



Ronald B. Robie (Thermalito) Pumping
Generating Plant Fire on November 22, 2012
- No Serious Injuries -

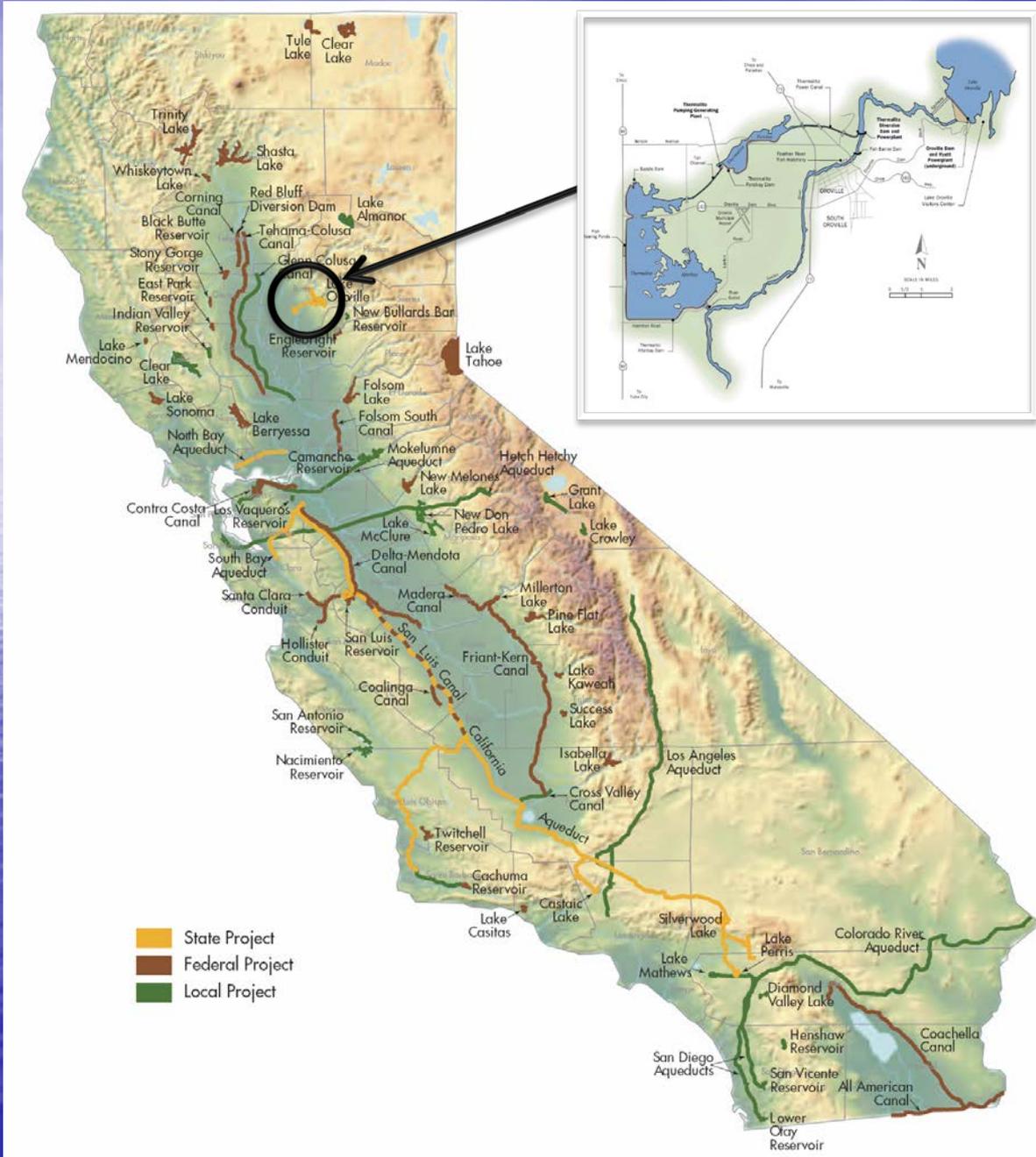
California Water Commission

December 12, 2012
David Roose

Presentation Highlights

- High-Level Overview of Plant
 - Flow Characteristics in relation to Hyatt
 - Plant Characteristics
- Plant Fire on November 22, 2012: Emergency Response
 - Sequence of Events
 - Incident Command
 - Photos
 - No Serious Injuries
- Current Status: Incident Command—30 days???
 - Communication Plan
 - Structural Analysis
 - Safety/Air Sampling/Hazmat
 - Secure Plant to ensure fire evidence is protected
- Root Cause Analysis during Incident Command
 - Investigative analysis of what happened: Lead--Tio Zasso
 - Forensic Analysis (Fire expert & Relay expert analysis): Lead—Tio Zasso/David Roose
 - Lessons Learned—Apply lessons learned to all SWP plants
- Impacts
 - Water Impacts
 - Generation Impacts
- Phased Approach to Plant Restoration

Lake Oroville: Hyatt – Thermalito Complex



Ronald B. Robie (Thermalito) Pumping/Generating Plant Plant Characteristics

- Generation:
 - Number of Units: 4 (1 g, 3 p/g)
 - Unit Size: 1 Kaplan type @ 36 MW (4800 cfs), 3 Francis type @ 27 MW (4200 cfs)
- Pumping:
 - Number of Units: 3 p/g
 - Unit Size: 3 @ 28 MW (3040 cfs)



Ronald B. Robie (Thermalito) Pumping/Generating Plant Fire

November 22, 2012

Plant Sequence of Events
Emergency Response
Incident Command



Ronald B. Robie (Thermalito) Pumping Generating Plant Fire – 3 day highlights

Plant/Unit Sequence of Events – 11/22/2012

- 0600: Thermalito Unit 1 placed in parallel by OFD Area Control Center by SCADA.
- 0604: Thermalito Unit 2 placed in parallel by OFD Area Control Center by SCADA.
- 0650: Thermalito Unit 2 tripped, forced out of service.
- 0654: Thermalito Unit 3 placed in parallel by OFD Area Control Center by SCADA.
- 0658: Thermalito Unit 3 tripped, forced out of service.
- 0658: Thermalito Unit 1 tripped, forced out of service.
- 0658: SCADA reports multiple failures at Thermalito including smoke detectors, DC ground/low voltage, unit temperature alarms, loss of essential A/C.

Ronald B. Robie (Thermalito) Pumping Generating Plant Fire

Emergency Response – 11/22/2012

- 0720: Op-App directed to site at 07:00 and reports heavy smoke on second floor and indication that CO2 systems had discharged.
- 0733: Cal Fire/BCFD ECC dispatches full alarm:
2 Chief Officers, 1 Safety Officer, 2 Ladder Trucks,
4 Engines, 2 Water Tenders
- 0820: PCB 662 and 562, all load interrupters open, entry made by CalFire fire fighters into THPP; pressurized smoke in control indicating active fire in progress.
- 1300: Operator reports CalFire has decided to stand down at THPP due to several unsuccessful attempts to extinguish the fire. Fire crew deploy “unmanned” cellar nozzle below control room on Level 136 to fight the fire.

Ronald B. Robie (Thermalito) Pumping Generating Plant Fire

Emergency Response – 11/22/2012



Ronald B. Robie (Thermalito) Pump/Generation Plant Fire

Fire extinguished – 11/23/2012

- 0950: Operator reports CDF are gearing up to make entry into THP.
- 1323: Fire IC reports fire controlled at 1323.

Incident Command – 11/24/2012

- 0835: THP Bypass Flow at 400 cfs from 0 cfs – moving water into Thermalito Afterbay.
- 1030: OFD Operations Superintendent reports CalFire has turned over THP to DWR. DWR Incident Command center set up with OFD Operations Superintendent as the commander. No one is to enter THP without authorization from OFD Operations Superintendent.

Photo Sequence of Fire (CalFire After Action Review Presentation) 11/22/2012



0808 hrs



0918 hrs

Photo Sequence of Fire (CalFire After Action Review Presentation) 11/22/2012



0921 hrs



0930 hrs

Photo Sequence of Fire (CalFire After Action Review Presentation) 11/22/2012



1025 hrs



1034 hrs

Photo Sequence of Fire (CalFire After Action Review Presentation) 11/22/2012



1053 hrs



1104 hrs

Photo Sequence of Fire (CalFire After Action Review Presentation) 11/22/2012



1216 hrs



1502 hrs







Ronald B. Robie (Thermalito) Pumping Generating Plant Fire

Current status – Incident Command (30+ Days)

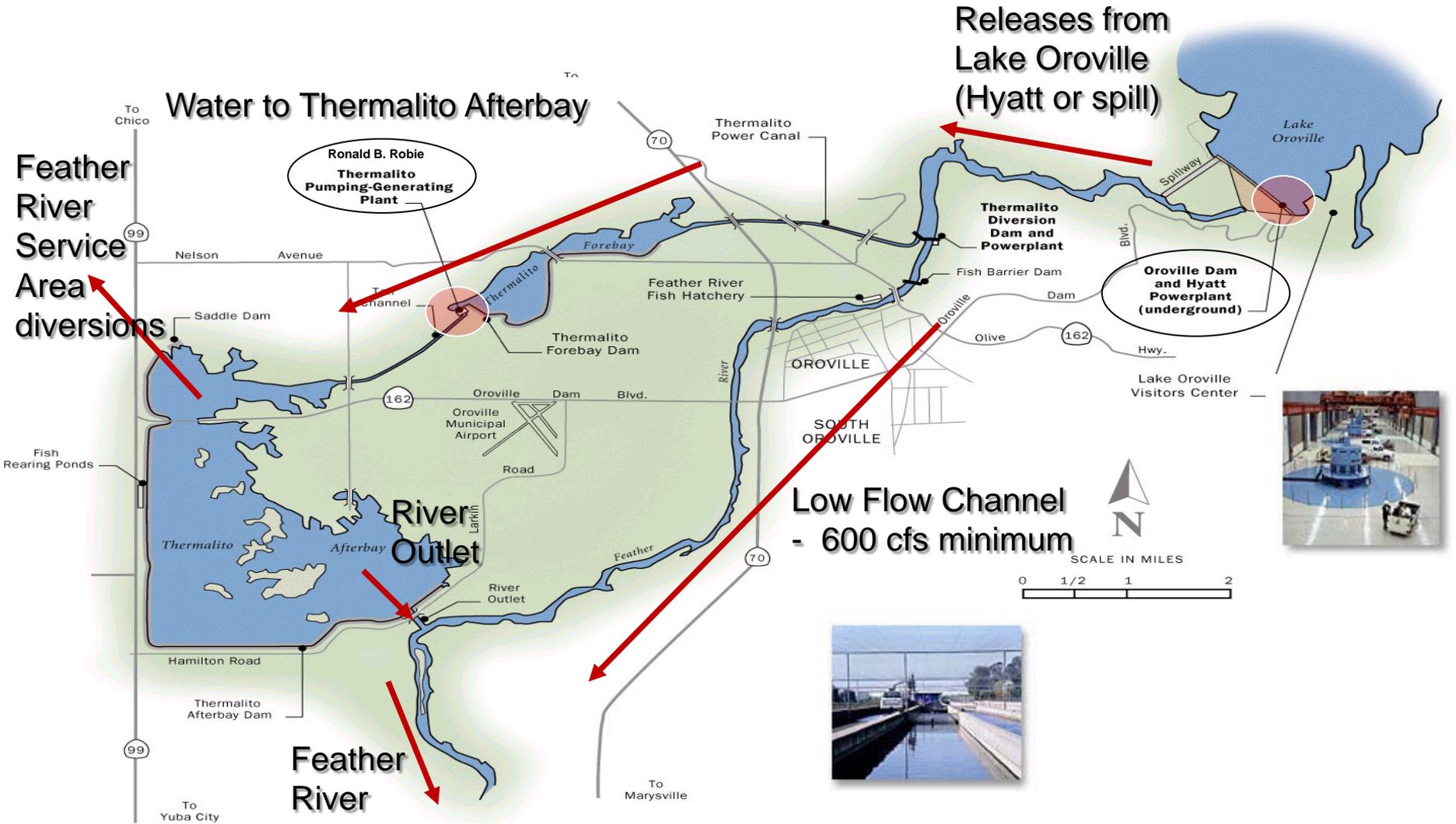
- Communication Plan: 11/24/2012
 - Incident Command: On-site communication trailer
 - Stand down mode: No entry into plant-hazmat, structural, safety
 - Secure plant to ensure safety and protect fire evidence
- Emergency Contract:
 - Syblon Reid
 - Air Sampling/Hazmat
 - Structural Analysis
 - Safety
 - Three step root-cause analysis
 - Investigative analysis of what happened
 - Forensic Analysis (Fire expert & Relay expert analysis)
 - Lessons Learned: Apply lessons learned to all SWP Plants
- Clean-up & Assessment Phase

Ronald B. Robie (Thermalito) Pumping/Generating Plant Fire

Impacts – water and generation

- Flows are being bypassed around the plant utilizing the plant bypass gate (capacity 10,000 cfs).
- Anticipated that regulatory releases will be maintained.
- Do not anticipate any water supply curtailments.
- Estimated lost generation is valued between \$6.5 Million (90% hydrology) to \$10.6 Million (50% hydrology) if plant is out of service during 2013.

Oroville Complex Water Movement



Ronald B. Robie (Thermalito) Pumping Generating Plant Fire

Phased Approach to Plant Restoration

- Plant Fire Emergency: 11/22/2012 through 11/24/2012
- Incident Command: 11/24/2012 - ??? (30+ days)
 - Hazmat/Air Stabilization (on-going)
 - Structural Analysis (on-going)
 - Safety (on-going)
 - Root Cause Analysis (begins 12/13/2012)
- Clean-up & Assessment: TBD
- Restoration: TBD

QUESTIONS

