergency intervention plans.
	Contractor will survey county emergency managers		
	Contractor will prioritize dams according to need, risk, interest from emergency managers and availability of lidar for evacuation mapping		
	DNRC will hire multiple engineering contractors to work with dam owners and emergency managers to develop modernized evacuation maps and customized emergency action plans.	2025 to 2028	



DNRC created a web page specific to this funding opportunity: <https://dnrc.mt.gov/Water-Resources/Dam-Safety/assistance-to-states>

We will provide additional information on the projects discussed above (and others) as it becomes available.

AMENDMENTS TO THE ADMINISTRATIVE RULES OF DAM SAFETY - HAZARD CLASSIFICATION APPLICATIONS

DNRC PROPOSES THE FOLLOWING AMENDMENTS:

AMEND: ARM 36.14.204 APPLICATION by adding the option for a dam owner's engineer to submit their own evaluation of the potential flooded areas caused by a dam failure, as opposed to letting DNRC determine the flooded area. The option to request DNRC to determine the flooded area remains.

JUSTIFICATION – *This rule change provides dam owners flexibility to use their own engineer if desired, which has many advantages. The change also clarifies that if DNRC completes the evaluation, it will be a simple, conservative “desktop” analysis using aerial imagery, often without a visit to the site. Statute does not explicitly require DNRC to complete an engineering evaluation of the flooded area; it only requires DNRC to make the final hazard classification determination. A simplified analysis is a more reasonable expectation for the \$125 application fee. In addition, with this proposed rule change, Montana will be more aligned with how other states handle hazard determinations.*

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RELATED AMENDMENTS:

AMEND: ARM 36.14.205 APPLICATION PROCESSING PROCEDURES Removes a statement that requires DNRC to visit dam site to conduct a field investigation and collect survey data.

AMEND: ARM 36.14.206 CRITERIA FOR DETERMINATION Removes a statement that requires DNRC to conduct a dam breach analysis.

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JUSTIFICATION – *Both of these amendments are necessary due to the proposed amendment to ARM 36.14.204. These amendments change these provisions from a requirement to something DNRC may do if necessary.*

QUESTIONS YOU MAY HAVE:

Q: Why would I hire an engineer, if DNRC is authorized to do the work?

A: One of the responsibilities of dam ownership is to know what happens downstream of a dam should it fail. In addition to providing the necessary information to classify the dam, an engineer's analysis will inform a dam owner of potential risks due to a dam failure. Moreover, DNRC's analysis is based on a sunny weather dam failure and does not quantify potential life-loss. Many dams fail during flood events and DNRC's analysis does not consider these situations. In other words, DNRC's analysis can only be used to classify the dam, nothing more.

Q: What situations would the simplified desktop analysis be adequate?

A: DNRC's simplified conservative analysis is a good fit for remote rural dams with limited downstream development, or when obvious hazards are located immediately downstream of dams.

Q: The justification mentions advantages of using my own engineer. What are those advantages?

A: In addition to accurately knowing what is flooded by a dam failure, your engineer's analysis is also used to 1) create an evacuation map for your emergency action plan; 2) evaluate potential flooding caused by high spillway flows; 3) Evaluate the spillway for compliance with Montana's risk based spillway standard and most importantly, 4) Assist the dam owner make wise, risk informed decisions with detailed information on depth, velocity and when a dam failure floodwave will arrive at downstream hazards. DNRC's simplified analysis cannot be used for any of these tasks.

A formal administrative rules update notification will be available soon with instructions on how to provide comment. Stay tuned for more information!

SAVE THE DATE!

MONTANA ASSOCIATION OF DAM AND CANAL SYSTEMS Annual Conference

October 29-30, 2024, Copper King Convention Center Butte, Montana

ACTIVITIES AND TOPICS

TUESDAY, OCTOBER 29

MORNING – Mini-Workshop: Dam Seepage & Stability Modeling - Facilitated Discussion

AFTERNOON – Visit to City of Butte’s Water Supply Dams

EVENING – Social and Visit with Equipment Suppliers, Engineers, and Other Dam Owners

WEDNESDAY, OCTOBER 30

PRESENTATIONS, DISCUSSIONS & DEMONSTRATIONS

- ◆ Dam Rehabilitation Case Studies
- ◆ Options for rehabilitating outlet conduits.
- ◆ FEMA funding to DNRC to help dam owners.
- ◆ Tips and techniques - talking to the legislature
- ◆ Dealing with the high cost of dam rehabilitation
- ◆ Outlet conduit inspection equipment demos
- ◆ Estimating life loss from a dam failure
- ◆ Automated Irrigation Control Systems
- ◆ And much more!

REASONS YOU SHOULD ATTEND THIS AFFORDABLE CONFERENCE:

- ✓ Meet other dam owners with similar issues and concerns.
- ✓ Learn about the latest technology to inspect & operate dams (with hands on demonstrations)
- ✓ Talk with equipment and service suppliers.

For more information, please go to the MADCS website: <https://madcs.org/>

Special Note: If you have a dam/canal topic to share at the conference, please submit an abstract of your presentation to the MADCS president, Jeremiah Theys at jtheys@greatwesteng.com



Basin Creek Dam under construction & upon completion (1893 to 1913, Butte, Montana).
Photo Courtesy of City/County of Butte Silver Bow

