

# CAL FIRE



CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
SONOMA-LAKE-NAPA UNIT  
1199 Big Tree Road  
St. Helena, CA. 945474

## INVESTIGATION REPORT

CASE NUMBER: 17CAMRN0002957

CASE NAME: Thirty Seven

DATE: October 8, 2017

INCIDENT TYPE: Wildland Fire

INCIDENT INVESTIGATOR(s): [REDACTED] Fire Captain - LNU  
[REDACTED] Fire Captain - LMU  
[REDACTED] Battalion Chief - CNR  
[REDACTED] Battalion Chief - TCU

1 **1 - VIOLATION(S):**

2 No violations observed.

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1 **2 - SUMMARY:**

2 On October 8, 2017, a vegetation fire occurred in the area of State Highway 37 and  
3 Lakeville Highway in the county of Sonoma. The fire was first reported the morning of  
4 October 9, 2017 at 1:53 AM to Redwood Emergency Dispatch Communications Center  
5 (REDCOM).

6  
7 Due to a shortage of fire suppression resources, the fire burned uncontrolled on open  
8 space / grazing land for several hours. No structures or major private or public  
9 infrastructure were damaged as a result of the fire.

10  
11 Due to a lack of available investigators within the area at the time because of other  
12 major fires burning the investigation was delayed for several days.

13  
14 No physical evidence was located in connection to the cause of the fire. The origin and  
15 cause determination was determined by reviewing photographic and video evidence  
16 and eliminating all eleven fire cause classes in a systematic method which are defined  
17 by the National Wildland Fire Coordination Group (NWCG), Wildland Fire Investigation  
18 FI210 course curriculum. I can rule out all of the eleven fire cause classes with the  
19 exception of electrical as a cause.

20  
21 I could not rule out the possibility of the high voltage electrical powerlines, which were  
22 located above the general area of origin of starting the fire. The two sets of powerlines  
23 are owned and operated by Pacific Gas and Electric Company (PG&E).

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1 **3 – SUBJECT:**

2 S-1 Pacific Gas and Electric Company

3 77 Beale Street 24<sup>th</sup> floor

4 San Francisco, CA 94105

5 *Owner and operator of the powerlines located in the fire origin.*

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1 **4 - VICTIM(S) & WITNESS(ES):**

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7 *Can speak to conditions of property prior to incident.*

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14 *Can speak to observations at the incident after fire personnel arrived.*

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21 *Observed and photographed fire from Highway 37 prior to fire units arriving at*  
22 *scene.*

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24 W-2 

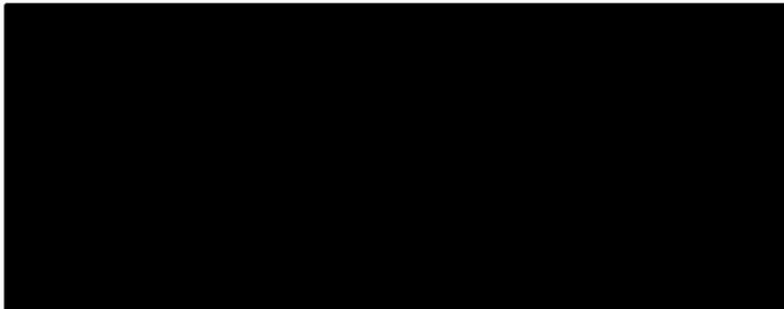
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29 *First fire personnel at scene. Can speak to observations at the incident.*

1 W-2



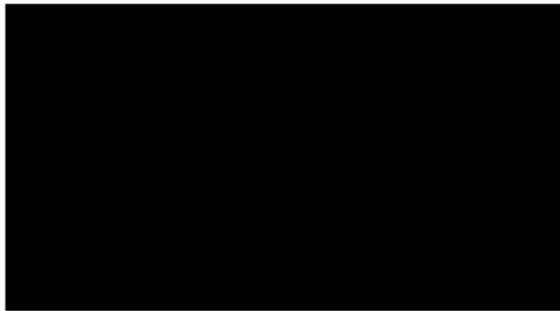
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6 *Can speak to observations and investigation at the incident.*

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8 W-3



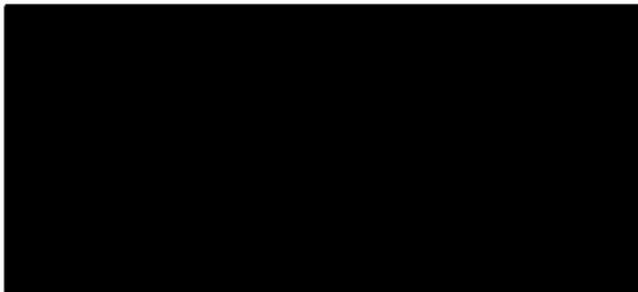
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13 *Can speak to observations at the incident.*

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15 W-3



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20 *Can speak to observations at the incident.*

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23 W-3



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28 *Can speak to observations at the incident.*



1 **5 - EVIDENCE:**

2 No physical evidence was collected from the scene.

3  
4 I received a large volume of data which was provided to me from PG&E. I reviewed all  
5 the data and found no abnormalities or areas of concern with the data which showed a  
6 failure or incident that could have led to a fire at this location. The unused data has  
7 been saved and securely stored at CAL FIRE Santa Rosa Station / Prevention office,  
8 evidence storage locker located at 2210 West College Ave. Santa Rosa CA.

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1 **6 – CONDITION(S):**

2 Novato Fire District Weather Station Data:

3 Weather Station ID: 52014684

4 Location GPS: 38° 06'48" N -122° 32'59" W

5 Elevation 486' Feet above sea level

6

7 Weather Reading

8 Date: October 8, 2017

9 Time: 10:00 PM.

10 Temperature 71°F

11 Relative Humidity: 13 %

12 Wind Direction: North

13 Wind Speed Average: 12 MPH.

14 Wind Gust: 26 MPH

15 Dew Point: 18 °

16 7.3 miles southwest of the GOA of the fire.

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1 **7 – VEHICLE(S)/EQUIPMENT:**

2 Three sets of electrical conductors on the north side of Highway 37, running east to  
3 west, parallel to Highway 37, located west of Arnold Drive and east of Lakeville  
4 Highway.

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1 **8 - PROPERTY:**

2 Physical Location:

3 7701 Lakeville Highway

4 Petaluma, CA 94954

5 Sonoma County

6 APN # 068-150-035

7 GPS: 38 8.837' W -122 24.496' N

8 Elevation: 103' Feet (at GOA)

9

10 The property of 7701 Lakeville Highway, Petaluma, CA. 94954 is located on the north  
11 side of state highway 37, west of Arnold Drive, east of Lakeville Highway in the county  
12 of Sonoma. The property's primary use is open space / cattle grazing land. The  
13 topography of the property consists of rolling hills and marsh land. The southern portion  
14 of the property consists of short grass and is heavily grazed by cattle. The majority of  
15 the larger vegetation (brush and small trees) is limited to the seasonal waterways  
16 located on the property. There are no permanent buildings on the property. Two  
17 commercial billboards are located on the southern portion of the property along Hwy 37.  
18 Three Pacific Gas and Electric powerlines run west to east through the middle of the  
19 property paralleling Hwy 37.

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1 **9 - NARRATIVE:**

2 On October 8, 2017, a vegetation fire occurred in the area of State Highway 37 and  
3 Lakeville Highway in the county of Sonoma. The fire was first reported the morning of  
4 October 9, 2017 at 1:53 AM to Redwood Emergency Dispatch Communications Center  
5 (REDCOM).

6  
7 I was told by CAL FIRE, Assistant Chief [REDACTED] that CAL FIRE, Fire  
8 Captain, [REDACTED] who was originally assigned to the investigation, had  
9 identified a possible general origin area (GOA) along Highway 37 bellow a set of PG&E  
10 powerlines. [REDACTED] hypothesis was proved to be incorrect with the discovery of  
11 cellular phone video and photographs provided to us from a passerby witness [REDACTED]  
12 [REDACTED] video showed the fire spreading in a westerly  
13 direction north of where [REDACTED] located his GOA.

14  
15 On October 23, 2017 at approximately 8:00 AM, I responded in uniform in my marked  
16 department issued vehicle to the address of 7701 Lakeville Highway. I met with  
17 CALFIRE Battalion Chiefs [REDACTED] Fire Captains [REDACTED]  
18 [REDACTED] and [REDACTED] at the access gate across from the address of 2100  
19 Highway 37. From the access gate, I could see a vegetation fire had burned an area  
20 approximately 1500+ acres in size with a majority of the fire burning on the north side of  
21 Highway 37, just east of Lakeville Highway. From the macro burn indicators and being  
22 aware of the weather patterns at the time of the fire on October 8, 2017 I could see the  
23 fire appeared to have had originated east of our location near the Sonoma Raceway  
24 property.

25  
26 The group and I began driving east on an access road under two sets of high voltage  
27 powerlines. Both sets of powerlines ran parallel with Highway 37, east to west. The  
28 burned area appeared to have been used recently for cattle grazing and consisted of  
29 short stubble dried grass. Near the access gate I saw an area which appeared to have  
30 been used regularly for the daily feeding of the cattle, due to the buildup of leftover  
31 cattle feed.

1 We continued east on the access road looking for fire spread indicators. The group and  
2 I stopped at a section of the road under the powerlines and began to identify lateral and  
3 advancing fire spread indicators. This location was the approximate location of the  
4 advancing fire in the [REDACTED] video and photographs. The location was where a  
5 drainage and the two sets of powerlines intersected, north of Highway 37.

6  
7 We began looking for fire spread indicators from Highway 37, north towards the  
8 paralleling access road. We found advancing fire spread indicators along the east side  
9 of the above-mentioned drainage on a spur ridge. On either side of the spur ridge we  
10 found backing and lateral fire spread indicators. Many of the backing indicators were  
11 located on the east slope of the spur ridge. We continued to follow the advancing fire  
12 spread indicators north up the main slope on the spur ridge to where it intersected the  
13 two sets of powerlines at the access road. This is where I established the GOA.

14  
15 From the location of the access road and two sets of powerlines we began to find lateral  
16 and backing fire spread indicators to the east and advancing fire spread indicators to  
17 the west. The group and I began to visually inspect the powerlines and power poles for  
18 damage. I could see both sets of powerlines consisted of six conductors in each set.  
19 The southernmost set of powerlines appeared to be a smaller size wire than the  
20 northern set. The southern set of powerlines appeared to be a brown or darker oxidized  
21 color. The towers also appeared to be older by the level of weathering and oxidation  
22 compared to the northern set of powerlines. The southern set of powerlines appeared to  
23 be smaller than the northern set.

24  
25 The northern set of powerlines appeared to be a larger size wire than the southern set  
26 of powerlines, they were also a gray or galvanized color compared to the southern set  
27 of powerlines. The towers were larger and appeared to be newer than the southern set  
28 of powerlines. On the northern set of powerlines, on the tower just west of our location, I  
29 could see barbed fence wire hanging from one of the ladder rungs. It appeared a bird  
30 was attempting to construct a nest with this material. The material was located too high  
31 on the tower to be thrown and was too heavy to be blown by the wind to end up there.

1  
2 On October 23, 2017 Electrical Engineer [REDACTED] visited our site [REDACTED] began  
3 visually inspecting both sets of powerlines, starting from the access gate working east to  
4 our location. On the northern set of power lines, [REDACTED] found and showed me a single  
5 powerline with a broken strand of conductor (See photograph IMG\_0941.JPG). The  
6 broken strand was only visible with a set of binoculars. After [REDACTED] showed me the  
7 location of the conductor, I saw one single strand of conductor pointing perpendicular to  
8 the direction of the main conductor.

9  
10 The broken strand did not appear to have any arc or burn marks on it, the conductor  
11 was gray in color. Additionally, the location of the broken strand of conductor was not  
12 located near or up wind of our GOA. I ruled out the broken strand of conductor as a  
13 cause for the fire and marked it on the ground with flagging. The GPS coordinates for  
14 the location are as followed 38,8'45.078" -122, 27' 39.144".

15  
16 I continued to evaluate the GOA where the drainage and the two sets of powerlines  
17 intersected. I was unable to locate abnormalities or damage to the above powerlines  
18 with our available equipment, which is not to say it did not exist. Several factors  
19 hampered our abilities to properly visually inspect the powerlines. One of which was the  
20 height of the powerlines versus the size of the object we were looking for. The second  
21 was we were only able to see a partial portion of the bottom side and not the whole 360-  
22 degree view of the powerline itself. The third issue was the view of the powerline versus  
23 the relation to the sun which casted shadows on said powerlines making it extremally  
24 difficult to properly inspect the powerlines. We inspected the portions of the powerlines  
25 to the best of our abilities without locating any noticeable abnormalities or damage.

26  
27 After attempting to visually inspect the powerlines, I returned and inspected the GOA. I  
28 found protection type advancing, backing and lateral fire pattern indicators. I narrowed  
29 the GOA down to a twenty by thirty-foot area. Within this area, I found a portion of  
30 unburned grass, consistent with a low intensity burning fire. This area of interest was  
31 approximately a twelve foot in diameter circle. The area of interest would have been

1 downwind from the southernmost set of powerlines during the night of October 8, 2017.

2 The GPS coordinate location is 38, 8'50.376" -122 27' 29.268"

3  
4 On October 22, 2017 I received information that an individual by the name of [REDACTED]  
5 [REDACTED] an off duty fire fighter from Sonoma Valley Fire Authority, several  
6 cellular phone pictures and videos of the fire on October 8, 2017 (See attached video). I  
7 contacted [REDACTED] and he told me the following in summary. [REDACTED] told  
8 me he was returning home from San Francisco Airport on Highway 37 when he saw the  
9 fire.

10  
11 [REDACTED] told me he was driving home with his wife when they saw the fire after  
12 passing the address at 2100 Highway 37. [REDACTED] told me he thought the fire  
13 was ten to fifteen acres in size spreading to the west. [REDACTED] told me he didn't  
14 see any fire engines or emergency vehicles when he drove by on Highway 37.  
15 I asked [REDACTED] to come out the fire location the next day.

16  
17 When [REDACTED] arrived, I asked him to drive me eastbound on Highway 37 and  
18 walk me through the events of that night. I told [REDACTED] to pull over to the center  
19 divide of Highway 37 when he thought he was in the same location where he took the  
20 pictures and videos of the fire. [REDACTED] agreed and proceeded. When  
21 [REDACTED] pulled off the highway he pointed to the location of where I had located  
22 the GOA. I asked [REDACTED] if he remember any reference points [REDACTED]  
23 said "yes" he recalled what he thought was small bushes on the southeast side of the  
24 fire near the drainage. [REDACTED] said he realized they were actually small trees in  
25 the drainage to the southeast side of the fire. I asked [REDACTED] if he had seen  
26 any flashes of light or arcing prior to or while seeing the fire [REDACTED] said he had  
27 not.

28  
29 I was able to narrow down and confirm [REDACTED] location on Highway 37 via the  
30 cellular video he recorded. In the video, a street sign passes through the screen in the  
31 video from right to left, between [REDACTED] and the fire. I was able locate the street  
LE80 (Rev. 7/2011)

1 sign on center divide on Highway 37. The location of the sign confirms  
2 [REDACTED] point of view while driving on Highway 37. (See attached photograph  
3 of screen shot of video)

4  
5 During the investigation, Lakeville Volunteer Fire Chief [REDACTED] drove out to our  
6 location and I interviewed him. [REDACTED] told me the following in summary. [REDACTED] told me  
7 when he first arrived at the fire he was driving east bound on Highway 37 and had to  
8 drive past the fire to turn around to make access to the fire. While he was passing the  
9 fire on the highway [REDACTED] told me the fire was burning from the location of where the  
10 two powerlines and the drainage intersected. [REDACTED] told me the fire had not spread to  
11 the east side of the spur ridge where he remembered seeing several small trees. I  
12 asked [REDACTED] how he knew for sure this was the correct area [REDACTED] told me he  
13 remembered the location because it was the only area where there were trees along the  
14 drainage.

15  
16 [REDACTED] told me the fire was advancing to the west with a strong north wind. [REDACTED]  
17 estimated the fire was 20 acres in size and under the two sets of powerlines when he  
18 saw it. [REDACTED] told me after he turned around Highway 37 he returned to the fire in the  
19 west bound lane and made access to the fire via the gate on the north side of highway  
20 37 at the address of 2100 Highway 37.

21  
22 [REDACTED] told me after he made access, the fire was spreading towards the location in the  
23 field where the cattle usually feed. (See photograph IMG\_8556.JPG) [REDACTED] told me  
24 when the fire advanced to the discarded cattle feed it reduced in speed and intensity.  
25 [REDACTED] told me the fire began to spread to the northwest up a small hill. Near the feeding  
26 area, it I began to build speed again and proceed to the northwest towards Lakeville  
27 Highway.

28  
29 [REDACTED] told me after the fire continued to the north and over the hill, the fire jumped  
30 Highway 37 on the southeast end of the property. The fire burned the field south of  
31 Highway 37. During this time, the fire also began advancing to the northeast towards [REDACTED]

1 Sonoma Raceway and Cougar Mountain. I asked [REDACTED] if he had seen any of the  
2 powerlines arc during the fire and [REDACTED] said he hadn't .

3  
4 I analyzed [REDACTED] GOA location (See photograph IMG\_0985.JPG). With the  
5 information provided to me from [REDACTED] I could understand how [REDACTED] came to his  
6 conclusion. I could see advancing, lateral, and backing indicators within his GOA which  
7 would have lead him to the conclusion that this location could have been the possible  
8 GOA under the powerlines. [REDACTED] without having [REDACTED] information, would not  
9 have known the fire was spreading in erratic multi directional runs. I suspect what  
10 [REDACTED] located was a spot fire which had established itself ahead of the fire during  
11 one of the erratic runs.

### 12 13 **Fire cause exclusion**

14 I excluded the following causes for the fire at Highway 37 on October 8, 2017 except for  
15 electrical.

16 *Lightning*, I excluded lightning as a cause for the fire. I did not see any evidence of a  
17 lightning strike which could have occurred in the area. I inspected the surrounding  
18 vegetation and structures and found no evidence of a lightning strike. Witnesses in the  
19 area prior did not see lightning or hear thunder prior to the fire. I researched recorded  
20 weather data from National Interagency Fire Center (NIFC) and found no recorded  
21 lightning strike for this area between the dates of September 24, 2017 and October 8,  
22 2017. (See attachment 2 BLM Lightning map)

23  
24 *Campfires*, I excluded campfires as a cause for the fire. I inspected the area  
25 surrounding the GOA. I did not see a campfire or evidence which would lead me to  
26 believe a campfire was built in the area of the GOA or on the property. Campfires are  
27 not allowed by the Sonoma Open Space Agency on the property.

28  
29 *Fireworks*, I excluded fireworks as a cause for the fire. I did not see evidence of  
30 fireworks in the location the GOA. I did not find any evidence of used fireworks near the  
31 GOA or on the property. The use of fireworks are not allowed by Sonoma Open Space  
LE80 (Rev. 7/2011)

1 Agency, CAL FIRE or Sonoma County Fire Department.

2

3 *Debris burning*, I excluded debris burning as a cause for the fire. I did not see any  
4 recent remains of debris burning piles in the GOA or on the property. I did not see any  
5 prepared unburned burn piles in the GOA or on the property. Sonoma County Open  
6 Space Agency did not approve or conduct any debris burning on the property.

7

8 *Vehicle*, I excluded vehicle use as a cause for the fire. I did not see evidence of vehicle  
9 use in the area or off the powerline access dirt road near the GOA. The location of GOA  
10 would not have been a typical location to experience a vehicle malfunction which would  
11 have resulted in a vegetation fire. The location of the GOA was not near the powerline  
12 access dirt road. This location was a powerline access road not used by the public and  
13 seldom used by employees. Do to the time of day of the fire it would not be common or  
14 typical for anyone to be driving in the area. I did not see vehicle tracks or other markings  
15 typical to agriculture machinery left in the area of the GOA. Due to the significant  
16 distance of over 600 feet from Highway 37, I eliminated vehicle use on Highway 37 as a  
17 cause.

18

19 *Cigarettes*, I excluded smoking as a cause for the fire. I did not see cigarettes, cigarette  
20 filters or remains of either in the area of the GOA. The weather conditions recorded at  
21 the time of the fire did support the possibility of cigarettes as an ignition source but, due  
22 to the low intensity of the burn in the GOA, I believe we would have located the remains  
23 of a cigarette or some other type smoking device within the GOA. Additionally, due to  
24 the time of day and the fact the property was closed to the public, the possibility of  
25 someone accidentally starting a fire with a cigarette is very limited. The distance from  
26 the GOA to Highway 37 is approximately 600 feet.

27

28 *Arson*, I excluded arson as a cause for the fire. I did not see evidence of an arson  
29 device in the area of the GOA or the property. Due to the main entry gate being closed,  
30 the location on the property and high visibility of the GOA from highway 37, it would be  
31 very difficult for an individual to enter and exit the property without being seen.

1 property owners do not have any record or recollection of any individuals who would be  
2 motivated or have made statements, current or in the past to commit arson to the  
3 owner's land or property. The distance from the nearest point of entry to the field to the  
4 GOA is approximately a half mile.

5  
6 *Children playing with fire*, I excluded children playing with fire as a cause for the fire. I  
7 saw no evidence of forts or toys near the area of the GOA. The location of the GOA was  
8 barren. The location of the GOA did not have any landmarks or geographical features  
9 which would had attracted children. I inspected adjacent properties and found no  
10 evidence of children. Due to the time of day of the fire starting, I concluded that it was  
11 highly unlikely a child or children were in the area of the GOA. The nearest child lives a  
12 significant distance away. The nearest residential home is located over one mile from  
13 the GOA.

14  
15 *Equipment use*, I excluded equipment use as a cause of the fire. I did not see any  
16 evidence of recent equipment use in the area of the GOA. [REDACTED] and  
17 [REDACTED] told me during our interviews they had not seen, heard or instructed any  
18 employees or persons operating heavy equipment in this area prior to the fire. I did not  
19 see signs of recent "hot" work, agricultural or ranch work in the GOA. To my knowledge,  
20 the only equipment used on the property was a flatbed pickup driving in the area west of  
21 the GOA, when [REDACTED] or his employees feed their cattle the day of October 8,  
22 2017.

#### 23 24 **Opinion and conclusion**

25 I located an area which I identified as the (GOA). The area of the GOA was supported  
26 and identified by advancing, lateral, and backing fire spread indicators found at the  
27 scene. The GOA showed significantly lighter damage from fire than the surrounding  
28 burned area. The geographic location of the GOA was south / southwest from the  
29 powerlines.

1 The location of the GOA would have been in line with the powerlines, wind, and the fire  
2 seen in the [redacted] photos and video after the initial start of the fire. I believe  
3 due to the characteristics of this fuel model (grass) no one would have seen the heel of  
4 the fire at night, in person or recorded on a camera. Per the [redacted]  
5 photographs only the advancing head of the fire and a small diminishing edge of the  
6 southern left flank of the fire are visible. The heel of the fire cannot be seen in the  
7 photograph. Additionally, due to the low quality of the [redacted] video and  
8 photographs we were unable to precisely identify the location of the advancing head of  
9 the fire.

10

11 I do not see any other scientifically plausible explanation for the fire except for  
12 electrical. I have ruled out all other plausible causes for the fire. I cannot rule out  
13 electrical as a cause due to the inability to adequately inspect the powerlines.

14

15 I was unable to locate any direct physical evidence which links the cause for the fire to  
16 an electrical cause. I found a correlation between the geographic location of the GOA  
17 and the above located powerlines. The weather at the time of ignition would have  
18 supported the possibility two powerlines encountering each other (phase to phase)  
19 creating an electrical arc. The resulting electrical arc would have deposited hot burning  
20 or molten material on to the ground in a receptive fuel bed causing a fire.

21

22 A document which was provided to me from PG&E, a Supervisory Control and Data  
23 Acquisition (SCADA) Event Log, showed no faults or electrical power outage within the  
24 area during the time of the fire. [redacted]

25

26

27

28

29

30

31

[redacted signature]

Signature

3/22/2018

Date

[redacted name]

Fire Captain

**10 - ATTACHMENTS:**

- 1 - Marin County Fire Department Woodacre Dispatch Log
- 2 - BLM Lightning Map
- 3 - Novato Weather Station Readings
- 4 - Novato Weather Stations Info
- 5 - Photograph Catalog
- 6 - Sonoma County Parcel map for property
- 7 - LIDAR Data (from 2<sup>nd</sup> scan)
- 8 - REDCOM Dispatch Log
- 9 - CAL FIRE Dispatch Log
- 10 - LIDAR Data (from 1<sup>st</sup> scan)
- 11 - Cell phone photos
- 12 - DINS grid index
- 13 - DINS Parcel table
- 14 - CAL FIRE LE71 