Camp Fire Fire Update
Historical Facts

• Established in 1916
• 10,500+ Active Meters
• 9.5 Million Gallons Storage
• 173 miles of mainline
• 90% Gravity 10% pumped
• Service area approximately 11,250 acres
• Paradise Lake – 11,500 acre feet of storage
• Magalia Reservoir – 2,560 acre feet storage (Restricted to 800 acre feet)
Distribution System Facts

• 172 miles of water main
  • C-900 – 52 miles
  • C-905 – 1.25 miles
  • Steel – 58 miles
  • CML – 33 miles
  • ACP – 17.25 miles
  • Galv. – 2.5 miles
  • PVC – 7.3 miles (schedule 40 and 80)
  • Other – 1 mile

• 7 pressure zones A – G

• 5 storage tanks
  • 1 in ground bladder reservoir (B-Res) - DESTROYED
  • 4 aboveground steel storage tank (A, C, D, and E)
Distribution System
Pressure Zone Map
Camp Fire Statistics

• Structures Destroyed: 13,972 residential structures, 528 commercial structures and 4,293 structures
• Acres Burned: 153,336
  • 10,000 acres in 90 minutes
  • 1 football field every second
• Deaths: 85 civilian fatalities
• Damage: 16.5 Billion
Start of the Fire
Structures Burning
Structures Burning
Field damage inspections are still ongoing and subject to change. The points shown in this map are being updated regularly. Data is subject to change as information is gathered and verified. The icons on the map indicate the current known status of the structure. If your structure is not identified by an icon, it has not yet been identified.

Addresses may be entered into search bar to find a specific location.

For additional information visit:
- CAL FIRE - incident page
- Butte County - website

**Damaged or Destroyed Structures**
- Destroyed (50-100%)
- Major (26-50%)
- Minor (10-25%)
- Affected (1-9%)

**No Visible Damage**
- No Visible Damage

**Camp Fire Incident 11-9**
Residential Structures
Surviving Structures
Burnt Meters And Contamination

[Images of burnt meters and contaminated soil]

Paradise Irrigation District

Our water. Our future.
Storage Tank
Emergency Response

- Turn off system
  - Shut all values to main arteries of the distribution system
  - Bypass the B-Reservior (destroyed by fire)
  - Turn of all 10,500 services

- Turn system back on
  - Repressurization of distribution system
  - Inspect all component of distribution system for damage
  - Refill tanks and flush all mainlines

- Administration and customer service
  - Relocation of District office
  - Employee's
  - Billing and water quality advisory
  - Mutual aid
  - FEMA
Water System Damage

- Depressurization – Created a Vacuum
- Contamination
  - Burnt Plastics
  - Meters
  - Service Lines
  - Homes
  - Irrigation
- VOC’s (Volatile Organic Compounds)
  - Benzine (DDW mcl 1 part per billion)
  - Other Contaminates
- Contamination is located in distribution infrastructure
Depressurization of the System

1. **PRE-FIRE:**
   Under normal conditions, the main and service lateral provide pressurized inflow to the structure.

   - **Pressurized Service Lateral**
   - Main running full

2. **DURING THE FIRE:**
   Initially, pressure is maintained in the main and service lateral.

   - **Pressurized Service Lateral**
   - Main running full

   - **Depressurized Service Lateral**
   - Mains empty due to open system and firefighting efforts

   The water main loses pressure, resulting in negative pressure in the service lateral. Smoke and debris are sucked into the pipe.
Depressurization of the System

4. **DURING THE FIRE:**

Smoke and debris particles (containing Volatile Organic Compounds, VOCs) are sucked into the empty pipe by negative pressure, absorbing into the pipe wall material.

5. **AFTER THE FIRE:**

Mains are repressurized, filling empty pipelines and service laterals once again with water.

6. **AFTER THE FIRE:**

VOCs in the pipe walls desorbs, or reenters the water now in the pipe, creating contamination in the water.
Water Quality

- Contamination in the distribution system
  - Service lines
  - Main Lines

- Testing
  - Flushing
  - Stagnation of Water to create the proper environment for leaching of contaminate (72 hrs)
  - Taking a sample
  - Getting sample results from certified lab (5 days)

- Water Sample Video https://www.youtube.com/watch?v=osFWjgwczys
Water Sampling

- Approx. 2725 samples to date
- Mainline samples show some signs of contamination
- 46% of tested service lines of burnt lots have a detection of a fire related VOC
- 30% of the burnt lots have contamination over the state MCL
- Benzene & Other VOC’s
  - Benzene Average: 31 ppb
  - Benzene Low 0.5 ppb – high 923 ppb
  - Other fire related VOC’s have been detected in the water system without the presence of benzene
2,725 sites sampled

Over 200,000 tests performed
What does the current data show?

Sampling Summary Results (as of 9/9/19)

- **Total Tests**
- **Meets Regulations**
- **Non Detection**
- **Meets Regulations Excluding Methylene Chloride**
- **Non Detection if Methylene Chloride Removed**

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Tests</th>
<th>Meets Regulations</th>
<th>Non Detection</th>
<th>Meets Regulations Excluding Methylene Chloride</th>
<th>Non Detection if Methylene Chloride Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing Structure Tests</td>
<td>586 100%</td>
<td>568 97%</td>
<td>507 87%</td>
<td>478 82%</td>
<td></td>
</tr>
<tr>
<td>Burned Structure Tests</td>
<td>492 100%</td>
<td>345 70%</td>
<td>211 43%</td>
<td>1036 100%</td>
<td>1017 98%</td>
</tr>
<tr>
<td>Water Main Tests</td>
<td>1036 100%</td>
<td>1017 98%</td>
<td>873 84%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: These results do not include Total Trihalomethanes, which are common disinfection byproducts.
Main Clearing

• 122 of 172 miles of main have been cleared (70%)
• The remaining uncleared mains are almost entirely dead-end, smaller diameter mains which serve few or no standing structures
• These mains will be tested in conjunction with a need to clear a service lateral on them
Main Sampling
Mains with Advisory Lifted
All Service Lateral Samples
Service Lateral Samples Filtered for Standing Structures only
Service Lateral Samples Filtered for Destroyed Structures only
500+ Services with Advisory Lifted
Water System Recovery Status for Paradise

PID's System Recover Maps (Updated Weekly)

Water Advisory Lifted Map
PID service connections where the water quality advisory has been lifted.
Customers using water at these properties should be aware that while PID is delivering possible water to these locations, we cannot attest to the quality of piping or water on the customer’s side of the meter. Customer side plumbing is all the piping from the service connection point (usually near the street) to the home, including outside piping and irrigation, and is the responsibility of the property owner.

Investigation Maps
The following water system information is prepared and updated by PID and is subject to revision. PID does not guarantee the accuracy of this information nor its fitness for a particular use.

Service Lateral Sampling Map
Test results from water samples taken at the service lateral.
The service lateral is the small pipe that connects your property’s water meter to the main pipeline that delivers water to your neighborhood.

Mainline Sampling Map
Test results from samples taken from the main pipeline that delivers water to your neighborhood.

Meetings

https://www.pidwater.com/recovery
How long will it take to clear all of the standing structures?

Standing Structure Testing and Clearing Projections

- Standing Structures Sampled (Cumulative)
- Cleared for Potable Use (Cumulative)
- Projected Sampling (Cumulative)

Projected sampling and clearance rate 150/month (35/week)
Burned Lot Service Lateral Replacement Program

- Long-term plan is to eventually replace all service laterals in the system. Working with FEMA to get this funded.
- Short-term plan is to replace all service laterals which serve burned lots where people are rebuilding or living in temporary housing.
Financial Challenges

• Financial Statistics
  • 95% Rate Revenue
  • 95% Fixed Cost
• Camp Fire Damage
  • 90% loss of Customer Base
### Financial Challenges

<table>
<thead>
<tr>
<th>Description</th>
<th>Customers</th>
<th>2018/19 Budget</th>
<th>2019/20 Budget</th>
<th>2020/21 Budget</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge</td>
<td>10,500</td>
<td>5,148,252</td>
<td>5,646,258</td>
<td>5,646,258</td>
<td>16,440,768</td>
</tr>
<tr>
<td>Quantity Charge</td>
<td>10,500</td>
<td>2,833,600</td>
<td>2,833,600</td>
<td>2,833,600</td>
<td>8,500,800</td>
</tr>
<tr>
<td>Penalty Charges</td>
<td>10,500</td>
<td>65,000</td>
<td>65,000</td>
<td>65,000</td>
<td>195,000</td>
</tr>
<tr>
<td><strong>Total Annual Water Rate Revenue</strong></td>
<td></td>
<td>8,046,852</td>
<td>8,544,858</td>
<td>8,544,858</td>
<td>25,136,568</td>
</tr>
</tbody>
</table>
## Financial Challenges

<table>
<thead>
<tr>
<th>Description</th>
<th>Customers</th>
<th>2018/19 Budget</th>
<th>2019/20 Budget</th>
<th>2020/21 Budget</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge</td>
<td>10,500</td>
<td>5,148,252</td>
<td>5,646,258</td>
<td>5,646,258</td>
<td>16,440,768</td>
</tr>
<tr>
<td>Quantity Charge</td>
<td>10,500</td>
<td>2,833,600</td>
<td>2,833,600</td>
<td>2,833,600</td>
<td>8,500,800</td>
</tr>
<tr>
<td>Penalty Charges</td>
<td>10,500</td>
<td>65,000</td>
<td>65,000</td>
<td>65,000</td>
<td>195,000</td>
</tr>
</tbody>
</table>

**Total Annual Water Rate Revenue**

| Pre-Fire | 8,046,852 | 8,544,858 | 8,544,858 | 25,136,568 |

<table>
<thead>
<tr>
<th>Description</th>
<th>Customers</th>
<th>2018/19 Budget</th>
<th>2019/20 Budget</th>
<th>2020/21 Budget</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge</td>
<td>1,500</td>
<td>705,240</td>
<td>773,460</td>
<td>773,460</td>
<td>2,252,160</td>
</tr>
<tr>
<td>Quantity Charge</td>
<td>1,500</td>
<td>388,164</td>
<td>388,164</td>
<td>388,164</td>
<td>1,164,493</td>
</tr>
<tr>
<td>Penalty Charges</td>
<td>1,500</td>
<td>8,904</td>
<td>8,904</td>
<td>8,904</td>
<td>26,712</td>
</tr>
</tbody>
</table>

**Total Annual Water Rate Revenue**

| Post-Fire | 1,102,308 | 1,170,528 | 1,170,528 | 3,443,365 |

---
## Financial Challenges

<table>
<thead>
<tr>
<th>Description</th>
<th>Customers</th>
<th>2018/19 Budget</th>
<th>2019/20 Budget</th>
<th>2020/21 Budget</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge</td>
<td>10,500</td>
<td>5,148,252</td>
<td>5,646,258</td>
<td>5,646,258</td>
<td>16,440,768</td>
</tr>
<tr>
<td>Quantity Charge</td>
<td>10,500</td>
<td>2,833,600</td>
<td>2,833,600</td>
<td>2,833,600</td>
<td>8,500,800</td>
</tr>
<tr>
<td>Penalty Charges</td>
<td>10,500</td>
<td>65,000</td>
<td>65,000</td>
<td>65,000</td>
<td>195,000</td>
</tr>
</tbody>
</table>

**Total Annual Water Rate Revenue**

- **Pre-Fire**
  - 8,046,852
  - 8,544,858
  - 8,544,858
  - 25,136,568

- **Post-Fire**
  - 1,102,308
  - 1,170,528
  - 1,170,528
  - 3,443,365

**Annual Loss due to CAMP fire**

<table>
<thead>
<tr>
<th>Description</th>
<th>Customers</th>
<th>2018/19 Budget</th>
<th>2019/20 Budget</th>
<th>2020/21 Budget</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge</td>
<td>1,500</td>
<td>4,443,012</td>
<td>4,872,798</td>
<td>4,872,798</td>
<td>14,188,608</td>
</tr>
<tr>
<td>Quantity Charge</td>
<td>1,500</td>
<td>2,445,436</td>
<td>2,445,436</td>
<td>2,445,436</td>
<td>7,336,307</td>
</tr>
<tr>
<td>Penalty Charges</td>
<td>1,500</td>
<td>56,096</td>
<td>56,096</td>
<td>56,096</td>
<td>168,288</td>
</tr>
</tbody>
</table>

**Total Annual Water Rate Revenue Loss**

- 6,944,544
- 7,374,330
- 7,374,330
- 21,693,203
Stranded Assets
Stranded Assets

• Paradise Lake Watershed
• Treatment Plant
• Main Distribution System
• 5 Steel Storage Tanks
• Water Rights
Stranded Assets

- Paradise Lake Watershed
- Treatment Plant
- Main Distribution System
- 5 Steel Storage Tanks
- Water Rights

PROBLEM:
- No Customers
New Business Model

- Regional Intertie Concept
  - Transferring Treated Water to assist with implementation of the Sustainable Groundwater Management Act in Butte County

- Transferring Untreated Water
  - Transferring untreated water to agricultural water users in Butte County or other areas.
Regional Intertie Concept
Recovery Plan

- Support the rebuild of Paradise
- Potable water to standing structures
- Sustainable business model
- Mitigate against future disasters
- Customer service
Our water. Our future.
Paradise Irrigation District
Comments & Questions