

Division of Dam Safety
Division Director's Report

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Mr. Chairman, members of the Virginia Soil and Water Conservation Board, please accept this Dam Safety Division Report.

Critical Statistics of the Dam Safety Program as of August 31, 2023

Count of Dams Regulated by DCR by Hazard Classification				
Calendar Year	2020	2021	2022	2023
Total Number of Dams Regulated by DCR	2056	2663	2645*	2560
High	326	348	371	385
Significant	170	173	171	166
Low	261	266	269	273
Regulatory Size with Undetermined Hazard Classification	1299	1876	1828	1736
*Note: Fully breached and decommissioned dams excluded in 2022				

Type of Hazard Classification for Dams Regulated by DCR				
Calendar Year	2020	2021	2022	2023
Total Number of Dams Regulated by DCR	2056	2663	2645	2560
High	16%	13%	14%	15%
Significant	8%	6%	6%	6%
Low	13%	10%	10%	11%
Regulatory Size with Undetermined Hazard Classification	63%	70%	69%	68%

Certificate or Permit Status			
Calendar Year	2021	2022	2023
Total Number of Dams Regulated by DCR	2663	2645	2560
Regular Operation and Maintenance Certificate or General Permit Issued and Current	10%	10%	8%
Conditional Operation and Maintenance Certificate Issued and Current	9%	10%	11%
Regular or Conditional Operation and Maintenance Certificate Expired	10%	12%	14%
No Operation and Maintenance Certificate	68%	68%	66%

Certificate or Permit Status – High Hazard Dams Only			
Calendar Year	2021	2022	2023
Confirmed High Hazard Potential Dams	348	371	385
Active Regular Operation and Maintenance Certificate	35%	37%	32%
Active Conditional Operation and Maintenance Certificate	7%	16%	33%
Expired Regular Operation and Maintenance Certificate	17%	5%	7%
Expired Conditional Operation and Maintenance Certificate	17%	39%	23%
No Operation and Maintenance Certificate	3%	3%	5%

Dams of Regulatory Size without Hazard Classification:

As of this report, there are 1,736 dams of regulatory size without a hazard classification in the DCR dam safety inventory. This is down from 1,828 from our report in December 2022

DCR has implemented a mapping initiative to develop inundation maps with impact data for emergency plans and hazard classification determinations. To date 25 maps with hazard classification have been created. This data is now in Dam Safety Inventory System (DSIS) and available for emergency planning and response. These maps do not relieve the dam owner of their responsibility to provide the required information listed below. A mapping engineer was hired October 25, 2022 to assist with this effort and a second mapping engineer position is under recruitment. A second mapping engineer has since been hired in 2023 to enable the Department to reinstate the Simplified Mapping Program as outlined in 4VAC50-20-54. Dam break inundation zone mapping.

Staff are conducting property research to identify owners of dams. Regrid, a nationwide provider of accurate and current date parcel ownership and tax information is now being leveraged to streamline this effort. As a result of staff's efforts, the number of dams of regulatory size with unknown ownership has been further reduced from 812 initially, to 638 last year, to 376 currently.

Letters of Engagement:

DCR has sent "Letters of Engagement" to the owners of 401 dams considered to have the highest downstream risks. These "Letters of Engagement" are directly tied to the funding strategy identified in the Dam Safety, Flood Prevention and Protection Assistance Fund (DSFPPAF) grant manual approved by the Board in September 2021 and September 2022.

9/30/2021	127 letters issued for 100 dams (multi-owners)
12/17/2021	112 letters issued for 100 additional dams (multi-owners)
10/31/2022	211 letters issued for 201 additional dams (multi-owners)

The letters provided a specific pathway to compliance for dam owners and advised that as the owner of a regulated dam, dam owners were responsible for the safe design, construction, operation, and maintenance of the dam and must, at a minimum, have the following on file with DCR:

1. Annual Inspection Report (4VAC50-20-105(C)(2) and (E))
2. Dam Break Inundation Study to determine Hazard Classification (4VAC50-20-54)
3. Emergency Action or Emergency Preparedness Plan (4VAC50-20-175 and 4VAC50-20-177)
4. Operation and Maintenance Certificate (4VAC50-20-105 and 4VAC50-20-150)

Dam owners were advised that financial assistance would be available through the DSFPPAF grant to those who received a Letter of Engagement. Dam owners were encouraged to apply for all eligible categories under the 50/50 matching grant program. Dam owners who chose not to apply for grant funding were provided a specific timeline to provide the required documents to DCR.

A total of 100 dams submitted for cost-share grants. Dam owners submitted the following to DCR as a result of the letters of engagement: 91 O&M certificates, 90 inspections reports, 37 dam break inundation studies and 13 EAPs. Additionally, 43 dams submitted for ag-exemptions, and a number of dam owners or representatives responded in some manner to DCR but did not provide an official submission as requested by the letters.

Public Outreach:

From January 1st to August 30th, DCR Dam Safety Staff, primarily the Lead Engineer and Regional Engineer's public outreach activities can be summarized as follows:

Outreach / Communication Type	Members of Public
E-mail Discussion	245
Virtual Meeting	204
RE Site Visit	198
Phone Discussion	134
Correspondence	116
Training/Class	60
Meeting	58
In-Person Meeting	39
Emergency Communications	3
Ownership Discussion	1
Total	1,058

Additional activities as part of the Collaborative Technical Assistance are summarized as follows:

Thu 4/6/2023	FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance Virginia Kickoff (In-Person)
Fri 5/5/2023	FEMA One Off Session on CTA
Fri 5/5/2023	FEMA CTA Planning Team and VDCR Coordination Call
Mon 5/15/2023	Communities with Dams: Threats, Hazards, and Risk (Virtual: 2-hr Session) - FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance in Virginia
Tue 5/16/2023	VDCR/VDEM - FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance Virginia State Meeting (In-Person)
Wed 5/17/2023	Emergency Operations Center and Dam Tours - FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance in Virginia
Thu 5/18/2023	Aligning and Integrating Emergency Planning Documents - FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance in Virginia (In-Person)
Tue 5/23/2023	VDCR public education and outreach discussion
Wed 6/7/2023	Risk Communications and Public Outreach & Engagement - FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance in Virginia (Day 1)
Thu 6/8/2023	Risk Communications and Public Outreach & Engagement - FEMA's Preparing for Dam Related Emergencies Collaborative Technical Assistance in Virginia (Day 2)
Wed 6/28/2023	VA CTA Office Hours: Dam Incident Tabletop (TTX) Development (Virtual)

Additional outreach activities conducted in 2023:

- Flood Awareness Week: March 12-18, 2023
- Low Head Dam Awareness Month: April 2023
- Dam Safety Awareness Day: May 2023

Status Report on Key Initiatives:

1. Lake Accotink Dam Consulting Committee: Staff continues to work with the Office of the Attorney general to identify a path forward.
2. Local Government Pilot Project: Southampton County and City of Franklin: Staff continues to work with the Office of the Attorney general to identify a path forward.

Dam Incidents and Failures 2023:

Inventory Number	Dam Name	Hazard Class	County	Event Type	Event Date
081007	Smiths Dam	Unknown	Greensville County	Partial Failure	8/21/2023
145029	Sunfish Pond Dam	Low, Special	Powhatan County	Partial Failure	5/21/2023
103009	Lancaster County Dam #2	Unknown	Lancaster County	Total Failure	5/4/2023
059101	Springfield Golf & Country Club Lower Dam	Unknown	Fairfax County	Spillway Collapse	2/10/2023

Enforcement

At present, 18 dams are under enforcement; six of these are classified as high hazard, one as significant, two as low, and three as unknown.

In conjunction with the Letters of Engagement, the Department also is focusing on reenlisting dam owners with expired O&M Certificates. A total of 401 Dams with expired certificates were identified in all five regions. The hazard classification for these dams varies between High, Low, and Significant since no emphasis was put on hazard classification when identifying dams with expired O&M's. Once these dams were identified, telephone calls and emails were sent to the Professional Engineers for each dam in order for them to help with interpreting the letters to be mailed out to dam owners and to help explain options that may be available to them. Presently, DCR is working with regions 2,4, and 5. Out of these regions, 274 dams were identified as having an expired certificate. As of today, 64 of that 274 no longer have an expired O&M certificate or have either an agricultural or size exemption. Based on the Regional Engineers notes and communications with dam owners, 25 of the 274 are cooperating with DCR in renewing an active O&M Certificate. DCR will begin sending reminder letters to Regions 1 and 3 once the Regional Engineer positions have been filled.

The Kingsley Dam, located in Loudoun County, is owned by the Richard A. Rogers Trust and is represented by the owner's Trustees. The Trustees reached out to their Delegate, the Hon. Dave LaRock, with questions regarding the Dam's hazard classification as "Significant" rather than "Special Low Hazard." DCR staff met with the Trustees and addressed their questions, and the classification issue was resolved. The Trustees have submitted an application for a Certificate and alteration permit to make needed upgrades and repairs to the Dam. DCR issued a Conditional Certificate to the dam owner on July 31, 2023, and the enforcement case was closed.

Additional Activities:

The following activities are currently underway in the division and directly impact the results above:

- **DSS-WISE Lite:** DSS-WISE Lite is a web-based dam-break flood inundation modeling and mapping service available 24/7 to Federal, State, and Local dam safety officials through a cluster maintained by the National Center for Computational Hydroscience and Engineering (NCCHE) at the University of Mississippi. Dam

Safety received the final deliverable in February 2023, which integrated 1-meter statewide topographic data into DSS-WISE and provided an improved computational resolution. A custom toolset for analysis and cartographic production was developed and documented by DCR Dam Safety staff. Datasets, models, and DSS-WISE training were provided to the two Mapping Engineers positions. These tools leverage DSS-WISE analysis results and streamline the creation of Screening-Level Dam Break Inundation Study Maps.

- **Dam Safety Inspection App:** DCR is working with GeoDecisions to develop and deploy a dam safety inspection app that will allow inspections to be primarily completed and automatically uploaded into DSIS. This application will reduce the administrative burden for dam owners and engineers in completing the inspection. The app should also reduce the overall time necessary to complete inspections and may reduce costs for dam owners. With increased efficiency, it is anticipated owners will be able to provide condition assessments more readily for dams where condition assessments are missing. DCR has completed upgrading its servers and ESRI technology needed to support development. The application was successfully deployed on 5/26/2023.
- **Grant Application:** NOAA Dam Removal and Fish Passage Restoration Notice of Funding Opportunity under the IIJA: DCR submitted a grant application to remove two dams along Cedar Creek located on the property of Natural Bridge State Park in Rockbridge County, VA. This project has three objectives: 1) decommission Natural Bridge Dam #4 and Natural Bridge Dam #5 so that they no longer pose a potential failure and flood risk downstream of the dams; 2) eliminate potential hazard to aquatic species because of sedimentation; and 3) re-establish the natural aquatic and riparian systems that existed prior to dam construction. The removal of unsafe dams furthers the mission of the department to protect public safety.

Removal of Natural Bridge Dam #5 and Natural Bridge Dam #4 will fully open approximately 30 miles of Cedar Creek to aquatic species. DCR collaborated with DWR and FWS on the application. This is a 100% federal grant. DCR requested \$9,671,226.

US Fish and Wildlife Services (USFWS) received requests that far exceeded the available funding. As of March 2023, DCR's proposed dam removal projects did not move forwards for funding consideration and national review. At this time DCR has not pursued revising the application and reapplying for a subsequent NOFO, but may consider doing so in the future.

Funding and use plan for increased funding in the budget

- **Dam Safety, Flood Prevention and Protection Assistance Fund:** \$10,000,000. Per Section 10.1-603.19 F of the Code of Virginia "[t]he total amount of expenditures for grants in any fiscal year shall not exceed 50 percent of the total

non-interest or income deposits made to the Fund during the previous fiscal year, together with the total amount collected in interest or income from the investment of monies in the Fund from the previous fiscal year as determined at the beginning of the fiscal year.”

While \$10,000,000 will be deposited into the Fund during SFY2023, funds will not be eligible for grant award until SFY2024. In SFY2024 up to \$5M will be used for grants and loans to address all non-compliant dams, including the more than 1,800 dams of regulatory size without a hazard classification. Where appropriate and allowable, funds will be used to leverage and reduce match requirements for federal funding for dam safety projects. Funds will also be used to continue the support of agency needs in the administration of the program including personnel, contractual services, and emergency dam removals.

- **American Rescue Plan Act Funds:** \$10,000,000. Per 2022 Special Session I Budget amendments - HB30 (Conference Report) Bill Order » Item 486 #25c Water Impoundment Structures Central Appropriations, provides funds to the Department of Conservation and Recreation for improvements to privately owned high-hazard dams across the Commonwealth.

Four million (\$4M) of ARPA grant funds was announced for application on November 1, 2022 under the Dam Safety, Flood Prevention and Protection Assistance Fund. Due to potential greater availability of non-state funding during the SFY2024 application period, remaining funds are reserved to maximize the Commonwealth’s ability to match and leverage future federal funds, including Infrastructure Improvement and Jobs Act funding. Up to \$6M will be offered in SFY24 for dam safety projects.

- **National Dam Safety Program (NDSP):**
DCR made application for the SFY24 application cycle of the NDSP State Assistance Grant and is awaiting FEMA’s award announcement. The total funding opportunity across 50 state dam safety programs was \$6,250,000. Virginia is expected to be awarded \$207,397. The decrease from last year’s award is a result of the Infrastructure Investment and Jobs Act (IIJA) fund source being removed from this round of the State Assistance Grant. FEMA is expected to announce a NOFO for an additional round of the State Assistance Grant program consisting of the IIJA funding source. A forecasted award of \$873,324 has been proposed to Virginia from a total fund pool of \$26,328,000.

Per the IIJA, \$148,000,000 of the amounts made available in this Act shall be for grants to States pursuant to section 8(e) of the National Dam Safety Program Act (33 U.S.C.467f(e)). The NDSP is allocated based on total number of all regulated dams for all programs relative to the number of dams regulated by each state. Based on current estimates over a five-year allocation period, this will translate to over \$900,000 per year or \$4.5M over five years. If the allocation period is extended to eight years, the annual allocation will be approximately \$560,000 per year. This

increased funding will allow DCR to hire additional engineering staff to support the mapping and regulatory efforts of the department and aid the departments OKR efforts.

High Hazard Potential Dam Program (HHPD): Per the IIJA, \$585,000,000 of the amounts made available in this Act shall be for grants to States pursuant to section 8A of the National Dam Safety Program Act (33 U.S.C. 467f–2), of which no less than \$75,000,000 shall be for the removal of dams: Provided further, That dam removal projects shall include written consent of the dam owner, if ownership is established. Maximum funding available in previous years has ranged from \$10M to \$22M annually.

The HHPD is allocated based on total number of regulated dams in poor or unsatisfactory condition for all applicants relative to the number of regulated dams in poor or unsatisfactory conditional for each applicant. Eligible dams must also have a known and documented Dam Safety Deficiency and not solely have a poor or unsatisfactory condition due rating to deferred maintenance. This increase in funding and the identification of new high hazard eligible dams will drive additional funding to the Virginia Dam Safety Program. The amount will be dependent upon the number of other states that apply. DCR intends to use the DSFPPAF and ARPA funding to offset 50% of the dam owner match to expand the number of owners who are able to bring dams into compliance.

Virginia participated in a HHPD Risk Screening pilot program organized by FEMA and their technical services contractor: Advancing Resilience in Communities (ARC). As part of this program, ARC contractors utilized a new Risk Screening toolbox on a subset of HHPD grant eligible dams in the state. The toolbox includes a Risk and Project Prioritization tool, and a Dam Screening Tool. The tools are under ongoing development and being reviewed for feedback by national industry experts. They provide excellent information and utility in the current state as demonstrated.

Virginia has requested FEMA early access to the Risk Screening tool to beta test them and prepare for the FY2023 HHPD Grant. DCR has begun engaging with our contracting office to hire Engineering Services to conduct risk screening evaluations for all grant eligible HHPD dams. The project will be funded by the IIJA portion of the 2022 NDSP State Assistance grant.

The project will ultimately prioritize grant funding awards across competitive dam sub-applicant projects through a risk screening lens. This information will be provided to FEMA as part of the second application phase of the FY2023 HHPD dam grant process.

Lastly, in anticipation of the FY2023 HHPD Grant, DCR issued a notice to potentially eligible dam owners to return a letter of interest of which 25 dam owners returned.

Soil and Water Conservation District (SWCD) Dams: Eight (8) SWCD high hazard dams are slated to begin or complete rehabilitation by 2028. General fund appropriations of \$15M in SFY2021 and \$45M in SFY2023 are available for this effort.

One dam is to begin construction Fall 2023, and a second dam will begin sometime in the spring or summer of 2024. Both of these are utilizing the \$15 M awarded in SFY2021.

NRCS has committed design funding (approximately \$865,000) for one more of the above mentioned eight dams and the engineering firm has been selected. Three additional applications for planning funding have been submitted to NRCS. The current funding, \$15M and \$45M, will fund approximately 12 dams total to completion of rehabilitation. There are three phases to the rehabilitation process. Planning, design and construction. Each phase takes about 2 years to complete, so it takes approximately 6 years to complete a rehabilitation. The above mentioned 8 dams should be completed by 2028, and the four additional dams should be completed by 2034.