

Edenville Dam Failure

Frequently Asked Questions

INTRODUCTION

EGLE assumed regulatory authority for the 96-year-old Edenville Dam in late 2018 after its license to generate hydropower was revoked by the Federal Energy Regulatory Commission.

EGLE was working with a local stakeholders group to facilitate their purchase of the dam from its owner, Boyce Hydro. That group, the Four Lakes Task Force (FLTF), had aggressive plans to upgrade the dam and reacquire its federal hydropower generating license. That purchase was imminent when the failure occurred.

In October of 2018, shortly after being handed regulatory oversight, EGLE conducted an initial visual inspection, finding that the dam was in fair structural condition. That preliminary assessment was not intended to determine if the dam met state safety standards. EGLE had concerns that the dam might not have enough spillway capacity – which allows water to flow out of the Wixom Lake impoundment – to meet state requirements, and therefore was awaiting comprehensive structural assessment of the dam to help determine if it met state spillway, and other, safety requirements. That study had not been received by EGLE prior to the dam failure. It was received in early June, and confirmed the spillway did not meet state standards

An [independent investigative team](#) has been tasked with an investigation into the causes of the Edenville failure, Gov. Gretchen Whitmer has also ordered EGLE to review dam safety policies, procedures, protocols and funding and recommend ways to enhance dam safety in Michigan.

Michigan has approximately 2,523 dams. Of those, 1,153 are regulated by either state (1,059 state) or federal (92) agencies. Some 1,370 smaller dams are not regulated. Of regulated dams, 803 are privately owned and 350 are publicly owned.

What happened?

On May 19, 2020, the Edenville and Sanford Dams, which are part of a four-dam system near Midland, failed. The failures forced the evacuation of thousands of residents and created catastrophic flooding and property losses. The two other dams on the same river system, the Smallwood and Secord dams, were damaged. The dams were unable to manage water flows that resulted when storms dropped as much as eight inches of rain over 48 hours in parts of Northeast Michigan.

Who regulates the dams?

Each of the four dams are hydroelectric dams, and until September 25, 2018, all four dams were regulated exclusively by the federal government, through the Federal Energy Regulatory Commission (FERC). On September 25, 2018, FERC revoked the federal license to generate power at the Edenville Dam because, for more than 14 years, the owners of the Edenville Dam refused—among other things—to follow FERC's orders to increase the dam's spillway capacity to handle severe floods. At that point, regulatory authority over Edenville Dam transferred to the Department of Environment, Great Lakes, and Energy (EGLE).

Why did the dams fail?

The failures are currently under investigation. Independent, third-party experts are examining factors including spillway capacity—the issue FERC had warned the owners about for more than 14 years – in conjunction with historic levels of rainfall. The dam failure released a large amount of water that appeared to overpower the Sanford Dam downstream.

Who owns the Edenville Dam?

All four dams, including Edenville, are privately controlled by Lee Mueller, who owns and operates them through a number of LLC entities including Boyce Hydro Power, and family trusts.

What steps did the state take to ensure the safety of the Edenville Dam since October of 2018?

Prior to 2018, EGLE had no regulatory authority over the operation and maintenance of the Edenville Dam. When regulatory authority was abruptly transferred to the state from FERC, EGLE began by receiving and reviewing decades worth of records and inspection reports that had been previously unavailable because they were protected under federal critical infrastructure laws. During the subsequent 18 months, EGLE:

- Completed an initial inspection of the structure that assessed its current condition (it did not assess its capacity to meet state safety standards)
- Started the review of decade's worth of federal files, reports, recommendations, correspondence, inspection records, purchase agreements, streamflow data, etc.
- Maintained a constant dialogue with the owner and consultants to obtain information and analysis critical to determining the dam's ability to meet state regulations
- Worked with local stakeholders group, the FLTF, to facilitate their efforts to purchase the dam, and to undertake safety upgrades that would allow it to re-obtain the federal hydroelectric power license revoked from Boyce Hydro.
- Requested from FLTF a comprehensive analysis of the dam's structural integrity and ability to meet state safety rules that was to be completed in March of this year. That report was the critical step in determining whether the structure was capable of meeting the state standard for spillway flow – the method of relieving pressure on the dam. EGLE had not received that report from the owners at the time the dam failed.

Why didn't EGLE act to force Boyce Hydro Power to improve the dam's capacity to withstand the effects of such a massive rainstorm?

EGLE did not have access to the records controlled by FERC for decades, until the fall of 2018, so it had no factual basis to take legal action under state law until those records could be reviewed. But at the same time, local residents and governments had already organized themselves to purchase the dams from Boyce. These residents and local governments hoped to make improvements to the Edenville Dam that would meet FERC requirements so that they could operate the dam as a FERC-regulated hydroelectric dam, in order to produce income to maintain and operate the dam safely. The efforts of the local residents and governments, with assistance from EGLE, resulted in the formation of the FLTF, which—with help from a \$5 million grant from the State—signed an agreement to purchase the Edenville Dam. The FLTF also sought to obtain a court order mandating that the level of Wixom Lake be maintained at the historic levels and developed a construction plan to increase the spillway capacity of Edenville Dam. Unfortunately, tragedy struck before those plans could be fully realized.

Hadn't it already been determined that the dam was deficient under state standards?

Not conclusively.

- The initial, 2018 EGLE inspection rated the dam's existing infrastructure as in "fair" condition, but at that time EGLE did not have the decade's worth of records held by FERC necessary to conclude whether the adequacy of that infrastructure met state standards, including whether spillway flow was adequate.
- By late January 2020, EGLE staff, based on a review of data and records held by FERC, had reached a preliminary conclusion that the dam likely did not meet the state spillway flow requirement. But that conclusion differed from that of the dam's owner and consultant, who suggested it did meet the requirement.
- The independent consultant's report, scheduled to be submitted in March, would have confirmed EGLE's preliminary determination. At that point EGLE may have had enough data to determine if improvements to the spillway were necessary for the purposes of the state standards, and to take necessary enforcement action. Enforcement action would have involved issuance of EGLE orders, and subsequent court review, that would have taken months, if not years.
- During the same time period the FLTF entered into a purchase agreement with Boyce. The group planned to increase the spillway capacity of the Edenville Dam regardless of state law requirements. Because the FLTF intended to obtain a license from FERC to generate electricity using the Edenville Dam it would have been necessary to satisfy FERC regulations, including increasing the dam's spillway capacity.

Are federal rules for spillway flow more stringent than the State of Michigan's?

Yes. FERC regulations require dam spillways be able to manage 100 percent of a probable maximum flood. The state only requires it meet half that.

Who sets the state standard?

The state standard is set by statute, Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act, MCL 324.31501 et seq. Like all statutes, Part 315 was passed by the Legislature. EGLE is bound by those standards and the enforcement mechanisms provided by the Legislature.

What enforcement action did the state take against the dam owners in regard to the destruction of natural resources?

Boyce Hydro/Lee Mueller illegally lowered the level of Wixom Lake during the winters of 2018 and 2019, killing or harming wetland habitats, fish and other aquatic life, including an endangered species of freshwater mussel. The owners raised the level of Wixom Lake to the legally required levels in the spring after each drawdown. (In the spring of 2019 the level was mandated by FERC, in the spring of 2020, the same level was mandated by an order of the Midland and Gladwin County Circuit Courts). The State sued Boyce earlier this year because of the massive damage the illegal drawdowns in the winter of 2018 and 2019 caused. When the lawsuit was filed in May of 2019, Boyce had already raised the level of Wixom Lake as required by the Midland and Gladwin Circuit Court orders sought by the FLTF. The State's lawsuit did not and does not seek to compel the owners to maintain a certain level on Wixom Lake - only to preclude future, uncontrolled draining of the lake.

Did the action to protect the resources impact the dam's ability to safely operate?

No. The illegal water drawdowns were during cold-weather months when rainfall/flooding risks aren't present. The suit was over damages from 2018 and 2019 and did not affect the operation of the dam in 2020. The owners had already raised the level of Wixom Lake to the level required by a court order before the State filed suit.

Why was the water level raised several feet in the weeks prior to the failure?

The FLTF, in conjunction with Midland and Gladwin County officials, had obtained a court order requiring Wixom Lake to be maintained at the same level FERC had historically required. The court-ordered legal lake level was designed to maintain Wixom Lake at a level that was safe, preserve the property values of lakefront property owners, and provide recreational opportunities for boaters, anglers, and others. Boyce Hydro also needed a permit under Part 301, Inland Lakes and Streams, of the NREPA, MCL 324.30101 et seq, and sought a permit from EGLE to raise the level, which EGLE granted.

Who decided on the appropriate lake levels?

Wixom Lake's levels are set by order of Midland and Gladwin County Circuit Courts.

Who will investigate the dams' failures?

An [independent investigative team](#) is conducting a forensic investigation looking at all potential factors in the failures. That team – which has extensive experience in such investigations – was put in place in June and could take up to 18 months to file a complete analysis.

What role will EGLE have in the investigation?

With the selection of the investigative team, EGLE's only role is to provide information and resources as requested. Neither EGLE, FERC, nor Boyce Hydro will have any input into the investigation or its findings.

Michigan's Environmental Justice Policy promotes the fair, non-discriminatory treatment and meaningful involvement of Michigan's residents regarding the development, implementation, and enforcement of environmental laws, regulations, and policies by this state. Fair, non-discriminatory treatment intends that no group of people, including racial, ethnic, or low-income populations, will bear a disproportionately greater burden resulting from environmental laws, regulations, policies, and decision-making.

Meaningful involvement of residents ensures an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health.