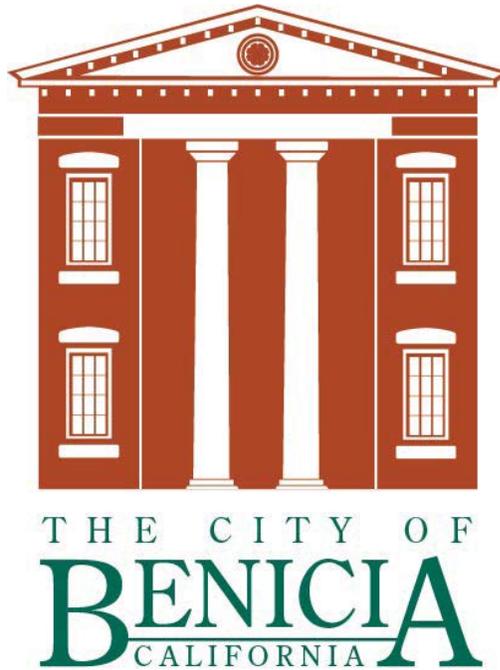


Emergency Operations Plan
Lake Herman Dam Failure Annex



Adopted
April 16, 2019
Resolution No. 19-33

Emergency Action Plan (EAP)

for

LAKE HERMAN DAM

County of Solano, California



Dam Owner: City of Benicia

24-Hour Emergency Contact:

Josh Chadwick, Fire Chief

707-590-3193 (Cell)

or

24-Hour Fire Dispatch

707-746-4256

**DSOD North Region
DSOD Dam No. 1028.000
National Inventory of Dams (NID) No. CA00851**

Copy _____ of 12

Date Prepared: October 30, 2018

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General Information

County/City:	Solano County/City of Benicia
Name of Dam:	Lake Herman Dam
Location of Dam:	7 Lake Herman Road, City of Benicia, California 94510
Coordinates of Dam:	38°05'43" N, 122°09'20" W
Date of Plan:	Draft August 1, 2018; Final October 30, 2018
DSOD Dam ID #:	1028.000
National Dam ID #:	CA00851
FERC Project #:	N/A
DSOD Hazard Classification:	High
Owner Agency:	City of Benicia
Owner Agency Address:	250 East L Street, Benicia, CA 94510
Primary Operator Contact Name:	Leo Larkin, Water Treatment Plant (WTP) Superintendent
Primary Operator Contact Phone:	707-746-4293 (Office) 707-746-4394 (WTP) 707-590-3308 (Cell)
Primary Operator Contact Email:	llarkin@ci.benicia.ca.us
EAP Coordinator Name:	Joshua Chadwick, Fire Chief
EAP Coordinator Phone:	707-590-3193 (Cell) 707-746-4275 (Fire Station #11)
EAP Coordinator Email:	jchadwick@ci.benicia.ca.us

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Part 1 EAP INFORMATION

Section 1 Introduction

1.1 Purpose

This Emergency Action Plan (EAP) defines responsibilities and provides procedures designed to identify unusual and unlikely conditions that may endanger Lake Herman Dam in time to take mitigative action and to notify the appropriate emergency management authorities of possible, impending, or actual failure of the dam. This EAP may also be used to provide notification when flood releases can create major flooding.

1.2 Participation of Local Public Safety Agencies

A draft of this EAP was provided to the following local public safety agencies for review:

- California Department of Water Resources Division of Safety of Dams
- California Highway Patrol
- California Office of Emergency Services
- City of Benicia City Manager
- City of Benicia Community Development Department
- City of Benicia Fire Department
- City of Benicia Police Department
- City of Benicia Public Works
- City of Benicia Water Treatment Plant
- National Weather Service
- Solano County Office of Emergency Services
- Valero Refining Company

Documentation of comments provided by such agencies is attached in Appendix I.

Section 2 Summary of EAP Responsibilities

2.1 Dam Owner’s Responsibilities

Lake Herman Dam (Dam) is owned by the City of Benicia (City) and is operated by the City’s Water Treatment Plant (WTP) personnel. The dam owner’s responsibilities during a dam emergency are included below.

Table 1 Dam Owner’s Responsibilities

City of Benicia	Responsibilities
City of Benicia Maintenance Tech or Water Treatment Plant Shift Operator	<ol style="list-style-type: none"> 1. If not onsite, travel to dam 2. Detect/confirm incident at dam 3. Determine emergency level 4. Make calls on appropriate notification flowchart 5. Coordinate and implement outlet structure gate operations 6. Coordinate and implement additional emergency procedures 7. Provide regular status reports to Senior Management
City of Benicia Fire Chief	<ol style="list-style-type: none"> 1. Support City of Benicia Maintenance Tech and/or Water Treatment Plant Shift Operator with emergency level determination 2. Make calls on appropriate notification flowchart 3. Assist with determining emergency operation procedures 4. Dispatch personnel, as necessary 5. Activate the Emergency Operations Center 6. Provide regular status reports to Senior Management
Senior Management	<ol style="list-style-type: none"> 1. Initiate periodic status report conference calls with the City of Benicia Maintenance Tech and/or Water Treatment Plant Shift Operator 2. Provide regular status reports to the Emergency Operations Center 3. Coordinate with Public Information Officer
Public Information Officer (PIO)	<ol style="list-style-type: none"> 1. Assigned when Emergency Operations Center is activated 2. Mobilize to the Emergency Operations Center 3. Participate in status report conference calls with City personnel 4. Provide input to City personnel on emergency communications 5. Represent the City of Benicia to media outlets

2.2 Impacted Jurisdictions’/Public Safety Agencies’ Responsibilities

The only jurisdiction impacted by a dam emergency is the City of Benicia in Solano County, California. Impacted areas within the City are from Lake Herman Road (northeast of Lake Herman) south along Sulphur Springs Creek to Suisun Bay (see Part 2 Inundation Maps).

Public safety agencies within the impacted area include the City of Benicia Police Department, City of Benicia Fire Department, Solano County Sheriff’s Office and Solano County Office of Emergency Services.

Responsibilities during a dam emergency for the City of Benicia and Solano County are described in the table below.

Table 2 Roles of Other Agencies

Entity	Responsibilities
City of Benicia Emergency Services	<ol style="list-style-type: none"> 1. Receive status reports from the City of Benicia Maintenance Tech or Water Treatment Plant Shift Operator 2. Notify public within jurisdictional limits 3. Conduct evacuation from inundation areas, if required 4. Render assistance, as necessary
Solano County Emergency Services	<ol style="list-style-type: none"> 1. Receive status reports from the City of Benicia 2. Notify public within county, if warranted by emergency level 3. Conduct evacuation from inundation areas, if requested 4. Provide mutual aid, if requested and able

Section 3 Notification Flowcharts

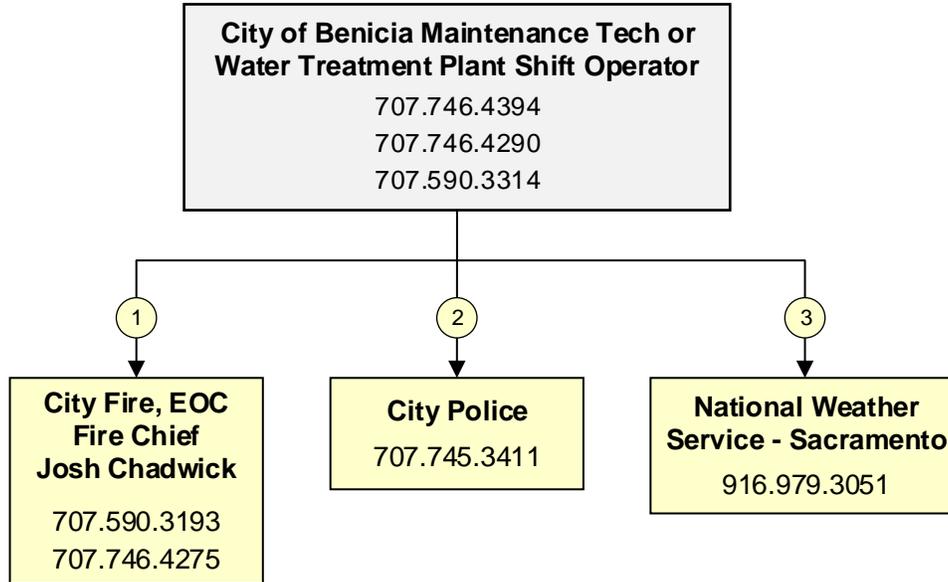
Notification flowcharts are provided for four dam emergency levels in this EAP, which include:

- **High Flow:** Downstream flooding may occur due to high flow release; no threat to dam integrity.
- **Non-Failure:** Event at a dam that will not by itself lead to a failure, but requires investigation and notification of internal and/or external personnel.
- **Potential Failure:** Conditions are developing at the dam that could lead to a dam failure.
- **Imminent Failure:** Time has run out and the dam has failed, is failing, or is about to fail.

Notification flowcharts are included on the following pages, as well as scripted messages that can be used by the City of Benicia for each emergency level for the Lake Herman main dam, service spillway, and outlet structure.

High Flow Emergency Notification Flowchart

Call procedure: Follow numbered sequence for initial calls.
Each call recipient should then call the contacts linked to them.



High Flow Emergency Scripted Messages

The following scripted messages are provided solely as guidance for use by the City of Benicia Maintenance Tech or WTP Shift Operator while making initial high flow emergency notification calls.

High Flow Emergency for the Main Dam:

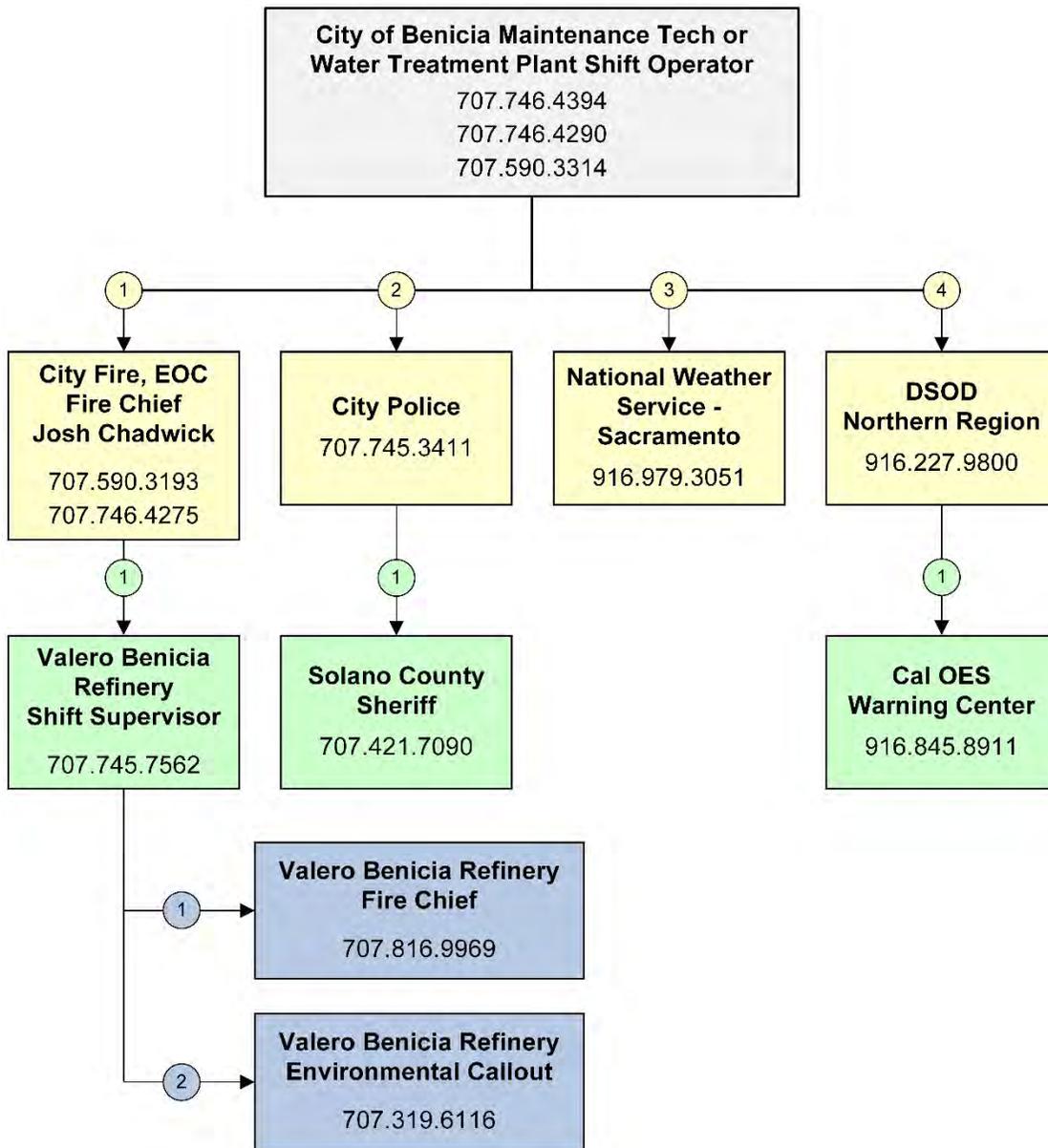
- This is (state your name and position) with the (state your organization).
- We are providing notification that unusually high flows are occurring due to naturally occurring high flow conditions at the Lake Herman Main Dam, located in the City of Benicia.
- Flow release at the dam is now estimated at (state numerical flow release if available).
- Fast-moving water, dangerous currents and flooding of low-lying areas along the Sulphur Springs Creek may occur.
- We are implementing predetermined actions to respond to a developing situation that DOES NOT currently threaten the safety of the dam.
- We will provide an updated status report at _____ (state time). We will update you before that time if the situation is resolved or the emergency level changes.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

High Flow Emergency for the Service Spillway:

- This is (state your name and position) with the (state your organization).
- We are providing notification that unusually high flows are occurring due to naturally occurring high flow conditions at the Lake Herman Service Spillway, located in the City of Benicia.
- Flow release at the dam is now estimated at (state numerical flow release if available).
- Fast-moving water, dangerous currents and flooding of low-lying areas along the Sulphur Springs Creek may occur.
- We are implementing predetermined actions to respond to a developing situation that DOES NOT currently threaten the safety of the dam.
- We will provide an updated status report at _____ (state time). We will update you before that time if the situation is resolved or the emergency level changes.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Non-Failure Emergency Notification Flowchart

Call procedure: Follow numbered sequence for initial calls.
Each call recipient should then call the contacts linked to them.



Non-Failure Emergency Scripted Messages

The following scripted messages are provided solely as guidance for use by the City of Benicia Maintenance Tech or WTP Shift Operator while making initial non-failure emergency notification calls.

Non-Failure Emergency for the Main Dam:

- This is (state your name and position) with the (state your organization).
- We have a non-failure emergency at the Lake Herman Main Dam, located in the City of Benicia.
- We are implementing predetermined actions to respond to a developing situation that DOES NOT currently threaten the safety of the dam.
- We will provide an updated status report at _____ (state time). We will update you before that time if the situation is resolved or the emergency level changes.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Non-Failure Emergency for the Service Spillway:

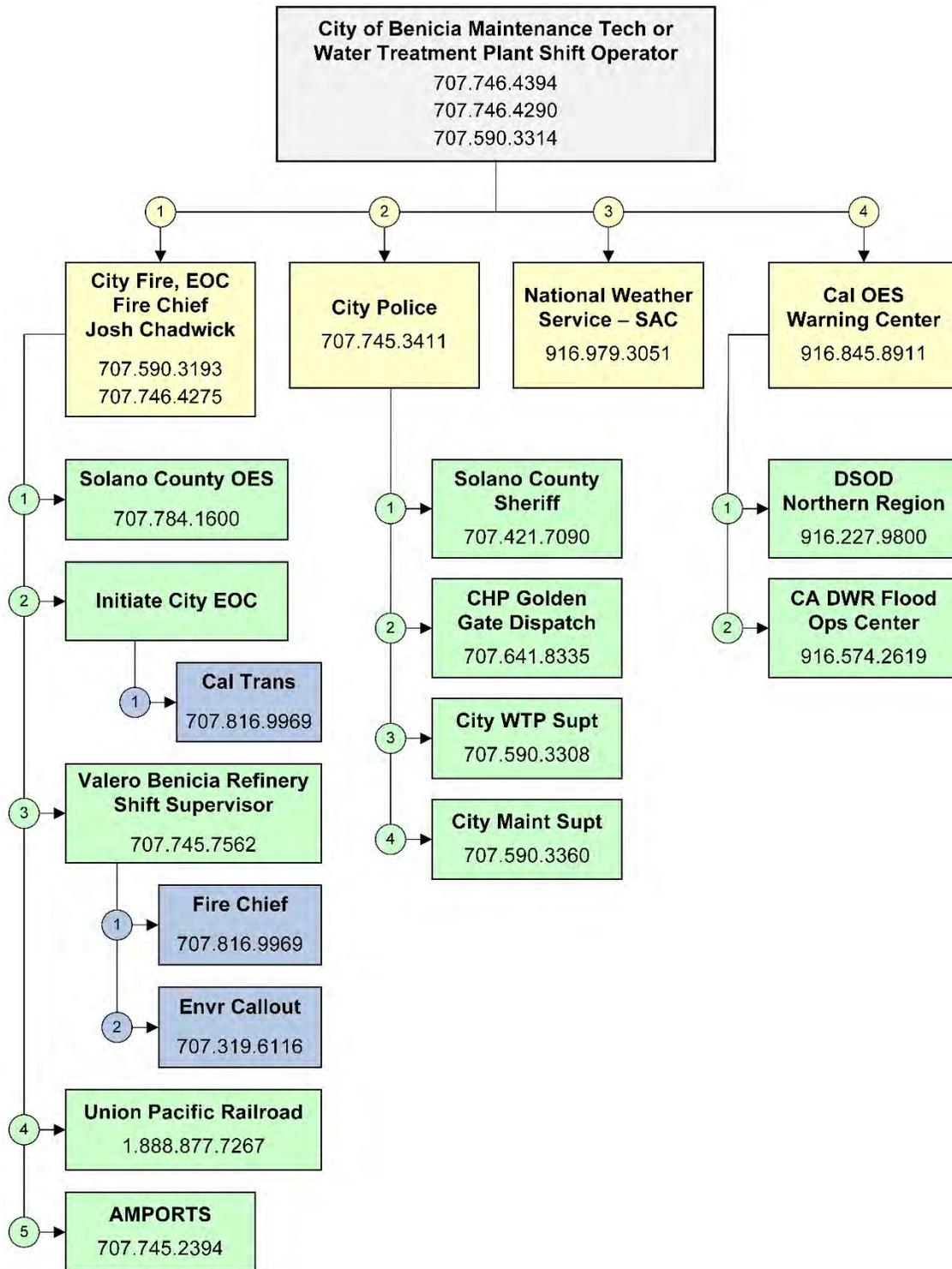
- This is (state your name and position) with the (state your organization).
- We have a non-failure emergency at the Lake Herman Service Spillway, located in the City of Benicia.
- We are implementing predetermined actions to respond to a developing situation that DOES NOT currently threaten the safety of the dam.
- We will provide an updated status report at _____ (state time). We will update you before that time if the situation is resolved or the emergency level changes.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Non-Failure Emergency for the Outlet Structure:

- This is (state your name and position) with the (state your organization).
- We have a non-failure emergency at the Lake Herman Outlet Structure, located in the City of Benicia.
- We are implementing predetermined actions to respond to a developing situation that DOES NOT currently threaten the safety of the dam.
- We will provide an updated status report at _____ (state time). We will update you before that time if the situation is resolved or the emergency level changes.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Potential Failure Emergency Notification Flowchart

Call procedure: Follow numbered sequence for initial calls.
 Each call recipient should then call the contacts linked to them.



Potential Failure Emergency Scripted Messages

The following scripted messages are provided solely as guidance for use by the City of Benicia Maintenance Tech or WTP Shift Operator while making initial potential failure emergency notification calls.

Potential Failure Emergency for the Main Dam:

- This is (state your name and position) with the (state your organization).
- We have a potential failure emergency at the Lake Herman Main Dam, located in the City of Benicia.
- We have activated the Emergency Action Plan for the Lake Herman Main Dam and are determining this to be a potential failure condition.
- We are implementing predetermined actions to respond to a rapidly developing situation that COULD result in dam failure.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- The dam could potentially fail as early as ____ (time, if determined).
- We will advise you when the situation is resolved or if the situation gets worse.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Potential Failure Emergency for the Service Spillway:

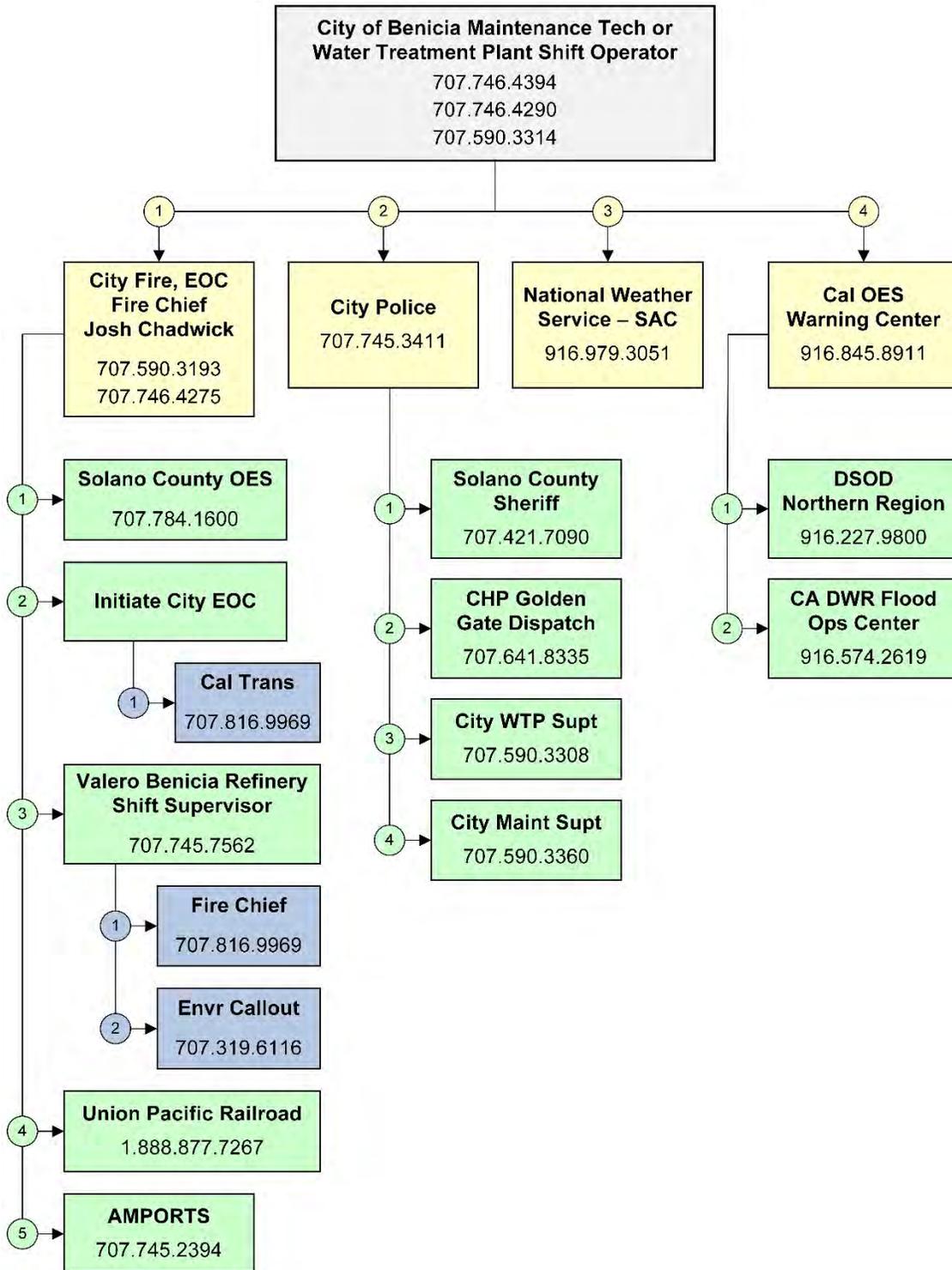
- This is (state your name and position) with the (state your organization).
- We have a potential failure emergency at the Lake Herman Service Spillway, located in the City of Benicia.
- We have activated the Emergency Action Plan for the Lake Herman Service Spillway and are determining this to be a potential failure condition.
- We are implementing predetermined actions to respond to a rapidly developing situation that COULD result in dam failure.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- The dam could potentially fail as early as ____ (time, if determined).
- We will advise you when the situation is resolved or if the situation gets worse.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Potential Failure Emergency for the Outlet Structure:

- This is (state your name and position) with the (state your organization).
- We have a potential failure emergency at the Lake Herman Outlet Structure, located in the City of Benicia.
- We have activated the Emergency Action Plan for the Lake Herman Outlet Structure and are determining this to be a potential failure condition.
- We are implementing predetermined actions to respond to a rapidly developing situation that COULD result in dam failure.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- The dam could potentially fail as early as ____ (time, if determined).
- We will advise you when the situation is resolved or if the situation gets worse.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.

Imminent Failure Emergency Notification Flowchart

Call procedure: Follow numbered sequence for initial calls.
 Each call recipient should then call the contacts linked to them.



Imminent Failure Emergency Scripted Messages

The following scripted messages are provided solely as guidance for use by the City of Benicia Maintenance Tech or WTP Shift Operator while making initial imminent failure emergency notification calls.

Imminent Failure Emergency for the Main Dam:

- This is an emergency.
- This is (state your name and position) with the (state your organization).
- Lake Herman Main Dam, located in the City of Benicia, is failing.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- Repeat, Lake Herman Main Dam, located in the City of Benicia, is failing.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- We have activated the Emergency Action Plan for the Lake Herman Main Dam and are determining this to be an imminent failure condition.
- Reference the inundation map in your copy of the Emergency Action Plan.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.
- The next status report will be provided in approximately thirty minutes.

Imminent Failure Emergency for the Service Spillway:

- This is an emergency.
- This is (state your name and position) with the (state your organization).
- Lake Herman Service Spillway, located in the City of Benicia, is failing.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- Repeat, Lake Herman Service Spillway, located in the City of Benicia, is failing.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- We have activated the Emergency Action Plan for the Lake Herman Service Spillway and are determining this to be an imminent failure condition.
- Reference the inundation map in your copy of the Emergency Action Plan.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.
- The next status report will be provided in approximately thirty minutes.

Imminent Failure Emergency for the Outlet Structure:

- This is an emergency.
- This is (state your name and position) with the (state your organization).
- Lake Herman Outlet Structure, located in the City of Benicia, is failing.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- Repeat, Lake Herman Outlet Structure, located in the City of Benicia, is failing.
- Prepare to evacuate the area identified in the inundation map in your copy of the Emergency Action Plan.
- We have activated the Emergency Action Plan for the Lake Herman Outlet Structure and are determining this to be an imminent failure condition.
- Reference the inundation map in your copy of the Emergency Action Plan.
- I can be contacted at the following number _____.
- If you cannot reach me, please call the following alternative number _____.
- The next status report will be provided in approximately thirty minutes.

Section 4 Project Description

Lake Herman Dam is assigned the following identification:

- Division of Safety of Dams (DSOD) Dam No. 1028.000 (DSOD North Region)
- National Inventory of Dams (NID) No. CA00851.

Lake Herman Dam is owned by the City of Benicia and is operated by the City's Water Treatment Plant personnel. The Dam is about three miles north of city center on Sulphur Springs Creek in Solano County, California. Sulphur Springs Creek discharges to Suisun Bay. The City is located downstream of Lake Herman Dam. There are no dams on Sulphur Springs Creek upstream or downstream of the Dam.

The City of Benicia provides the Valero Benicia Refinery with untreated water from Lake Herman for various industrial processes, including cooling tower make-up water and boiler feed water. The City has the ability to store water in Lake Herman and draw from that supply as needed in an emergency; however, the stored water is not a primary drinking water supply for City residents.

The Dam was originally built in 1905. In 1945, the dam crest was raised 22 feet and the base was widened by moving the base approximately 100 feet downstream. In 1983, the dam crest was raised one foot to an elevation of 128.13 feet (NAVD88). At present, the Dam is formed by a 700 foot-long, 46-foot-high earth-fill structure with a storage capacity of 1,392 acre-feet.

The critical appurtenant structures associated with the Lake Herman Dam include the service spillway, auxiliary spillway and outlet structure. The main dam is located along the northeastern perimeter of Lake Herman and both the service spillway and auxiliary spillway are located along the southeastern perimeter. The outlet structure tower is located in the reservoir (Lake Herman) approximately 100 feet west of the northern crest of the main dam.

The service spillway conveys excess stormwater from Lake Herman to Sulphur Springs Creek. The service spillway is 430 feet long and concrete-lined. There are 2-inch pressure relief pipes located along the spillway. The elevation of the crest of the service spillway is 121.13 feet (NAVD88). The spillway concrete terminates at approximately elevation 99 feet (NAVD88) into a riprap-lined plunge pool.

The auxiliary spillway is a 130-foot-wide channel excavated into native material with a concrete control weir at crest elevation of 124.13 feet (NAVD88). The excavated channel slopes 3 percent away from the concrete crest in the upstream and downstream directions. Note: a failure scenario of the auxiliary spillway was not analyzed because this spillway would not retain any water during a sunny day failure condition. The elevation of the auxiliary spillway crest is 124.13 feet (NAVD88) while the maximum water surface elevation in Lake Herman for the sunny day failure condition is the same as the service spillway crest elevation, 121.13 feet (NAVD88).

The outlet structure conveys water from Lake Herman to the downstream channel east of the main dam. This structure consists of a gated outlet tower discharging to a single 30-inch pipe inside an arched tunnel with an outer dimension of roughly 9-feet wide by 8-feet tall. The inside of the tunnel surrounding the outlet pipe is sealed with concrete for a length of 60 feet near the upstream end of the tunnel. The top and base elevations of the concrete outlet tower are approximately 127 and 75 feet (NAVD88), respectively.

Section 5 EAP Response Process

The following four steps should be followed when an unusual or emergency condition is detected at Lake Herman Dam. These steps constitute the EAP response process and include:

Step 1: Incident detection, evaluation, and emergency level determination

Step 2: Notification and communication

Step 3: Emergency actions

Step 4: Termination and follow-up

The four dam safety emergency level categories used in this EAP are described below.

- High Flow: Downstream flooding may occur due to high flow release; no threat to dam integrity.
- Non-failure: Event at the dam will not by itself lead to a failure but requires investigation and notification of internal and/or external personnel.
- Potential failure: Conditions are developing at the dam that could lead to a dam failure.
- Imminent failure: Time has run out and the dam has failed, is failing, or is about to fail.

5.1 Step 1: Incident Detection, Evaluation, and Emergency Level Determination

A potential emergency situation would be detected by regular surveillance at the site. The City of Benicia implements a standard operating procedure that includes a dam inspection once a month by WTP personnel, as well as an annual inspection with DSOD. If an unusual condition is observed during any inspection, the condition is promptly reported to the WTP Superintendent and DSOD. The dam site is monitored by live video feed directed toward the spillway, as well as a SCADA system that continuously records reservoir elevation. The video and SCADA system are monitored by WTP personnel.

The table below describes unusual conditions and indicators that could potentially be observed at the Lake Herman Dam, as well as guidance on emergency levels that correspond to each unusual condition.

Table 3 Guidance for Detecting Unusual Conditions

Unusual Condition	Indicators	Emergency Level
Earthquakes	Sizable earthquake reported within 50 miles of the dam	Non-Failure
	Earthquake resulting in visible damage to dam or appurtenances	Potential Failure
	Earthquake resulting in uncontrolled release of water over dam or rapidly developing flow through cracks or rapidly developing erosion through increased seepage	Imminent Failure
Embankment Cracking or Settlement	New cracks in embankment greater than 1/4-inch-wide without seepage	Non-Failure
	Cracks in the embankment with seepage	Potential Failure

Unusual Condition	Indicators	Emergency Level
Embankment Movement	Visual shallow slippage	Non-Failure
	Visual deep-seated movement/slippage of embankment	Potential Failure
	Sudden or rapidly proceeding slides of embankment slope	Imminent Failure
	Spillway flowing with significant erosion and head cutting advancing rapidly toward reservoir	Potential Failure
Erosion of Spillway	Spillway flowing with active erosion gullies	Non-Failure
	Spillway flowing with significant erosion and head cutting advancing rapidly toward reservoir	Potential Failure
Fire	Significant fire in the area that affects access to the dam	Non-Failure
Outlet System Failure	Releases causing erosion around outlet works	Non-Failure
	Uncontrolled releases through the outlet but the dam's structural integrity is still maintained	Potential Failure
	Uncontrolled releases through the outlet with dam failure imminent	Imminent Failure
Sabotage or Vandalism	Damage to dam or appurtenances with no impacts to the functioning of dam	Non-Failure
	Damage to dam or appurtenances that could adversely impact functioning of dam	Potential Failure
	Damage to dam or appurtenances resulting in uncontrolled water release or rapidly developing erosion	Imminent Failure
Sand Boils	New sand boil appears in or near dam	Non-Failure
	New sand boil continues to increase in size and/or is carrying soil particles	Potential Failure
	Sudden and rapid increases in flow through boil	Imminent Failure
Security Threats	Unauthorized personnel seen or reported to be at dam	Non-Failure
	Verified bomb threat that could result in damage to dam	Potential Failure
	Detonated bomb resulting in damage to dam or appurtenances	Imminent Failure
Seepage, Springs, Piping	New wet areas in or near dam	Non-Failure
	New wet areas with active flow and cloudy discharge or increasing flow rate	Potential Failure
	Increasing and rapidly developing seepage with cloudy discharge	Imminent Failure
Sinkholes	Observation of new sinkhole in reservoir area or on embankment	Non-Failure
	Rapidly enlarging sinkhole	Potential Failure
Storm Event	Spillway is flowing, causing damage downstream, but dam is not endangered	Non-Failure
	Spillway is overcome and flow is over an embankment	Potential Failure

5.2 Step 2: Notification and Communication

After the emergency level at the Dam has been determined, notifications will be made in accordance with the appropriate notification flowchart provided in Section 3. Scripted messages are also provided in Section 3 and are to be used solely as guidance for the City of Benicia Maintenance Tech or WTP Shift Operator while making initial emergency notification calls.

5.3 Step 3: Emergency Actions

The table below provides examples of potential remediation actions the dam owner may undertake during certain events.

Table 4 Potential Remedial Actions

Unusual Condition	Possible Remediation Actions
Earthquakes	Inspect dam and evaluate sustained damage and potential danger of failure. Check for seepage, cracks, displacements, and settlement. Inspect outlet works and spillways. Evaluate instrumentation.
Embankment Cracking or Settlement	Lower water level by releasing it through outlet or by pumping or siphoning. If necessary, restore freeboard. Lower reservoir to a safe level; continue operating at a reduced level until repairs can be made.
Embankment Movement	Lower water level in the reservoir by opening all gates and valves at a rate and to an elevation that is considered safe given slide condition. If outlet is damaged or blocked, pumping or siphoning may be required.
Erosion of Spillway	Provide temporary protection at erosion point by placing sandbags, riprap materials, or plastic sheets weighted with sandbags. Consider using pumps and siphons to help reduce the reservoir level. When inflow subsides, lower the reservoir level to a safe level; continue operating at a lower water level to minimize spillway flow.
Fire	Implement fire procedures.
Outlet System Failure	Implement temporary measures to protect the damaged structure, such as closing the inlet. Lower the water level in the reservoir to a safe elevation, possibly by using pumps or siphons. Consider the severity of flow through outlet and increased flows in determining emergency level.

5.4 Step 4: Termination and Follow-up

Once conditions indicate there is no longer an emergency at the dam site, EAP operations will be terminated and follow-up procedures will be completed.

The individual elected as the Incident Commander during the emergency will declare its termination, relay this decision to appropriate individuals and agencies, and switch efforts and activities to restoration.

Prior to termination of a potential failure or imminent failure emergency that has not caused dam failure, DSOD will inspect the dam to determine whether any damage has occurred that could potentially result in loss of life, injury, or property damage. If it is determined conditions do not pose a threat to life or property, the Incident Commander will terminate EAP operations.

A dam owner representative will verify the Emergency Situation Report (Table 5) is completed to document the emergency and all actions taken. The dam owner's representative will distribute a copy of this completed report to DSOD. If the event escalates to a potential failure or imminent failure emergency, the dam owner's representative will also be involved with preparing an After Action Report (Appendix G), which analyzes what happened, why it happened, and how it can be prevented in the future.

Table 5 Emergency Situation Report

Emergency Situation Report			
Date			
Time			
Dam Name	Lake Herman Dam		
DSOD Dam No	1028.000		
Dam Location	7 Lake Herman Road, Benicia, CA 94510		
Weather Conditions			
General description of emergency situation:			
Areas of dam affected			
Extent of damage to dam			
Possible causes of damage			
Effect on dam operation			
Initial reservoir elevation		Time observed	
Maximum reservoir elevation		Time observed	
Final reservoir elevation		Time observed	
Description of area flooded downstream/damages/injuries:			
Other data and comments:			
Observer's name and phone number			
Report prepared by			
Date			

Section 6 General Responsibilities

6.1 Dam Owner Responsibilities

Dam owner responsibilities are to:

- Ensure staff is available to travel to Lake Herman Dam, if not already onsite during an emergency.
- Detect and confirm the emergency level at Lake Herman Dam.
- Evaluate the severity and progressive nature of the emergency - how quickly will the main dam, service spillway, and/or outlet structure be in danger of failing.
- Assign the emergency level as either a high flow, non-failure, potential failure, or imminent failure.
- Complete notifications based on the appropriate notification flowchart.
- Take emergency actions onsite to mitigate impacts.
- Communicate conditions and provide status reports both internally and with the City Fire Department, City Police Department, Solano County Emergency Services agencies.
- Declare termination of the emergency at Lake Herman Dam.

A more detailed description of dam owner responsibilities is located in Section 2.

6.2 Notification and Communication Responsibilities

City of Benicia Maintenance Technician or WTP Shift Operator Responsibilities

Once the emergency level is identified, the City of Benicia Maintenance Technician or WTP Shift Operator should initiate the emergency notification sequence according to the appropriate notification flowchart.

For Potential or Imminent Failure:

- City of Benicia Maintenance Technician or WTP Shift Operator would contact the City Fire Department, City Police Department, National Weather Service – Sacramento, and Cal OES Warning Center.

For Non-Failure:

- City of Benicia Maintenance Technician or WTP Shift Operator would contact the City Fire Department, City Police Department, National Weather Service – Sacramento, and Division of Safety of Dams Northern Region.

For High Flow:

- City of Benicia Maintenance Technician or WTP Shift Operator would contact the City Fire Department, City Police Department, and National Weather Service – Sacramento.

Emergency Response Agency Responsibilities

Once the City Fire Department, City Police Department, National Weather Service – Sacramento, Cal OES Warning Center, and DSOD Northern Region are notified of an emergency at Lake Herman Dam, notification should be made according to internal protocol, as well as following the call sequence on the notification flowcharts included in Section 3.

For Potential or Imminent Failure:

- City Fire Department would notify Solano County OES, Valero Benicia Refinery, Union Pacific Railroad, and AMPORTS. In addition, the Fire Chief would initiate the City of Benicia EOC. Once initiated, notification would be made to Cal Trans. If deemed necessary based on the extent of the emergency, notification could be made to PG&E (1.888.743.7431) and Kinder Morgan (1.866.762.8442) regarding pipelines in the area.
- City Police Department would notify the Solano County Sheriff's Office, California Highway Patrol-Golden Gate Dispatch, City WTP Superintendent, and City Maintenance Superintendent.
- Cal OES Warning Center would notify the DSOD Northern Region and CA Department of Water Resources (DWR) Flood Operations Center.

For Non-Failure:

- City Fire Department would notify Valero Benicia Refinery.
- Valero Benicia Refinery would notify their Fire Chief and Environmental callout.
- City Police Department would notify the Solano County Sheriff's Office.
- DSOD Northern Region would notify the Cal OES Warning Center.

Public Alert Systems

The City of Benicia and Solano County have a number of public alert systems that can be activated during a dam emergency, if deemed necessary. The alert systems include the following:

- **Alert Solano:** residents need to register to opt-in to this alert system. Once registered, Emergency Services agencies within Solano County can provide real-time, critical information to any device including landlines and mobile devices.
- **Wireless Emergency Alerts (WEAs):** registration is not required for this alert system. WEAs is a national emergency alert system that uses cellular towers to deliver rapid, initial warning to the public. Warnings can be targeted to a specific geographic area to assure only those in the vicinity of the emergency will be alerted, while not alarming those that are not at risk.
- **everbridge NIXLE:** residents need to register to receive alerts from local agencies. Critical communications and emergency notifications will be delivered to mobile devices.
- **City of Benicia Sirens:** City can warn residents of an emergency through a seven-siren alert system. These sirens may be activated individually or citywide to alert the community of an emergency. The City is educating its residents to go to the City's social media outlets once they hear the sirens to get important emergency details.

6.3 Evacuation Responsibilities

Warning and evacuation planning is the responsibility of local emergency management agencies who have statutory obligation. The dam owner is responsible to notify the appropriate emergency management officials and provide necessary information to local authorities so they can fulfill their responsibilities for evacuation during an emergency.

The City of Benicia Police Department, City of Benicia Fire Department, and Solano County Emergency Services have statutory obligation for evacuation during an emergency at Lake Herman Dam.

6.4 Monitoring, Security, Termination, and Follow-up Responsibilities

The EAP initiator is responsible to keep City and County emergency management agencies advised of the dam emergency condition until such responsibility is transferred to other dam owner personnel or when the dam emergency is declared as terminated. This is to ensure efforts are coordinated throughout the entire period the EAP is activated. Personnel in charge will declare when the dam emergency has been downgraded to a non-emergency level. Personnel who activated the EAP and any additional personnel who subsequently took charge will provide input to the EAP Coordinator, who will then prepare an After-Action Report (Appendix G) to summarize the emergency events, response activities, successes, and recommended improvements.

6.5 EAP Coordinator Responsibilities

The dam owner will specify an EAP Coordinator to be responsible for EAP-related activities, including but not limited to the following:

- Ensure a copy of this EAP is prominently displayed at designated locations
- Coordinate EAP related activities
- Serve as EAP contact should any questions arise
- Conduct annual training sessions
- Conduct annual plan review
- Conduct annual test of the state of readiness
- Conduct annual face-to-face meetings with key emergency management response agencies
- Prepare revisions, as required, and distribute required revisions to all plan holders
- Obtain documentation of plan holder receipt of annual updates

The EAP coordinator listed below is the contact for questions regarding this EAP.

Joshua Chadwick
City of Benicia Fire Chief
Fire Station #11
707-590-3193 (Cell)
707-746-4275 (Fire Station)
jchadwick@ci.benicia.ca.us

Section 7 Preparedness

7.1 Surveillance and Monitoring

Surveillance and monitoring activities at the Lake Herman Dam are summarized below.

Table 6 Summary of Surveillance and Monitoring

Dam Element	Instrumentation or Other Monitoring Methods	Frequency of Monitoring
Earthen embankment	Survey monuments	Monthly
	Seepage weirs and/or gages	Monthly
	Piezometers	Not applicable
Reservoir	Elevation gages	Daily (constant level reading)
All elements of dam	Visual observation for signs of unusual conditions	Monthly

7.2 Evaluation of Detection and Response Timing

Table 7 Response Timing Summary

Unusual Condition	Anticipated time from incident to notification of emergency responders
Earthquakes	8-10 minutes
Embankment Cracking or Settlement	8-10 minutes
Embankment Movement	8-10 minutes
Erosion of Spillway	8-10 minutes
Fire	8-10 minutes
Outlet System Failure	8-10 minutes
Sabotage or Vandalism	8-10 minutes
Sand Boils	8-10 minutes
Security Threats	8-10 minutes
Seepage, Springs, Piping	8-10 minutes
Sinkholes	8-10 minutes
Storm Event	8-10 minutes

7.3 Access to the Site

Table 8 Site Access Summary

Type of access route to dam site	Description	Anticipated time to dam site from City of Benicia office
Primary	Lake Herman Road	5 minutes from WTP
	East 2 nd Street to Reservoir Road to Lake Herman Road	15 minutes from Corporation Yard
Secondary	I-780 west to I-680 north to Lake Herman Road	10 minutes from Fire Station #11
	Access road from Community Park	10 minutes from Fire Station #11
	I-780 east to Columbus Pkwy to Lake Herman Road	20 minutes from Fire Station #11

7.4 Response during Periods of Darkness

Access routes to the dam site during periods of darkness are identical to the primary and secondary access routes described in Section 7.3. The site can be illuminated during periods of darkness or during a power outage with generator-powered portable flood lights.

7.5 Response During Weekends and Holidays

All surveillance, notification, and remedial actions contained in this EAP are equally applicable to the work week, weekends, and holidays. Personnel are onsite or at the City on weekends and holidays, just as they would be during the work week.

7.6 Response During Adverse Weather

Access routes to the dam site during adverse weather are identical to the primary and secondary access routes described in Section 7.3. Operations during adverse weather are identical to operations during fair weather.

7.7 Alternative Sources of Power

Emergency response at the dam site does not require operation of any electrically powered components. The outlet structure gates and Bungler-Howell drain valve can be opened manually in case of an electrical power outage. The site can be illuminated during periods of darkness or during a power outage with generator-powered portable flood lights.

7.8 Emergency Supplies and Information

Table 9 Emergency Supplies Summary

Heavy Equipment Service/Rental	Pumps	Ready-Mix Concrete Supply
Ahern Rentals 707-748-1990	Ahern Rentals 707-748-1990	AAA Concrete Supply 707-399-0685
Cresco Equipment Rental 707-863-7504	Cresco Equipment Rental 707-863-7504	Right Away Ready Mix 925-682-1700
Herc Rentals 707-747-4444	Herc Rentals 707-747-4444	Syar Industries 877-792-7649
United Rentals 707-455-1810	United Rentals 707-455-1810	
Sand and Gravel Supply	Road Maintenance	Sand Bags
Syar Industries 707-643-3261	Ghilotti Construction Co. 707-585-1221	Benicia Corporation Yard 707-746-4296
Bayshore Materials 707-644-0859	Team Ghilotti, Inc. 707-763-8700	

7.9 Stockpiling Materials and Equipment

The availability and volume of material, as well as the availability and quantity of equipment, will vary depending on construction activity in the surrounding area at the time of a dam emergency. The City will make use of all available materials and equipment that are deemed necessary during a dam emergency.

Table 10 Stockpiling Summary

Material of Equipment	Stockpiling Location	Volume/Quantity
Rock	Syar Industries, 885 Lake Herman Road, Vallejo, CA	Variable
Ready-mix concrete	Syar Industries, 885 Lake Herman Road, Vallejo, CA	Variable
Sandbags	City of Benicia Corporation Yard, 2400 East 2 nd Street, Benicia, CA	Variable
Excavators	Herc Rentals, 5251 Industrial Way, Benicia, CA Ahern Rentals, 3673 Mallard Drive, Benicia, CA	Variable
Dump Trucks	Herc Rentals, 5251 Industrial Way, Benicia, CA Ahern Rentals, 3673 Mallard Drive, Benicia, CA	Variable
Generators	Herc Rentals, 5251 Industrial Way, Benicia, CA Ahern Rentals, 3673 Mallard Drive, Benicia, CA	Variable

7.10 Coordination of Information

Table 11 Coordination Details

Operational Item	Coordinate With	Contact Details	Responsible Staff Member
Flow forecasts	There are no dams on Sulphur Springs Creek upstream or downstream of Lake Herman Dam.		
Weather forecast	National Weather Service Sacramento	Michelle Mead Warning Coordination Meteorologist 916-979-3041	Dan Keeton Meteorologist in Charge 916-979-3051
Dam safety	California Department of Water Resources - Division of Safety of Dams	Andrew Mangney Chief 916-227-9800 (office)	Russell Bowlus Northern Region Regional Engineer 916-715-2088 (cell)
Public emergencies	City of Benicia Emergency Operation Center	Josh Chadwick Fire Chief 707-746-4275	Fire Dispatch 707-746-4256

7.11 Training and Exercise

The initial training for the Lake Herman Dam Emergency Action Plan occurred on August 21, 2018 in the form of a Tabletop Exercise. The Fire Chief will schedule an annual emergency action plan notification exercise with the local public safety agencies that wish to participate in order to meet the requirements of the California Code of Regulations, Title 23, Division 2, Chapter 1. It is anticipated the annual notification exercise will be scheduled sometime in September or October of each year.

7.12 Alternative Systems of Communication

Cellular telephones are the primary means of communication between first responders and emergency services agencies. If cellular towers are unusable due to a power outage, first responders will report back to their team leaders via a landline telephone system. The City Water Treatment Plant has a VHF portable radio system with a range of approximately 1 mile, which will allow first responders at the dam site to communicate onsite conditions to WTP personnel.

7.13 Public Awareness and Communication

Business tenants downstream of the Lake Herman Dam are those situated on West and East Channel Roads. The table on the following page identifies the business name, address, landline telephone, and cellular telephone that can be used to warn the tenants of a potential emergency occurring at the Dam. The City will make every effort to contact these businesses via telephone, reverse 911 calls, and group text. Tenant contact information is verified and updated during the annual EAP review process.

Table 12 Downstream Business Tenants

Business Name	Street Address	Office Telephone	Cell Phone or Text
Stephen David Enterprise	401 West Channel Road	707-746-5848	707-373-8018
Community Resources	398 West Channel Road	925-681-1500	
Delta Tech Services	397 West Channel Road	707-745-2080	
Chris Evans	367 West Channel Road		
Critical Weld Inspections	350 West Channel Road	707-297-6795	
Benicia Heating & Air Cond	340 West Channel Road	707-745-6556	
Alamillo Rebar Inc.	325 West Channel Road	707-551-7007	
Callouette Fabricators, Inc.	320 West Channel Road	707-746-0962	
Benicia Plumbing	301 West Channel Road	707-745-2930	
Ryder Truck Rental	300 West Channel Road	707-745-4025	
Evoqua Water Technologies	251 West Channel Road		
West Channel, Inc.	250 West Channel Road	707-747-6878	
Spectrum Heat Treating	115 West Channel Road	707-747-5642	
California Erectors	4500 California Court	707-746-1990	
Peterson Power Systems	4501 California Court	707-746-8243	
Benicia Plumbing	265 Channel Court	707-745-3993	
Benicia Fabrication	101 East Channel Road	707-745-8111	
Benicia Fabrication	135 East Channel Road	707-745-8111	
USF Reddaway	155 East Channel Road	888-420-8960	
Conco	207 East Channel Road	707-745-5019	
Praxair Inc.	331 East Channel Road	707-745-4141	
Benicia Industrial Park	393 East Channel Road		
Andy Siri	510 East Channel Road	707-745-1636	
Alex's Automotive	3190 Bayshore Road	707-746-5333	
Valero Benicia Refinery	Shift Supervisor	707-745-7562	
Valero Benicia Refinery	Water Utilities	707-745-7253	707-235-6290
Valero Benicia Refinery	Wastewater Treatment Plant	707-745-7562	

Section 8 Plan Maintenance

8.1 Plan Review

The City Fire Chief is the individual responsible for updating, reviewing, or revising this EAP. This EAP should be updated promptly to address changes in personnel and/or contact information, significant changes to the facility, or changes to emergency procedures. This EAP should be reviewed at least annually for adequacy and updated as needed. The review should include an evaluation of any changes in flood inundation areas, downstream developments, or in the reservoir and a determination of whether any revisions, including updates to inundation maps, are necessary. Even if no revisions are necessary, the annual review will be documented in the record of revisions, which can be found in Appendix B.

Agencies invited to review and comment on the draft August 2018 EAP include:

- California Department of Water Resources Division of Safety of Dams
- California Highway Patrol
- California Office of Emergency Services
- City of Benicia City Manager
- City of Benicia Community Development Department
- City of Benicia Fire Department
- City of Benicia Police Department
- City of Benicia Public Works
- City of Benicia Water Treatment Plant
- National Weather Service
- Solano County Office of Emergency Services
- Valero Refining Company

8.2 Distribution

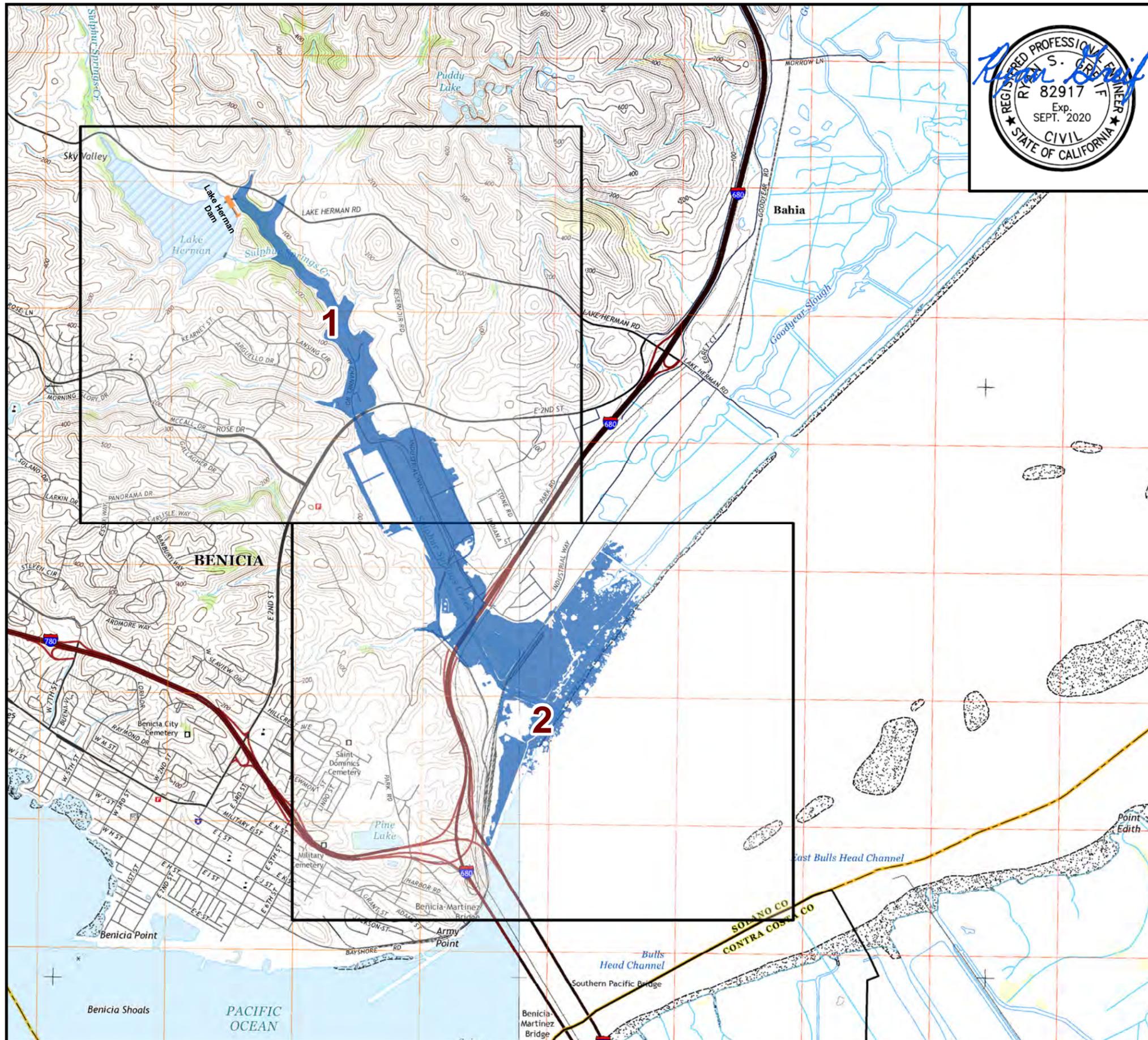
The most current Emergency Action Plan holder distribution list is provided in Appendix C. This list should be reviewed for accuracy and updated annually by the City of Benicia.

The City of Benicia will provide any EAP updates to each plan holder on an annual basis, including copies of revised pages in accordance with DSOD Guidelines.

When revised copies are received, plan holders should replace the pages in the *Prepared October 2018* EAP document and discard out-of-date pages. Only the most recent documentation on any topic should be maintained in this EAP to avoid confusion.

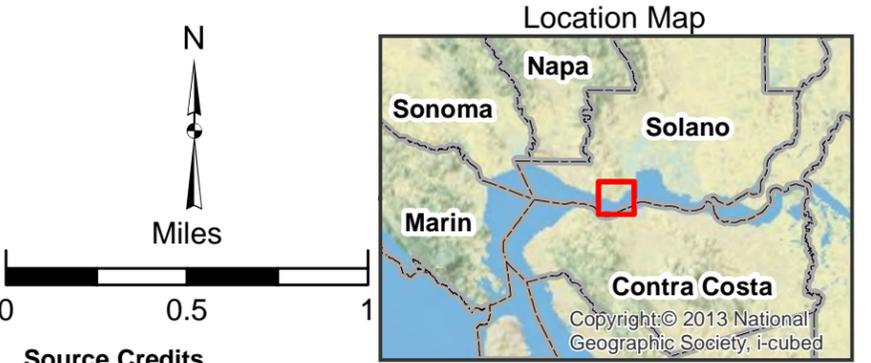
NOTE: email has become the primary means of communication, including transmission of documentation to parties who concur. Paper copies will be distributed as applicable or requested.

PART 2 INUNDATION MAPS



Lake Herman

DWR Dam No. 1028.000, National ID No. CA00851
 Solano County, CA
 Sunny Day Failure Inundation, Main Dam



Source Credits
Topo Base Map: USGS US Topo 7.5-minute Map, 2015: USGS - NGTOC
Aerial Imagery: USDA-FSA Aerial Photography Field Office
County Boundaries: CA Dept of Forestry and Fire Protection (using data from BOR, DFG, and DOC FMMP)
Road Network: Solano Regional GIS Consortium
City Boundaries: Solano Regional GIS Consortium
Hydrography: USGS and USEPA

	Airport		Dam
	Communication		Critical Appurtenant Structures
	Electric Utility		Stream
	Emergency Shelter		Canal
	Fire		Levee
	Healthcare		Lake
	Police		Cities & Villages
	School		Counties
	Water	Roads	
	Arrival Time (minutes)		LOCAL
			MAJOR ROAD
			STATE HWY

Coordinate System: NAD 1983 StatePlane
 California II FIPS 0402 Feet
 Scale = 1:32,000 if bar=1 inch:



This inundation map meets all applicable state and federal standards and has been prepared in consideration of all potential downstream hazards by a licensed civil engineer. Information shown is approximate and should be used as a guideline for emergency response and preparation purposes.

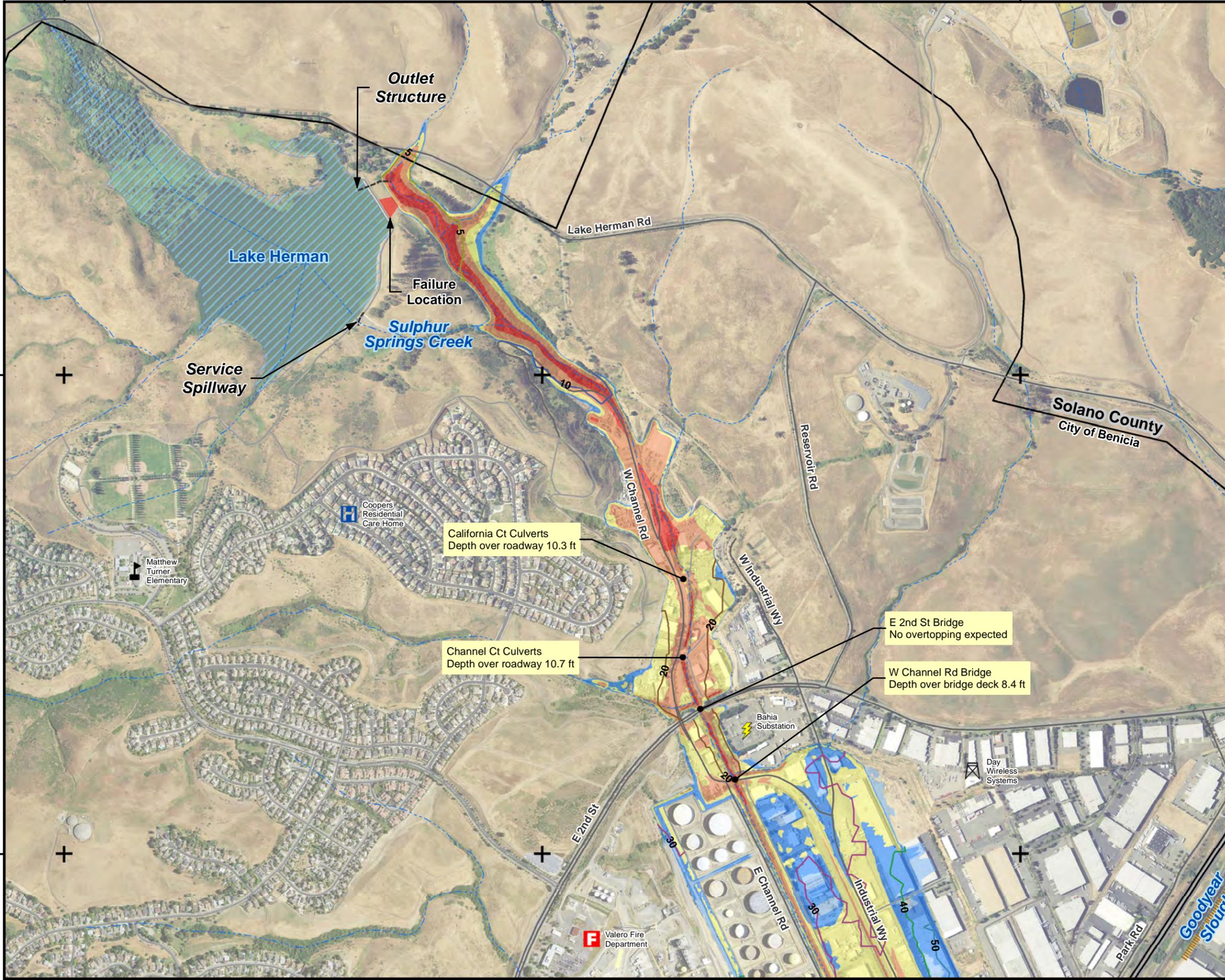
6515000.00

6520000.00

6525000.00

1795000.00

1790000.00



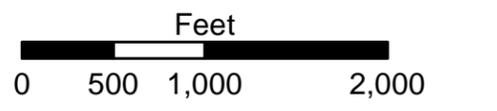
Lake Herman
 DWR Dam No. 1028.000
 National ID No. CA00851
 Solano, CA
 Sunny Day Failure Inundation,
 Main Dam (Arrival Time)

Panel 1 of 2



Max Depth (feet)	Arrival Time (mins)
1 - 2	5
2 - 4	10
4 - 8	20
8 - 15	30
15+	40
	50
	60
	90

Coordinate System: NAD 1983 StatePlane
 California II FIPS 0402 Feet
 Vertical Datum: NAVD 88 Feet
 Scale = 1:12,000 if bar=1 inch:



This inundation map meets all applicable state and federal standards and has been prepared in consideration of all potential downstream hazards by a licensed civil engineer. Information shown is approximate and should be used as a guideline for emergency response and preparation purposes.

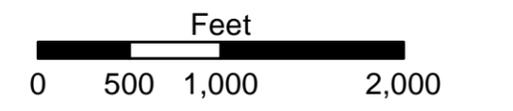


Lake Herman
 DWR Dam No. 1028.000
 National ID No. CA00851
 Solano, CA
 Sunny Day Failure Inundation,
 Main Dam (Arrival Time)
 Panel 2 of 2



Max Depth (feet)	Arrival Time (mins)
1 - 2	5
2 - 4	10
4 - 8	20
8 - 15	30
15+	40
	50
	60
	90

Coordinate System: NAD 1983 StatePlane
 California II FIPS 0402 Feet
 Vertical Datum: NAVD 88 Feet
 Scale = 1:12,000 if bar=1 inch:



This inundation map meets all applicable state and federal standards and has been prepared in consideration of all potential downstream hazards by a licensed civil engineer. Information shown is approximate and should be used as a guideline for emergency response and preparation purposes.

PART 3 APPENDICES

- A. EAP Status Report (for Non-FERC dams)
- B. Record of EAP Revisions
- C. Record of Plan Holders
- D. Contact Log
- E. Emergency Incident Log
- F. Emergency Termination Log
- G. After Action Report
- H. Cal OES Warning Center Dam Incident Report
- I. Local Public Agency Outreach Documentation
- J. Acronym List

Appendix A

EAP Status Report (for Non-FERC dams)

EAP Status Report for Lake Herman Dam, DSOD Dam No. 1028.000

Annual EAP Review Performed:

An initial review of the Lake Herman Dam EAP, in the form of a tabletop exercise, was conducted on August 21, 2018 at the City of Benicia Fire Station #11 located at 150 Military West in Benicia, California.

Annual Notification Exercise:

Agencies in attendance on August 21, 2018 were given a draft copy of the Lake Herman Dam Emergency Action Plan to review during the exercise. Contact and notification flowchart information included in the draft EAP was reviewed during the exercise and any updates were noted. Updates will be included in a finalized copy of this EAP, which is anticipated to be completed by December 2018.

Annual Update Sent to Plan Holders:

Any changes to the contact information and notification flowcharts that were noted at the tabletop exercise will be included in the finalized version and distributed to all plan holders listed in Appendix C.

Prepared by:

City of Benicia

Mail this document, or something similar, to the Cal OES Dam Safety Planning Division:

Jose Lara, Chief
Dam Safety Planning Division
3650 Schriever Avenue
Mather, CA 95655

OR send it electronically to the Division at eap@Cal OES.ca.gov.

DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791



JUN 04 2019

Mr. William Tarbox, Director
Department of Public Works
City of Benicia
250 East L Street
Benicia, California 94510

Lake Herman Dam, No. 1028
Solano County

Dear Mr. Tarbox:

We have reviewed the inundation map submitted for Lake Herman Dam. We have determined that the dam has no critical appurtenant structures and the map listed below is in substantial compliance with the requirements of Title 23, Division 2, Chapter 1, Article 6 of the California Code of Regulations. Therefore, the following inundation map is approved:

1. Main Dam (sunny day failure scenario) map dated April 4, 2018.

The approved map will be made publicly available as required by section 6161(c) of the California Water Code. An emergency action plan (EAP) based on the approved inundation map must now be submitted to the California Governor's Office of Emergency Services (Cal OES) for their review and approval. Upon Cal OES approval, please submit to us an electronic copy of the approved EAP with a hard copy of a transmittal letter.

Pursuant to section 6161(e) of the CA Water Code, the EAP and inundation maps must be updated no less frequently than every 10 years, and sooner under conditions that include, but are not limited to, the following: (1) a significant modification to the dam or a critical appurtenant structure as determined by the department, or (2) a significant change to downstream development that involves people and property. Based on the requirement, the approved map will expire on April 4, 2028. Please submit the updated map at least six months prior to the expiration date for our review and approval.

If you have any questions or need additional information, you may contact Design Engineer Yogi Pirathapan at (916) 565-7873 or Project Engineer Phu Huynh at (916) 565-7872.

Sincerely,

ORIGINAL SIGNED BY

Sharon K. Tapia, Chief
Division of Safety of Dams

cc: (See Attached List.)

Mr. Tarbox

JUN 04 2019
Page 2

cc: Mr. José Lara, Chief
Dam Safety Planning Division
California Governor's Office of Emergency Services
3650 Schriever Avenue
Mather, California 95655

Mr. Ryan S. Greif, P.E.
Mead & Hunt, Inc.
180 Promenade Circle, Suite 240
Sacramento, California 95834

Appendix C

Record of Plan Holders

Copy Number	Organization	Person Receiving Copy
1	City of Benicia Fire Department	Joshua Chadwick, Fire Chief
2	City of Benicia Police Department	Erik Upson, Chief of Police
3	City of Benicia Public Works	Laura Pate, Project Manager - Utilities
4	City of Benicia Public Works	Will Tarbox, Public Works Director
5	City of Benicia Public Works/Engineering	Nouae Vue, Sr. Civil Engineer
6	City of Benicia Public Works/Water	Leo Larkin, WTP Superintendent
7	City of Benicia Public Works/Maintenance	Drake Valentine, Maintenance Supt.
8	City of Benicia Community Development/Building	Rachel O'Shea, Building Official
9	Valero Refining Company, Benicia	Joe Bateman, Emergency Services
10	Solano County OES	Robyn Rains, Emergency Services
11	California Highway Patrol – Golden Gate Division	Ernie Sanchez, Chief
12	Cal OES – Dam Safety Planning Division	Jose Lara, Chief

Appendix D

Emergency Contact Logs

Emergency Contact Log templates are provided in this Appendix for each of the four dam emergency levels: high flow, non-failure, potential failure, and imminent failure.

Dam Name: Lake Herman Dam		Date:	
NID #: CA00851	DSOD Dam #: 1028.000	FERC #: NA	
DSOD Region: North	County: Solano		
Emergency Level: High Flow	Incident/Exercise:		
After determining the emergency level, immediately contact the following agencies/entities. The person making the contact should initial and record the time of the call and who was contacted at each agency/entity.			
Agency/Entity	Person Contacted	Contact Time	Contacted By
City Fire, EOC 707-590-3193 707-746-4275			
City Police 707-745-3411			
National Weather Service Sacramento 916-979-3051			

Dam Name: Lake Herman Dam		Date:	
NID #: CA00851	DSOD Dam #: 1028.000	FERC #: NA	
DSOD Region: North	County: Solano		
Emergency Level: Non-Failure	Incident/Exercise:		
After determining the emergency level, immediately contact the following agencies/entities. The person making the contact should initial and record the time of the call and who was contacted at each agency/entity.			
Agency/Entity	Person Contacted	Contact Time	Contacted By
City Fire, EOC 707-590-3193 707-746-4275			
City Police 707-745-3411			
National Weather Service Sacramento 916-979-3051			
DSOD Northern Region 916-227-9800			

Dam Name: Lake Herman Dam		Date:	
NID #: CA00851	DSOD Dam #: 1028.000	FERC #: NA	
DSOD Region: North	County: Solano		
Emergency Level: Potential Failure	Incident/Exercise:		
After determining the emergency level, immediately contact the following agencies/entities. The person making the contact should initial and record the time of the call and who was contacted at each agency/entity.			
Agency/Entity	Person Contacted	Contact Time	Contacted By
City Fire, EOC 707-590-3193 707-746-4275			
City Police 707-745-3411			
National Weather Service Sacramento 916-979-3051			
Cal OES Warning Center 916-845-8911			

Dam Name: Lake Herman Dam		Date:	
NID #: CA00851	DSOD Dam #: 1028.000	FERC #: NA	
DSOD Region: North	County: Solano		
Emergency Level: Imminent Failure	Incident/Exercise:		
After determining the emergency level, immediately contact the following agencies/entities. The person making the contact should initial and record the time of the call and who was contacted at each agency/entity.			
Agency/Entity	Person Contacted	Contact Time	Contacted By
City Fire, EOC 707-590-3193 707-746-4275			
City Police 707-745-3411			
National Weather Service Sacramento 916-979-3051			
Cal OES Warning Center 916-845-8911			

Appendix F

Emergency Termination Log

Dam Name: Lake Herman Dam		County: Solano	
Dam Location: 38°05'45" N, 122°09'03" W		Stream/River: Sulphur Springs Creek	
Date:		Time:	
Weather Conditions:			
General Description of Emergency Situation:			
Area(s) of Dam Affected:			
Extent of Damage to Dam and Possible Causes:			
Effect on Dam Operation:			
Initial Reservoir Elevation:	Maximum Reservoir Elevation:	Final Reservoir Elevation:	
Time:	Time:	Time:	
Description of Area Flooded Downstream/Damage/Loss of Life:			
Justification for Termination of Dam Safety Emergency:			
Other Data and Comments:			
Report Prepared By:			
Printed Name:	Signature:	Date:	

Appendix G

After-Action Report

Background:

Event Details:

Type of Event:

Location:

Incident Period:

Brief Description of Event:

Response Activities:

Summary of Successes:

Summary of Recommended Improvements:

Organizations Contributing to this Report:

Appendix I

Local Public Agency Outreach Documentation

After completing the draft, City of Benicia will circulate to affected Emergency Management Agencies (listed on notification flowcharts) for their review. Emails received from local public agencies with their approval or comments should be compiled under this Appendix.

The following participated in the initial training process for the Lake Herman Dam Emergency Action Plan:

Name	Title/Organization	Signature	Date
James Laughter	City of Benicia Police Department	See attached sheet	08/21/2018
Robyn Raine	Solano OES	See attached sheet	08/21/2018
Josh Chadwick	City of Benicia Fire Department	See attached sheet	08/21/2018
Leo Larkin	City of Benicia Public Works	See attached sheet	08/21/2018
Rachel O'Shea	City of Benicia Building Department	See attached sheet	08/21/2018
Laura Pate	City of Benicia Public Works	See attached sheet	08/21/2018
Joe Bateman	Valero Benicia Refinery	See attached sheet	08/21/2018
Erik Upson	City of Benicia Police Department	See attached sheet	08/21/2018
Drake Valentine	City of Benicia Public Works	See attached sheet	08/21/2018
Alan Shea	City of Benicia City Hall	See attached sheet	08/21/2018
Elizabeth Crowley	Valero Benicia Refinery	See attached sheet	08/21/2018
Jose Lara	Cal OES	See attached sheet	08/21/2018
Lori Newquist	Cal OES	See attached sheet	08/21/2018
David Harvey	California Highway Patrol	See attached sheet	08/21/2018

EMERGENCY ACTION PLAN TABLETOP ATTENDEE REGISTRATION

City of Benicia - Lake Herman Dam

August 21, 2018 9:00 am - 12:00 pm

Fire Station #11, 150 Military West, Benicia, CA

Name	Agency	Phone #	Email
Carson Mettel	Mead & Hunt - Facilitator	608-273-6380	carson.mettel@meadhunt.com
Jen Schuetz	Mead & Hunt - Facilitator	608-273-6380	jen.schuetz@meadhunt.com
James LAUGHTER	BENICIA P.D	707 319 3917	JLAUGHTER@CI.BENICIA.CA.US
Robyn Raine	Soleno OES	707-372-8076	RRains@SolanoCounty.com
JOSH CHADWICK	BENICIA FD	707 590 3193	SCHADWICK@CI.BENICIA.CA.US
Leo Carkin	Benicia PW	707 746 4293	lcarkin@ci.Benicia.ca.us
Rebel O'Shea	Benicia Building	707 746 4233	ROSHEN@Benicia.org
LAURA PATE	BENICIA PUBLIC WORKS	707 746 4386	lpate@ci.benicia.ca.us
JOE DALSMAN	VALCULO BENICIA	707 945-7829	joe@ci.Benicia.ca.us
Eric Upson	Benicia PD	707-746-4260	eupson@ci.benicia.ca.us
DRAKE VALENTINE	PUBLIC WORKS - BENICIA	707-746-4297	dvalentine@ci.benicia.ca.us
Ann Shea	Benicia City Hall	707-746-4309	ashea@ci.benicia.us

Appendix J

Acronym List

CA	California
Cal	California
City	City of Benicia
Dam	Lake Herman Dam
DSOD	Division of Safety of Dams
DWR	Department of Water resources
EAP	Emergency Action Plan
EOC	Emergency Operations Center
FERC	Federal Energy Regulatory Commission
NID	National Inventory of Dams
OES	Office of Emergency Services
SCADA	Supervisory Control and Data Acquisition
Supt	Superintendent
Tech	Technician
VHF	Very High Frequency
WEAs	Wireless Emergency Alerts
WTP	Water Treatment Plant