

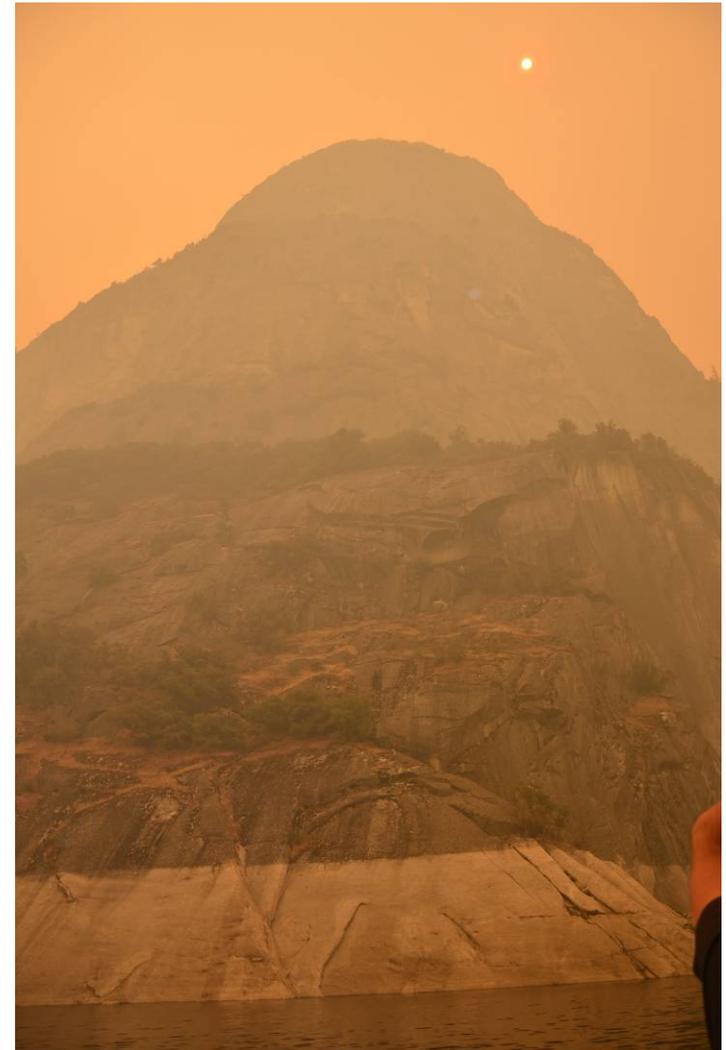
# **Hetch Hetchy Water & Power Rim Fire**

California Cooperative Snow Surveys  
November 3, 2015

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Water Enterprise

# Outline

- Rim Fire Background
- HHWP Rim Fire Timeline
- HHWP Fire Response
- Lessons Learned



# Rim Fire

## Rim Incident

CA-STF-002857

### Public Information Map

September 17, 2013

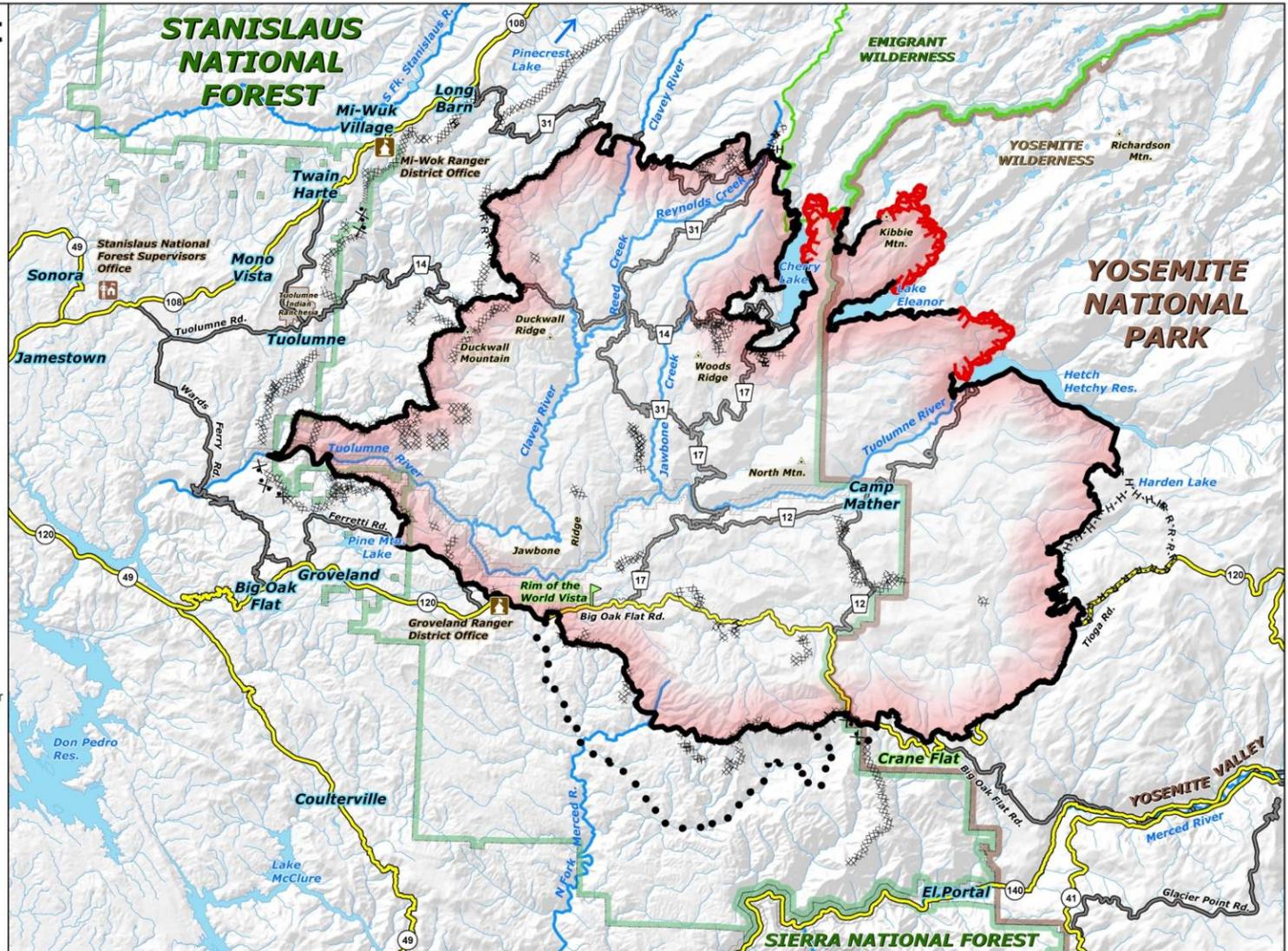
256,569 Acres

Approx. perimeter as of 9/16 @ 1400 hrs  
NAD83 UTM Zone 11N

-  Rim Fire Burned Area
-  Uncontrolled Fire Edge
-  Completed Line
-  Completed Dozer Line
-  Hand Line
-  Road as Completed Line
-  Line Break Completed
-  Proposed Dozer Line
-  Planned Secondary Line
-  Highways
-  Other Major Roads
-  Emigrant Wilderness
-  Tuolumne Wild & Scenic River



0 1 2 3 4 5  
Miles

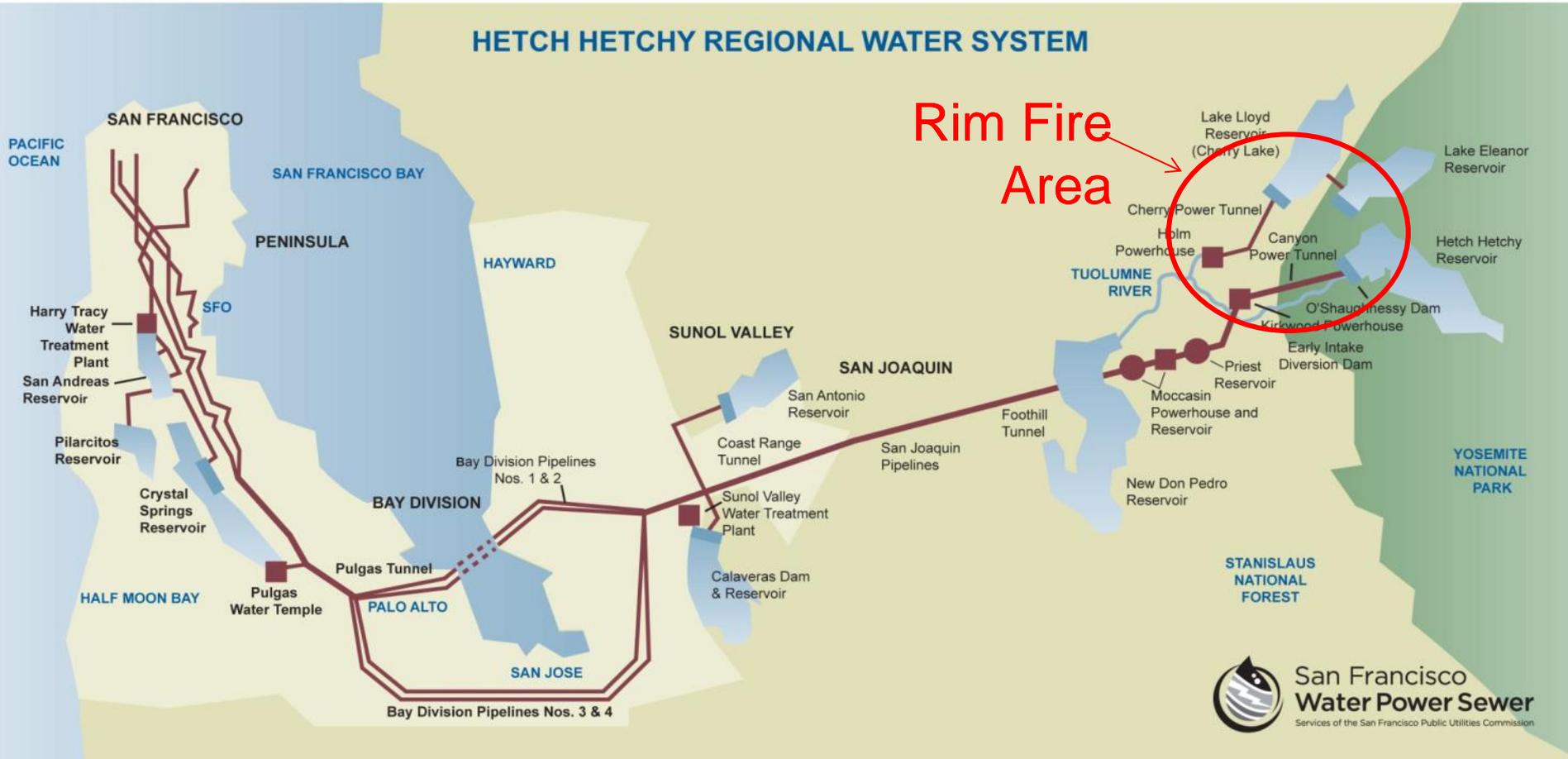


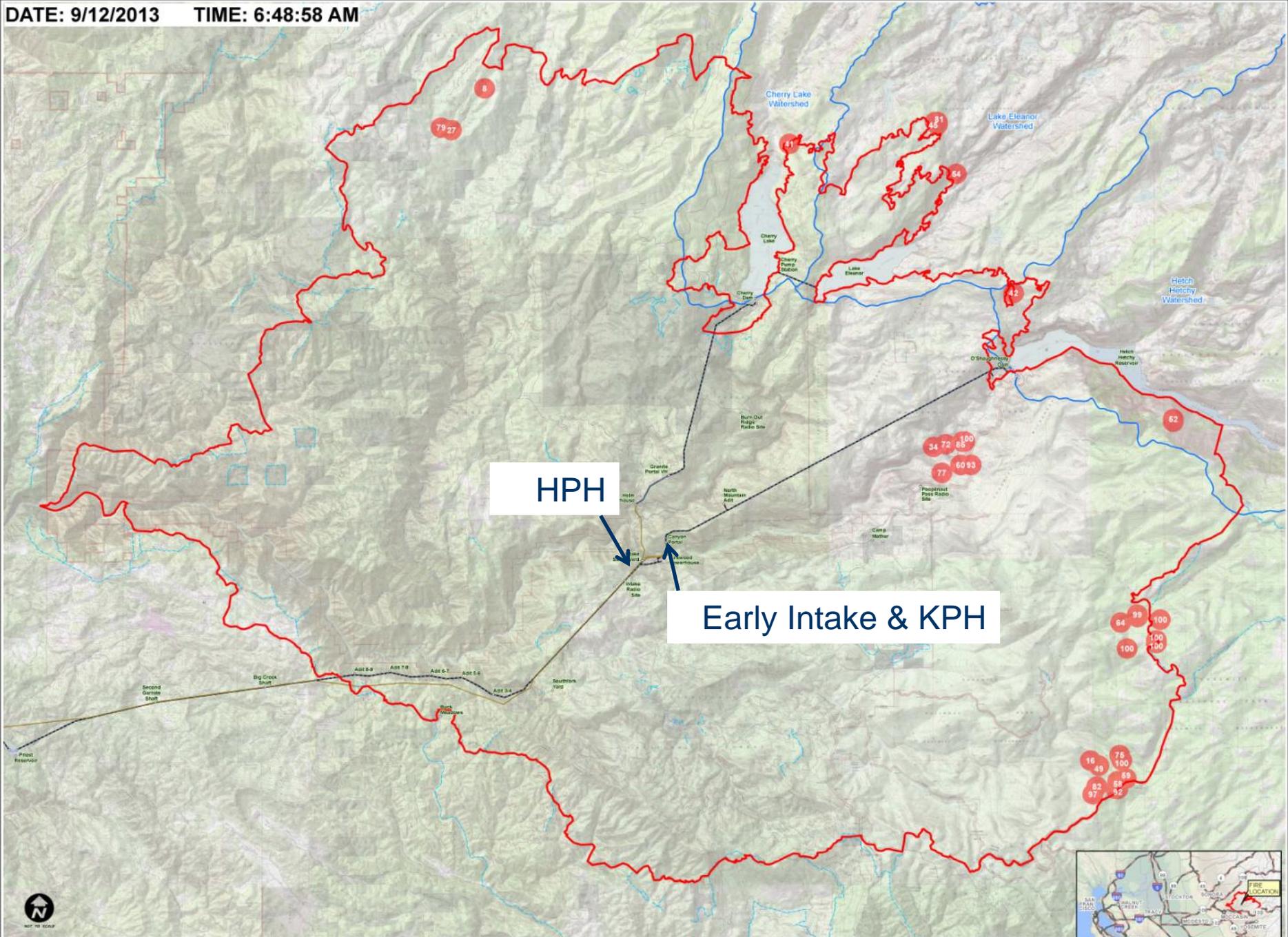
# Rim Fire

- Total of 257,314 acres
  - 3<sup>rd</sup> largest fire in CA history
- 100% contained as of 10/24/13
- Firefighting Costs: \$127.350 million



# Hetch Hetchy Regional Water System





HPH

Early Intake & KPH



# Facilities within the Fire Perimeter

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- **Power**
  - 2-Powerhouses: Kirkwood and Holm
  - Main Switchyard at Early Intake
  - 3 Substations
  - 230 KV Transmission Lines and Towers
  - 5 distribution lines: to Cherry, to Mather and to O'Shaughnessy, also to valve houses and ISY
- **Camps**
  - Early Intake, Lake Eleanor, Camp Mather, O'Shaughnessy
  - 3 Domestic Water Supplies
- **4 Dams**
  - Cherry, Eleanor, Early Intake, O'Shaughnessy
- **Extensive Road Network**
- **Water Transmission System**

# 2013 Timeline

- August 17 fire first spotted
  - Event being managed by the USFS
  - Fire approximately 40 acres
  - HHWP dispatches liaison to begin monitoring within 30 minutes
  - End of day 442 acres



# August 18: 812 Acres



# August 19<sup>th</sup>

- Rim Fire ICS requested de-energizing transmission lines and evacuation of Early Intake Camp
- HHWP and SFPUC initiate ICS structure
  - A Moccasin ICP to address Operational Response
  - SFO activation of DOC to support and facilitate response



- 1430:
  - USFS requests HHWP de-energize
  - All non-essential personnel recalled
  - Still generating station load to monitor water and keep water supply running
- 1616: HHWP activates the ICS
- 1725:
  - Notified by USFS to evacuate Early Intake
  - Group sent door-to-door to evacuate Early Intake Camp residents
  - Developed plan to maintain water supply delivery and monitoring plan
  - Informed CalFire would be sending strike team for structure protection

# August 19

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- 1754: Implement Plan
  - Shut down upcountry powerhouses. No power to City recreation camp and small private lodge (500 people).
  - Request NPS to provide 24 hour security of Hetch Hetchy Dam
  - Last staff leave Early Intake
- Through 2100:
  - Organize ICS team and room
  - Wait for remaining personnel to check-in
- End of day: 4,342 acres

**August 20<sup>th</sup>**

## Fire Active Near Early Intake



# August 20: 9,252 Acres



# August 21: 16,204 Acres



**August 21<sup>st</sup>**

## O'Shaughnessy and Camp Mather Evacuated



August 22<sup>nd</sup>

## Holm Powerhouse Roof on Fire and Extinguished



# August 22: 53,829 Acres



Rim Fire - 8/22/13

© Al Greening

Photo taken from airliner approaching SF Photo: Algreening, Algreening / Reader Photo

# August 23<sup>rd</sup> Assessment and Stabilization Begins

- Generator staging
- Transmission line inspections
- Distribution line inspection
- Facility inspections
- Hazard trees removal
- Meanwhile

**Continuous Fire  
Activity!**





# August 24-26<sup>th</sup>

## Fire Heads Past Mather and to O'Shaughnessy



# August 26: 149,723 Acres



# HHWP Workers Falling Hazard Trees





# Fire continued to burn.....



**San Francisco Chronicle**

Aug 28, 2013

# Reenergizing

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- **August 28: 182,584 acres**
  - Verified protection was functioning
  - Restored data communication
- **August 30: 201,795 acres**
  - Completed hazard tree removal on transmission system
  - PG&E had completed inspection of our transmission system and indicated no additional work required prior to reenergizing
- **August 31: 219,277 acres**
  - Reenergized system at 1000 (one powerhouse)
  - Meeting load obligations by 1500

# September 13<sup>th</sup>

## HPH Restored!



# SFPUC Affected Assets

- **No damage to water delivery system**
- Lost multiple non-critical structures
  - Cottage @ Intake, storage sheds, Miguel Meadows Cabin, LCA Gate House facility
- Damage to road system



# SFPUC Affected Assets

- Distribution lines damaged
  - Cherry Ridge Line, Mather Line, Intake Camp, OSH
- Holm Powerhouse – roof fire
- Loss of communications



# Recovery

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- Mid October 2013: Holm Powerhouse was returned to service
- December 1, 2013: Distribution line replacement complete
- June 15, 2015: Remaining projects complete with the exception of two requiring additional environmental review



# What HHWP staff will remember from Rim Fire

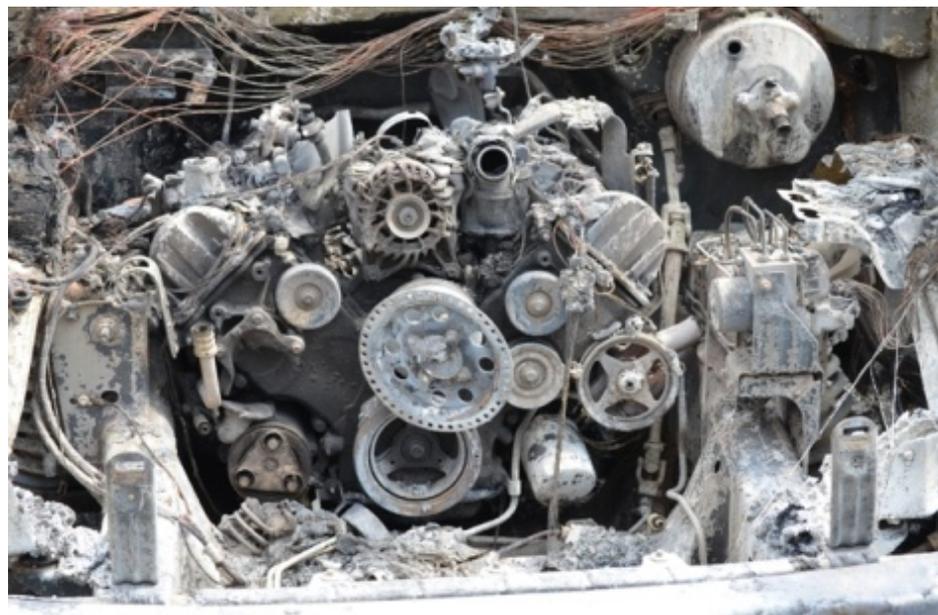
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- Continued to deliver high quality water that met filtration avoidance requirements
- Reenergize transmission system and return-to-service one of two powerhouses within 12 days (August 31) to meet our load obligations
- Staff logged over 15,500 man hours in extremely hazardous conditions consisting of long days without a single reportable injury.

# Lessons Learned

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- Should have detailed documentation of your assets for insurance and reconstruction
- Evaluate how your assets should be insured
- Have your staff trained and efficient in ICS protocols
- When you have a unified command, recommend inserting a specialist in the field for the disaster
- We were prepared and did a substantial amount of documentation, still insufficient



# Acknowledgements & Thanks!

- HHWP Response: HHWP Management, SFPUC organizational reponse
- Ongoing Work: HHWP crews
- HH Watershed Assessment: WQD, NRLMD, HHWP
- Collaborative Ongoing Work: TID, MID, NPS, UC Merced, USGS, DWR
- BAER TEAM Info: modeling, field data, imagery,



- NO MORE – this is the end....