



2107 OROVILLE DAM SPILLWAY EVACUATION

PRESENTED BY
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CALIFORNIA STATE WATER PROJECT

- OROVILLE DAM – LAKE OROVILLE KEY TO THE STATE WATER PROJECT (SWP)
- SWP ONE OF THE LARGEST WATER & POWER UTILITIES IN THE WORLD
- SUPPLIES 23 MILLION PEOPLE WITH DRINKING WATER



OROVILLE DAM COMPLEX

TALLEST DAM IN THE UNITED STATES – 770 FT.

SECOND LARGEST MAN-MADE LAKE IN CA

WATER CRESTS EMERGENCY SPILLWAY WHEN LAKE LEVEL IS 900 FT.

EMERGENCY SPILLWAY - 1730 FT. LONG – 30 FT. HIGH



FEBRUARY 7, 2017 ...NOTHING TO SEE HERE

- RECEIVED CALL FROM LOCAL MEDIA ASKING IF THERE WAS A PROBLEM AT THE DAM
- DIFFICULTY GETTING INFO FROM DWR
- ULTIMATELY LEARNED OF GAPPING HOLE
- RECOGNIZED THERE WAS A THREAT TO PUBLIC SAFETY, BUT NOT SURE HOW THE THREAT WOULD MANIFEST ITSELF



“THE HOLE”

- 200 FT. LONG
- 30 FT. DEEP
- HEAD-CUTTING
20 FT. BACK



BALANCING COMPETING INTERESTS & MANAGING RISK WITHOUT A PLAYBOOK

- HISTORIC RAINFALL & SNOW PACK FOLLOWING FIVE YEARS OF DROUGHT
 - RAINIEST YEAR IN 122 YEARS OF KEEPING RECORDS
- DWR WAS TRYING TO MANAGE THE INFLOW THROUGH RELEASES FROM THE SPILLWAY & THE HYATT POWER PLANT
 - TRYING TO FIND THE “SWEET SPOT” – 40,000 TO 60,000 CFS
 - SHOOTING WATER PAST THE HOLE, WITHOUT CAUSING FURTHER DAMAGE TO LOWER INFRASTRUCTURE
 - HYATT POWER PLANT NOT AT FULL CAPACITY
 - NOT ALL TURBINES FUNCTIONING



FEBRUARY 11, 2017 HERE WE GO...

- LAKE LEVEL REACHES 900 FT.
- WATER CRESTS EMERGENCY SPILLWAY
- FIRST TIME IN HISTORY OF OROVILLE DAM
- CONFLICTING MESSAGES
- DWR - "NOT IDEAL, BUT SHOULD BE OKAY"

THIS ISN'T GOOD....DOES THE SHERIFF KNOW ABOUT THIS?



- EROSION – HEAD-CUTTING
- FACING CATASTROPHIC FAILURE OF EMERGENCY SPILLWAY
- UNCONTROLLED RELEASE OF MILLIONS OF GALLONS OF WATER
- 30 FT. HIGH WALL OF WATER, 1730 FT. LONG
- POURING OUT UNTIL TOP 30 FT. OF LAKE IS DRAINED

FEBRUARY 12, 2017
PULLING THE BIG RED HANDLE.....

Evacuate

- EVACUATE THE SOUTHERN PART OF BUTTE COUNTY

Evacuate

- EVACUATE BC SO DISPATCH CENTER

Evacuate

- EVACUATE THE BUTTE COUNTY JAIL

Call

- CALL EVERYONE FOR HELP

CROYLE'S FIGHT TO AVERT DISASTER



- EMERGENCY SPILLWAY
 - FOC – 100,000 CFS
 - BAGS OF ROCK
- HYATT POWER HOUSE
 - 1.6 MILLION CUBIC ACRES OF DEBRIS ENDED UP IN THE TAIL RACE
 - HYATT POWER HOUSE BEGAN TO FLOOD
 - COULD HAVE BEEN A CATASTROPHE



FCO AT
100,000 CFS

THE DISASTER THAT ALMOST HAPPENED





RECOVERY CONTINUES



COULD THIS HAPPEN AGAIN?

- 1000'S OF DAMS ACROSS THE COUNTRY
- DETERIORATING INFRASTRUCTURE IS VULNERABLE
- CRITICAL ENERGY INFRASTRUCTURE – TARGETS

FORENSIC TEAM FINDINGS



- PHYSICAL INSPECTIONS ARE NOT ADEQUATE TO DETECT DESIGN AND CONSTRUCTION FLAWS
- PERIODIC, COMPREHENSIVE REVIEW OF DESIGN AND CONSTRUCTION DOCUMENTS, TAKING INTO ACCOUNT CURRENT OPERATIONS OF THE DAM ARE NEEDED TO DETERMINE RISKS
- MERE COMPLIANCE WITH EXISTING REGULATIONS IS NOT SUFFICIENT TO MANAGE RISK TO THE PUBLIC
- FINDINGS PROBABLY APPLY TO ALL DAMS IN CALIFORNIA – MORE THAN 1400



THANK YOU

QUESTIONS OR COMMENTS

