

The Electrical Expert
Forensic Analysis & Expert Witness

10/5/2018

SENT VIA ELECTRONICALLY AND US MAIL

Ms. Charlotte F. Terkeurst
Program Manager, Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue 94102
San Francisco, Ca.

SUBJECT: CAUSATION CALIFORNIA WILDFIRES
RESPONSE TO YOUR EMAIL DATED 11/30/2018

Dear Ms. Terkeurst,

I am going to go on record and assume your title above represents some type of responsibility to have an ounce of concern to make decisions based on what is best for the safety of those who live in California. Your response passing the buck and pointing to the Cal Fire Experts is the same response I got in 2008, and from you in 2017 following the Napa fire(s) . Cal Fire in turns points to the CPUC that you have jurisdiction over the Utility designs. Both organizations refuse to take responsibility and place responsibility on the other organization, to prevent having to make a decision. ***(Pretty Sad)*** . If the PUC were a private company, you would most likely be charged with, at minimum, Gross Negligence possibly Arson and held criminally responsible because of your known knowledge, followed with intentional Neglect and failure to act; *when it is your 100% responsibility to govern and regulate utility overhead design standards via GENERAL ORDER 95.:*

CALIFORNIA GENERAL ORDER 95 STATES: the purpose of the rules are to formulate for the STATE OF CALIFORNIA, uniform requirements for overhead electrical line construction, the application of which will insure adequate service and secure safety to persons engaged in construction, maintenance, operator or use of overhead electrical lines AND TO THE PUBLIC IN GENERAL

The CPUC failure to regulate and take actions has caused a lot of people to get killed and lose everything they own on your watch. You have 1. full knowledge of utility design issues that cause fires in California, 2. Refused to take action to protect California's citizens 3. intentionally ignored Utility Design Issues learned by the CPUC and Cal Fire following 2007 Witch Creek Fire.

A simple exercise for the CPUC would have been to meet and generate new GO_95 standards and require all utilities to retrofit within a specific time frame. I find it hard to believe that since neither organization the CPUC or Cal Fire has in house expertise and to my knowledge no Utility Consulting Experts with a relay protection background, in lieu of accepting help to get educated, you prefer to look the other way out of ignorance. You now have refused multiple

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offers by me, to meet in the same room with Cal Fire and any expert or utility consultant you might have that could understand this to work together to solve this problem for California.

I have already proven to you and provided a you tube video to Watch "Ed Clark 2007 Witch Creek Fire" physically demonstrating how and why these fires are starting and you still look the other way. The design in the You tube video is throughout the entire PG&E Northern California territory and you don't seem to care that it starts and spreads wild fires and surely do not understand the urgency.

The causes of ignition and the reasons some of these fires spread so fast have been known by you and others in the CPUC and Cal fire since I investigated and provided both clear, undeniable documentation and showed each organization personally the locations the Witch Creek Fire started and why it spread so fast following the 2007 Witch Creek Fire.

The following Exhibits are examples of what you, the CPUC AND CAL FIRE know and to my knowledge have INTENTIONALLY DIREGARDED:

Exhibit "A" Picture of Where the Witch Creek Fire started. Provided to CPUC in 2008. Note the burn pattern leaving a down guy anchor on transmission line TL 637

Exhibit "B": 4-pictures provided to the CPUC and Cal Fire in 2008 in addition to showing both organizations the locations in person. The pictures depict:

- a. Two down guys attached at the same point on the pole
- b. The cause of that design shows arcing at the connection point and dry grass in the same location.
- c. The Lab Reports provided to both the CPUC and Cal Fire in 2008 were performed by an independent party verifying the arcing is caused by electricity.
- d. The black marks inside the yellow covers is carbon residue caused by electrical arcing and the source of the sample taken to a third party lab for testing.

Exhibit "C" SDG&E Letter dated 3/28/2008 responding to questions I provided Mr. Antable of CPUC in LA to propound on SDG&E.. *Note the following:*

#2 Question: During CPSD's Inspection (inspection with me) CPSD found that ground rods were installed near poles or near anchors for the down guy wire, but these were not connected to the anchor guys

Answer to #2. On one hand the answer States "SDG&E's method for grounding down guys consist of installing a ground rod connected by means of an appropriate conductor to the down guy to ensure compliance with GO 95. The anchor rods are wrapped to prevent corrosion, which prevents the anchor rod from securely grounding the down guy..."

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Exhibit "D": Is a picture of the bare anchor rods and provided to the PUC and showed during inspection. The anchor rod exists in multiple locations but does not have attachment to ground guy wire to effectively ground as required by their own design standard provided to CPUC in 2008 that SDG&E issued in 1999.. It appears that the intent was to ground, and after installing the ground rod, know body came back to add he remainder of the kit. Thus allowing 2003 paradise, Cedar and 2007 Witch Creek fire. PG&E territory has nothing to ground the down guy properly

Exhibit "E": Is the SDG&E Standard originally issued 8/1/1999 that shows proper installation of how to connect and shunt the connection point to prevent arcing, thus properly grounding the down guy wire.

NOTE that this SDG&E standard was developed before the 2003 Paradise, 2003 Cedar fires and the 2007 Witch Creek fires. Unfortunately, was not properly utilized on the 2003 Paradise and Cedar and 2007 Witch creek fire locations on their down guy attachments, thus starting fires. . I showed the CPUC and Cal Fires pictures and in person how and why these fires started and neither organization published the information in their reports made public.

Exhibit "F": CRITICAL AND IMPORTANT!!!!

Is a picture of another SDG&E location I took showing the proper Installation to ground a guy wire to prevent arcing at ground level to be consistent with the standard.

PICTURE 1: Shows the pigtail from down guy left long enough to attach to a separate ground rod.

Picture 2: Shows a close up of connection to separated ground rod consistent with SDG&E standard issued 8/1/1999

Picture 3. Picture I provided CPUC in 2008. Note ground rod next to down guy anchor without any connection from down guy as required by standard issued in 1999. The failure to make this connection is what started the 2003 Cedar and Paradise fires an the 2007 Witch Creek Fire in San Diego..

NOTE: SDG&E made an attempt and drove a ground rod and just did not finish the job resulting in the 2003 cedar, paradise and 2007 Witch Creek Fire. THE ENTIRE PG&E SYSTEM IS WITHOUT GROUNDING ON DOWN GUYS. Hence the start and spreading of the Northern California Fires dangerous conditions still exist today.

Exhibit "G"; is a copy of the SCE standard I provided the CPUC and Cal Fires separating the connection point on the pole by 12" which is another method to



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prevent arcing. However, I would suggest the SDG&E standard for a variety of reasons to be incorporated

Exhibit "H": Is an aerial picture from my investigating the 2017 Northern California Fires I provided you, showing a fire originating and starting at a down guy anchor just like in San Diego 2007 Witch Creek Fire

EXHIBIT "I" is another photo I showed you where fire originated on the Tubbs fire caused by the same down guy design on PG&E system.

EXHIBIT "J": Is the letter I sent you and others explaining my findings of the 2017 fires following my several phone conversations with you.

2018 fires , on the news SCE reported a Transmission problem that followed with a now the largest fire in California History, the Camp fire. I clearly explained to you already that Transmission faults can cause problems, ie fires, many miles away from the utility fault location resulting from transient voltage spikes that exceeds the BIL rating of pole top transformers and other equipment causing them to fail and start a fire. These are serious utility problems and concerns in addition to the down guy design shown above. ***This is exactly the same scenario as exhibit "C" above where SDG&E identified Transmission faults just prior to the Witch Creek and Rice fires.***

I suggest you do a survey and reach out to Utility Distribution Centers and find out on average how many distribution transformers fail during lightening storms or major utility Sub transmission or Transmission faults. Extend the distance of failure out 500 miles especially on Transmission faults. When you discover that it is not un common for a distribution yard to not have enough transformer in stock to support all of the failures, "PLEASE TAKE THE TIME TO ASK ANMD LEARN WHY THEY FAIL TO BEGIN WITH"! The failures are caused by Transient Voltage spikes exceeding the designed insulation level of the equipment causing failure. I personally in my tenure as a SCE Transmission/Substation Engineer have physically seen a stock of over 50-transformers disappear following one system disturbance.

I have demonstrated and documented clearly how so many fires started at the same time in the 2017 Northern California fires spreading over 300 miles apart. It is impossible for you to blame it on trees. There is no way that trees in eight different locations spreading over 300 miles apart started a fire at exactly the same time.

Now, for the record I must share that I declined supporting SDCAN (San Diego Consumer Action Network) as a retained expert on these issues in their opposition to the SDG&E rate case application 15-09-010 because the proposed retainer agreement asked me to change my testimony and cover for the CPUC and Cal-Fire's taking a position SDG&E was concealing information from you. Consequently, SDCAN attempted to use my name and work product without retaining me or my permission. . SDG&E won their motion to have testimony stricken from the record based on hearsay.

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Exhibit "K": is a copy of the proposed retainer for the record. The retainer suggest my testimony that SDG&E was intentionally concealing from Cal Fire, the CPUC, and CPSD the origin and causation evidence related to the 2007 Witch Creek Fire. See Paragraph 2. I could not be forced to lie and create a story against SDG&E, despite my efforts to publicly identify these problems since the PUC refuses to properly investigate or take responsibility to ensure the safety of the public. The exhibits above show SDG&E provided you the CPUC, Cal Fire, and the CPSD their Standards when asked for them. You had pictures from me showing you exactly the problem.; ***The CPUC had all the information it needed to find that the standard SDG&E had was not utilized on TL 637 therefore fires started.*** You would have then concluded the same issue started the 2003 Paradise and Cedar Fires where a lost hunter was falsely prosecuted on circumstantial evidence. *It appears that both you, the CPUC and Cal Fire did not have the internal expertise or outside consultants to comprehend what SDG&E provided you as evidence. YOU SURELY WOULD NOT ACCEPT MY HELP.*

Conclusion,

All of the Utilities in California have the right to defend themselves from liability in court even when the mistakes that caused the damage are their own. It is the California Public utilities Commission who regulates the Utilities in California. Typically, when the CPUC does not have the internal expertise, you are forced to get advice from the utility. The fact is in all of these fire cases, the PUC and Cal Fire do not have the expertise or have the retained experts with a utility operating, Construction, Maintenance and Relay protection back ground in order to comprehend the information the utilities are providing you ***or understand the concepts I have presented.***

It is hard for me to comprehend the magnitude of damage caused by a utility not complying with their own construction standard., especially when one understands that the 2003 Paradise, Cedar and 2007 Witch Creek fire ***would never have started if SDG&E followed*** their own design standard. What is worse, the CPUC did nothing with the information learned from 2007 Witch Creek Fire hence in my OPINION the CPUC and its employees who made the decisions to conceal are directly responsible for a large part of 2017 and 2018 fires.

Once I showed Mr. Antable (who is not a utility Engineer) of the CPUC during an inspection in 2008, the direct causation and location of where the 2007 Witch Creek Fire started, those above him in the CPUC, either through ignorance or intentional deceit, chose to cover it up, not disclose to the public and refused my help going forward. ***The CPUC and Cal Fire since 2008 have refused several attempts by me to have everyone in the same room to discuss. You personally refused my help in 2017 and now 2018.***

I am to the point of not understanding your motivation to intentionally not want to protect the citizens of California, I have honestly never experience someone's ego so big despite their political affiliation that they refuse help when it will save people's lives. I do not care if your attitude on this issue is politically motivated, or just plain ignorance or incompetence, you obviously do not understand the significance and the importance of what has been presented to you and out of safety for everyone around you, I hope you will consider seeking appropriate guidance, possibly from the State Attorney General for legal advice or a legitimate utility



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engineer with the appropriate background who understands basic utility engineering as it pertains to grounding systems.

Your email again demonstrates you distancing yourself from the responsibility by expecting and pointing your blame at Cal Fire experts to figure it out and therefor knowingly putting and keeping everyone's life and possessions at risk. You are exposing all of us who are tax payers to potentially huge exposure if anyone ever figures out how to hold California liable for looking the other way and causing a lot of deaths and destruction resulting from fires you should have prevented.

Your letter passes the buck for Cal Fire Experts to figure it out just like the CPUC did following 2007 Witch Creek Fire. **The California Wild Fire problem is not a mystery.** The CPUC knows and understands what is causing the Fires and what aids is spreading them so fast. **It is a Utility design problem, therefore a CPUC problem to fix and regulate going forward.**

I even went to the trouble of creating a you tube video to show how these fires start and you still look the other way and will not accept help. I can only hope that at some point those of you who are not doing your job and resolving these issues cannot hide behind being a government employee and will ultimately be held accountable for intentionally causing more fires to start by doing nothing.

Please when you get a chance, take a look at how many people have died, lost their homes, businesses, loved ones and everything they own since I provided the CPUC and Cal Fire this information in 2008 vs how many would have been saved had the CPUC and Cal Fire been responsible government agencies.

SOLUTIONS

I am extremely hopeful we can start by setting aside all of the political conflicts by putting aside the blame game between the CPUC and Cal Fire and/or any feathers I have ruffled over the years trying to educate you. I realize each want to be able to blame the other, or me since neither organization has the utility experience to take the bull by the horns and make some decisions.

If our egos are so strong that we cannot set the conflicts aside, I hope you will take a walk through all the areas of devastation, talk to and explain to those who have lost Moms, Dads, sons, daughters, Grand Parents. Homes, businesses, livestock, pets and tell them who you are, *what your job title is*, that you know what is causing the fires but it is not your responsibility or your job.

The following solutions will get you on the right track moving forward.

A. GO-95 The overhead construction rules fall under the responsibility and regulation of the California Public Utilities Commission ie NOT CAL FIRE!

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The CPUC should immediately issue a couple new GO-95 standards to address the codes deficiencies in the areas I have pointed out. Item #1 below can be retrofitted literally in all utilities reasonably in 6-months as it is a very cheap fit

Item #2 below will take some time, it will be time consuming and expensive. The utilities (a meeting of the minds) might have a different idea to fix this particular problem with some type of pole top relays that would coordinate and clear internal pole top transformer faults out on the end of radial fed distribution line before the lines burn down. *I don't think so but worth pursuing..*

1. Down guy Design Problem: In - EXPENSIVE FIX

USE SDG&E STANDARD Exhibit "E" to properly ground all down guys where you have two down guys attached at the same point on a pole. Direct all utilities that have the down guy design attached at the same point on the pole, to implement this standard immediately. This is a simple fix, not very expensive. Just a lot of locations in PG&E territory. Install ground rod and jumper tied to pigtail of down guy. This jumper "SHUNTS" the connection where arcing occurs resulting from the presence of ground fault current, thereby prevents arcing, and eliminates starting fires with dry grass during Santa Ana wind season

2. Pole top distribution transformers.: a bit more complicated and a lot more expensive resolution

Transmission and Sub transmission faults cause transient voltage spikes to go out across utility lines for many miles. (Example Napa fires 300 miles). This transient wave especially on radial feeders hit an open point (end of the line) and reflect back and double in magnitude typically exceeding the BIL rating of the transformer causing it to fail. Each utility has software to model this. Most of these lines that are problematic out in the middle of the Forest, etc. are radial fed with #2 copper wire. The pole top transformer has high side fuses on the pole that are sized to protect the home. When the transformer fails internally, the fault current melts the #2 primary conductor before the fuses blow and the line falls to the ground starting fires. This is how so many fires start at the same time from one originating transmission fault. The lines falling give the appearance the fires were started from trees which is not the case. The fires start from the wires falling to the ground still energized.

The fix is expensive but necessary to prevent fires.

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Each utility needs to look at each line and look at the fault duty they deliver to all pole top transformers to determine how much fault current is delivered. compare the melting point of the #2 copper to the fuse to verify my statements. Consequently, you will find the fix will require a large program to re-conductor distribution lines and size the conductor to be large enough to carry the fault current long enough for the fuses to blow on the pole before the wire melts and falls to the ground energized starting fires.

This will be expensive and time consuming, however necessary, unless the utilities can come up with a better idea where end of the line, radial fed distribution feeders will clear a pole top transformer fault on the end of the line without burning the wire down.

Please note this is a problem for all utilities that should be evaluated and addressed to come up with a resolution, otherwise we must accept the fact that fires don't spread as fast as we think, there are multiple fires that start at the same exactly as I showed you in the 2017 northern California fires.

My goal is to determine you are not just sitting back reviewing mitigating measures and waiting for someone else (Cal-Fire) to make decision. My goal is to determine you are fixing the problems I have identified will all California utilities.

This topic of a new standard in GO-95 for both scenarios presented to you, should forwarded to the NESC for other states to understand.

Unfortunately, I don not have access or copies of PG&E construction standards to see if they already address this issue, and just failed to follow, or if it is just an oversight.

If you, and those around you in the CPUC continue to decline my multiple request and efforts to help on an issue so you get a handle on the cause and spreading of wild fires directly from utility designs, **GOD HELP US ALL! YOU** will be directly responsible for babies, moms, dads, sons and daughters losing their lives. I cannot be anymore clear and blunt of the serious nature of your failure to act in your capacity as a ***Program Manager, Electric Safety and Reliability Branch Safety and Enforcement Division, California Public Utilities Commission.***

EXHIBIT "L" is my CV for reference so the reader can see and/or verify my back ground and credentials.

I will apologize in advance for the tone of this letter as I am to the point there is absolutely no possible ethical reason, a reasonable mind could possible look the other way and not be compassionate to those who have suffered, and when given the knowledge you have been given, **REFUSE** to pull in the appropriate personnel to remedy these fire hazards for the future.

I have laid this out now for you multiple times as basic as I can to where I think a child could read this and understand the significance.

I need confirmation that you are just not looking at mitigating measures, but specifically you have obtained the appropriate consultants who understand this and action "**WILL**" be taken to remedy.

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If at any time, somebody reading this document, especially one of our elected officials, is compelled to at a minimum ask questions, get educated, or in any would like to help mitigate the destruction of Wild Fires in California, please feel free to contact me on my cell phone (714) 448-7145. The information above is basic electricity to a utility engineer with the proper back ground. You can find additional info on my website www.theelectricalexpert.com.

Sincerely,



Edward L. Clark Jr.

Cc: Jerry Brown, Gavin Newsome Diane Feinstein, Kamalia Harris, Mitch McConnell,
Nancy Pelosi, Paul Ryan, Xavier Becerra

CPUC COMMISSIONERS: Michael Picker, Carla Perman, Liane Randolph,
Clifford Rechtschaffen, Martha Guzman, Alice Stebbins

Cal-Fire: Ken Pimlot, Janet Darentson, Dennis Mathisen, Thom Porter

Exhibit "A"

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START OF Witch FIRE !!!!



The following questions the public should ask, once you realize these pictures show uncontested proof of burning, and arcing at ground level with flammable dry grass. The pictures are self explanatory and easy to understand. The pictures are supported with lab results from samples taken by two independent Arson investigators, Mr. Robert Reinhardt and Mr. Brad Phillipson, both certified fire investigators and former fire captains. Ed Clark had site visits showing members from the California Public Utilities Commissions and Cal fire where the pictures were taken and explained how the fires started!

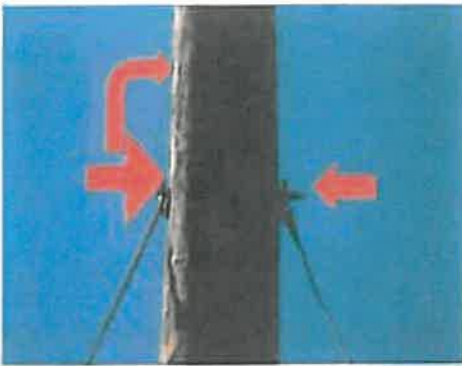
Exhibit “B”

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Down Guys Attached at the Same Point :
"WRONG"



**" Must have
12 inches
Vertical
Clearance or
use
Insulators"**



Dry Grass at
Point of
Arcing



Lab Reports show the following:
O.C.St.Fe.Zn.Al.Ca.Mg.K. i
Note: This particular sample was from the "CEDAR FIRE"
Lab results show high contents of Carbon from ARCING

Exhibit “C”



Gregory L. Wallam
Team Lead
Compliance Management
8810 Century Park Ct., CP610
San Diego, CA 92123
Tel: 619.594.3333
Fax: 619.594.0321
Mobile: 619.517.5721
gwallam@sempraenergy.com

March 28, 2008

Mr. Steve Intably
Utilities Engineer
California Public Utilities Commission
320 W. 4th Street
Los Angeles, CA 90013

Subject: Witch Fire

Dear Mr. Intably:

SDG&E is providing the following response to your e-mail request of March 13, 2008:

1. Please provide a list of all poles in SDG&E's service territory, supporting transmission lines, which have two down guy wires attached to the same bolt (i.e.: bolted together)?

SDG&E Response

This information is not maintained in SDG&E's records and will require a system-wide field inspection. The assessment process, if it ultimately needs to be performed, will not start until after the meeting with CPSPD to discuss the transmission down guy configuration.

2. During CPSPD's inspection, CPSPD found that ground rods were installed near poles, or near anchors for the down guy wire, but that these were not connected to the anchor's guy.
 - a. Please explain the reason for having the ground rods at these locations.
 - b. Please provide the installation date.

SDG&E Response

- A. SDG&E's construction method for grounding transmission down guys consists of installing a ground rod connected by means of an appropriate conductor to the down guy to ensure compliance with GO 85. The anchor rods are wrapped to prevent corrosion, which prevents the anchor rod from securely grounding the down guy.
- B. The ground rods were installed prior to the year 2000

March 28, 2008

3. Were there any faults on the SDG&E system within 12 hours prior to the fires? If yes, please provide CP&D with the location of the fault. ?

SDG&E Response

There were three faults on the SDG&E transmission system in the twelve hours prior to the start of the Witch Creek fire, all occurring on TL687 (Cresman Substation - Santa Ysabel Substation). The faults occurred at 0853, 1122, and 1223. Relay event reports from Santa Ysabel indicated calculated fault distances of approximately 2.75 miles from Santa Ysabel Substation for all three events. This information has previously been provided to CP&D.

4. Please provide the names of SDG&E's engineers that are responsible for the design of the down guy wire (including the engineers responsible for ensuring the protection of the down guy wire from induced or fault current)

SDG&E Response

Wen Hsiao is the engineer who worked on the latest version of the guy anchor standard.

5. CP&D would like to set up interviews with the engineers referenced in the previous question. Please provide dates when these engineers will be available for interviews.

SDG&E Response

SDG&E will make Mr. Hsiao available on a date and at a time acceptable to CP&D and SDG&E's legal counsel.

6. CP&D requests that SDG&E test the black dots on the guy markers of pole numbers Z416674, 416657, and Z21199 for any evidence of burns. In order to obtain access to these locations, please coordinate with CP&D and Cal Fire. CP&D requests the results and findings of the tests.

SDG&E Response

At the instruction of counsel, no testing will be requested of Cal Fire for pole Z416674 at this time. Destructive testing will require approval not only by Cal Fire, but by counsel for all parties to existing lawsuits, as well as additional interested parties of whom SDG&E is aware. Such testing will require a specific protocol, and possibly a court order authorizing the testing. Further, SDG&E is working with Cal Fire to establish a protocol for other work and testing to be performed at and in the area of pole Z416674. SDG&E will cause the other testing to be performed.

Sincerely,



Gregory L. Walters
Team lead - Compliance Management

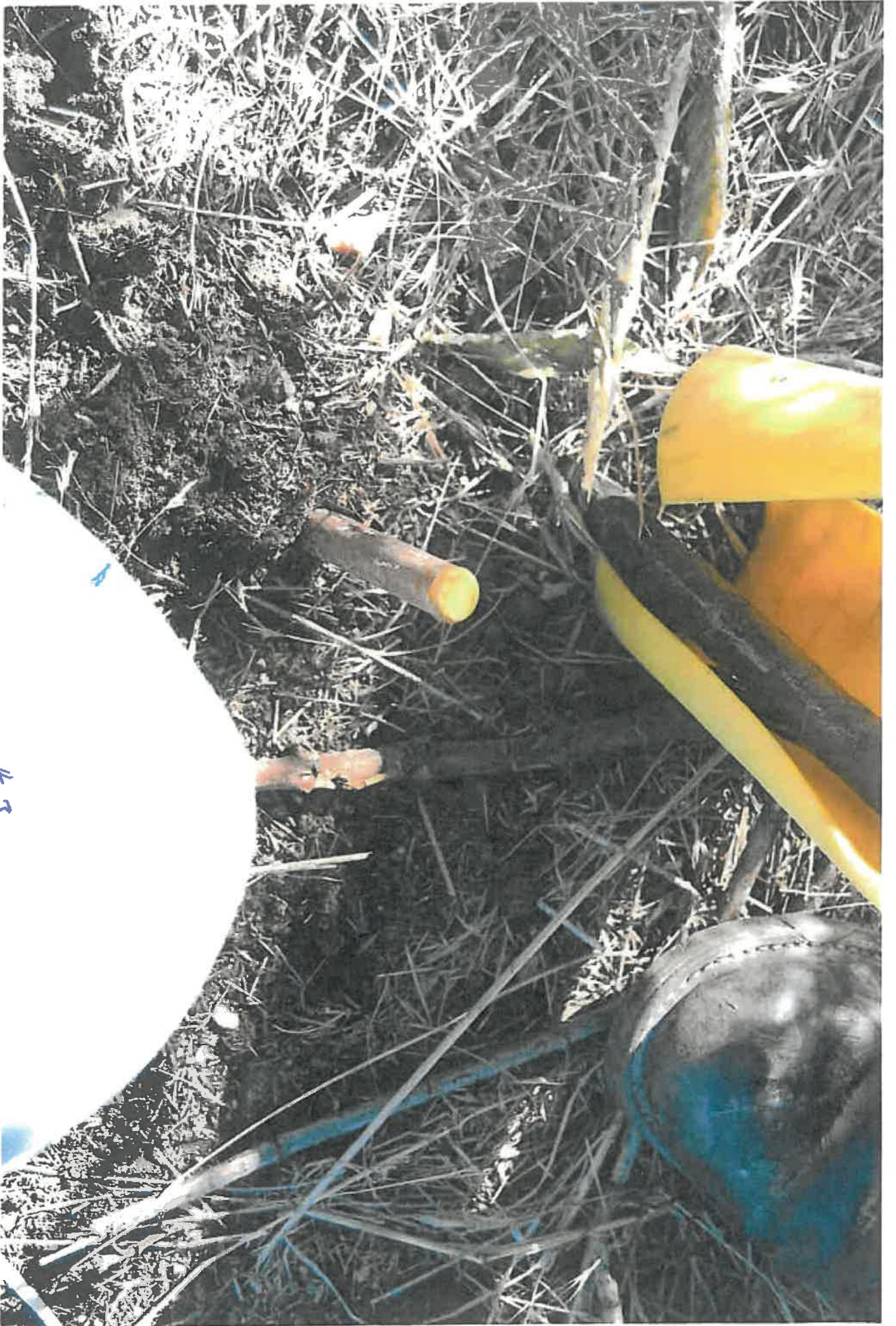
From: Intably, Mahmoud [MAI@cpuc.ca.gov]
Sent: Friday, June 13, 2008 11:55 AM
To: Walters, Gregory
Subject: Witch fire
Please provide us by June 18, 2008, with the following information:

1. Clearance between various phases at the point of contact
2. Which phases made contact with each other
3. Conductors specification (size, type, max. operating voltage)
4. Number of customers affected by this fire and for how long

Thanks

Steve Antabli, P.E.
Utilities Engineer
California Public Utilities Commission
Utilities Safety and Reliability Branch
320 West 4th Street, Suite 500
Los Angeles, CA 90013
213-576-7016 Office
mai@cpuc.ca.gov

Exhibit “D”



5

Exhibit “E”

Ball, Sarah

REDACTED

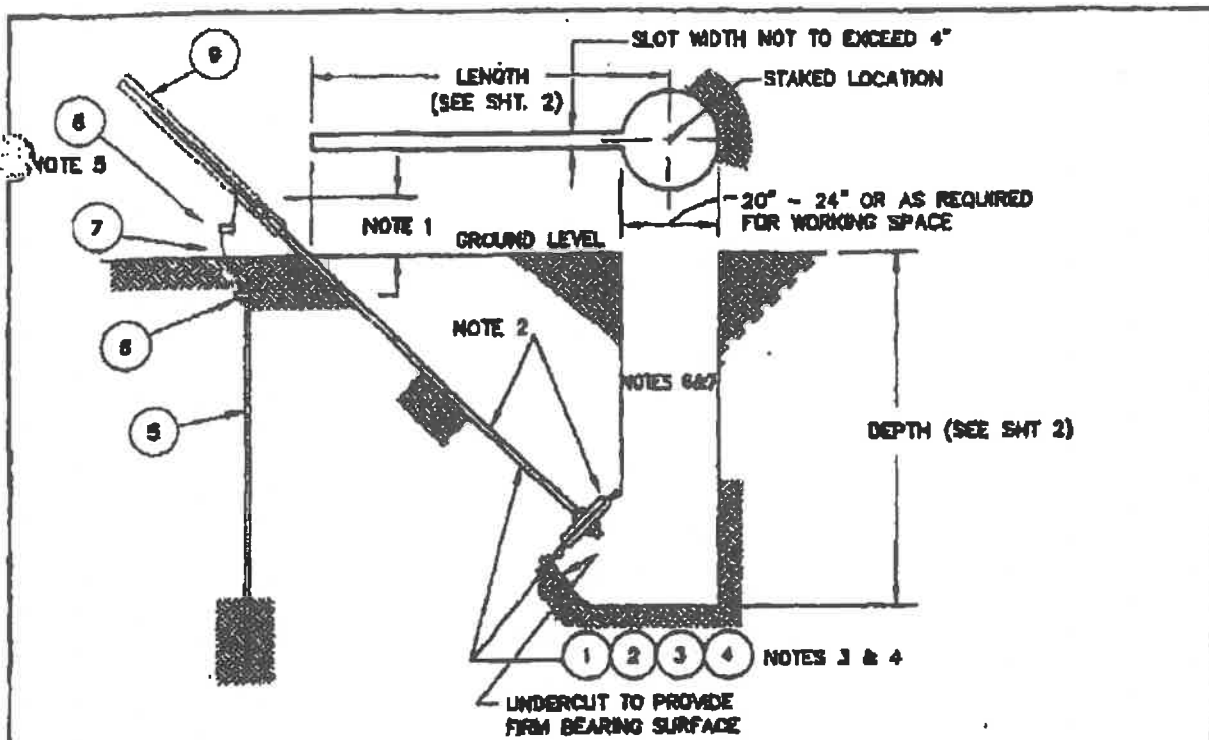
From: Walters, Gregory
Sent: Tuesday, March 04, 2008 12:12 PM
To: Stepanian, Raffy
Cc: Davis, C. Larry; Torre, William V.; Levin, Howard D.
Subject: SDG&E Transmission Guying Standard

Raffy,

Attached is SDG&E's Transmission Standard for grounding transmission down guys. Please note that Standard number 1 is the original standard which includes a ground wire and ground rod connected to the down guy. This standard has been in effect since 1983 (25 years). Before 1983, SDG&E's construction practice was to "securely ground" transmission down guys by means of the anchor rod which is in compliance with the requirements of General Order 96. Standards 1 and 2 depict SDG&E's current construction method of grounding transmission down guys using a ground rod that is connected by means of an appropriate conductor between the down guy and ground rod.

*Gregory I. Walters
Team Lead
Compliance Management
Electric & Transmission Distribution Planning
PIC-858.654.8396
Cell-619.517.8721*

3/5/2008



NOTES

1. IN AREAS WHICH HAVE DRIFTING SAND, EYE OF GROUND ROD SHALL BE INSTALLED 12" ABOVE GROUND LEVEL. ELSEWHERE 6" IS SUFFICIENT.
2. PROTECTED ANCHOR AND ANCHOR RODS ARE FURNISHED SEPARATELY BY STOREROOM. THEY WILL BE ISSUED AS A KIT TO BE ASSEMBLED AT THE JOB SITE.
3. ATTACH ANCHOR PLATE TO ROD WITH ONE NUT ABOVE AND ONE BELOW PLATE.
4. AFTER ASSEMBLY TYPE 1170 PRIMER AND PROTECTO WRAP TAPE ARE TO BE APPLIED TO THREADS, NUTS, AND ANY OTHER EXPOSED AREAS OF ANCHOR ASSEMBLY.
5. ON ALL NEW INSTALLATIONS AND WHENEVER POSSIBLE ON EXISTING GUYS, INSTALL CONNECTOR ON TAIL OF GUY WIRE, NOT ON TENSIONED WIRE.
6. BACKFILL PER TRANSMISSION ENGINEERING CONSTRUCTION SPECIFICATION.
7. WHEN INSTALLING ANCHOR, ONLY SOIL IN AUGERED HOLE AND TRENCH FOR ROD ARE TO BE DISTURBED - ALL OTHER SOIL TO BE VIRGIN SOIL. IF ANCHOR CANNOT BE INSTALLED IN THIS MANNER, OTHER ANCHORING METHODS SHALL BE USED AS DIRECTED BY TRANSMISSION ENGINEERING.

A	REVISED NOTE 5	WDF	DRB	WPH	9/9/99	C						
-	ORIGINAL ISSUE	FJP	GV	FJP	8/1/87	B						
REV	CHANGE	BY	CHKD	APPT	DATE	REV	CHANGE	BY	CHKD	APPT	DATE	

SDGE	TRANSMISSION ENGINEERING				SCALE: NONE			
	PROTECTED CROSSPLATE ANCHORS				DWG. NO.		SHT. NO.	
	20" & 24" INSTALLATION				15310		1 of 3	

15310A01

From: Walters, Gregory
Sent: Tuesday, March 18, 2008 3:20 PM
To: 'Intably, Mahmoud'
Cc: Davis, C. Larry
Subject: 3/13/2008 Data Request (Transmission Down Guys)
Steve, per our conversation this afternoon, please advise if SDG&E can delay our response to your 3/13/2008 Data Request.

From: Intably, Mahmoud [mailto:MAI@cpuc.ca.gov]
Sent: Thursday, March 13, 2008 12:43 PM
To: Walters, Gregory
Subject: Witch Fire

Greg,

1. Please provide a list of all poles in SDG&E's service territory, supporting transmission lines, which have two down guy wires attached to the same bolt (i.e.: bolted together).
2. During CPSPD's inspection, CPSPD found that ground rods were installed near poles, or near anchors for the down guy wire, but that these were not connected to the anchor's guy.
 - a. Please explain the reason for having the ground rods at these locations.
 - b. Please provide the installation date.
3. Were there any faults on the SDG&E system within 12 hours prior to the fires? If yes, please provide CPSPD with the location of the fault.
4. Please provide the names of SDG&E's engineers that are responsible for the design of the down guy wire (including the engineers responsible for ensuring the protection of the down guy wire from induced or fault current).
5. CPSPD would like to set up interviews with the engineers referenced in the previous question. Please provide dates when these engineers will be available for interviews.
6. CPSPD requests that SDG&E test the black dots on the guy markers of pole numbers Z416674, 416657, and Z21199 for any evidence of burns. In order to obtain access to these locations, please coordinate with CPSPD and Cal Fire. CPSPD requests the results and findings of the tests.

Please provide the above information as it becomes available but no later than March 24, 2008 for questions 1-5, and April 11, 2008 for question 6. Please identify the person who provides the responses and his/her phone number and e-mail address. Provide electronic responses, if possible.

*Gregory L. Walters
Team Lead
Compliance Management
Electric & Transmission Distribution Planning*

PH-858.654.8396
Cell-619.517.8721

Exhibit “F”

1#





109



#3

Exhibit "G"

Guying
GENERAL REQUIREMENTS

TO 201
***Revised 10/6/87**

Where the mechanical loads to be imposed upon the poles are greater than can be safely supported by the poles, additional strength shall be provided by the use of guys. This applies particularly to angles and deadends where the conductor stresses are sufficiently unbalanced to make guying necessary.

No guys shall be attached to trees or other private property, except in special cases. Permission to do so must be obtained in writing from the owner.

Guy wires shall be placed and maintained with clearances from conductors or other wires not less than those specified in Table 1 and 2, General Order 95.

Where required by the rules of G.O. 95, porcelain strain insulators of the interlocking type shall be used in all guys attached to poles.

All guys shall be attached to poles with special hardware designed for the purpose. Preformed guy grips will be used to make up guy heads and strain insulators. *Automatic guy grips are recommended for anchor end of guys.

When two or more guy wires are installed in close proximity to each other, the attachment of one guy shall not overlap that of another, but each shall be entirely independent of the other and at least 12 inches apart at the point of attachment to the pole.

Guys should be installed and adjusted before the conductors are strung so that the pole or crossarm will stand in its proper position when the entire unbalanced stress is taken by the guy.

Wherever possible down guy leads (distance from pole to eye of anchor rod) should be equal to or greater than the height of the guy attachment above ground. If it is impractical to install a satisfactory anchor guy at the deadend pole, the stress may be carried by means of a span guy to an adjacent pole which can be properly guyed.

Power-installed screw anchors (PISA) are the preferred type of anchor to be used in transmission construction.

Exhibit “H”

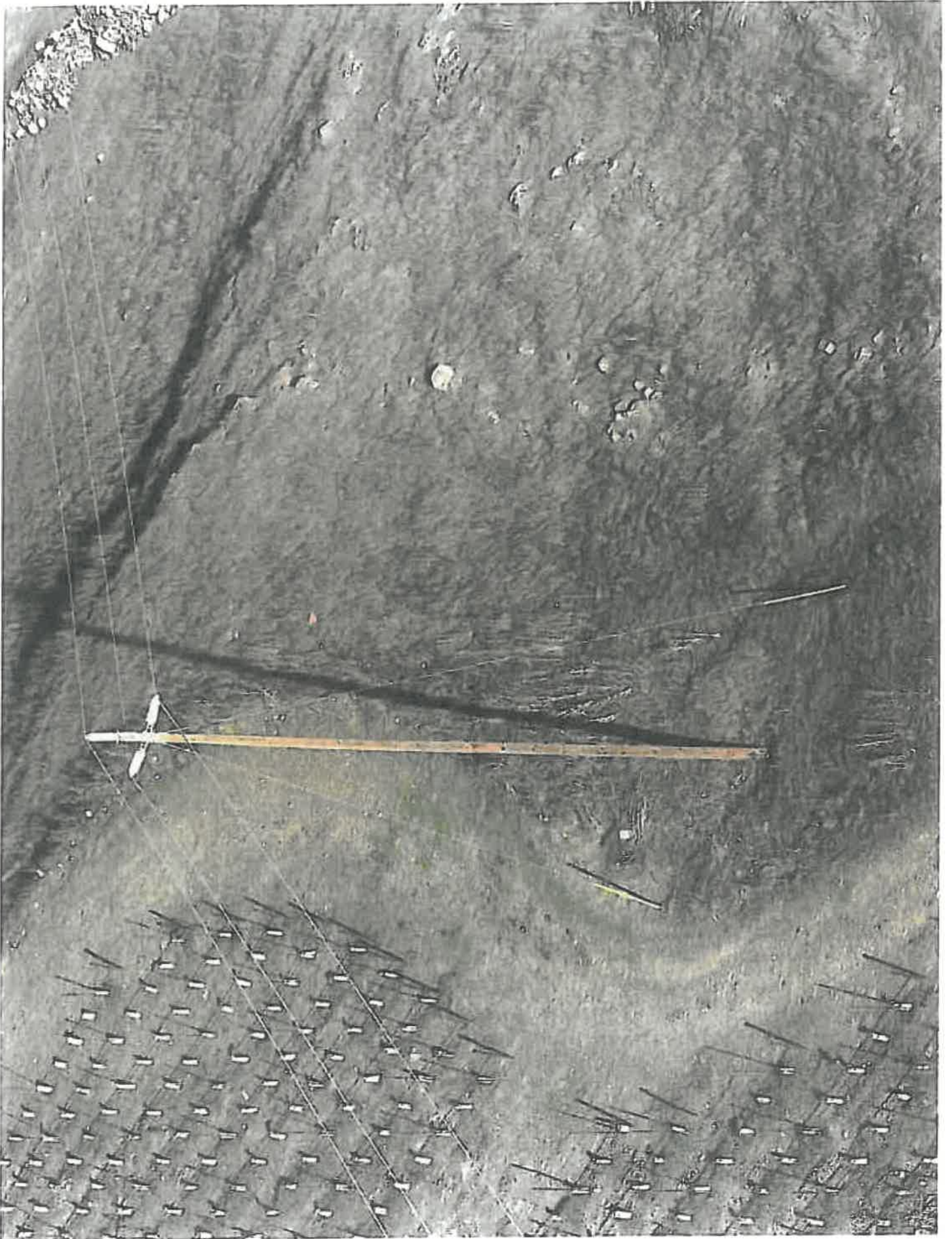


Exhibit "I"



Exhibit “J”

Northern California FIRES

By: Ed Clark
April 4, 2018

Messrs: Michael Picker, President CPUC
Carla Peterman, Commissioner CPUC
Liane Randolph, Commissioner CPUC
Martha Guzman Aceves, Commissioner CPUC
Clifford Rechteschaffen, Commissioner CPUC
Nicholas Stavropoulos, President and COO PG&E
Geisha Williams, CEO and President
Ken Pimlott, Cal Fire Director
Dennis Mathisen, Cal Fire State Fire Marshal

**SUBJECT: CHARLOTTE TERKUEURST CPUC PROGRAM MANAGER
RESPONSIBLE FOR INVESTIGATION 2017 NAPA WILD FIRES REFUSES TO
LEARN HOW SO FIRES STARTED SIMULTANEOUSLY IN NAPA VALLEY
IN 2017.**

INDUSTRY EXPERT REVEALS HOW SO MANY FIRES STARTED AT THE SAME TIME SPANNING 8-COUNTIES AND OVER 300 MILES APART IN THE 2017 NORTHERN CALIFORNIA WILDFIRES

The following report will layout the fundamental and basic outline identifying and explaining the source of the 2017 Wild fires in Northern California.

The question of why so many fires? How did they start? How come so many fires at the same time? and what Started the fires have gone unanswered by PG&E, the California Public Utilities Commission, Cal Fire and hundreds of investigators, calling these fires a mystery. There has not been any explanation of how so many fires can start at the same time up to 300 miles away from each other that have devastated the lives of so many.

My name is Ed Clark a former utility Transmission/Substation Engineer with an extensive 37-years of utility operations, maintenance and construction background with an understanding of the cause and effect of disturbances that happen on a utility grid. The root cause of how so many fires start at once is well known in the Utility world. It is just not that complicated, however, because of the liability it is rarely revealed until now.

The key to understanding the root cause of a large number of simultaneous fires in Northern California Fires is to first ask yourself some very basic questions: How can so many fires start at the same time? Is it likely that these fires can start with trees falling at the exact

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same time in eight different counties up to 300 miles apart? How do these fires spread so quickly in so many areas?

In my efforts to explain the big picture and get down to the root cause, I along with seasoned fire expert FROM Cal-Fire, visited 8-counties and 13- fires including Tubbs, Atlas, Nuns, Cherokee, Sulphur, Redwood Potter, Partrick, Adobe, Norrbom, Banger, La Porte and Cascade. These fires ranged as far as 300 miles apart.

I should note in my past experience working as a Transmission/Substation Division Engineer for Southern California Edison, one of my primary responsibilities following a storm or major interruption or event that involved multiple locations was to understand and determine how or if each separate event was somehow linked to each other.

How do I do that? First, we look at the geographical location of each event and understand what is the common link between all of them.

The first point of interest is to recognize the Atlas, Tubbs, Nuns, Partrick, Cherokee, Sulfur, Redwood, Banger, Adobe appear to have "ALL" started in the evening of October 8, 2017 in and around the same time. The times vary slightly because they are based on when people called in to report a fire. Consequently, from the point of ignition to the time somebody sensed the fire and called in explains a small deviation in the times reported for the various fires..

The common link to each of these fires that could explain simultaneous ignition in so many locations are PG&E Electric lines and the Earth, both of which are common to each fire.

Ironically, each fire location had the same multiple reports, flickering lights, wire down and transformer failures, fallen trees, all discovered and found from social media, the internet and 911 phone logs.

Although most locations had a lot of trees, it just wouldn't make sense to the normal mind to think you had trees fall at the exact same time in so many locations several hundred miles apart covering thirteen separate fires.

Each of the fires, except two locations I visited revealed a pole top Transformer that had been replaced resulting from a failure. One location on the Tubbs Fire was on private property, however there were multiple other ignition points on the Tubbs fire. One ignition point on the Atlas fire was a Communications box, however the Atlas fire also had multiple ignition points. Consequently, these pole top transformers are many miles apart. The questions is why and how come so many Transformers fail in different locations at the same time?

I recognized two separate, distinct design problems on the PG&E system that started all of the fires simultaneously, and contributed to the fires spreading so quickly. A utility Engineer from PG&E specifically with a relay protection background, who has experience physically putting settings on ground relays and understanding ground protection will understand the following explanation of each problem found.:

A. Electrical Utility Lines

It is very common and a normal occurrence for an electrical utility during a lightning storm or following a major interruption ("FAULT") on their system to have, and record, a large number of pole top distribution transformer failures spread out many miles apart. This is caused or can be caused from a variety of issues ranging from utility operations caused from switching, a utility system fault or disturbance, 69kv capacitor switching or capacitor failure. All of these

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scenarios can create Transient voltages i.e. (impulses or electrical spike, very short in duration, that sends an electrical impulse out on the electrical system via the electrical lines. This impulse sometimes exceeds the BIL rating of a piece of equipment. The BIL rating is referred to as Basic Insulation Level or sometimes Lightning impulse level. Impulses that exceed the BIL rating of equipment like transformers often fail. A transient impulse or spike is very similar to a Lightning Strike.

The only way a utility can have so many transformers fail in so many locations at the same time is to have had a major event somewhere on their Sub-Transmission or Transmission Grid that would have sent out a Transient IMPULSE voltage, or surge out over their system causing a lot of transformers to fail at the same time. It is a common occurrence in an Electrical Utility during a storm or resulting from a system disturbance to suffer an event that causes several distribution transformers to fail and often many miles away. An event that can cause Transient voltage spikes on utility lines can come from system faults on the utility grid like equipment failures, 69kv capacitor switching, car hit pole, switching in general causing ferro resonance, system parallels, just to name a few. These types of events can also affect residential or commercial level by way of causing computers, Televisions, appliances, Electrical services, etc. to fail.

The problem is: once a Distribution Transformer fails, the wire feeding the faulted transformer acts like a fuse, falls to the ground and starts fires. This happens because the wire feeding the transformer, in most cases are sized to carry normal load current feeding a residence. The line is not sized to carry high current (FAULT CURRENT) caused when a transformer fails internally. Therefore, the line melts, opens and falls to the ground. The lines falling to the ground catches the trees or nearby vegetation on fire.

The trees then fall down giving the appearance the tree caused the fire. In high winds, a tree falling or making contact with an energized line could happen, however not at all locations spanning eight counties several hundred miles away at exactly the same time. Typically, when there is nothing else around, the Utility will report the lines came together.

By the time most people sense, smell or see the fire, the trees are already on the ground. So, you can understand why so many reports of trees falling into power lines.

Although an expensive fix, the resolution for this problem is the Utility (PG&E) could install primary wire large enough to carry fault current so that if a transformer fails, the wire would not melt (or burn open) before the primary fuses on the transformer could blow, thus clearing and preventing the line from falling down starting fires. Another possible resolution could be to install more down line field automatic switches that could operate out on the end of the line during a transformer fault to trip off line sections before the line burns open. Without a study, I am not sure if this idea would be practical. The primary fuses on the transformer are sized to blow slow resulting from an overload condition at the home(s) it is feeding, therefore will not blow fast enough for high fault current before the line burns open. Additionally the utilities can upgrade their design specifications on their transformers to raise the BIL level of a transformer during manufacturing which would make the transformers more expensive to buy, but would be less susceptible to a voltage spike on the system.

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For the technical reader: it should be noted that I personally have run tests and captured graphically transient impulse spikes that exceed equipment BIL ratings of equipment by more than 2x their rating. The impulse last for a quarter of a cycle which is $1/240^{\text{th}}$ of a second. Too fast for most recording equipment to capture. I was able to capture this data by closing in 69kv capacitors on the sub-transmission system in 1988 utilizing equipment that recorded data 3-cycles before an operation was triggered., hence the reason utilities like PG&E started installing reactors on all of their 69kv capacitors was to cut down the impulse to an acceptable level below the BIL rating. I share this with the reader to demonstrate PG&E is fully aware of the effects of transient voltage spikes and how it can affect equipment over a large geography. I personally have experienced these transient voltage spikes, destroy 220kv, 69kv and a lot of distribution transformers simultaneously many miles away from the original fault.

B. The Earth

What does the earth have to do with the Utility and a Utility Fault?

The earth plays very important role with Electrical Utilities and their electric lines in that the earth acts like one big wire or conductor to give Electricity a path to flow during a system ground fault or interruption discussed above from the faulted location back to the source transformer that was delivering the electricity thru the ground (called ground current). We as humans don't feel it or know when ground current exists because everything is grounded around us. I would say as an example, the same concept and reasons a bird can stand on a wire without getting electrocuted. As long as both feet are on the same wire, there is no difference of potential. Earth acts the same way. Earth acts like one big wire.

Now, the problem we have with these fires, is that PG&E has a (WRONG) design for their sub-transmission wood poles used to help hold their poles up in high winds called Down Guys. The design I found on the PG&E system in many locations allows (when ground current exists) current to flow in a down guy anchor, up thru a bolt on the pole and down another down guy to ground on the other side. If the down guys are loose, the wind, can cause the connection to make and break contact causing electrical arcing when ground current is present at ground level in and around dry grass causing fires to start. *This problem is independent of the Transformer problems previously addressed.*

I discovered this design problem in San Diego I investigating the cause of the 2007 Witch Creek Fire and as a result discovered this same design problem started the 2003 Cedar and 2003 Paradise fires on the SDG&E system. In my travels investigating the Northern California Fires I witnessed and documented "MANY" location with this same bad design throughout the PG&E service territory, a couple of which were sources of ignition in the 2017 fires.

In an effort to get the word out to all utilities in California. On January 16, 2008 I met with Raffy Stepanian, Mahmoud (Steve) Antabli, P.E., Fadi Daye, P.E., and Raymond Fugere, P.E. from the CPUC. The California Public Utilities commission was presented reports, pictures and lab results verifying the existence of electrical arcs at ground level.

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The meeting prompted a cite visit (investigation by CPUC). Ironically the PUC sent only one engineer Mr. Antabli, who did not have a utility Engineering back ground. Following the investigation, Mr. Antabli confirmed with Jeff McDonald a reporter for the San Diego Union Tribune via telephone that he confirmed the existence of Electrical arcing at ground level caused by the down guy design described. Since that date, Mr. Antabli could not take a phone call from me or Mr. McDonald when we would inquire about status of CPUC investigation.. I was informed by Mr. Day of the CPUC, that an inquiry was made to PG&E to get an opinion at the time from a third party, since the CPUC did not have anyone with the background to understand my findings.. I was not invited to attend and was told the PUC could not share the investigation with me. Ironically, PG&E had the same design problem throughout its service territory making it problematic to agree with the CPUC.

I was invited to attend as a guest speaker a large private Cal FIRE MEETING IN San Diego on April 5 2008 by Howard Windsor of Cal Fire. The presentation prompted another cite visit with Cal Fire with what I originally thought was now finally going to be a big investigation on April 16,2008. Again, only one-person Jim Garrett from Cal Fire showed up for the investigation. Jim Garrett is the officer from Cal Fire who prosecuted the lost hunter in the 2003 Cedar Fire. I was unaware when I announced at the Fire Chiefs meeting the repercussions of stating my opinion ,the lost hunter was falsely prosecuted for the 2003 Cedar Fire on circumstantial evidence. Consequently, the tone of the investigation with Mr. Garrett is clearly documented in published minutes and was a waste of time. Mr. Garret refused to let me show him where and how the 2003 Cedar Fire started, only about ¼ of a mile away and would not go to the start of the 2003 Paradise fires, about 30-miles away.

Both Cal Fire and the CPUC had full knowledge of how the Witch Creek fire started for many months. Both government organizations failed to disclose my undisputed findings in their reports published to the public. The Cal Fire report was signed on July 1,2008 by Mathew Gilbert, ID#22 of Cal Fire. Mr. Mathews never contacted me prior to publishing his report. I provided Mr. Mathews a detailed response that went unanswered.

Subsequently, the CPUC did not publish their report until September of 2008. at <http://www.cpuc.ca.gov/NR/rdonlyres/9FA2FC3F-4BCE-47E1-85B1-F29ABA878519/0/CalFireReportMainDoctfinal.pdf>.

Ironically, neither organization, the CPUC or Cal-Fire made any mention of the undisputed evidence of the deficirnt design by SDG&E that started the 2007 Witch Creek Fire, the 2003 Cedar Fire and the 2003 Paradise Fire. I made several requests without success to meet with Cal Fire and the CPUC together to get this issue resolved by all utilities. Due to the resistance from the CPUC and Cal Fire to have any desire to have a meeting of the minds with all of the appropriate utility technical personnel, I created a website to document my efforts for fear more fires would start. You can go to www.theelectricalexpert.com and review all of the exhibits along with a book I self published, not to sale, but to send to those for free who I thought would read and take action in an effort to help solve this problem of Wild Fires in California. You cans see all of the politicians in California who received a copy.

More disturbing is the resolution to fix this down guy problem and completely remove it as an issue that can start fires or help fires spread are three separate in-expensive resolutions. 1- separating the down guy attachment on the pole by 12" by installing a \$20 bolt, similar to the design published in an SCE standard for Construction, or 2- add insulators like you see driving



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down the street on distribution poles, equally as inexpensive and 3-install a shunt across the connection similar to what now is done in San Diego.

CONCLUSION

As shown above PG&E has two major problems and are responsible for starting the Northern California Fires that Started on October 8, 2017. You cannot understand this if you look at causation of an individual fire. You have to understand how a utility works, operates and how the utility is designed and is interconnected. We know a major event on the utility grid is the only way you can have so many transformers fail at the same time, so many miles away from each other. During that major event, there is ground current flowing thru a flawed down guy design starting fires at the same time transformers are failing with lines dropping on the ground starting fires.

Yes the winds are blowing hard, but the reason the fires all appear to grow so fast, making it impossible for the fire department to keep up, is **BECAUSE MULTIPLE FIRES ARE ALL STARTING AT THE SAME TIME**, in this case across 8-different counties, hundreds of miles apart. You have, simultaneously, transformers failing with lines falling down and arcing in the grass at ground level on PG&E poles all throughout the PG&E service territory. The larger fires like Tubbs, Atlas, and Nunns fires, all have multiple ignition points or points with the same issue.

One last thing, the utilities design and anchor their poles to withstand high winds. The transformers did not fail because of high winds, they failed because of a transient voltage spike exceeding the BIL rating of PG&E Equipment, caused from a major event on the utility grid. Discovering that event should be the focus of the PUC investigation to see what started this sequence of events. Once we compile all of the event recording information from PG&E, we will know what triggered all of these transformers to fail at the same time. It should be noted that PG&E is interconnected with other utilities on the transmission grid, that could also be the source of what caused the initial impulse on October 8, 2017.

My concern is that I pointed out in person to Cal Fire and the CPUC in late 2007 early 2008 that not only did the 2007 Witch Creek fire start because of a wrong down guy design, the same design, started the 2003 Paradise fire and the 2003 Cedar fire where a lost Hunter was falsely prosecuted.

Consequently, the implications are obvious. I did not believe that those organizations would choose silence over correcting their mistake. I warned the CPUC and Cal Fire that more fires would start if these design issues did not get addressed formally with all California utilities.

Now, in 2017 more deaths and devastation that could and should have been dramatically mitigated if a select few individuals at the CPUC and Cal Fire would have done their job.

I am extremely shocked, disturbed, and utterly floored to come to the conclusion the California Public Utilities Commission would refuse a meeting from a seasoned Utility Engineer with a background and experience that far exceeds their own resources to finally open their minds and learn the reason behind so many devastating wild fires in California. I have attached the email string from Charlotte f. Terkeurst at the California Public Utilities Commission. Ms.

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Terkeurst is the Program Manager, Electric Safety and Reliability Branch in charge of investigating the NAPA fires.

I highly recommend again meeting of the minds with the CPUC, Cal Fire, and representatives from all of the California utilities. I recommend making sure, there are relay protection Engineers with hands on experience understanding how ground faults work and the path ground current takes to get back to the source. *I will be happy to attend and put on a presentation if invited to help educate all who are interested.*

For background information, please look up Ed Clark, Witch Creek fire on you tube to see a video of how the down guy design starts fires. My website www.theelectricalexpert.com shows the history of my efforts to bring this design problem to the appropriate parties following the 2007 Witch Creek Fire



Edward L. Clark Jr.
w/attachments