



# EAP REVIEW REPORT

## MURPHYS WASTEWATER DAM

CALAVERAS COUNTY, CALIFORNIA (38.127637°, -120.462229°)

REPORT DATE	PROJECT NAMES	JURISDICTIONS IMPACTED	EAP REVISION DATE
Report #3 February 3, 2023	Murphys Wastewater Dam, No. 2024.000; NID No. CA01185	Calaveras County City of Angels Camp	January 2023

### INTRODUCTION

The California Department of Water Resources, Division of Safety of Dams (DSOD), has classified the downstream hazard potential of Murphys Wastewater Dam as High. A **High Hazard** Potential is expected to cause the loss of at least one human life.

Murphys Sanitary District (MSD) owns and operates Murphys Wastewater Dam, located in Calaveras County.

Murphys Wastewater Dam was built in 1980 and was constructed out of earth fill material. The dam is 24 feet tall with a width of 590 feet.

The purpose of Murphys Wastewater Dam is water storage for wastewater treatment.

A failure of Murphys Wastewater Dam would impact the jurisdictions of Calaveras County and the City of Angels Camp. A failure of Murphys Wastewater Dam was analyzed, and less than 500 feet downstream of the dam the ground elevation is higher than the dam's maximum possible storage elevation. This hill restricts the breach flow out of the main dam and prevents water from continuing downstream. The inundation will stay close to the dam within Calaveras County.

Murphys Wastewater Saddle Dam (West Dike) is identified by DSOD to be a critical appurtenant structure (CAS) based on potential downstream impacts. The West Dike has larger impact downstream and affects a different watercourse. A failure of the saddle dam (West Dike) is expected to affect 13 crossings, two roads, and 8 structures. A West Dike failure will impact the town of Murphy's, the City of Angels Camp both located in Calaveras County.

There have been no incidents that have occurred during the history of the dam.

Murphys Wastewater Dam has a storage capacity of 140 acre-feet. The spillway is a 24-inch reinforced concrete pipe with four-foot square weir box inlet, and it has a discharge capacity of approximately 47 cubic feet per second (cfs). The outlet is a 12-inch diameter steel pipe with an inlet and outlet. Discharges from both the spillway and outlet are impounded by three downstream dams: Ironstone Dam (0.7 miles downstream), Jackson Rancheria Dam 1 (2.2 miles downstream), and Jackson Rancheria Dam 2 (3 miles downstream).

The downstream channel capacity in the unnamed channel adjacent to 6 Mile Road, between 6-mile Creek and the concrete-lined channel downstream of the outlet pipe through the West Dike, is approximately 10 (cfs) to 50

cfs. The first infrastructure that would be affected by rising flow appears to be the first driveway on the south side of 6 Mile Road, approximately 300 feet from the West Dike.

There are no dams upstream from Murphys Wastewater Dam. There are four dams downstream. They are Ironstone Dam, Jackson Rancheria Dams 1 and 2, and New Melones Dam. A West Dike failure is also anticipated to cause sequential dam failure of Ironstone Dam and Jackson Rancheria Dams 1 and 2.

**REVIEW SUMMARY**

The intent of an Emergency Action Plan (EAP) is to identify potential emergency conditions at the dam and specify actions to be followed to minimize loss of life and property damage. An EAP will contain procedures and information to assist the dam owner, impacted jurisdictions, and downstream emergency management authorities in areas such as the coordination of early warning and notification messages of the emergency situation. In addition, inundation maps are included to identify the impacted areas that may require action by local public safety agencies in case of an emergency.

As required by California Water Code Sections 6160 and 6161, the California Governor's Office of Emergency Services (Cal OES) is responsible for reviewing and approving EAPs to ensure that they are developed in accordance with the legislative requirements and Section 8589.5 of the California Government Code. It is important to note that the level of detail in an EAP should be commensurate to the potential impacts of a dam failure or operational incident, and that an EAP is effective for emergency planning and response.

The purpose of this report is to notify the dam owner if Cal OES has identified statutory deficiencies that must be corrected, prior to obtaining Cal OES approval (see Table 1. Required Changes). Also, if Cal OES identifies areas for improvement based on federal guidelines it will be reflected in Table 2. Opportunities for Improvement. Dam owners will have the opportunity to incorporate these options for consideration; however, approval will not be contingent upon making these changes.

**TABLE 1. REQUIRED CHANGES**

#	ID	ELEMENT/TOPIC	ISSUE	REQUIRED CHANGE	REFERENCE
1.		Approval	Dam owner has addressed the deficiencies outlined in EAP Reports #1 and #2.	No additional required changes.	

**TABLE 2. OPPORTUNITIES FOR IMPROVEMENT**

#	ID	ELEMENT/TOPIC	ISSUE	RECOMMENDATION	REFERENCE
1.	4.1	Project Description	Difficult to read project description.	Recommend enlarging the storage capacity, currently it's difficult to read.	<i>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. 11-5 to 11-6</i>

## **CONCLUSIONS/RECOMMENDATIONS**

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Cal OES conducted a review of Murphys Wastewater Dam, No. 2024.000, Emergency Action Plan (EAP), which is owned and managed by the Murphys Sanitary District. Overall, the plan provides sufficient information on the required key elements identified in Government Code Section 8589.5. The majority of the sections listed within the EAP are well developed and include useful information such as the project description, notification flowcharts, and general responsibilities. In addition, we have included a list of all the prior deficiencies identified by Cal OES that have been addressed by the dam owner in Appendix A.

Please note that the dam owner is responsible for EAP dissemination to the appropriate public safety and emergency management agencies as required by Water Code Section 6161, subdivision (b)(3). Also, be advised that dam owners are responsible for ensuring that the plan is updated if there are any significant modifications or changes to flood inundation areas, downstream developments, or in the reservoir, as outlined in Water Code Section 6161, subdivision (e). Lastly, at least once annually, dam owners must conduct notification exercise(s) for the EAP to ensure that contact information is up-to-date.

## **CONTACT INFORMATION**

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## APPENDIX A. DEFICIENCIES ADDRESSED BY DAM OWNER

#	ID	ELEMENT/TOPIC	ISSUE	CORRECTION	REFERENCE
1.	A	Front Matter	Lacks critical information on front page.	<p>Include to front page:</p> <ul style="list-style-type: none"> <li>• Physical address</li> <li>• Latitude/longitude</li> <li>• County</li> <li>• Dam owner</li> </ul>	<i>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-3</i>
2.	B	Front Matter	Lacks critical contact information.	Recommend adding Dan murphy's email to the primary contact and the 24hr contact.	<i>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-3</i>
3.	B	Front Matter	Lacks critical contact information.	Provide email for Operator Contact: (Clay Onstad).	<i>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-3</i>
4.	D	Front Matter	FOUO Markings Throughout the EAP.	<p>Remove all FOUO markings on page 38, as it prohibits information sharing among impacted public safety agencies.</p> <p>Note: It Can Say Something Like: "Confidential – Not For Public Release".</p>	<i>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-3</i>
5.	1.2(a)	Introduction	Lacks local public safety agencies.	<p>Include the local public safety agencies part of the development process:</p> <ul style="list-style-type: none"> <li>• Murphys Police</li> <li>• Murphys OES</li> <li>• Angels Camp Fire</li> <li>• Angels Camp OES</li> </ul>	<i>Government Code Section 8589.5</i>

#	ID	ELEMENT/TOPIC	ISSUE	CORRECTION	REFERENCE
6.	1.2(b)	Introduction	Lacks outreach and participation to local public agencies.	<p>Outreach/consultation efforts must be summarized in the EAP including but not limited to the following:</p> <ul style="list-style-type: none"> <li>• Murphys Police</li> <li>• Murphys OES</li> <li>• Angels Camp Fire</li> <li>• Angels Camp OES</li> </ul> <p>Outreach includes contacting each agency during the EAP development process to provide them the opportunity to review the EAP and provide feedback.</p> <p><b>Note:</b> the outreach has to be conducted within 2 years for the plan to be approved. Most of the outreach is noted to have been completed around October 2020.</p>	<i>Government Code Section 8589.5</i>
7.	2.1	Summary of EAP Responsibilities	Lacks Dam Owner's Responsibilities.	<p>Include dam owner's responsibilities:</p> <ul style="list-style-type: none"> <li>• Updating the EAP on an annual basis</li> </ul>	<i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3, II-10 to II-11, B-1, B-2</i>
8.	2.2	Summary of EAP Responsibilities	Lacks identification of responsibilities.	<p>Identify critical roles and responsibilities for impacted public safety agencies identified in the EAP.</p> <ul style="list-style-type: none"> <li>• Murphys Police</li> <li>• Murphys OES</li> <li>• Angels Camp OES</li> </ul> <p><b>Note:</b> Angles Camp Fire is included in the responsibilities, but no outreach has been conducted.</p>	<i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3, B-1</i>

#	ID	ELEMENT/TOPIC	ISSUE	CORRECTION	REFERENCE
9.	2.2	Summary of EAP Responsibilities	California State Warning Center (CSWC) responsibilities.	<p>Replace current California State Warning Center (CSWC) responsibilities with:</p> <p>The mission of the CSWC is to be a central intelligence hub for statewide emergency communications and notifications, serving as a highly reliable and accurate "one-stop" resource for emergency management, law enforcement, fire, and key decision-making personnel throughout the state.</p> <p>The CSWC is staffed 24 hours a day, seven days a week watching over California to identify potential and emerging threats, provide alert notification to all levels of government as well as critical situational awareness during an emergency or disaster.</p> <p>The CSWC has the responsibility to receive, coordinate, verify and disseminate information pertaining to events which occur within California or that could affect California.</p> <p>Information received by the CSWC is coordinated between Cal OES and other sources to ensure that the information which is disseminated is both timely and accurate.</p>	<p><i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3, B-1</i></p>
10.	2.2	Summary of EAP Responsibilities	Lacks Identification of all Impacted Communities/ Jurisdictions.	<p>List critical roles and responsibilities for all impacted public safety agencies including:</p> <ul style="list-style-type: none"> <li>• Angels Camp fire</li> </ul>	<p><i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3, B-1</i></p>

#	ID	ELEMENT/TOPIC	ISSUE	CORRECTION	REFERENCE
11.	3.1	Notification Flowcharts	Lacks Emergency Levels on Notification Flowchart.	<p>Include contacts for timely notification of all local emergency management and public safety agencies for <b>all four</b> emergency levels (Non-Failure, High Flow, Potential Failure, Imminent Failure).</p> <p>Clarify who is the dam operator- contradicting information from the General Information is it Russ Davis and Greg Mangrum or is it Dan Murphy and Clay Onstad?</p> <p>Note: Russ Davis and Greg Mangrum are also listed as owner and operator for James porter dam, could this be a typo?</p>	<p><i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3 to II-5, C-1</i></p>

12. 3.1	Notification Flowcharts	Lacks Emergency Levels on Notification Flowchart.	<p>There are three MSD staff personal listed as making calls, however, there are only two identify. Identify the 3rd person.</p> <p>Clarify this sentence, "Because their level of involvement is dependent upon emergency level and anticipated impacts, they will not be notified for all emergency levels at the dam." Are they only going to be notified for all emergencies with the CAS (West Dike)?</p> <p>Clarify this sentence, "All agencies that are to be contacted only for imminent failure of the West Dike have agreed to this."</p> <p>Angels Camp Fire must agree to this statement during outreach. "City of Angels Camp will coordinate with Angels Camp Fire, so Angels Camp Fire is not included in the Notification Flowchart"</p> <p>Angels Camp OES must agree to this statement during outreach "City of Angels Camp is listed instead of Angels Camp OES per the request of Angels Camp PD."</p> <p><b>Note:</b> Each agency must review the plan and provide their own feedback. Feedback received from another agency pertaining to a different agency, must be verify and agree buy say agency.</p> <p>Confirm with Calaveras County OES to ensure they will be assisting with subsequent calls. Calaveras County must agree to make the subsequent calls. Since they have not responded to the emails, they need to be contacted again and asked to</p>	<p><i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3 to II-5, C-1</i></p>
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13.	3.2	Notification Flowcharts	Lacks critical local public agencies.	<p>provide feedback or agree to all of their responsibilities listed on the EAP.</p> <p>The following entities need to be included on the flowchart(s) for all emergency levels:</p> <ul style="list-style-type: none"> <li>• Murphys Police</li> <li>• Murphys OES</li> <li>• Angels Camp Fire</li> <li>• Angels Camp OES</li> </ul> <p><b>Note:</b> If there are agencies that do not wish to be part of the notification flowchart(s) but are part of the impacted areas, this information must be summarized in the EAP.</p>	<p>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-3 to II-5, C-1</p>
14.	4.1	Project Description	Lacks Critical Information.	<p>Include in the project description:</p> <ul style="list-style-type: none"> <li>• Incident history</li> <li>• Upstream</li> </ul>	<p>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-5 to II-6</p>
15.	4.1	Project Description	Lacks Critical Information.	<p>Include in the project description:</p> <ul style="list-style-type: none"> <li>• Downstream dams (New Melones)</li> </ul>	<p>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-5 to II-6</p>
16.	5.2 (a)	EAP Response Process	Lacking information regarding contacts on the flowcharts.	<p>Include all agencies listed on the flowcharts:</p> <ul style="list-style-type: none"> <li>• Murphys Police</li> <li>• Murphys OES</li> <li>• Angels Camp Police</li> <li>• Angels Camp OES</li> </ul>	<p>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-9</p>

#	ID	ELEMENT/TOPIC	ISSUE	CORRECTION	REFERENCE
17.	5.5	EAP Response Process	Lacks Information on Follow-up.	An after-action report should be created regarding the emergency level. Not only when the event escalates to Potential Failure or greater.	<i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-10</i>
18.	6.2	General Responsibilities	Lacks Information on Notification and Communication.	Notification and communication responsibilities should include notification of the National Weather Service (for flash flood watches and warnings), communication with the Emergency Operations Center, and interaction with the media.	<i>FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-11 to II-12</i>
19.	7.3	Preparedness	Lacks a Clear Alternate Route.	Clearly identify any locked gates.	<i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-16</i>
20.	7.9	Preparedness	Lacks List of Stockpiled Emergency Supplies.	Elaborate to provide a justification as to why there are no stockpile materials.	<i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pg. II-17</i>

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21.	7.10	Preparedness	Lack of Coordination with Entities.	<p>Include coordination with:</p> <ul style="list-style-type: none"> <li>• Actions to lower the reservoir</li> <li>• Actions to reduce inflow to the reservoir (from upstream dams or control structures)</li> <li>• Actions to reduce downstream flows (from downstream dams or control structures)</li> <li>• Coordination with other dams/control structures should include instructions for contacting the operators and how these actions should be taken.</li> </ul> <p>Identify the dam owners for the following downstream dams: Ironstone Dam, Jackson Rancheria Dam 1, and Jackson Rancheria, Dam 2, and New Melones.</p>	Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-17 to II-18
22.	7.11	Preparedness	Lacks Information on Annual Exercise.	<p>Confirm that the annual exercise meets the California Government Code 8589.5.</p> <p>Example: In compliance with the California Government Code 8589.5.</p>	Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. II-18 to II-19, H-3
23.	8.2	Plan Maintenance	Lacks Contact Information for Plan Holders.	<p>Clearly state that all people in the notification flow charts will receive a plan.</p> <p>On Appendix C include Angels Camp fire .</p>	Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. I-7, II-24, I-2 (Appendix I)

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24.	8.2	Plan Maintenance	Lacks Contact Information for Plan Holders.	<p>All impacted communities/ jurisdictions (including all cities and counties within the inundation zone) and jurisdictions/entities on the flowchart(s) should be part of the EAP distribution (plan holders list).</p> <p>Include the following to the plan holders list:</p> <ul style="list-style-type: none"> <li>• Murphys Police</li> <li>• Murphys OES</li> <li>• Angels Camp OES</li> </ul> <p><b>Note:</b> If any entities impacted or on the flowchart would not like to be part of the EAP distribution this must be summarized in the EAP.</p>	<p><i>Government Code Section 8589.5; FEMA Federal Guidelines for Dam Safety: Emergency Action Planning for Dams, pgs. 1-7, 11-24, 1-2 (Appendix I)</i></p>