Oroville Spillways Community Meetings
Sacramento, California on May 15, 2017, 1:30 pm
Meeting Summary

The meeting in Sacramento was the last meeting of seven community meetings convened by the California Department of Water Resources (DWR) in April and May 2017, with the following focus:

- Response: What happened to the main and emergency Lake Oroville spillways (spillways) in February and March and what was the response?
- Recovery: What is happening today and in the future to repair the main and emergency spillways?
- Community Topics: What are likely community impacts of the recovery and how can they be addressed?

This document summarizes the presentation and opening remarks. The full presentation is available online here: http://www.water.ca.gov/oroville-spillway/pdf/2017/OER%20Community%20Meetings%20Presentation%2020170504_v8.pdf.

A complete video of the meeting is available online here: https://www.youtube.com/watch?v=MGAy3nehNfQ.

This summary also captures public comments and clarifying questions, and DWR staff responses. It is not intended to serve as a detailed transcript of the meeting. [1]

This document is organized into the following main sections:

1. Introduction
2. Presentation
3. Questions and Comments
4. Action Items

Introduction

Mike Harty, facilitator with Kearns & West, opened the meeting, reviewed logistics, and discussed the meeting purpose and agenda.

Cindy Messer, Chief Deputy Director for DWR, provided opening remarks for DWR. Ms. Messer discussed the spillways failure and subsequent evacuation, and affirmed the Department's commitment to:

- Public Safety
- Security
- Transparency in communications related to the spillways recovery effort

After Chief Deputy Messer's opening remarks, she introduced Oroville Mayor Linda Dahlmeier and thanked her for her consistent presence throughout the community meetings process.

[1] Where appropriate DWR has added a "NOTE" that reflects subsequent investigation to ensure factual accuracy.

Presentation

Joel Ledesma, DWR, delivered a brief presentation on the Oroville Emergency Response and Recovery process and the current status of operations. He emphasized that the dam itself was not impacted by the event. He reviewed the structure of the spillways and the timeline over which the primary spillway failed in early and mid-February. Mr. Ledesma noted the unprecedented meteorological conditions that required the controlled but rapid release of water from the reservoir onto the damaged spillway. He reviewed the proposed approach to repairs and mitigation of impacts. The priority is repairing the upper chute of the spillway and installing a cutoff wall on the emergency spillway in 2017 to avoid any further erosion. The next phase will involve constructing a new lower chute of the main spillway and additional improvements to the emergency spillway as quickly as possible.

Public Comment and Question Session:

The summary below provides a detailed overview of the questions (Q), comments (C) provided by meeting participants, as well as responses (R) provided by DWR staff. Specific items for follow up are identified in the "action items" section below.

- C: DWR should convene quality, in-depth discussions with the Federal Energy Regulatory Commission (FERC) licensing proceeding participants regarding issues of safety, flood control operational readiness and the physical construction capabilities of the dam. As in the past, a number of participants were unsuccessful in engaging with DWR in the early 2000s on issues related to the spillway potential failure its impacts. The City of Oroville has been asked to evacuate twice now as a result of incidents related to the dam so there is a need for more serious (vs. hypothetical) consideration of the issues by DWR.
- Q/C: How did DWR apply provisions of the FERC emergency action plan to work through the February spillway incident? Has DWR released the emergency action plan? In the plan, DWR is required to look into all features of the dam and spillway operations, correct? I have not been able to obtain a copy of the plan, but I was able obtain a bulletin containing all the specifics of the emergency action plan at the California State University library.
    - R: The emergency action plan for potential dam failure provisions was activated soon after February 7, when DWR notified partnering emergency management agencies of the hazardous situation developing and then issued notice of the emergency spillways imminent failure which went out with the Sheriff's evacuation notice on the night of the evacuation. Inspection procedures and policies which address the issues involving critical energy infrastructure information cannot be released; however, the public can review various inundation components under the plan. The bulletin on the emergency action plan should not be publicly available.
- Q: How has the issue of dynamics of stagnation pressure been addressed in past dam repairs? Who oversees and monitors the repairs? What is the schedule and extent of repairs to the top vs. bottom chute of the spillway?
    - R: With the repairs that the division of operations and maintenance made in the 1990s, issues related to building pressures and functional drains were addressed. Review of the internal maintenance processes has now been transferred to the Forensics team. The Forensics team released a preliminary report last week listing potential causes of the

spillway failure and will issue a final report in the fall. There are several layers of oversight on the spillway repairs, including FERC, DWR and independent contractors.

- What is DWR doing to address the sedimentation and debris in the river caused by the spillway incident and high flows?
    - R: DWR is working closely with California Department of Fish & Wildlife (CDFW) and the National Marine Fisheries Service (NMFS) and other agencies/groups to assess the damage and address issues and we welcome any assistance and input.
- Q: Does the gated spillway remediation plan contain effective measures to prevent erosion? Why not use the entire 270,000 cfs capacity? Can DWR build into its plan to widen the spillway so as to catch all the overflow from the emergency spillway? Will DWR consider rebuilding a spillway that's 120-130 meters wide in order to increase capacity for overflow from the emergency spillway?
    - R: The erosion on the spillway has now subsided and the remediation plan will result in erosion, but on a limited, non-catastrophic basis. The gated main spillway is designed with a capacity is 270,000 cfs, with 100,000 cfs capacity on the lower part of the gated spillway, but we do not intend for flows anywhere near that level. Typically, DWR does not release more than 150,000 cfs through the gated spillway. The issue with the February incident was catastrophic erosion, not capacity.
- Q: Who served as directors during 2008 – 2016? Are transcripts of these community meetings available to the public? Why did DWR disagree with the NGOs' report regarding the potential dam failures during the FERC licensing proceedings? Did the directors review such reports?
    - R: Director Mark Cowin served as DWR director during that time. DWR is reviewing the NGO reports again and is building in processes to prevent recurrence of this level of erosion. Simultaneously, the Forensics team is assessing DWR's internal processes to identify any problem areas that require attention. If any pressing maintenance issues are discovered, DWR will itemize the recommendations and communicate them to the division of repairs. DWR staff is not aware whether Director Cowin reviewed the reports. With respect to documentation of meetings, DWR will provide meeting recaps and post YouTube videos of the meetings online after each meeting.
- Q: When does DWR plan to test the emergency spillway? Was reinforcement built into the spillway concrete?
    - R: The only way to test the emergency spillway is to fill the lake above 900,000 cfs, which cannot be done without impacting safety. However, DWR does test the emergency spillway using a hydraulic model of the entire spillway complex which provides flow indicators but does not address erosion. The concrete is reinforced with rebar. The slabs of concrete found without rebar could possibly be from the filler layer beneath the reinforced concrete.
- Q: A participant posed a number of questions listed below (see respective responses). DWR will review the remaining unanswered questions and prepare responses accordingly
    - What precautionary measures is DWR taking to prevent failure of the dam, itself?
        - DSOD and FERC conduct formal biannual inspections. DWR conducts quarterly inspections and has security personnel on the scene to perform 24/7 visual inspections.
    - Is there seepage from the dam as may be evidenced by areas of green grass?

    - R: The green patches existed before there was water in the dam. The areas have been monitored and DWR has determined that other factors caused the growth, not seepage from the dam.
- As there are fault lines under the dam, is there a possibility that the dynamite blasts during the spillway repair can cause earthquakes?
    - R: The controlled blasts, which are under the control of a master blaster, are deemed safe. This activity has been reviewed by DWR's Division of Safety of Dams and FERC, and, to DWR's knowledge, it has not caused any earthquakes.
- What steps have been taken to help mitigate damage downstream if and when the dam breaches, for example operating the Sacramento Weir?
    - R: Parallel to discussions on Oroville, DWR is updating the Central Valley Flood Protection Plan (CVFPP). The CVFPP addresses potential losses associated with the operation of our flood risk reduction system, and provides the strategy for protecting communities in floodplains. *NOTE: This response incorporates additional information identified by DWR to ensure factual accuracy.*
- Is there a hotline for the public to report and learn about releases from the dam and the spillways?
    - DWR does have a hotline where the public can leave messages. Additionally, there is an instant information line, which provides reports about lake levels and spill information. All of this information is provided in the meeting packets.
- What systems are in place for evacuation, particularly pertaining to early warnings, time to reach safety, and reverse 911?
    - R: DWR does not draft evacuation plans or decisions. It works with and provides information to the Sheriff, who ultimately makes the decision to evacuate. DWR will give at least 24-hour notice when we change the water flow, which is generally 5000 cfs every 2 hours. Slower releases were made this morning in increments of 1,500 and 1,000 cfs. The Sheriff can address your question regarding a reverse 911 line. Information regarding early warning systems and other operations are posted on DWR's California Data Exchange Center (CDEC), which is operated by the weather service and reports data for California and Nevada. All local agencies are relying on three large grant programs focusing on Delta flood issues to collectively and properly prepare/update emergency plans.
- Does DWR have an oversight committee, which serves as a liaison between it and the citizens of Oroville and neighboring cities/areas?
    - R: DWR is currently looking into the potential for an oversight committee.
- What criteria or threshold does DWR look to in order to indicate potential dam failure and what data points would indicate that evacuation is necessary?
- Who is responsible for the full repair assessment report?
- What are the margins of safety for the dam?
- Are there FAQs available for reference on the DWR website?
    - R. DWR is currently collecting information for the FAQs which will be posted on the DWR website.
- Why is the meeting in Sacramento during the day, while others were held in the evening when more people would be able to attend?

        - R: Since the other six community meetings were in the evening, DWR decided to hold one afternoon meeting.

- Q: Who is accountable and will take financial responsibility for repairs/maintenance of dam and spillways?
    - R: The state water contractors are financially responsible for dam and spillway maintenance and repairs.
- Q: Please clarify what DWR's plan is to complete repairs of the spillway? DWR has claimed that California has the best dam safety record nationally, but why did the spillway fail even after all the alleged inspections?
    - R: DWR is collaborating with a number of local/state/federal agencies and state water contractors on the spillway repair process. DWR is looking at improved technologies to work into a more effective process. California has the best dam safety program in the United States, but it is still not enough and DWR always strives to do better. Also, part of Governor Brown's repair plan is to include increased inspection processes and contingencies.
- C: The meeting participant talked at length about past incidents related to the dam before suggesting that DWR look at past mistakes and learn from them in order to implement solutions before another incident occurs.
- Q: At what point will DWR give downstream communities an opportunity to have input on the evacuation plans? The situation with the February evacuation did not have any flow and was very chaotic –we ended up at a hotel in Fairfield. The community needs a clear evacuation plan to reference so that it can plan in advance. Who is involved in the design of the evacuation plan? At what point does the Office of Emergency Services (OES) get involved?
    - R: DWR works from a high flow action plan mandating notification to the community when water flows are above 20,000 cfs and going to increase about another 10,000 cfs. DWR informed the Sheriff accordingly of the February spillway incident, but because the upward erosion occurred so rapidly, notification of evacuation occurred without significant notice. Implementation evacuation plans start on the local level and work their way up to the state and federal levels. If the evacuation exceeds the local capacity, the local agencies request help from OES.
- Q: Who is working on spillway repair design? Who is accountable in the event the structure fails?
    - R: Stantec, AECOM, GEI, USACE, DWR – Division of Dam safety, Kiewit and others are all involved in re-designing the spillway. Everyone working on the design is accountable for the dam and spillway operations and safety.

Closing

Deputy Director Messer closed the meeting and thanked participants for attending.

Action Items

The following action items were recorded:

1. DWR to address the following questions which were not addressed during the meeting:

- What criteria or threshold does DWR look to in order to indicate potential dam failure and what data points would indicate that evacuation is necessary?
- Who is responsible for the full repair assessment report?
- What are the margins of safety for the dam?

2. DWR to post FAQs on its website once all of the information is collected from these community meetings.