

Utah's High-Hazard Dam Emergency Action Plans

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What is an Emergency Action Plan (EAP)?

Emergency Action Plans are **legally mandated documents** for moderate-hazard and high-hazard dams that **outline the actions to be taken in the case of an emergency** involving a dam, including a dam failure.

Relevant Policy

- Utah State Legislature Code 73-5a-601: “**The owner of any dam which**, in the state engineer's opinion, **may pose a threat to life or cause significant damage** to property if it fails **shall prepare a plan of action** to be implemented when an emergency involving the dam occurs.”¹
- Utah Office of Administrative Rule R655-12-6A describes the **required content of an EAP**, including:
 - “a notification flowchart
 - a dam failure inundation map
 - procedures to identify possible emergencies
 - a list of available materials, equipment, and manpower.”²

EAP Research & Methods

Our team is assessing the revision status and inclusion of downstream vulnerabilities for 189 high-hazard, state-regulated dams in the State of Utah.



EAP Revision Status.

We examined the date of last revision for each EAP.



EAP Content Analysis.

Using a Social-Ecological-Technological Systems (SETS) framework, we analyzed the extent to which vulnerabilities downstream of a dam are acknowledged in that dam's EAP.

Social, ecological, and technological vulnerabilities refer to potential impacts on people or communities, protected areas, and critical infrastructure.

¹ Utah Code § 73-5A-601 (2025). <https://le.utah.gov/xcode/Title73/Chapter5A/73-5a-S601.html>

² Natural Resources, Water Rights R655 Utah Office of Administrative Rules § 12 (2016). <https://adminrules.utah.gov/public/rule/R655-12/Current%20Rules>

① Emergency Action Plan Revision Status

Most Emergency Action Plans are Not Updated Annually

Out of 189 dams, 65 dams (34%) have EAPs that are older than 10 years old (Figure 1). As of July 6, 2026, 43 dams (23%) had EAPs that were updated since January 1, 2025, and **only 32 dams (17%) had EAPs that were updated within the last 365 days**. There is no legal requirement for how frequently EAPs should be updated, but the Utah Division of Water Rights advises that “plans should be exercised and updated annually.”³

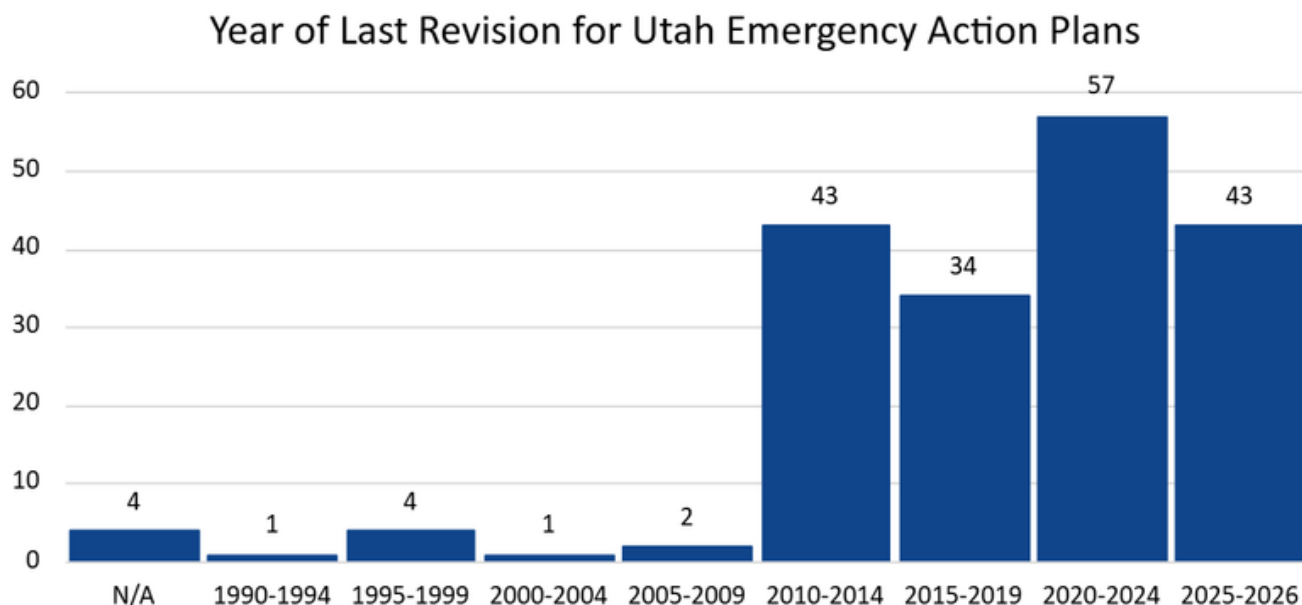


Figure 1. Number of high-hazard dams in Utah grouped by year of latest emergency action plan update. Any update to an EAP, regardless of the extent of the revision or completeness of the uploaded document, was counted as an EAP’s most recent revision. EAPs and updates were obtained from the Utah Division of Water Rights DAMVIEW Dam Safety Database Information Viewer.

② Emergency Action Plan Content Analysis

Methods to Determine Vulnerability Representation in EAPs

Identify **social, ecological, and technological** vulnerabilities in the inundation zone.

Search **EAPs** for mentions of relevant vulnerabilities.

Determine the **extent to which EAPs acknowledge** relevant vulnerabilities.

³ Utah Department of Natural Resources: Dam Safety Section. (2019, June 12). Internal Incident Monitoring Procedures Manual. <https://waterrights.utah.gov/daminfo/emergency.pdf>

Identifying Vulnerabilities in the Inundation Zone and EAPS

There is some variation in how vulnerabilities are acknowledged in emergency action plans. In this analysis, either the vulnerability can be **explicitly identified by name or managing agency** or it can be **implicitly referenced**.

Downstream Vulnerabilities	Social	Ecological	Technological
Represented As...	People or Communities	Protected Areas	Critical Infrastructure
Examples of Mentions in EAPs	"Save people" or "Town of Brighton"	"Zion National Park" or "National Park Service"	"I-15" or "Utah Department of Transportation"

Mention of Vulnerabilities Varies in EAPs.

People and Communities are often mentioned. Critical Infrastructure is mentioned in over two-thirds of EAPs. Protected Areas are rarely mentioned.

Downstream Vulnerabilities	Dams with Vulnerability in Inundation Zones	Percent Dams that Mention Vulnerability in EAPs	
		Any Mentioned	All Mentioned
Communities	170 (90%)	93% (n=155)	63% (n=104)
People	186 (98%)	100% (n=182)	Not Relevant
Critical Infrastructure	175 (92%)	68% (n=117)	12% (n=20)
Protected Areas	59 (31%)	24% (n=14)	21% (n=12)

Figure 2. The second column of the table shows the count of dams with specific vulnerabilities—social (people or communities), ecological (protected areas), and technological (critical infrastructure)—in their inundation zones. The third and fourth columns show the percent of dams with emergency action plans that acknowledge either *any* vulnerability or *all* identified vulnerabilities found in the dam’s inundation zone.

Summary

- 1
- Emergency action plans for Utah’s high-hazard dams are **largely out of date** and **not updated annually**.
- 2
- While social vulnerabilities are highly represented in EAPs, **there could be greater acknowledgement** (with greater specificity) **of other downstream vulnerabilities**.

