

CALIFORNIA PUBLIC UTILITIES COMMISSION
Safety and Enforcement Division
Electric Safety and Reliability Branch

Incident Investigation Report

Report Date: May 2, 2019

Incident Number: Atlas 1: 171023-8596 & Atlas 2: 171020-8589

Utility: Pacific Gas and Electric Company (PG&E)

Date and Time of the Incident: October 8, 2017, 2151 hours

Location of the Incident: 3683 Atlas Peak Road
Napa, CA
County: Napa

Fatality / Injury: Six (6) fatalities

Property Damage: \$78 million (PG&E restoration costs)

Utility Facilities Involved: Pueblo-1104, 12 kV Circuit

Violation: Yes

I. Summary

On October 8, 2017 at approximately 2151 hours, a Black Oak tree fell on one of PG&E's Pueblo-1104 12 kV conductors, bringing one span to the ground and igniting a fire (Atlas 1). On the same date but at a second location, a failed branch from a Valley Oak tree fell and contacted PG&E's Pueblo-1104 12 kV overhead conductors thus igniting another fire (Atlas 2). The two fires burned into each other, and together are called the Atlas Fire. The Atlas Fire burned 51,624 acres, damaged 783 structures, and destroyed 120 structures. Six fatalities resulted from the fire.

Based on SED's review, SED found that PG&E violated General Order (GO) 95, Rule 31.1 (three violations) and Rule 35 (two violations):

GO Rule	Violations
GO 95, Rule 31.1	Failure to identify and abate hazardous Black Oak tree at Atlas 1 site
GO 95, Rule 31.1	Failure to identify and perform correctional prune of hazardous Valley Oak codominant branch at Atlas 2 site
GO 95, Rule 35	Vegetation clearance not maintained at Atlas 1 site
GO 95, Rule 35	Vegetation clearance not maintained at Atlas 2 site
GO 95, Rule 31.1	Work order completed late

A. Rules Violated

General Order 95, Rule 31.1 - Design, Construction and Maintenance

“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.

A supply or communications company is in compliance with this rule if it designs, constructs, and maintains a facility in accordance with the particulars specified in General Order 95, except that if an intended use or known local conditions require a higher standard than the particulars specified in General Order 95 to enable the furnishing of safe, proper, and adequate service, the company shall follow the higher standard.

For all particulars not specified in General Order 95, a supply or communications company is in compliance with this rule if it designs, constructs and maintains a facility in accordance with accepted good practice for the intended use and known local conditions.”

General Order 95, Rule 35 – Vegetation Management

“Where overhead conductors traverse trees and vegetation, safety and reliability of service demand that certain vegetation management activities be performed in order to establish necessary and reasonable clearances the minimum clearances set forth in Table 1, Cases 13 and 14, measured between line conductors and vegetation under normal conditions, shall be maintained. (Also see Appendix E for tree trimming guidelines.) These requirements apply to all overhead electrical supply and communication facilities that are covered by this General Order, including facilities on lands owned and maintained by California state and local agencies.”

B. Witness(es)

Atlas 1		
No.	Name	Title
1	Raymond Cho	CPUC Sr. Utilities Engineer
2	Ryan Yamamoto	CPUC Sr. Utilities Engineer
3	Brandon Vazquez	CPUC Utilities Engineer
4	Shawn Zimmermaker	Assistant Chief, California Department of Forestry and Fire Protection (CAL FIRE)
5	Jay Singh	PG&E Director
6	Russell West	Lead Investigator, California Department of Forestry and Fire Protection (CAL FIRE)
7	Maria Deluca	PG&E Claims Investigator
8		PG&E Vegetation Management Supervisor
9		PG&E North Valley contractor
10	Nate Haack	North Western Energy contractor
Atlas 2		
No.	Name	Title
1	Raymond Cho	CPUC Sr. Utilities Engineer
2	Wilson Tsai	CPUC Utilities Engineer
3	Russell West	Lead Investigator, California Department of Forestry and Fire Protection (CAL FIRE)
4	Matt Gilbert	Investigator, California Department of Forestry and Fire Protection (CAL FIRE)
5	Jay Singh	PG&E Director
6		PG&E Supervisor
7	Maria Deluca	PG&E Claims Investigator
8		PG&E Vegetation Management Supervisor
9	Clem Cole	AT&T Area Manager

C. Evidence

Atlas 1		
No.	Source	Description
1	CPUC	Field visit #1, 10/21/17
2	PG&E	Initial Online Incident Report 10/23/17
3	PG&E	20-day Incident Report, 11/20/17
4	CPUC	Data Request #1, 11/21/17
5	CPUC	Field visit #2, 12/7/17
6	PG&E	Data Request Response #1, 12/29/18
7	CPUC	PG&E Evidence Inspection, 6/11/18
8	CAL FIRE	Investigation Report and Attachments, 7/19/18
9	CPUC	Data Request #2, 7/19/18
10	PG&E	Data Request Response #2, 8/3/18 through 9/21/18
11	CPUC	Data Request #3, 8/16/18
12	PG&E	Data Request Response #3, 8/31/18 through 9/21/18
13	CPUC	CAL FIRE Evidence Viewing Photos, 10/12/18
14	CPUC	Data Request #4, 10/19/18
15	PG&E	Data Request Response #4, 11/15/18 through 12/14/18
16	CPUC	Data Request #5, 1/3/19
17	PG&E	Response to Request for Further Information Re Atlas Fire, Document 962 in Case No. 14-CR-00175-WHA
18	PG&E	Data Request Response #5, 1/25/19 through 2/6/19
19	CPUC	Data Request #6, 2/8/19
20	PG&E	Data Request Response #6, 2/15/19 through 3/18/19
21	CPUC	Data Request #7, 2/25/19
22	PG&E	Data Request #7 Response, 3/18/19
Atlas 2		
No.	Source	Description
1	PG&E	Initial Online Incident Report 10/20/17
2	CPUC	Field visit #1, 10/19/17
3	PG&E	20-day Incident Report, 11/17/17
4	CPUC	Data Request #1, 11/21/17
5	PG&E	Data Request Response #1, 12/29/18
6	CPUC	PG&E Evidence Inspection, 6/11/18
7	CAL FIRE	Investigation Report and Attachments, 7/19/18
8	CPUC	Data Request #2, 7/19/18
9	PG&E	Data Request Response #2, 8/3/18 through 9/21/18
10	CPUC	Data Request #3, 8/16/18
11	PG&E	Data Request Response #3, 8/31/18 through 9/21/18

Atlas 1		
No.	Source	Description
12	CPUC	CAL FIRE Evidence Viewing Photos, 10/12/18
13	CPUC	Data Request #4, 10/19/18
14	PG&E	Data Request Response #4, 11/15/18 through 12/14/18
15	CPUC	Data Request #5, 1/3/19
16	PG&E	Response to Request for Further Information Re Atlas Fire, Document 962 in Case No. 14-CR-00175-WHA
17	PG&E	Data Request Response #5, 1/25/19 through 2/6/19
18	CPUC	Data Request #6, 2/8/19
19	PG&E	Data Request Response #6, 2/8/19
20	PG&E	Data Request Response #6, 2/15/19 through 3/18/19
21	CPUC	Data Request #7, 2/25/19
22	PG&E	Data Request #7 Response, 3/18/19

II. Background

On January 17, 2014, Governor Edmund G. Brown Jr. proclaimed a State of Emergency and directed state officials to take actions to mitigate conditions that could result from the drought and cause a fire. On February 18, 2014, in response to the proclamation, SED issued a letter to PG&E directing PG&E to take all practicable measures to reduce the likelihood of fires caused by utility facilities, including, increasing inspections, taking corrective actions and modifying protective schemes. On June 12, 2014, the California Public Utilities Commission (CPUC) issued Resolution ESRB-4 directing all Investor Owned Electric Utilities (IOU) to take remedial measures to reduce the likelihood of fires started by or threatening utility facilities. On October 30, 2015, Governor Edmund G. Brown Jr. declared a Tree Mortality State of Emergency due to tree mortality caused by the state's prolonged drought and bark beetle infestations.

On October 8, 2017, at approximately 2151 hours, a vegetation fire next to Atlas Peak Road was reported to CAL FIRE. CAL FIRE investigators documented two fire ignition locations. At the first location called "Atlas 1", a Black Oak tree fell onto the road-side, overhead, 12 kV conductor of PG&E's Pueblo 1104, 12 kV circuit. One of two conductor phases, the one closest to the road-side, fell to the ground and ignited a fire. Atlas 1 is located near 3683 Atlas Peak Road in the city of Napa in Napa County.

At the second location called "Atlas 2", a branch from a Valley Oak tree failed and contacted overhead conductors on PG&E's Pueblo 1104, 12 kV circuit. The conductors did not fall to the ground but the branch contact resulted in molten metal and sparks that started the Atlas 2 fire. Atlas 2 is approximately 1/8 of a mile north of Atlas 1.

The Atlas fire was caused by a combination of the two tree failures that ignited two separate fires that eventually merged together. The fire contributed to power

interruptions to 1,505 customers on the Pueblo 1104 circuit for a maximum outage duration of 22,234 minutes. PG&E reported an estimated \$78 million in restoration costs for its own facilities in North Bay Division which includes Marin, Napa and Solano counties.

On the day of the incident, the remote weather station named “Atlas Peak”, identified as ATLC1, approximately 4.5 miles northwest of the fire origin locations, recorded a peak wind speed of 11 mph and peak wind gust of 32 mph at 2129 hours on October 8, 2017. The ambient condition around the time of the peak wind gust was 64 degrees Fahrenheit with 15% relative humidity.¹



Figure 1. Red marker: 3683 Atlas Peak Road. Atlas 1: 38.409797, -122.246232. Atlas 2: 38.413636, -122.248458 (Source: Google Maps)

III. SED Review and Analysis

A. PG&E’s Distribution Facilities Inspection Program

General Order 165 requires biennial patrol inspections and detailed inspections at five-year intervals for rural areas, such as the incident location. Rural areas are defined by GO 165 as “those areas with a population of less than 1,000 persons per square mile”.

¹ Per MesoWest (www.mesowest.utah.edu)

GO 165 defines a patrol inspection as a “simple visual inspection” meant to identify “obvious” problems and hazards and may be carried out in the course of other company business. GO 165 defines a detailed inspection as one where facilities are “carefully examined” to gather and record conditions of overhead facilities.

For both incident areas, SED reviewed PG&E’s 2012 and 2014 distribution patrol and PG&E’s 2011 and 2016 detailed inspection records. No conditions or issues were documented during the course of PG&E’s patrol inspections for those two years. However, PG&E inspectors found one map change that did not contribute to the incident.

For Atlas 1, PG&E’s 2011 detailed inspection did not identify any facility issues in proximity to the fire origin area.

For Atlas 2, PG&E’s 2011 detailed inspection² revealed three work orders of interest in proximity to the fire origin area, identified below by PG&E work order numbers:

1. Work order #102506022³ – notes indicate a rotten pole marked “N” meaning not suitable for pole reinforcement. The rotten pole was found 6/24/03; correction was due 10/3/2011 and was completed 676 days late on 8/19/13.
2. Work order #105796522 – notes indicate “Al PG on Cu to Cu” meaning an aluminum Parallel Groove connector issue joining two copper conductors. The work order was due to be completed by 6/30/12 and was completed on 6/13/12.
3. Work order #105795681 – notes indicate “end of x-arm rotten” meaning a rotten crossarm. The rotten crossarm was identified on 12/12/11 and the work order was completed eight days later on 12/20/11.

For the two locations, PG&E’s 2016 detailed inspections revealed two work orders of interest to SED:

1. Work order #112044255 – notes a decayed pole scheduled for replacement identified on 9/18/16 and due 9/17/17. On 12/14/16, a PG&E employee cancelled the work after further review of photographs of the pole top.
2. Work order #112044188 – notes a decayed crossarm scheduled for replacement by 9/13/17. Due to a lack of resources because of an emergency event, the work was delayed on 9/28/17. PG&E replaced the pole and crossarm on 10/23/17 after the pole failed during the fire thus cancelling the delayed work order.

² Bates PGE-CPUC_00007995_CONFIDENTIAL.

³ Bates PGE-CPUC_00022319.

Based on SED's review of the above inspection records, SED found PG&E in violation of GO 95, Rule 31.1 for completing work order #102506022 676 days late. This violation did not directly contribute to the ignition of the Atlas fire but still signifies an unsafe action by PG&E.

B. PG&E's Vegetation Management Program

The GO 95 rules applicable to Vegetation Management (VM) include:

1. Rule 31.1 – Design Construction and Maintenance.
2. Rule 35 – Vegetation Management.
3. Rule 37 – Minimum Clearances of Wires above Railroads, Thoroughfares, Buildings, Etc., Table 1 – Cases 13 and 14.

In order to comply with the applicable GO 95 rules, PG&E's Distribution Vegetation Management Standard⁴ (DVMS) outlines the general strategy used to identify:

1. Conductor radial clearance issues;
2. Trees that will encroach PG&E's minimum distance requirements; and
3. Hazard trees that have the potential to strike conductors.

In order to implement their strategy, PG&E's DVMS prescribes annual vegetation patrols and completion of identified tree work for all primary and secondary distribution facilities.

i. Routine VM Inspections

PG&E's VM contractors, specifically Pre-Inspection (PI) personnel, work with VM Vegetation Program Managers (VPM) to create an annual plan for routine patrols that lead to vegetation work. Vegetation work prescribed by the PI personnel is completed by Tree Contractor (TC) personnel. PG&E also uses a combination of LiDAR⁵ and spectral imagery to allow VM personnel to identify hazardous trees in high fire threat areas. Trees identified using these technologies are then inspected from the ground and addressed as necessary. In this area, PG&E did not use LiDAR or spectral imagery. Also, PG&E allows the use of aerial patrols in place of ground patrols.

For the incident areas, PG&E used two contractors as part of its vegetation management. Davey Resource Group (DRG) conducted the PI portion to inspect and identify tree work and The Davey Tree Expert Company (DTEC) performed the vegetation work that included trimming or removal.

⁴ Bates PGE-CPUC_00005827_CONFIDENTIAL. Utility Standard TD-7102S, Published on 9/4/15. Rev 1.

⁵ LiDAR (an acronym of Light Detection And Ranging) is a surveying technology that measures distance by illuminating a target with a laser light. (Source: Wikipedia.)

Vegetation PIs are performed by a Consulting Utility Forester (CUF), an individual qualified by PG&E, who inspects all vegetation that have the potential to grow into or fall into the distribution primary conductors before the next inspection and identify vegetation that is currently causing strain/abrasion of secondary conductors.

PG&E's PI contract specification⁶ requires a CUF to have at least two years' experience in line clearance tree pruning work, or equivalent experience as determined by PG&E. The PI contract specification also notes that PG&E desires that a CUF have an associate's degree in forestry, arboriculture or a related field, however, an associate's degree is not a requirement. The CUF should be "familiar with the Contractor's work practices, proper arboricultural techniques and practices, proper integrated pest management practices, PG&E's Tree Pruning Specification, PG&E's Pre-Inspection Specification and requirements, and all applicable legal and regulatory requirements."⁷

SED reviewed PG&E's VM documentation for the previous five years prior to the incident. SED focused on documented inspections and resulting vegetation work orders. PG&E performed VM activities on the subject circuit in 2012, 2013, 2014, 2015, 2016, and on January 13, 2017.

For Atlas 1, SED focused on trees identified as Black Oak, Oak and Madrone trees. CAL FIRE identified these types of trees in their fire investigation report. The subject Black Oak was approximately 15 feet away from the closest conductor and tall enough to fall into the facilities. SED noted two separate sets of inspection records for each of the two spans involved in the incident. SED found 12 trees that matched the species but could not rely on the heights to determine if the suspect tree was included in the completed trims. PG&E contracted inspectors do not update tree characteristics unless tree work is prescribed. Of the 12 trees, PG&E documented three Black Oaks that were trimmed to achieve 15 feet of clearance from the lines on November 14, 2012. DRG inspectors did not prescribe topping or removal of the 12 trees reviewed, only side, slope, and top trims. After the last vegetation trim completed on November 14, 2012, PG&E contracted PI personnel did not prescribe tree work and TC personnel did not perform additional trims on these trees for the following years leading up to the start of the Atlas fire.

For Atlas 2, PG&E's vegetation inspection documentation did not identify any Valley Oak trees, therefore, SED identified and reviewed Coast Live Oaks in case of species identification errors. The subject Valley Oak was rooted 20 feet from the closest distribution conductor and the subject Valley Oak branch was approximately 40 feet in length. On August 1, 2013, a DRG PI inspector documented a Coast Live Oak with prescribed trim type "FP-Ov B" which prescribes a specific trim type for overhanging vegetation to protect electric facilities. PI inspectors choose between two types of trims, A or B, and type B is more difficult. On November 23, 2013 the Coast Live Oak was trimmed to obtain 20 feet clearance from the overhead lines. SED could not verify if this

⁶ Bates PGE-CPUC_DR-071918_General_Q04. PG&E Pre-Inspection contract specification. Section 3.2.

⁷ Bates PGE-CPUC_DR-071918_General_Q04. PG&E Pre-Inspection contract specification. Section 3.2.

tree was the subject tree. In 2015 and 2016, DRG inspectors prescribed “top directi[sic] trims” for almost all the Coast Live Oaks documented. A “top directi[sic] trim” is a top trim and signifies that these trees were directly below the lines and, thus, do not include the subject tree. DRG inspectors did not prescribe any tree work during the January 2017 inspection.

ii. Enhanced Vegetation Inspections

In addition to routine VM, PG&E contracted DRG to perform enhanced vegetation inspections related to the Catastrophic Event Memorandum Account (CEMA). CEMA is an account used to recover the costs associated with the restoration of service and facilities affected by catastrophic events that have been declared disasters or states of emergency by federal or state authorities. PG&E will file an application to recover the CEMA balance through rates. The amount to be recovered are the reasonable costs incurred, which are determined after CPUC review and audit of the recorded CEMA balance.

For both locations, PI personnel performed enhanced vegetation inspections from September 2014 to August 4, 2017. PG&E provided maps of the inspections noting completion but SED did not identify any work orders resulting from the CEMA related inspections for the subject area.

iii. PG&E VM Quality Control (VMQC) and VM Quality Assurance (VMQA)

PG&E’s VMQA program audits PG&E facilities for any compliance violations, e.g., GO 95 or Public Resource Code (PRC) § 4293, while PG&E’s VMQC program audits PI and TC personnel for any vegetation work that is missed or not performed correctly. VMQA audits are required to be performed by PG&E’s VMQA standard⁸, annually at a minimum. PG&E does not require routine VMQC audits and PG&E describes the VMQC audit locations as “computer-generated” and “randomized”⁹.

In the last five years, VMQC audits were performed by PG&E contractor California Forestry & Vegetation Management. However, PG&E did not identify any VMQC audits for either of the Atlas incident locations.¹⁰

Therefore, SED reviewed PG&E’s VMQA audit reports from 2013 through 2017 and focused on the Pueblo-1104 circuit. The VMQA audits analyzed PG&E’s PI personnel who performed inspections in PG&E’s North Bay Division, including personnel from PG&E, California Forestry & Vegetation Management, or Western Environment Consultants Incorporated. The North Bay Division encompasses the two Atlas locations. VMQA audits sorts vegetation non-compliances into five categories:

⁸ Bates PGE-CPUC_00006027_CONFIDENTIAL.

⁹ Bates PGE-CPUC_00005827. Pages 9-10.

¹⁰ Bates PGE-CPUC_DR-112117_Common_Q16_amend01.

1. Contact with conductor.
2. Within four feet of conductor.
3. Trees that have the potential of being non-compliant within 90 days of auditor observation.
4. Trees that may not hold compliance with GO 95, Rule 35 or PRC §4293 before the next fire season.
5. Trees that present a potential threat to the conductors called Facility Protect Trees (FPT).

In PG&E's Audit #7S DS3-14¹¹, auditors identified two Acacia trees that were not prescribed for work by PI personnel on the subject circuit. The two trees were less than four feet and greater than 18 inches from the lines. PG&E noted that the inspector had three months of experience at the time of occurrence.

In PG&E's Audit #8S DS3-13¹², auditors identified one FPT that was missed by inspectors on the subject circuit.

Although the VMQA audits identified VM compliance issues on the Pueblo-1104 circuit, they were not directly related to the Atlas fire ignition sites.

iv. Vegetation Analysis by CAL FIRE

CAL FIRE contracted Certified Arborist, Mark Porter, to evaluate the subject tree failures. In Mr. Porter's "Evaluation of Oak Failure" report¹³ prepared for CAL FIRE, the subject Black Oak tree in the Atlas 1 fire area displayed "extensive decay in the trunk as well as the buttress roots". Mr. Porter also concluded that "(s)ince the black oak had such dangerous conditions close to high voltage lines, it should have been condemned years ago, due to the severity of the consequences."

¹¹ PGE-CPUC_00006587_CONFIDENTIAL. Page 10.

¹² Bates PGE-CPUC_00006755_CONFIDENTIAL. Page 9.

¹³ Evaluation of Oak Failure. Atlas Peak Rd. South of Lake Berryessa, Atlas Fire Southern LNU Complex. Prepared by Mark Porter. Page 3.



Figure 2. Atlas 1 - Failed Black Oak displaying decay, trunk rot and butt rot.¹⁴

In the same report¹⁵ prepared by Mark Porter for CAL FIRE, Mr. Porter “observed a structural branch defect on a 19-inch diameter valley oak tree...” in the Atlas 2 fire area. Mr. Porter also noted that “[t]he branch of the valley oak broke at a codominant stem” and that the “lab results for the valley oak report fungal DNA and a root disease”. Mr. Porter “concluded that the valley oak codominant branch failure (a defect) could have been avoided if correctional pruning had been employed years earlier. Both tree failures have visible defects.”

¹⁴ Id. Page 17.

¹⁵ Id. Page 3.



Figure 3. Atlas 2 - Failed Valley Oak branch removed from conductors.



Figure 4. Atlas 2 - Opposite end of Valley Oak codominant stem where the failure occurred.¹⁶

Mr. Porter deemed “(b)oth trees were defective and remained near power lines”.

¹⁶ Evaluation of Oak Failure. Atlas Peak Rd. South of Lake Berryessa, Atlas Fire Southern LNU Complex. Prepared by Mark Porter.

v. Applicable PG&E Vegetation Management Standards and Procedures

PG&E's Distribution Routine Patrol Procedure¹⁷ describes various factors when patrolling or pre-inspecting trees for vegetation work. Under section 2.6 "Hazard Trees/Facility Protection Trees"¹⁸ the document describes trees that should be identified as such. "(T)rees or portions of trees that are dead, show signs of disease, decay or ground or root disturbance, AND may fall into or otherwise impact primary or secondary conductors, THEN PRESCRIBE work to make tree Facility Safe per Facility Protect and work Difficulty Classification Procedure."

PG&E's Vegetation Management Hazard Tree Rating and Scoring Procedure¹⁹ aids inspectors in prescribing work for potentially hazardous trees. The procedure indicates a Black Oak species as a tree with a "Very High" failure potential. Also, listed below are PG&E assigned failure potential ratings for various Oak species:

1. Tan Oak – Very High
2. Valley Oak – Very High
3. Live Oak – High
4. Coast Live Oak - High

PG&E's Hazardous Tree Rating System (HTRS) and Scoring Matrix²⁰ evaluate various factors including but not limited to: (1) Disease, (2) Co-dominance with included bark, and (3) Wind Exposure (topography & position in stand).

Based on the VM records reviewed and evidence provided by Mr. Porter, SED found two vegetation management-related violations of GO 95, Rule 31.1 and two violations of GO 95, Rule 35.

Regarding the two violations of GO 95, Rule 31.1:

1. PG&E PI personnel failed to identify and abate the hazardous Black Oak tree in Atlas 1 prior to the fire.

¹⁷ PG&E Distribution Patrol Procedure. Utility Procedure TD-7102P-01. Rev: 1. Published 10/27/15.

¹⁸ PG&E Distribution Patrol Procedure. Utility Procedure TD-7102P-01. Rev: 1. Published 10/27/15. Page 8.

¹⁹ PG&E Vegetation Management Hazard Tree Rating and Scoring Procedure. Utility Procedure: TD-7102P-07. Publication Date: 10/13/2014. Appendix A, Page 11. Scores range from Low to Very High.

²⁰ Included in PG&E Procedure: TD-7102P-07.

2. PG&E TC personnel failed to identify and perform a correctional prune for the hazardous Valley Oak codominant branch in Atlas 2 prior to the fire.

Regarding the two violations of GO 95, Rule 35, PG&E failed to maintain the minimum clearances required by Rule 35, thus allowing the hazardous trees, or parts of trees, to make contact with PG&E high-voltage conductors.

C. PG&E's Infrastructure Conditions

SED investigated compliance with GO 95 construction standards and GO 95, Rule 31.1 during their review of PG&E's physical infrastructure.

On October 19, 2017, SED staff, Raymond Cho and Wilson Tsai met with Matt Gilbert and Russell West from CAL FIRE and Jay Singh from PG&E near 3683 Atlas Peak Road (Atlas 2) in the city of Napa. The incident site involved a pole span running parallel along the side of Atlas Peak Road. Clem Cole, Area Manager for AT&T, was also on site with AT&T contracted fire investigators. SED examined three poles and spans along the road and the Valley Oak branch removed from the conductors. Two primary voltage conductors were attached to the top of the poles with two communication cables below. SED staff observed one field side insulator on pole #5 with mechanical damage, dangling mid-air and unattached to the pole but still holding a conductor. The conductor was still supported by poles #4 and #6. However, pole #4 was burnt through at the ground level. The higher of the two communication cables was severed and rested in a tree and on the ground. CAL FIRE requested PG&E assist in removing the branch from the conductor, removing the field-side conductor, and the broken field-side insulator for evidence retention. CAL FIRE also retained the separated communication bundle as evidence.

On October 21, 2017, SED staff, Ryan Yamamoto and Brandon Vazquez met with Russell West and Chief Shawn Zimmermaker from CAL FIRE near 3683 Atlas Peak Road (Atlas 1) in the city of Napa. CAL FIRE staff guided SED staff to the subject Black Oak tree and incident area. SED reviewed the area approximately 300 feet West from Atlas Peak Road. SED reviewed two poles and the one span between the poles. Two primary level conductors were attached to the pole tops and two communication cables were still attached at a lower level on the pole. SED staff observed the PG&E road-side conductor on the ground with molten metal in close proximity to the grounded conductors. SED staff also observed communication cables very low to the ground but not severed. CAL FIRE investigators completed a LiDAR scanning of the area. At the request of CAL FIRE, PG&E helped remove two feet of conductor from the road-side insulator attached to the pole with a transformer attached; CAL FIRE retained the conductor piece as evidence.

i. Atlas 1 Infrastructure



Figure 6. Atlas 1 **Left:** Subject pole #1, 40-foot pole (PG&E pole #102292423, coordinates: 38.409797, -122.246232). Photo taken from the southeast side of pole, looking north. **Right:** Subject pole #2, 45-foot pole with transformer attached (PG&E pole #102292420, coordinates: 38.409435, -122.245904). Photo taken from southwest side of pole, looking northeast.

PG&E also identified pole #3 (PG&E pole #102292424, coordinates: 38.41032, -122.24679) immediately Northwest of pole #1 as a subject pole.

For Atlas 1, the subject poles (#1 through 3) did not fail; however, the road-side conductor failed mid-span between the poles #2 and #3. The field-side span did not fail and was still attached to the insulators. Attached to pole #2 was a transformer with service conductors in the southwest direction, a crossarm with two fuse assemblies mounted near the ends of the crossarm, and one span attached to the field-side insulator in the south direction.

SED reviewed PG&E's intrusive inspections for the subject poles and respective pole loading calculations. Pole #3 was manufactured in 2011 from a Douglas Fir tree as a class 4, 45-foot pole. Since its 2011 installation, SED did not identify any issues with the PG&E Pole Detail Report²¹.

²¹ Bates PGE-CPUC_00006203_CONFIDENTIAL.

Pole #2 was manufactured in 2007 from a Douglas Fir tree as a class 3, 45-foot pole. According to the Pole Detail Report²² for pole #2, this pole passed a visual inspection in 2012 and an intrusive bore inspection on October 26, 2017.

Pole #1 was manufactured in 1980; the pole passed two intrusive inspections in 2003 and 2012 in addition to a PG&E intrusive bore inspection on October 26, 2017.²³

ii. Atlas 2 Infrastructure

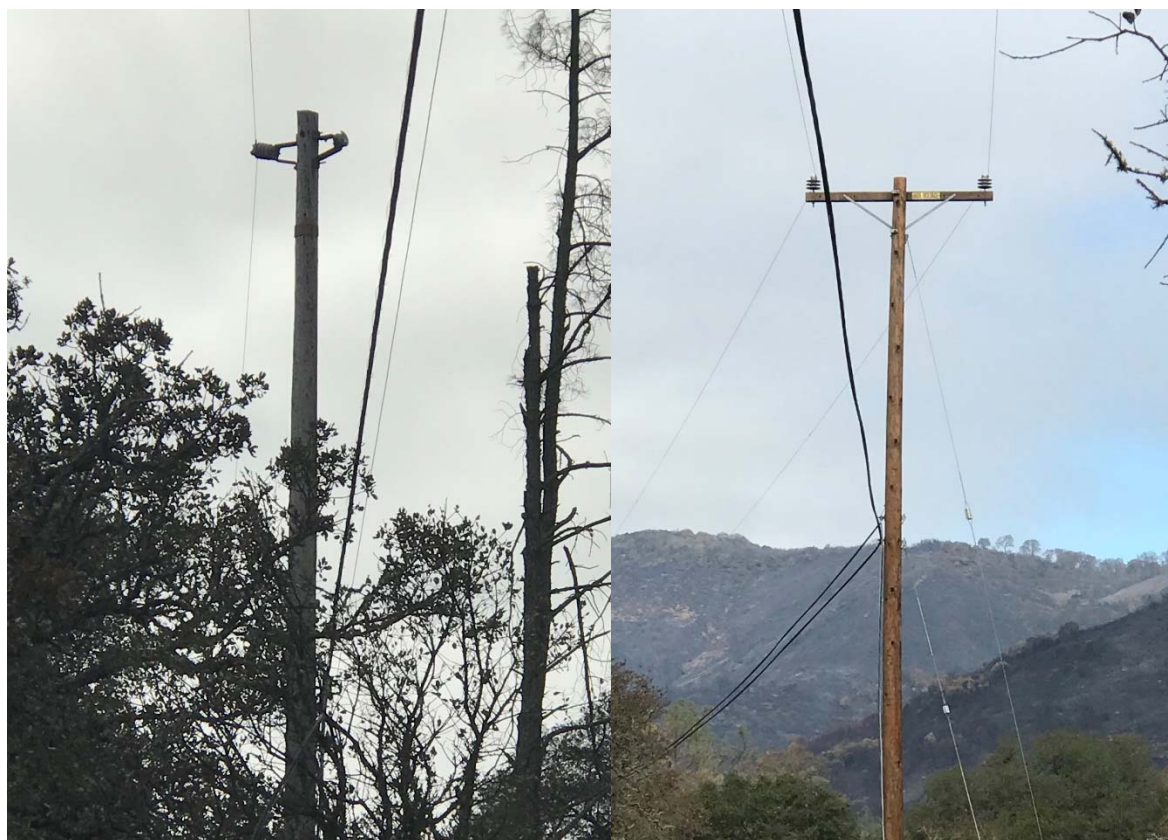


Figure 7. Atlas 2 **Left:** Subject pole #5 (PG&E #102292430, coordinates: 38.414424, -122.248689). Photo taken from the north side of pole. **Right:** Subject pole #6 (PG&E #103770852, coordinates: 38.415058, -122.24888). Photo taken from south side of pole.

For Atlas 2, subject poles #5 and #6 did not fail; however, the field-side conductor detached from pole #5 when a Valley Oak branch failed and fell onto the conductor causing the field-side insulator attached to pole #5 to mechanically fail. Also, as noted previously, pole #4 burned through at the base but still stood in the ground. The failed insulator and conductor at pole #5 did not touch the ground and were still supported by the poles upstream and downstream.

²² Bates PGE-CPUC_00006205_CONFIDENTIAL.

²³ Bates PGE-CPUC_00006197_CONFIDENTIAL.

Pole #6, a class 4, 45-foot pole, was installed in 2015. PG&E's Pole Detail Report²⁴ for pole #6 did not identify any structural issues in 2017. The Pole Detail Report²⁵ for pole #5 noted some deterioration but nothing that would require a pole replacement. Although pole #5 was not identified for replacement, it was replaced after the fire and inspected on October 26, 2017.

Subject pole #4 (PG&E #102292429, coordinates: 38.413636, -122.248458), the pole immediately south of pole #5, was burnt through at the ground level. Based on the PG&E Pole Detail Report²⁶, pole #4 was replaced sometime after the fire but before October 26, 2017. SED did not identify any issues with the intrusive records of pole #4.

In summary, based on the infrastructure SED reviewed, SED did not identify infrastructure-related violations at either Atlas location.

D. PG&E Equipment Operations and Maintenance

SED investigated compliance with GO 95, Rule 31.1 during their review of PG&E distribution equipment operations and maintenance records.



Figure 8. Diagram of protective devices upstream of Atlas 1 and Atlas 2 incident spans/Areas of Interest. Pueblo-1104 CB is the Circuit Breaker and source device of the Pueblo-1104 circuit. Not drawn to scale. (Source: PG&E)

All incident spans were protected by upstream fuse 709. Fuse 709 is located approximately 0.6 miles south of 3683 Atlas Peak Rd. and consists of two 25T fuses, for each of the conductors. Two other protection devices are located upstream of fuse 709 before the final source CB:

1. Line Recloser (LR) 1304
2. LR-640

²⁴ Bates PGE-CPUC_00006182_CONFIDENTIAL.

²⁵ Bates PGE-CPUC_00006187_CONFIDENTIAL.

²⁶ Bates PGE-CPUC_00006183_CONFIDENTIAL.

i. Event Timeline

While the circuit was energized, CB-1104 recorded data prior to and for a limited duration of the fire. SED reviewed the Supervisory Control and Data Acquisition (SCADA) load and event data recorded for October 8, 2017. However, LR-1304 and LR-640 were not SCADA enabled at the time of the events but PG&E was able to obtain Sequence of Events (SOE) data downloaded from the devices at some point after the fire. CB-1104 recorded data that was inconsistent in the fact that not every time stamp data had an associated load value for every phase (phases A, B or C). For example, at 2007 hours on October 8, all three phases showed a load value; however, at 2011 hours, only phase A recorded a load value and the other two phases showed no values.

October 8, 2017

2117 – 2132 hours

- ... 15 smart meters downstream of both incident locations recorded a series of power down events.²⁷
- ... SCADA data for all three phases at CB-1104 read approximately 184 to 200 amps at around 2125 hours.²⁸ The load on the circuit seemed normal at this time.
- ... **2127 hours – Approximate time of first fire ignition.**
- ... 2127 hours – LR-1304 recorded a “CONTROL ALARMS” followed by a “no control alarm”.²⁹ At this time, phase B showed no amps flowing and zero voltage. (“CONTROL ALARMS” caused by a low battery, no external AC power detected, or internal power failure. A “no control alarm” is recorded after a control alarm resets.)

2132 – 2200 hours

- ... At 2132 hours, CB-1104 opened twice after it sensed a fault downstream and reclosed twice.³⁰ After reclosing successfully on the second attempt, the re-energized circuit’s load reduced by about half based on SCADA readings for phases A, B, and C reading 72, 104, and 104 amps, respectively.³¹
- ... 2132 hours – Sectionalizer 47912 opens to clear fault at 1597 Estee Ave., approximately 4.5 miles south of the incident location.

²⁷ Bates PGE-CPUC_00022379. AMI data with inferred times for each event. Inferred times determined by PG&E personnel.

²⁸ Bates PGE-CPUC_00007877 and PGE-CPUC_00007880.

²⁹ Bates PGE-CPUC_00020884.

³⁰ Bates PGE-CPUC_00013215, PGE-CPUC_0007878 and PGE-CPUC_0007879.

³¹ Bates PGE-CPUC_00007877 and PGE-CPUC_0007878.

- ... 32 smart meters downstream of both incident locations recorded a series of power down events.³²
- ... **2143 hours – Approximate time of second fire ignition.**
- ... 2143 hours - LR-640 recorded a “CONTROL ALARMS” followed by a “no control alarm”.³³ The LR seems to have opened and successfully reclosed based on the load data for each event, i.e. initially zero amps on all three phases for one event and then 60-108 amps for the second event immediately after.
- ... 2147 hours – Napa Dispatch received first 911 call regarding Atlas fire at 3183 Atlas Peak Rd.³⁴
- ... 2200 hours – smart meters downstream of incident locations stopped recorded data until October 22, 2017.

2242 hours

- ... PG&E Troubleman cleared a wire down at 1597 Estee Ave, over 4.5 miles southwest of incidents. Then the same Troubleman reports to the Pueblo-1104 circuit outage.³⁵

2259 hours

- ... PG&E Troubleman manually opens LR-640.³⁶ The Troubleman opened the LR because he witnessed fire downstream and de-energized to make the area safer.³⁷
- ... SCADA data shows zero load at CB-1104.

2259 – 2359 hours – SCADA readings on all three phases fluctuated between approximately 0 to 8 amps.

End of Timeline

³² Bates PGE-CPUC_00022379. AMI data with inferred times for each event. Inferred times determined by PG&E personnel.

³³ Bates PGE-CPUC_00020883.

³⁴ Case 3:14-cr-00175-WHA. Doc 962-49, Exhibit WW. Filed 1/10/19.

³⁵ Bates PGE-CPUC_00013215.

³⁶ Id.

³⁷ Bates PGE-CPUC_02082019-DR_Atlas_Q03.

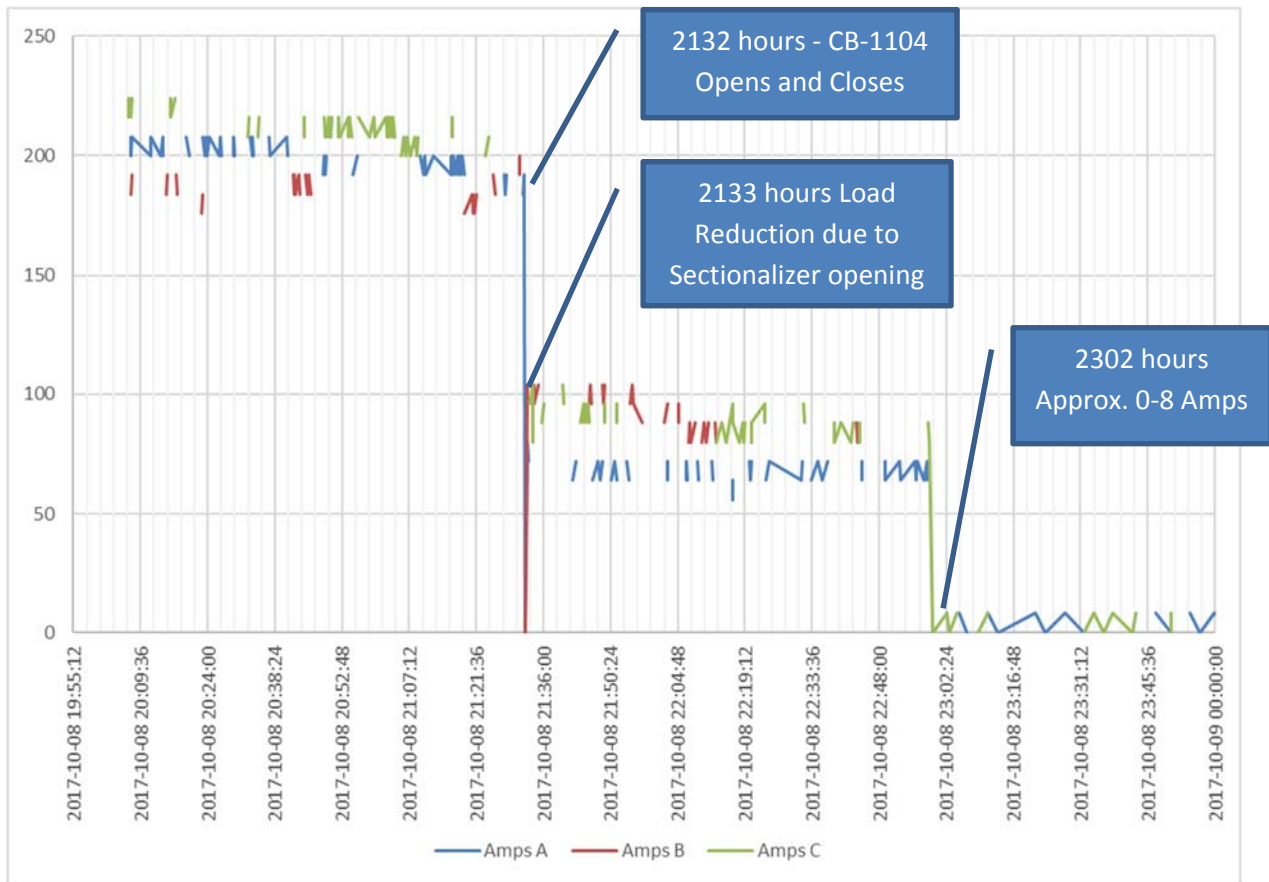


Figure 9. Plot of SCADA load data recorded at Pueblo-1104 CB on October 8, 2017, from 2006 hours to 0146 hours on October 9, 2017.

On October 8, 2017, the Pueblo-1104 CB performed two automatic reclose attempts at 2132 hours. The first was unsuccessful but the second succeeded because Sectionalizer-47912 automatically opened to clear a fault at 1597 Estee Avenue.³⁸ PG&E set the CB to automatically lock out in the open position after two unsuccessful automatic reclose attempts; however the CB did not lock out after successfully reclosing on the second attempt.³⁹

³⁸ PGE-CPUC_02082019-DR_Atlas_Q04.

³⁹ Id.



Figure 10. Partial view of Pueblo-1104 circuit with LR-640, LR-1304 and Sectionalizer 47912 shown. (Source: PG&E)⁴⁰

Of the PG&E outage reports reviewed, SED could not determine if Fuse 709 operated after the faults occurred at both locations. Also, LR-640 and LR-1304 each seemed to have operated once within 16 minutes of each other based on the “CONTROL ALARMS” recorded locally at each device. The LRs did not lock out, but rather LR-640 was manually opened by PG&E field personnel due to the Atlas fires.

In summary, based on SED’s review of SCADA records and smart meter data, SED did not identify a violation for either incident area.

E. Other Field Observations and Review of Physical Evidence

During SED’s field investigation of Atlas 1 on October 21, 2017, the subject tree laid on the ground and CAL FIRE previously cut a section of the tree to retain as evidence. PG&E marked the cut section of tree with blue paint which was different from the fluorescent green paint normally used by PG&E, post-fire. PG&E stated that due to the limited supply of fluorescent green paint, blue paint was also used post-fire to indicate that a tree should be removed. Based on statements⁴¹ from Matt Kane and Nate Haack, on October 14, 2017 between 1200 and 1430 hours, the two contracted personnel ran

⁴⁰ PGE-CPUC_00023059_CONFIDENTIAL.

⁴¹ Case 3:14-cr-00175-WHA. Doc 962-49, Exhibit M. Filed 1/10/19.

out of “neon green” paint and began using “teal” paint to mark remaining hazard trees. Investigator West identified overspray on the vegetation surrounding the marked tree and determined that the paint was applied after the tree fell thus confirming Mr. Kane’s and Mr. Haack’s statements.⁴²



Figure 11. Subject Black Oak tree laying perpendicular to the road. Photo taken from road-side facing the field.

On October 12, 2018, SED staff, Raymond Cho and Wilson Tsai, traveled to Santa Rosa to meet with CAL FIRE investigators and review evidence that they retained from the incident scenes. Of the evidence reviewed and photographed for Atlas 1, SED found charred Madrone tree branches with what appeared to be signs of electric arcing, fulgurite-like masses with what seemed to be copper in the center and also a rock with what seemed to be molten copper in the center. Fulgarites⁴³ are naturally occurring masses of fused soil and/or other debris that can form when lightning discharges into the ground. In this case, a fulgurite-like mass was formed when conductors fell to the ground and discharged enough energy to fuse some of the ground material together.

⁴² CAL FIRE Fire Investigation Report 17CALNU010046.

⁴³ <https://en.wikipedia.org/wiki/Fulgurite>.



Figure 12. Fulgarite-like masses found in the Atlas 1 incident area. CAL FIRE Evidence Log items 5A through 5C.



Figure 13. Charring on a Madrone tree branch that appears to be arcing in the Atlas 1 incident area. CAL FIRE evidence item 9B.

On the same day in Santa Rosa, SED staff reviewed evidence from Atlas 2. Of the evidence reviewed and photographed for Atlas 2, SED found damaged communication cables that exhibited damage at multiple locations on the cable indicative of temperatures high enough to melt metal. SED staff also reviewed Valley Oak tree limbs but could not clearly identify arcing marks on the limbs.



Figure 14. Beading on the subject copper span in the Atlas 2 incident area. CAL FIRE evidence item 3A.

For Atlas 2, SED found beading on the subject PG&E copper conductor which indicated electric arcing on another object. The evidence shows that the conductor was energized when it contacted another object.

IV. CAL FIRE Investigation

CAL FIRE investigator, Russell West, determined that the fire was “the result of multiple starts.”⁴⁴ Mr. West stated the following in his report:

“For identification purposes only, the fires were separated by the names Atlas 1 and Atlas 2.

The Atlas 1 fire was caused when a large tree fell to the ground, breaking a conductor, and causing multiple fires to start below.”

The Atlas 2 fire was caused when a tree branch broke free from a tree, struck a conductor causing a nearby insulator to break, causing multiple fires to start below.”⁴⁵

Mr. West referenced Mr. Porter’s report⁴⁶ in regards to the failed Oak tree and failed Valley Oak branch:

⁴⁴ CAL FIRE Fire Investigation Report 17CALNU010046.

⁴⁵ Id.

⁴⁶ Evaluation of Oak Failure. Atlas Peak Rd. South of Lake Berryessa, Atlas Fire Southern LNU Complex. Prepared by Mark Porter.

“PORTER looked at the downed tree on the Atlas 1 fire. He said the tree has multiple defects and concluded that it should have been identified as a hazard tree and removed.”⁴⁷

“PORTER looked at the tree and the broken tree branch at the Atlas 2 fire. PORTER said that the tree branch broke at a codominant stem and that the tree had visible defects.”⁴⁸

In addition, Mr. West referenced Mr. Leuzinger’s report⁴⁹ in regards to the two Atlas fire locations:

“Peter LEUZINGER arrived and conducted an evaluation of the subject trees. LEUZINGER is a CAL FIRE employee and a Registered Professional Forester. LEUZINGER look at the tree located on Atlas 1. LEUZINGER said the tree failed at the base of the tree. LEUZINGER said the wood at the base of the tree was ‘spongy’ and that there were signs of root rot. The Madrone tree showed signs of being energized with electricity. LEUZINGER looked at the tree at Atlas 2. LEUZINGER said the tree appeared healthy although it did show signs of repeated pruning that could have contributed to the failure of the branch.”⁵⁰

CAL FIRE found PG&E in violation of California Penal Code (PC) §192 (b), California Public Resources Code (PRC) §4421 and §4293, and California Health & Safety Code (HSC) §13001.

PC §192 (b) states in part:

“Manslaughter is the unlawful killing of a human being without malice.”

“(b) Involuntary – in the commission of an unlawful act, not amounting to a felony; or in the commission of a lawful act which might produce death, in an unlawful manner, or without due caution and circumspection. This subdivision shall not apply to acts committed in the driving of a vehicle.”

PRC §4421 states:

“A person shall not set fire or cause fire to be set to any forest, brush, or other flammable material which is on any land that is not his own, or under his legal control, without the permission of the owner, lessee, or agent of the owner or lessee of the land.”

PRC §4293 requires PG&E to maintain a four-foot clearance in all directions between all vegetation and all conductors operating at 2,400 or more volts, but less than 72,000 volts.

⁴⁷ CAL FIRE Fire Investigation Report 17CALNU010046. Page 27.

⁴⁸ Id. Page 27.

⁴⁹ Peter Leuzinger Report for CALNU010046 Atlas fire. Location: 3683 Atlas Peak Rd. Date of visit: 10/17/17.

⁵⁰ CAL FIRE Fire Investigation Report 17CALNU010046. Pages 27-28.

HSC §13001 states:

“Every person is guilty of a misdemeanor who, through careless or negligent action, throws or places any lighted cigarette, cigar, ashes, or other flaming or glowing substance, or any substance or thing which may cause a fire, in any place where it may directly or indirectly start a fire, or who uses or operates a welding torch, tar pot or any other device which may cause a fire, who does not clear the inflammable material surrounding the operation or take such other reasonable precautions necessary to insure against the starting and spreading of fire.”

Based on the professional opinions of Mr. Porter and Mr. Leuzinger, SED found that PG&E VM inspectors should have been able to identify and mitigate the hazardous conditions at both locations prior to the fire.

V. Conclusion

Based on the evidence reviewed, SED found a total of five violations of GO 95 by PG&E:

- ... GO 95, Rule 31.1, for failing to identify and abate a decaying Black Oak tree in the Atlas 1 incident area.
- ... GO 95, Rule 31.1, for failing to identify and perform correctional pruning on a hazardous Valley Oak codominant stem in the Atlas 2 incident area.
- ... Two violations of GO 95, Rule 35, for failing to maintain the minimum required clearance for PG&E 12 kV overhead conductors at the Atlas 1 and Atlas 2 sites.
- ... GO 95, Rule 31.1 for completing work order #102506022 676 days late. This violation did not directly contribute to the ignition of the Atlas fire but still signifies an unsafe act by PG&E.

If SED becomes aware of additional information that could modify SED’s findings in this Incident Investigation Report, SED may re-open the investigation and may modify this report or take further actions as appropriate.

VI. Attachments

Attachment A – CAL FIRE Investigation Report – Case No. 17CALNU010046

Attachment B – CAL FIRE Arborist Report by Mark Porter

Attachment C – CAL FIRE Forester Report by Peter Leuzinger

Attachment D – CAL FIRE Evidence Lists

Attachment E – PG&E Work Order #102506022

ATTACHMENT A

CAL FIRE Investigation Report
Case Number 17CALNU010046

CAL FIRE



CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION
Sonoma-Lake-Napa Unit
1199 Big Tree Road
St. Helena CA, 94574

INVESTIGATION REPORT

CASE NUMBER:	17CALNU010046
CASE NAME:	Atlas
DATE:	October 8, 2017
INCIDENT TYPE:	Wildland Fire
INCIDENT INVESTIGATOR:	Russell West Fire Captain Specialist Sonoma-Lake-Napa Unit

1 - VIOLATIONS:

Health and Safety Code 13001: Every person is guilty of a misdemeanor who, through careless or negligent action, throws or places any lighted cigarette, cigar, ashes, or other flaming or glowing substance, or any substance or thing which may cause a fire, in any place where it may directly or indirectly start a fire, or who uses or operates a welding torch, tar pot or any other device which may cause a fire, who does not clear the inflammable material surrounding the operation or take such other reasonable precautions necessary to insure against the starting and spreading of fire.

Public Resource Code 4293: Except as otherwise provided in Sections 4294 to 4296 , inclusive, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

(a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.

(b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet.

(c) For any line which is operating at 110,000 or more volts, 10 feet.

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which

1 may contact the line from the side or may fall on the line shall be felled, cut, or trimmed
2 so as to remove such hazard. The director or the agency which has primary
3 responsibility for the fire protection of such areas may permit exceptions from the
4 requirements of this section which are based upon the specific circumstances involved.
5

6 **Public Resource Code 4421:** A person shall not set fire or cause fire to be set to any
7 forest, brush, or other flammable material which is on any land that is not his own, or
8 under his legal control, without the permission of the owner, lessee, or agent of the
9 owner or lessee of the land.
10

11 **Penal Code 192 (b):** Manslaughter is the unlawful killing of a human being without
12 malice.
13

14 (b) Involuntary—in the commission of an unlawful act, not amounting to a felony; or in
15 the commission of a lawful act which might produce death, in an unlawful manner, or
16 without due caution and circumspection. This subdivision shall not apply to acts
17 committed in the driving of a vehicle.
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2 - SUMMARY:

On October 8, 2017, at approximately 9:51 PM, a vegetation fire was reported to CAL FIRE, St. Helena. The reporting party stated the fire was located near 3183 Atlas Peak Road in the community of Napa, California. Local and state fire suppression resources responded. Fire units contained the fire on November 17, 2017. The fire burned 51,624 acres, damaged 783 structures, and destroyed 120 structures. 6 fatalities resulted from the fire.

Following my origin and cause investigation I, Russell WEST, determined the fire to be the result of multiple starts. For identification purposes only, the fires were separated by the names Atlas 1 and Atlas 2.

The Atlas 1 fire was caused when a large tree fell to the ground, breaking a conductor, and causing multiple fires to start below.

The Atlas 2 fire was caused when a tree branch broke free from a tree, struck a conductor causing a nearby insulator to break, causing multiple fires to start below.

3 - SUSPECT:

S-1 Pacific Gas & Electric Corporation
77 Beale Street
San Francisco, CA 94105
(415) 973-2277



4 – VICTIMS:

The Atlas fire burned approximately 51,624 acres. The fire damaged 783 structures, destroyed 120 structures, and resulted in 6 fatalities (See attachment 30 for CAL FIRE report on damaged and destroyed structures).

V-1 Sara RIPPEY

V-2 Charles RIPPEY II

V-3 Edward STONE

V-4 George CHANEY

V-5 Sally LEWIS

1 V-6 Teresa SANTOS



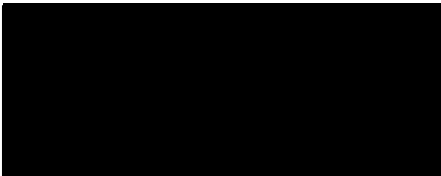
6 **WITNESSES:**

7 W-1 David CAUL



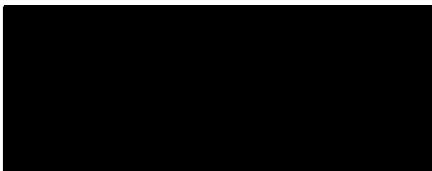
11 The original 911 caller of the fire.

13 W-2 Stewart FUNK



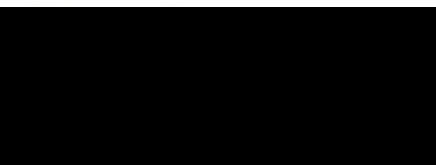
17 Lives north of CAUL and is a witness to the fire on October 8th 2017.

19 W-3 Michael PARMENTER



23 Owner of property where the battery, speaker box, and speaker wire were
24 located.

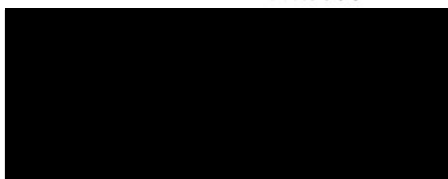
26 W-4 Scott GOLDIE



30 Saw the fire burning on both sides of Atlas Peak Road south of the Circle R
31 Ranch entrance.

A handwritten signature in blue ink, appearing to be 'Rw'.

1 W-5 Patrick ELLIOTT-SMITH



5 Provided a photograph of the property at 4069 Atlas Peak Road taken on
6 October 9th, 2017.

8 W-6 Dave KAROLY

9 California Department of Forestry and Fire Protection Land Surveyor (LIDAR)
10 1300 U Street
11 Sacramento, CA 94244
12 (916)324-1644

14 W-7 Dan GREGORY

15 California Department of Forestry and Fire Protection Land Surveyor (LIDAR)
16 300 U Street
17 Sacramento, CA 94244
18 (916)323-1044

20 W-8 Jeff GAWRONSKI

21 California Department of Forestry and Fire Protection Land Surveyor (LIDAR)
22 1300 U Street
23 Sacramento, CA 94244
24 (916)323-1044

26 W-9 Garrett JACKSON

27 California Department of Forestry and Fire Protection Land Surveyor (LIDAR)
28 1300 U Street
29 Sacramento, CA 94244
30 (916)323-1044

Handwritten signature in blue ink, appearing to be 'Rw'.

1 W-10 Mark RHODES

2 Electrical Engineer

3 3460 Zion Canyon Ct.

4 Pleasanton, CA 94588

5 (925)922-1674

6

7 W-11 Jim NOLT

8 Electrical Engineer

9 107 Blue Canyon Way

10 Folsom, CA 95630

11 (916)988-2256

12

13 W-12 Mark PORTER

14 Arborist

15 6111 Alhambra Ave

16 Riverside, CA 92505

17 (909)816-8733

18

19 W-13 Peter LEUZINGER

20 Forester

21 California Department of Forestry and Fire Protection

22 1199 Big Tree Road

23 St. Helena, CA 94574

24 (707)967-1400

25

26 W-14 Jan SEARS

27 Pilot

28 California Highway Patrol

29 601 North 7th Street

30 Sacramento, CA 95811

31 (916)843-3000



W-14 Todd LABADIE
Flight Officer
California Highway Patrol
601 North 7th Street
Sacramento, CA 95811
(916)843-3000

INVESTIGATORS:

W-14 Jeremy WARD
Fire Investigator
California Department of Forestry and Fire Protection
118 S. Fortuna Boulevard
Fortuna, CA 95540
(707)725-4413

W-15 Mark HILLSCOTTER
Fire Investigator
California Department of Forestry and Fire Protection
1809 Fairlane Road
Yreka, CA 96097
(530)842-3516

W-16 Matt GILBERT
Fire Investigator
California Department of Forestry and Fire Protection
785 Mountain Ranch Road
San Andreas, CA 95249
(209)754-3831



1 W-17 Michael KEATING

2 Fire Investigator

3 California Department of Forestry and Fire Protection

4 697 Highway 36

5 Susanville, CA 96130

6 (530)257-4171



5 - EVIDENCE:

A series of photographs were taken and are included in the attachments section.

See the attached evidence log (LE-75e) for a listing of evidence collected see attachment 21 and 22.

All documentation provided by PG&E was booked into evidence in the Sonoma-Lake-Napa Unit evidence storage under incident number (17CACNR000307).



6 – CONDITIONS:

During the first burning period the fire grew to over 20,000 acres. The rate of spread was from a number of factors. Remote Automated Weather Station (RAWS) located in Napa (N38.474872, W122.264800) recorded a northerly wind influence was present for the majority of the period, recorded wind gusts peaked at 32 mph, winds averaged 8.8 mph, and relative humidity averaged 23% with a minimum recording of 15%. Extreme fire behavior was observed with critical rates of spread, high flame lengths, and long range spotting. During the first burning period, the Sonoma-Lake-Napa Unit had numerous similar major fires burning in multiple counties.

Fire Behavior

Extreme fire behavior was observed during the first and into the second operational period. Flame lengths in excess of 100 feet were observed. The conditions exceeded fire suppression capabilities, and crews moved to life safety mode assisting with evacuations. The fire traveled in a southerly direction. The fire reached the Silverado Country Club area of rural Napa (approximately 4 miles) within the first two hours after ignition.

Weather

Below are the weather readings from the RAWS locate in Napa (N38.474872, W122.264800) on October 8th and 9th 2017. The RAWS is located approximately 4.5 miles north of the origin area of the fire.



Atlas Peak California

Daily Summary for

October 8, 2017

Hour of Day	Total Solar Rad.	Ave. V. Dir.	Wind Max.	Air Temperature Mean	Fuel Temperature Mean	Fuel Moisture Mean	Relative Humidity Mean	Dew Point	Wet Bulb	WCI/ HI ¹	Total Precip.
Ending at L.S.T.	° ly.	mph	Deg	Deg. F.	Deg. F.	Percent	Percent	Deg. F.	Deg. F.	Deg. F.	inches
1 am	0.0	4.0	32	10.0	63.0	60.0	6.3	43	40	50	0.00
2 am	0.0	5.0	26	8.0	63.0	60.0	6.8	45	41	51	0.00
3 am	0.0	6.0	34	12.0	62.0	59.0	7.0	43	39	49	0.00
4 am	0.0	4.0	68	13.0	61.0	58.0	7.1	39	36	48	0.00
5 am	0.0	5.0	48	16.0	61.0	58.0	7.1	36	34	47	0.00
6 am	0.3	6.0	49	13.0	62.0	58.0	7.3	35	34	47	0.00
7 am	9.4	5.0	4	12.0	65.0	62.0	7.2	29	32	48	0.00
8 am	26.8	8.0	359	14.0	65.0	68.0	7.2	29	32	48	0.00
9 am	43.3	7.0	18	20.0	69.0	74.0	6.4	23	30	49	0.00
10 am	56.9	10.0	12	21.0	71.0	77.0	6.0	21	29	49	0.00
11 am	65.3	9.0	28	21.0	74.0	84.0	5.3	14	22	49	0.00
12 pm	68.5	10.0	20	23.0	74.0	84.0	4.7	13	20	48	0.00
1 pm	66.5	10.0	31	19.0	74.0	84.0	4.2	13	20	48	0.00
2 pm	58.8	10.0	30	21.0	74.0	83.0	3.9	14	22	49	0.00
3 pm	46.2	8.0	11	20.0	73.0	81.0	3.6	14	21	48	0.00
4 pm	30.3	5.0	5	18.0	71.0	76.0	3.5	15	21	47	0.00
5 pm	12.3	8.0	344	16.0	67.0	67.0	3.5	16	19	45	0.00
6 pm	0.4	9.0	0	19.0	64.0	62.0	3.7	16	17	43	0.00
7 pm	0.0	13.0	1	26.0	65.0	62.0	3.7	16	18	44	0.00
8 pm	0.0	11.0	29	32.0	64.0	62.0	3.7	15	15	43	0.00
9 pm	0.0	13.0	21	30.0	62.0	60.0	3.7	17	17	42	0.00
10 pm	0.0	13.0	14	28.0	62.0	59.0	3.9	16	15	42	0.00
11 pm	0.0	17.0	7	31.0	61.0	59.0	3.9	15	13	41	0.00
12 am	0.0	14.0	18	32.0	60.0	58.0	3.9	16	14	41	0.00



Atlas Peak California

Daily Summary for

October 9, 2017

Hour of Day	Total Solar Rad.	Ave.	Wind V. Dir.	Max.	Air Temperature Mean	Fuel Temperature Mean	Fuel Moisture Mean	Relative Humidity Mean	Dew Point	Wet Bulb	Total Precip.
Ending at L.S.T.	° ly.	mph	Deg	mph	Deg. F.	Deg. F.	Percent	Percent	Deg. F.		inches
1 am	0.0	14.0	15	29.0	60.0	58.0	3.9	16	14	41	0.00
2 am	0.0	14.0	29	30.0	60.0	57.0	3.9	16	14	41	0.00
3 am	0.0	15.0	27	34.0	59.0	57.0	3.9	16	13	40	0.00
4 am	0.0	13.0	4	32.0	59.0	56.0	4.0	16	13	40	0.00
5 am	0.0	9.0	20	25.0	58.0	55.0	4.1	17	13	40	0.00
6 am	0.3	7.0	27	19.0	57.0	54.0	4.0	17	13	39	0.00
7 am	8.7	8.0	46	20.0	61.0	59.0	4.1	16	15	41	0.00
8 am	26.2	7.0	54	19.0	65.0	66.0	4.3	15	16	44	0.00
9 am	43.0	8.0	62	21.0	68.0	72.0	4.2	14	17	45	0.00
10 am	55.7	6.0	43	16.0	70.0	78.0	4.0	13	17	46	0.00
11 am	63.7	5.0	10	12.0	74.0	85.0	3.7	12	18	48	0.00
12 pm	67.2	5.0	72	12.0	75.0	87.0	3.3	11	17	48	0.00
1 pm	64.3	4.0	56	10.0	77.0	90.0	3.1	11	19	49	0.00
2 pm	49.4	5.0	70	11.0	74.0	83.0	3.1	12	18	48	0.00
3 pm	27.8	4.0	92	7.0	72.0	77.0	3.0	15	22	48	0.00
4 pm	11.1	5.0	180	11.0	69.0	70.0	3.1	18	24	47	0.00
5 pm	2.0	11.0	210	14.0	67.0	65.0	3.2	17	21	45	0.00
6 pm	0.1	10.0	230	19.0	65.0	63.0	3.2	18	20	44	0.00
7 pm	0.0	13.0	226	16.0	64.0	61.0	3.4	21	23	45	0.00
8 pm	0.0	13.0	223	16.0	63.0	60.0	3.6	21	22	44	0.00
9 pm	0.0	11.0	222	16.0	62.0	60.0	3.7	24	25	44	0.00
10 pm	0.0	6.0	248	10.0	63.0	58.0	3.9	28	29	46	0.00
11 pm	0.0	5.0	320	7.0	63.0	59.0	4.2	26	28	46	0.00
12 am	0.0	3.0	333	6.0	62.0	58.0	4.4	24	25	44	0.00



1 **7 – EQUIPMENT:**

2
3 Pacific Gas and Electric Corporation Power Equipment and American Telephone and
4 Telegraph communication lines were located in the origin area and collected as
5 evidence.
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8 - PROPERTY:

The Atlas fire originated on the following properties:

Atlas 1

APN: 032-550-031

Address: 3683 Atlas Peak Road

Napa, CA 94558

This property is located on the Circle R Ranch on Atlas Peak Road.

Atlas 2

APN: 032-550-024

Address: 3683 Atlas Peak Road

Napa, CA 94558

This property is located on the Circle R Ranch on Atlas Peak Road.

For a list of properties damaged or destroyed refer to the CAL FIRE report on damaged and destroyed structures (See attachment 30).



9 - NARRATIVE:**On October 8, 2017**

At approximately 9:51 PM, a vegetation fire was reported to CAL FIRE, St. Helena. The reporting party stated the fire was located near 3183 Atlas Peak Road in the community of Napa, California. Local and state fire suppression resources responded.

During the time the fire was reported multiple other fires were being reported across the Sonoma-Lake-Napa Unit. The northern part of the state was under a red flag warning.

Initial responding resources were unable to make access up Atlas Peak Road due to the fire's intensity and numerous downed trees and conductors blocking the roadway.

I, Russell WEST responded to the incident from Santa Rosa, California. While responding to the fire I heard the Atlas incident commander (Atlas IC) requesting additional resources and evacuations along Atlas Peak Road. As I was driving on Highway 121 at the Sonoma and Napa County border, I could see a large glow across the valley in the direction of Atlas Peak Road.

I arrived at the fire at approximately 11:00 PM. I started to make access up Atlas Peak Road. As I reached the intersection of Atlas Peak Road and Hillcrest Drive I could see numerous structures on fire along the roadway. I continued to drive up Atlas Peak Road from Hillcrest Drive. I came across firefighters attempting to cut a large tree blocking the entire roadway at the 2400 block of Atlas Peak Road. I heard Atlas IC calling for additional evacuations. I realized I was not going to be able to reach the origin of the fire and with numerous structures in the fires path, I decided to assist with evacuations. I continued to assist with evacuations throughout the night and into following morning.

On October 9, 2017

At approximately 9:00 am, I met with CAL FIRE Investigator Mark HILLSCOTTER.

HILLSCOTTER attempted to call the original 911 caller of the fire but was unsuccessful.

1 HILLSCOTTER and I drove up Atlas Peak Road from Monticello Road. As we drove up
2 Atlas Peak Road we looked at the macro fire pattern indicators. The indicators I saw
3 included, without limitation to, protection, angle of char, sooting, and staining. The fire's
4 progression was from the north to the south. HILLSCOTTER and I continued
5 northbound on Atlas Peak Road looking at the fire pattern indicators.

6
7 HILLSCOTTER and I reached the original 911 caller's address (REDACTED).
8 The fire pattern indicators showed the fire progressed from the north to the south.
9 HILLSCOTTER and I continued up (north) Atlas Peak Road from (REDACTED) Atlas Peak
10 Road.

11
12 HILLSCOTTER and I reached the address of (REDACTED) Atlas Peak Road. The fire pattern
13 indicators presented an area of low intensity burning, transitioning into high intensity
14 and head fire from the south to the north. HILLSCOTTER and I continued to look at fire
15 pattern indicators in the area.

16
17 The area HILLSCOTTER and I identified was in a vineyard south the address of (REDACTED)
18 Atlas Peak Road. Within the vineyard, HILLSCOTTER and I located a car battery sitting
19 on the ground at the base of a row of vines. The battery had a speaker box connected
20 to it with "jumper cable" style connectors (REDACTED Atlas Peak Road Evidence Collection
21 IMG_0001.JPG). The speaker box was attached to a metal post in the row of vines
22 (REDACTED Atlas Peak Road Evidence Collection IMG_0002.JPG). A second speaker box
23 was attached to the first speaker box by speaker wire and was connected to the vine
24 approximately 100 feet away (REDACTED Atlas Peak Road Evidence Collection
25 IMG_0007.JPG). The speaker wire connecting the two speakers was lying on the
26 ground, unprotected (REDACTED Atlas Peak Road Evidence Collection IMG_0009.JPG).
27 Approximately 30 feet from the 1ST speaker box, the speaker wire was completely
28 severed. Next to the severed end of the wire was a length of wire approximately 4
29 inches in size (REDACTED Atlas Peak Road Evidence Collection IMG_0011.JPG). The section
30 of wire was heavily damaged and had exposed wire in multiple sections. Next to the
31 wire beyond the severed section was burned vegetation. Adjacent to the wire was a

1 section of "weed wacker" twine (████████ Atlas Peak Road Evidence Collection
2 IMG_0015.JPG). The twine appeared to be fresh and did not appear to be damaged by
3 the elements. The vegetation around the vines was minimal and had been cut low to the
4 ground. The vegetation appeared to have been freshly cut.

5
6 I flagged off the vineyard to prevent anyone from entering the area and disturbing the
7 fire pattern indicators. I also called Brothers in Law Security to provide 24 hour security
8 of the vineyard. I waited until security arrived before HILLSCOTTER and I left for the
9 evening.

10
11 **On October 10, 2017**

12 At approximately 8:00 AM HILLSCOTTER and I returned to ██████████ Atlas Peak Road.
13 HILLSCOTTER and I walked around the area multiple times both clockwise and counter
14 clockwise. HILLSCOTTER and I placed colored pin flags next to fire pattern indicators.
15 The fire pattern indicators I observed included without limitation, white ash, sooting,
16 staining, protection, angle of char, stem fall. We placed colored pin flags next to the fire
17 pattern indicators. The different colored pin flags represented red for advancing, white
18 for items of interest, yellow for lateral or transition movements and blue for backing.

19
20 **On October 11, 2017**

21 I talked to the original 911 caller (David CAUL). CAUL told me the following in
22 summary: he was at his house located at ██████████ the night the fire
23 started. He was worried about his power pole leaning so he walked outside to look at it.
24 At approximately 9:35 PM he saw a "reddish-orange" glow to the north of his residence,
25 approximately one mile away. Within approximately 15 seconds the glow grew in size
26 and a smoke cloud began to form above the glow. At approximately 9:58 PM CAUL
27 called 911 to report the fire. CAUL also told me he had a power outage at his house at
28 approximately 9:35 PM, and he said the power was restored approximately 5 minutes
29 later. CAUL provided me the one picture he took and a written statement (See
30 Attachment 2).

1 I drove to CAUL's residence ([REDACTED]). From his residence I looked in the
2 direction he took the pictures. CAUL's residence is located south of the Circle R Ranch
3 as well as the location I located the battery, speaker wire, and speaker box.
4

5 At 1:45 PM CAL FIRE's survey team (David KARLOY and Danny GREGORY) arrived to
6 LIDAR (light imaging, detection, and ranging) the scene (See Attachment 15).
7

8 I talked to Michael PARMENTER, the homeowner at [REDACTED]
9 PARMENTER told me the following in summary: the night of the fire he said his lights
10 were flickering on and off between approximately 9:30 PM and 10:00 PM. He told me he
11 lost power at his residence, and his wife looked out the window and saw a fire burning
12 near the entrance to the Circle R Ranch. His wife showed him the fire she saw.
13 PARMENTER told me the fire was growing in size and was burning in a southern
14 direction. He woke up his tenant (Scott GOLDIE) located next door at [REDACTED]
15 Road. I asked PARMENTER when the speaker in the vineyard was installed, and he
16 told me it was put in a few weeks prior to the fire. I asked him when the last time the
17 grass was "weed wacked", and he told me it was done a few weeks prior. He told me he
18 has two part-time workers who manage the vineyard.
19

20 **On October 12, 2017**

21 I talked to Stewart FUNK. FUNK was at his residence located at [REDACTED]
22 the night the fire started. FUNK told me the following in summary: at approximately 9:30
23 PM he got home and did not see or smell any smoke. His wife walked upstairs in their
24 house and she saw a glow to the north. FUNK looked at the glow and could see it
25 beyond the house to the north of him, and he believed the address was 3369 Atlas
26 Peak Road. FUNK took two photos with his cellphone at approximately 9:58 PM (See
27 Attachment 3). FUNK also took 2 additional photos as he drove down Atlas Peak Road
28 from his residence (See Attachment 3), one at approximately 10:20 PM and one at
29 approximately 10:36 PM. FUNK provided me a picture he took of the glow
30 approximately nine minutes after first seeing the glow (See attachment 3). He said the
31 fire was moving really fast. The flames were approximately 50 feet high and burning an

1 area approximately 150 yards in size from what he could see.

2
3 CAL FIRE hired Mark RHODES to examine the battery, speaker box, and speaker wire
4 located in the vineyard at [REDACTED] Atlas Peak Road. RHODES is a certified electrical
5 engineer.

6
7 **On October 13, 2017**

8 Mark RHODES arrived to examine the battery, speaker box, and speaker wire.
9 RHODES examined the equipment and told me it was a possibility the exposed wiring
10 could have caused a fire but further examination would be needed.

11
12 **On October 15, 2017**

13 I talked to Scott GOLDIE and he told me the following in summary: On October 8, 2017,
14 at approximately 10:00 PM, PARMENTER went to his house and woke him up.
15 PARMENTER informed GOLDIE of the fire. GOLDIE got into his vehicle and attempted
16 to evacuate down Atlas Peak Road. As he passed the entrance to the Circle R Ranch
17 he saw fire on both sides of the roadway. He did not feel the roadway was safe to
18 continue down so he turned around and went back to his residence.

19
20 I talked to Patrick ELLIOTT-SMITH and he told me the following in summary: he lives at
21 [REDACTED]. On October 8, 2017, at approximately 9:30 PM, the lights went
22 out. He drove south on Atlas Peak Road to find the source for the power going out. As
23 he drove south on Atlas Peak Road from his residence he saw a glow in the distance to
24 the south. At approximately 7:00 AM the following morning, he went to PARMENTER's
25 house and took a photograph looking south towards the Circle R Ranch (See
26 Attachment 4). The area previously identified at [REDACTED] Atlas Peak Road had not burned
27 until the following day after the fire started. ELLIOTT-SMITH provided me the picture he
28 took from PARMENTER's residence (See Attachment 4).

29
30 Based on witness statements and the photograph taken by ELLIOTT-SMITH (See
31 attachment 4), I determined the battery, speaker boxes, and wiring located in the
LE80 (Rev. 7/2011)

1 vineyard at [REDACTED] Atlas Peak Road was could not be the ignition source of the Atlas Fire.
2 I believe this area was a result of a slope reversal and the fire transitioned from a
3 backing fire to a head fire burning from the south to the north. As hillsides burn, I have
4 witnessed ignitable material catch fire and roll down the hillside igniting the vegetation
5 below. I believe the area I located the battery, speaker wire, and speaker was not the
6 origin area of the Atlas Fire, but a spot fire from the main fire that burned the morning of
7 October 9, 2017.

8
9 At approximately 3:00 PM, CAL FIRE Investigator Matthew GILBERT arrived at the fire
10 to assist with the origin and cause investigation. Based off of witness statements from
11 PARMENTER and GOLDIE, GILBERT and I walked the area near the entrance of the
12 Circle R Ranch (3683 Atlas Peak Road) looking at the fire pattern indicators. The
13 indicators I saw included, without limitation, protection, staining, freezing, white ash, and
14 angle of char. The area burned presented lower fire intensity than the surrounding area.
15 GILBERT and I flagged off this area to prevent the fire pattern indicators from being
16 disturbed. The area was located adjacent to the roadway on Atlas Peak Road, south of
17 the entrance to the Circle R Ranch.

18
19 At approximately 7:00 PM, I relocated the security guard to Atlas Peak Road, south of
20 the entrance to the Circle R Ranch to provide 24 hour security.

21
22 On the evening of October 15, 2017, CAL FIRE Investigator Shawn ZIMMERMAKER
23 was contacted by the California Highway Patrol (CHP). CHP told ZIMMERMAKER they
24 were flying in one of their airplanes the night the fire started. The Flight Officer (Todd
25 LABADIE) recorded the fire from when they arrived until they left. CHP provided
26 ZIMMERMAKER a copy of the recording (See Attachment 7).

27
28 **October 16, 2017**

29 I reviewed the video CHP took on October 8, 2017. The video showed two fires burning
30 along Atlas Peak Road, south of the Circle R Ranch. One fire was just south of the
31 entrance of the Circle R Ranch and did not grow in size during the approximately 20

1 minute long video. This was the area GILBERT and I identified the day prior. The
2 second fire was south of the smaller fire and was the larger of the two fires. The larger
3 fire was burning from the north to the south, and burning multiple structures. The fire
4 was burning in a "V" pattern downhill towards the Silverado Country Club. The CHP
5 video provided a latitude and longitude of where the video was focused on.

6
7 GILBERT and I walked the area where the second, larger fire was located in the CHP
8 video. I saw fire pattern indicators including, without limitation, sooting, staining, angle of
9 char, protection, and freezing. The second area was approximately 1/8 mile south of the
10 smaller fire's location. The area was located behind a locked gate. For identification
11 purposes, I separated and called the southern fire on Atlas Peak Road "Atlas 1" and the
12 northern fire "Atlas 2".

13
14 GILBERT and I continued walking Atlas 1 looking at fire pattern indicators. I identified
15 an area approximately 100 feet by 100 feet in size which I determined to be the General
16 Origin Area (GOA). The area was located approximately 100 feet away from the
17 roadway and behind a locked gate.

18
19 We continued to look at fire pattern indicators. We located an area approximately 50
20 feet by 30 feet in size, determined to be the Specific Origin Area (SOA). We observed
21 and placed colored pin flags next to fire pattern indicators. The different colored pin
22 flags represented red for advancing, white for items of interest, yellow for lateral or
23 transition movements, and blue for backing.

24
25 Within the SOA, I observed a large tree lying on its side (See Atlas 1 Origin Photo
26 IMG_0011.JPG). The tree had communication lines underneath it. The communication
27 lines were under tension and connected to both power poles on either side of the
28 downed tree. I observed one conductor above the downed tree still connected to power
29 poles on either side of the downed tree (See Atlas 1 Origin Photos IMG_0058.JPG and
30 IMG_0103.JPG). I observed the second conductor tangled in the down tree and was
31 broken into multiple sections (See Atlas 1 Origin Photo IMG_0019.JPG). The damaged

1 conductor was in contact with multiple Madrone trees. The Madrone trees had unusual
2 fire pattern indicators. The Madrone trees had charring on the branch collar of the trees
3 but not where the branches extended. In some locations the branches burned off of the
4 trunk and fell to the ground (See Atlas 1 Origin Photo IMG_0085.JPG - IMG_0087.JPG).
5 The branches and trunk only had damage where the branch connected to the tree trunk.
6 One section of the Madrone tree had the conductor draped over a branch approximately
7 10 feet above the ground. That branch had severe charring only in the area where the
8 conductor was located (See Atlas 1 Origin Photo IMG_0096.JPG). On the side of the
9 trunk leading up to the conductor was a deep split in the trunk of the tree. The split went
10 from the ground up to the area the conductor was located (See Atlas 1 Origin Photo
11 IMG_0120.JPG).

12
13 I looked at the ends of the broken conductor. I saw beading on the ends of sections of
14 the damaged conductor (See Atlas 1 Origin Photo IMG_0065.JPG). The beading
15 indicated to me the conductor was energized when it came to rest. In the areas I
16 observed the beading, I saw metal "slag" on the ground (See Atlas 1 Origin Photo
17 IMG_064.JPG). The metal "slag" indicated to me the conductor was energized when it
18 came to rest. I also saw a large fulgurite on the ground with a small piece of conductor
19 sticking out of it (See Atlas 1 Origin Photo IMG_0114.JPG). The fulgurite indicated to
20 me the conductor was energized when it came in contact with the ground.

21
22 I walked the section of conductors to the north and the south of the damaged
23 conductors. I did not locate any other compromised electrical distribution system
24 components.

25
26 GILBERT and I went to the fire identified as Atlas 2. We walked the area looking at fire
27 pattern indicators. Fire pattern indicators I observed included without limitation, sooting,
28 staining, protection, freezing, white ash, and angle of char. We identified an area
29 approximately 300 feet by 50 feet in size we determined to be the GOA. The GOA was
30 located adjacent to Atlas Peak Road on the Circle R Ranch property and below
31 conductors and communication lines.

1 We continued to look at fire pattern indicators. We observed and placed colored pin
2 flags next to fire pattern indicators. The different colored pin flags represented red for
3 advancing, white for items of interest, yellow for lateral or transition movements, and
4 blue for backing. We located an area approximately 100 feet by 50 feet in size,
5 determined to be the SOA.

6
7 Within the SOA I observed one of the two conductors was damaged at the power pole
8 directly to the north of the SOA. The conductor insulator had broken off the power pole
9 to the north of the SOA. The conductor was suspended approximately 20 feet in the air.
10 The conductor sagged below the communication line and crossed over it at two
11 locations (See Atlas 2 Origin Photo IMG_0079.JPG). I observed a communication line
12 on the ground broken into two pieces (See Atlas 2 Origin Photos IMG_0102.JPG and
13 IMG_0104.JPG). The communication line broke mid span between two power poles.
14 The communication line was still attached to the poles to the north and south of the
15 broken line. To the south of the power pole was a connection box. The communication
16 line had been stretched, and all of the lines were disconnected. This indicated to me the
17 communication line was under extreme tension and was pulled from the box. I observed
18 the second communication line was still suspended in the air and attached to the poles
19 on either side of the SOA. I walked the span of communication line suspended above
20 the SOA. I saw the plastic sheathing to the communication lines was melted in multiple
21 locations and had the aluminum protector exposed (See Atlas 2 Origin Photo
22 IMG_0089.JPG). I observed a large tree branch broken and suspended in the tree's
23 canopy approximately 10 feet above the ground (See Atlas 2 Origin Photo
24 IMG_0054.JPG). The tree branch was suspended in the air above the SOA. I saw the
25 location where the tree branch broke from the tree. The tree branch was connected to
26 the tree above the conductors before the branch failed. I observed charring on a tree
27 approximately 8 feet in the air (See Atlas 2 Origin Photo IMG_0062.JPG). The charring
28 in the tree was at the "V" of two branches (See Atlas 2 Origin Photo IMG_0063.JPG).
29 The tree did not have any fire damage from the ground leading up to the charring, nor
30 did it have fire damage above the charring. I looked at where the conductors crossed
31 the communication lines. I observed the messenger wires around the communication

lines were completely severed (See Atlas 2 Origin Photo IMG_0067.JPG).

October 17, 2017

CAL FIRE's survey team arrived at scene to LIDAR the area of origin identified as Atlas 2 (See Attachment 17).

CAL FIRE hired Mark PORTER, a certified arborist, to examine the trees located within the SOA of Atlas 1 and Atlas 2.

PORTER arrived at the fire to look at the damaged trees.

PORTER looked at the downed tree on the Atlas 1 fire. He said the tree has multiple defects and concluded that it should have been identified as a hazard tree and removed (refer to attachment 12 for more details). He looked at the marking on the downed tree and he was unsure of what the exact marking meant (See Atlas 1 Origin Photo IMG_0007.JPG). Other trees in the area were marked; however they did not have similar markings. The paint used on the other tree's markings was similar in color (See Atlas 1 Origin Photo IMG_0116.JPG). The vegetation below the trunk of the tree had what appeared to be spray over from the paint when it was applied to the tree (See Atlas 1 Evidence Collection Photo IMG_034.JPG). I believe the marking was applied to the tree after it had fallen. For full report completed by PORTER see attachment 12.

PORTER looked at the tree and the broken tree branch at the Atlas 2 fire. PORTER said that the tree branch broke at a codominant stem and that the tree had visible defects. For full report completed by PORTER see attachment 12.

Peter LEUZINGER arrived and conducted an evaluation of the subject trees. LEUZINGER is a CAL FIRE employee and a Registered Professional Forester. LEUZINGER looked at the tree located on Atlas 1. LEUZINGER said the tree failed at the base of the tree. LEUZINGER said the wood at the base of the tree was "spongy" and that there were signs of root rot. The Madrone tree showed signs of being

1 energized with electricity. LEUZINGER looked at the tree at Atlas 2. LEUZINGER said
2 the tree appeared healthy although it did show signs of repeated pruning that could
3 have contributed to the failure of the branch. For full report completed by LEUZINGER
4 see attachment 18.

5
6 **October 18, 2017**

7 CAL FIRE hired Jim NOLT to examine the electrical system located in the SOA of both
8 Atlas 1 and Atlas 2 Fires. NOLT is a certified electrical engineer.

9
10 NOLT arrived and conducted an evaluation of the electrical system.

11
12 NOLT started his examination on Atlas 2. NOLT looked at the damaged conductor, its
13 placement suspended in the air, and contact with the communication line (See Atlas 2
14 Origin Photo IMG_0079.JPG). NOLT looked at the damaged communication line on the
15 ground (See Atlas 2 Origin Photo IMG_0090.JPG). NOLT was unsure if the melted
16 plastic on the communication line lying on the ground was from fire damage or being
17 charged with electricity from the conductor coming in contact with it. NOLT looked at the
18 broken ends of the communication line lying on the ground (See Atlas 2 Origin Photo
19 IMG_0102.JPG and IMG_0111.JPG). NOLT said the break was from a tension break.
20 NOLT had GILBERT and I stretch out the communication line to see where the break
21 would have happened in the span. After laying out the line, the break placement was at
22 the tree with the charring at the "V" of two branches (See Atlas 2 Origin Photo
23 IMG_0063.JPG). NOLT looked at the tree branch suspended in the tree canopy (See
24 Atlas 2 Origin Photo IMG_0054.JPG). NOLT saw burn marks on the bottom of the tree
25 branch where the branch came in contact with the conductor after breaking free from
26 the tree (See Atlas 2 Evidence Collection IMG_0032.JPG). NOLT looked at the
27 communication line still suspended in the air. NOLT said the melting down the south
28 side on the line from the broken conductor was from the communication line being
29 energized from the conductor failing and coming in contact with the communication line
30 (See Atlas 2 Origin Photo IMG_0085.JPG). NOLT said it is possible for the

31 communication line to become energized without tripping a fuse and killing power to the
LE80 (Rev. 7/2011)

conductor. For full report completed by NOLT see attachment 14.

NOLT examined the scene of Atlas 1. NOLT looked at the conductor span and saw the beading on the downed conductor, slag from the melted conductor, and the fulgurite with the piece of conductor sticking out of it (See Atlas 1 Origin Photo IMG_0068.JPG). NOLT said the damage was caused from the conductor being energized when it came in contact with the ground. NOLT looked at the transformer on the power pole to the south of the downed conductor. NOLT said the fuses were tripped on the transformer (See Atlas 1 Origin Photos IMG_0104.JPG and IMG_0105.JPG). NOLT said it is possible that Pacific Gas & Electric Corporation (PG&E) tripped the fuses prior to GILBERT and I identifying the area as a potential origin of the fire. NOLT also said the fuses were for the power to the drop line and would not have killed power to the conductors to the north of the power pole. For full report completed by NOLT see attachment 13.

CAL FIRE's survey team (Jeff GAWRONSKI and Garrett JACKSON) arrived at scene to LIDAR the area of origin identified as Atlas 1 (See Attachment 16).

October 19, 2017

GILBERT and I arrived at Atlas 2 to collect evidence. We met with representatives from American Telephone & Telegraph (AT&T), PG&E, and California Public Utility Commission (CPUC). We photographed and collected 18 items. AT&T assisted with the collection of communication lines and PG&E assisted with the collection of the conductors. A total of 18 items were collected as evidence from the Atlas 2 fire (See attached evidence log for a complete list of items collected: Attachment 22).

October 20, 2017

GILBERT, Michael KEATING, and I arrived at Atlas 1 to collect evidence. We met with representatives from PG&E and CPUC. We photographed and collected 22 items. PG&E assisted with the collection of the conductors. A total of 22 items were collected as evidence from Atlas 1 (See attached evidence log for a complete list of items

collected: Attachment 21).

Fire units contained the fire on November 17, 2017. The fire burned approximately 51,624 acres, damaged 783 structures, and destroyed 120 structures. The fire also resulted in 6 fatalities.

In the months following the fire, multiple requests were made to PG&E for documentation. All of the documents provided by PG&E were collected and booked into evidence in the CAL FIRE, Sonoma-Lake-Napa Unit evidence storage under incident number (17CACNR000307).

PG&E provided records of their vegetation inspections in the area of Atlas 1 and Atlas 2 (See attachment 36). The records identified numerous locations where inspections were conducted. The document has a last modified date of January 13, 2017. To me this indicates the area had vegetation inspected on that date or at least identified as having work done in the past. Until PG&E provides more information about this document, I am unable to determine if the downed tree located at Atlas 1 or the broken tree branch at Atlas 2 were identified in this document.

PG&E provided a document titled "Atlas Fire_DRU 41_10-23-17_v2" in a Microsoft Excel format (See attachment 35). The document identifies an outage on the Pueblo 1104 circuit that supplies Atlas Peak Road. The outage was reported at 9:32 pm on October 8, 2017.

PG&E provided a document titled "Atlas Incident Description & Factual Summary" (See Attachment 37). The document identified smart meters "downstream" of the origin areas having a series of power on/off events from 9:17 PM to 10:00 PM.

The California Public Utilities Commission released their report stating an electrical incident occurred at the location of Atlas 1 and Atlas 2 (See attachments 24 and 25)

1 The Pacific Gas and Electric Corporation released their report stating an electrical
2 incident occurred at the location of Atlas 1 and Atlas 2 (See attachments 33 and 34)

3
4 **Fire Cause Class Exclusion:**

5
6 I conducted a fire cause class exclusion and was able to eliminate all causes except
7 electrical equipment.

8
9 Arson: I did not locate any ignition devices, or other evidence to support arson as the
10 cause of the Atlas 1 or Atlas 2 fires. I eliminated arson as a cause of the fires.

11
12 Campfire: There were no signs of a campfire or campsite in or near the SOA's of Atlas 1
13 or Atlas 2. I eliminated campfire as the cause of the fires.

14
15 Debris Burning: There was no evidence that supports debris burning as the cause of the
16 Atlas 1 or Atlas 2 fires. I eliminated debris burning as the cause of the fires.

17
18 Equipment: I did not locate any equipment in the area of Atlas 1 or Atlas 2. I did not
19 locate any evidence to support equipment was being used in the area of the fire's
20 origins. I eliminated equipment as the cause of the fires.

21
22 Lightning: I did not observe lightning or cumulus cloud development in the area of the
23 fires. No signs of recent lightning strikes were observed. I am unaware of any lightning
24 caused fires in the area of the fire in the two prior months. I eliminated lightning as the
25 cause of the fires.

26
27 Playing with Fire: No evidence of playing with fire was located in the SOA's of Atlas 1 or
28 Atlas 2. No tree forts, toys, bicycle, or signs of children were playing in, or near the
29 SOA's. I excluded playing with fire as the cause of the fires.

30
31 Railroad: I am not aware of any active railroads in the area of the fires. I did not see
LE80 (Rev. 7/2011)

any railroad related vehicles or equipment near the fires. I excluded railroad as the cause of the fires.

Smoking: I did not locate any cigarettes or items for smoking in the SOA's. I eliminated smoking as the cause of the fires.

Vehicle: I did not locate any evidence a vehicle was the cause of the fires. I eliminated vehicle as the cause of the fires.

Other/Miscellaneous: No other causes for the fires were located including but not limited to shooting, spontaneous combustion, and refraction. I excluded other/miscellaneous as the cause of the fires.

Conclusion:

Based on my education, training, witness statements, expert's evaluations, and evidence documented above, I formed opinions about the origin and cause of the Atlas Fire. The Atlas Fire originated from two fires identified above as "Atlas 1" and "Atlas 2".

It is my opinion the Atlas 1 originated when a large tree fell to the ground. While falling, the tree came in contact with a conductor and broke it free from the power pole. The conductor fell to the ground causing a fire to start in multiple locations.

It is my opinion the Atlas 2 Fire originated when a large tree branch broke free from a tree and struck a conductor below. The contact with the conductor caused a nearby insulator to break. The conductor fell and came in contact with the communication lines below. The conductor energized the communication lines causing one communication line to fail and fall to the ground. The second communication line remained suspended in the air. The second communication line remained energized and melted the plastic covering in multiple spots along the span. The sequence of events caused multiple fires to start below the conductor and communication lines.

1 The Atlas 1 and Atlas 2 Fires ultimately burned together along with the Stag Fire
2 (17CALNU012240) becoming the Atlas fire and later the Southern LNU Complex
3 (17CALNU010105), burning 51,624 acres, damaging 783 structures, and destroying
4 120 structures. The fire also resulted in 6 fatalities.

5
6 I reserve the right to amend or augment my opinion if new pertinent information is
7 provided to me or if discovered by me at a later date.

8 ***END OF REPORT***
9
10
11
12

13 
14 _____

15 Russell West, #2893
16 Fire Captain Specialist
17 1199 Big Tree Road
18 St. Helena CA 94574
19 (707)964-1400
20
21
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23
24
25
26
27
28
29
30

10 - ATTACHMENTS:

1. Interagency Report of Incident Dispatch Action
2. Written Statement and Photograph from David CAUL
3. Photos Taken by Stewart FUNK
4. Photo Taken by ELLIOTT-SMITH
5. [REDACTED] Atlas Peak Road Photographs
6. [REDACTED] Atlas Peak Road Evidence Collection Photographs
7. CHP Aircraft Video Taken on October 8, 2017
8. Atlas 2 Origin Photographs
9. Atlas 2 Evidence Collection Photographs
10. Atlas 1 Origin Photographs
11. Atlas 1 Evidence Collection Photographs
12. Report Completed by Mark PORTER
13. Report Completed by Jim NOLT for Atlas 1
14. Report Completed by Jim NOLT for Atlas 2
15. LIDAR for [REDACTED] Atlas Peak Road
16. LIDAR for Atlas 1
17. LIDAR for Atlas 2
18. Report Completed by Peter LEUZINGER
19. Photographs Taken by Matthew GILBERT
20. LE-71 from Matthew GILBERT
21. Evidence Log for Atlas 1 (LE-75e)
22. Evidence Log for Atlas 2 (LE-75e)
23. Aerial Origin Photographs
24. CPUC Report for Atlas 1
25. CPUC Report for Atlas 2
26. ECC Transcripts for East Frequency on October 8, 2017
27. ECC Transcripts for East Frequency on October 9, 2017
28. ECC Transcripts for Napa County Fire Frequency on October 8, 2017
29. ECC Transcripts for West Frequency on October 9, 2017

Rw

30. CAL FIRE Report on Damaged and Destroyed Structures
31. LE-71 From Michael KEATING
32. LE-71 From Mark HILLSKOTTER
33. PG&E Report for Atlas 1
34. PG&E Report for Atlas 2
35. PG&E Outage Report for the Origin Area on the Night of October 8, 2017
36. PG&E Vegetation Management Records
37. PG&E Atlas Incident Description & Factual Summary
38. LE-71 From Shawn ZIMMERMAKER

RW

ATTACHMENT B

CAL FIRE Arborist Report by Mark Porter

Mark Porter, Mark's Tree Service and Consulting
ISA Certified Arborist # WE465
markstree@iCloud.com



Evaluation of Oak Failure
Atlas Peak Rd. South of Lake Berryessa
Atlas Fire Southern LNU Complex
Napa, and Sonoma County, CA

Prepared for Cal Fire Investigator Russell West

October 17, 2017

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Summary

A wildfire called the Atlas Fire (southern LNU Complex) was reported October 8, 2017. October 17, 2017, I met Cal Fire investigating officers Matt Gilbert and Russell West at the site (identified in this report) of two tree failures along Atlas Peak Road on. I was asked to provide my professional opinion of the circumstances or conditions that led to the two failures of the oak trees on this site.

I observed a structural branch defect on a 19-inch diameter valley oak tree (failure #1) and a rotten trunk of a 16-inch diameter black oak tree (failure #2). The branch of the valley oak broke at a codominant stem, stuck in the tree close to a downed power line. A sample of the tree was sent to a wood decay lab. The lab results for the valley oak report fungal DNA and a root disease (see- Appendix IV).

Within walking distance, the black oak tree (failure #2) collapsed under its weight. The photographic evidence in this report show the black oak has extensive decay in the trunk as well as the buttress roots. The black oak tree is marked with paint on the trunk similar to other trees I observed in the Oroville area. In my experience, the paint marks could mean dangerous, damaging, defective, high risk, or scheduled to be removed for any other reasons. The black oak trunk failure was also near a downed power line.

A sample of the black oak was also sent to a wood decay lab. The wood decay lab report notes: *“assay is inconclusive due to excess decay or inhibition of DNA analysis”*. The fire and heat are believed to have destroyed tissues that may contain decay markers or chemicals interfering with the amplification of DNA. Based on photographs and observations the rot and damage are severe. Lab tests are not necessary to see decay has compromised this tree beyond a reasonable level.

Based on my observations, I concluded that the valley oak codominant branch failure (a defect) could have been avoided if correctional pruning had been employed years earlier. Both tree failures have visible defects. The trunk failure of the black oak was hollow along the trunk and base of the tree. The trunk also had an open cavity and extensive decay. The tree failed as one would expect. Since the black oak had such dangerous conditions close to high voltage lines, it should have been condemned years ago, due to the severity of the consequences. Both trees were close to the road. Both trees were defective and remained near power lines.

Introduction

Background

October 8, 2017, at 9:52 PM a wildfire occurred along Atlas Peak Road in Napa and Solano County south of Lake Berryessa. This fire is referred to as the Atlas Fire (Southern LNU Complex). The Cal Fire incident report is in Appendix I.

October 17, 2017, at approximately 12:30 PM I met Cal Fire investigating officers Matt Gilbert and Russell West at the site of two tree failure on Atlas Peak road (see – Site Overview Appendix II).

I was asked to look at both tree failures. One was a branch failure of a native valley oak tree and the other a trunk failure from a native California black oak tree. I observed a broken powerline near both trees. I took photographs, notes, and completed my site inspection at 2:49 PM, October 17, 2017.

Assignment

I was asked to:

1. Visit the site where the trees failed.
2. Provide my professional opinion of the circumstances or conditions that led to the failure of two oak trees on this site
3. Document my observations in a report.

Limits of Assignment

The cause of the fire, damage to any structures or surrounding property is not included in this report. This report focuses on the subject trees and the circumstances that lead to failure.

Purpose and Use of Report

To assist Cal Fire with the tree failure investigation.

Observations

My site visit was October 17, 2017. Many fallen trees with decay dot the landscape along the road up to the site in question. Trees with less visible defects appeared more sound and stable and fared better overall. I observed several destroyed homes and damaged structures as I

traveled up the road to the tree failures in question. There were multiple power company trucks working and several tree crews clearing damaged trees.

Tree Failure # 1. Upon arriving at the site of the first tree failure, I observed that a broken branch was hanging in the tree (see Photo 1). A power line was down. The diameter of the branch is estimated to be approximately 8-9 inches in diameter. I did not measure the length of the branch since it was stuck in the tree. The broken branch is from the subject tree which is a 19-inch diameter valley oak (*Quercus lobata*). A close up of the branch provided in Photo 2, and Photo 3, shows the part of a **codominant stem**¹ that tore from the tree. The trunk of the tree from failure # 1 is close to the road. An open cavity can be seen at the base of the trunk along with burn marks on the powerline side of the trunk opposite of the road (see - Photo 4).

Tree Failure #2. The second tree failure involved a 16" diameter California black oak tree (*Quercus kelloggii*). The type of failure is a *trunk failure*. The trunk of the tree is decayed at the base of the trunk and has an open cavity (see Photos 5, 6, & 7). There is paint on the trunk of the fallen tree. The paint appears to be similar to marking of defective trees I observed at a colleague's residence in Oroville, that were selected to be removed by a tree contractor. The amount of sound wood at the base of the trunk is approximately 1-2 inches. The internal trunk wood has rotted away.

Discussion

A codominant stem is a forked branch nearly the same size and diameter, arising from the common junction and lacking a normal branch union (Dunster et al.). *Strong branch attachments can occur only if:*

- *the two components are unequal in size*
- *enough vertical and radial space is available for branch enlargement*
- *the branch angle is broad enough permit the branch bark ridge to form*
- *there's no included bark*

In contrast, weak attachments occur when multiple branches arrive at one point, the angle of attachment is narrow, and bark is included. By definition, codominant stems are structurally defect. The severity of the defect is increased by included bark, large crown, and strong wind. By itself, a codominant stem is a weak attachment, and if left on uncorrected, such poor attachments take on even greater significance because the weight and hence, stress placed upon the point of attachment of large trees is greater than small trees. Further, the size of the branch will be greater in large trees with the potential for greater damage (Matheny and Clark. 1994).

Characteristics of strong structure

"The size of a branch relative to the trunk or parent branch, known as the branch aspect ratio, is significant because of its effect on how the branch and trunk are held together. Branch aspect

¹ Words in bold print (other than section headings) may be unfamiliar to the reader, therefore, are defined in the Glossary.

ratio is determined by calculating the ratio of the diameter of the branch to the diameter of the trunk. For example, where are 3-inch branches growing from a 6-inch trunk the aspect ratio is 1: 2 ($3 \div 6 = 0.5$ or 50%).

Branches with a small aspect ratio (e.g., 30%) are more strongly secured to the trunk than those with a large ratio (e.g., 70%) because of the trunk and branch wood overlap with the annual growth increment. The branch is said to be laminated into the trunk or parent stem. The result is the development of an enlarged area called a collar. A branch protection zone is also created with a collar thus reducing the chance of decay spreading to the trunk if the branch is decayed. The aspect ratio of the subject broken branch was excessively large approximately 90-100%. If the size of the branch is less than $\frac{1}{2}$ the diameter of the parent stem the branch aspect ratio is less than 50%" (Gilman et al.).

Valley oak is deciduous, a white oak, the largest oak in North America, and is one of the three endangered oaks in California. It is a signature species in California, can be found from Shasta County to the Channel Islands and is common in the central valley.

California Tree Failure Database

The California Tree Failure Report Program (CTFRP) was established in 1987 to collect quantitative information on the mechanical failure of urban trees (trunk breaks, branch breaks, and uprootings). This information is used to develop "failure profiles" for genera and species to more accurately assess failure probability in standing trees and thereby reduce failure potential in urban forests (<http://ucanr.edu/sites/treefail/>).

Over 200 tree care professionals in California are cooperating in this effort by systematically inspecting fallen trees and reporting failure details for entry into the CTRFP database. To date (January 3, 2018) 6087 failure reports have been filed.

Patterns of Failure – valley oak (*Quercus lobata*)²

In 2013 there were 6680 failures in the California Tree Failure Report Program database. Of all those, 251 reports were for valley oak failures. In California, trained cooperators send in reports to the database.

For valley oak, there are failure statistics for root failures (82 reports), trunk failures (62 reports), and **branch failures** (107 reports). Most branch failures occur between May to October (81). Warm months are most often associated with branch failures.

Decay was a factor in 61% of reported branch failures. This branch failed at a codominant (forked junction). In 95% of the cases **included bark** was not a factor in branch failures. Most branch failures occur when the branch is still alive. There were no signs of decay observed from ground inspection. That does not mean there is no decay at the junction.

² Western Arborist Magazine 1-29-2014.

Heavy lateral limbs is a significant factor of branch failure in valley oak. Over 75% or three times (3-1) as many branch failures are associated with heavy lateral limbs. This branch stuck in the tree was long and judged to be heavy. It is reported that 46% of the time the defect is visible before the failure occurred. A dense crown is not a factor in branch failures of valley oak.

During pruning, a codominant branch can be subordinate pruned or one of the forks removed. In my experience and opinion, I find it is not uncommon to see trimmers leave codominant stems after pruning either because

1. they are not adequately trained in subordinate pruning.
2. they are just trying to finish the tree the easiest and fastest way they can
3. Somebody may have underbid the trim job and are hustling to make a profit

Subordinate pruning is performed with the goal in mind to reduce the density of one of the forked branches that are codominant and reduce the likelihood of failure.

Pruning one of the forked branches more, especially when the tree is young, will provide an increase in photosynthetic capacity to the more dominant branch, hence in time strengthening the connection of the union. The branch with the most leaves will produce the most energy in the form of sugars, starches, and other compounds developed during photosynthesis. If the branch is less than 4 inches in diameter, it may be best to remove one of the forks, the smaller of the two.

All tree species do not fail the same way. However, some are more prone to fail as a result of weak architecture, such as codominant stems (Costello). Others fail because they develop excessive end weight on branches that exceed a load tolerance of wood. A familiarity with the particular failure patterns is helpful to mitigate dangerous conditions.

Atlas Peak Road is a windy road located in a rural area with many native trees. Fallen tree parts and whole trees dot the landscape could be seen on the drive along the Atlas Peak Road. Branches with excessive end weight often break away from the attachment from loads such as wind, rain, and snow. Trees with significant decay and open cavities typically fail much more frequent and with much less force than trees with good structure.

California black oak (*Quercus kelloggii*) grows from 30 to 80 feet tall and typically live 100-200 years, occasionally to 500. A deciduous tree and native to California. The black oak produces vibrant displays of seasonal color. In winter the branches appear black during snowmelt, which led Dr. Albert Kellogg, a pioneer botanist to first name the species "California Black Oak." Black oak trees are found from Central Oregon to southern San Diego County in northern Baja California. Habitat includes slopes, valleys, and mixed evergreen and coniferous woodlands at 100 to 8000 feet. Black oak trees are no stranger to decay organisms.

In 2011, the CTRFP database contained 1878 reports of branch failures. *Quercus* (all oak) species had 297 reports of branch failures. Sixty percent of reported branch failures occurred from May-October, and 40% of reported branch failure for all oak species (*Quercus* spp.) occurred from November to April.

Of 6087 reports thus far (Jan 2018) oak species failures are the most numerous at 23.4% followed by *Pinus* at 17% and *Eucalyptus* at 12.6%.

Atlas Fire (Southern LNU Complex) - Oak Failure Analysis
October 17, 2017

As of March 7, 2018, there are 135 tree failure reports of California black oak (*Q. kelloggii*) tree failures.³ Trunk 60, Branch 41 and Root 34. Mean age 112 years, mean Height 66 feet, and mean DBH 32 inches. Fifty-five (55) failed with no precipitation. The average temperature at the time of failure is 50 degrees F.

TRUNK: Mean height of failure is 9 feet above the ground. 11 failed at ground level (ht. of failure not reported in 6 cases.) No decay noted in only 5 cases. Lean is a factor in 31 cases.

BRANCH. Mean diameter at the **point of failure** 17 inches. 14 failed at the point of attachment. Mean point of failure away from attachment is 7 ft. No decay noted in only 7 cases. (decay unreported in 6 cases) Heavy lateral limbs are the most commonly reported other defect.

ROOT decay reported in all but 6 cases. Lean is a factor in 13 cases.

For tree failure #2 the black oak tree shows advanced decay (**butt rot**) in the **buttress** roots as well as the trunk. It is not surprising this tree failed. The paint on the trunk indicates to me this tree was marked for removal. There were no signs of efforts for root management or previous root crown excavation or inspection. It is doubtful advance decay testing was performed since the decay was easily visible from ground inspection.

The remaining shell surrounding the decay is beyond a reasonable threshold (Mattheck 1992). The strength loss analysis (t/R formula) by Mattheck proposed that the ratio of shell wall thickness should not be less than 33% relative to the radius of the trunk. The US Forest Service (USFS) proposed a safety factor of one inch of sound wood for every six inches in diameter. The USFS formula is similar. Both are guidelines, not absolutes.

At 18 inches **DBH** at the base, the tree would require at least a shell wall of three inches without an open cavity. The actual shell thickness is the amount of sound wood measured minus the thickness of the bark. This shell wall narrows to about an inch and gets slightly thicker in spots. The open cavity and the shape of the trunk make it impossible to give an exact calculation. An open cavity as seen in Photo 6 shows the cavity easily exceeds 30% of the circumference leaving little remaining strength (Dunster). The amount of wood lost in this tree trunk is critical. It is my opinion this tree should have been condemned years ago.

³ http://ucanr.edu/sites/treefail/Post_a_Question/

Conclusion

Tree Failure #1. The forked branch attachment of the valley oak was weak. Multiple factors combined, contributed to the failure.

- A failure to identify and correct a known defect within striking distance of a target
- The length and weight of the branch
- The combined weight of the branch including the wind load
- Somewhat of an edge tree, next to the road (lack of wind buffering from surrounding trees)
- A sample from the oak was sent to a wood decay lab. The lab confirmed two forms of fungi (see- Appendix IV 1 of 2).

The branch had weak structure before failure. Considering if the codominant branch had been subordinated by a specific pruning technique or one of the forks at the union removed at a young age, the broken branch would may have occurred during this wind event. When the attachment of a branch is smaller in diameter than that the parent stem and well tapered close to the attachment, the likelihood of branch failure is significantly reduced. In my professional opinion, it is critical the one chosen to perform tree maintenance understand the concept of subordinate pruning.


Tree failure # 2, with the advanced decay in the trunk, as well as rot on the buttress roots, I believe it is reasonable to conclude this tree was an accident waiting to happen. The close proximity of both trees with defects, within striking distance of a non-movable target in a rural area, can be easily overlooked. Combined with dry conditions in a rural area, the consequences of tree failure are severe.

Both tree failures follow repeating themes. The rotten wood of the failure #2 (black oak) was damaged severely by fire and heat. A pathologist at the wood decay lab warned that fire and heat may complicate the amplification of DNA markers. It is not known if chemicals released during extreme heat and fire interfere with the amplification process of DNA, or if any tissues that contain fungi are simply destroyed by the heat. It seems reasonable to believe one or the other may be considered an inference of the best explanation.

Regardless of the damaged wood from the black oak (failure #2), a sample was sent to a wood decay lab. The wood decay lab report notes: *“assay is inconclusive due to excess decay or inhibition of DNA analysis”*. Photographic evidence clearly shows there was rot. A considerable amount of rot. The paint on the trunk usually means a high risk tree will be removed soon.

Appendix I Cal Fire Incident Information –

CA.GOV

**CAL FIRE**

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Incident Information

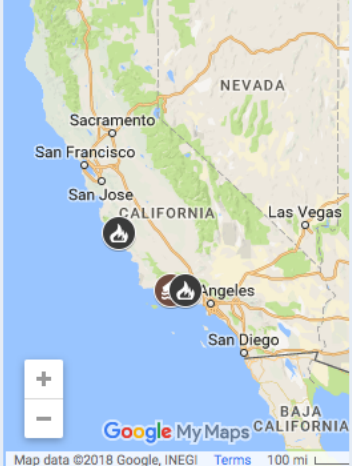
Last modified on Feb 09, 2018

ATLAS FIRE (SOUTHERN LNU COMPLEX)

Atlas Fire (Southern LNU Complex) Incident Information:		
Last Updated:	February 9, 2018 9:37 am	FINAL
Date/Time Started:	October 8, 2017 9:52 pm	
Administrative Unit:	CAL FIRE Sonoma-Lake-Napa Unit	
County:	Napa County,Solano County	
Location:	Off of Altas Peak Rd, south of Lake Berryessa	
Acres Burned - Containment:	51,624 acres - 100% contained	
Structures Destroyed:	783 damaged / 120 destroyed	
Cause:	Under Investigation	
Cooperating Agencies:	CHP, Napa County OES, Sonoma County OES, Solano County OES, California State Parks, PG&E and CDCR.	
Long/Lat:	-122.24367/38.39206	
Conditions:	State's Post Fire Watershed Emergency Response Report Crews continue to mop-up and do tactical patrol throughout the fire area with unit resources assigned.	
Phone Numbers	(707) 266-6152 (Media Line)	
Phone Numbers	(707) 967-4207 (Information Line)	

California Statewide Fire Map

2018 Stat...



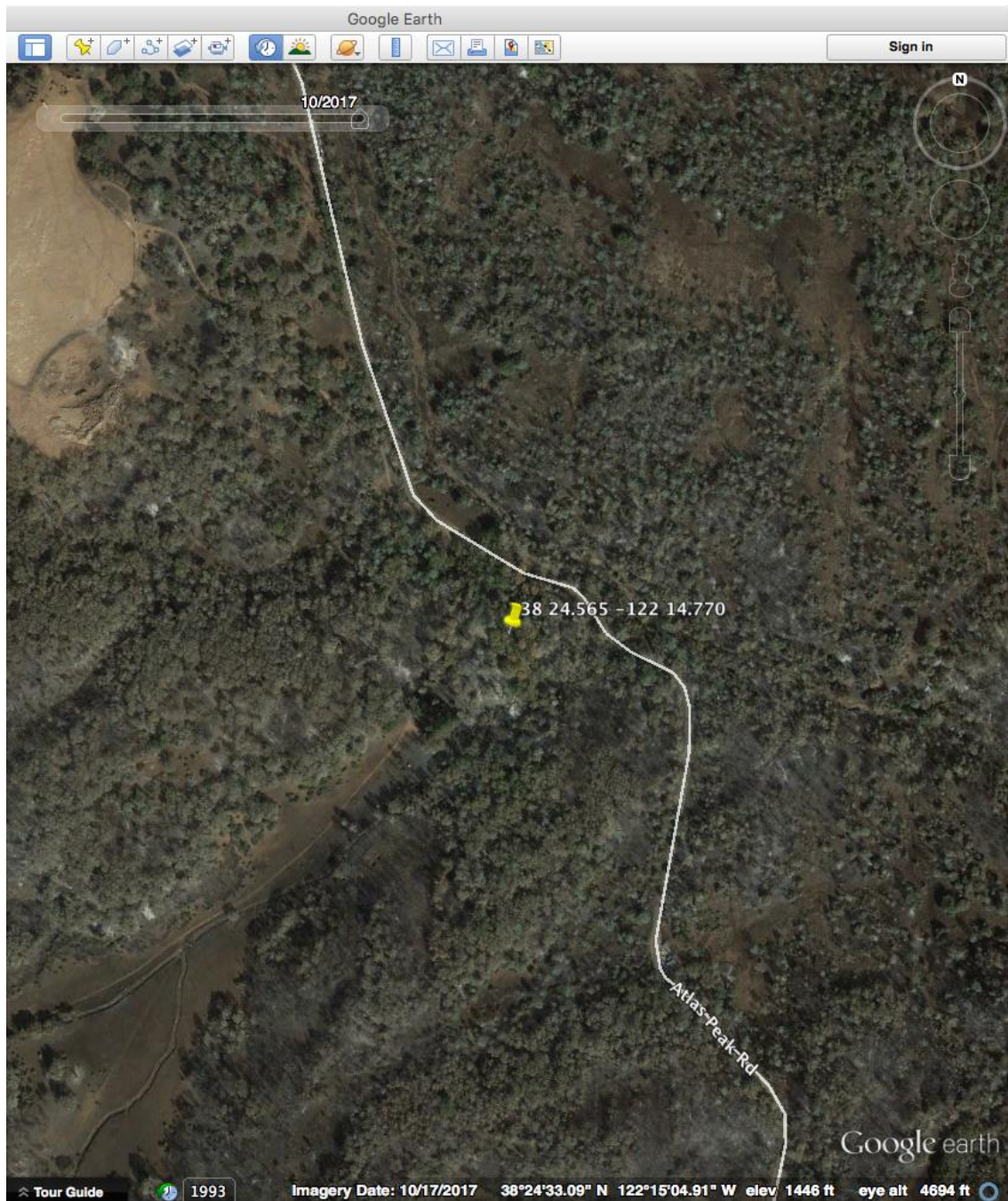
Map data ©2018 Google, INEGI Terms 100 mi

View California Fire Map in a larger map

ATLAS FIRE (SOUTHERN LNU COMPLEX) MORE INFO

- [Atlas Fire \(Southern LNU Complex\) Information](#)
- [Incident Maps](#)
- [Photos](#)
- [News Releases](#)
- [Weather Information](#)
- [Telephone Numbers](#)
- [Special Notices](#)
- [Related Links](#)

Appendix II Site Overview



Appendix III Photos

Photo 1

Subject branch failure (codominant)



Photo 2

Part of a codominant stem (forked branch union)



Photo 3

Opposite end of the codominant stem where the failure occurred.



Photo 4

Red arrows: burn edge of trunk

Blue arrows: open cavity below codominant trunk

Yellow arrow: power line side of trunk



Photo 5

Black oak. Paint mark on trunk



Photo 6

Black oak. Advanced decay. Trunk rot and butt rot



Photo 7

Black oak. Hollow area of buttress roots and trunk. Area of failure.



Appendix IV Wood Decay Lab Results 1 of 2

Quercus lobata - tree failure #1

Forest Pathology and Mycology Laboratory UC Berkeley Wood Decay Diagnostic Results

ID Code: Marks Tree 10
Submitted by: Mark Porter
Collection Date:
Received Date: 12/14/2017
Tree Species: Quercus lobata
Location:
Reason For Submission:

Targets	Results
1. Fungal DNA	x
2. <i>Armillaria</i> spp.	x
3. <i>Fomitiporia</i> (<i>P. punctatus</i> , <i>P. robustus</i>)	
4. <i>Fuscoporia</i> (<i>P. contiguus</i> , <i>P. gilvus</i> , <i>P.</i>	
5. <i>Ganoderma</i> spp.	
6. <i>Ganoderma adspersum</i>	
7. <i>Ganoderma applanatum</i>	
8. <i>Ganoderma lucidum</i> (Eu)	
9. <i>Ganoderma resinaceum</i>	
10. <i>Hericium</i> spp.	
11. <i>Inocutis</i> (<i>I. dryophilus</i>)	
12. <i>Kretzschmaria deusta</i>	
13. <i>Inonotus dryadeus</i>	
14. <i>Inonotus</i> s.s. (<i>I. andersonii</i> , <i>I. hispidus</i>)	
15. <i>Inonotus/Phellinus</i> spp.	
16. <i>Laetiporus</i> spp.	
17. <i>Perenniporia fraxinea</i>	
18. <i>Phellinus</i> s.s. (<i>P. igniarius</i> , <i>P. lundelii</i> , 19. <i>Pleurotus</i> spp.	
20. <i>Schizophyllum</i> spp.	
21. <i>Stereum</i> spp.	
22. <i>Trametes</i> spp.	

Sample Positive for: Armillaria

Notes:
Root decay organism

Wood Decay Lab Results 2 of 2

Quercus kelloggii - tree failure #2

Forest Pathology and Mycology Laboratory UC Berkeley Wood Decay Diagnostic Results

ID Code:	Marks Tree 11
Submitted by:	Mark Porter
Collection Date:	
Received Date:	12/14/2017
Tree Species:	<i>Quercus kelloggii</i>
Location:	
Reason For Submission:	

Targets	Results
1. Fungal DNA	No amplification in M1 PCR
2. <i>Armillaria</i> spp.	
3. <i>Fomitiporia</i> (<i>P. punctatus</i> , <i>P. robustus</i>)	
4. <i>Fuscoporia</i> (<i>P. contiguus</i> , <i>P. gilvus</i> , <i>P.</i>	
5. <i>Ganoderma</i> spp.	
6. <i>Ganoderma adspersum</i>	
7. <i>Ganoderma applanatum</i>	
8. <i>Ganoderma lucidum</i> (Eu)	
9. <i>Ganoderma resinaceum</i>	
10. <i>Hericium</i> spp.	
11. <i>Inocutis</i> (<i>I. dryophilus</i>)	
12. <i>Kretzschmaria deusta</i>	
13. <i>Inonotus dryadeus</i>	
14. <i>Inonotus</i> s.s. (<i>I. andersonii</i> , <i>I. hispidus</i>)	
15. <i>Inonotus/Phellinus</i> spp.	
16. <i>Laetiporus</i> spp.	
17. <i>Perenniporia fraxinea</i>	
18. <i>Phellinus</i> s.s. (<i>P. igniarius</i> , <i>P. lundellii</i> ,	
19. <i>Pleurotus</i> spp.	
20. <i>Schizophyllum</i> spp.	
21. <i>Stereum</i> spp.	
22. <i>Trametes</i> spp.	

Assay inconclusive due to excessive decay or inhibition of DNA analysis.
Notes:

Glossary

Branch Failure- One of three failure modes. E.g., branch failure reasons - excessive end weight, cracks, cavities, poor taper, weak wood, excess load from wind, rain, snow, fruit, etc.

Buttress roots - roots at the trunk base that help support the tree and equalize mechanical stress.

Butt rot – decay of the lower trunk, trunk flare, or buttress roots.

Codominant Stem- a forked branch nearly the same size and diameter, arising from the common junction and lacking a normal branch union. Also referred to as a compression fork.

DBH – diameter at breast height (4.5 feet from grade). A standard term used to measure urban trees.

Fracture: Referring to the breakage of a branch, trunk, or root.

Fracture point: The location where the branch, trunk, or root snapped, splinted, or simply broke. 1. A point of fracture or fracture location. 2. In this report, a point of failure or failure point.

Included Bark – bark that becomes embedded in the crotch (union) between branch and trunk or between codominant stems. Causes a weak structure.

Point of Failure: The same as fracture point.

Subordinate Pruning – a method to correct codominant stems (forked branches at unions where the two join). Pruning the less dominate fork more than the dominate fork in order to develop a stronger connection. Some forks are equally dominate. Subordinate pruning is best performed on branches when they are young and each time the tree is pruned until the desired result is achieved.

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Structural Pruning - A Guide for The Green Industry

Nelda Matheny – James Clark - 1994 International Society of Arboriculture A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas - Second Edition

“Oaks of California.” *Oaks of California - CACHUMA PRESS*,
www.cachumapress.com/catalog/ca-oaks.html.

Claus Mattheck. Helge Breloer. *The body language of trees A handbook for failure analysis*. Edited by David Lonsdale. 1994. Handbuch der Schadenskunde von Baumen

University of California Agriculture and Natural Resources. “CTFRP Statistics.” *California Tree Failure Report Program*, ucanr.edu/sites/treefail/CTFRP_Statistics/.

E. Thomas Smiley – Nelda Matheny - Sharon Lilly - International Society of Arboriculture – 2011 *Tree Risk Assessment Best Management Practice*.

Assumptions and Limiting Conditions

1. Any legal description provided to the consultant/appraiser is assumed correct. Any titles and ownerships to any property are assumed good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
5. Loss or alteration of any part of this part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior express written or verbal consent of the consultant/appraiser.
7. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without my prior expressed written or verbal consent.
8. This report and any values expressed herein represent my objective and independent opinion. My fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, or photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: information contained in this report covers only those items that were examined and reflects the condition of those items at the time of photographic inspection.

Certificate of Performance

I certify that the statements made in this report to be true and correct to the best of my knowledge. The opinions expressed are my personal, unbiased professional opinions and conclusions, and I have no present or prospective interest in the vegetation that is the subject of this report. I have no personal interest or biases with respect to the parties involved and have based my assessment on the situation as I have seen it.

My compensation is not contingent on the reporting or a predetermined outcome or direction that favors the cause of the client, the attainment of a stipulated result, or the occurrence of a subsequent event.

My opinions and conclusions were developed, and this report prepared in conformity with standard arboricultural practices, my expertise, and experience. If further documentation or evidence is reviewed, these opinions could be changed, altered, or maybe strengthened.

I further certify that I made a personal inspection of the property, and no one provided any significant professional assistance to this report.



Mark Porter, Consulting Arborist

ATTACHMENT C

CAL FIRE Forester Report by Peter Leuzinger

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Peter Leuzinger
Forester II – Forest Manager
Boggs Mountain Demonstration State Forest
PO Box 839
Cobb, CA 95426
(707) 928-4378
Website: www.fire.ca.gov

Date of visit: October 17, 2017

Incident #: CA-LNU-010046 Atlas fire

Location: 3683 Atlas Peak Road

Prevention Officer: WEST

Stand Description:

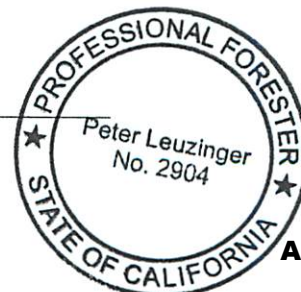
The environment in this location is California oak woodland with Blue oak, Oregon white oak, Valley oak, and Canyon Live oak being the most abundant. Napa County boasts as many as 9 native oak species, and many of them will hybridize with each other. Being that the site visit occurred in the fall when most acorns are already cast to the ground, most of the acorns were consumed by the fire to some degree. The lack of whole acorns makes species determination difficult, and as the three main species in the area share similarities I have not made it a point to make a solid determination on tree species. Native species present in the stand include Canyon Live Oak (*Quercus crysolepis*), Blue oak (*Quercus douglasii*), Valley oak (*Quercus lobata*) and Pacific Madrone (*Arbutus menziesii*).

Species Description:

Individual Tree Description:

Initial observations conclude that a 16" DBH native oak failed at the base of the tree. There is evidence of a prior mechanical injury where the wound has grown over at the base of the tree. (Figure 1) Evidence suggests that a possible basal hollow from prior mechanical injury existed at the base of the tree. Cutting into the bole beneath the soil profile revealed possible evidence of *armellaria mellea*, which is a common root rot in California native oaks. The wood sample collected below the soil surface was spongy and wet, and delaminated between the annual rings. (Figures 2, 3) This could potentially have weakened the wood at the base of the tree contributing to its failure. I also observed a madrone tree with evidence of sustaining damage from electrical voltage, this tree has burn marks up in the canopy that could not be caused by the fire activity, and the bole is split down the centerline in a manner consistent with electricity or lightning strike. (Figures 4, 5) I also observed a failed oak branch on an oak tree 300 yards north on Atlas peak road in a heavily pruned tree within the county ROW that had failed onto the power lines. There were no obvious signs of rot in the failed branch however repeated pruning may have contributed to the branch failure in that the wind firmness of crown of the tree was altered via pruning. (Figure 6)

Signature: _____



Atlas 093



Figure 1 – showing the base of the failed oak tree and indications of a basal hollow



Figure 2 – showing the wood sample collected from beneath the soil profile. Note the delaminated annual rings



Figure 3 – showing the location where the wood sample was taken beneath the soil surface

Figures 4 and 5 – showing the madrone damage from electricity from the powerline





Figure 6 – showing failed branch on Atlas peak road

ATTACHMENT D

CAL FIRE Evidence Lists



EVIDENCE LOG

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
LE 75e (REV. 7/2011)

INCIDENT NUMBER

17LNU010046

CASE NAME

Atlas 1

DAY	MONTH	DATE	YEAR	COUNTY	REGION	UNIT	CASE NUMBER
Sun	Oct	8	2017	Napa	CNR	LNU	N/A

ITEM NO	DATE COLLECTED	TIME COLLECTED	COLLECTED BY	ITEM DESCRIPTION	LOCATION
1	10-21-17	0915	M. Gilbert	PG&E conductor from north	Santa Rosa
2	10-20-17	0840	M. Gilbert	PG&E conductor with beading, north end of SOA	Santa Rosa
3	10-20-17	0846	M. Gilbert	Slag from conductor	Santa Rosa
4	10-20-17	0905	M. Gilbert	Conductor	Santa Rosa
5A	10-20-17	0942	M. Gilbert	Fulgarite from powerline	Santa Rosa
5B	10-20-17	0942	M. Gilbert	Fulgarite from powerline	Santa Rosa
5C	10-20-17	0942	M. Gilbert	Fulgarite from powerline	Santa Rosa
6	10-20-17	0959	M. Gilbert	Conductor	Santa Rosa
7A	10-20-17	1107	M. Gilbert	Madrone and branches	Santa Rosa
7B	10-20-17	1107	M. Gilbert	Madrone and branches	Santa Rosa
7C	10-20-17	1107	M. Gilbert	Madrone and branches	Santa Rosa
7D	10-20-17	1107	M. Gilbert	Madrone and branches	Santa Rosa
8A	10-20-17	1122	M. Gilbert	Madrone and branches	Santa Rosa
8B	10-20-17	1122	M. Gilbert	Madrone and branches	Santa Rosa
8C	10-20-17	1122	M. Gilbert	Madrone and branches	Santa Rosa

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE
Matthew GILBERT		#787	10-24-17



EVIDENCE LOG

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
LE 75e (REV. 7/2011)

INCIDENT NUMBER

17LNU010046

CASE NAME

Atlas 1

DAY	MONTH	DATE	YEAR	COUNTY	REGION	UNIT	CASE NUMBER
Sun	Oct	8	2017	Napa	CNR	LNU	N/A

ITEM NO	DATE COLLECTED	TIME COLLECTED	COLLECTED BY	ITEM DESCRIPTION	LOCATION
9A	10-20-17	1130	M. Gilbert	Madrone	Santa Rosa
9B	10-20-17	1130	M. Gilbert	Madrone	Santa Rosa
9C	10-20-17	1130	M. Gilbert	Madrone	Santa Rosa
10	10-20-17	1145	M. Gilbert	Burned manzanita branch	Santa Rosa
11	10-21-17	0927	M. Gilbert	Conductor from south end	Santa Rosa
12A	10-20-17	1148	M. Gilbert	Butt of oak tree	Santa Rosa
12B	10-20-17	1148	M. Gilbert	Butt of oak tree	Santa Rosa

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE
Matthew GILBERT		#787	10-24-17



EVIDENCE LOG

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
LE 75e (REV. 7/2011)

INCIDENT NUMBER

17LNU010046

CASE NAME

Atlas 2

DAY	MONTH	DATE	YEAR	COUNTY	REGION	UNIT	CASE NUMBER
Sun	Oct	8	2017	Napa	CNR	LNU	N/A

ITEM NO	DATE COLLECTED	TIME COLLECTED	COLLECTED BY	ITEM DESCRIPTION	LOCATION
1A	10-19-17	1609	M. Gilbert	Top Communication Line	Above Scene
1B	10-19-17	1612	M. Gilbert	Top Communication Line	Above Scene
1C	10-19-17	1613	M. Gilbert	Top Communication Line	Above Scene
1D	10-19-17	1616	M. Gilbert	Top Communication Line	Above Scene
2A	10-19-17	1619	M. Gilbert	Bottom Communication Line	Above Scene
2B	10-19-17	1621	M. Gilbert	Bottom Communication Line	Above Scene
2C	10-19-17	1623	M. Gilbert	Bottom Communication Line	Above Scene
2D	10-19-17	1624	M. Gilbert	Bottom Communication Line	Above Scene
3A	10-19-17	1732	M. Gilbert	PG & E Conductor (Field Side) with portion of insulator from North pole	Above Scene
3B	10-19-17	1735	M. Gilbert	PG & E insulator (remaining portion) from North pole	North Pole
4A	10-19-17	1759	M. Gilbert	Oak Limb	Above Scene
4B	10-19-17	1759	M. Gilbert	Oak Limb	Above Scene
4C	10-19-17	1800	M. Gilbert	Oak Limb	Above Scene
4D	10-19-17	1801	M. Gilbert	Oak Limb	Above Scene
4E	10-19-17	1802	M. Gilbert	Oak Limb	Above Scene

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE
Matthew GILBERT		#787	10-24-17



STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY AND FIRE PROTECTION
LE 75e (REV. 7/2011)

DAY	MONTH	DATE	YEAR	COUNTY	REGION	UNIT	CASE NUMBER
Sun	Oct	8	2017	Napa	CNR	LNU	N/A

PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE
Matthew GILBERT		#787	10-24-17

ATTACHMENT E

PG&E Work Order #102506022



Electric Overhead Tag

Priority: E Sub Priority: FB
Date Identified: 06/27/2003

Notification #: 102506022
PM Order #: 30894923
Date Required: 10/03/2011

Identified in Field By: [REDACTED]
Street Address: [REDACTED]
City: NAPA
Cross Street:
Division: North Bay
Latitude: 38.390320000000
Longitude: 122.254620000000-
Description: 101032926 EP 3029 ATLAS PEAK RD

Plat: JJ39
Circuit: 04329-1104, PUEBLO
SSD: 1007
Equipment #:
Pin #:
Pole #:
OIS #:
SAP Func. Location: ED.04329.1104.TXFR.TROH
SAP Equipment: 42067328
Accessibility Tier: AT3 ACCESSIBLE TIER 3

Item Details

Facility Type	Damage	Cause	Action
Item 1 POLE Pole <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Canceled	DECA Decayed/Rotten		REPL Replace

☒ Pole Test Sheet

User Status

Conductor/Operating Information		Field Identification		Field Condition (Exposure)		Field Condition (Accessibility)		Other	
Status	Description	Status	Description	Status	Description	Status	Description	Status	Description
				REAS	Re-Assessed			GO	General Order
				CPGE	Completed by PG&E Cre				
				COMP	Completed				

Job Estimates

Issued To

Est. Total Hrs. to Complete: 0 Est. Electric Crew Size: 03 WTC: 311, 07D_Pole Replacement
Main Work Center: NAPA, Napa Gas Crew Size: 00 MAT: 07D, Pole Repl
Funded Repair Date: 09/30/2013

Reviewed By: _____

Date of Field Review: _____

Completed or Canceled in Field By (LAN ID):

If No LAN ID Last Name, First Name: _____

Complete or Cancel Date: 08/19/2013

Actual Hours: 31.00

*Check One: PG&E Crew ☒ T-Man ☐ Contractor ☐

*Check One: Completed ☒

Canceled ☐

Found Completed Upon Arrival ☐

Signature: _____

I verify that all maintenance on this notification is addressed (completed, canceled, or found completed upon arrival)

*Public Safety & Regulatory Reviewer: If notification was canceled, check one (required):

- | | | |
|--|---|---|
| <input type="checkbox"/> CONV: Converted to another Notif-Type | <input type="checkbox"/> DUMM: "Dummy" for order only | <input type="checkbox"/> DUPL: Duplicate EC for Same Location |
| <input type="checkbox"/> EROR: Created in Error (Desk Cancellation) | <input type="checkbox"/> NCOA: All Found Completed/Resolved on Arrival | <input type="checkbox"/> NOCR: No Compelling/Regulator Condition Exist |
| <input type="checkbox"/> PROG: Completed under another Program | | |

List of Tasks on Notification

Reassess the condition Completed By: DODD Completion Date: 10/03/2008



Electric Overhead Tag

Notification #: 102506022

Priority: E

Sub Priority: FB

PM Order #: 30894923

Date Identified: 06/27/2003

Date Required: 10/03/2011

Reviewed

Completed By: TTP3

Completion Date: 10/03/2011

Reviewed

Completed By: CSBF

Completion Date: 06/08/2012

Completed

Completed By: DJHZ

Completion Date: 08/19/2013

Field Comments:

Comments

10/08/2007 21:57:36 [REDACTED] (SXDU)

07/03/2003 09:58:39 [REDACTED] (DAR0) Phone [REDACTED]

REPLACE DECAYED ROTTEN POLE

10/24/2008 09:42:04 [REDACTED] (KXAH)

MADE SITE VISIT. NO CHANGE. NO SAFETY OR RELIABILITY ISSUES AT THIS TIME. REASSESS FOR 36 MOS.

01/06/2010 22:14:34 [REDACTED] (HJG4) Phone [REDACTED] BRT

Compliance Data Clean-Up: Updated to Priority F (F-REG), due date to be validated at a later date...hjc4 010610

02/16/2010 08:50:14 [REDACTED] (BKW1) Phone [REDACTED] Per

Osmose field validation, updated to priority (F): Due date to be validated and changed at a later date...bkw1 2/16/10

08/11/2011 09:42:49 [REDACTED] (BKW1) Phone [REDACTED] Change JO from bkw1 to CLO3.

12/07/2011 17:08:26 [REDACTED] (RMFN) Phone [REDACTED]

SEE PICTURES WITH ATTACHED WORK FORM 10/03/2011.

03/01/2012 07:57:10 [REDACTED] (SED5) Phone [REDACTED]

30894923E CHANGED TO R1. SCHED TO RZB1 WK 11

03/22/2012 10:02:11 [REDACTED] (RZB1) Phone [REDACTED]

PM30894923E:Job to ADE(SED5)for review.

03/22/2012 13:27:29 [REDACTED] (SED5) Phone [REDACTED]

30894923E Returned to RZB1 for EDRS routing.

04/10/2012 09:30:02 [REDACTED] (EPG1) Phone [REDACTED]

30894923E JOB ESTIMATE REVIEWED FOR UNIT COST COMPLIANCE - WITHIN COST

30894923E Sent Authorized Package to Concord RMC OMD

04/11/2012 11:21:03 [REDACTED] (J2W6) Phone [REDACTED]

30894923E-CONCORD RMC/OMD RECEIVED AUTHORIZED ESTIMATE. NOT OUR FOOTPRINT, SENT TO SACRAMENTO RMC.

04/12/2012 11:03:53 [REDACTED] (JKH7) Phone [REDACTED]

30894923E - PG120080NL: sac rmc jpd intent and sketch sent to AT&T/NAPA;



Electric Overhead Tag

Notification #: 102506022

Priority: E

Sub Priority: FB

PM Order #: 30894923

Date Identified: 06/27/2003

Date Required: 10/03/2011

45 day follow up; scanned and attached sketch to sap; jp task completed.

04/17/2012 12:15:08 [REDACTED] (LDBL)

30894923 E: Sacramento RMC-OMD Authorized Estimate Pkg recv'd. Routing to Sac RMC/DMD to Manage TASKS

05/08/2012 09:00:21 [REDACTED] (RECM)

30894923E SAC RMC DMD REVIEWED AUTHORIZED CONSTRUCTION PACKAGE; JOINT POLE IS THE OUTSTANDING TASK;DMD FOLLOW UP CREATED, FORWARDED JOB PACKAGE TO SAC RMC OMD FOR REPRODUCTION.

05/09/2012 10:27:29 [REDACTED] (D1DC) Phone [REDACTED]

30894923E Mapping Pre-Post Completed

05/10/2012 16:06:43 [REDACTED] (J5MQ) Phone [REDACTED]

30894923E SAC RMC OMD pulled copied job from OMD Reproduction Desk. Job file in SAC RMC OMD pending file awaiting dependency completion.

05/30/2012 08:03:42 [REDACTED] (JKH7) Phone [REDACTED]

30894923E - PG120080NL: SAC RMC JPD, NO RESPONSE RECEIVED FROM AT&T/NAPA OVER 45 DAYS, 18.1db AUTOMATIC APPROVAL APPLIES. JP TASK PC20 ENTERED AND COMPLETED.

05/31/2012 07:53:06 [REDACTED] (NAV3) Phone [REDACTED]

30894923E SAC RMC DMD TASK REVIEW, THE JOINT POLE ITNENT HAS BEEN APPROVED. PRINTED AND PLACED IN THE SAC OMD INBOX, JOB IS READY TO BE RELEASED. SENT DM8 TO SAC OMD.

05/31/2012 14:50:58 [REDACTED] (KXCG) Phone [REDACTED]

30894923E SAC RMC OMD received DM8/9 email from SAC RMC DMD. DM8/9 email forwarded to job owner (CLO3). Changed status to UNSC SRDY.

Construction package scanned, attached & sent to W&R Central Files-N Bay, San Rafael. Original job file in Order Closure file.

06/06/2012 11:27:53 [REDACTED] (BJMW) Phone [REDACTED]

PG120080NL / 30894923E; SAC RMC JPD, APPROVED FORM 2 RECEIVED FROM JOSH MATHISEN AT&T; INTENT APPROVED AS IS. APPROVAL SCANNED AND ATTACHED TO ORDER.

06/22/2012 16:32:55 [REDACTED] (RZH1) Phone [REDACTED]

30894923E Job package in central file (pole job).

09/27/2012 07:50:33 [REDACTED] (RXGT) Phone [REDACTED]

TAG VALID. NO CHANGE IN CONDITION. REVIEWED BY [REDACTED] ON 6/8/12. FRD 8/1/13

06/11/2013 12:07:37 [REDACTED] (K3ML)

308/94923 E JOB FOLDER MOVED FROM E CENTRAL FILE SAN RAFAEL TO E CG [REDACTED] (KXKX), 07D



Electric Overhead Tag

Notification #: 102506022

Priority: E

Sub Priority: FB

PM Order #: 30894923

Date Identified: 06/27/2003

Date Required: 10/03/2011

08/07/2013 08:41:10 [REDACTED] (SAWG) Phone [REDACTED]

30894923-E*CREATED PO# 2500866561 FOR DAVEY TREE @ [REDACTED]

NAPA*SAWG

08/20/2013 08:33:25 [REDACTED] (OVA1) Phone [REDACTED]

Completed by DJHz 8/19/2013 31hrs

08/20/2013 08:53:54 [REDACTED] (OVA1) Phone [REDACTED]

Completed EC Tag Notification 102506022, scanned notification # and mail to AKD4.

02/24/2015 08:34:23 [REDACTED] (GEC3) Phone [REDACTED]

30894923E Job completed by foreman [REDACTED] on 8/19/13. Job has been closed.

02/24/2015 08:39:11 [REDACTED] (GEC3) Phone [REDACTED]

30894923E Job has been scanned and mailed to mapping.

03/04/2015 13:05:26 [REDACTED] (MIG1) Phone [REDACTED]

30894923 PG120080NL SAC RMC JPD SENT FORM 48 AND DRAFT FINAL TO AT&T; 45 DAY FOLLOW UP; SCANNED AND ATTACHED F48 TO SAP.

03/21/2015 12:55:28 [REDACTED] (LMD6) Phone [REDACTED]

30894923E Mapping Received As-Built package

05/09/2015 10:07:50 [REDACTED] (TXZ3) Phone [REDACTED]

PG120080NL / 30894923e; sac rmc jpd, intent sent to billing and filed in sac rmc jpd completed files.

07/09/2015 08:42:42 [REDACTED] (C1GM) Phone [REDACTED]

30894923E Mapping Completed map & record posting, pending lead review

07/30/2015 16:55:48 [REDACTED] (J5K7) Phone [REDACTED]

30894923E Mapping Completed, job filed

08/19/2015 13:17:16 PST [REDACTED] (MAR4) Phone [REDACTED]

"08/19/2015-m1p3; Order Close Project, ZKOD Clear, CN24 COMP, DC10 COMP, USER Status FICL, DOCC, MAPP, no annual, no cancel docs, not a damage, claim, order moved to PREC for closure. WO0000001502536"

FDA		New	Priority	Comp

EMERGENCY ONLY Check Cause (Required)	
Dig In	
Equipment Failed	
Fire	
Lightning	
Third Party	
Water Damage	
Unknown	

All FDA's identified in field
Priority = Default Priority for B, E, G, & F-Regulatory FDA's
Comp = Check if completing FDA in Field

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