INVESTIGATION REPORT OF THE DECEMBER 7, 2017 WILDFIRE IN MURRIETA, CALIFORNIA INVOLVING SOUTHERN CALIFORNIA EDISON FACILITIES THAT CAME TO BE KNOWN AS THE LIBERTY FIRE

SAFETY AND ENFORCEMENT DIVISION

ELECTRIC SAFETY AND RELIABILITY BRANCH

LOS ANGELES

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I. Definitions

51P Phase Time Overcurrent Element - A phase time overcurrent element senses current on a circuit and activates a relay to open a main line circuit breaker when predetermined time-current thresholds are exceeded. A time-current threshold is defined in terms of a level of current (measured in Amps) over a period of time (measured in Seconds).

Circuit breaker - An electrical component that incorporates automatic operation and protective features to monitor, control, and protect downstream circuits from excess current and other potentially damaging electrical transients.

Electrical fault - Any abnormal electric current wherein electric current is redirected or interrupted from its intended electric path. Examples of faults are short-circuit and an open-circuit faults.

Event Capture Initiate (ECI) - A logical monitoring function of a Relay. This function is programmed to monitor physical inputs from devices external to the Relay and log events in a Fault Records Log whenever those physical inputs meet programmed thresholds. A Relay may have more than one (1) Event Capture Initiate function. In such cases, a common naming convention is used to distinguish among the independent ECI functions (i.e. ECI-1, ECI-2, ECI-3, etc.)

Fault isolation - A process to isolate sections of a circuit to determine the exact location and cause of a fault.

Lockout - When a circuit breaker relays to lockout, it opens and an additional protective lockout circuit is activated. In these instances, the lockout circuit needs to be manually reset by an operator before the circuit breaker can be closed again. The purpose of the lockout circuit is to notify the operator that one of the protective sensing elements within the circuit breaker control center (also called a Relay) has sensed a problem and that the circuit breaker, as well as the entire circuit to which it is connected, needs to be investigated.

No Test Order (NTO) – An NTO is an operation restriction that Edison system operators must implement to guarantee that electrical equipment associated with a work site will not be re-energized following a relay operation on a circuit. An NTO must be requested by a qualified electrical worker after he/she has determined that the electrical hazards associated with the work performed are such that an NTO is appropriate and necessary for safety. When a qualified electrical worker holds an NTO on a circuit, all automatic reclosing equipment directly associated with the work performed on the circuit will be made non-automatic, preventing the automatic re-energization of the circuit in the event of a relay operation. The jurisdictional switching center provides the NTO and only the worker that requested the NTO may release it.

Pole switch - A switch that is mounted to a utility pole. A manual device, requiring a local operator and the use of a special tool to operate.

Power restoration - A process to return from abnormal to normal electrical circuit conditions. Normal circuit conditions can be defined in terms of power sources, current paths, and power recipients.

Reclosers - Reclosers are small circuit breakers located at the top of distribution poles and are typically used on very long distribution feeders. Their function is to isolate a section of the feeder in fault or overload conditions and thereby minimize the number of customers without service. Since they act as small circuit breakers, they have the capability to restore power automatically in temporary fault situations, hence the name "recloser".

Red Flag Warning (RFW) - A warning issued by the National Weather Service to indicate that warm temperatures, very low humidity, and stronger winds are expected to combine to produce an increased risk of fire danger.

Relay (noun)- An electrically automated operated switch. It is a programmable microprocessor-based device that provides control, protection, automation, monitoring, and metering for circuit breakers and the electrical distribution circuits to which circuit breakers are electrically connected.

Relay (verb) - When a circuit breaker “relays”, it changes positions. It can change from the open position to the closed position or vice versa, based on the design of the control circuit for the circuit breaker. Distribution scale circuit breakers utilize relay circuits for the opening and closing functions of a circuit breaker.

Sectionalize - Use intervening switch gear and other devices (i.e. circuit breaker, pole switch, recloser, relay, drop-out fuse) to break electrical connections, therefore dividing a distribution circuit into electrically isolated sections.

Switch - A device for making and breaking a connection in an electrical circuit.

System Operating Bulletin (SOB) – Southern California Edison (Edison) uses SOBs to define operating procedures, policies, and restrictions for both regular and conditional operations.

II. Summary of Incident:

On December 7, 2017, at approximately 1308 hours, Edison's Clydesdale 12 kV circuit breaker out of Edison's Auld substation relayed and locked out, thus, de-energizing the Clydesdale 12 kV circuit. At approximately 1314 hours, six minutes after the Clydesdale 12 kV circuit breaker relayed, an Edison Electrical Crew Foreman reported a wildfire to Edison Valley switching center, near Los Alamos Road and Clinton Keith Road in the City of Murrieta. That wildfire later became known as the Liberty Fire. The Liberty Fire caused an outage that lasted from December 7, 2017 to December 9, 2017, and burned approximately 300 acres. The outage impacted a total of 1,562 customers and resulted in 277,568 customer minutes of interruption.[1]

The Liberty Fire was fully contained on Saturday, December 9, 2017.[2] The California Department of Forestry and Fire Protection (CAL FIRE) reported that the Liberty Fire burned one structure and one outbuilding.[3] The Liberty Fire origin area was located in Tier 2 (Elevated fire risk) area of the California Public Utility Commission's (CPUC) High Fire Threat District (HFTD) map. The approximate burn area was also located entirely within the Tier 2 area of the HFTD.[4]

CAL FIRE determined that the cause of the Liberty Fire was a failed mechanical pole switch (PS) PS 2191 owned by Southern California Edison (Edison) and installed on Edison pole number 2090695E. Consequently, CAL FIRE determined the origin of the fire was at the base of Edison pole 2090695E, which supported PS 2191.[5] SED's investigation supports CAL FIRE's conclusions that PS 2191 failed and was the source of ignition that caused the Liberty Fire.

CAL FIRE found Edison in violation of California Public Resources Code (PRC) §4292[6] and California Health & Safety Code (HSC) §13001. PRC §4292 requires that a utility pole that has a switch mounted to it, such as pole 2090695E with mounted PS 2191, keep a minimum circumferential vegetation clearance of 10 feet around the base of the pole.

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[1] Bates SCE-SED00003150.

[2] http://www.murrietaca.gov/news/displaynews.asp?NewsID=790&TargetID=21.

[3] NEWS RELEASE - CAL FIRE INVESTIGATORS RELEASE CAUSE OF 2017 LIBERTY FIRE.

[4] https://ia.cpuc.ca.gov/firemap/

[5] CAL FIRE Liberty Fire Report - Branden Smith, Case Number: 17CARRU151090, Dated: December 7, 2017.

[6] PRC § 4292 requires any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or 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 fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower.

Edison reported the cost of repair to Edison facilities associated with the Liberty Fire to be a cumulative $505,969 as of March 9, 2018.7

A. Violation(s):

SED reviewed and analyzed records, inspected and examined physical evidence, consulted with CAL FIRE, and interviewed witnesses related to this incident to determine compliance with Commission regulations. The SED investigation discovered eight (8) violations:

- Two (2) violations of General Order (GO) 95, Rule 31.1, Design, Construction and Maintenance, for:
  - Failing to maintain and operate PS 2191 and/or the Clydesdale 12 kV Circuit in a safe manner.
  - Failing to maintain 10 feet radial brush clearance around utility pole 2090695E, as required by PRC §4292.
- One (1) violation of Public Utilities Code (PU Code) § 399.2, for failing to maintain and operate PS 2191 and/or the Clydesdale 12 kV Circuit in a safe manner.
- One (1) violation of GO 95, Rule 31.2, Inspection of Lines for failing to ensure that Edison facilities are inspected frequently and thoroughly.
- Two (2) violations of PU Code § 316, for
  - Failing to preserve evidence by changing PS 2191 into the open position shortly after a fault occurred on the Clydesdale 12 kV circuit.
  - Providing incomplete responses to SED data requests, which delayed SED's investigation of the Liberty Fire incident.
  - Failing to cooperate with SED and refusing to provide a response to SED's inquiry regarding the reasons why multiple reels of primary conductor collected by Edison as evidence were deemed unfit for service by Edison technical staff.
- Two (2) violations of GO 95, Rule 19, Cooperation with Commission Staff; Preservation of Evidence Related to Incidents Applicability of Rules, for

[7] Bates SCE-SED00004155.

- Failing to preserve evidence by changing PS 2191 into the open position shortly after a fault occurred on the Clydesdale 12 kV circuit.
- Providing incomplete responses to SED data requests, which delayed SED's investigation into the Liberty Fire incident.
- Failing to cooperate with SED and refusing to provide a response to SED's inquiry regarding the reasons why multiple reels of primary conductor collected by Edison as evidence were deemed unfit for service by Edison technical staff.

III. Background

A. Witnesses:

No.	Name	Title	Address
1	Koko Tomassian	SED Investigator	320 W. 4th St, Los Angeles, CA 90013
2	Joceline Pereira	SED Investigator	320 W. 4th St, Los Angeles, CA 90013
3	Bryan Pena	SED Investigator	320 W. 4th St, Los Angeles, CA 90013
4	Branden Smith	CAL FIRE Investigator	210 W San Jacinto Ave, Perris, CA 92570
5	Aaron Lopez	Edison Claims Investigator	2244 Walnut Grove Ave, Rosemead, CA 91770
6	[redacted]	Edison 1st Responder (Troubleman)	2244 Walnut Grove Ave, Rosemead, CA 91770
7	[redacted]	Edison 1st Responder (E-Crew Foreman)	2244 Walnut Grove Ave, Rosemead, CA 91770
8	[redacted]	Edison 1st Responder (Journeyman Lineman)	2244 Walnut Grove Ave, Rosemead, CA 91770
9	[redacted]	Edison 1st Responder (Field Supervisor)	2244 Walnut Grove Ave, Rosemead, CA 91770
10	[redacted]	Edison 1st Responder (E-Crew Foreman)	2244 Walnut Grove Ave, Rosemead, CA 91770
11	[redacted]	Edison Substation Operator	2244 Walnut Grove Ave, Rosemead, CA 91770

No.	Name	Title	Address
12	[redacted]	Edison Lineman	2244 Walnut Grove Ave, Rosemead, CA 91770
13	[redacted]	Edison Journeyman Lineman	2244 Walnut Grove Ave, Rosemead, CA 91770
14	[redacted]	Edison Detailed Inspector	2244 Walnut Grove Ave, Rosemead, CA 91770

B. Evidence:

No.	Description
1	Edison 315 Letter dated December 29, 2017
2	SED Investigator Site Visit Photographs taken December 11, 2017
3	Email notification to USRB reporting address, Subject: Electric Safety Incident Reported- Southern California Edison Incident No: 171207-8651, dated Thursday, December 07, 2017
4	SED Investigator Data Request (DR) SED-001 and responses
5	SED Investigator Data Request (DR) SED-001B and responses
6	SED Investigator Data Request (DR) SED-002 and responses
7	SED Investigator Data Request (DR) SED-003 and responses
8	SED Investigator Data Request (DR) SED-004 and responses
9	SED Investigator Data Request (DR) SED-005 and responses
10	SED Investigator Data Request (DR) SED-006 and responses
11	SED Investigator Data Request (DR) SED-007 and responses
12	CAL FIRE Liberty Fire Report - Branden Smith, Case Number: 17CARRU151090, Dated: December 7, 2017 (Confidential)
13	CAL FIRE Liberty Fire Supplemental Report - Branden Smith, Case Number: 17CARRU151090, Dated: December 7, 2017 (Confidential)
14	Examination Under Oath_AARON LOPEZ_100218
15	Examination Under Oath_AARON LOPEZ_100918_VOL_2
16	Examination Under Oath_[redacted]

No.	Description
17	Examination Under Oath_ [redacted] _100218
18	Examination Under Oath_ [redacted] _100318
19	Examination Under Oath_ [redacted]
20	Examination Under Oath_ [redacted] _100118
21	Examination Under Oath_EUO_ [redacted] _102318
22	NEWS RELEASE - CAL FIRE INVESTIGATORS RELEASE CAUSE OF 2017 LIBERTY FIRE

C. Description of Edison Facilities

The following figure illustrates the relationship among the switches and various line elements that are part of the Clydesdale 12 kV circuit. There were no protective devices (breakers or fuses) on the circuit between the circuit breaker at Auld substation and PS 2191.

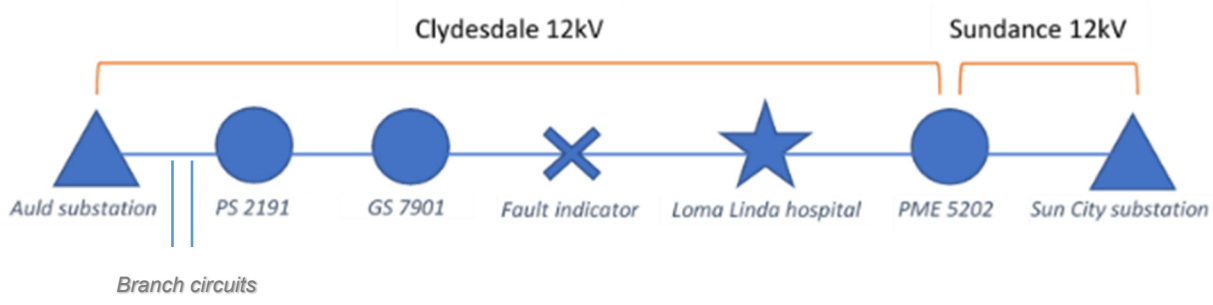

Figure 1: Line elements and locations of importance between Auld and Sun City substations

The Clydesdale 12 kV circuit protective scheme consisted of a breaker and a relay located at the Auld substation. These devices are configured so that the relay monitors current on the circuit and sends a signal to the breaker to interrupt the current (thus de-energizing the circuit) when it detects an overcurrent or other fault conditions. The relay waits for a set amount of time and sends another signal to re-energize the

circuit by closing the circuit breaker. If the fault condition is still present, the breaker opens and interrupts the current again. However, if the fault is cleared, the breaker stays closed and the circuit remains energized. During regular operation, the breaker will operate up to three times, energizing the circuit each time and testing for the continued presence of the fault condition. If the fault is not cleared by the third reclose operation, the circuit breaker relays to a lockout, remaining open until the circuit is manually inspected and the fault condition is cleared.

During RFWs however, Edison implements SOB 322 which restricts automatic relay and reclose operations in fire hazard areas. In these instances, circuit breakers and remote automatic reclosers in areas affected by SOB 322 are made non-automatic and will lock out following the first relay operation. After a lock out, the circuit must be patrolled before reenergization.[8] SED confirmed that SOB 322 was in effect on December 7, 2017 and the Clydesdale circuit breaker relayed, opened, and de-energized the line at 1308 hours without reclosing.[9]

The Clydesdale 12 kV circuit breaker was a Mitsubishi Electric Power Products medium voltage circuit breaker with manufacture's designation MEPPI15FVCB25 and ABB Relay DPU2000R protection system.[10] Circuit breaker products of this make are typically rated for continuous duty at 17.5 kV and 2,000 A. Edison provided the following relay fault settings pertinent to the fault event summary: 51P=720 A, Curve = Very Inverse, Time Dial = 3.5, which indicate that whenever the relay sensed a phase to phase fault of magnitude 720 A or greater, it would act rapidly to open the circuit breaker, which it did on the date of the incident.[11] Actual relay time delay was 0.41 seconds with circuit breaker opening time 0.08 seconds.[12]

PS 2191 is an inverted (i.e. facing downward) 10-foot Omni-rupter manual switch manufactured by S&C Electric Company and installed on Edison pole number 2090695E.[13] Edison performed the last detailed inspection of PS 2191 in April of 2014. Edison observed no unusual conditions.[14] Inspection of this type of switch consists of a visual inspection of the apparatus at a minimum of once every five years and does not involve testing the operation of the switch.[15] Omni-rupter switches are rated to withstand 900 amperes of loading at voltage levels through 29 kV and provide a circuit interruption capability that causes no external arcs. During an emergency, Omni-rupter switches are

[8] Bates SCE-SED00003591.

[9] Bates SCE-SED00010206.

[10] Bates SCE-SED00003443.

[11] Bates SCE-SED00003443.

[12] Bates SCE-SED00004221.

[13] Bates SCE-SED00004221.

[14] Bates SCE-SED00011942.

[15] Examination Under Oath_ [redacted] _100118 page 62, lines 16-28; page 63, lines 1-4.

rated to interrupt energized load up to 100 amperes via manual operation.[16] The figure below provides an illustration of an exemplar Omni-rupter switch mounted in the inverted configuration.

Figure 2: Inverted Mounted Omni-rupter Switch (Picture for illustrative purposes only, not an exact replica of the Edison pole switch, PS 2191)

PS 2191 has three (3) sets of electrical contacts for the A, B, and C phases of the Clydesdale 12 kV circuit as well as hardware to support the distribution neutral conductor.

PME 5202 is a padmounted switch that houses a connection between the Clydesdale 12 kV circuit and the Sundance 12 kV circuit, which is served by the Sun City substation. PME 5202 Position 1 remains in the open position during normal operation, meaning that the Clydesdale 12 kV circuit and Sundance 12 kV circuit are isolated from each other. If the Clydesdale 12 kV circuit cannot be served by the Auld substation, one option is for the Clydesdale 12 kV circuit to be electrically connected to the Sundance 12 kV circuit through Position 1 of PME 5202. In this configuration, customers on the Clydesdale 12 kV circuit are fed through PME 5202 from the Sun City substation.

D. Description of Events

On December 7, 2017 at 0430 hours, the Pourroy 12 kV circuit out of Auld substation experienced a fault that resulted in an outage and damage to equipment in underground structure UG-5361248.[17] [redacted], an Edison Electrical Crew Foreman, led the subsequent emergency work to repair the underground equipment. The work

[16] https://www.sandc.com/en/products--services/products/omni-rupter-switches/

[17] Bates SCE-SED00014970.

involved replacing a damaged cable termination and cable segment in Edison underground structure UG-5361248.[18] The crew performing this work consisted of Edison Groundman [redacted], and Edison Journeymen/Linemen [redacted].[19] The work began at 0700 hours and ended at approximately 1314 hours, after the start of the Liberty Fire.[20]

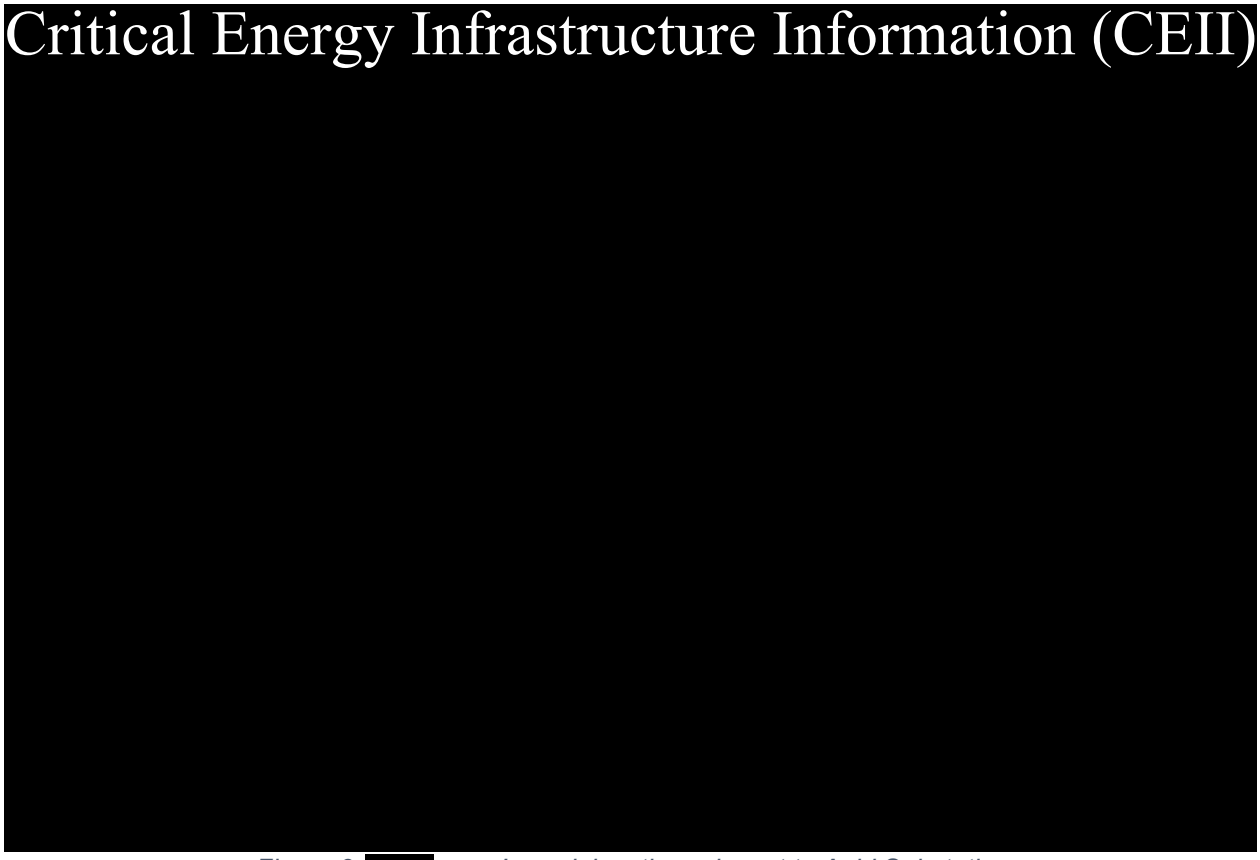

Figure 3: [redacted] crew's work location relevant to Auld Substation

On the same day, a different Edison four-person crew led by Lineman [redacted] who was acting foreman, was working on the Clydesdale 12 kV circuit pulling cable from padmounted structure P5630883, associated with above-ground gas switch (GS) 7901, to a new adjacent structure located at padmounted structure

[18] Bates SCE-SED00003139 ; Bates SCE-SED00003141.

[19] EUO_[redacted]_102318 page 39 lines 19-28, page 40 lines 1-2.

[20] EUO_[redacted]_102318 page 45 lines 24-28, page 46 lines 1-3; page 37 line 16-19, page 50 lines 26-28, page 51 lines 1-5.

P5630887 as part of a new underground construction.[21,22] These structures are located on the Clydesdale 12 kV circuit, upstream from the incident location.[23] The work began at approximately 0800 hours and continued until approximately 1315 hours on the same day.[24] The crew consisted of Edison Apprentice Lineman [redacted], and Edison Journeymen/Linemen [redacted].[25] Mr. [redacted] held No-Test Orders (NTO) on the Clydesdale circuit during the time that the work was being performed pursuant to Edison's protocol for work performed around energized conductors.[26]

[21] Bates SCE-SED00015345.

[22] Examination Under Oath EUO_[redacted] page 56 lines 8-20.

[23] Bates SCE-SED00004185.

[24] Examination Under Oath EUO_[redacted] page 47 lines 5-11; page 50 5-17; Bates SCE-SED00010206.

[25] Examination Under Oath EUO_[redacted] page 47 lines 19-28.

[26] Examination Under Oath EUO_[redacted] page 50 lines 9-10, 21-23.

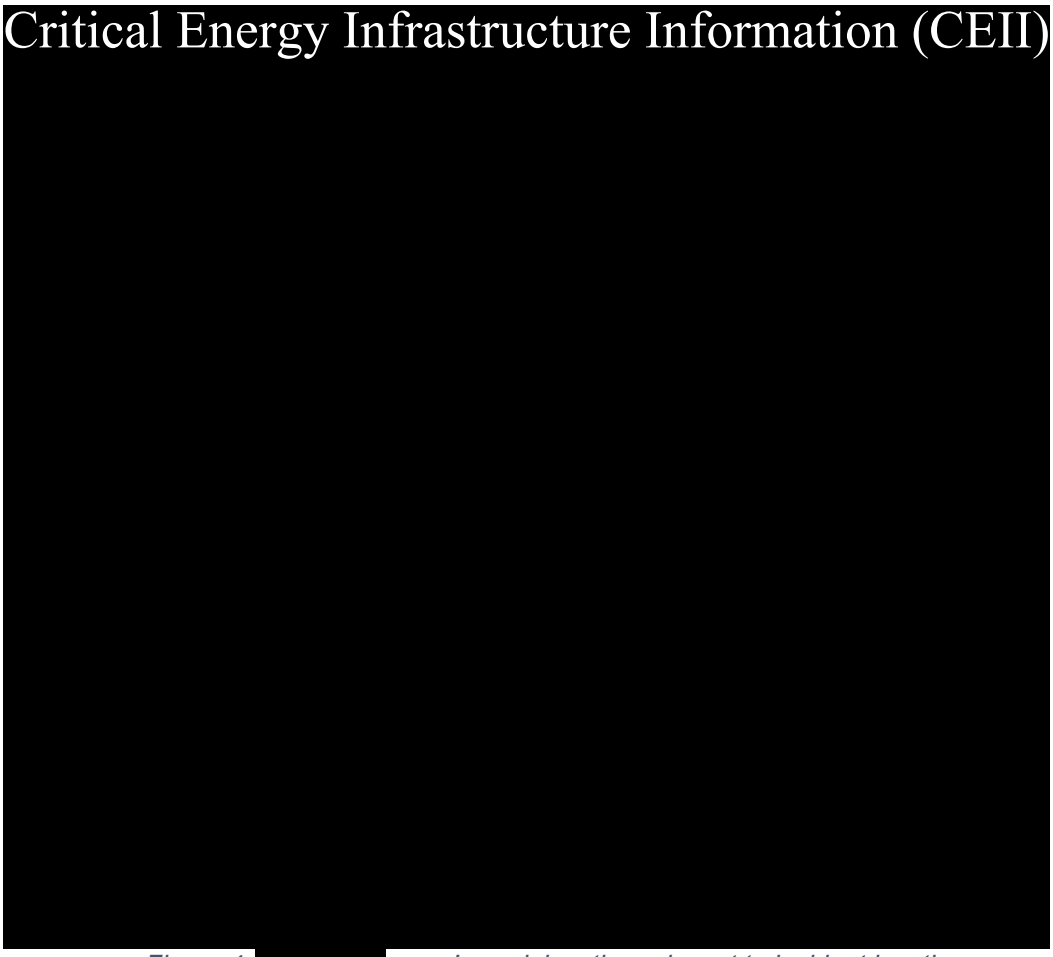

Figure 4: [redacted] crew's work location relevant to incident location

On December 7, 2017 at 1308 hours, the Clydesdale 12 kV circuit breaker at Auld substation operated to the open position and remained in the open position since an NTO on the circuit was active, thus, de-energizing the circuit.[27] At 1308 hours Mr. [redacted] received a notice of this interruption through announcement by the substation operator. After receiving notice, he directed his crew to cease work on the Clydesdale 12 kV circuit and to close up the structures they were working on in order to release the No-Test Orders (NTO) he held on the circuit. He then provided the substation operator clearance to test and re-energize that section of the circuit. At 1315 hours Mr. [redacted] released the NTO that he had held on the Clydesdale 12 kV circuit for the duration of the work that morning.

Mr. [redacted] and his crew on the Pourroy 12 kV circuit were just completing their work when he heard the substation operator announce the 1308 hours Clydesdale 12 kV fault event. Mr. [redacted] and his crew were already in the process of closing up the structure they were working on.

[27] Bates SCE-SED00003966.

On the same day, Electrical Crew Foreman [redacted] and Journeyman Lineman [redacted] were on their way to attend to a broken pole on an unidentified circuit when they also heard a radio announcement describing the Clydesdale 12 kV circuit breaker automatic relay operation at approximately 1308 hours.[28] Mr. [redacted] and Mr. [redacted] decided to redirect their attention to patrolling the Clydesdale 12 kV circuit in the direction toward the Auld substation, as they were nearby and anticipated the need for a patrol before the circuit could be re-energized.[29] Mr. [redacted] observed smoke while driving eastbound on Los Alamos Road towards the Auld substation and reported this to the Valley switching center at 1315 hours.[30] At 1321 hours, Mr. [redacted] reported to the Valley switching center that there was a brush fire located near pole switch PS 2191, supported by Edison pole number 2090695E.[31] He was the first to report the Liberty Fire to Edison on December 7, 2017.[32]

At 1348 hours, Mr. [redacted] reported to the Valley Switching Center that he switched all positions of PS 2191 to the open position.[33] Changing the position of the switch from the closed to open positions provided no benefit at this time, as the Clydesdale 12 kV circuit was still de-energized due to the circuit breaker operation at 1308 hours.

On December 7, 2017 at 2321 hours,[34] Edison reported the Liberty Fire incident to the CPUC via the CPUC's web-based reporting system. The Liberty Fire was 100% contained on Saturday, December 9, 2017 after burning a reported 300 acres, destroying one structure, and one outbuilding.[35]

The Riverside County Fire Department, CAL FIRE, and the City of Murrieta Fire Department all provided initial fire response. CAL FIRE investigated and provided SED with a draft cause and origin report in late 2017. Riverside County Fire Department designated this incident as Incident Number CA-RRU-151090.[36]

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[28] Examination Under Oath EUO_[redacted]_100218 page 51, lines 18-27.

[29] Examination Under Oath EUO_[redacted]_100218 page 63, lines 4-12.

[30] Examination Under Oath EUO_[redacted]_100218 page 39, lines 9-13; Bates SCE-SED00003966.

[31] Bates SCE-SED00003966.

[32] Bates SCE-SED00003966.

[33] Bates SCE-SED00003966.

[34] Email notification to USRB reporting address, Subject: Electric Safety Incident Reported-Southern California Edison Incident No: 171207-8651, dated Thursday, December 07, 2017.

[35] http://www.murrietaca.gov/news/displaynews.asp?NewsID=790&TargetID=21

[36] http://www.rvcfire.org/_Layouts/Incident%20Information/IncidentInfoDetail.aspx?3777

CAL FIRE investigated the cause and origin of the Liberty Fire and determined the point of origin to be at the base of Edison pole number 2090695E, located just east of the Edison Auld substation and adjacent to Los Alamos Road, which runs from east to west in the city of Murrieta, California.[37] Provided here are maps illustrating the point of ignition relative to the Edison Auld substation and Los Alamos Road.

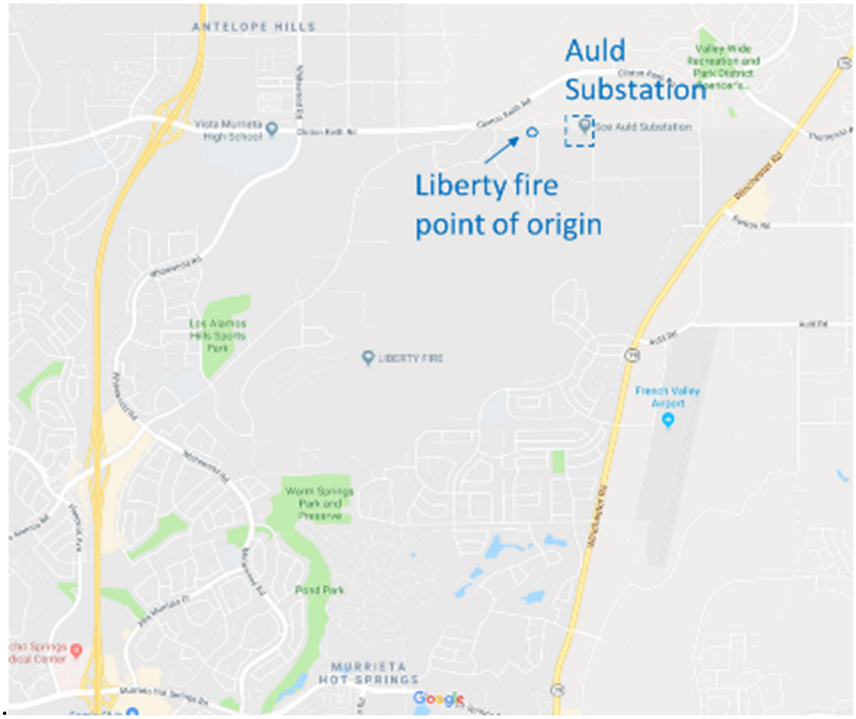

Figure 5: Liberty Fire point of origin

[37] CAL FIRE Liberty Fire Report - Branden Smith, Case Number: 17CARRU151090, Dated: December 7, 2017.

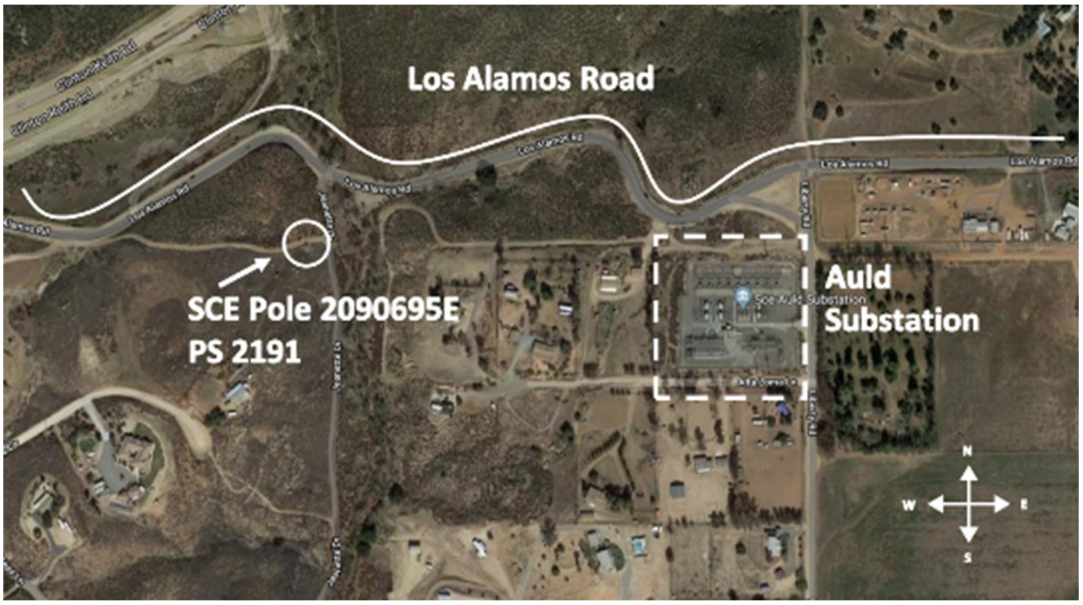

Figure 6: Location of Edison pole 2090695E with attached pole switch PS 2191

IV. SED's Investigation

A. Observation and Findings

SED investigated the work that was performed on the date of the incident at the two different locations by the two Edison crews and could not identify a relationship between the work at either location and the fault that occurred on the Clydesdale 12 kV circuit on December 7, 2017.

On December 7, 2017, the Clydesdale 12 kV circuit was operating under SOB 322 due to a RFW.[38] Edison's SOB 322 requires that when a fault occurs on a circuit during a RFW, and the breaker opens and de-energizes the circuit, Edison crew should then patrol the circuit or sections of the circuit prior to testing and re-energizing the circuit.

At 1308 hours on the same day, the Clydesdale 12 kV circuit breaker opened and locked out due to an 8,237 amps fault current on the Clydesdale 12 kV circuit.[39] Edison did not immediately test the Clydesdale circuit for re-energization because both SOB 322 and an NTO were in effect.[40] The NTO was released at 1315 hours on December 7, 2017, making it possible to begin the re-energization process.[41]

On December 7, 2017, when the fire occurred, PS 2191 was in the closed position and the PME 5202 was in the open position. Mr. [redacted], who was patrolling the Clydesdale 12 kV circuit after he became aware of the breaker locking out, reported to Edison's Valley switching center at 1337 hours that he believed a fault may have caused a flash to occur at PS 2191.[42] Mr. [redacted]'s conclusion was based on his observations of pole switches like PS 2191 flashing and arcing in the past.[43] At 1348 hours Mr. [redacted] turned all positions of PS 2191 to the open position after patrolling the Clydesdale 12 kV circuit from the Auld substation to the switch.[44] Mr. [redacted]'s intention was to patrol and sectionalize (isolate) sections of the Clydesdale circuit and then re-

[38] Bates SCE-SED00010206.

[39] Bates SCE-SED00003958.

[40] The NTO was in place as a safety precaution for an unrelated work event. (EUO_[redacted] dated 102518 page 51, page 4-11.) NTOs are operational restrictions placed on circuits by Edison electrical workers that are actively performing work and must be removed by the specific employee who placed the NTOs before any circuit operations can occur. (Examination Under Oath EUO_[redacted]_100318 page 95 lines 21-28.).

[41] Bates SCE-SED00010206.

[42] Bates SCE-SED00010206.

[43] Examination Under Oath EUO_[redacted]_100318 page 108 lines 20-28; page 109 lines 1-3.

[44] Bates SCE-SED00010206.

energize the sections that are not affected by the fault condition.[45] However, for unknown reasons, Mr. [redacted] changed his mind and at 1400 hours, he instructed the switching center not to test the circuit, citing that the fire may pose a threat to the circuit.[46] It is not clear what caused this change in Mr. [redacted]'s assessment of the area.

B. Violations

Edison's violation of GO 95, Rule 31.1 and PU Code § 399.2 (a) - Failing to Maintain and Operate PS 2191 and/or the Clydesdale 12 kV Circuit in a Safe Manner

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.

California Public Utilities (PU) Code – PU Code § 399.2 (a), states in part:

(a)(1) It is the policy of this state, and the intent of the Legislature, to reaffirm that each electrical corporation shall continue to operate its electric distribution grid in its service territory and

[45] Examination Under Oath EUO_[redacted]_100318 page 120 lines 25-28.

[46] Bates SCE-SED00003966.

shall do so in a safe, reliable, efficient, and cost-effective manner.

GO 95, Rule 31.1 and PU Code § 399.2(a) require utilities to design, operate, and maintain their facilities in a safe manner. Utilities employ protective devices, such as fuses, relays, and breakers to interrupt and de-energize a circuit during fault conditions in order to prevent equipment (such as conductors, transformers, switches, etc.) from failing thus causing property damage, fires, injuries, and fatalities. In this incident, Edison's protective scheme did not prevent the switch from failing. Instead the switch failed, arced, and sparked, thus, igniting a fire. Therefore, Edison did not maintain or operate PS 2191 and/or the Clydesdale 12 kV circuit in a safe manner to prevent it from failing and arcing.

SED examined the physical evidence collected by both CAL FIRE and Edison and observed significant damage to the components of pole switch PS 2191 retained by CAL FIRE.

The general orientation of the Edison pole and switch is shown here.

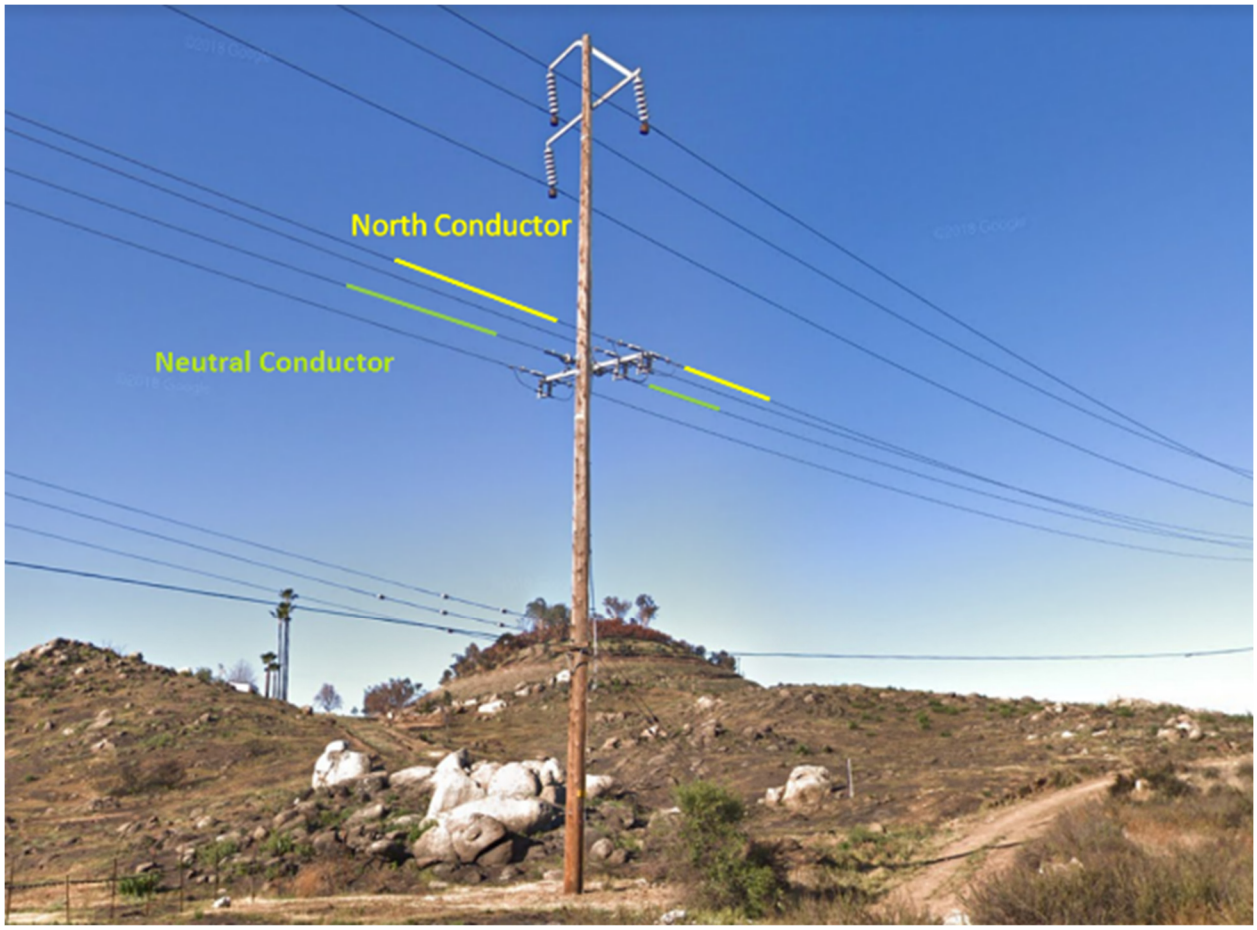

Figure 7: Looking south west at pole 2090695E and PS 2191 (Picture for example purpose only, image date April 2018, newly installed 12ft Omni-rupter pole switch shown)

SED also examined physical evidence collected by CAL FIRE on September 27, 2018. SED observed that the section of the switch that connects to the north conductor, both the rotating and receiving ends of the switch contacts, had significant damage. This section of the switch corresponds to phase C of the Clydesdale 12 kV circuit.[47] Both the receiving and rotating ends of the switch contacts that were collected by CAL FIRE show damage. The switch contacts were severely charred with some material missing from both ends as if burned, melted, or broken off. Such evidence indicates arcing and a subsequent cascading of sparks from the switch blades. Other adjacent switch components contained soot marks.

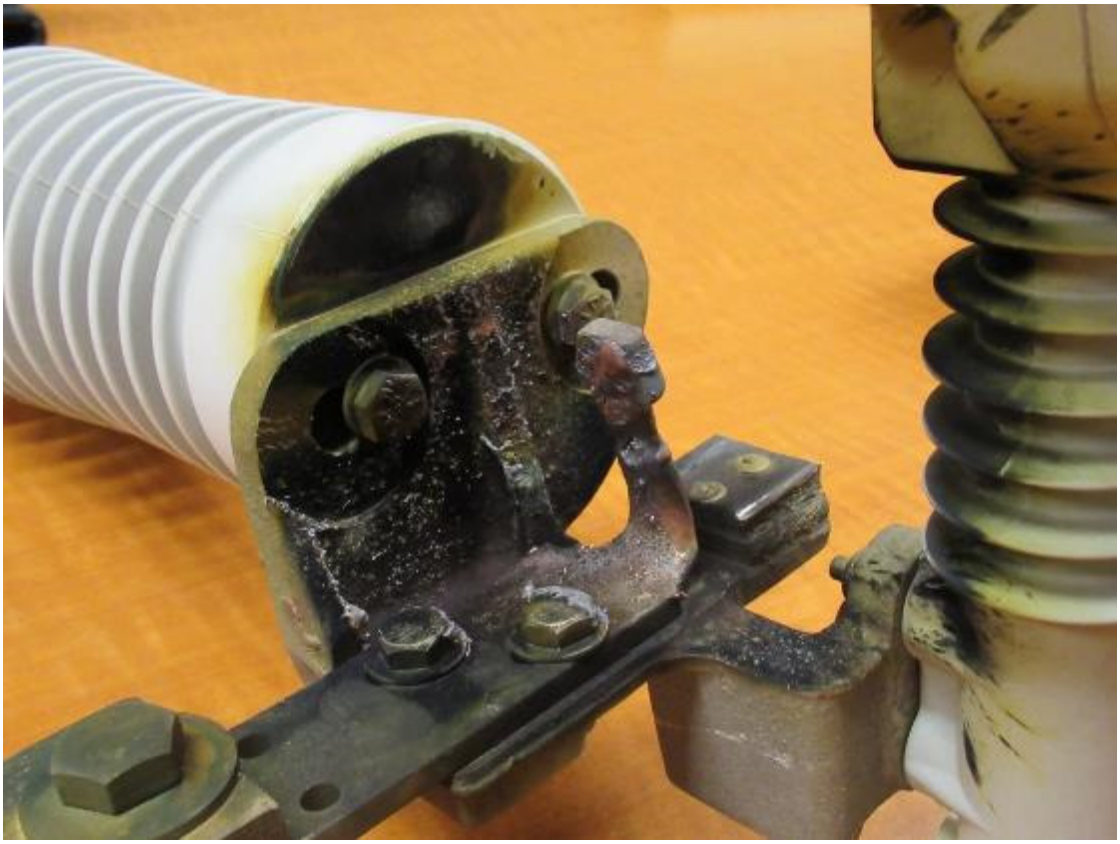

Figure 8: Receiving contact, east end, north conductor of pole switch PS 2191

[47] The south section of the switch corresponds to phase B and the center section corresponds to phase A. (Bates SCE-SED00016320).

Figure 9: Rotating contact, west end, north conductor of pole switch PS 2191

SED also examined physical evidence collected by Edison at Edison's San Jacinto/Menifee Service Center. In total, Edison collected from the field about 18 Edison poles, multiple reels of primary conductor, the remaining pieces of pole switch PS 2191, as well as several other electrical and support equipment (risers, crossarms, hardware, etc.). SED observed various marks of minor wear on the remaining components of pole switch PS 2191, but SED was unable to determine whether the marks observed were specifically associated with incident event that occurred on December 7, 2017.

Other records that SED gathered via data requests showed that Edison's supervisory control and data acquisition (SCADA) system recorded a series of rapid electrical fault events on the Clydesdale 12 kV circuit only minutes before the circuit breaker relayed to the open position de-energizing the Clydesdale 12 kV circuit.[48] The series of three (3) events took place in under one (1) second and resulted in the final 51P phase-time overcurrent relay event which caused the circuit breaker to open and lock out.[49]

SED also reviewed SCADA data for the hours leading up to the fault indicates that the normal and expected level of current on each phase conductor was between 80 and 200 amps. Table 2 below shows the time each fault event occurred and magnitude

[48] Bates SCE-SED00003958.

[49] Bates SCE-SED00003958.

of the fault current. The magnitude of current on each phase conductor at the time of the recorded 51P phase-time overcurrent fault was 8237 amps on phase A conductor, 6902 amps on phase B conductor, and 3852 amps on phase C conductor which is greater than the rated capacity of all of the different types of conductors that were reported by Edison to make up the Clydesdale 12 kV circuit50 and an order of magnitude greater than the normal and expected current of 80 - 200 amps on each phase. The circuit contained different types of conductors to include various sizes of overhead aluminum conductor steel reinforced (ACSR) conductors, overhead copper conductors, and overhead hard-drawn bare copper conductors all of which have a rated ampacity of less than 1000 amps.

Table 2: Clydesdale 12 kV circuit fault event summary

Clydesdale 12 kV circuit fault event summary[51]						
Phase current in Amps (A)			Phase A Conductor	Phase B Conductor	Phase C Conductor	Neutral Conductor
51P	12/7/2017	1257:42.59	8,237 A	6,902 A	3,852 A	4,746 A
ECI-2	12/7/2017	1257:42.51	8,871 A	10,215 A	4, 986 A	3,667 A
ECI-2	12/7/2017	1257:42.11	2,205 A	106 A	2, 131A	8 A

SED could not determine the exact cause of the series of electrical faults that occurred on the Clydesdale 12 kV circuit. This was mainly due to the fact that Edison first responders did not determine the location or source of fault condition on the Clydesdale 12 kV circuit before initiating isolation and power restoration activities. Edison refused to provide SED with its own investigation report or any information included in Edison's own investigation report that concerned the cause or location of the faults. Edison maintained and continues to maintain that information and findings from investigations conducted by its Claims Department personnel are protected under attorney-client privilege.[52]

Edison suggested other causes for the incident in both its PU code section 315 Letter[53] as well as in its public press releases concerning the Liberty Fire. Specifically, the documents reference bird nesting material as being present and under review by

[50] Bates SCE-SED00011950.

[51] Bates SCE-SED00011950.

[52] Bates SCE-SED00009814, Bates SCE-SED00009828, Bates SCE-SED00009813, Bates SCE-SED00011709, Bates SCE-SED00009827.

[53] Under PU Code 315, public utilities must file a report for every accident that meets incident reporting requirements. This is informally known as a "315 Letter."

Edison as a potential factor that led to the incident.[54,55] SED observed the bird nesting material on top of multiple sections of PS 2191 but did not find any evidence that the material may have been the cause of the arcing or fault condition.

Figure 10: Bird nesting material above the section of the switch that connects the middle conductor phase of pole switch PS 2191.[56]

The cause of the arcing stemmed from either the condition of pole switch PS 2191 or the condition of the Clydesdale 12 kV circuit prior to the series of electrical faults. A manual pole switch that is in the closed position and in steady-state does not normally arc and spark and is not normally in danger of causing a wildfire. Similarly, the protective scheme employed on the Clydesdale 12 kV circuit is expected to be capable of de-energizing the circuit to prevent any arcing that could cause a wildfire at the switch. Edison should have maintained the Clydesdale 12 kV circuit and pole switch PS 2191 in such a condition as to prevent a fault event, including a rapid series of three faults, from causing cascading failure of other equipment and igniting a wildfire or causing other property damage, injury or fatality.

[54] Edison 315 Letter dated December 29, 2017.

[55] https://newsroom.edison.com/releases/sce-responds-to-cal-fire-findings-on-2017-liberty-fire.

[56] Bates SCE-SED00004259.

SED could not determine the exact cause of the arcing and the exact cause of the series of electrical faults primarily because Edison first responders did not determine the location or source of fault before initiating isolation and power restoration activities.

SED determined that Edison violated GO 95, Rule 31.1 and PU Code § 399.2 (a) because it failed to maintain and operate PS 2191 and/or the Clydesdale 12 kV Circuit in a safe manner. Edison should have maintained the Clydesdale 12 kV circuit and pole switch PS 2191 in such a condition as to prevent any fault event, including a rapid series of three faults, from subsequently causing a cascading failure of other equipment, including components of the switch, and igniting a wildfire or causing other property damage, injury or fatality.

Edison's violation of GO 95, Rule 31.1 and PR Code § 4292 - Brush Clearances

CAL FIRE's assessment of the Liberty Fire incident determined that Edison was in violation PRC § 4292, which requires a minimum radial vegetation clearance of 10 feet around a utility pole that has a pole switch mounted to it. Failure to abide by a PRC requirement, which describe best practices and other minimum requirements, is a violation of General Order 95. Rule 31.1 which specifically requires that accepted good practice be used in the design, construction, and maintenance of utility lines.

When a utility pole has a switch mounted to it, such as pole 2090695E which had PS 2191 mounted on it, that pole is subject to PR Code § 4292 and the utility must keep a minimum radial clearance of 10 feet around the base of the pole wherein all vegetation at ground level (i.e. brush) must be removed. CAL FIRE determined that Edison violated PRC § 4292 for not maintaining 10 feet vegetation clearance at the base of the pole.[57]

The figure below shows the base of utility pole 2090695E and apparent brush and grass remains at the base of the pole after the Liberty Fire incident on December 7, 2017.

[57] CAL FIRE Liberty Fire Report - Branden Smith, Case Number: 17CARRU151090, Dated: December 7, 2017.

Figure 11: Brush at the base of Edison pole 2090695E

The SED investigation concluded that, based on CAL FIRE's determination of PR Code § 4292 violation, Edison is also in violation of General Order 95, Rule 31.1, for failing to maintain 10 feet radial brush clearance or best practice brush clearance around utility pole 2090695E. SED's investigation determined that following a series of recorded electrical fault events on the Clydesdale 12 kV circuit,[58] PS 2191 failed and resulted in arcing and sparks, which ignited vegetation beneath the pole. In accordance with PR Code § 4292, Edison should have cleared that vegetation.

Edison's violation of GO 95, Rule 31.2 - Failure to conduct a thorough inspection as evidenced by inaccuracies in Edison Facility Documents

The SED investigation determined that Edison is in violation of GO 95, Rule 31.2 for failing to ensure that Edison facilities are inspected frequently and thoroughly as required by GO 95, Rule 31.2.

[58] Bates SCE-SED00003958.

General Order 95, Rule 31.2 – Inspection of Lines, states

Lines shall be inspected frequently and thoroughly for the purpose of insuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard.

During the Liberty Fire incident investigation, SED found numerous typographical errors in Edison documents that mislabeled the pole number that the subject pole switch, PS 2191, was mounted on:

1. Edison single line diagram for the Clydesdale 12 kV circuit shows PS 2191 installed on Edison pole number 2090696E.[59]
2. Photos from the Edison evidence storage yard show that field labels used by Edison to identify equipment during evidence removal identify PS 2191 as having been mounted to Edison pole 2090694E.[60]
3. Edison Facility Inventory Maps (FIMs) show PS 2191 as being associated with Edison pole number 2090695E.[61]

As observed during a field visit to the incident location on December 11, 2017, pole switch PS 2191 was mounted on Edison pole number 2090695E, as shown in the next figure.

[59] Bates SCE-SED00004186.

[60] Bates SCE-SED00004261.

[61] Bates SCE-SED00004159.

Figure 12: Edison pole number 2090695E and pole switch PS 2191 pole markers

In addition to preventing SED from properly reviewing and cross-referencing information about the structure in question, the errors in facility documentation reflects poor recordkeeping on behalf of Edison. Mislabeling facilities across documents impedes Edison's ability to perform adequate and thorough inspections on those facilities. Specifically, mislabeling can lead to errors in logging the history of a structure, which could affect the accuracy of work orders and inspection records as these are created based on structure number. This casts doubt on whether Edison's inspection records accurately reflect the condition of structures in the field.

SED discovered that Edison's records of the subject pole were incorrect, including the Clydesdale 12 kV circuit single-line diagram[62] and Edison Facility Inventory Maps (FIMs).[63] One cannot ensure the quality and accuracy of Edison's inspection program when Edison's records show inconsistencies in facility inventory labeling. Furthermore, because inspections and work orders are assigned and performed based on structure number, the structure number should correctly correlate to the physical location of the structure on any system map. If Edison cannot ensure that structure data is accurately labeled and if multiple documents identify the same structure with different tags, this can lead to inaccurate inspections. Based on SED's

[62] Bates SCE-SED00004186.

[63] Bates SCE-SED00004159.

review of these records, one can conclude that any work Edison performs that is based on the system maps will be inconsistent with work done based on the physical structure. Due to these inconsistencies in labeling and inaccurate recordkeeping, SED does not consider Edison's previous inspection on the subject facilities to be accurate or reliable for its own inspections.

The SED investigation determined that Edison is in violation of GO 95, Rule 31.2 for failing to ensure that Edison facilities are inspected frequently and thoroughly as required by GO 95, Rule 31.2.

Edison's violation of California Public Utilities Code § 316, and GO 95 Rule 19 – Preservation of Evidence

SED determined that Edison violated Public Utilities Code § 316 and GO 95, Rule 19 because it failed to preserve evidence by changing PS 2191 into the open position shortly after a fault occurred on the Clydesdale 12 kV circuit. PS 2191 should have been preserved in the condition it was found after the fault occurrence in anticipation of the subsequent fire investigation pursuant to Public Utilities Code § 316 and GO 95, Rule 19.

General Order 95, Rule 19 - Cooperation with Commission Staff; Preservation of Evidence Related to Incidents Applicability of Rules

Each utility shall provide full cooperation to Commission staff in an investigation into any major accident (as defined in Rule 17) or any reportable incident (as defined in CPUC Resolution E-4184), regardless of pending litigation or other investigations, including those which may be related to a Commission staff investigation. Once the scene of the incident has been made safe and service has been restored, each utility shall provide Commission staff upon request immediate access to:

- *Any factual or physical evidence under the utility or utility agent's physical control, custody, or possession related to the incident;*
- *The name and contact information of any known percipient witness;*
- *Any employee percipient witness under the utility's control;*
- *The name and contact information of any person or entity that has taken possession of any physical evidence removed from the site of the incident;*
- *Any and all documents under the utility's control that are related to the incident and are not subject to the attorney-client privilege or attorney work product doctrine.*

Any and all documents or evidence collected as part of the utility's own investigation related to the incident shall be preserved for at least five years. The Commission's statutory authorization under Cal. Pub. Util. Code §§ 313, 314, 314.5, 315, 581, 582, 584, 701, 702, 771, 1794, 1795, 8037 and 8056 to obtain information from utilities, which relate to the incidents described above, is delegated to Commission staff.

California Public Utilities Code – PU Code § 316

(a) Each electrical corporation shall cooperate fully with the commission in an investigation into any major accident or any reportable incident, as these terms are defined by the commission, concerning overhead electric supply facilities, regardless of pending litigation or other investigations, including, but not limited to, those that may be related to a commission investigation.

(b) After the scene of the incident has been made safe and service has been restored, each electrical corporation shall provide the commission, upon its request, immediate access to all of the following:

(1) Any factual or physical evidence under the electrical corporation's, or its agent's, physical control, custody, or possession related to the incident.

(2) The name and contact information of any known percipient witness.

(3) Any employee percipient witness under the electrical corporation's control.

(4) The name and contact information of any person or entity that has taken possession of any physical evidence removed from the site of the incident.

(5) Any and all documents under the electrical corporation's control that are related to the incident and are not subject to attorney-client privilege or attorney work product doctrine.

(c) Each electrical corporation shall preserve any and all documents or evidence it collects as part of its own investigation related to the incident for at least five years or a shorter period of time as authorized by the commission.

(d) Any and all documents collected by an electrical corporation pursuant to this section shall be catalogued and preserved in an accessible manner for assessment by commission investigators as determined by the commission.

Edison's Electrical Crew Foreman opened PS 2191 at 1348 hours to isolate the section of the Clydesdale Circuit that is upstream of the switch intending to re-energize

customers that were served by branch circuits upstream of the switch. A total of 17 such customers would have had their power restored when the breaker at the Auld substation was closed. However, the Electrical Crew Foreman did not follow through with his plan to re-energize those customers; instead he decided to keep the entire Clydesdale Circuit de-energized and at 1400 hours instructed the switching center not to operate the breaker in the Auld substation. Edison did not adequately justify its decision to not operate the breaker at the Auld substation after opening PS 2191.[64]

Edison's Interruption Log Sheet (ILS)[65] #6972, dated December 7, 2017, provides a description of actions that Edison took in the early morning of December 8, 2017, one day after the fire started, to isolate PS 2191 and restore power to customers that were serviced by the portion of the circuit on either side of the pole switch. Edison used two sources of power to restore customers.[66] The further side of the Clydesdale 12 kV circuit (west end) was serviced via the Sundance 12 kV circuit fed by the Sun City substation.[67] The side of the Clydesdale 12 kV circuit closer to the Auld substation (east end) was serviced via the reclosed Clydesdale 12 kV circuit breaker.[68] PS 2191 was isolated and removed from the circuit.

SED evaluated Edison's actions and decision to operate PS 2191 and change all of its positions to the open position. SED determined that, contrary to the Electrical Crew Foreman's testimony, PS 2191 played no role in fault isolation and power restoration and that the Electrical Crew Foreman should have recognized the switch as a potential source of evidence in a fire investigation, and therefore should have left the switch in the position it was found. Upon determining that the switch may have been the source of ignition[69] of the Liberty Fire, the Electrical Crew Foreman should have instead preserved PS 2191 as potential evidence. By opening the switch, he failed to preserve the equipment that he believed could be the source of the ignition on the Clydesdale 12 kV circuit.[70] Edison should have known that when a switch fails (i.e. arcs) as PS 2191 did on December 7, 2017, opening the position of the switch could prevent investigators

[64] Edison did give one reason; that it thought the fire could pose a threat to the Clydesdale Circuit. However, the fire had already started and was burning before PS 2191 was opened. (Bates SCE-SED00010206 (Confidential)).

[65] An ILS is created by the system operator and documents actions that change the status or configuration of a circuit. ILSs may cover multiple days in one document if the actions take on the circuit are related. For example, the actions taken on 12/8 were documented as a continuation of the 12/7 ILS in order to create one concise ILS for all actions related to this incident.

[66] Bates SCE-SED00010206.

[67] Bates SCE-SED00010207.

[68] Bates SCE-SED00010207.

[69] Examination Under Oath EUO_[redacted]_100318 page 108 lines 20-28; page 109 lines 1-3.

[70] Examination Under Oath EUO_[redacted]_100318 page 108 lines 20-28; page 109 lines 1-3.

and inspectors from determining the condition of the switch.[71] Opening PS 2191 was in fact tampering with evidence, especially because the Clydesdale 12 kV circuit was already de-energized and preserving PS 2191 in the closed position did not pose any danger to property or to the public. Furthermore, PS 2191 was the focal point of fire investigator's inspection for fire origin and cause, and subsequently was removed and retained as evidence by CAL FIRE.

The figure below depicts where power was restored, the sources of power, and the section of the Clydesdale 12 kV circuit that was isolated.

Critical Energy Infrastructure Information (CEII)

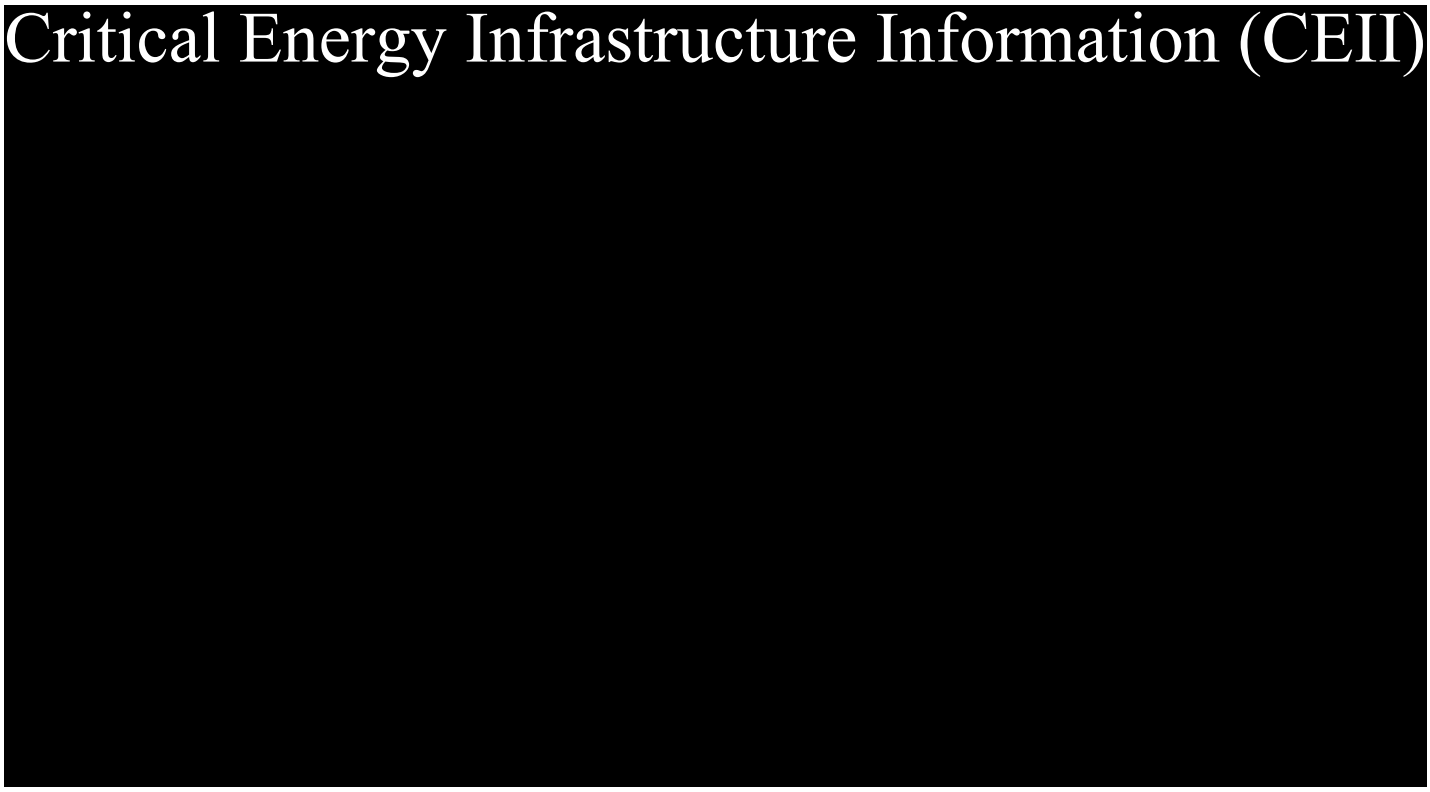

Figure 13: Clydesdale circuit. PS 2191's isolation via the cut in isolators

GO 95, Rule 19, and PU Code § 316, require Edison to preserve evidence and to cooperate with Commission staff during incident investigation. Opening PS 2191 hindered investigators' ability to carry out their duties pursuant to PU code 316 because they could not determine the following:

1. Whether the switch contacts were misaligned prior to the faults on the circuit. The Electrical Crew Foreman testified that misaligned switch contacts are a condition that could result in arcing on a switch and that

[71] Examination Under Oath EUO_[redacted]_100318 page 108 lines 20-28; page 109 lines 1-3.

the presence of misaligned switch contacts would be an indicator of poor maintenance and improper construction.[72]

2. Whether the ferrous material CAL FIRE found at the base of Edison pole 2090695E was originally on PS 2191 and was only dislodged by the operation of the switch.
3. Whether the relative position of bird nesting material to the switch contacts was changed by the movement of switch contacts or interlinking opening mechanisms.
4. Whether the switch, or any component of the switch, was installed properly and securely. Components that are not secured properly (loose) may arc during normal operation.

Additionally, PU Code § 315 requires that "the Commission shall investigate the cause of all accidents occurring within this State upon the property of any public utility or directly or indirectly arising from or connected with its maintenance or operation…". As explained below, changing the state of PS 2191 (i.e. from the "closed" to "open" position) altered the condition of PS 2191 in a manner that limited its usefulness as evidence, and prevented SED from fully performing its duties under PUC § 315. Examination of the pole switch in the state in which it was at the time of the ignition could have provided useful information in determining the state of the switch prior to arcing.

Factors SED considered.

- The Electrical Crew Foreman should have recognized the switch as a potential source of evidence in a fire investigation and should not have opened the switch. Upon determining that the switch may have been the source of ignition of the Liberty Fire, the Electrical Crew Foreman should have acted to isolate PS 2191.
- The Electrical Crew Foreman testified to his extensive experience, therefore he should have known that when a switch fails (i.e. arcs), as PS 2191 did, changing the position of the switch could prevent investigators and inspectors from determining the condition of the switch.
- The Electrical Crew Foreman's action to change/switch all the positions of PS 2191 to the open position occurred after the fire had ignited and the Clydesdale 12 kV circuit had already been de-energized for 34 minutes, thereby providing no appreciable benefit to safety.

[72] Examination Under Oath EUO_[redacted]_100318 page 116 lines 1-28.

- The Electrical Crew Foreman could not provide details of what authorization he was working under to open all positions on PS 2191, as it was generally not his role to perform troubleshooting, fault isolation or power restoration activities.
- The Electrical Crew Foreman operated the switch and turned all of its positions to the open position before inspecting the switch to determine its condition. He did not make an attempt to determine whether the switch was damaged, whether it was safe to operate the switch or whether operating the switch in its current condition would interfere with fire investigation, especially after he suspected arcing in the switch.
- The Electrical Crew Foreman testified that PS 2191 was opened as part of sectionalizing the Clydesdale 12 kV circuit, but SCE operations log show that PS 2191 was never used for the purpose of sectionalizing the circuit. Furthermore, an Electrical Crew Foreman with extensive experience should know that damaged or potentially damaged electrical equipment, such as pole switch PS 2191, cannot be relied upon for the purposes of electrical isolation (i.e. sectionalizing a circuit) without first being inspected, tested, and deemed fit for service by personnel authorized to perform those duties.

The SED investigation determined that Edison is in violation of California Public Utilities Code § 316, and GO 95, Rule 19 for not preserving potential evidence when an Edison employee manipulated a pole switch, PS 2191, that should have been preserved in its original state in anticipation of the subsequent fire investigation.

Edison's violation of PU Code § 316 and GO 95, Rule 19- Failure to provide responsive documents in Response to Data Requests and Lack of Cooperation

PU Code § 316 and GO 95, Rule 19, require Edison to fully cooperate with Commission staff during incident investigations. The SED investigation determined that Edison is in violation of PU Code § 316 and GO 95, Rule 19, for failing to cooperate with SED and refusing to provide a response to SED's inquiry regarding the reasons why multiple reels of primary conductor collected by Edison as evidence were deemed unfit for service by Edison technical staff.

On April 16, 2019, SED investigators inquired with Edison's Legal Department requesting clarification on why Edison collected and retained reels of primary conductor as evidence. On April 26, 2019, Edison Legal provided a response wherein Edison objected to the data request on the grounds that the information was subject to the attorney-client privilege and attorney work product doctrine.[73] Edison claimed that these

[73] Bates SCE-SED00016318.

facilities were removed at the direction of counsel.[74] SED's inquiry is important to determine whether the conductors were removed because they were damaged by the fire or because they were related to the fault events that may have caused the arcing of PS 2191.

Edison's incomplete responses to data requests prevented SED from fully performing its duties under PU code § 315. Specifically, SED asked Edison to explain why it collected and retained multiple reels of primary conductor from the incident site rather than keep them in service. Edison's Legal Department does not have the technical capability to assess damages on the subject conductors and determine whether the conductors are safe and reliable to stay in service. Therefore, only Edison's technical staff could make a determination on whether to remove, replace, upgrade or otherwise change the subject conductors due to damage. Thus, it is improper for Edison to claim attorney client privilege or attorney work product privilege in an attempt to avoid responding to SED's data request. Such conduct reflects Edison's lack of cooperation with Commission staff who are statutorily required to investigate incidents.

Over the course of the investigation, there were many instances where Edison improperly declined to answer questions from SED investigators by asserting attorney-client privilege and attorney work product doctrine. In particular, Edison declined to answer, provide information or provide the requested items related to the following:

1. SED's request that Edison conduct an investigation of the Liberty Fire incident as required by GO 95, Rule 17, and share the report with SED.[75]
2. Identification of personnel involved in Edison's investigation of the Liberty Fire incident.[76]
4. Information including photographs, notes, reports, text messages that reflect initial observations from Edison first responders who were present at the incident location.[77]
5. Lists, descriptions, and the location of items examined by Edison investigators and other Edison Subject Matter Experts related to the Liberty Fire incident.[78]
6. Explanation as to the cause of the Liberty Fire and whether the cause of the fire was related to equipment failure.[79]

[74] Bates SCE-SED00016318.

[75] Bates SCE-SED00009827.

[76] Bates SCE-SED00009828.

[77] Bates SCE-SED00011709.

[78] Bates SCE-SED00013947.

[79] Bates SCE-SED00014023.

7. A catalog of any and all documents collected by Edison pursuant to PU Code section 316(d).[80]
8. Identification of Edison personnel outside of the claims department that have examined evidence, provided documents, or had communication with the Edison claims department regarding the Liberty Fire incident.[81]
9. Identification of all persons, including non-Edison employees, who accessed the physical evidence in Edison's possession related to the Liberty Fire incident.[82]

Edison's conduct delayed SED's investigation and created an undue burden on SED. The SED investigation determined that Edison's delivery of incomplete and erroneous responses to data requests delayed the investigation and is a violation of PU Code § 316 and GO 95, Rule 19. Additionally, the SED investigation determined that Edison is in violation of PU Code § 316 and GO 95, Rule 19 for failing to cooperate with SED and refusing to provide a response to SED's inquiry regarding the reasons why multiple reels of primary conductor collected by Edison as evidence were deemed unfit for service by Edison technical staff.

V. Conclusion

SED reviewed and analyzed records, inspected and examined physical evidence, consulted with CAL FIRE, and interviewed witnesses related to this incident to determine compliance with Commission regulations. The SED investigation discovered ten (10) violations:

- Two (2) violations of General Order (GO) 95, Rule 31.1, Design, Construction and Maintenance; for failing to safely maintain facilities on the Clydesdale 12 kV circuit and for failing to maintain the brush clearance around pole 2090695E.
- One (1) violation of Public Utilities Code (PUC) § 399.2; for failing to safely maintain facilities on the Clydesdale 12 kV circuit.
- One (1) violation of General Order 95, Rule 31.2, Inspection of Lines; for failing to ensure the quality of inspections.
- Two (2) violations of Public Utilities Code § 316; for failing to preserve evidence, for providing incomplete responses to data requests, and for failing to cooperate with SED.

[80] Bates SCE-SED00014466.

[81] Bates SCE-SED00014152.

[82] Bates SCE-SED00014383.

- Two (2) violations of General Order 95, Rule 19, Cooperation with Commission Staff; Preservation of Evidence Related to Incidents Applicability of Rules; for failing to preserve evidence, for providing incomplete responses to data requests, and for failing to cooperate with SED.

If SED becomes aware of additional information pertaining to this incident 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.