Incident: Spillway - DWR Assist

. Incident Name: 2. Incident Number: CA-CDF-000114						
	4. Incident Co Organization:	ommanc	der(s) & Agen t lock/Honea	Org	ncident Manage Janization: Type 1 Tea Unified Comma	ment 6. Incident Start Date/Time: Date: 02/07/2017 Time: 1400 PST
unit label – e.g., or "Acres", "Square 0 Miles"): 4002 Acres b. (9 Pe W Co Co	%) Contained Completed: % Total ercentage	Other B. Incid Orovill spillwa C. Caus Unkno D. Fire Monito Confine Point Z Protect	se: wn Suppression S Strategy r r cone	promised	Complex CALFIRE Incident	From Date/Time: 02/13/2017 0600 PST To Date/Time: 02/13/2017 1800 PST
12. Prepared By: Print Name: Joshua Blac Date/Time Prepared: 02/ : PST		n P	3. Approved Print Name: B Signature:	-	mann	
14. Date/Time Submitted: 02/13/2017 1744 PS					ion, or Agency S restry/CALFIR	
CA B 19. Unit or Other:	7. County / Par utte 20. Incident Ju DWR	-		lent Locati	ion Ownership (i	18. City: Oroville f different than jurisdiction):
22. Latitude/Longitude: Latitude: 39° 32' 22" Longitude: 121° 29' 49" 23. US National Grid Reference: Grid Zone: x-Coordinate: y-Coordinate:24. Legal Description: Principal Meridian: Mt. Diablo Township: 19N Range: 4E Set 1/4 Sec: of 1/4 Sec: NW			idian: Mt. Diablo 9N Range: 4E Section: 2			
Oroville Dam Spillway, Feather River, and Thermalito diversion pool. Zone: 10 Easting: 629160 Northing: 4377732 27. Note any geospatial data available (indicate data format, content, and collection time information and labels):						

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28. Observed Fire Behavior or Significant Events for the Time Period Reported (describe fire behavior using accepted terminology. For non-fire incidents, describe significant events related to the materials or other causal agents):

Narrative:

29. Primary Fuel Model, Materials, or Hazards Involved (hazardous chemicals, fuel types, infectious agents, radiation, etc):

Narrative:

Water, concrete, soil/dirt, trees, debris are the main hazards to the spillways and downstream infrastructure.

30. Damage Assessment Information (summarize damage and/or restriction of use or availability to residential or commercial property, natural resources, critical infrastructure and key resources, etc):				
A spillway located at the Oroville Dam was	A. Structural Summary	B. # Threatened (up	C. #	D. #
compromised during heavy rains. Flowing water		to 72 hrs)	Damaged	Destroyed
was diverted toward the adjoining hillsides,	E. Single Residences	0	0	0
effectively eroding and undermining the spillway causing a section to collapse. Lake levels reached	F. Multiple Residences	0	0	0
the emergency spillway, creating significant	G. Mixed Commercial / Residential	0	0	0
erosion but has since ceased. Work is being done to reinforce the emergency spillway in an effort	H. Nonresidential Commercial Property	0	0	0
to mitigate the potential of a breach if water were to overtop in the future. The Feather River	I. Other Minor Structures	0	0	0
Fish Hatchery moved most aquatic assets to safe areas. California State Parks has closed trails around the spillways and portions of the lake where necessary.				

31. Public Status Summary: <i>C. Indicate the Number of <u>Civilians</u> (Public) Below:</i>			32. Responder Status Summary: C. Indicate the Number of Resp		Below:	
	Previous Report Total	A. # this Reporting Period		Previous Report Total	A. # this Reporting Period	B. Total # to-
D. Fatalities	0			0		date
E. With Injuries/Illness	0		D. Fatalities			
F. Trapped/In Need of Rescue	0		E. With Injuries/Illness	0		0
G. Missing	0		F. Trapped/In Need of Rescue	0		0
H. Evacuated	35,000	0	G. Missing	0		0
I. Sheltering in Place			H. Evacuated	0		0
J. In Temporary Shelters	0		I. Sheltering in Place	0		0
K. Have Received Mass	0		J. In Temporary Shelters	0		0
Immunizations	· ·		K. Have Received Mass	0		0
L. Require Immunizations	0		Immunizations			
M. In Quarantine	0		L. Require Immunizations	0	<u> </u>	0
			M. In Quarantine	0		0

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28. Observed Fire Behavior or Significant Events for the Time Period Reported (describe fire behavior using accepted terminology. For non-fire incidents, describe significant events related to the materials or other causal agents):

Narrative:

29. Primary Fuel Model, Materials, or Hazards Involved (hazardous chemicals, fuel types, infectious agents, radiation, etc):

Narrative:

Water, concrete, soil/dirt, trees, debris are the main hazards to the spillways and downstream infrastructure.

30. Damage Assessment Information (summarize	
damage and/or restriction of use or availability to	
5	
residential or commercial property, natural resources,	
critical infrastructure and key resources, etc):	
A spillway located at the Oroville Dam was	
compromised during heavy rains. Flowing water	
was diverted toward the adjoining hillsides,	
effectively eroding and undermining the spillway	
causing a section to collapse. Lake levels reached	
the emergency spillway, creating significant	
erosion but has since ceased. Work is being done	
to reinforce the emergency spillway in an effort	
to mitigate the potential of a breach if water	
were to overtop in the future. The Feather River	
Fish Hatchery moved most aquatic assets to safe	
areas. California State Parks has closed trails	
around the spillways and portions of the lake	
where necessary.	

31. Public Status Summary: <i>C. Indicate the Number of <u>Civilians</u> (Public) Below:</i>	32. Responder Status Summary: <i>C. Indicate the Number of <u>Responders</u> Below:</i>
	C. Indicate the Number of <u>Responders</u> Delow.
B. Total # to-date	
0	
0	
0	
0	
35,000	
0	
0	
0	
0	
0	

Incident: Spillway - DWR Assist

	Previous Report Total	A. # this Reporting Period			Previous Report Total	A. # this Reporting Period	B. Total # to- date
N. Total # Civilians (Public) Affected:	35,000	0	N. Total # Respond	ers Affected:	0		0
	us/Threat Respillway has spillway has sy spillover the main sp evation leve however en th a possibi numerous of to the Kelly /R Oroville I s of current a concern): emperature /et pattern b 21st. Alth ong as last v	emarks: s resumed du height. DWR billway, causi els trending o hergency spil lity of breach downstream y Ridge Comm Field Division nd predicted w s expected th returns late v oughcurren veek, the pat	e to Oroville staff continues ng erosion to the lownward from lway has b. Evacuation communities. nunity Center, Headquarters. reather; discuss nrough Wednesday and nt models do tern is a wet	 34. Life, Safe Management A. No Likely Th B. Potential Fut C. Mass Notifica D. Mass Notifica E. No Evacuation F. Planning for G. Planning for H. Evacuation(s) I. Shelter-in-Pla J. Repopulation K. Mass Immun L. Mass Immun M. Quarantine in 	ty, and H reat ure Threat ations in Pro ations Com on(s) Immir Evacuation Shelter-in- s) in Progres in Progress nization in P ization Con in Progress	ogress oleted eent Place ess ess s rogress aplete	
Mostly sunny, 62 to 67 degree Humidity will be at 51 to 56 shifting to the west up to 5 02/13/17 Mostly clear, 43 to 48 degree Humidity will be at 86 to 91 mph.	% with Nor mph in the a es with no o	theast winds afternoon. chance of pre	up to 7 mph	N. Area Restrict O. Road Closur P. Trail Closure Q. Area Closure	e		x x x x

36. Projected Incident Activity, Potential, Movement, I	Escalation, or Spread and influencing factors during the next
operational period and in 12-, 24-, 48-, and 72-hour t	ime frames:

12 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to evaluate auxiliary spillway.
24 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to evaluate auxiliary spillway.
48 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to evaluate auxiliary spillway.
72 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to

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B. Total # to-date	
35,000	

	34. Life, Safety, and Health Threat
	Management:
Lake receding the emergency spillover height. DWR staff continues	
to discharge water through the main spillway, causing erosion to the	
hillside as expected. Lake elevation levels trending downward from	
maximum recorded height, however emergency spillway has	
experienced degradation with a possibility of breach. Evacuation	
orders have been issued for numerous downstream communities.	
ICP was temporarily moved to the Kelly Ridge Community Center, but has now returned to DWR Oroville Field Division Headquarters.	
· · · · · · · · · · · · · · · · · · ·	
35. Weather Concerns (synopsis of current and predicted weather; discuss related factors that may cause concern):	
Dry weather and warming temperatures expected through	
Wednesday	
as high pressure builds in. Wet pattern returns late Wednesday and	
at least through Tuesday Feb 21st. Althoughcurrent models do	
not show any storms as strong as last week, the pattern is a wet	
one and the forecast could change heading forward.	
02/13/17 0600-1800	
Mostly sunny, 62 to 67 degrees with no chance of precipitation.	
Humidity will be at 51 to 56% with Northeast winds up to 7 mph	
shifting to the west up to 5 mph in the afternoon.	
02/12/17	
02/13/17 Mostly closer 42 to 48 degrees with no chance of precipitation	
Mostly clear, 43 to 48 degrees with no chance of precipitation. Humidity will be at 86 to 91% with Northeast winds from 5 to 11	
-	
h	
mph.	

36. Projected Incident Activity, Potential, Movement, Escalation, or Spread and influencing factors during the next operational period and in 12-, 24-, 48-, and 72-hour time frames:

12 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to evaluate auxiliary spillway.
24 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to evaluate auxiliary spillway.
48 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to evaluate auxiliary spillway.
72 hours:	Flow from spillway to be at 100,000 cfs to avoid flow over emergency spillway. Crews will be back filling emergency spillway to mitigate impacts from erosion. Crews will continue to

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evaluate auxiliary spillway.

Anticipated after 72 hours: TBD

37. Strategic Objectives (define planned end-state for incident):

Continue work on the roadway on left side of diversion pool to provide access for debris removal in tailrace. Use barges and boat to survey and remove debris blockages. Build rock protection for right side of spillway. Remove debris and logs out of diversion pool and chip. Utilization of main spillway to avoid use of emergency spillway. Evacuations ordered for numerous communities. Crews continuie ongoing assessment of water levels and Oroville Dam conditions.

38. Current Incident Threat Summary and Risk Information in 12-, 24-, 48-, and 72-hour timeframes and beyond. Summarize primary incident threats to life, property, communities and community stability, residences, health care facilities, other critical infrastructure and key resources, commercial facilities, natural and environmental resources, cultural resources, and continuity of operations and/or business. Identify corresponding incident-related potential economic or cascading impacts:

Lake levels fell to 895' and the emergency spillway, which sits at 901', is no longer being utilized. While flow has ceased, drones flew the emergency spillway for a visual assessment of the area, and to find a safe access for DWR Inspection Teams. Data from Engineering and imagery from the flight were used to create an Emergency Spillway Erosion Plan. The Plan has been implemented and depicts predetermined repair priorities identified by need. Every effort is being made to have repairs completed if the emergency spillway were to overtop again. The top of the main spillway is at 817' with current lake level sitting at 895'. The flow was increased to 100,000 cfs today from 100,000. The 2 downhill roads from the emergency spillway have been significantly eroded with one being washed out. Additional uprooted trees were found lodged in the Thermalito Diversion Dam, located 4 miles downstream. Contractors are assessing how to remove blockage, which has been difficult due to weight limitations of dam crossing. Due to the continued threat of erosion to the main spillway, monitoring continues by DWR geology/engineering departments. Continued erosion threatens DWR power lines. The Hyatt Power Plant is flooding with the tailrace elevation exceeding 252'. Barges and cranes are being mobilized to remove debris in the tailrace. Power plant flooding is being mitigated by sandbagging and pumps placed around stoplog slots. The Feather River Hatchery staff and Fish and Wildlife Wardens made access today to access the fishery. Reports show that turbidity levels are down and fish are healthy and feeding. The Hatchery has lost power and is running on a standalone generator. 1 million Endangered Steelhead trout eggs, still in

^{12 hours:} hatchery pools, are being supplemented with de-chlorinated hydrant water in a closed loop system since they can¿t be moved safely. 2 million endangered spring run Chinook Salmon along with 3 million fall run Chinook salmon have been moved to the Thermalito Annex facility located away from the river. 3 million out of 6 million fall run Chinook Salmon remain at the main hatchery facility due to the Thermalito Annex being at capacity. If conditions worsen or turbidity levels rise, a decision will be made to release the 3 million remaining Chinook salmon into the river to increase chances for survival. California State Parks made positive contact to all local cultural groups that potentially were effected by use of the emergency spillway and updated them on current conditions. There were several cultural impacts identified that could be effected, consultation is being done and plans are designed to minimize impacts and mitigate potential damage.

Representatives from the cultural groups were escorted into the emergency spillway area and were given the opportunity to observe the damage in the area, from a distance, prior to the evacuation. The trail system directly affected by the damaged spillway include the Brad Freeman and Dan Beebe Trails and have been closed, along with a portion of Oroville Lake directly above the spillways. Ranger staff are providing roving patrols and responding to calls within the affected area by vessel, vehicle, and UTV due to a large number of contacts in the closed area. Impacts to the park include Soil erosion, water turbidity downstream, and tree and vegetation removal.

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24 hours: Same as above.								
48 hours: Same as above.								
72 hours: Sam	72 hours: Same as above.							
Anticipated afte	r 72 ho	urs: Pr	edicted rainfall for the end of next week, Wednesday 2/15/17.					
			12-, 24-, 48-, and 72-hour timeframes and beyond to meet critical incident objectives.					
	tegory,	KINU, c	nd/or type, and amount needed, in priority order:					
12 hours: N/A								
24 hours: N/A 48 hours: N/A								
72 hours: N/A								
Anticipated after	r 72 ho		٨					
1) critical reso	urce ne	eds ide	lain the relation of overall strategy, constraints, and current available information to: entified above,					
			nd management objectives and targets,					
3) anticipated								
			oncerns such as operational challenges, incident management problems, and social,					
			mental concerns or impacts. ough the emergency spillway, numerous communities were evacuated. Based					
returned to D components t levels in the (WR Ore o repai Droville	oville l ir dam Rese	ncy spillway breach, the ICP was also evacuated as a precaution, but has since Field Division Headquarters. DWR crews continue to reinforce the dam age and prepare for upcoming precipitation. Flows of 100,000 cfs are lowering rvoir to create capacity for upcoming storms. Engineers and construction age, developed repair plans and began work to bolster the emergency spillway.					
			Dperational Period: tinue at 100,000 cfs depending on amount of erosion observed.					
			ze/Area (use unit label – e.g., "Acres", "Square Miles"):					
			ainment or Completion Date: 02/28/2017					
			urce Demobilization Start Date:					
			o Date: \$5,200,000.00					
46. Projected F	nal Inci	dent C	ost Estimate:					
47. Remarks (or continuation of any blocks above – list block number in notation):								
10 December 1	1							
49. Resources (summarize resources by category, kind, and/or type; show # of resources on top ½ of box, show # of personnel associated with resource on bottom ½ of box):								
48. Agency or Org	50. Ovhd	51. Tot Pers						
Rsro								
C&L Pers		20						
Rsro	:							
CA	139	139						
Rsro	-							
CA-CDF Pers		39						
	-							

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52. Total Resources	198	
53. Additional Cooperating and Assisting Organizations Not Listed Above: Butte County OES, Caltrans, Yuba Fire Department, Marysville Police Department, Calfire, PG&E, CHP,		
Cal State Parks, Butte County Sheriff, Oroville Police Department, Oroville Fire Dept, Butte County Public Works, Marysville Hospital		