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AND AFFILIATED PARTNERSHIPS

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July 26, 2019

The Honorable William H. Alsup  
U.S. District Court  
Northern District of California  
450 Golden Gate Avenue  
Courtroom 12 - 19th Floor  
San Francisco, CA 94102

Dear Judge Alsup:

As you requested, this is a letter report on the vegetation management field inspections ("VM inspections") the Monitor team is conducting pursuant to the Court's April 3, 2019 Order ("April 3 Order"). This submission includes: (1) background information on the VM inspections; (2) an explanation of the VM inspections process; (3) the Monitor team's preliminary observations; (4) PG&E's feedback based on the Monitor team's preliminary findings; (5) the Monitor team's preliminary suggestions to PG&E, as shared with the Company on July 17, 2019; and (6) concluding thoughts.

**I. OVERVIEW AND BACKGROUND**

Consistent with the April 3 Order, the Monitor team designed the VM inspections to evaluate PG&E's compliance with aspects of its publicly-filed Wildfire Safety Plan's Enhanced Vegetation Management ("EVM") program and applicable VM-related regulations. The VM inspections also help the Monitor team identify issues with PG&E's actual operational processes and any related defects or safety concerns with respect to PG&E's Wildfire Safety Plan's vegetation management efforts.

The Monitor team began building the VM inspections process in April 2019, following this Court's issuance of the April 3 Order. As discussed in Section II, the Monitor team analyzed PG&E's internal EVM systems and created a purpose-built inspection process. The Monitor team began fieldwork in May 2019, and has periodically adjusted our processes in light of our observations to provide actionable feedback to PG&E. For example, while the VM inspections were not initially intended to assess recordkeeping, the Monitor team's review has revealed substantial recordkeeping issues relating to the Company's pre-inspection and tree work processes. The Monitor team has therefore modified its protocols to track and assess these issues, and raise them to PG&E early. PG&E expressed its agreement that the recordkeeping issues identified were real and require improvement.

**FILED**

**AUG 14 2019**

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As part of this effort, the Monitor team provides PG&E an opportunity to review the Monitor's concerns and observations, and mitigate them. In addition to providing detailed reports to the Company on potential missed trees (referred to as "potential exceptions"), the Monitor team is also providing its broader, programmatic observations to leadership responsible for VM. A report to the CEO is also planned, and we expect to discuss these issues with the PG&E Board, as they have asked to be kept updated.

As of July 19, 2019, the Monitor team has inspected over 1,550 VM projects (equivalent to over 71 circuit miles) and has sent over 400 potential exception reports to PG&E.<sup>1</sup> Based on its inspections thus far, the Monitor team has two core observations. First, PG&E's contractors are missing numerous trees that should have been identified and worked under applicable regulations and the EVM program. Thus, not only is PG&E falling short of its EVM goals for the year, but the quality of the completed work is questionable. Second, PG&E's systems for recording, tracking, and assigning EVM work are not reliable or consistent and are likely contributing to the identified quality issues.

The Monitor team shared these observations and other recommendations through a detailed, 65-slide presentation on July 17, 2019 to senior leadership in PG&E's VM and Community Wildfire Safety Program ("CWSP") groups (Ex. 1.) The Monitor team intentionally ensured that it had a large enough sample size before sharing actionable suggestions with PG&E's leadership, and soliciting their feedback. The Monitor team also desired to have a sufficient sample size to report informed observations to the Court.

We respectfully believe that the VM inspections pursuant to the April 3 Order have been valuable and impactful. Not only is the Monitor team generating meaningful insight into PG&E's VM program that is otherwise unavailable, the Company has told the Monitor team that the reports and observations arising out of the inspections provide prompt, useful, specific, and actionable feedback. PG&E's VM team has also provided the Monitor team with specific requests on areas for further review and analysis, leveraging the Monitor team's VM inspections to enhance the Company's processes and help address wildfire risk. The VM inspections have also revealed public safety hazards (for example, trees in contact with power lines in high-risk areas) that the Monitor team has escalated to PG&E in real-time, and PG&E has immediately mitigated.

The Monitor team is building a good feedback loop with PG&E, where the Monitor team can assess PG&E's response to each identified issue, including any steps taken to mitigate those

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<sup>1</sup> For purposes of its July 17, 2019 presentation to PG&E regarding the inspections process (Ex. 1), the Monitor team prepared its statistics and analysis based on inspections through July 5, 2019. For the sake of consistency, those same statistics are referenced throughout the remainder of this submission. For the Court's benefit, as of July 5, 2019, the Monitor team had inspected 1,223 VM projects (equivalent to 53.49 circuit miles). By the time of its presentation to PG&E, the Monitor team had sent over 350 reports to the Company.

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matters. The Monitor team also looks forward to assessing any broader, programmatic changes PG&E makes to its VM processes, in light of the gaps the Monitor has identified and the related suggestions the Monitor team has provided to PG&E. PG&E has expressed its interest in this dialogue as well. Moving forward, the Monitor team looks forward to assessing trends and, hopefully, observing improvements to PG&E's VM program.

**II. INSPECTION PROCESS****A. EVM Lifecycle and Scope**

PG&E's EVM program follows a lifecycle that consists of of pre-inspections, tree work, and post-work verifications. A pre-inspector initially assesses the vegetation surrounding power lines, and identifies and prescribes EVM work (for example, pruning or removal of vegetation). Tree work contractors are then supposed to perform the prescribed pruning or removal. After the tree work is performed, contractors (different from the initial pre-inspectors) conduct post-work verification to confirm that all work required under EVM was completed. If deficiencies are found, the responsible contractor must remediate the issue.

The EVM program focuses solely on High Fire-Threat District ("HFTD") areas (approximately 25,200 circuit miles in total). As a result, in creating the VM inspections process, the Monitor team worked with the Company to identify HFTDs where PG&E was conducting EVM work. This approach enabled the Monitor team to inspect areas that PG&E had pre-inspected and worked under the EVM program, along with areas where no EVM work had yet occurred.

Under the EVM program, the Company must: (1) achieve 12 feet of radial clearance around conductors at the time of pruning ("radial clearance"); (2) mitigate hazard trees; (3) mitigate vegetation overhanging conductors within four feet of a vertical column extending from each side of the conductor upwards to the sky ("overhang"); and (4) remove "risk trees" (that is, ten specified tree species that the Company has determined have historically been involved in most ignitions). Mitigation of hazard trees and achieving four feet of radial clearance are *required* under California regulations. However, the overhang and risk tree initiatives are unique to EVM.

**B. Inspection Process**

As an initial matter, while the Monitor team applied rigor in building its processes, the Monitor team appreciates that there is always room for improvement and is therefore not rigid in its approach. The Monitor team has—and will continue to—modify its processes to ensure that it is collecting, sharing, and evaluating key data points, consistent with the purpose of the VM inspections.

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### **1. Team Composition and Training**

Each inspection team consists of: (1) an arborist certified by the International Society of Arboriculture, employed by Filsinger Energy Partners (“FEP”) with several years of utility experience; and (2) a Kirkland & Ellis attorney. FEP Arborists are provided a training manual with relevant materials, including the 2008 California Department of Forestry and Fire Protection (“CAL FIRE”) Field Guide and hazard-tree identification criteria, as supplemented by CAL FIRE’s guidance in its submission to this Court (Dkt. # 1012). Kirkland attorneys also receive training explaining how to conduct inspections, with step-by-step details on preparing for an assignment, navigating the project, gathering data, and uploading collected data. Attorneys and FEP Arborists receive multiple days of training in the field before they may conduct inspections.

FEP is an independent energy advisory firm recognized for its expertise in the electric power sector, including generation, transmission and distribution, and retail operations. Among other high-profile matters, FEP has been supporting the recovery and restoration of the electric system in Puerto Rico following Hurricane Maria. The Monitor team leverages FEP’s expertise by, among other things, ensuring the VM inspections process is overseen by an FEP expert with experience in utility vegetation management.

The Kirkland attorneys that are part of each team are versed in PG&E’s EVM program, as well as the issues the Company is facing and that the Monitor team is tracking (e.g., resources, training, workflow management, etc.). In that regard, the Kirkland attorney team is largely responsible for developing the recordkeeping observations discussed in Section III. Given that the inspection fieldwork requires a two-person crew, the Monitor team’s impression is that pairing an FEP Arborist with a Kirkland attorney has been effective, and that this Court’s directive to include attorneys in fieldwork has proven successful.

### **2. Selecting Locations**

PG&E uses a software application called Arc Collector to record and track EVM work. Arc Collector uses real-time location tracking and a map-based interface (illustrated in Figure 1 below) to collect and record project-related data, including trees that need to be worked or have been worked, location of the conductor, and environmental information.



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**Figure 1: Arc Collector Map and Map Legend.**

PG&E granted the Monitor team access to Arc Collector. Based on our review of the database, the Monitor team selected random, targeted samples of circuits in HFTDs across PG&E's service territory where EVM work is scheduled or completed. The sample set includes projects at all stages of the EVM lifecycle, including projects that have been pre-inspected, worked, and for which post-work verification is complete.

### 3. Previews

To ensure that the Monitor team's inspection teams can safely and efficiently access selected circuits and avoid delays, the Monitor team previews each proposed inspection site to confirm that it can be (1) inspected safely in accordance with the Monitor team's inspection policy, (2) inspected without disturbing customers, and (3) accessed on foot. For example, the Monitor

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team has determined that multiple sites are unsafe for inspection due to fast-moving vehicle traffic and a narrow road shoulder.<sup>2</sup>

As of July 5, 2019, the Monitor team had previewed 792 miles in six geographic areas—566 miles were accessible and safe for inspection, and the Monitor team had inspected 53.49 of those miles.

### **4. Inspection Methodology**

The Monitor team uses three inspection methodologies. Method A is an audit of specific trees reflected in Arc Collector, to ensure that the tree work was correctly identified by the pre-inspectors (prescribed) and/or was correctly worked or mitigated by tree crews. Method B (primarily deployed by the Monitor team) involves walking along a primary distribution line that has been pre-inspected, worked, and/or post-work verified, and assessing whether the vegetation prescriptions or work done actually complied with the EVM scope. Method C involves teams walking along a primary distribution line that PG&E has not yet pre-inspected for EVM and recording vegetation issues.

### **5. Fieldwork and Data Collection**

The Monitor team assigns each inspection team a project through the Arc Collector map. Each inspection team uses an iPad while in the field to record their real-time observations on template inspection forms. The forms record several pieces of information, including when and where the work was completed (that is, project name and status in Arc Collector), who completed it, and what was observed (see examples in Figures 2-5 below).

Consistent with the Method B process, the inspection teams observe the vegetation near the circuit line and identify any trees that potentially do not meet the EVM scope, such as overhangs, radial clearance, hazard trees, and risk trees. The inspection teams record detailed data points for each potential exception, including tree species, height and diameter specifications, GPS coordinates, physical markings, distance from the conductor, and other comments to substantiate observations.<sup>3</sup> The inspection teams carry laser-guided tools that enable them to measure this data. The inspection teams also take multiple photos of any potential exception trees from a safe vantage point.

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<sup>2</sup> These safety considerations can limit the Monitor team's ability to assess all projects and the sample set is necessarily limited to projects that are safely accessible on foot.

<sup>3</sup> As reflected in Figure 5, due to the high number of potential risk tree exceptions (2,670 as of July 5), the Monitor team only records the tree species and tree count for potential risk trees in each project that the Monitor team inspects.

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The inspection teams also record: (1) potential discrepancies in Arc Collector; (2) customer interactions; and (3) any other notable observations. Additionally, the Monitor team fills out inspection forms for projects where the team did not identify any potential exceptions—so that the Monitor team can keep track of all work that the team completed, including for all favorable findings. The collected data is then catalogued, compiled, and stored.

## ASSIGNMENT 183671 B\_001 Inspection Form

CIRCUIT NAME	MOLINO 1102
REGION	North Coast
STATUS	Work Identified
GPS COORDINATES (BEGINNING)	38.413, -122.973
GPS COORDINATES (ENDING)	38.414, -122.980
PRE-INSPECTION DATE	4/12/2019 - 5/8/2019
TRAFFIC CONTROL	8 projects require traffic control
ENCROACHMENT PERMITS	N/A
PERMITS	0

ASSIGNMENT ID:	
MONITOR INSPECTION DATE	7/8/2019
CERTIFIED ARBORIST	Levi Conrad
K&E ATTORNEY	Amarto Bhattacharyya
FEP ASSISTANT	
OTHER PERSONNEL (Affiliation)	
OTHER PERSONNEL (Affiliation)	

INSPECTION METHOD (A OR B)	B
START TIME	1:30 PM
STARTING GPS COORDINATES	38.413, -122.973
STARTING PHOTO #	792
END TIME	5:00 PM
ENDING GPS COORDINATES	38.414, -122.980
ENDING PHOTO #	791

*Figure 2: Excerpts from the Monitor team's Method B inspection form, reflecting basic project details.*

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**Safety Briefing Acknowledgment - All on-site personnel must initial to confirm that they participated in the safety briefing:**

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**Additional safety issues discussed outside of standard protocol or additional personnel:** \_\_\_\_\_

GPS COORDINATES	PROJECT AUTO ID LOCATION	SPECIES	VEG ISSUE <sup>1</sup>
38.413000, -122.973335	183327	Coastal Redwood	Overhang
38.413000, -122.973335	183327	Douglas fir	Overhang
38.413166, -122.973309	183327	Other: (Write in Comments)	Overhang
38.412809, -122.974084	183274	Coastal Redwood	Hazard tree

**Figure 3: Additional excerpts from Method B inspection forms, reflecting (1) the safety briefing acknowledgment and (2) some of the data points collected.**

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APPROX. DISTANCE FROM PRIMARY CONDUCTOR (in ft)	DIRECTION FROM PRIMARY CONDUCTOR	APPROX. HEIGHT (in ft)	APPROX. DBH (in inches) <sup>2</sup>	PRESCRIPTION	PHOTO #
23	West	120	32	Clear to sky	678-680
12	West	135	31	Clear to sky	681-683
8	West	70	19	Clear to sky	684-686
18	South	107	22	Removal	741-745

COMMENTS	ARC COLLECTOR PROJECT STATUS	OBSERVED TREE WORK IN IMMEDIATE VICINITY OF SUBJECT TREE?	HAS TREE BEEN RECENTLY WORKED?	IS TREE IN ARC COLLECTOR?	WAS TREE MARKED WITH PAINT FOR TRIM OR REMOVAL?
14 feet above line	No work required Under EVM	No	No	Tree not in ArcCollector	No paint observed
35 feet above line	No work required under EVM	No	No	Tree not in ArcCollector	No paint observed
Madrone. 8 feet above line.	No work required under EVM	No	No	Tree not in ArcCollector	No paint observed
Soil erosion, root loss, root anchorage compromised, majority of branches on side of conductor.	No work required under EVM	No	No	Tree not in ArcCollector	No paint observed

Customer/Third Party Interactions - Please note the reason and time of any interactions with third parties made during Project Inspections:

TIME	PROJECT AUTO ID LOCATION	COMMENTS
1:45 PM	183327	Asked what we are doing, responded inspecting lines.

**Figure 4: Additional excerpts from Method B inspection forms, reflecting (1) additional data points collected and (2) notes regarding customer / third party interactions.**

PROJECT AUTO ID LOCATION	SPECIES	VEG ISSUE <sup>1</sup>	IF RISK TREE, # OF RISK TREES IN PROJECT/BY SPECIES
36019	Gray pine	Risk tree	4
2980	Douglas fir	Risk tree	1
38549	Coastal live oak	Risk tree	2
2980	Black oak	Risk tree	1

**Figure 5: Additional excerpt from Method B inspection forms, reflecting risk tree data collection.**

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**6. Report Generation**

The Monitor team uses the data collected from the completed inspection forms to prepare reports regarding potential exceptions. The reports are intended to consolidate the data collected from the field and provide succinct, precise, actionable details to PG&E regarding the subject tree, such that PG&E can dispatch personnel to the site, identify the subject tree, and determine the need (and urgency) for mitigation.

**a. Reports**

The Monitor team aims to provide PG&E with reports as quickly as possible following inspections. The Monitor team typically prepares a single report for each potential exception (that is, for each tree), but similar potential exceptions are sometimes grouped together into one report for ease of review (for example, a cluster of potential overhangs on the same project). The reports are quality-checked before being transmitted to the Company.

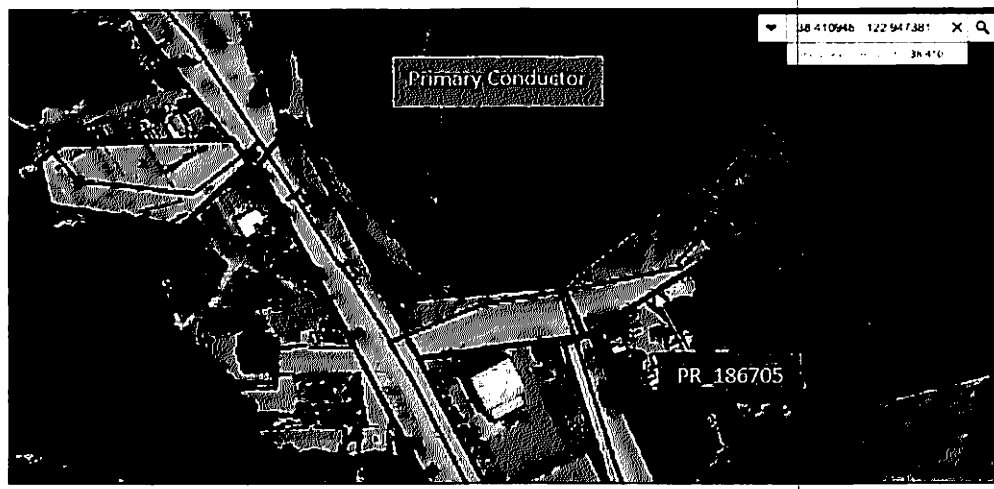
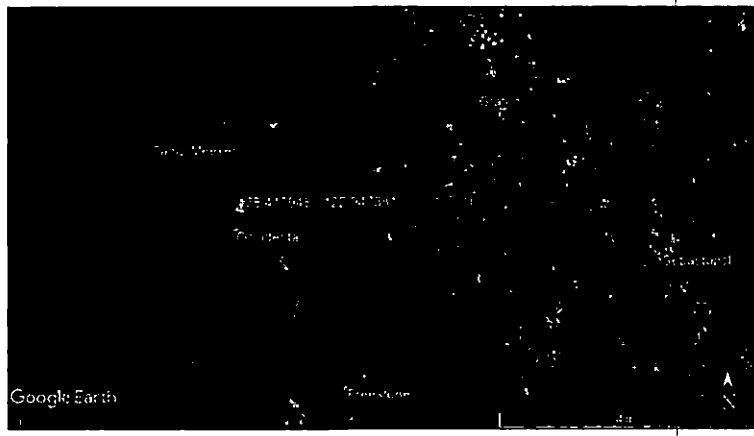
Excerpts from a report are included at Figures 6 to 8 below. An additional sample of 19 of the over 400 reports the Monitor team has transmitted to PG&E are reflected in Exhibit 2.



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A potential hazard tree was found during a Monitor Inspection on June 18, 2019 of Project *PR\_186705* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Figure 6:** Excerpts of the first page of a sample potential exception report, reflecting the project location and description.

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<b>PG&amp;E ArcCollector Project Status</b>	No Work Required Under EVM	
<b>Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree</b>	Yes	
<b>Species</b>	Coastal Live Oak	
<b>GPS Coordinates</b>	38.410948, -122.947381	
<b>Approx. Distance from Primary Conductor</b>	Trunk of tree 23 feet south	
<b>Approx. Height</b>	56 feet	
<b>Veg Type</b>	Potential Hazard Tree	
<b>Monitor Arborist Comment</b>	Observations of the tree include (a) cavity in trunk displays evidence of decay. (b) guy wire embedded in trunk, and (c) tree leaning toward primary conductor	

***Figure 7: "Tree Information" chart included in each report, reflecting key data points and observations regarding the subject tree.***

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***Figure 8: Photos included in a sample report. Here, the photos substantiate the observations that (1) there is a cavity in the trunk, (2) the tree is leaning towards the primary conductor, and (3) guy wire is embedded in the tree's trunk.***

With respect to risk trees, rather than providing a report for each potential exception (the Monitor team has identified over 2,600 potential risk trees as of July 5, 2019), the Monitor team provides a list of all risk trees, broken out by project (for ease of location) and tree species (see Figure 9 below). Consistent with the EVM scope, each potential risk tree exception identified by the Monitor team is (1) one of the ten identified species, and (2) tall enough to strike electrical assets.

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Project ID	Species										Total
	Black Oak	Coastal Live Oak	Live Oak	Tan Oak	Valley Oak	Gray Pine	Douglas Fir	Ponderosa Pine	Monterey Pine	Blue gum/Eucalyptus	
PR_012713	-	-	-	-	-	-	8	-	-	-	8
PR_012796	6	2	-	-	-	-	25	-	-	-	33
PR_012813	-	-	-	-	-	-	1	-	-	-	1
PR_012840	2	-	-	-	-	-	5	-	-	-	7
PR_013147	-	-	-	-	-	-	6	-	-	-	6
PR_013163	-	-	-	-	-	-	4	-	-	-	4
PR_013167	1	1	-	-	-	-	23	-	-	-	25
PR_013266	-	-	-	-	-	-	1	-	1	-	2
PR_013323	-	5	-	-	-	-	-	-	-	-	5
PR_020402	-	-	-	-	-	-	-	1	-	-	1
PR_020837	-	2	-	-	-	-	-	-	-	-	2
PR_037857	-	-	-	-	4	1	-	-	-	-	5
PR_037863	-	-	5	-	-	-	-	-	-	-	5
PR_166733	2	2	-	-	-	-	5	1	-	-	10
PR_166734	-	-	-	-	-	-	4	-	-	-	4

**Figure 9: An excerpt of a risk tree report provided to PG&E, reflecting the total potential risk trees identified by the Monitor team, broken out by project and tree species.**

#### b. Urgent Reports

If an inspection team encounters a tree that appears to require urgent attention, the inspection team immediately raises the matter to senior members of the Monitor team. The Monitor team then escalates urgent potential exceptions to PG&E through a phone call and an email report that same day. In turn, PG&E provides prompt updates regarding how it mitigated the issue.

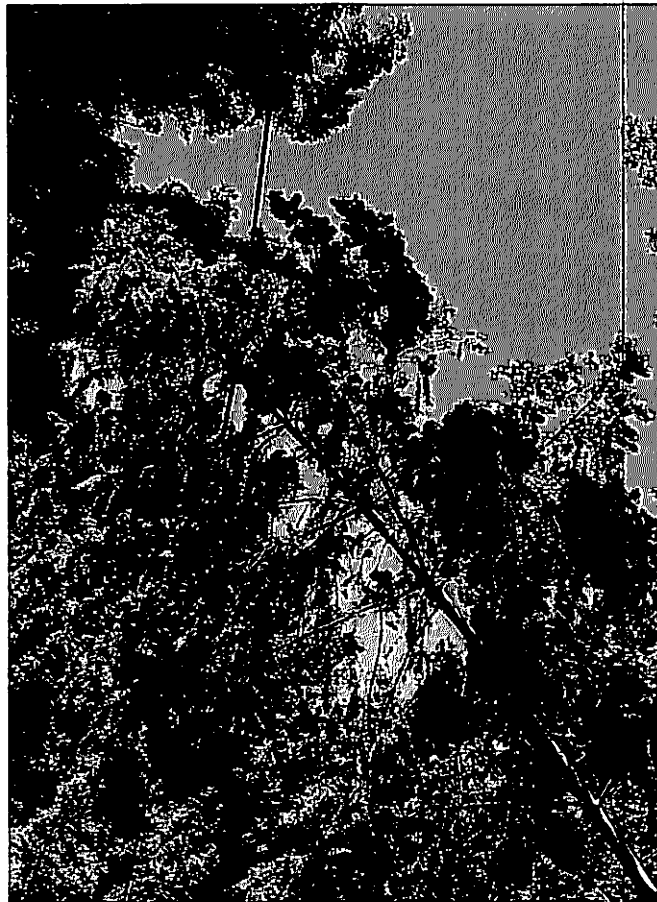
To date, during the first 10 weeks of field inspections, the Monitor team has notified PG&E of three urgent potential exceptions that could have resulted in fatalities, injuries, or serious damage if not timely remediated. Notably, because PG&E is on a one-year inspection cycle, these exceptions may not have been identified and remediated until the earlier of (1) one year after PG&E last inspected that particular area, or (2) the date such completed work was reviewed through PG&E's post-work verification process, assuming post-work verification would be effective, which is an issue discussed further below.

First, on June 27, 2019, the Monitor team informed PG&E of a tree that was within one foot of the primary conductor, despite being marked as "tree work complete" on March 18, 2019. PG&E reported to the Monitor team that the issue was mitigated the next day.

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Second, on July 11, 2019, the Monitor team informed PG&E of a tree that was in contact with a primary conductor near the driveway of a private residence (see Figure 10 below). The Monitor team stayed in the area until a PG&E-dispatched pre-inspector arrived. The pre-inspector remained on the scene until a tree crew arrived to address the issue later that day.



***Figure 10: Tree found by Monitor team on July 11, 2019 that was in contact with a primary conductor.***

Most recently, on July 12, 2019, the Monitor team informed PG&E of a tree that was within inches of the primary conductor, and had been contacting the conductor during wind gusts. As reflected in Figure 11 below, leaves of the tree had been burned from ongoing contact with the primary conductor. PG&E informed the Monitor team that this particular tree was identified for routine compliance work in November 2018 and a tree work company reported to PG&E that it completed the work in February 2019, even though it was not actually completed (that is, the tree



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work company provided a false certification). On April 16, 2019, a different pre-inspector inspected the area under the EVM scope, prescribed the tree for work, but failed to note the urgency.

PG&E pruned the tree the same day the Monitor team raised the issue (July 12, 2019). PG&E also investigated the issue, and reported the following to the Monitor team: (1) the tree worker who falsely stated the tree was trimmed may no longer work on PG&E lines; (2) PG&E conducted a “stand down” at the tree work company to discuss how to prevent similar occurrences in the future; (3) PG&E will audit the tree worker’s prior work to identify any similar issues; and (4) the EVM pre-inspector has been stood down while his prior work is also investigated.

This inspection thus identified a substantial public safety hazard that required immediate mitigation, and also identified significant performance issues with contractors, involving multiple steps in the EVM and routine VM processes. While this situation is unfortunate, it is the type of actionable intelligence the VM inspections were designed to uncover.



***Figure 11: Tree found by Monitor team on July 12, 2019 within inches of the primary conductor and with evidence that tree leaves had been burned from contact with the primary conductor in a Tier 3 high fire-threat district.***

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### **III. PRELIMINARY OBSERVATIONS**

#### **A. Background**

The Monitor team tracks and aggregates its observations, both for the various types of potential exceptions identified (for example, overhangs, hazard trees, etc.), but also with respect to other salient issues (for example, systemic recordkeeping deficiencies). This enables the Monitor team to analyze the data and generate metrics relating to various aspects of the EVM program.

In turn, the Monitor team provides these metrics to PG&E, which helps the Company identify aspects of its processes that require improvement. The Monitor team recently presented a detailed, two hour, 65-slide presentation on July 17, 2019 to senior leadership in the VM and CWSP groups (Ex. 1). A similar presentation, albeit shorter, is expected to be given to the CEO, William Johnson, and the Board has previously asked to be apprised of these issues, which we have done with similar issues (for example, locate and mark issues, Dig Safe issues, and issues with the reliability of calibration of leak detection tools) in the past.

In summary, the Monitor team's inspections are generating significant, actionable findings for PG&E. The VM inspections are not only revealing individual trees that are missed, including three active wildfire threats in high risk areas, but they also reflect gaps in processes (for example, contractor training) and other issues bearing on the overall efficacy of the VM program (for example, systemic recordkeeping deficiencies). Of course, five of PG&E's felony convictions from the 2016 trial related to record-keeping defects concerning its gas operations.

#### **B. Overview of Observations**

As of July 5, 2019, the Monitor team had inspected 1,223 projects (as reflected in Arc Collector), which is equivalent to 53.49 miles of primary distribution lines. The Monitor team found 3,280 potential exceptions (that is, individual trees that appeared to have been missed under the EVM scope) out of 53.49 miles inspected. A total of 592 out of 1,223 projects (48.4%) inspected contained at least one dubious tree. Many contained more.

The Monitor team found an average of 61.32 exceptions per mile and 2.68 exceptions per project. Even excluding potential risk tree exceptions, the Monitor team found 610 exceptions out of 53.49 miles inspected, averaging 11.4 exceptions per mile and 0.50 exceptions per project.

In addition to the Monitor team's observations regarding missed trees, the inspections have also revealed broader programmatic issues relating to the VM efforts, including systemic recordkeeping, work allocation, training, and post-work verification issues.

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Below is a more detailed discussion of the Monitor team's preliminary observations. The Monitor team also refers the Court to the July 17 presentation to PG&E, which includes several charts and graphs analyzing this data. (Ex. 1 at slides 23-43)

### **C. Risk Trees**

PG&E's initial EVM scope required removal of risk trees, regardless of the health of the tree, if it was tall enough to strike electrical assets. As of July 5, 2019, the Monitor team found 2,670 potential risk tree exceptions out of 53.49 miles inspected, or 49.92 potential risk tree exceptions per mile.

PG&E informed the Monitor team that, prior to April 1, 2019, there was some confusion among pre-inspectors regarding the risk tree program—PG&E stated that pre-inspectors were not fully aware of the program, resulting in numerous unidentified risk trees. PG&E informed the Monitor team that the Company provided clarifying guidance on risk tree identification by April 1, 2019 to correct this issue. The Monitor team's inspections, however, demonstrated that the Company's retraining was ineffective, information that we recently shared with the Company.

The Monitor team understands that PG&E is currently re-evaluating its risk tree program and directives to its contractors in the wake of the CPUC's order on June 4, 2019 prohibiting the removal of "healthy" trees ("CPUC Order"). The Monitor team further understands that PG&E has been in discussions with the CPUC and that the Company is developing revised, arborist-certified criteria for removing healthy risk trees. The Monitor team will continue to assess this issue as PG&E solidifies its approach, because the Monitor has concerns about PG&E's ability to successfully implement a risk tree program that achieves the original goals of the program as described in PG&E's Wildfire Safety Plan.

### **D. Hazard Trees**

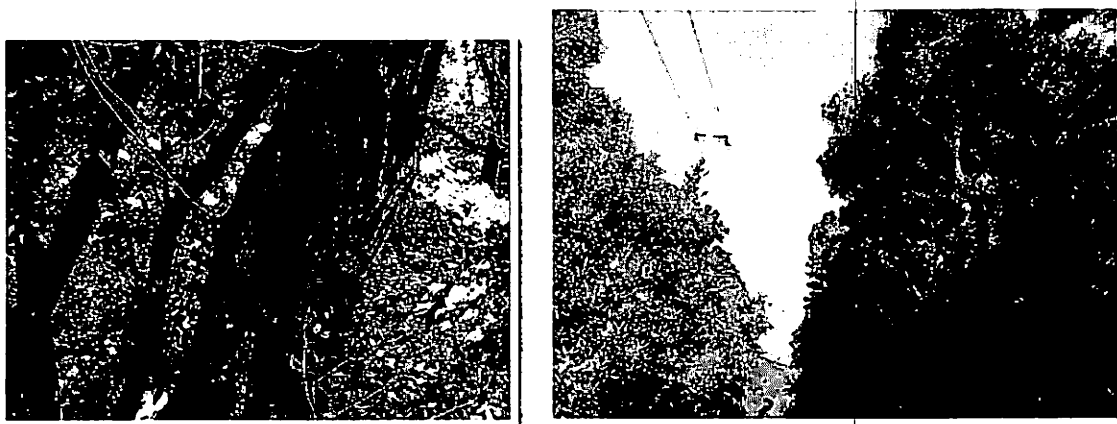
PG&E's EVM scope requires that hazard trees (as described in G.O. 95, Rule 35; PRC Section 4293; and NERC Standard FAC-003-4) must be removed or pruned if they pose a risk of failing and are tall enough to strike primary or secondary conductors, guys, or structures. The Monitor team appreciates that classifying a tree as a hazard involves some subjectivity and that qualified individuals may disagree over whether a tree presents a hazard and, if so, whether that hazard can be mitigated by pruning alone, or whether removal is required. The Monitor team also appreciates that the extent of mitigation of a hazard tree may also depend on the location of the subject tree, because federal- or state-owned lands may have different mitigation processes and criteria.

Based on criteria set forth by CAL FIRE, the Monitor team found 61 potential hazard tree exceptions, or 1.14 potential hazard tree exceptions per mile. Additionally, most potential hazard

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tree exceptions the Monitor team found were not properly documented in Arc Collector or marked for removal with tree paint, as they should be. Further, in some instances, potential hazard trees were marked with a yellow dot for pruning only (that is, not removal), despite the fact that decay, rot, or other defects were observable in the area near the paint dot at the base of the tree, which suggests that removal is appropriate. Additionally, in many instances, the overall health of the tree—along with the EVM scope—suggested that removal may have been the appropriate prescription. The Monitor team's observation is that pre-inspectors may not be fully assessing the trunk of the tree, which is often where many of the defects are present.



*Figure 12: Example of a potential hazard tree exception.*

### **E. Overhangs**

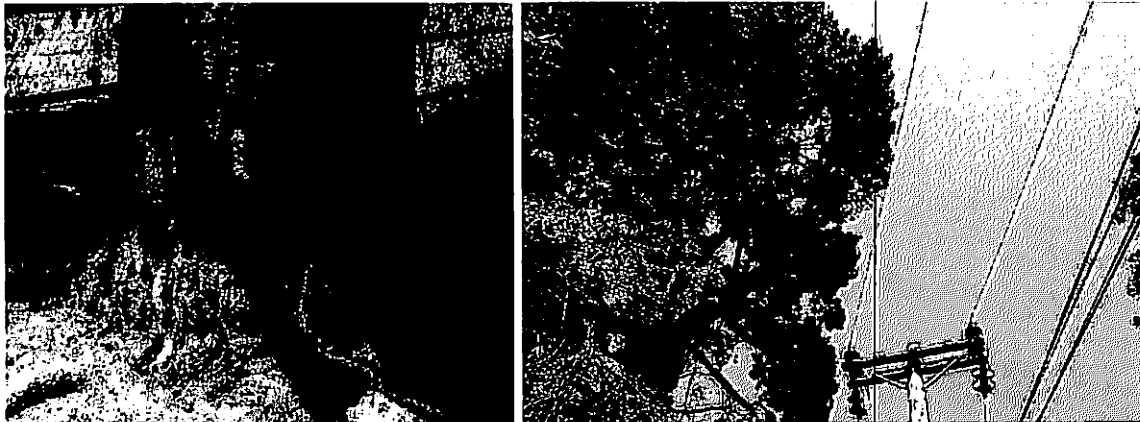
PG&E's EVM scope requires clearance of trees with vegetation currently overhanging a four-foot vertical plane over primary distribution lines, also known as "conductor-to-sky" clearance.

The Monitor team found 524 potential overhang exceptions in 53.49 miles inspected, or 9.80 potential overhang exceptions per mile. The Monitor team noted multiple instances where potential overhangs were not properly cleared to the sky (that is, the tree was pruned up to a certain height, but the higher portions of the tree, which would readily fall on the line if displaced, were not pruned). If there were reasons for not pruning the additional overhanging vegetation (for example, it was unsafe to do so, or it would have compromised the health of the tree), those reasons were not documented in Arc Collector to reflect any reasoned analysis by PG&E.



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*Figure 13: Example of a potential overhang tree that was partially—but not fully—trimmed.*

**F. Radial Clearance**

PG&E seeks to maintain year-round a four-foot conductor radial clearance on its primary distribution lines in accordance with Rule 35 and PRC Section 4293. The EVM scope requires PG&E to achieve a 12-foot radial clearance at the time of pruning. The EVM scope also requires removing or pruning all vegetation to prevent strain and abrasion on secondary conductors and to establish a clearance of four feet.

The Monitor team found 25 potential radial clearance exceptions out of 53.49 miles inspected, or 0.47 potential radial clearance exceptions per mile. The Monitor team is continuing to evaluate these exceptions. The Monitor team has not yet observed any specific trends or other patterns that are unique to potential radial clearance exceptions.

**G. Recordkeeping and Work-Assignment Issues**

In conducting the VM inspections, the Monitor team was at first primarily focused on identifying individual exceptions to the EVM scope. However, the Monitor team began to notice broader, recurring recordkeeping issues and has since adjusted its processes to document and track those items for discussion and focused improvement efforts.

The recordkeeping and work assignment issues the Monitor team has observed largely revolve around Arc Collector, the software application PG&E is using to track EVM work. Most fundamentally, even though Arc Collector is intended to serve as a central repository for EVM-related work, it does not function as such—among other things, it is simply missing numerous data points. PG&E has acknowledged that the application (or individuals' commitment to recording information in it) has issues, and contractors have shared similar concerns about the completeness

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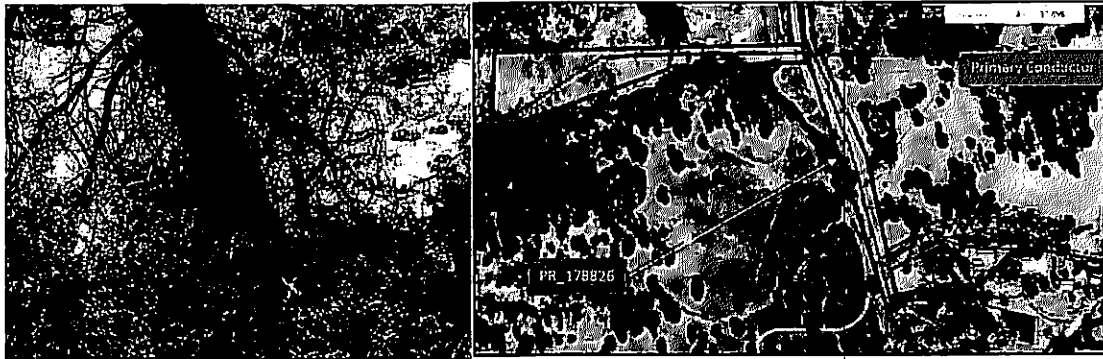
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and accuracy of the data. These issues with Arc Collector are particularly concerning given that PG&E plans to expand Arc Collector from EVM to routine VM later in 2019. The Monitor team will continue to assess these issues, including PG&E's work to address issues with Arc Collector prior to its deployment across the routine VM program.

Specifically, the Monitor team has identified the following issues: (1) inconsistent use of Arc Collector to record work; (2) conductor lines are not accurately depicted in Arc Collector and are not consistently corrected; (3) inconsistent use of physical markings for prescribing work; (4) challenges associated with identifying or observing physical markings; (5) lack of clarity regarding justifications for potential exceptions, such as customer refusal; and (6) inconsistent recording of post-work verification.

### 1. Inconsistent Use of Arc Collector to Record Work.

Some workers are simply not entering data into Arc Collector. Trees identified as requiring work under the EVM scope are supposed to be (1) physically marked with yellow paint or flagging, and (2) entered into Arc Collector. This is often not occurring—the Monitor team has identified numerous instances where trees that were physically marked for work were not included in Arc Collector, and vice versa. Either failure materially reduces the chance that proper remediation will occur.



*Figure 14: Example of a potential hazard tree that was marked with an X for removal (left photo) but did not appear in Arc Collector (right photo; trees prescribed for work are supposed to appear in Arc Collector as green triangles).*

### 2. Conductor Lines Are not Accurately Depicted in Arc Collector and Are not Consistently Corrected.

The Monitor team has observed many locations where the conductor is not correctly positioned in Arc Collector. Sometimes pre-inspectors draw the correct location for the conductor



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with a pink line labeled “GIS Inaccurate.” In other areas, the conductor is in the wrong place with no correction. In the non-corrected areas, it is unclear whether the trees are noted in their actual location or positioned in a relative manner to the conductor.

### **3. Inconsistent Use of Physical Markings for Prescribing Work.**

As noted above, pre-inspectors appear to use paint or flagging to designate tree work, though it is difficult to tell which method has been used and what tree workers should be looking for. For example, the Monitor team has observed a wide variety of paint colors and flagging types on trees in EVM locations (as shown in Figure 15 below). While the Monitor team understands that pre-inspectors use yellow paint to prescribe EVM work, the existence of multiple paint colors on a tree could create understandable confusion for tree crews. Indeed, absent a corresponding entry in Arc Collector, it is unclear for tree workers what work needs to be done on the tree, which may explain some of the related execution defects observed in the field. This is particularly significant for EVM work, which is not required by law and can be subject to customer negotiation.

Moreover, when inconsistent physical markings are compounded with missing information in Arc Collector, it is difficult to determine whether a potential exception exists and whether there is an underlying reasoned basis for it. Specifically, it can become unclear if the pre-inspector did not precisely prescribe the work, if the tree crew missed the work, if both the pre-inspector and tree crew erred, or if the work was properly prescribed and completed per the customer’s wishes, but without documentation to explain the exception. In addition to creating confusion as to the type of work required, issues caused by inconsistent markings on trees (and corresponding lack of clarity in Arc Collector) can be difficult to meaningfully remediate, as it is unclear where in the process the error occurred.

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*Figure 15: Example of a tree marked with several colors, but without a corresponding entry in Arc Collector to explain the precise prescription.*

**4. Challenges Associated with Identifying or Observing Physical Markings.**

Relatedly, the Monitor team observed that it can be difficult to notice or otherwise determine whether a tree has been marked with paint or a flag. In areas with dense vegetation and without a traversable path near a tree, it can be difficult to spot paint markings or flags. Additionally, if an area with dense vegetation is flagged, the flag is sometimes affixed to a nearby fence or some landmark other than the subject tree itself, which can create confusion as to which tree is to be worked. The Monitor team also observed that different types of flags would be used (without an underlying legend explaining which flag is to be used for what purposes), which can create confusion for subsequent work crews as to whether the tree is marked for pruning, removal, or was flagged for purposes completely unrelated to PG&E's VM work (for example, flagged by the property owner). Again, this lack of clarity may help to explain some of the execution defects identified in the field.

Furthermore, even if a tree is readily observable, the marking may readily fade or disappear over time under current PG&E practices. In particular, there is often a period of months between pre-inspection and tree work, which means that paint can fade or become covered by moss or other

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vegetation. Given that trees that are physically marked often do not appear in Arc Collector, this can result in trees that are prescribed for work but never worked.

The Monitor team also observed inconsistencies in the process for changing paint markings on trees. The Monitor team observed trees that were marked at one time with yellow paint, but then that paint was covered with other paint. In some instances, these trees already appeared to comply with the EVM scope and did not need to be worked. In other instances, the trees with covered-up paint needed to be worked under the EVM scope. These practices could potentially cause a tree that was once identified by a pre-inspector as requiring pruning or removal to never be worked or even seen by a tree crew. PG&E did not provide any explanation for this situation, but appreciated the Monitor team flagging the issue for remediation going forward.



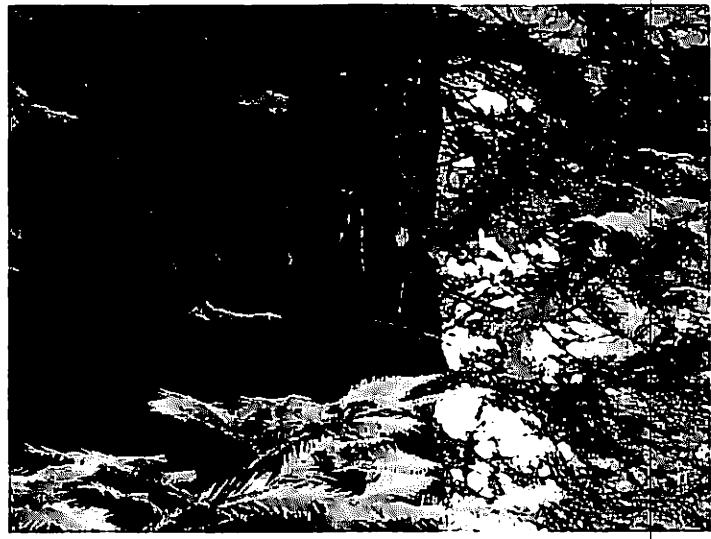
***Figure 16: Example of a potential hazard tree with a yellow X covered up with white paint.***

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*Figure 17: Example of tree paint fading over time due to moss growth.*



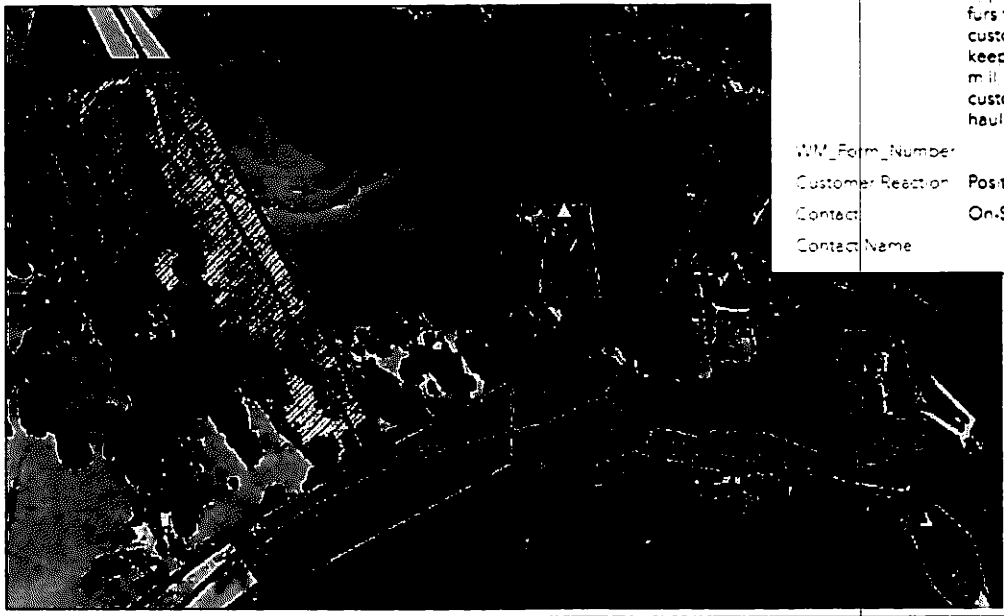
*Figure 18: Example of flagging that is difficult to observe in dense vegetation.*

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**5. Lack of Clarity Regarding Justifications for Potential Exceptions, Such as Customer Refusal.**

There is a lack of clarity regarding justifications for potential exceptions, such as customer refusal. For example, one particular project contained dozens of trees listed as customer refusals (the red triangles in Figure 19 below). However, the Monitor team interacted with the customer who stated that he did not refuse any work, and Arc Collector field notes also show that the customer approved recommended safety work.



**Figure 19: The red triangles reflect customer refusals in Arc Collector. However, the comments (and the Monitor team's interactions with the customer) suggest that the customer did not refuse the work.**

**6. Inconsistent Recording of Post-Work Verification.**

The Monitor team observed that re-inspection after post-work verification is not recorded consistently. The Monitor team found instances where inspectors physically marked trees that needed to be remediated, but added either only some or none of those trees into Arc Collector.

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### **H. Training**

The large number of potential exceptions identified thus far strongly suggests that there are gaps in PG&E's training of pre-inspectors and/or tree workers, and that the existing training and contractor oversight is not effective. This includes the fact that the re-training on the EVM scope as of April 1, 2019 was not effective. Specifically, the Monitor team observed 60.33 potential exceptions per mile for pre-inspections from April 1, 2019-onwards (the period when retraining was supposed to fix prior deficiencies), compared to 64.32 potential exceptions per mile for pre-inspections before April 1. Put differently, the supposed curative training produced only a 6% improvement and 94% of the problem persisted.

Additionally, the Monitor team's observations suggest that both pre-inspectors and tree workers require additional training on the EVM scope (that is, the potential exceptions are not isolated to one or the other trade).

### **I. Post-Work Verification**

PG&E conducts post-work verification (a final quality measure) on 100% of completed EVM projects. The Monitor team understands that, after post-work verification occurs on a particular project, that project is coded as "Complete" or "Corrective Action Needed." Once corrective action is taken, the status is updated to "Corrective Action Complete." According to PG&E's records, the pre-inspector pass rate for post-work verification performed in Q1 2019 was 54%, and the pre-inspector pass rate for post-work verification performed in Q2 2019 is 66%. These statistics suggest that the post-work verification process is essential for catching misses by the pre-inspectors and tree workers, or, as the Company has stated, its "last line of defense."

Yet the Monitor team found 127 exception trees within projects marked "Complete" or "Corrective Action Complete" after post-work verification. Of those 127 exception trees, 99 were risk trees in high threat areas, which further underscores the issues described above. The Monitor team will continue to observe and assess the quality of PG&E's post-work verification as the Monitor team's sample size increases. PG&E has specifically requested additional inspections by the Monitor team and our analysis of projects that have passed post-work verification. Unless post-work verification is effective, uncorrected safety hazards and remedial errors and omissions will persist until at least 2020, even within "worked areas."

### **J. Inspections of Areas Where EVM Work Has Not Been Planned**

As discussed, the Monitor team has started inspecting distribution lines in HFTDs that are scheduled for EVM work in 2019, but have not yet been pre-inspected or worked. The primary purpose of these "Method C" inspections is to see whether PG&E is complying with its routine VM work, as well as to understand the EVM work PG&E has ahead of it in the rest of its HFTD



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service territory. As of July 19, 2019, the Monitor team has inspected 7.62 miles of distribution lines under Method C (4.61 miles in Tier 2 areas and 3.01 miles in Tier 3 areas). With respect to legal compliance, the Monitor team found one radial clearance potential exception and zero hazard trees in those 7.62 miles. With respect to the other components of EVM, the Monitor team observed that PG&E will likely have to remove 41 risk trees per mile and trim 34 overhang trees per mile. The Monitor team will continue to conduct Method C inspections to identify any compliance issues and broader trends. This is particularly important given the limited amount of relevant line inspected to date.

**K. Changes to the VM Organization and Program**

PG&E has borrowed employees from Gas Operations to help drive efficiencies in program execution. At PG&E's quarterly VM contractor meeting on July 15, 2019, the new employees played a meaningful role in discussing programmatic goals and plans for contractor engagement. The Monitor team welcomes these additions and plans to meet with the new employees in the coming weeks and months to discuss their observations and goals. (At the same time, the Monitor team is otherwise trying to ensure that PG&E does not simply cannibalize efforts to improve safety in gas operations, particularly in light of the San Bruno tragedy and PG&E's subsequent criminal convictions). Similarly, the Monitor team understands that PG&E is exploring some additional changes to its programs, including a pilot program whereby tree workers will identify—and work—radial clearance and overhang trees before pre-inspection occurs for hazard trees and risk trees.

**IV. PG&E FEEDBACK AND MITIGATION****A. Formalizing Feedback Process**

The Monitor team is working with PG&E's VM team to create a formalized feedback process. Specifically, the Monitor team's goals are to: (1) continue to provide specific findings to PG&E on a timely basis; (2) track and assess PG&E's mitigation or other responses to issues identified by the Monitor team; and (3) understand PG&E's views on progress, particularly where PG&E does not adopt the Monitor team's findings. PG&E has expressed that it shares this goal.

To this end, on July 12, 2019, the Monitor team spoke with members of PG&E's VM team responsible for reviewing and addressing the Monitor team's inspection findings. The Monitor team learned that the VM team is deploying employees or senior pre-inspectors to the field to review potential exceptions identified by the Monitor team and report back to PG&E, though PG&E is still trying to design improvements to its processes for documenting its review and mitigation of potential exceptions. PG&E's VM team also informed the Monitor team that, in response to agreed-upon exceptions, the VM team is: (1) prioritizing mitigation of any non-compliance with regulations or potential imminent risks (that is, hazard trees and radial clearance

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issues); and (2) conducting a root-cause analysis—and initiating a corrective action plan—with the relevant contractors. The VM team informed the Monitor team that the reports were succinct and useful in providing actionable information for field crews.

The Monitor team is working with PG&E to ensure that the Monitor can track PG&E's response to each potential exception, including documenting the Company's review, response, and any mitigation. The Monitor team will pay particularly close attention to any potential exceptions for which PG&E did not adopt the Monitor team's findings. If necessary, the Monitor team will send an FEP Arborist to the field with a PG&E arborist to compare thoughts on a particular potential exception. The Monitor team also plans to audit PG&E's corrective action in response to the identified exceptions (for example, if the Monitor team identified an overhang, and the Company states that it mitigated the matter, the Monitor team will separately confirm that the mitigation work was properly completed). The Monitor team believes this oversight is prudent given the high error rates presently detected in PG&E operational results.

**B. July 17 Presentation to PG&E**

The Monitor team and senior leadership from PG&E's VM and CWSP groups had a productive meeting on July 17 regarding the VM inspections findings. PG&E reiterated that the information from the Monitor team—both the individual potential exception reports and the broader programmatic observations—was valuable and that the Monitor's VM inspections process was yielding significant information regarding issues and shortcomings in PG&E's vegetation management and wildfire threat abatement operations.

In that regard, as previously mentioned, PG&E asked the Monitor team to take a closer look at projects for which post-work verification was complete, noting that post-work verification is PG&E's "last line of defense" in assuring the quality of completed VM work. In response, the Monitor team spoke on July 19 with VM personnel and members of the IT team responsible for Arc Collector—the group discussed how post-work verification is conducted and recorded in Arc Collector. Based on the VM inspections thus far, the Monitor team had a number of questions regarding the data fields relating to post-work verification, and PG&E's methodology for scheduling post-work verification. Accordingly, the Monitor team is modifying its planned inspections to include a larger percentage of projects for which post-work verification is complete, and will report our findings to PG&E and the Court after inspecting a sufficient sample set.

PG&E also stated that, in addition to using the Monitor team's VM inspections data to conduct root-cause analyses and corrective action plans with contractors, the Company is also using the data to assess the overall quality of the contractors and implement appropriate corrective oversight.

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### **V. PRELIMINARY RECOMMENDATIONS**

Based on its observations thus far, the Monitor team prepared a list of preliminary recommendations, all of which were shared with PG&E at the July 17 meeting. The Monitor team will assess PG&E's implementation of these recommendations and whether PG&E's efforts are effective.

#### **A. EVM Program Documentation**

The Monitor team recommends that PG&E consider regularly revisiting the EVM program guidance documents provided to contractors to ensure that they are clear and user-friendly. PG&E should ensure that revisions to the EVM program documents are quickly and clearly documented and disseminated to contractors. This is particularly important as PG&E rolls out a series of pilot initiatives designed to drive additional efficiencies in the EVM program. Separately, the Monitor team suggests that PG&E issue clarifying guidance—and accompanying training—on identifying hazard trees and options for mitigating them. Field data strongly suggests that a prior retraining effort failed.

Contractors have similarly told the Monitor team that they believe PG&E's EVM program guidance is lengthy and dense, and would benefit from simplification.

#### **B. Contractor Training, Management, and Oversight**

The Monitor team recommends that PG&E revamp its training regime, particularly for pre-inspectors, including continual assessments to confirm that pre-inspectors understand the scope of EVM. The Monitor team suggests that PG&E work directly with contractors' management to ensure that individual contractor employees are trained by PG&E and that training principles are reinforced through the contractors' training. PG&E can supplement this training by creating a process for PG&E resources to accompany (or "shadow") contractors in the field—this may help ensure appropriate, consistent methodology, and may also help answer any questions. PG&E should consider conducting joint trainings or coordination sessions between pre-inspectors and tree crews to ensure clarity and alignment between both.

The Monitor team further recommends that PG&E implement a more robust contractor review process, allowing PG&E to provide specific feedback regarding the quality of the contractors' work. PG&E should consider instituting greater accountability with contractors, including a root-cause analysis for potential misses and a corrective action plan. PG&E should also consider leveraging findings from PG&E's "shadow" reviews when preparing root-cause analyses and corrective action plans.

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**C. Recordkeeping and Arc Collector**

Recordkeeping defects have been a recurrent problem for PG&E—both before and after the San Bruno explosion and before and after the more recent 2017 and 2018 wildfires. Recordkeeping defects persist. As discussed, many of the recordkeeping issues the Monitor team has identified appear to stem from an incomplete and inconsistent deployment of Arc Collector to manage the EVM program. Accordingly, the overarching consideration for PG&E is to ensure that it is fully invested in using Arc Collector as a central repository to manage its EVM program, at least absent a decision to employ a different recordkeeping system if one is better. None has been suggested.

Assuming Arc Collector is retained, the Monitor team specifically recommends that PG&E first ensure that all trees that are identified for work—including the accompanying prescriptions, notations, and status—are reflected in the Arc Collector repository. While PG&E may decide to continue using physical markings to designate tree work, those markings should supplement—and be reflected in—Arc Collector. For example, after a tree is identified for pruning in Arc Collector, it can also be flagged, with a notation in Arc Collector describing the type, location, and color of flagging. This process should improve overall operations and reduce overall risk profiles in the PG&E high-threat geographies.

Second, the Monitor team recommends that PG&E ensure that the projects and maps in Arc Collector are complete and accurate, which may require a thorough review and reconciliation with PG&E's existing service territory.

Third, the Monitor team recommends that PG&E ensure that the project status in Arc Collector clearly reflects the status of any homeowner refusals, regulatory constraints, environmental issues, or other matters that may not be allowing completion. This minimal documentation will promote reasoned decision-making.

Finally, to ensure Arc Collector works as intended, PG&E must consider devoting appropriate resources to improving and enhancing its functionality, re-training contractors on usage, enforcing its usage, regularly maintaining and reviewing the database to ensure the appropriate quality of information that is entered, and periodically auditing the database to ensure robustness of processes. Relatedly, as an enforcement measure, PG&E should consider requiring contractors to fully enter and record information in Arc Collector prior to payment. Financial penalties can be used to incentivize compliance. Again, defective records have been a root cause of PG&E safety problems for many years; this is an issue that can directly lead to tragic injuries and deaths, as well as related widespread property damage.

As noted earlier, the changes to Arc Collector processes and usage are particularly important given PG&E's plans to expand its use beyond EVM later in 2019.

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**D. Risk Trees**

The Monitor team appreciates that the risk tree program is still undergoing evaluation in light of the CPUC Order. Nonetheless, the Monitor team recommends that PG&E critically evaluate how to successfully implement a species-based risk tree program, given (1) the failure of pre-inspectors to consistently identify risk trees, and (2) the lack of qualified tree workers available to perform all the removals that would be required to fully execute the program.

**VI. CONCLUSION**

The VM inspections are accomplishing their objectives, but work is ongoing. Over the coming months, the Monitor hopes to see downward trends in the findings of potential exceptions, and to observe PG&E implement positive process changes and enhancements. The Monitor team looks forward to providing supplemental updates to the Court, and to PG&E's senior management and Board members, as our work progresses. In the meantime, the Monitor team is available at the Court's convenience to answer any questions the Court has with regard to the VM inspections and any other matters of interest to the Court.

Sincerely,

A handwritten signature in black ink that reads "Mark Filip". The signature is written in a cursive, slightly slanted style.

Mark Filip

**Exhibit 1 - VM Inspections July 17 Presentation to  
Company**



KIRKLAND & ELLIS

PG&E Monitor Team:  
EVM Inspection Process &  
Preliminary Observations

July 17, 2019

# Agenda

1. Background
2. Monitor Team Inspection Process
3. Preliminary Observations
4. PG&E Feedback and Mitigation
5. Preliminary Considerations

# Agenda

- 1. Background**
2. Monitor Team Inspection Process
3. Preliminary Observations
4. PG&E Feedback and Mitigation
5. Preliminary Considerations

# EVM Inspections Ordered by Judge Alsup on April 3, 2019

Case 2:14-cr-00175-WHA Doc# 1089-1

IN THE UNITED

FOR THE NORTH

UNITED STATES OF AMERICA,

Plaintiff

PACIFIC GAS AND ELECTRIC  
COMPANY,

Defendant

This order follows the April 2, 2019

to the conditions of probation already in

of probation in order to protect the public

PG&amp;E's need to address the safety

rehabilitation of PG&amp;E among other go

1 PG&amp;E must fully

vegetation management and the

4391 of the California Public U

FERC FAC-001-4 In this case

interpretation of Section 4391.4

101.7)

2 PG&amp;E must fully

forth in its wildfire mitigation pl

management Compliance with 4391.4

and safety. PG&amp;E will be

3. The Monitor shall assess PG&E's wildfire mitigation and wildfire

safety work, including through regular, unannounced inspections of PG&E's

vegetation management efforts and equipment inspection, enhancement, and

repair efforts. The inspections will include both inspections of segments of power

lines where PG&E has conducted its enhanced vegetation management efforts

pursuant to its wildfire mitigation plan, as well as areas where enhanced

vegetation management has yet to occur. The inspections will further include

field interviews and questioning of PG&E employees and contractors.

# Background

- **Purpose.** In furtherance of the Court's April 3, 2019 Order, the purpose of the inspections is to evaluate and assess aspects of PG&E's vegetation management efforts taken in accordance with its EVM policies and applicable VM-related regulations.
- **Scope.** The inspections largely evaluate the work of pre-inspectors and tree workers and whether they, in accordance with EVM, identify and mitigate hazard trees, radial clearances, overhangs, and risk trees.
  - The inspections are complementary to our broader efforts to assess EVM and VM-related processes and program execution.
  - To the extent we observe ancillary issues through our inspections (e.g., recordkeeping), we are recording those observations and will provide appropriate feedback.
- **Feedback and Modifications.** A goal of the inspections is to provide timely, accurate, and actionable reports to PG&E. We are also developing a process for reviewing PG&E's responses to the identified issues, and can modify or adjust our inspection processes as needed to further our goals of providing helpful feedback.

# Agenda

1. Background
- 2. Monitor Team Inspection Process**
3. Preliminary Observations
4. PG&E Feedback and Mitigation
5. Preliminary Considerations



# Monitor Team Inspection Personnel

- Each inspection team consists of:
  - 1) A Filsinger Energy Partners' ("FEP") arborist, certified by the International Society of Arboriculture. All FEP arborists have utility experience.
    - FEP is a premier energy advisory firm, consisting of numerous executives with utility and other energy experience. Among other high-profile projects, FEP was integral to the restoration of Puerto Rico's utility infrastructure following Hurricane Maria.
  - 2) A Kirkland & Ellis LLP ("K&E") attorney.
- Each inspection team is trained on the EVM Scope relevant to the inspections and Monitor team's inspection process.
- The inspection process is also overseen by an FEP expert in utility vegetation management.

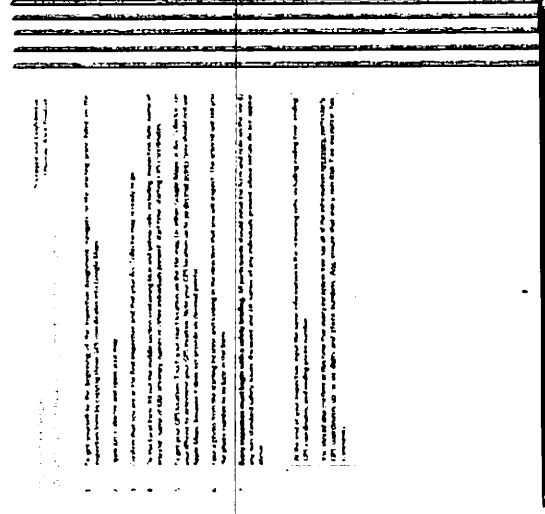
# Monitor Team Inspection Process

- FEP arborists are provided a training manual containing relevant materials, including the 2008 CAL FIRE Power Line Fire Prevention Field Guide.
- K&E attorneys also receive a detailed training guide explaining how to conduct inspections, with step-by-step details on preparing for an assignment, navigating the project, gathering data, and uploading collected data.
- Attorneys and arborists receive multiple days of training in the field before they may conduct inspections.

Form 118-01 (02/17) WHA - Encumbrance (02) - Field Locations - Page 1 of 24



## POWER LINE FIRE PREVENTION FIELD GUIDE 2008 EDITION



# Monitor Team Inspection Process

- Hazard tree factors present that pose a risk of falling and are tall enough to strike primary or secondary conductors, guys or structures.
  - Dead or dying trees
  - Leaning or uprooting trees
  - Trees with obvious signs of butt, heart, or root rot
  - Trunk defects or deformities such as cankers, included bark, weak crotches or forks, swellings, or cracks
  - Trunk defects or deformities due to man-caused damage
  - Limbs that are dead, dying, defective, hanging, or weakly attached
  - Trees with unbalanced or excessive crown growth subject to breakage
  - Trees subject to wind throw
  - Trees subject to breakage due to normal weather conditions such as wind, ice, and snow
  - Root damage or exposure due to recent trenching, change in grade, or erosion
  - Other conditions.

# Monitor Team Inspection Process

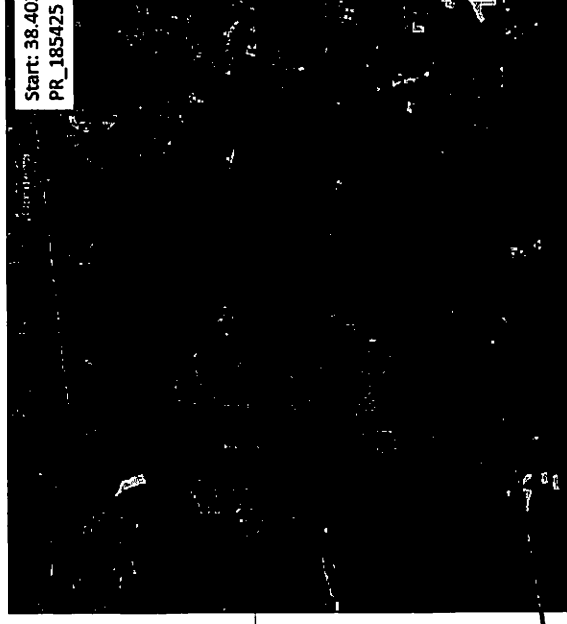
- **Generating Assignments.** PG&E granted the Monitor team access to the Arc Collector database. Using that database, the Monitor team selected random, targeted samples of circuits across PG&E's service territory where EVM work is scheduled or completed.
  - The sample set includes projects at all stages of the EVM lifecycle, including projects that have been pre-inspected, worked, and for which post-work verification is complete.
  - Because EVM work is limited to HFTDs, all circuit samples are currently located in HFTDs.

- **Previews.** Team members preview the selected circuits to determine whether the circuits will be accessible to the Monitor team and whether the circuits can be inspected safely.

- **Maps.** Maps are generated for the Monitor team to use to safely and efficiently find their assigned circuits.

## Molino 1102\_C3

Runs east along Coleman Valley rd. Pretty much in the clear and very accessible. However it veers from the highway into heavy forest but doesn't appear to be far from the road. Quite a bit of walking through this heavy forest.



End: 38.358, -122.961  
PR\_186298

# Monitor Team Inspection Process

- There are three ways in which the Monitor team can conduct inspections:
  - “**Method A**” inspections, the purpose of which is to conduct a detailed audit of *specific tree(s)* on a primary distribution line noted in Arc Collector or out in the field.
  - “**Method B**” inspections, which are designed to allow the Monitor team to walk the primary distribution circuits at all stages of EVM and find potential exception trees that may not have been identified for work or may not have been worked as required. (This is the primary means of inspection).
  - “**Method C**” inspections, which assess primary distribution lines in HFTDs that have not yet been pre-inspected by PG&E for EVM.

# Monitor Team Inspection Process

- Each week, inspection teams are assigned to various project numbers within circuits. (The project numbers are the same as those listed in Arc Collector). Each inspection team walks their assigned projects/circuit and records the following information on an iPad:
  - Trees that potentially do not meet the EVM Scope (referred to as potential “exceptions”), including with respect to overhangs, radial clearance, hazard trees, and risk trees.
  - Potential discrepancies in PG&E’s recordkeeping within Arc Collector.
  - Customer interactions, if any.
  - Any other notable observations.
- The inspections are ongoing. The Monitor team will continue to modify its processes as needed, including to reflect any changes PG&E makes to its inspections-relevant EVM processes.



# Monitor Team Data Collection

- Inspection teams populate a template form to record their observations.
- Photos are taken of exception trees, with specific guidance on what should be included in each photo.
- Among other items, forms reflect the following:
  - Inspection team members.
  - Project and circuit names and locations.
  - Details regarding potential exceptions identified, including tree species, height and diameter specifications, GPS coordinates, physical markings, photos, and other comments to substantiate observations. (The inspection teams have tools that enable them to measure height, distance, and other specifications).
  - Project status in Arc Collector.

# Monitor Team Data Collection

- After each inspection, the data from the forms and the photos taken during the inspection are catalogued, compiled, and stored.
- The Monitor team's data collection forms are intended to document the full extent of work that was done, including when and where the work was completed, who completed it, and what was observed (including projects with and without potential exceptions).
- *Example forms are reflected on the following slides.*

# Sample Monitor Team Inspection Forms

ASSIGNMENT\_183671\_B\_001 Inspection Form

CIRCUIT NAME	MOLINO 1102
REGION	North Coast
STATUS	Work Identified
GPS COORDINATES (BEGINNING)	38.413, -122.973
GPS COORDINATES (ENDING)	38.414, -122.980
PRE-INSPECTION DATE	4/12/2019 - 5/8/2019
TRAFFIC CONTROL	8 projects require traffic control
ENCROACHMENT PERMITS	N/A
PERMITS	0

ASSIGNMENT ID	
MONITOR INSPECTION DATE	7/8/2019
CERTIFIED/ARBORIST	Levi Conrad
K&E ATTORNEY	Amarto Bhattacharyya
FEP ASSISTANT	
OTHER PERSONNEL (Affiliation)	
OTHER PERSONNEL (Affiliation)	

INSPECTION METHOD [A OR B]	B
START TIME	1:30 PM
STARTING GPS COORDINATES	38.413, -122.973
STARTING PHOTO #	792
END TIME	5:00 PM
ENDING GPS COORDINATES	38.414, -122.980
ENDING PHOTO #	791

# Sample Monitor Team Inspection Forms

**Safety Briefing Acknowledgment - All on-site personnel must initial to confirm that they participated in the safety briefing:**

 Ab

 LC




**Additional safety issues discussed outside of standard protocol or additional personnel: \_\_\_\_\_**

GPS COORDINATES	PROJECT AUTO ID LOCATION	SPECIES	VEG ISSUE <sup>1</sup>
38.413000, -122.973335	183327	Coastal Redwood	Overhang
38.413000, -122.973335	183327	Douglas fir	Overhang
38.413166, -122.973309	183327	Other: (Write in Comments)	Overhang
38.412809, -122.974084	183274	Coastal Redwood	Hazard tree



# Sample Monitor Team Inspection Forms

APPROX. DISTANCE FROM PRIMARY CONDUCTOR (in ft)	DIRECTION FROM PRIMARY CONDUCTOR	APPROX. HEIGHT (in ft)	APPROX. DBH (in inches) <sup>2</sup>	PRESCRIPTION	PHOTO #
23	West	120	32	Clear to sky	678-680
12	West	135	31	Clear to sky	681-683
8	West	70	19	Clear to sky	684-686
18	South	107	22	Removal	741-745

COMMENTS	ARC COLLECTOR PROJECT STATUS	OBSERVED TREE WORK IN IMMEDIATE VICINITY OF SUBJECT TREE?	HAS TREE BEEN RECENTLY WORKED?	IS TREE IN ARC COLLECTOR?	WAS TREE MARKED WITH PAINT FOR TRIM OR REMOVAL?
14 feet above line	No work required Under EVM	No	No	Tree not in ArcCollector	No paint observed
35 feet above line	No work required under EVM	No	No	Tree not in ArcCollector	No paint observed
Madrone: 8 feet above line.	No work required under EVM	No	No	Tree not in ArcCollector	No paint observed
Soil erosion, root loss, root anchorage compromised, majority of branches on side of conductor.	No work required under EVM	No	No	Tree not in ArcCollector	No paint observed

Customer/Third Party Interactions - Please note the reason and time of any interactions with third parties made during Project Inspections:

TIME	PROJECT/AUTO ID LOCATION	COMMENTS
1:45 PM	183327	Asked what we are doing, responded inspecting lines.

# Sample Monitor Team Inspection Forms

- Due to the high number of potential risk tree exceptions, the Monitor team records the trees species and tree count for potential risk trees in each project the Monitor team inspects:

PROJECT AUTO ID LOCATION	SPECIES	VEG ISSUE <sup>1</sup>	IF RISK TREE, # OF RISK TREES IN PROJECT/BY SPECIES
36019	Gray pine	Risk tree	4
2980	Douglas fir	Risk tree	1
38549	Coastal live oak	Risk tree	2
2980	Black oak	Risk tree	1



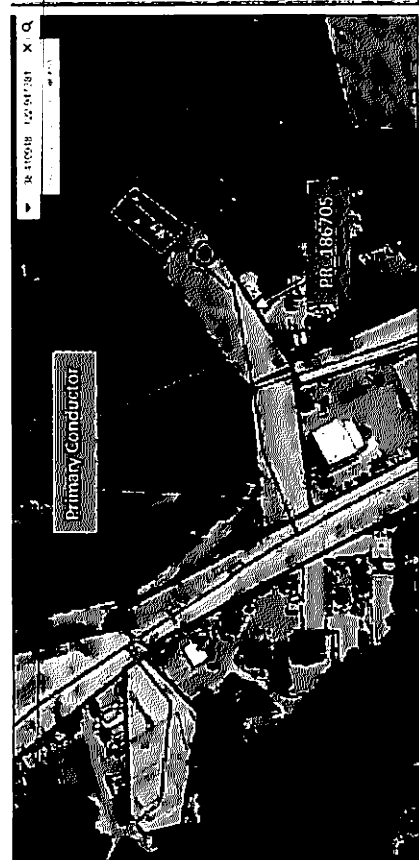
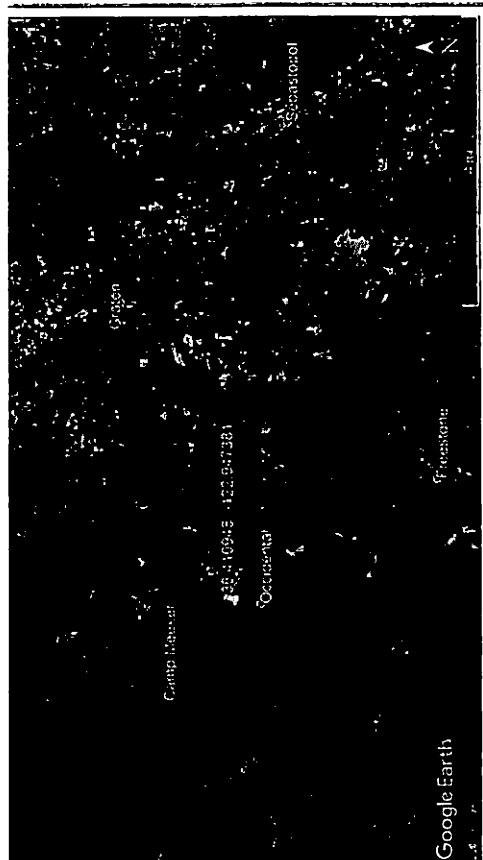
# Monitor Team Data Collection

- The Monitor team uses the data collected from the forms to prepare reports to PG&E on potential exceptions.
  - There is usually a single report for each potential exception, but similar potential exceptions are sometimes grouped together into one report for ease of review (e.g., a cluster of potential overhangs on the same project).
- The reports are intended to consolidate the collected data and provide succinct, precise details to PG&E regarding the subject tree, such that PG&E can dispatch appropriate personnel to the exact location, identify the subject tree, and make an independent determination as to the need for mitigation, and the associated urgency and prioritization of the work.
  - To this end, the reports do not provide all collected data (e.g., the team members that identified the potential exception, start times, end times, etc.)—the reports are intentionally limited to information that is actionable and usable for PG&E.
- *Example reports are reflected on the following slides.*

# Monitor Team Exception Reports

## Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on June 18, 2019 of Project *PR\_186705* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



### Tree Information:

PG&E ArcCollector Project Status	No Work Required Under EVM
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes
Species	Coastal Live Oak
GPS Coordinates	38.410948, -122.947381
Approx. Distance from Primary-Conductor	Trunk of tree 23 feet south
Approx. Height	56 feet
Veg Type	Potential Hazard Tree
Monitor Arborist Comment	Observations of the tree include (a) cavity in trunk displays evidence of decay, (b) guy wire embedded in trunk, and (c) tree leaning toward primary conductor

# Monitor Team Exception Reports

## Tree Photos

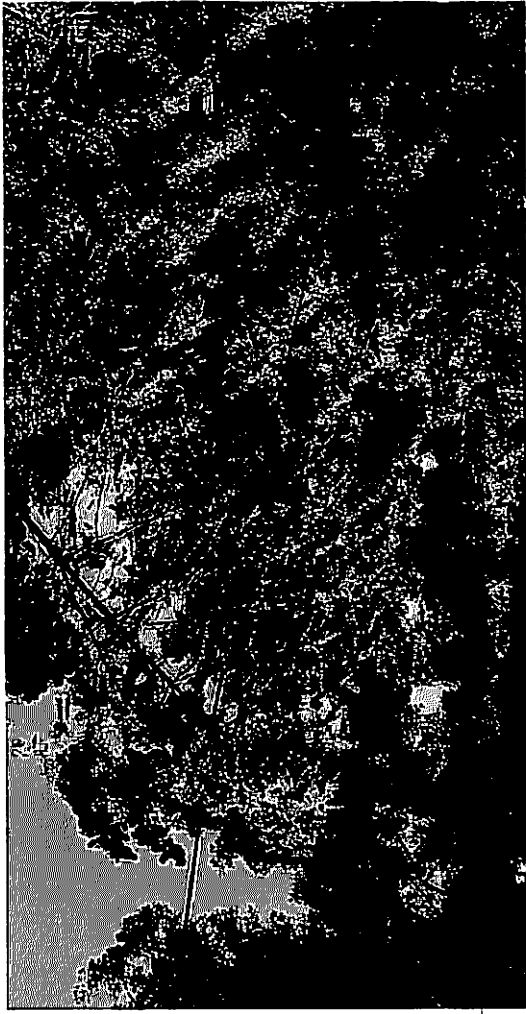
Photographs below show subject tree and proximity to the primary conductor.



# Monitor Team Exception Reports

## Time-Sensitive Observations

- If an issue in the field appears to pose a more immediate potential hazard, the Monitor team passes on the information to PG&E as soon as possible.
  - For example, this occurred on June 27, July 11, and July 12.



From: Kalil, Charles J.  
 Sent: Thursday, July 11, 2019 5:02 PM  
 To: Vallejo, Alex <AXVU@pge.com>; 'Ridley, Brandon' <BXRR@pge.com>; Kane, Julie  
 Cc: Keegan, Christopher W. <chris.keegan@kirkland.com>  
 Subject: Molino 1102 Inspection

For discussion on our call. Thanks.

Inspection of Molino 1102 Assignment 181795\_C3\_004.

Project ID: PR\_182506

Estimated GPS coordinates: 38.3802, -122.9676

Species: Douglas Fir

Veg Issue: Hazard

Distance from primary line: in contact with primary line

Approx height: 40 feet

Comments: tree is located in what appears to be a private driveway for home. Home address: 2383 Joy Road, Occidental, CA 95465. See attached photos of mailbox located at the entrance of driveway and of nearest pole number.

# Monitor Team Exception Reports

## Risk Trees

Project ID	Species										Total
	Black Oak	Coastal Live Oak	Live Oak	Tan Oak	Valley Oak	Gray Pine	Douglas Fir	Ponderosa Pine	Monterey Pine	Blue gum/Eucalyptus	
PR_012713	-	-	-	-	-	-	8	-	-	-	8
PR_012796	6	2	-	-	-	-	25	-	-	-	33
PR_012813	-	-	-	-	-	-	1	-	-	-	1
PR_012840	2	-	-	-	-	-	5	-	-	-	7
PR_013147	-	-	-	-	-	-	6	-	-	-	6
PR_013163	-	-	-	-	-	-	4	-	-	-	4
PR_013167	1	1	-	-	-	-	23	-	-	-	25
PR_013266	-	-	-	-	-	-	1	-	1	-	2
PR_013323	-	5	-	-	-	-	-	-	-	-	5
PR_020402	-	-	-	-	-	-	-	1	-	-	1
PR_020837	-	2	-	-	-	-	-	-	-	-	2
PR_037857	-	-	-	-	4	1	-	-	-	-	5
PR_037863	-	-	5	-	-	-	-	-	-	-	5
PR_166733	2	2	-	-	-	-	5	1	-	-	10
PR_166734	-	-	-	-	-	-	4	-	-	-	4

# Agenda

1. Background
2. Monitor Team Inspection Process
- 3. Preliminary Observations**
4. PG&E Feedback and Mitigation
5. Preliminary Considerations



# Monitor Team Inspection Observations

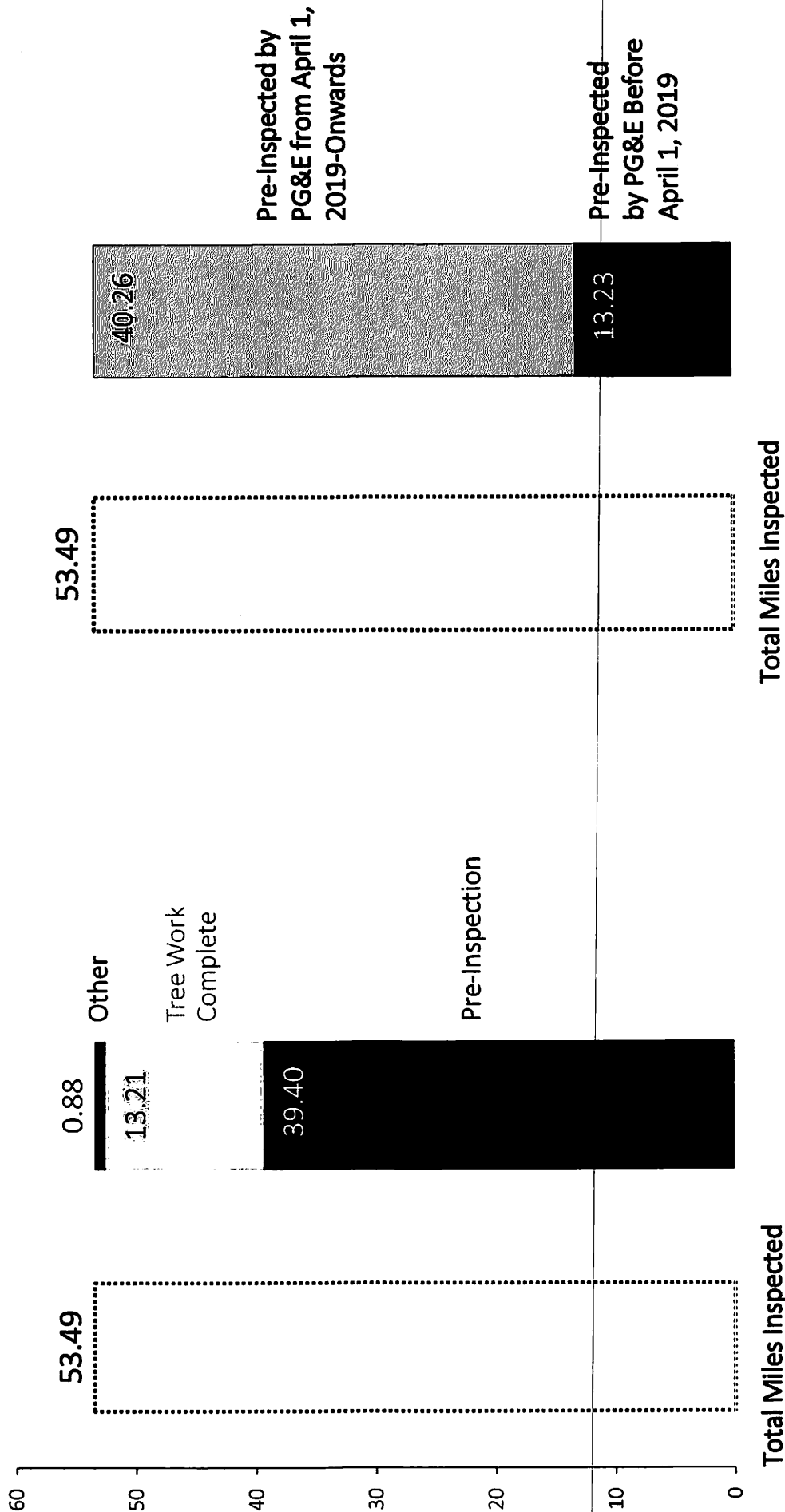
## Methodology

- **Observations.** As noted on the subsequent slides, the Monitor team tracks and aggregates its observations, both with respect to the types of exceptions identified (e.g., overhangs, hazard trees, etc.), but also with respect to other salient issues (e.g., recordkeeping).
- **Mileage Inspected.** Inspections are conducted by project (as listed in Arc Collector). Projects are of varying mileage. To determine the total mileage inspected by the Monitor team, the team calculates the mileage total of all projects inspected.
- **Data Timeframe.** All data herein reflects inspections completed as of July 5, 2019.
- **PG&E Feedback.** The Monitor team appreciates that PG&E reviews the potential exceptions identified and may have a different view than the Monitor team. However, for purposes of sharing our preliminary observations, all identified potential exceptions are included on the subsequent slides.



# Monitor Team Inspection Observations

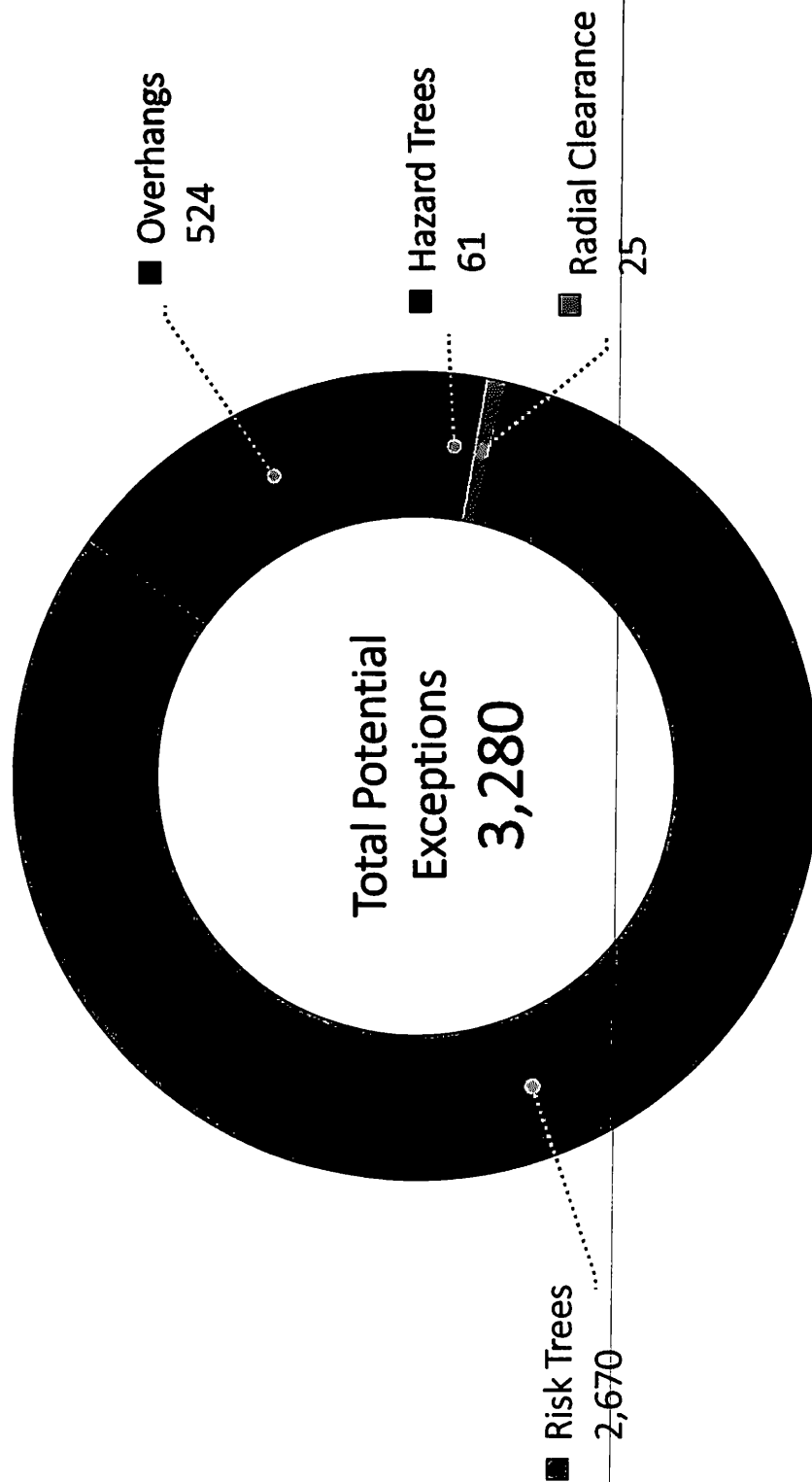
## Miles Inspected



***"Other"** reflects projects that are designated as Partial Refusals, Refusals, or Quarantines.*

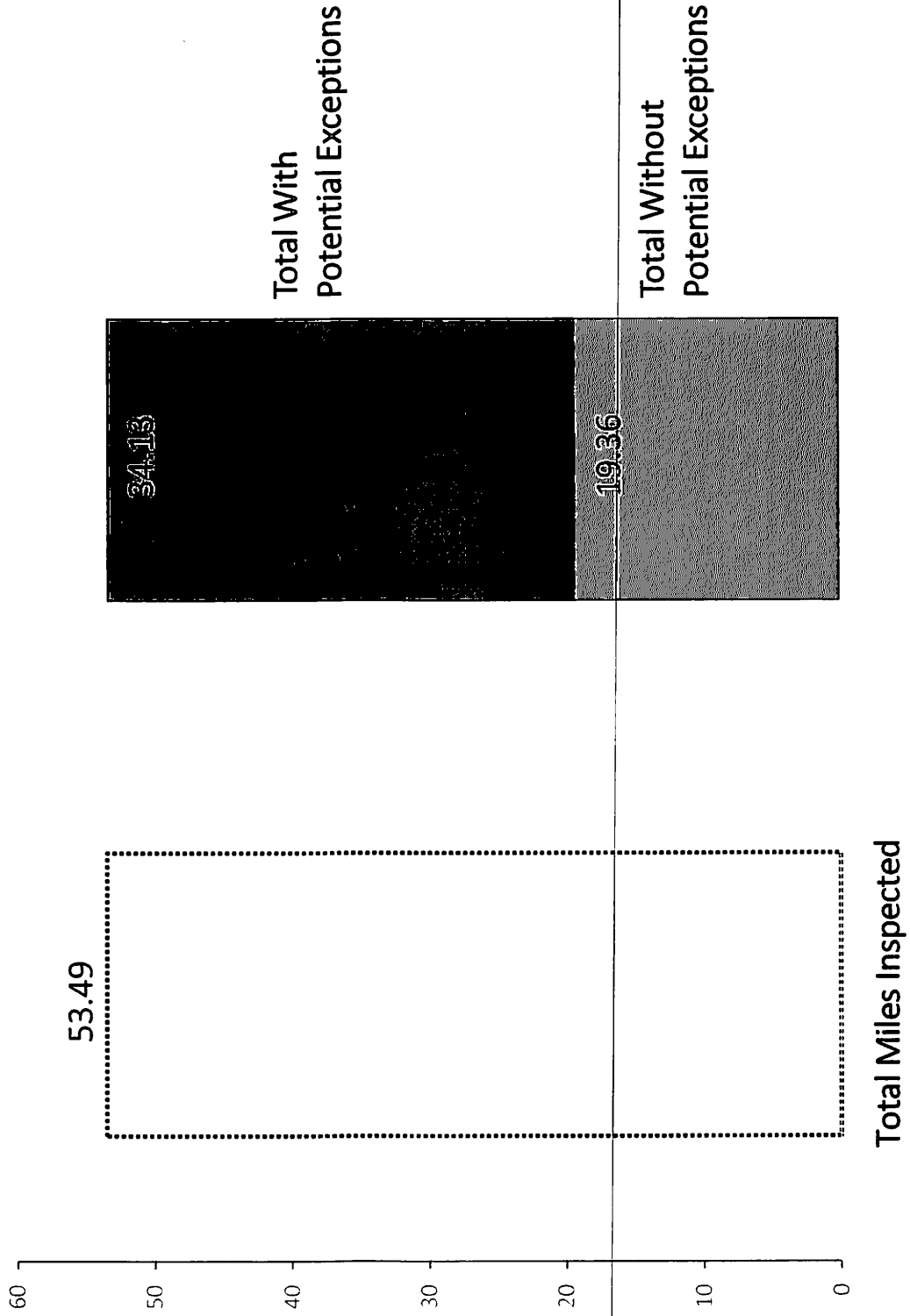
# Monitor Team Inspection Observations

## Total Potential Exceptions



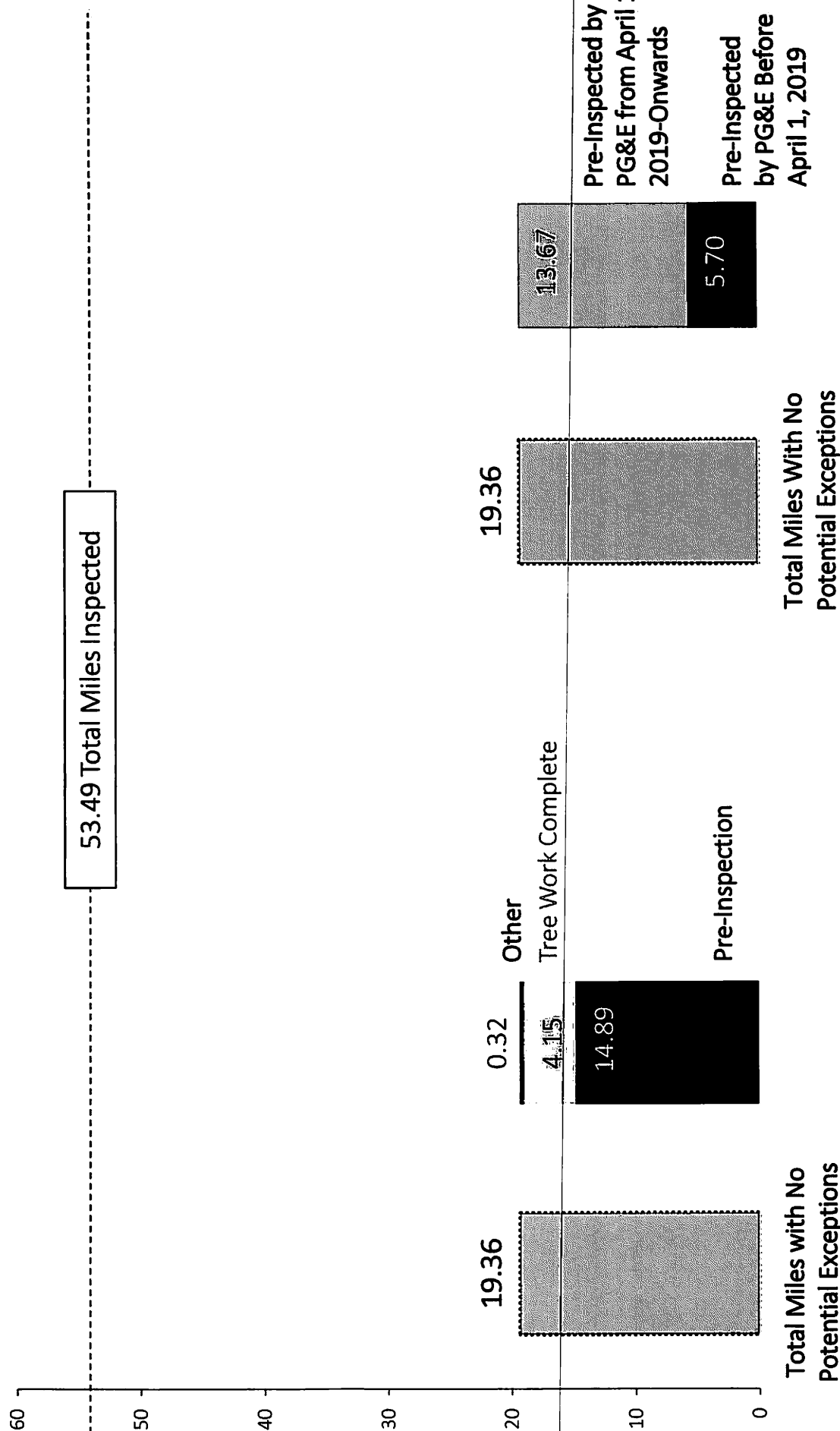
# Monitor Team Inspection Observations

## Miles With and Without Potential Exceptions



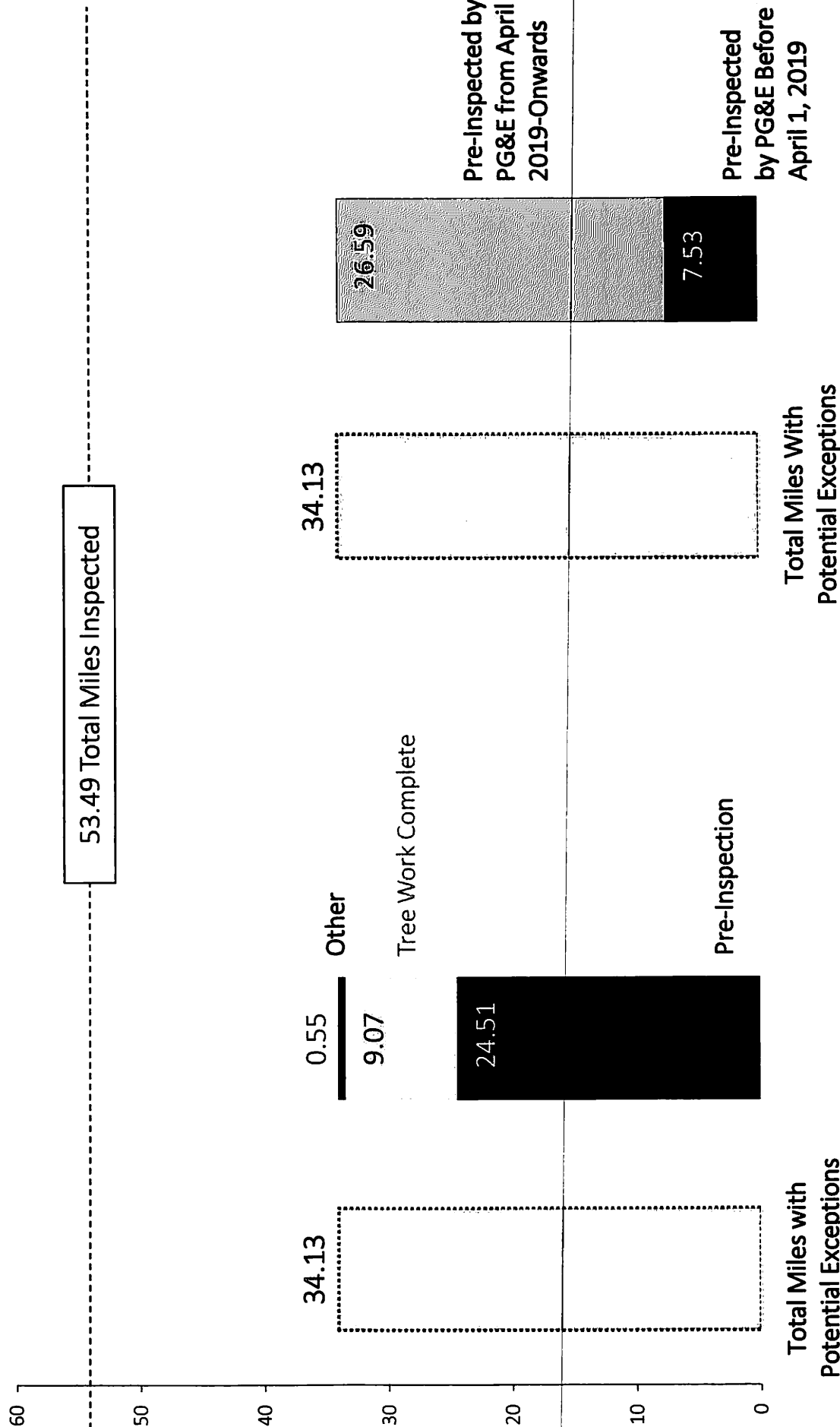
# Monitor Team Inspection Observations

## Overview of No Potential Exceptions Observed



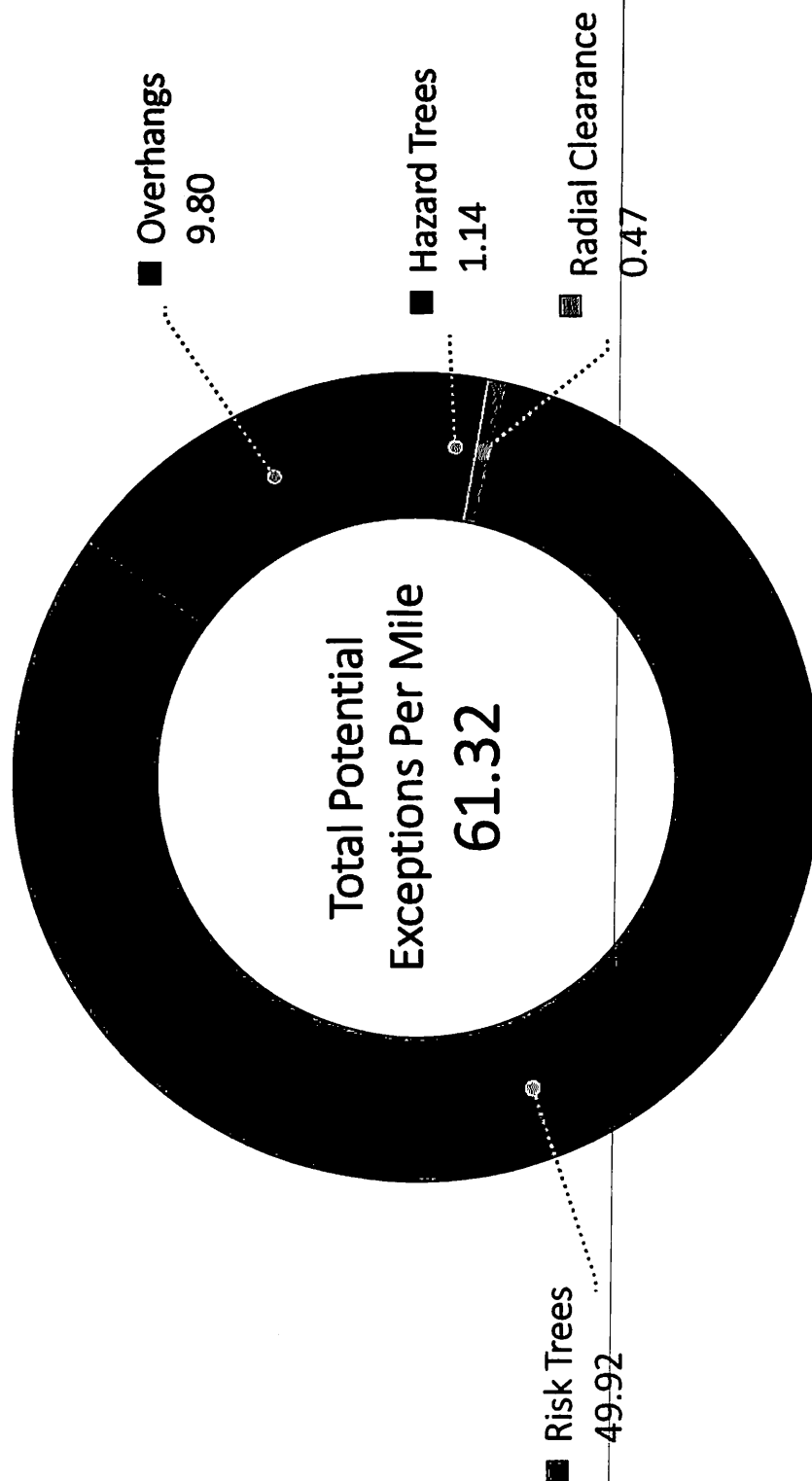
# Monitor Team Inspection Observations

## Overview of Potential Exceptions Observed



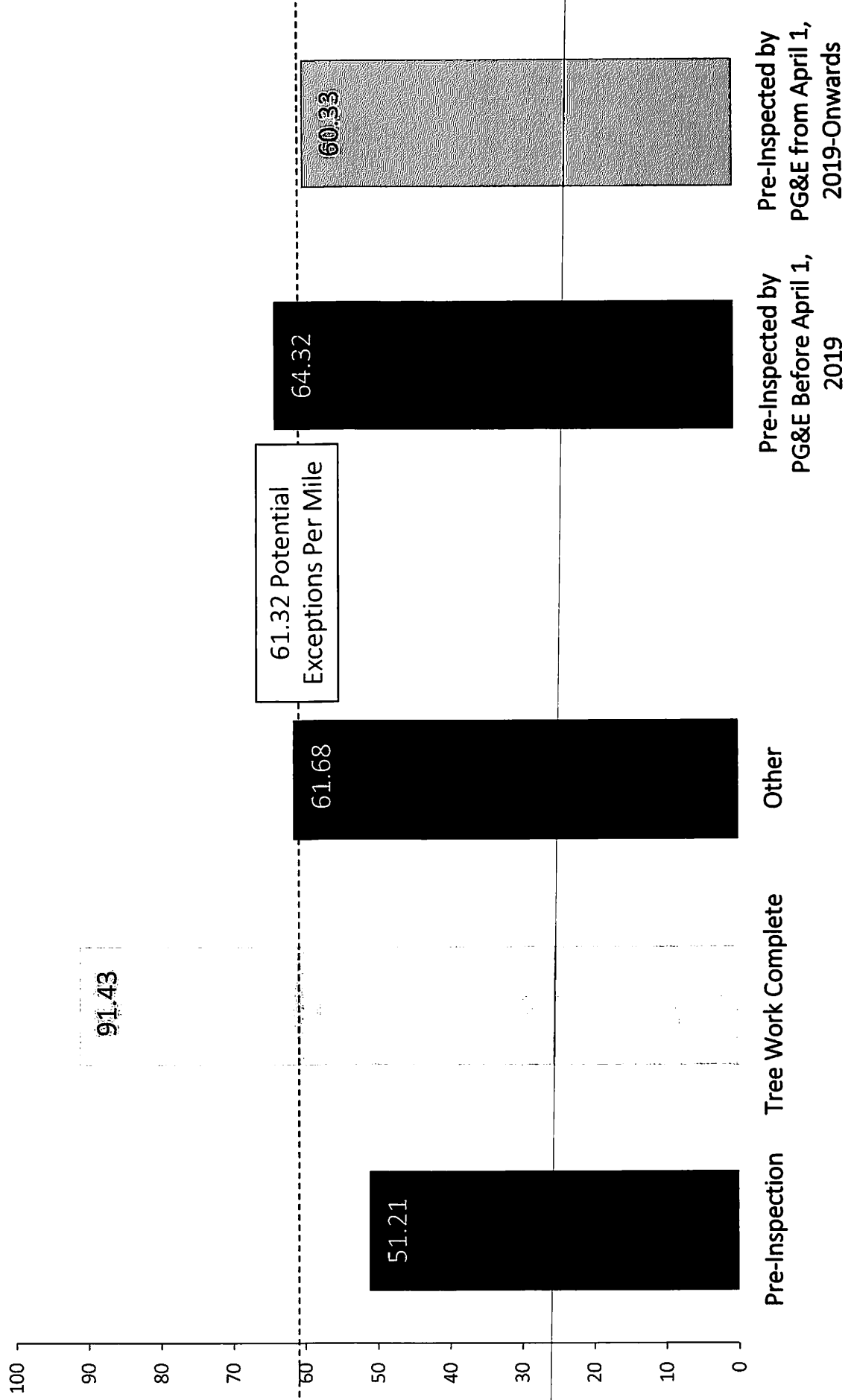
# Monitor Team Inspection Observations

## Potential Exceptions Per Mile (By Exception Type)



# Monitor Team Inspection Observations

## Potential Exceptions Per Mile (By Status and Date)





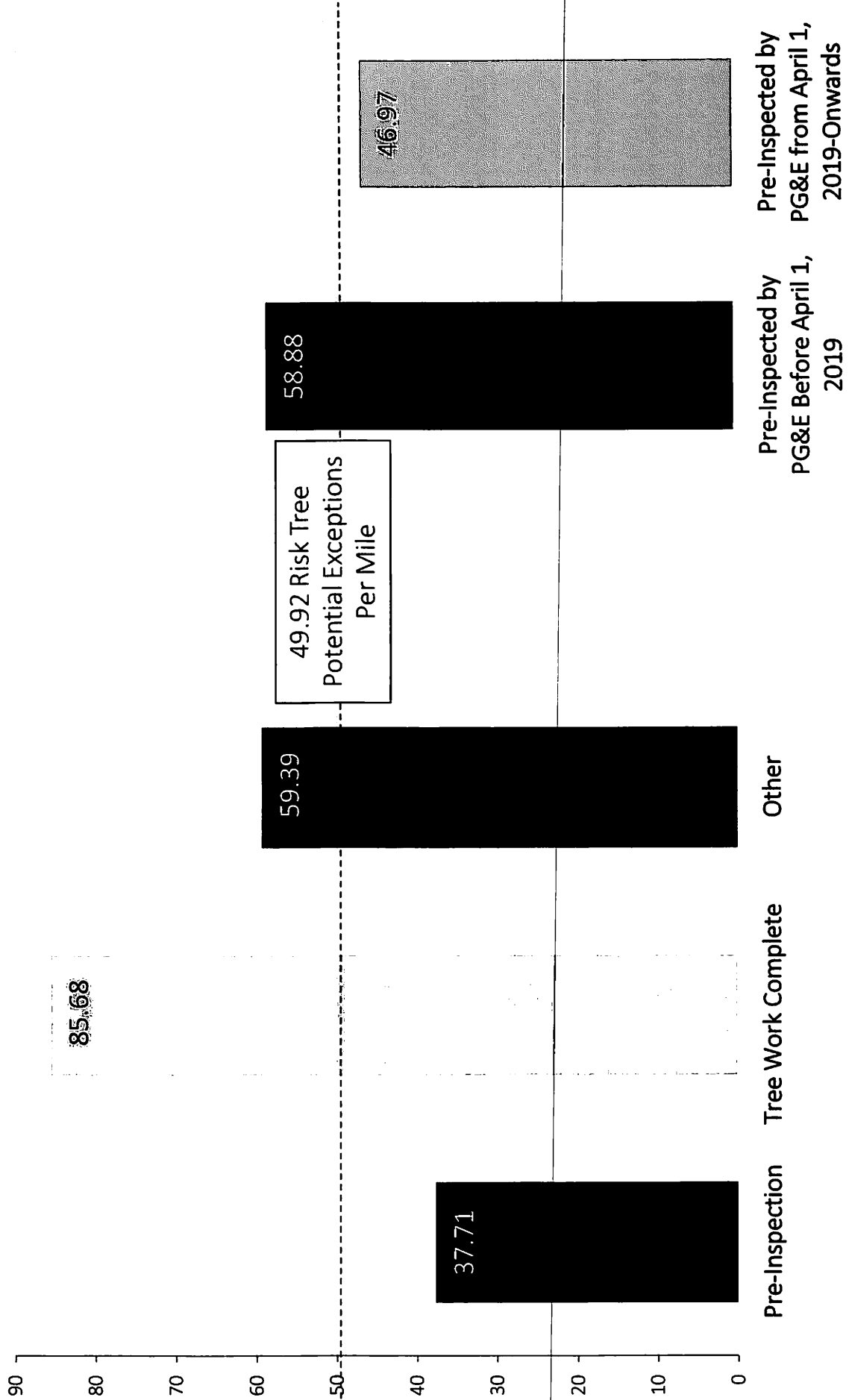
# Monitor Team Inspection Observations

## Risk Trees

- PG&E informed the Monitor team that, prior to April 1, 2019, there was some confusion among pre-inspectors regarding the Risk Tree Program — pre-inspectors were not fully aware of the Program, resulting in numerous unidentified risk trees. PG&E informed the Monitor team that the Company provided clarifying guidance on the Risk Tree Program by April 1, 2019 to correct this issue.
  - As noted on the following slide, the number of potential risk tree exceptions per mile pre-April 1 (58.88) is higher than the number from April 1-onwards (46.97). This suggests that the re-training may have slightly improved risk tree identification, but did not fix the underlying issue.

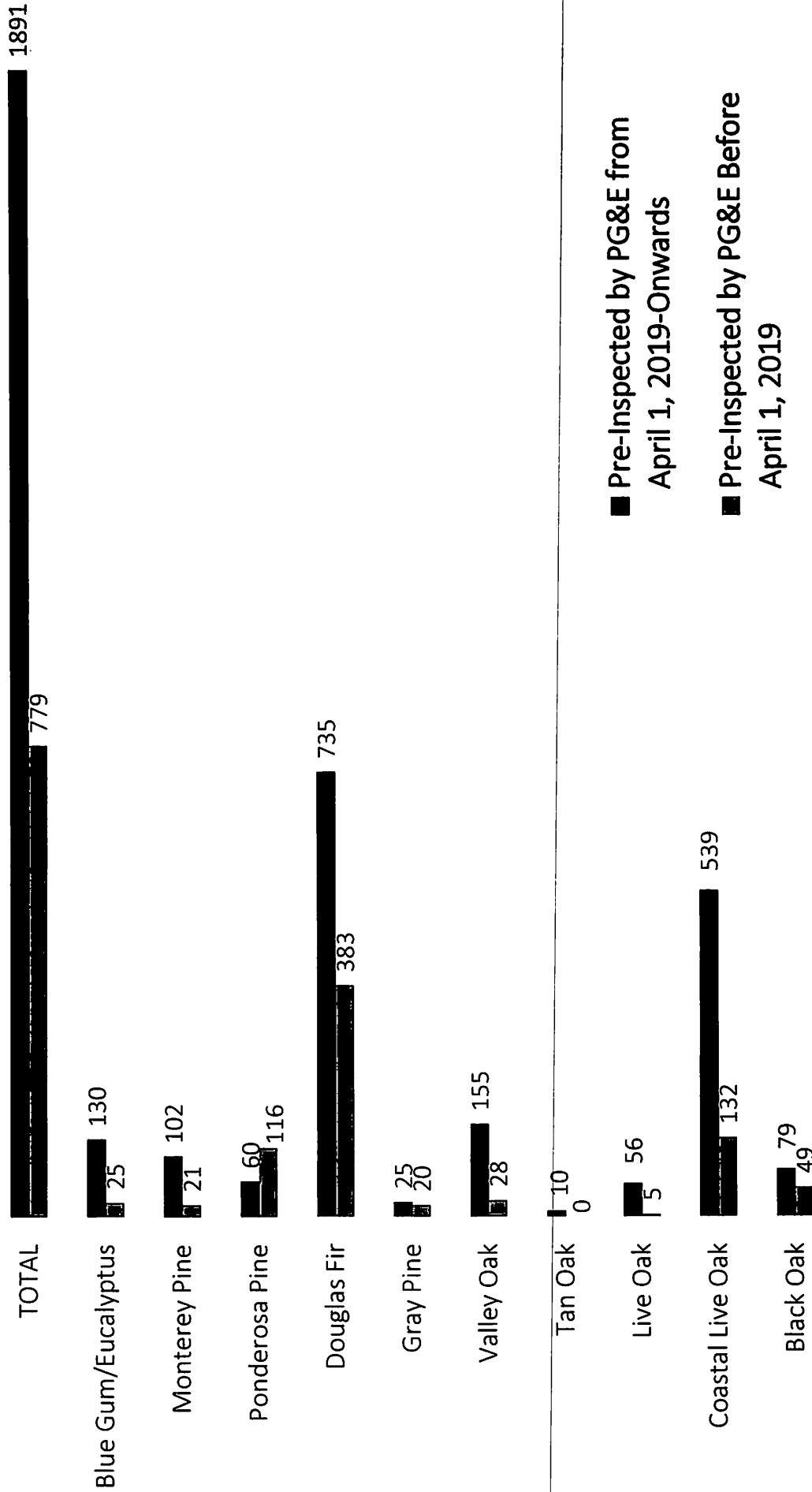
# Monitor Team Inspection Observations

## Risk Trees



# Monitor Team Inspection Observations

## Risk Trees



# Monitor Team Inspection Observations

## Risk Trees

ALI/SRT/PVA/avc

Date of Issuance 6/4/2019

Decision 19-05-037 May 30, 2019

BEFO

Order 1  
Enplan  
Mitigat  
Senate

201

Date of Issuance 6/4/2019

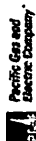
**DECISION ON PACIFIC GAS AND ELECTRIC COMPANY'S  
2019 WILDFIRE MITIGATION PLAN PURSUANT TO SENATE BILL 901**

7. During this cycle, Pacific Gas and Electric Company shall only remove healthy trees if the utility has evidence that those trees pose a risk to utility electric facilities under wildfire ignition conditions, based on the opinion of a certified arborist.

■ The Monitor team understands that PG&E is currently only removing risk trees that necessitate removal under the Hazard Tree Rating System and is developing a revised Risk Tree Program. This issue requires further assessment as preliminary observations suggest that pre-inspectors typically do not record hazard tree ratings and the number of missed risk trees under the program has been high.

# Monitor Team Inspection Observations

## Risk Trees



Pacific Gas and Electric Company

June 18, 2019

Lee Palmer  
Deputy Director, Office of Utility Safety  
Safety and Enforcement Division  
California Public Utilities Commission  
605 Van Ness Avenue  
San Francisco, CA 94102

Dear Mr. Palmer:

Thank you for your letter dated June 12, 2019 regarding arborists in the company's Enhanced Vegetation Management Program. We appreciate the time you took to speak with our Group leadership about the intent of D.19-05-037.

As discussed, PG&E will comply with Ordering Paragraph 7. PG&E will apply these arborist-approved criteria to the vegetation management activities described in the Company's approved 2019 Wildfire Safety Plan, namely the overhang clearing, at-risk tree species, and fuel reduction work occurring under the EVM program. PG&E's other vegetation management programs, including routine work outlined in PG&E's GRC application, will continue in its current form, not subject to Ordering Paragraph 7.

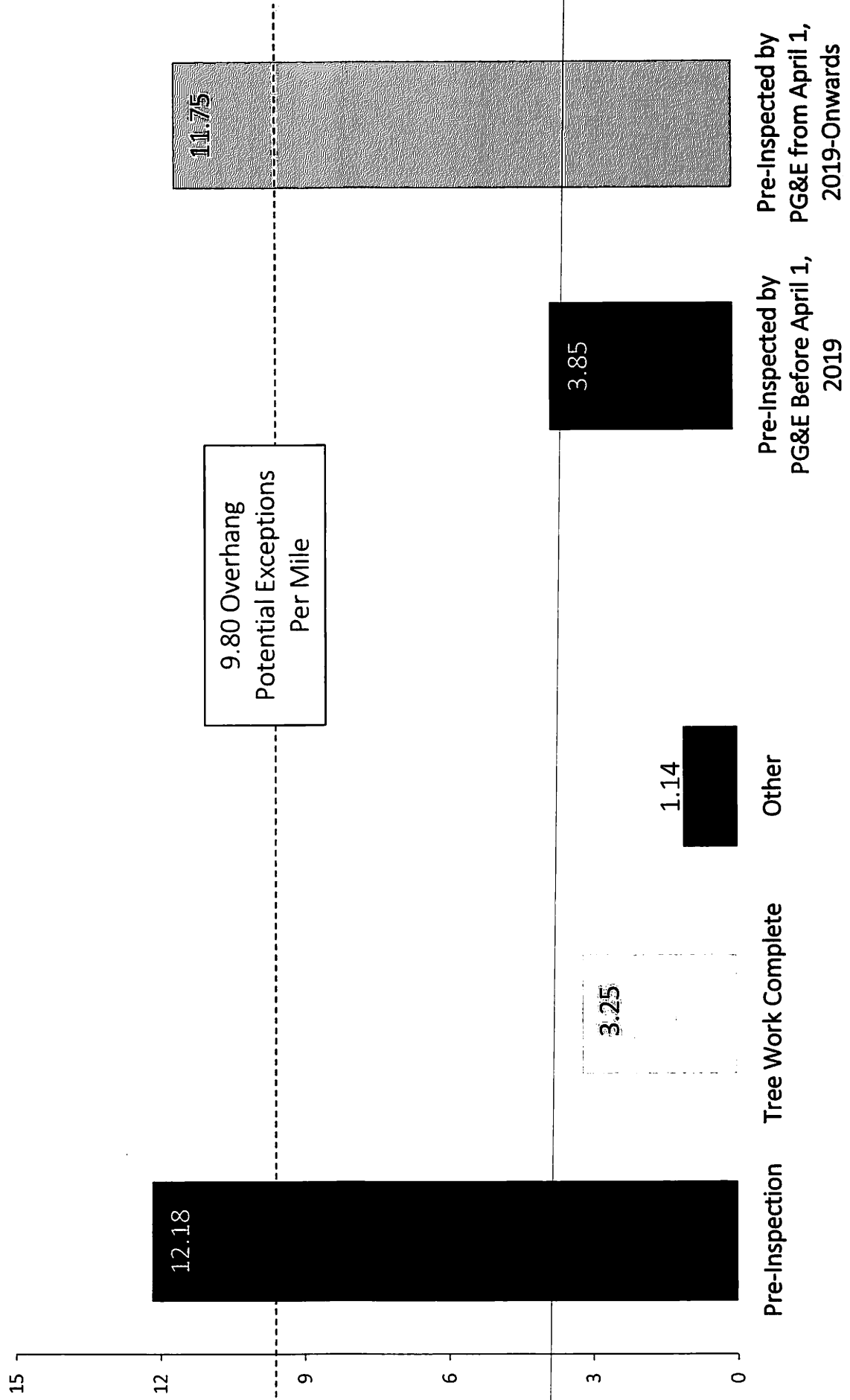
PG&E will apply these arborist-approved criteria to the vegetation management activities described in the Company's approved 2019 Wildfire Safety Plan, namely the overhang clearing, at-risk tree species, and fuel reduction work occurring under the EVM program. PG&E's other vegetation management programs, including routine work outlined in PG&E's GRC application, will continue in its current form, not subject to Ordering Paragraph 7.

As discussed, PG&E will comply with Ordering Paragraph 7 by having a certified arborist approve the criteria that PG&E's field crews will use in assessing healthy trees as part of the EVM program going forward. These criteria will cover conditions under which a healthy tree should and should not be removed as well as the conditions under which a field assessment should be escalated for further arborist review. PG&E interprets a certified arborist as being a professional possessing a certification from the International Society of Arboriculture.

PG&E will apply these arborist-approved criteria to the vegetation management activities described in the Company's approved 2019 Wildfire Safety Plan, namely the overhang clearing, at-risk tree species, and fuel reduction work occurring under the EVM program. PG&E's other vegetation management programs, including routine work outlined in PG&E's GRC application, will continue in its current form, not subject to Ordering Paragraph 7.

The Monitor team further understands that, based on PG&E's letter to the CPUC on June 18, 2019, PG&E is developing arborist-approved criteria governing removal of healthy trees. The Monitor team will adjust its inspections as needed based on the new criteria. Given the ongoing development of the Risk Tree Program, the Monitor team will continue to closely evaluate this area.

# Monitor Team Inspection Observations Overhangs



# Monitor Team Inspection Observations

## Overhangs

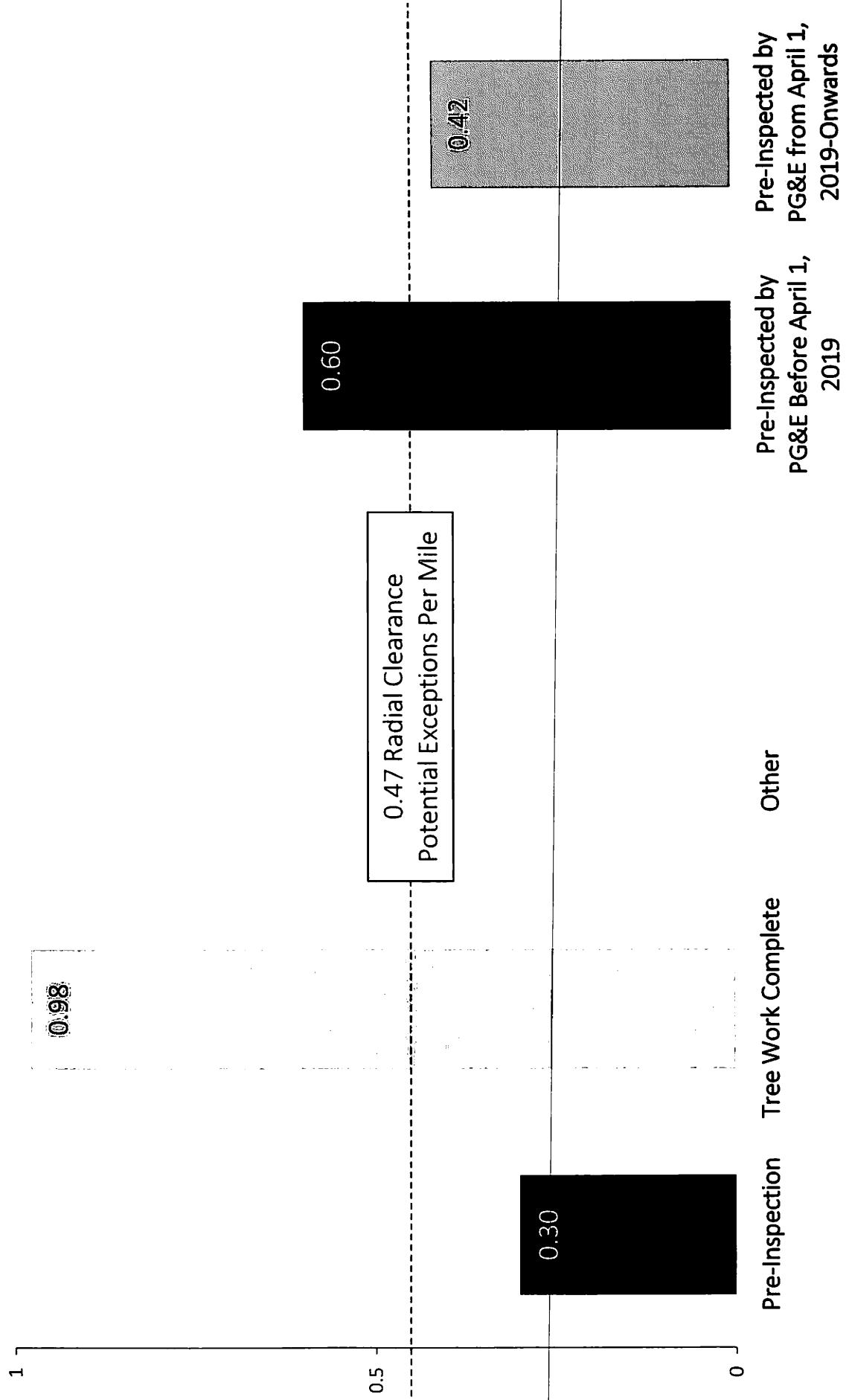
- The Monitor team noted multiple instances where overhangs were not completely cleared (*example photos below*).
- Relatedly, the Monitor team observed that some trees were pruned to clear overhanging vegetation up to a certain height, but the highest portion of the tree was not pruned.





# Monitor Team Inspection Observations

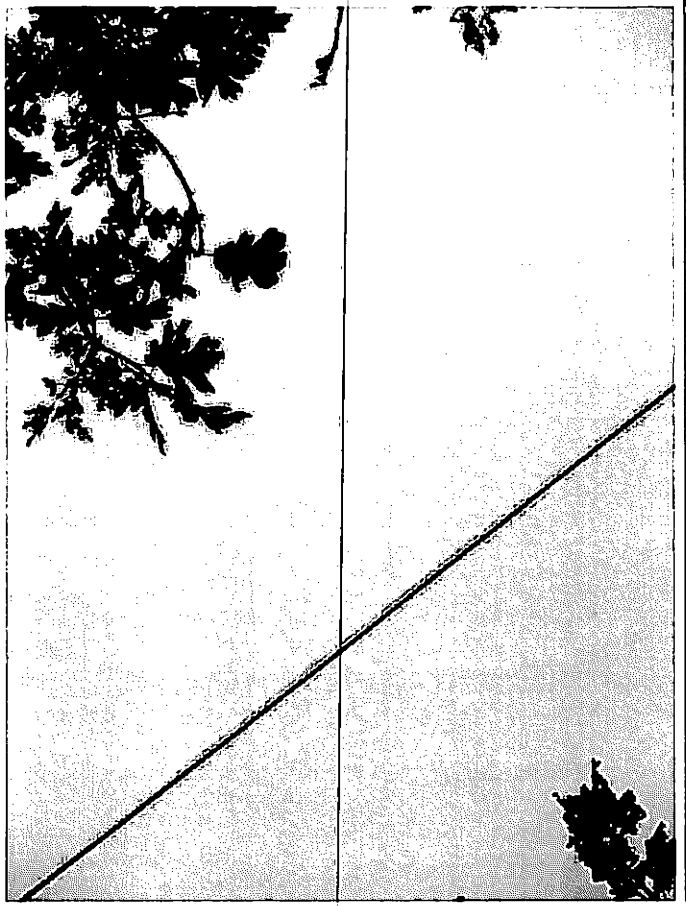
## Radial Clearance



# Monitor Team Inspection Observations

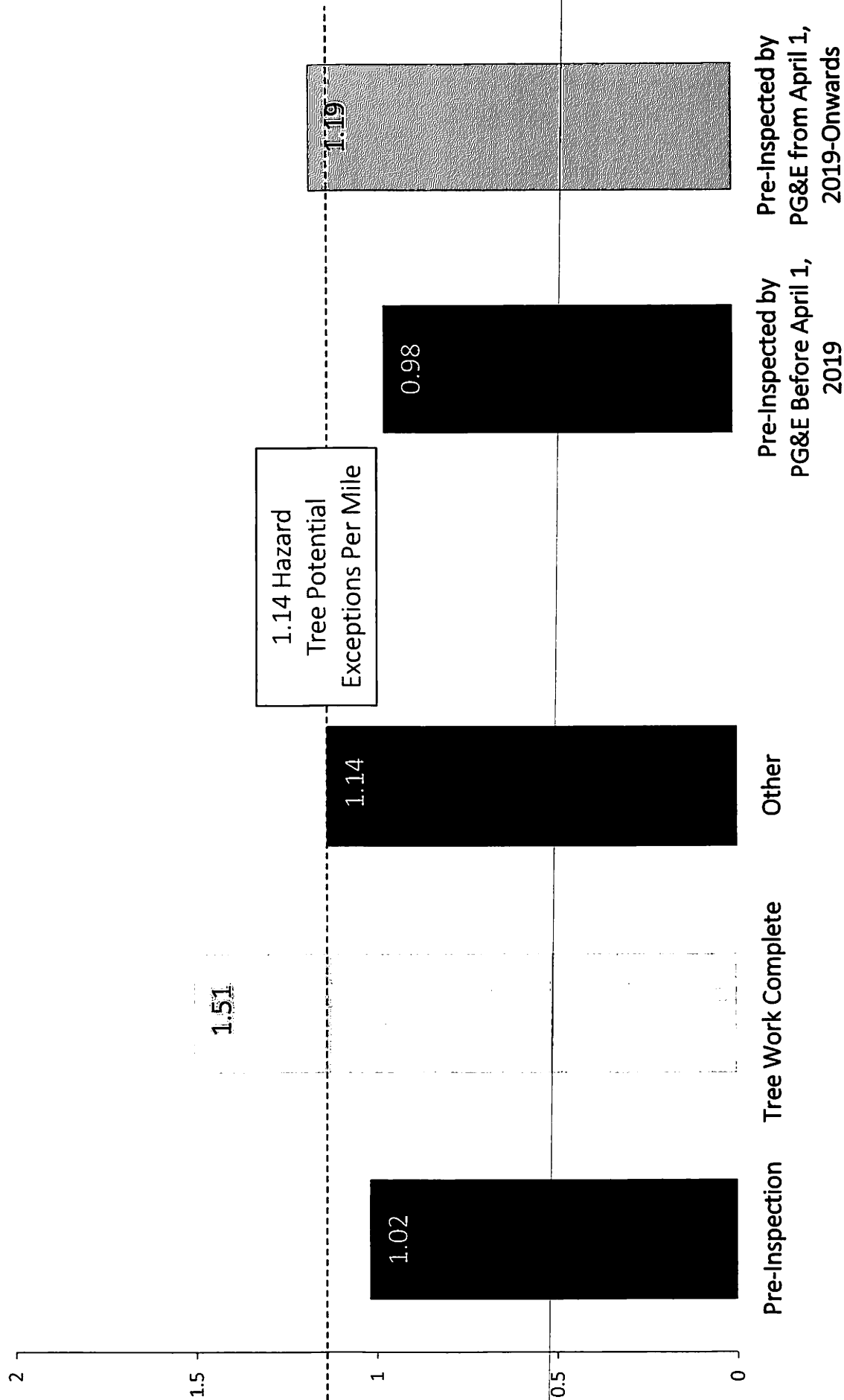
## Radial Clearance

- To date, the Monitor team has not observed any specific trends or other issues unique to potential radial clearance exceptions.
- The example photo on the left shows vegetation observed within 4 feet of a conductor. The example photo on the right shows a tree that was pruned, but 12 feet of radial clearance was not achieved.



# Monitor Team Inspection Observations

## Hazard Trees



# Monitor Team Inspection Observations

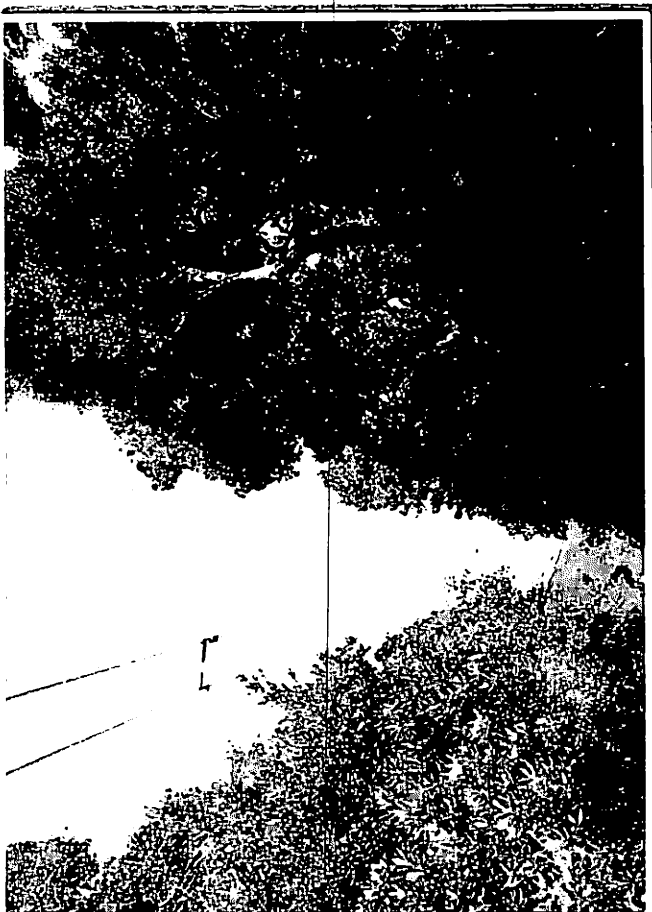
## Hazard Trees

- The Monitor team appreciates that classifying a tree as a hazard tree involves some subjectivity and that qualified individuals may disagree over whether a tree presents a hazard and, if so, whether that hazard can be mitigated by pruning alone, or whether removal is required.
  - The Monitor team also appreciates that the extent of mitigation of a hazard tree may also depend on the location of the subject tree, as federal- or state-owned lands may have different mitigation processes and criteria.
- The Monitor team found 61 potential hazard tree exceptions to date using guidance adopted by CAL FIRE, pursuant to CAL FIRE's submission to the Court. Most potential hazard tree exceptions observed by the Monitor team were not reflected in Arc Collector or marked for removal with tree paint.
- The Monitor team further notes that identification of hazard trees requires pre-inspectors to observe the trunk of all trees that could strike electrical assets, because the defect may not be apparent from the crown of the tree.

# Monitor Team Inspection Observations

## Hazard Trees

- An example of a hazard tree is shown below. Additionally, in some instances, potential hazard trees were marked with a yellow dot for pruning only (i.e., not removal), despite the fact that decay, rot, or other defects were observable in the area near the paint dot, and the overall health of the tree suggested that removal may have been the appropriate prescription.



# Monitor Team Inspection Observations

## Recordkeeping

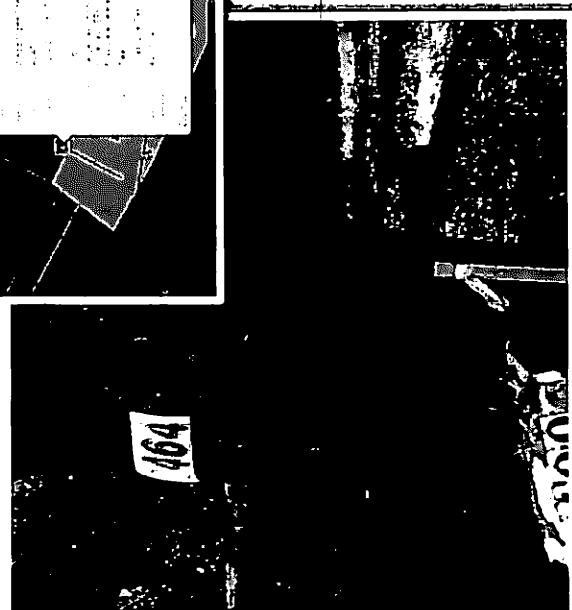
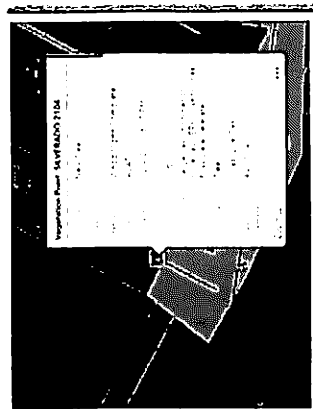
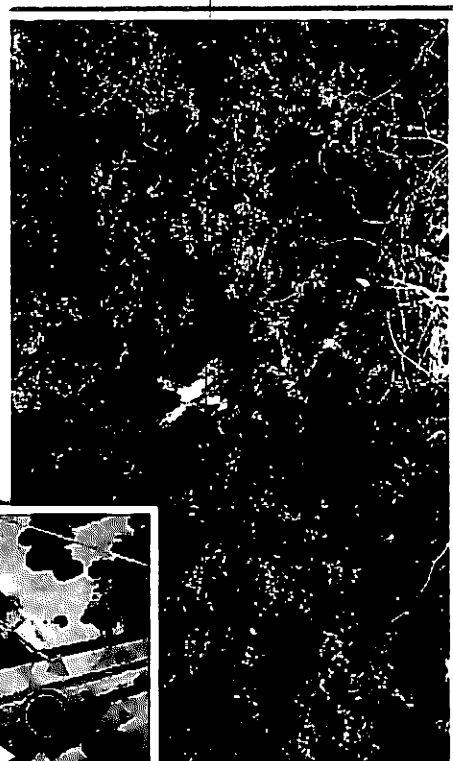
- The Monitor team was initially primarily concerned with identifying potential exceptions to the EVM Scope. However, the team began to notice recordkeeping issues and has since adjusted its processes to document and track those items.
- Identified issues include:
  - Inconsistent use of Arc Collector and physical markings to prescribe and record work.
  - Conductor lines are not accurately depicted in Arc Collector and are not consistently corrected.
  - Inconsistent use of physical markings for prescribing work.
  - Challenges associated with identifying or observing physical markings.
  - Unclear project creation and potential under-reporting of completed mileage.
  - Lack of clarity regarding justifications for potential exceptions, such as customer refusal.
  - Inconsistent recording of post-work verification.



# Monitor Team Inspection Observations

## Recordkeeping

- The Monitor team has often observed trees that were marked with tree paint by a pre-inspector but were not entered into Arc Collector (*left example below*). The Monitor team has also observed the inverse issue, where the tree was included in Arc Collector but not marked with paint or flagging (*right example below: confirmed that stake in photo is not associated with tree work*).

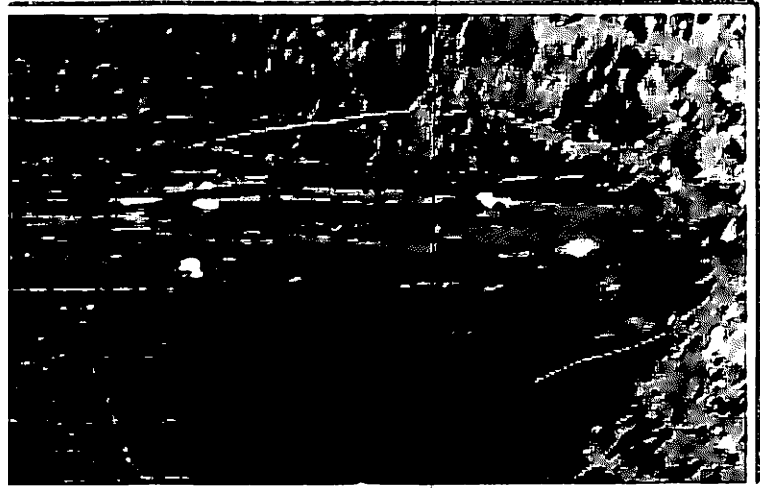




# Monitor Team Inspection Observations

## Recordkeeping

- The pre-inspectors appear to use paint or flagging to designate tree work, though it is difficult to tell which method has been used and what tree workers should be looking for. For example, the Monitor team has observed a wide variety of paint colors and flagging types on trees in EVM locations (*example photos below showing orange, white, purple, green, blue, and red paint on various trees*).



# Monitor Team Inspection Observations

## Recordkeeping

- The Monitor team also observed inconsistencies in the process for changing paint markings on trees. The Monitor team observed trees that were marked at one time with yellow paint, but that paint was covered up with black or white paint. In some instances, the Monitor team observed that the trees with covered-up paint needed to be worked under the EVM Scope *(example photo below of a potential hazard tree that had a yellow X covered up with white paint)*.



# Monitor Team Inspection Observations

## Recordkeeping

- The Monitor team also observed instances where tree paint is sprayed onto moss and is therefore difficult to see. Similarly, paint or flagging can be difficult to see because they are located behind dense vegetation (*example photos below*).



# Monitor Team Inspection Observations

## Recordkeeping

- There are many locations where the conductor is not correctly positioned in Arc Collector. Sometimes pre-inspectors draw the correct location for the conductor with a pink line called “GIS Inaccurate” (*example photo of corrected conductors below*). In other areas, the conductor is in the wrong place with no correction. In the non-corrected areas, it is unclear whether the trees are noted in their actual location or positioned in a relative manner to the conductor.



# Monitor Team Inspection Observations

## Recordkeeping

- The Monitor team also observed inconsistencies in the creation of projects in Arc Collector. In many circumstances, there are gaps between projects. It is unclear whether those areas between the gaps have been inspected (*example photo below*). If they have been inspected, then PG&E's total mileage covered under EVM may be under-reported.





# Monitor Team Inspection Observations

## Recordkeeping

- There is a lack of clarity regarding justifications for potential exceptions, such as customer refusal. For example, the region shown below contained dozens of trees listed as refusals. However, the Monitor team interacted with a customer who stated that he did not refuse any work, and Arc Collector also shows that the customer approved work.

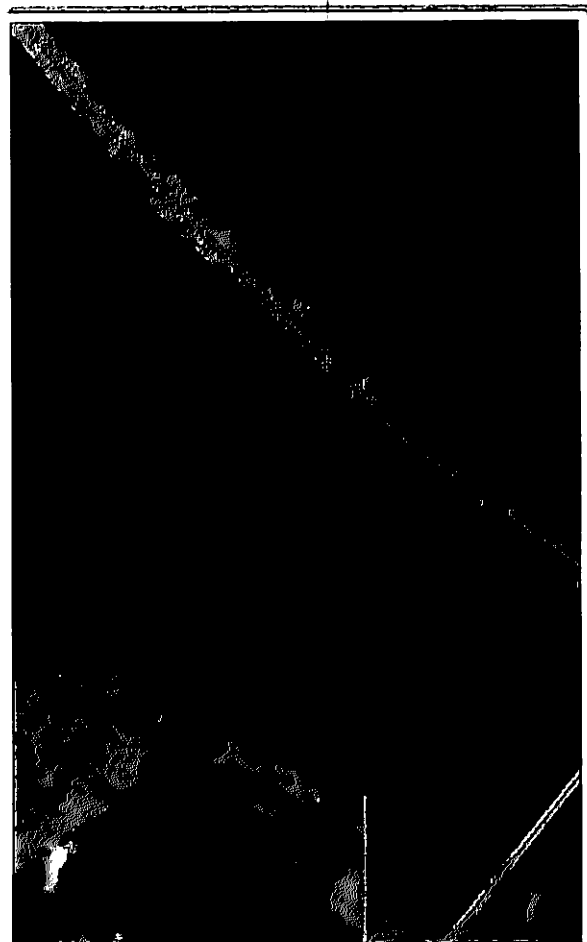
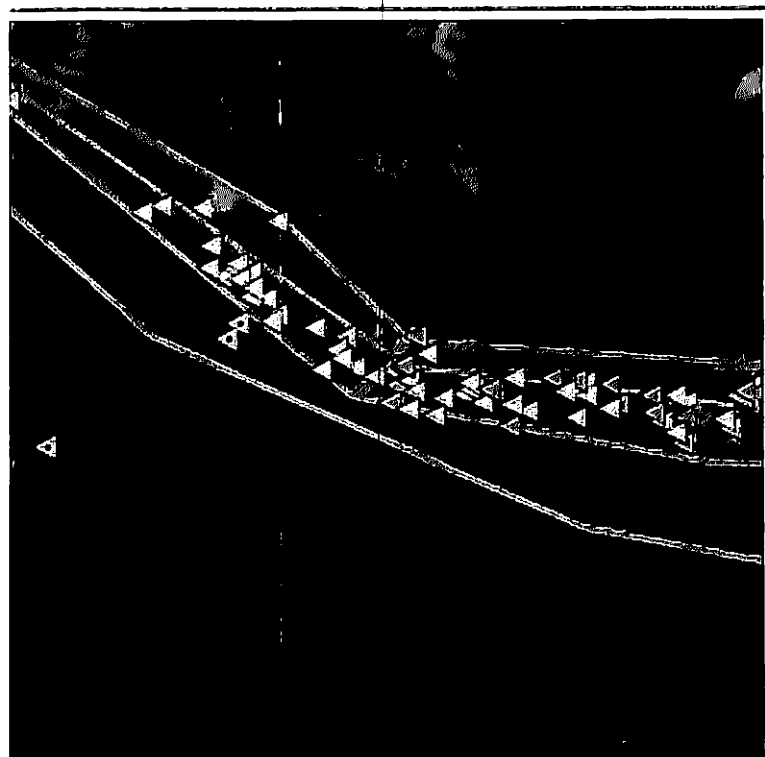
P: Contact Date	5/6/2019 1:15 PM
Field Contact Notes	approved all Douglas firs for removal. customer wants to keep a few trees to m. li. please speak with customer before hauling
WM Form Number	
Customer Reaction	Positive
Contact	On-Site Verbal
Contact Name	



# Monitor Team Inspection Observations

## Recordkeeping

- Re-inspection after post-work verification is not recorded consistently. The Monitor team observed that inspectors came to an area and marked trees that needed to be remediated with yellow paint, but only added some of those trees into Arc Collector (*left photo, dark green triangles*). In other areas, pre-inspectors appeared to have re-inspected an area, with paint on trees needing remediation, but they made no additions on Arc Collector (*right photo*).





# Monitor Team Inspection Observations

## Post-Work Verification

- The Monitor team has found 127 potential exception trees within projects marked “Complete” or “Corrective Action Complete” for post-work verification. Of those 127 exception trees, 99 were risk trees, which further underscores the issues discussed earlier regarding risk tree identification.
- According to PG&E’s June 30, 2019 VM Weekly Dashboard, the pre-inspector pass rate for post-work verification performed in Q1 2019 was 54%, and the pre-inspector pass rate for post-work verification performed in Q2 2019 is 66%.
- The Monitor team will continue to observe and assess the quality of PG&E’s post-work verification as the Monitor team’s sample size increases.

# Monitor Team Inspection Observations

## Training

- The large number of potential exceptions identified thus far suggests that there may be gaps in PG&E's training of pre-inspectors and/or tree workers, or that the existing training is not sufficiently effective.

# Monitor Team Inspection Observations

## Contractors

- The Monitor team will continue to observe and assess the quality of PG&E's contractor resources, including whether particular contractors or crews are associated with increased potential exceptions.
- As of inspections completed through July 5, 2019, the Monitor team does not have a large enough sample set to offer such observations. This is in part due to geographic limitations of the inspections completed thus far.

# Agenda

1. Background
2. Monitor Team Inspection Process
3. Preliminary Observations
- 4. PG&E Feedback and Mitigation**
5. Preliminary Considerations

## Feedback: PG&E's Intake and Review

- On July 12, the Monitor team spoke with members of the VM team responsible for reviewing and addressing the Monitor team's inspection findings.
  - PG&E's VM team reported that they are developing a process for reviewing findings, including documenting the Company's review, response, and any mitigation.
  - The VM team is working to timely deploy employees or senior pre-inspectors to the field to review potential exceptions and report back to PG&E. The VM team stated that they have agreed (fully or substantially) with many of the Monitor team's findings.
  - The team reported that they are prioritizing mitigation of any non-compliance with regulations or potential imminent risks (i.e., hazard trees and radial clearance issues).
  - The VM team is also building a process for conducting a root cause analysis—and initiating a corrective action plan—for certain identified exceptions.
  - The VM team informed the Monitor team that the reports were succinct and useful in providing actionable information for the field crews to use.

## Formalizing Feedback Process

- The Monitor team is working with the VM team to create a more formal feedback process. The Monitor team's goals are:
  - Provide specific findings to PG&E on a timely basis.
  - Track and assess PG&E's mitigation or other response to identified issues.
  - Understand PG&E's views (e.g., arborists from PG&E and the Monitor team jointly visit the site and share thoughts).

# Formalizing Feedback Process

- The Monitor team and the VM team discussed building a shared database that may reflect the following data points:
  - Report number/identifier
  - Date of Monitor team inspection
  - Type of exception
  - Date sent to PG&E
  - PG&E's response
  - Comments/Explanation
  - Tree work progress
  - Mitigation plan
  - Status of mitigation
  - Status of resolution



# Agenda

1. Background
2. Monitor Team Inspection Process
3. Preliminary Observations
4. PG&E Feedback and Mitigation

## 5. Preliminary Considerations

# Preliminary Considerations

- **Guidance Documents.** Consider regularly revisiting EVM Scope guidance documents provided to contractors to ensure that they are clear and user-friendly. Ensure that they are updated to reflect revisions to scope.
- **Training.** Consider implementing a revamped training regime, particularly for pre-inspectors, including continual assessments to confirm that pre-inspectors understand the EVM Scope.
  - Consider working directly with contractors' management to ensure that individual contractor employees are trained not only by PG&E, but that training principles are reinforced through the contractors' training.
  - Consider supplementing training by creating a process for PG&E resources to accompany (or "shadow") contractors in the field—this may help ensure appropriate, consistent methodology, and may also help answer any questions.

# Preliminary Considerations

- **Contractor Reviews.** Consider implementing a more robust contractor review process, allowing for PG&E to provide specific feedback regarding the quality of the contractors' work.
  - Consider instituting greater accountability with contractors, including a root cause analysis for potential misses and a corrective action plan.
  - Consider leveraging findings from PG&E's tag-along reviews when preparing root cause analysis and corrective action plan.
- **Coordination Between Pre-Inspectors and Tree Crews.** Consider conducting joint trainings or coordination sessions between pre-inspectors and tree crews to ensure clarity and alignment between both.
- **Hazard Trees.** Consider issuing clarifying guidance—and accompanying training on identifying hazard trees and options for mitigating them.

# Preliminary Considerations: Arc Collector

- **Arc Collector.** Many of the recordkeeping issues identified herein appear to stem from an incomplete and inconsistent deployment of Arc Collector to manage the EVM program. Accordingly, the overarching consideration for PG&E is to ensure that it is fully invested in using Arc Collector as a central repository to manage its EVM program, if that is PG&E's goal. This includes:
  - Ensuring that all trees that are identified for work—including the accompanying prescriptions, notations, and status—are reflected in Arc Collector. While PG&E may decide to continue using physical markings to designate tree work, those markings should supplement—and be reflected in—Arc Collector. For example, after a tree is identified for pruning in Arc Collector, it can also be flagged, with a notation in Arc Collector describing the type, location, and color of flagging.
  - Ensuring that the projects and maps in Arc Collector are complete and accurate.
  - Ensuring that the project status in Arc Collector clearly reflects the status of any refusals, regulatory constraints, environmental issues, or other matters that may not be allowing completion.

## Preliminary Considerations: Arc Collector (cont'd)

- To ensure Arc Collector works as intended, PG&E may consider devoting appropriate resources to improving and enhancing its functionality, re-training contractors on usage, regularly maintaining and reviewing the database to ensure the appropriate quality of information that is entered, and periodically auditing the database to ensure robustness of processes.
- Relatedly, PG&E may consider requiring contractors to fully enter and record information in Arc Collector prior to payment.

# Preliminary Considerations: Risk Tree Program

- Reconsider how to successfully implement a species-based Risk Tree Program given:
  - the failure of pre-inspectors to consistently identify risk trees; and
  - the lack of qualified tree workers available to perform all of the removals that would be required to fully execute the Risk Tree Program.

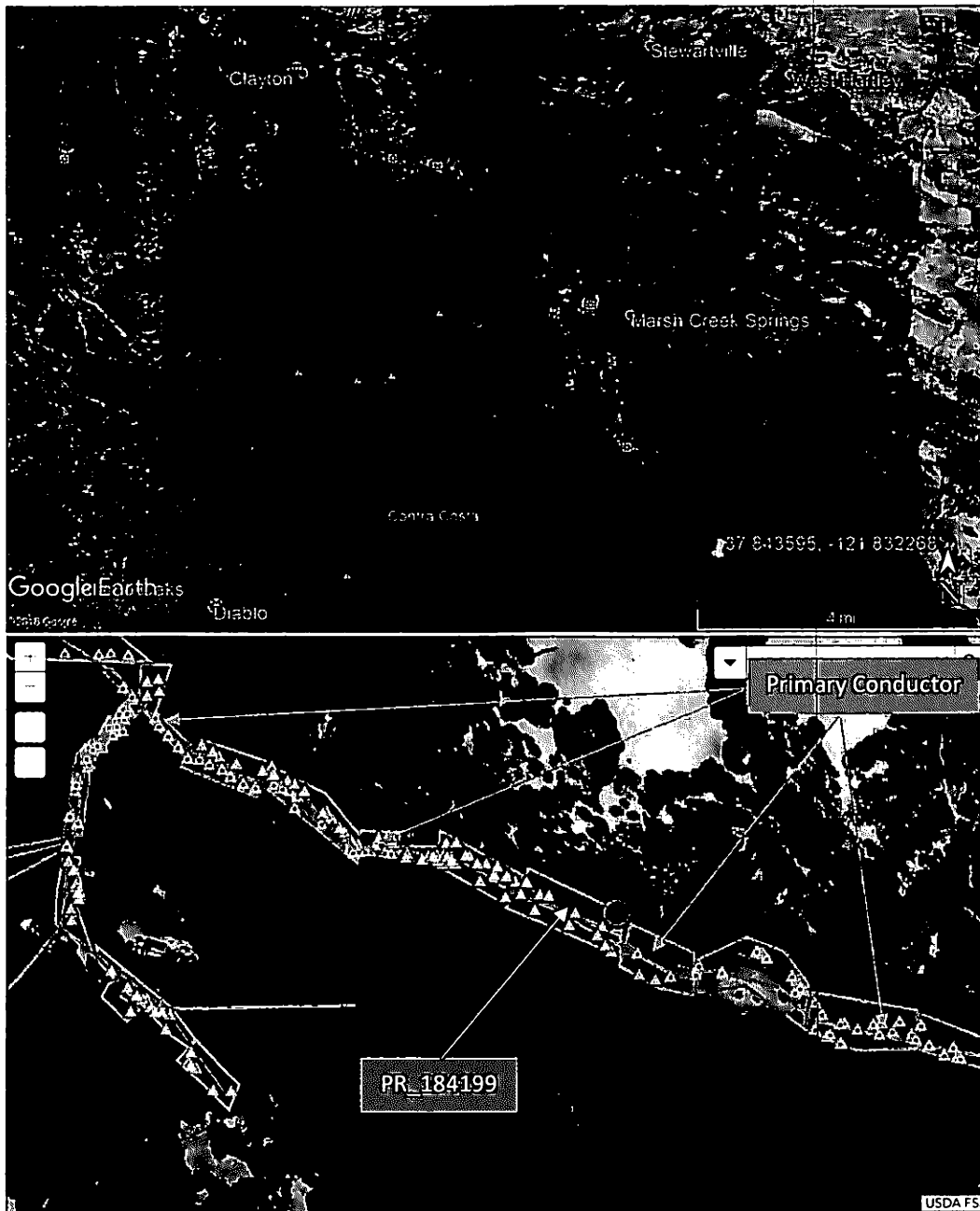
## **Exhibit 2 - Sample Inspection Reports**



## Sample Hazard Tree Reports

### Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on June 7, 2019 of Project *PR\_184199* on Circuit *Clayton* 2212. In general terms, this circuit is located on the outskirts of the town of Clayton, CA, running approximately 15 miles to the southeast of town. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.

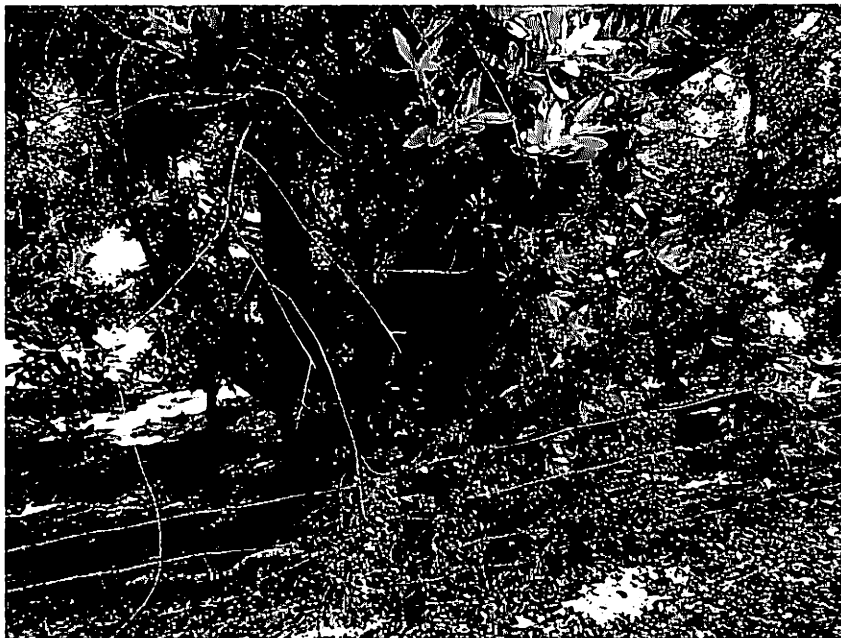


**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Species	Coastal Live Oak	
GPS Coordinates	37.843595, -121.832268	
Approx. Distance from Primary Conductor	30 feet to the northeast, measured to farthest point of potential contact	
Approx. Height	65 feet	
Veg Type	Potential Hazard Tree	
Comments	<ul style="list-style-type: none"> <li>Monitor Arborist observations of the tree include (a) a rotten cavity in the trunk, and (b) rotten heartwood</li> </ul>	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.

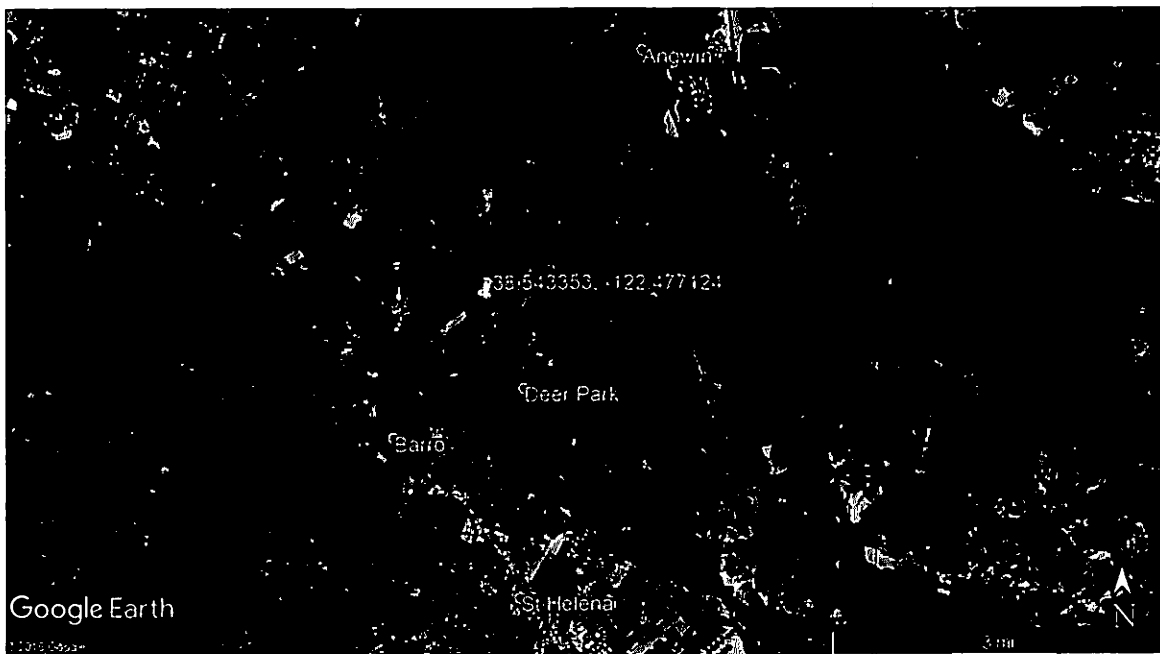






### Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on July 9, 2019 of Project *PR\_037553* on Circuit *Silverado 2104*. In general terms, this circuit is located on the outskirts of the city of St. Helena, CA, running approximately 15 miles to the north of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.





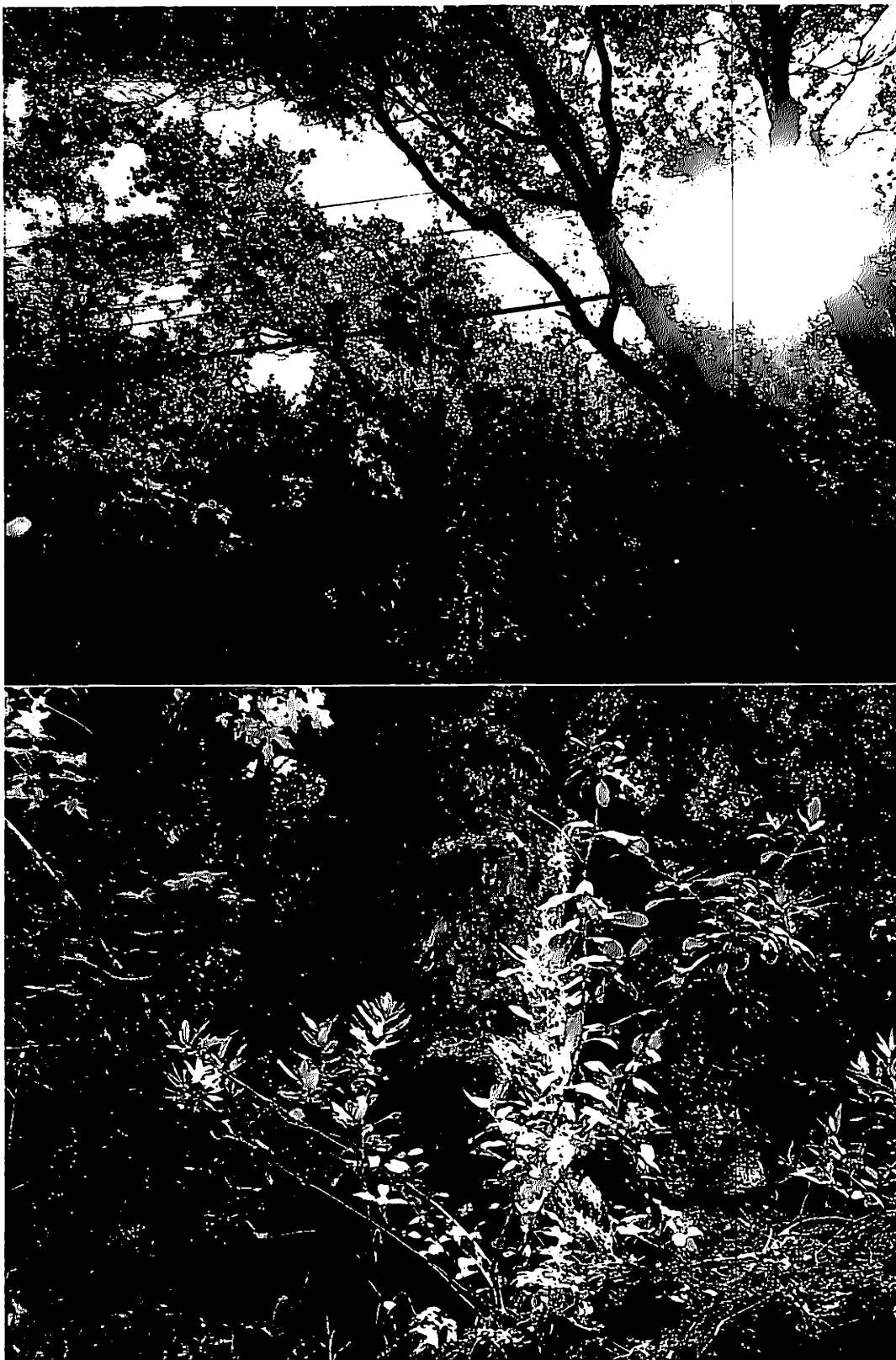
**Tree Information:**

PG&E ArcCollector Project Status	Wood Mgmt Complete	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	None	
Species	Coastal Live Oak	
GPS Coordinates	38.543353, -122.477124	
Approx. Distance from Primary Conductor	Trunk of tree 3 feet east	
Approx. Height	55 feet	
Veg Type	Potential Hazard Tree	
Monitor Arborist Comment	Observations of the tree include (a) located on uphill slope from primary line, (b) tree is overhanging the line, and (c) roots are exposed due to erosion, causing potential instability in the tree.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



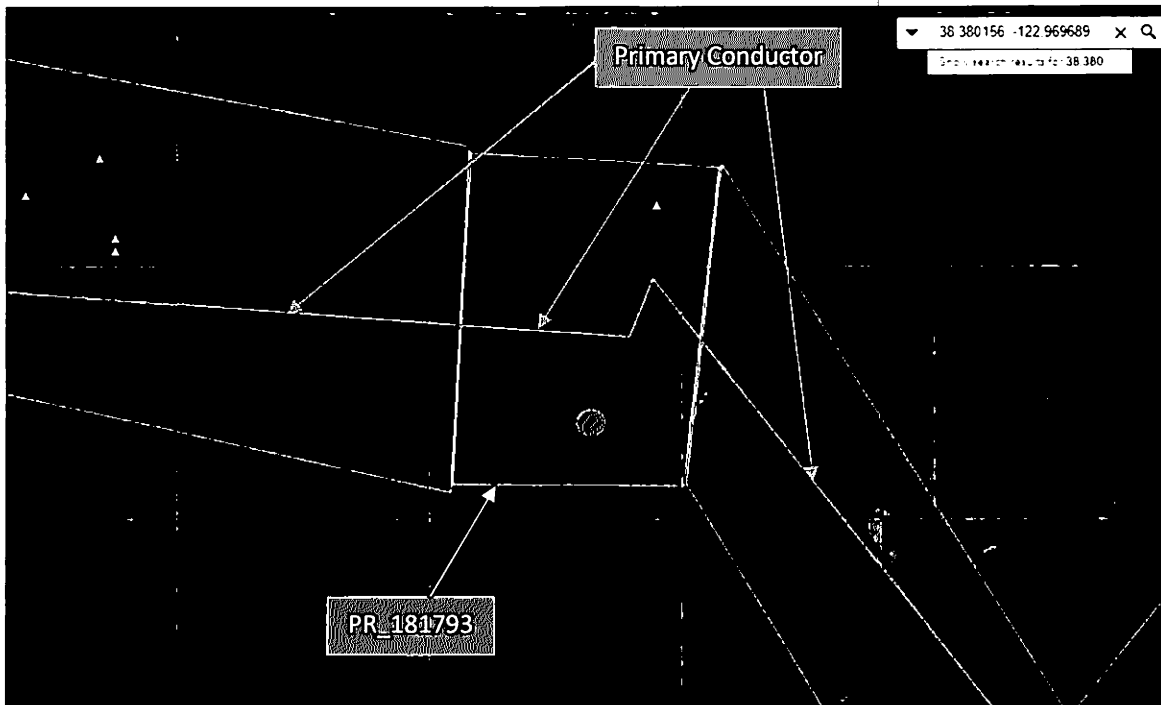
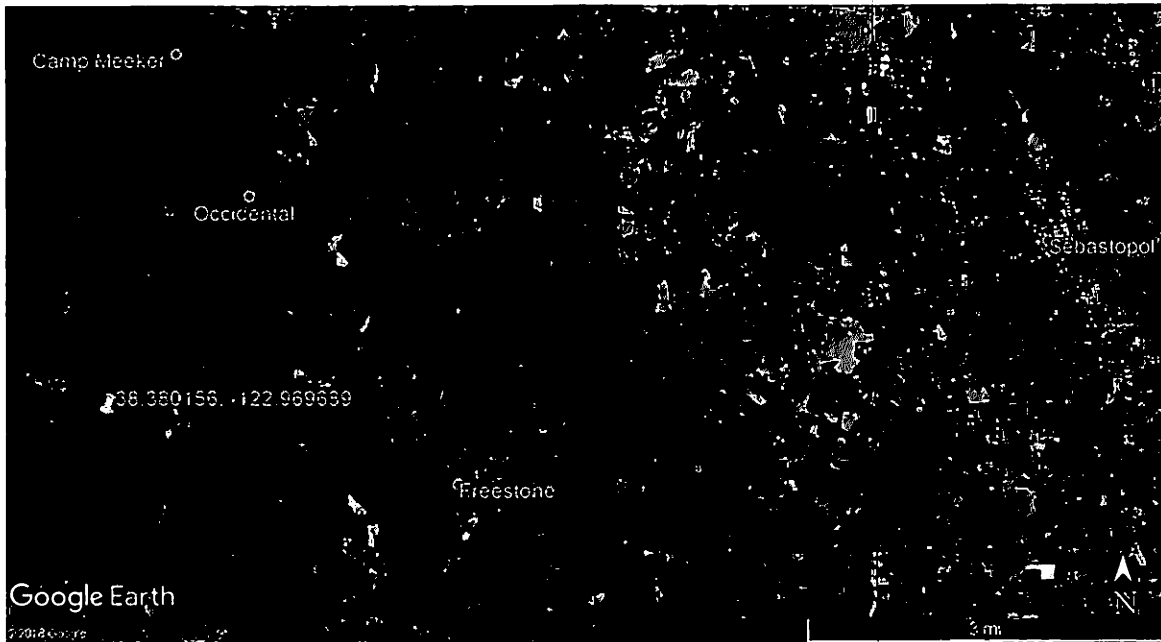






### Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on July 10, 2019 of Project *PR\_181793* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.

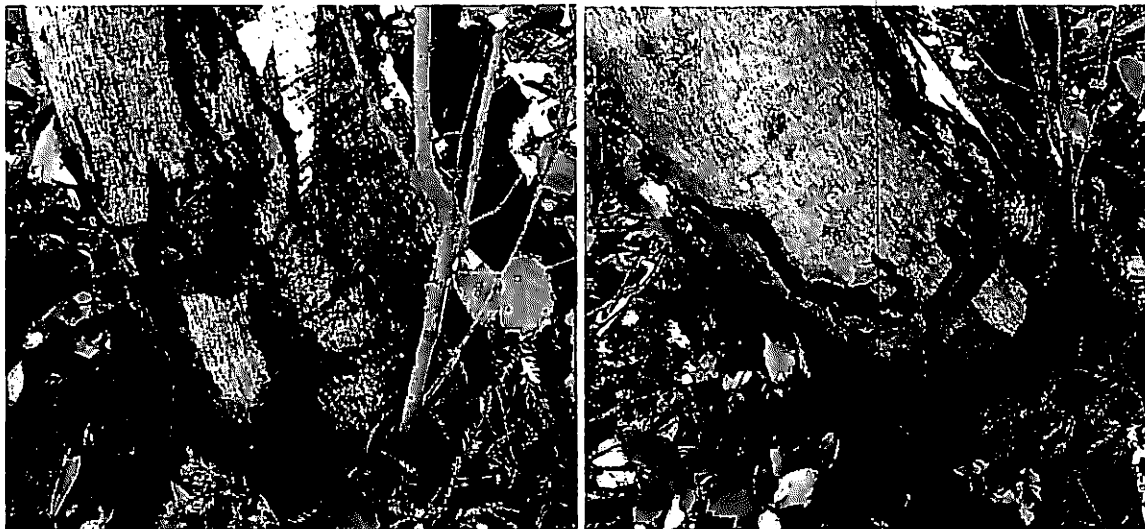


**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No	
Species	Tan Oak	
GPS Coordinates	38.380156, -122.969689	
Approx. Distance from Primary Conductor	Trunk of tree 40 feet south	
Approx. Height	50 feet	
Veg Type	Potential Hazard Tree	
Monitor Arborist Comment	Observations of the tree include (a) trunk showing multiple cracks and signs of decay, (b) tree is leaning towards primary conductor, and (c) if tree fails, tree will contact primary conductor.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.







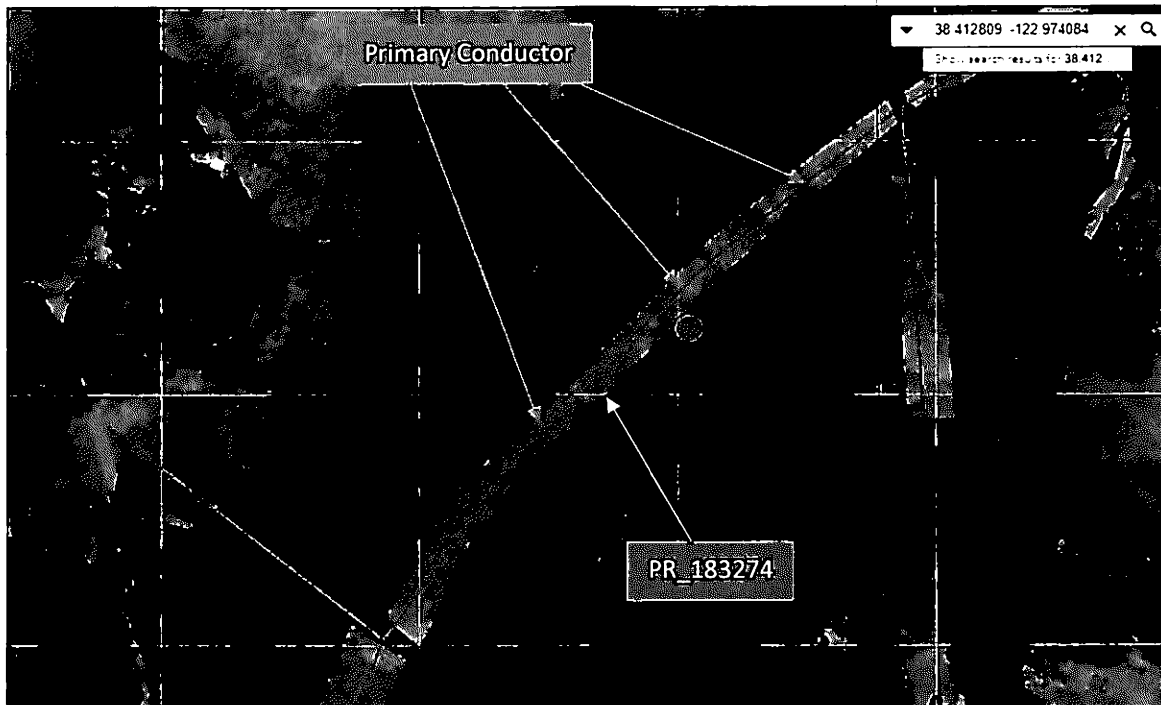
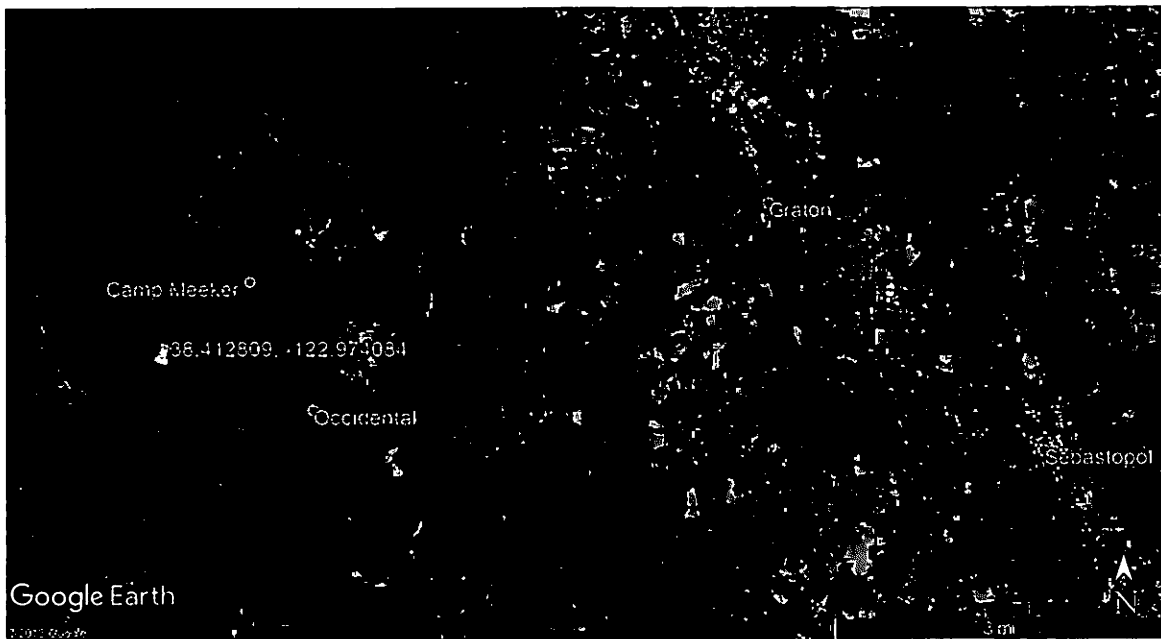






### Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on July 8, 2019 of Project *PR\_183274* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	No Work Required Under EVM
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No
Monitor Team Observed Recent Tree Work on Subject Tree	No
Tree Paint or Other Markings Observed	No
Species	Coastal Redwood
GPS Coordinates	38.412809, -122.974084
Approx. Distance from Primary Conductor	Trunk of tree 18 feet south
Approx. Height	107 feet
Veg Type	Potential Hazard Tree
Monitor Arborist Comment	Observations of the tree include (a) soil erosion around root structure, (b) root loss, (c) compromised root anchorage, and (d) majority of branches and tree weight are on the side of the primary conductor.

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



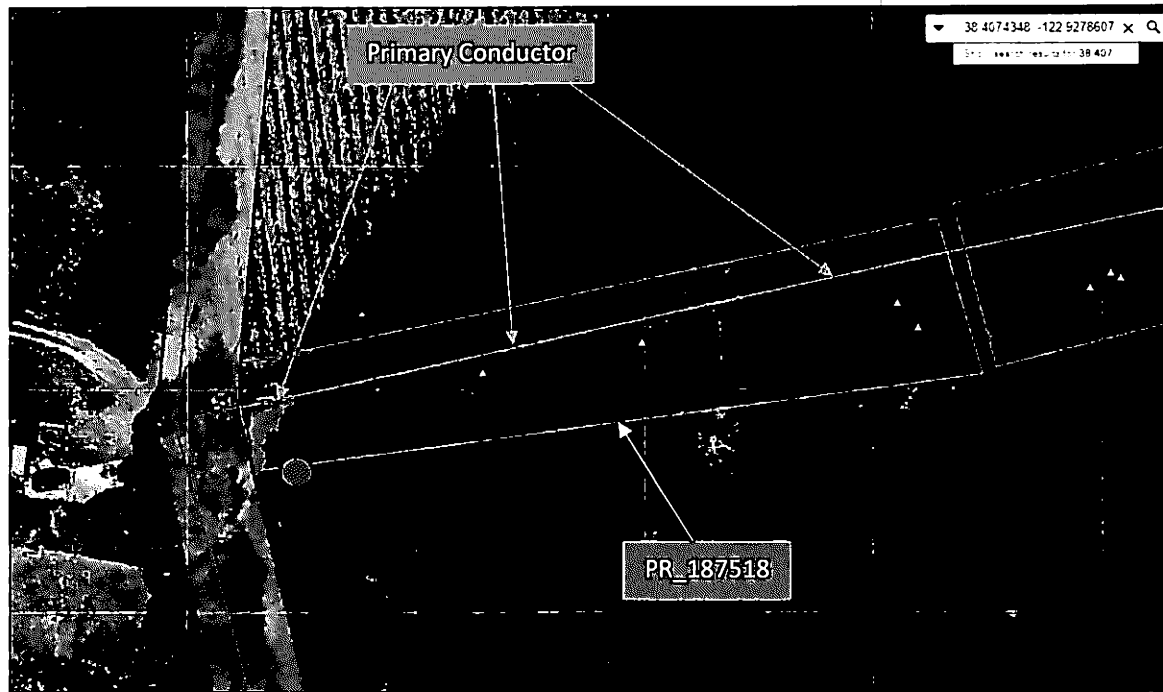
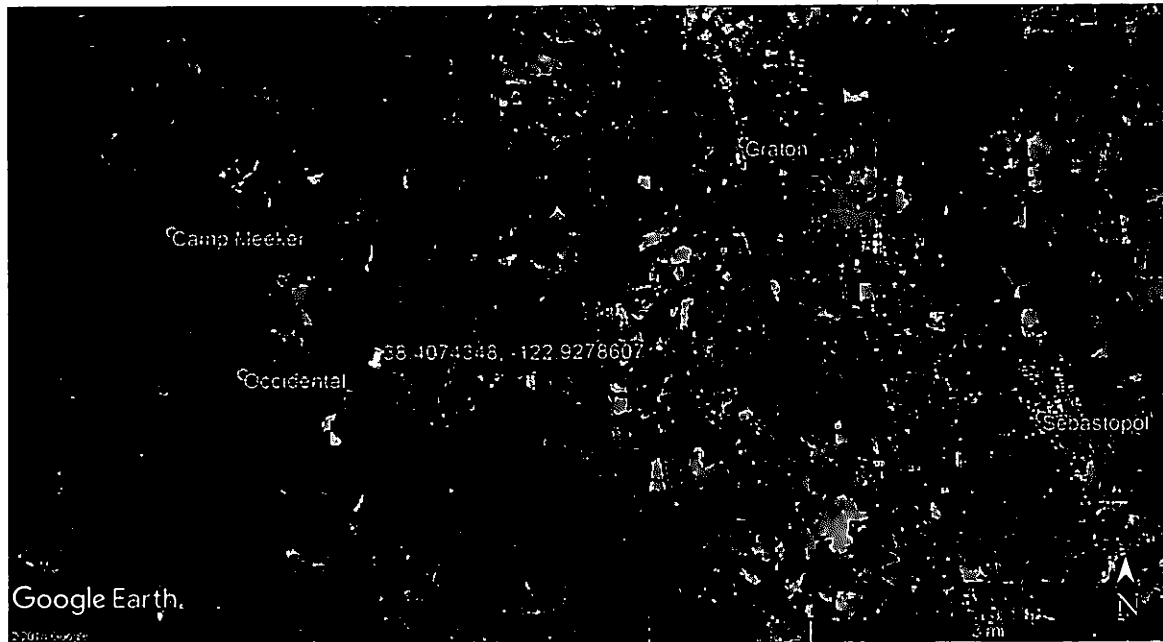






### Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on July 8, 2019 of Project *PR\_187518* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



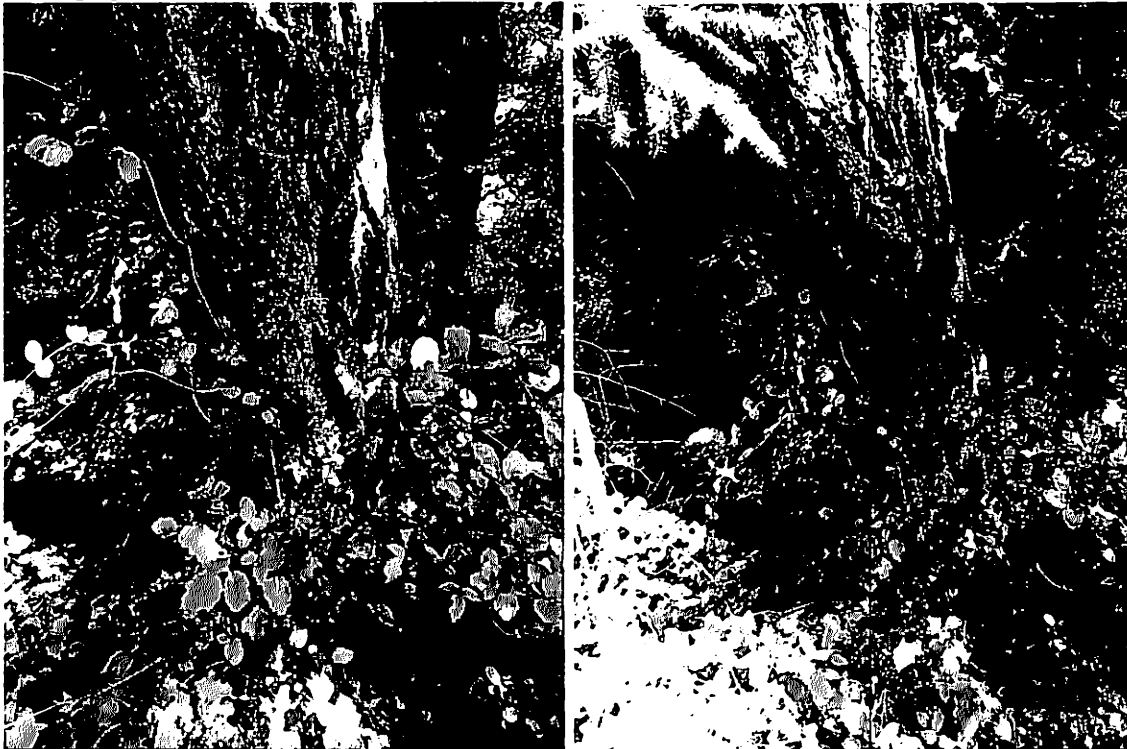


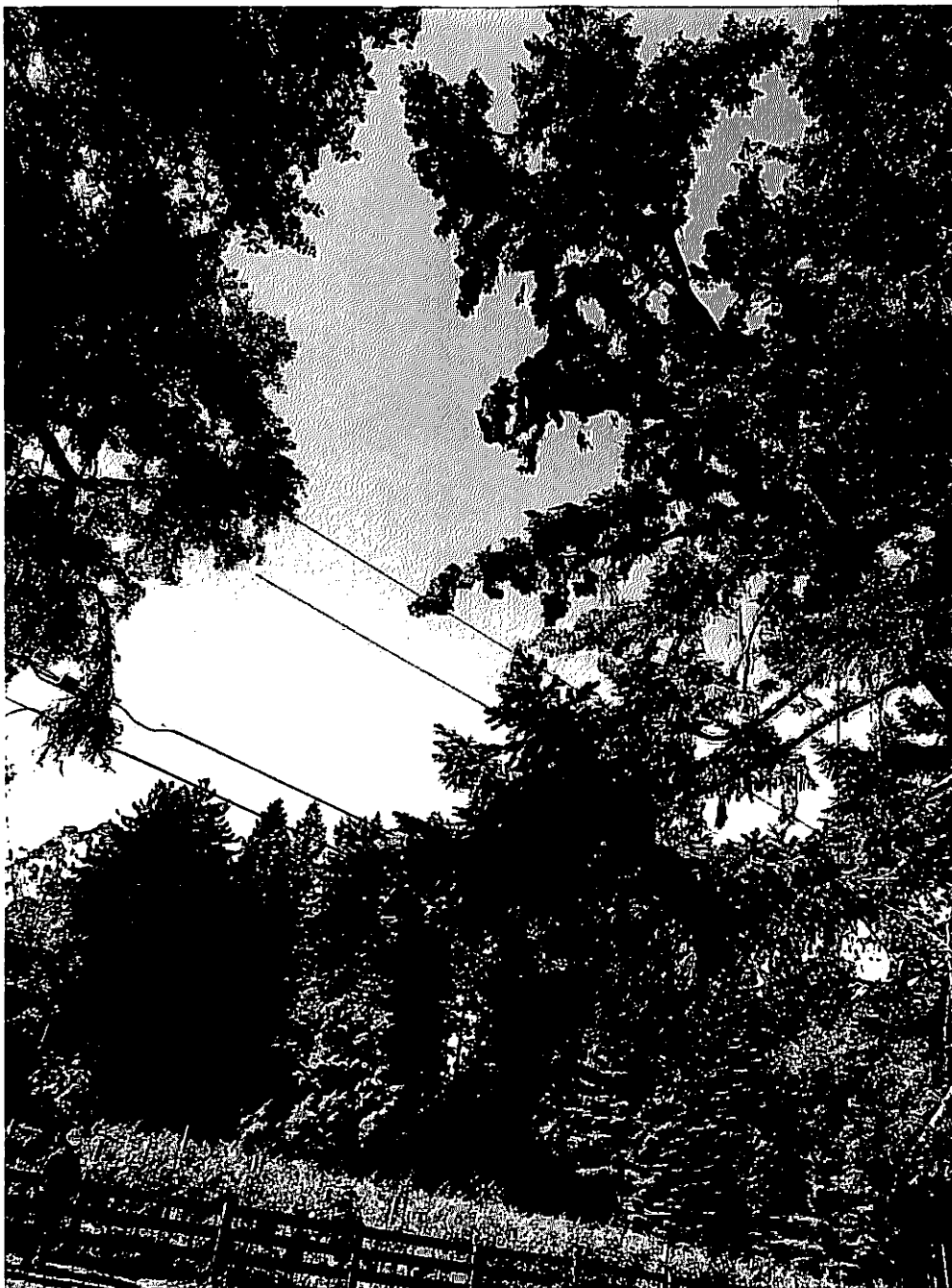
**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Douglas Fir	
GPS Coordinates	38.4074348, -122.9278607	
Approx. Distance from Primary Conductor	Trunk of tree 50 feet southeast	
Approx. Height	100 feet	
Veg Type	Potential Hazard Tree	
Monitor Arborist Comment	Observations of the tree include (a) tree leaning 40 degrees towards the primary conductor, (b) failure would strike the primary conductor, and (c) no apparent lifting of the roots.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



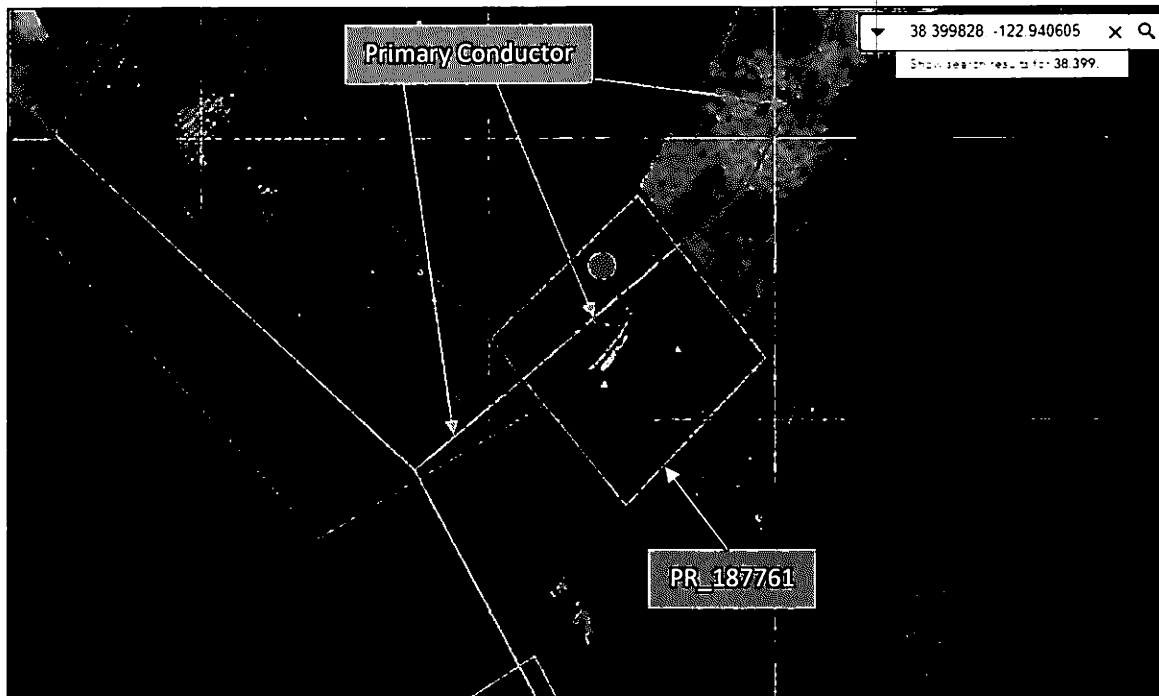
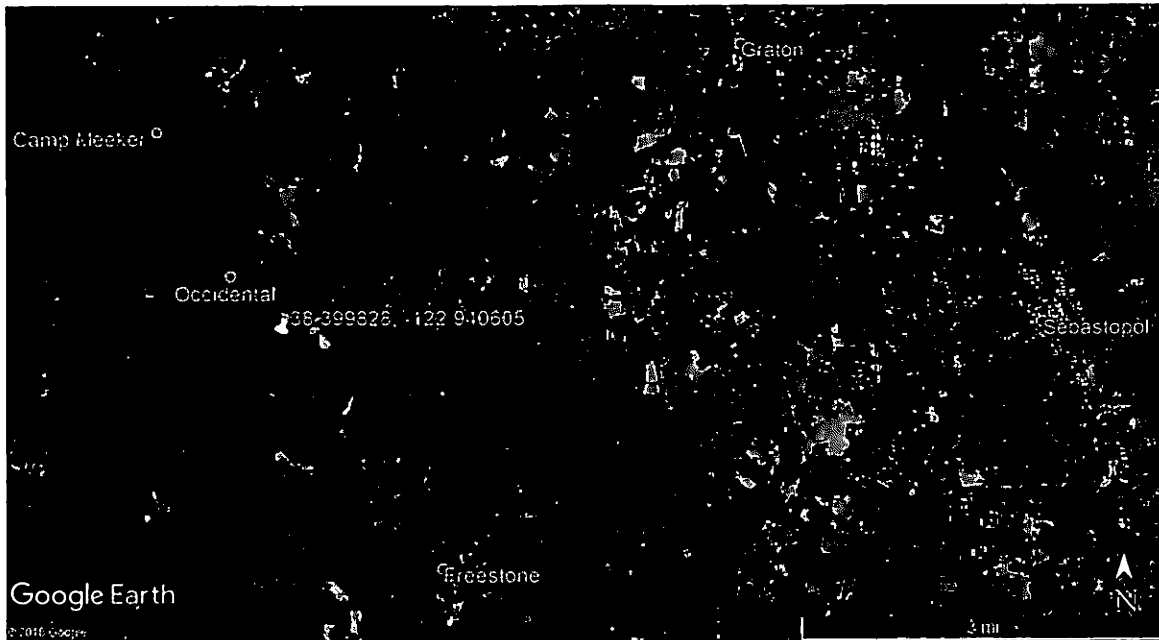






### Monitor Vegetation Inspection Report

A potential hazard tree was found during a Monitor Inspection on July 11, 2019 of Project *PR\_187761* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



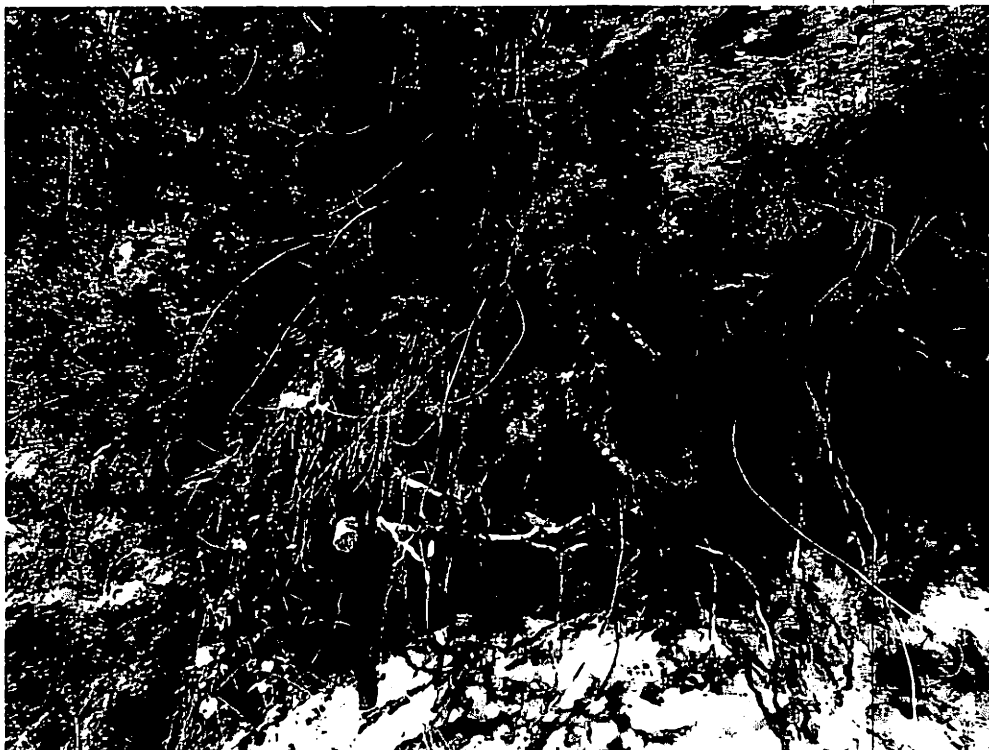


**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No	
Species	California Bay	
GPS Coordinates	38.399828, -122.940605	
Approx. Distance from Primary Conductor	Trunk of tree 14 feet northwest	
Approx. Height	70 feet	
Veg Type	Potential Hazard Tree	
Monitor Arborist Comment	Observations of the tree include (a) weak multi-stemmed tree structure, (b) soil eroded around roots leading to poor anchorage, and (c) tree is overhanging line at 15 ft.	

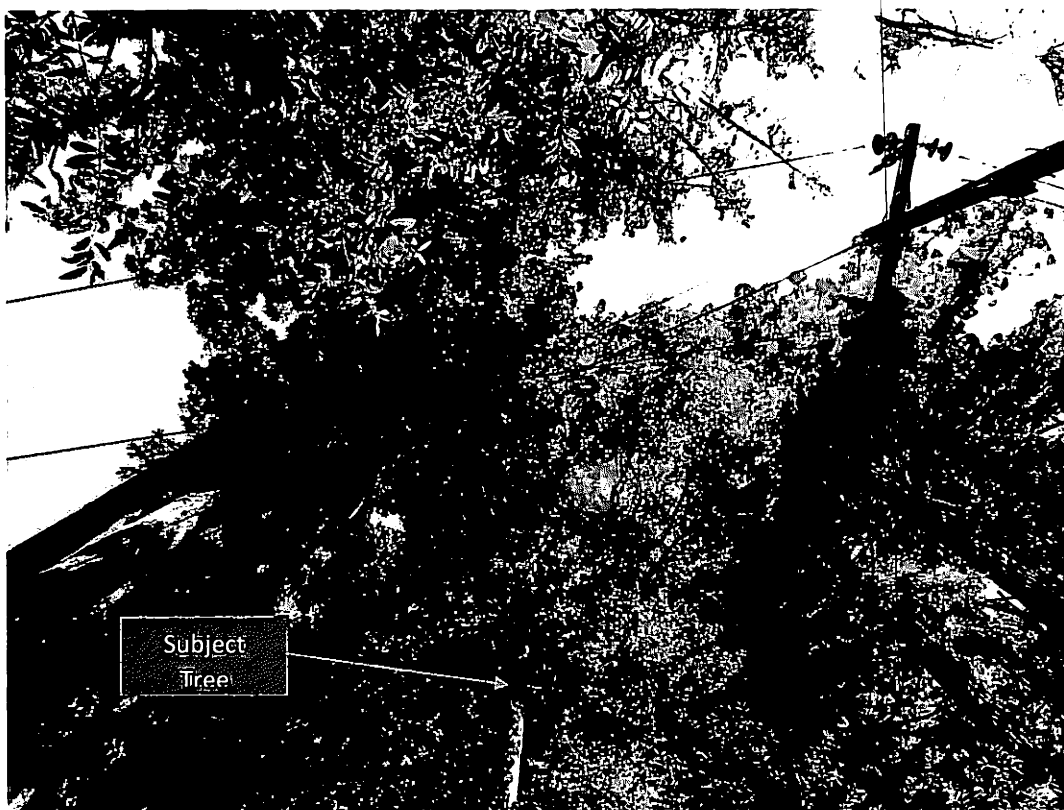
**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.





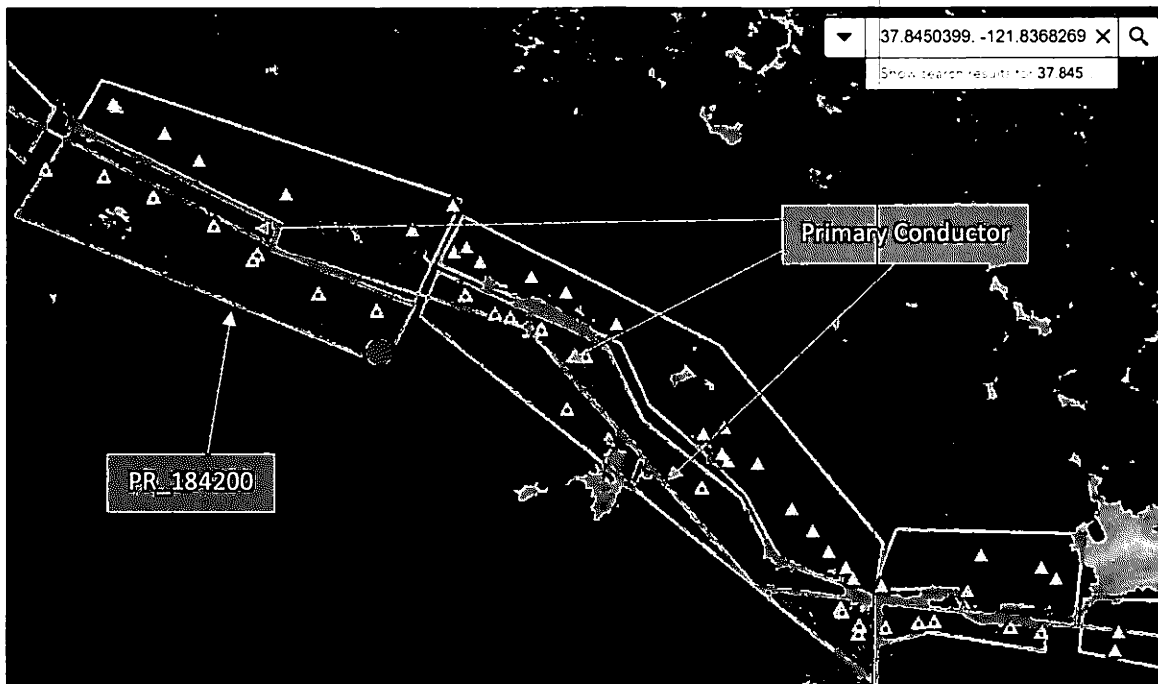
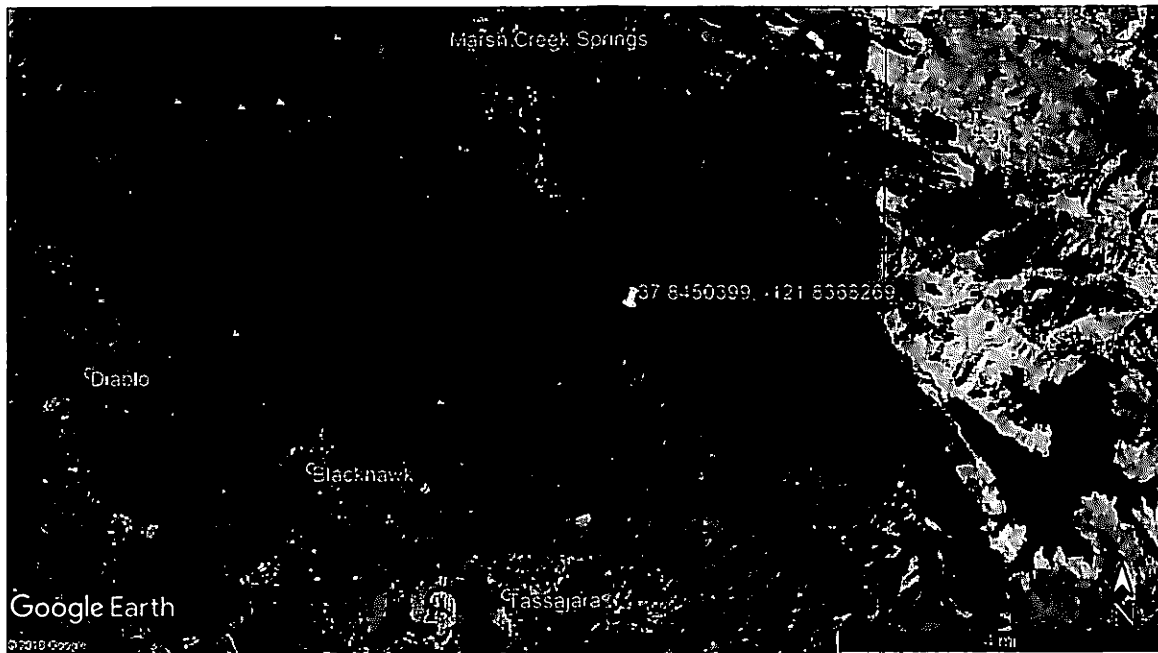




## Sample Overhang Tree Reports

### Monitor Vegetation Inspection Report

A tree with a potential overhang issue was found during a Monitor Inspection on June 6, 2019 of Project *PR\_184200* on Circuit *Clayton 2212*. In general terms, this circuit is located on the outskirts of the town of Clayton, CA, running approximately 15 miles to the southeast of town. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.

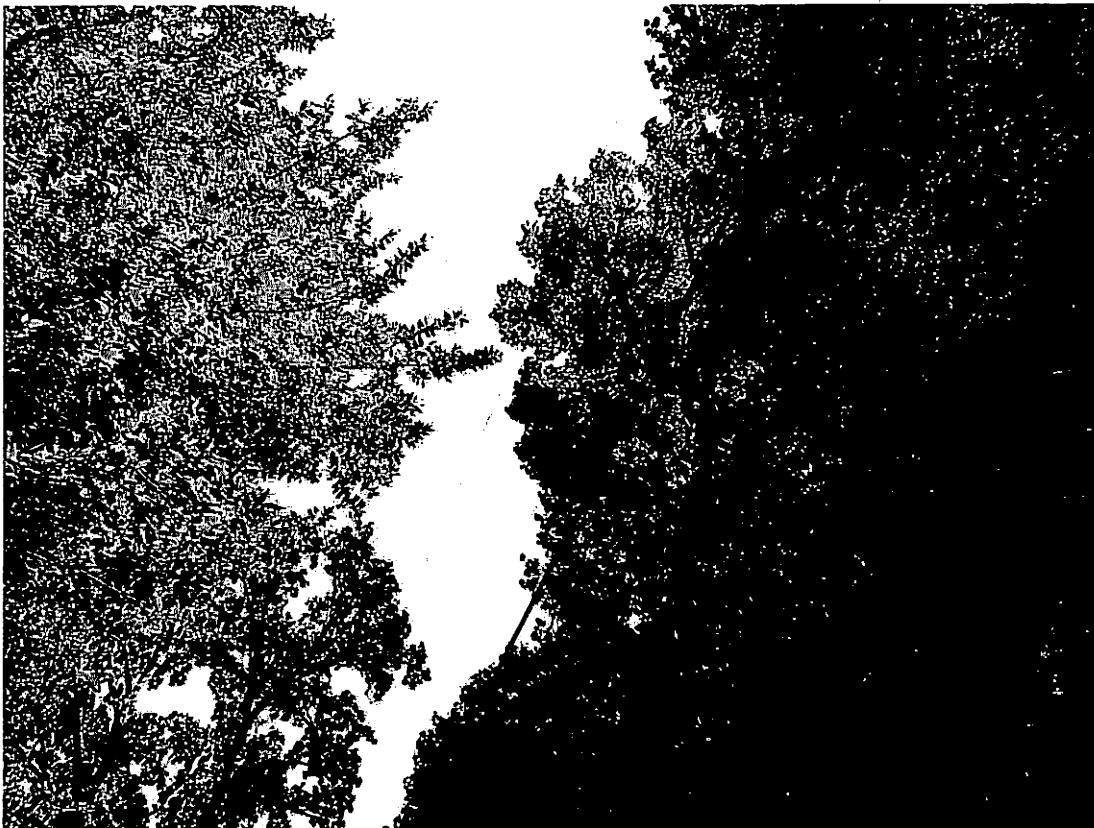


**Tree Information:**

PG&E ArcCollector Project Status	Wood Mgmt Complete	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes	
Species	Ponderosa Pine	
GPS Coordinates	37.8450399, -121.8368269	
Approx. Distance from Primary Conductor	Trunk of tree 15 feet west	
Approx. Height	150 feet	
Veg Type	Potential Overhang Tree	
Monitor Arborist Comment	Vegetation observed currently overhanging the 4 foot vertical plane	

**Tree Photos:**

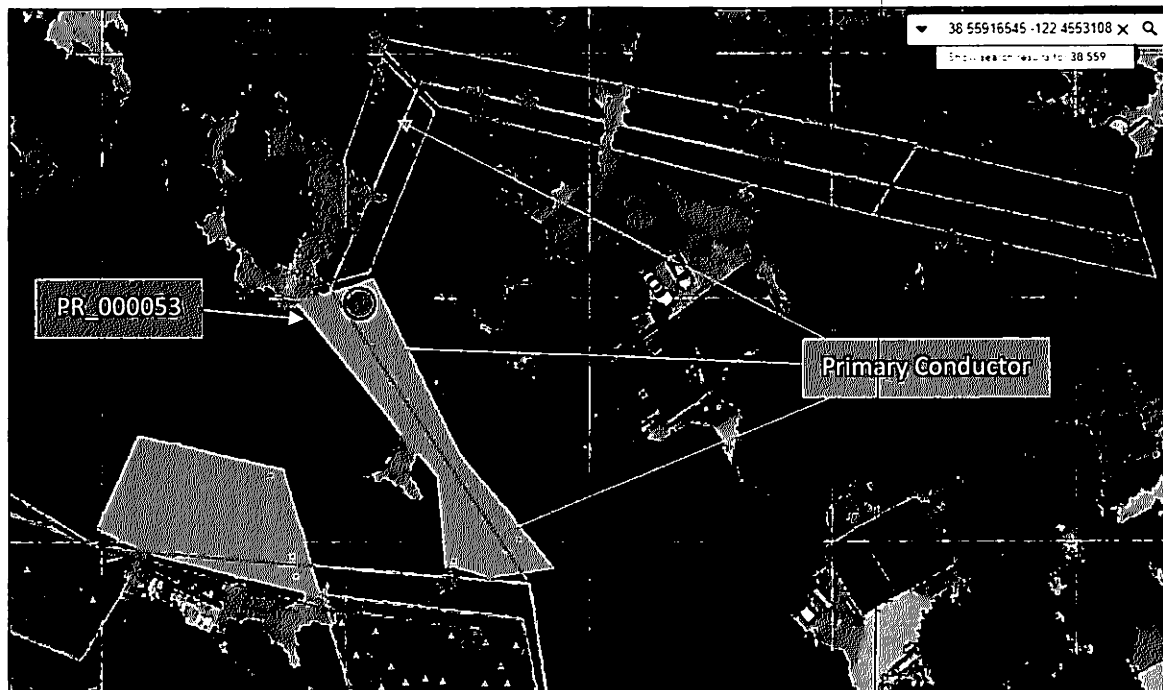
Photographs below show subject tree and proximity to the primary conductor.





### Monitor Vegetation Inspection Report

A potential overhang tree was found during a Monitor Inspection on July 3, 2019 of Project *PR\_000053* on Circuit *Silverado 2104*. In general terms, this circuit is located on the outskirts of the city of St. Helena, CA, running approximately 15 miles to the north of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.





**Tree Information:**

PG&E ArcCollector Project Status	Tree Work Complete	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes	
Monitor Team Observed Recent Tree Work on Subject Tree	Yes	
Tree Paint or Other Markings Observed	Red dot	
Species	Ponderosa Pine	
GPS Coordinates	38.55916545, -122.45531080	
Approx. Distance from Primary Conductor	Trunk of tree 18 feet east	
Approx. Height	102 feet	
Veg Type	Potential Overhang Tree	
Monitor Arborist Comment	Vegetation observed currently overhanging the 4 foot vertical plane.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.

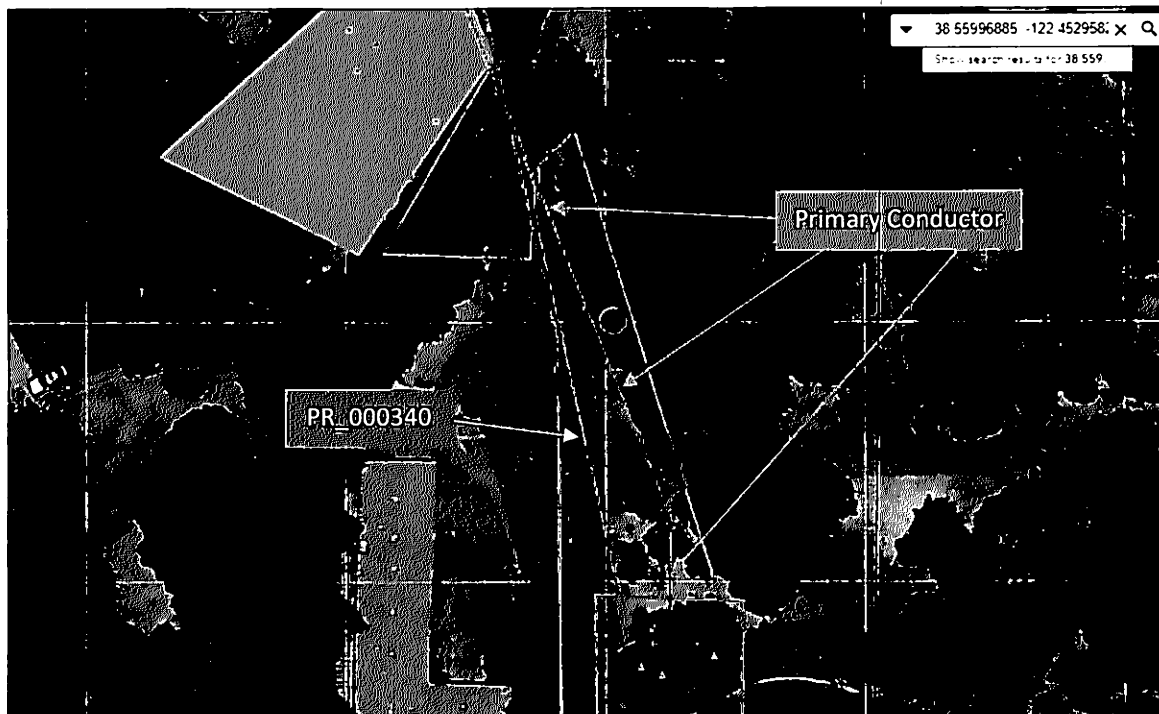
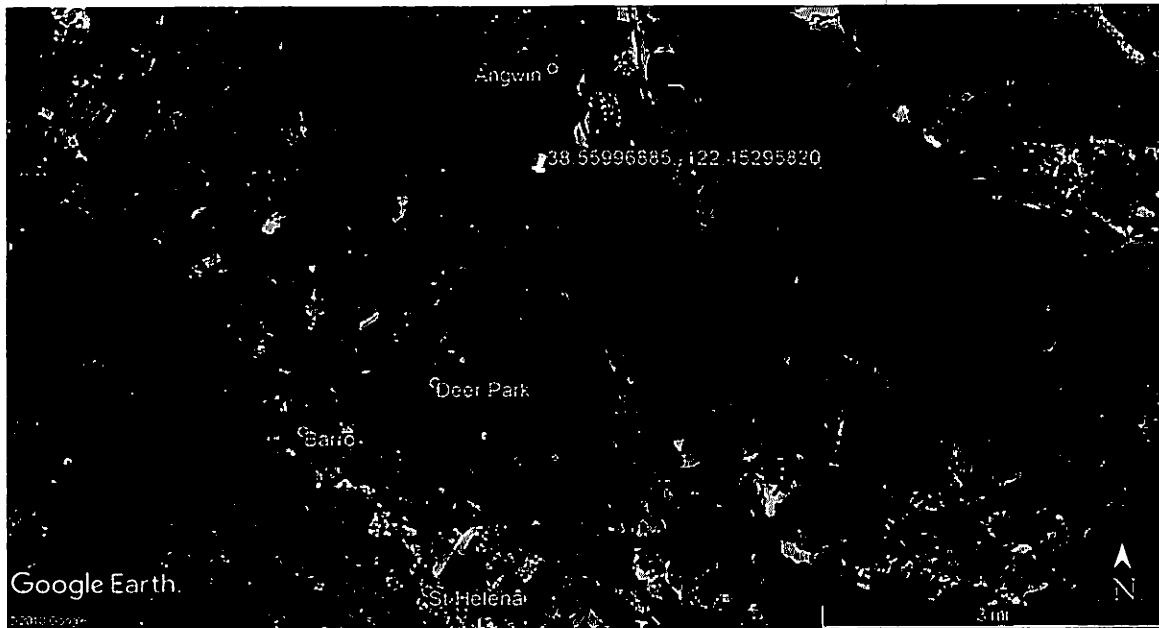






### Monitor Vegetation Inspection Report

A potential overhang tree was found during a Monitor Inspection on July 3, 2019 of Project *PR\_000340* on Circuit *Silverado 2104*. In general terms, this circuit is located on the outskirts of the city of St. Helena, CA, running approximately 15 miles to the north of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Ponderosa Pine	
GPS Coordinates	38.55996885, -122.45295820	
Approx. Distance from Primary Conductor	Trunk of tree 8 feet east	
Approx. Height	115 feet	
Veg Type	Potential Overhang Tree	
Monitor Arborist Comment	Vegetation observed currently overhanging the 4 foot vertical plane, and tree not visibly marked for pruning.	

**Tree Photos:**

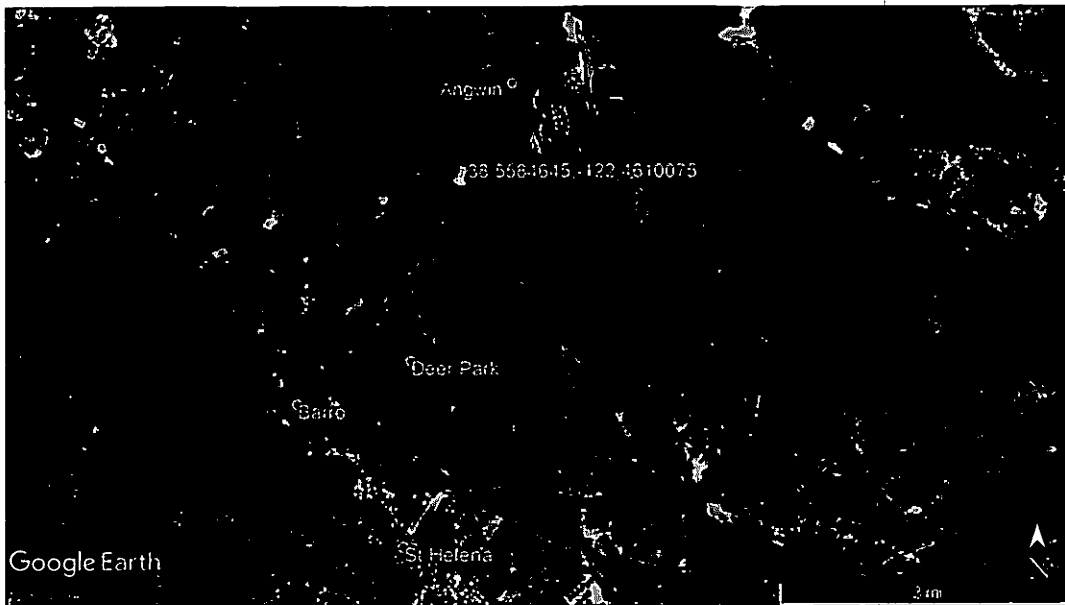
Photographs below show subject tree and proximity to the primary conductor.





### Monitor Vegetation Inspection Report

A potential overhang tree was found during a Monitor Inspection on July 1, 2019 of Project *PR\_177220* on Circuit *Silverado 2104*. In general terms, this circuit is located on the outskirts of the city of St. Helena, CA, running approximately 15 miles to the north of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	In-Progress	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Ponderosa Pine	
GPS Coordinates	38.5584645, -122.4610075	
Approx. Distance from Primary Conductor	Trunk of tree 20 feet northwest	
Approx. Height	90 feet	
Veg Type	Potential Overhang Tree	
Monitor Arborist Comment	Vegetation observed currently overhanging the 4 foot vertical plane, and tree not visibly marked for pruning.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



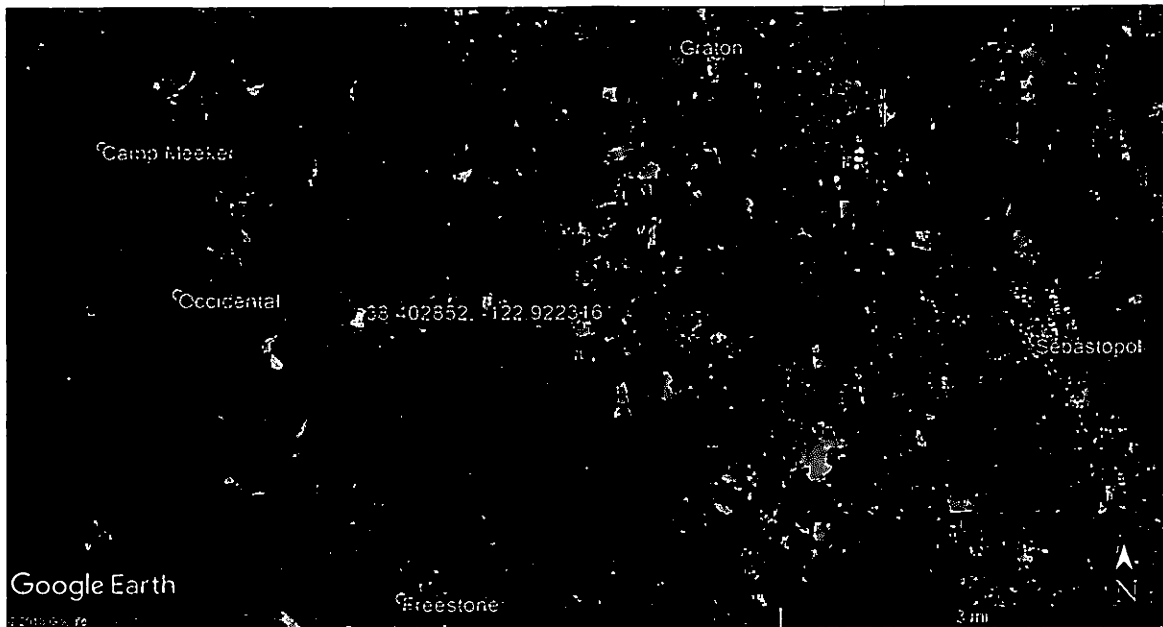






### Monitor Vegetation Inspection Report

A potential overhang tree was found during a Monitor Inspection on July 2, 2019 of Project *PR\_187602* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	No Work Required Under EVM
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No
Species	Coastal Redwood
GPS Coordinates	38.402852, -122.922316
Approx. Distance from Primary Conductor	Trunk of tree 5 feet north
Approx. Height	115 feet
Veg Type	Potential Overhang Tree
Monitor Arborist Comment	Vegetation observed currently overhanging the 4 foot vertical plane

**Tree Photos:**

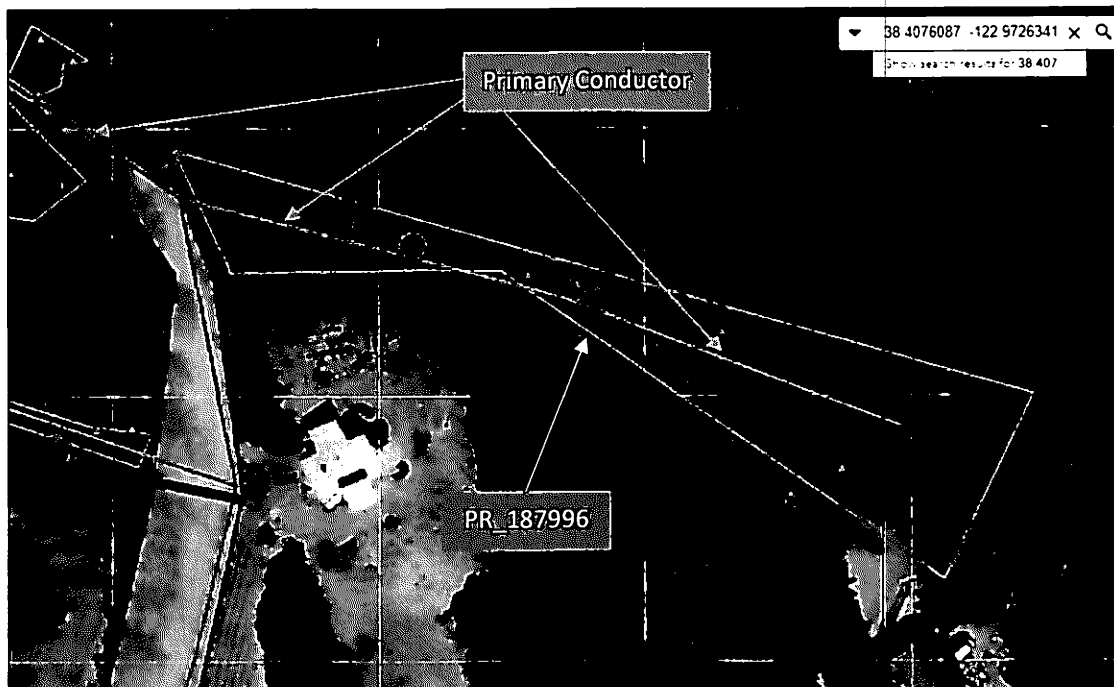
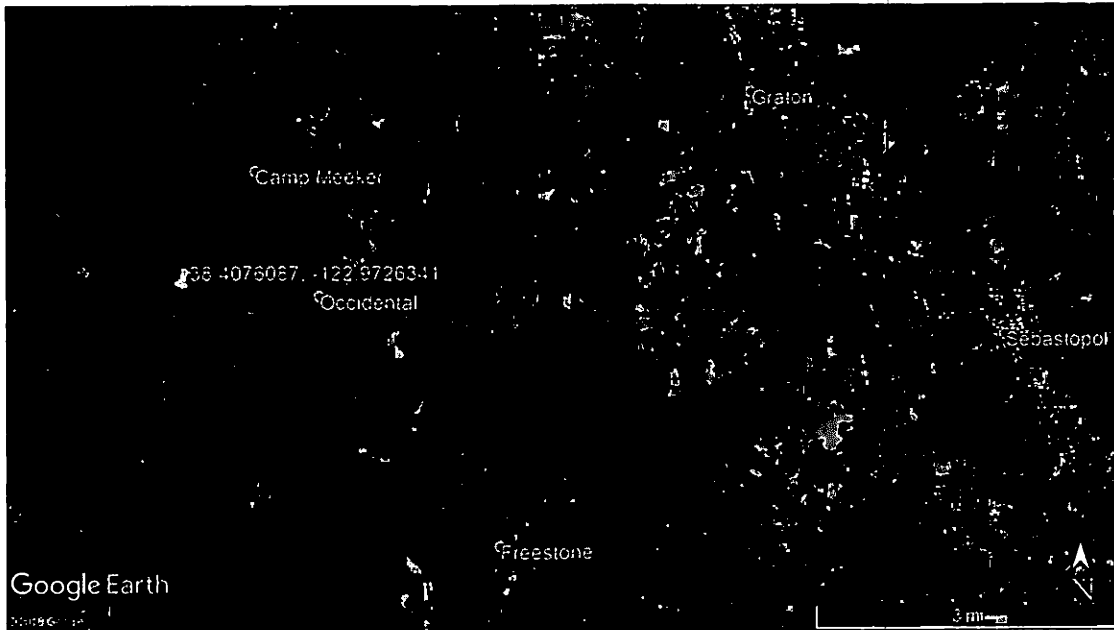
Photographs below show subject tree and proximity to the primary conductor.





### Monitor Vegetation Inspection Report

A potential overhang tree was found during a Monitor Inspection on July 1, 2019 of Project *PR\_187996* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Coastal Redwood	
GPS Coordinates	38.4076087, -122.9726341	
Approx. Distance from Primary Conductor	Trunk of tree 3 feet north	
Approx. Height	120 feet	
Veg Type	Potential Overhang Tree	
Monitor Arborist Comment	Vegetation observed currently overhanging the 4 foot vertical plane, and tree not visibly marked for pruning.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



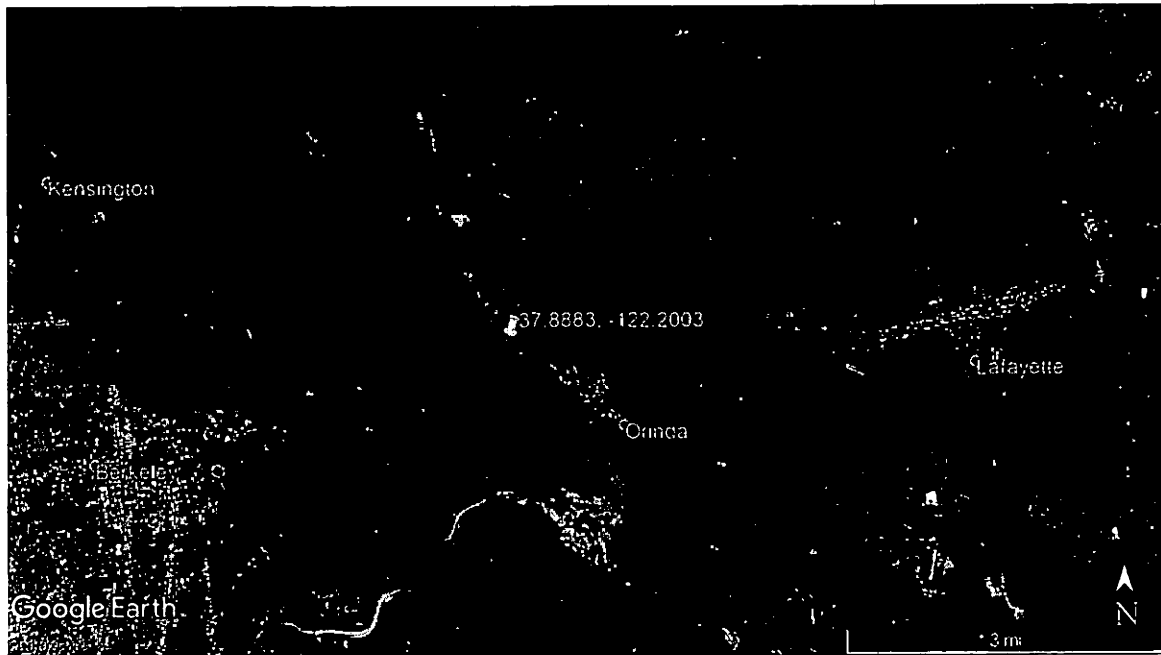


## **Sample Radial Clearance Tree Reports**



### Monitor Vegetation Inspection Report

A tree with a potential radial clearance issue was found during a Monitor Inspection on June 3, 2019 of Project *PR\_182830* on Circuit *Orinda 0401*. In general terms, this project is located approximately 5 miles east of Berkeley, CA in the city of Orinda and is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	Wood Mgmt Complete	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes	
Species	Valley Oak	
GPS Coordinates	37.8883, -122.2003	
Approx. Distance from Primary Conductor	Trunk of tree 3 feet south	
Approx. Height	65 feet	
Veg Type	Potential Radial Clearance Tree	
Monitor Arborist Comment	Vegetation with evidence of pruning observed within 12 feet of primary conductor	

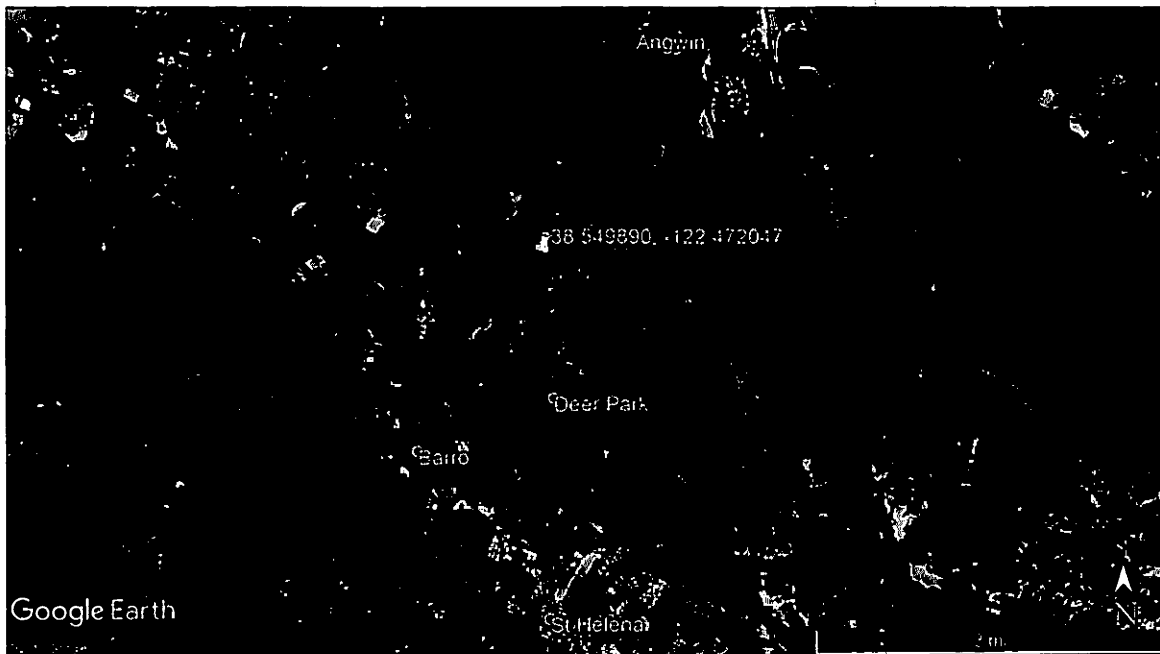
**Tree Photos:**

Photograph below shows subject tree and proximity to the primary conductor.



### Monitor Vegetation Inspection Report

A potential radial clearance tree was found during a Monitor Inspection on June 24, 2019 of Project *PR\_002250* on Circuit *Silverado 2104*. In general terms, this circuit is located on the outskirts of the city of St. Helena, CA, running approximately 15 miles to the north of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	Tree Work Complete	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes	
Monitor Team Observed Recent Tree Work on Subject Tree	Yes	
Tree Paint or Other Markings Observed	Yellow dot	
Species	Coastal Live Oak	
GPS Coordinates	38.549890, -122.472047	
Approx. Distance from Primary Conductor	Trunk of tree underneath primary conductor	
Approx. Height	35 feet	
Veg Type	Potential Radial Clearance Tree	
Monitor Arborist Comment	Vegetation with evidence of pruning observed within 12 feet of primary conductor	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.

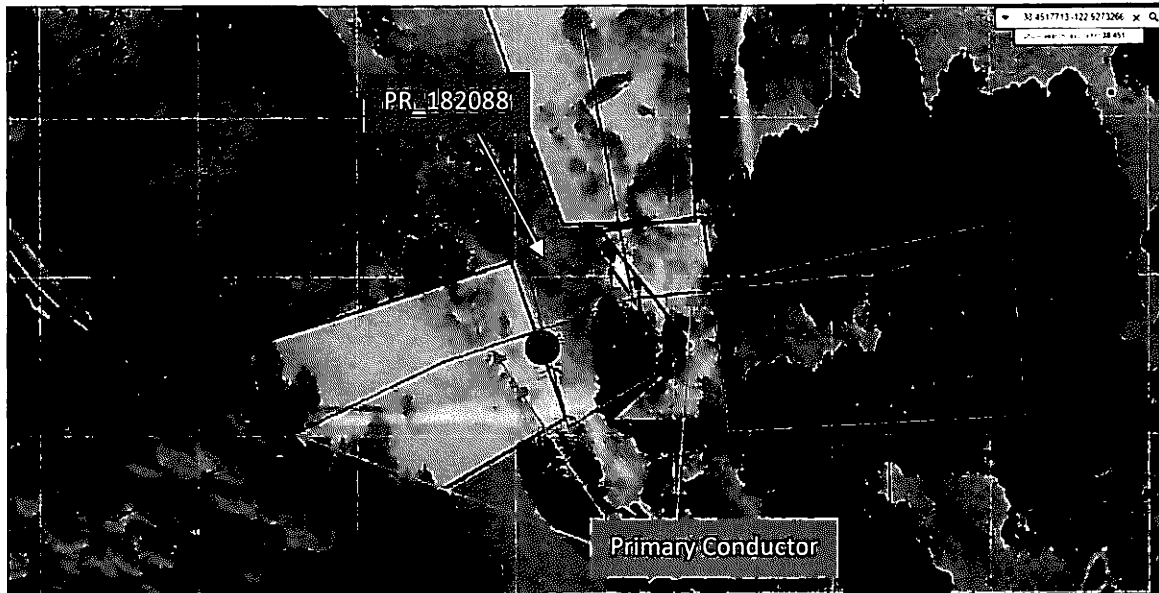
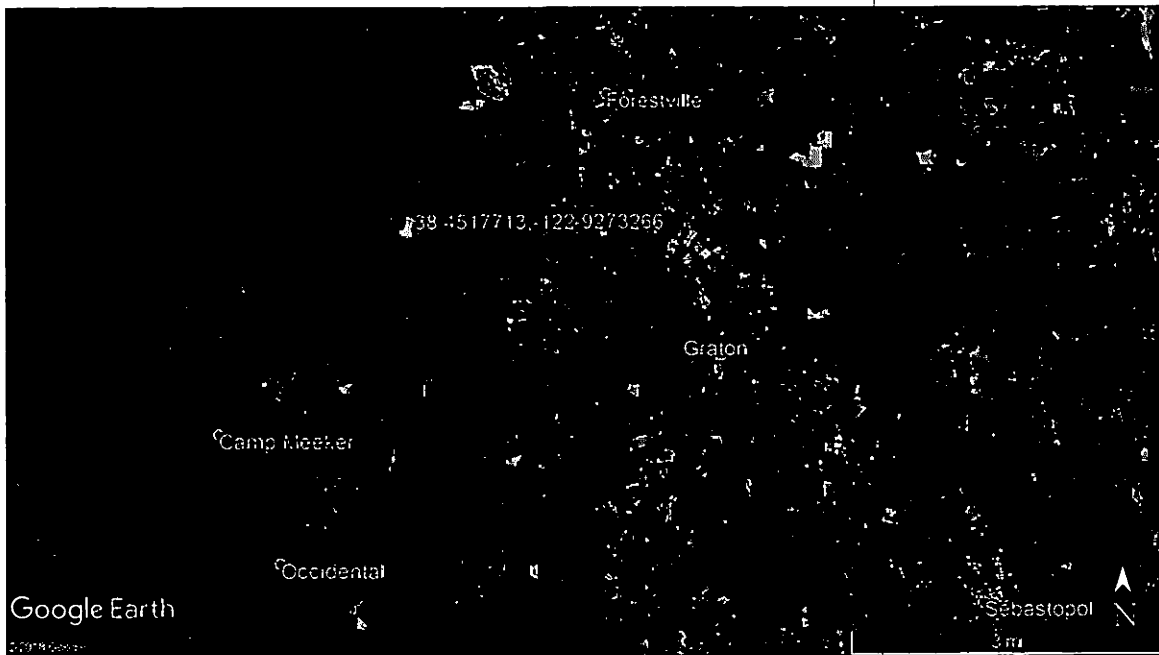






### Monitor Vegetation Inspection Report

A potential radial clearance tree was found during a Monitor Inspection on June 28, 2019 of Project *PR\_182088* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Ash	
GPS Coordinates	38.4517713, -122.9273266	
Approx. Distance from Primary Conductor	Trunk of tree 4 feet south	
Approx. Height	26 feet	
Veg Type	Potential Radial Clearance Tree	
Monitor Arborist Comment	Vegetation observed within 4 feet of primary conductor, and tree not visibly marked for pruning	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.

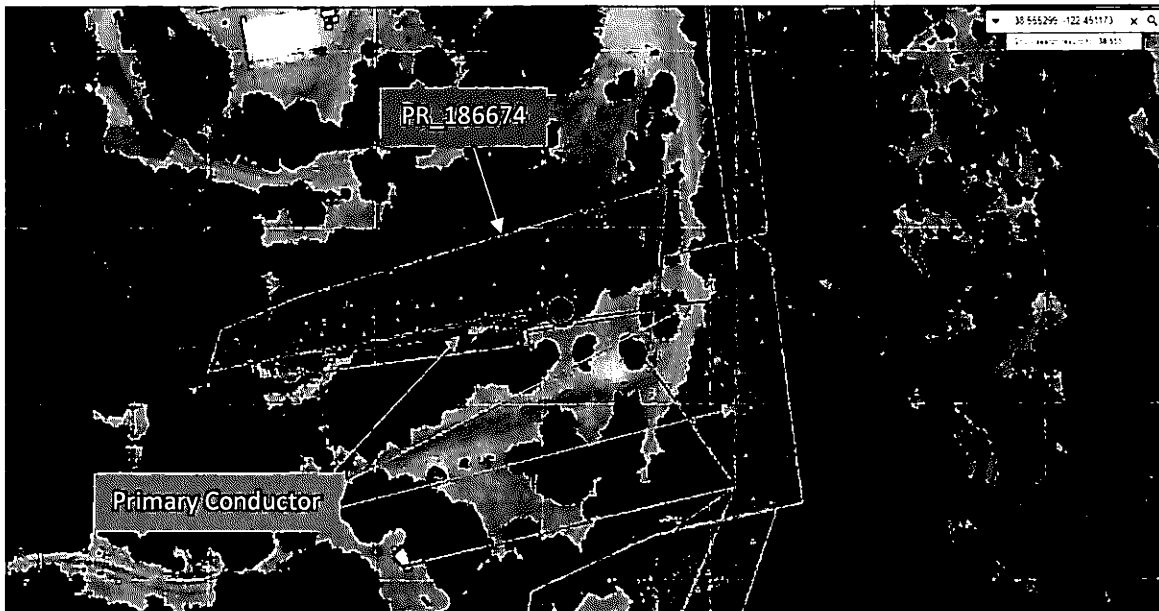
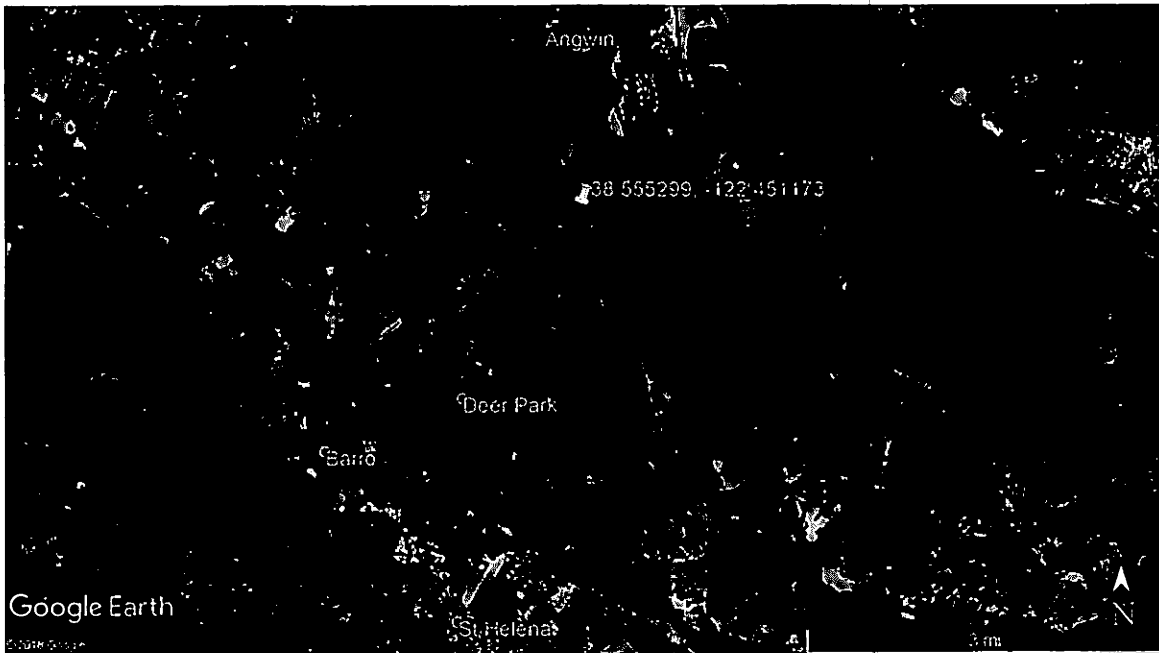






### Monitor Vegetation Inspection Report

A potential radial clearance tree was found during a Monitor Inspection on June 25, 2019 of Project *PR\_186674* on Circuit *Silverado 2104*. In general terms, this circuit is located on the outskirts of the city of St. Helena, CA, running approximately 15 miles to the north of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.

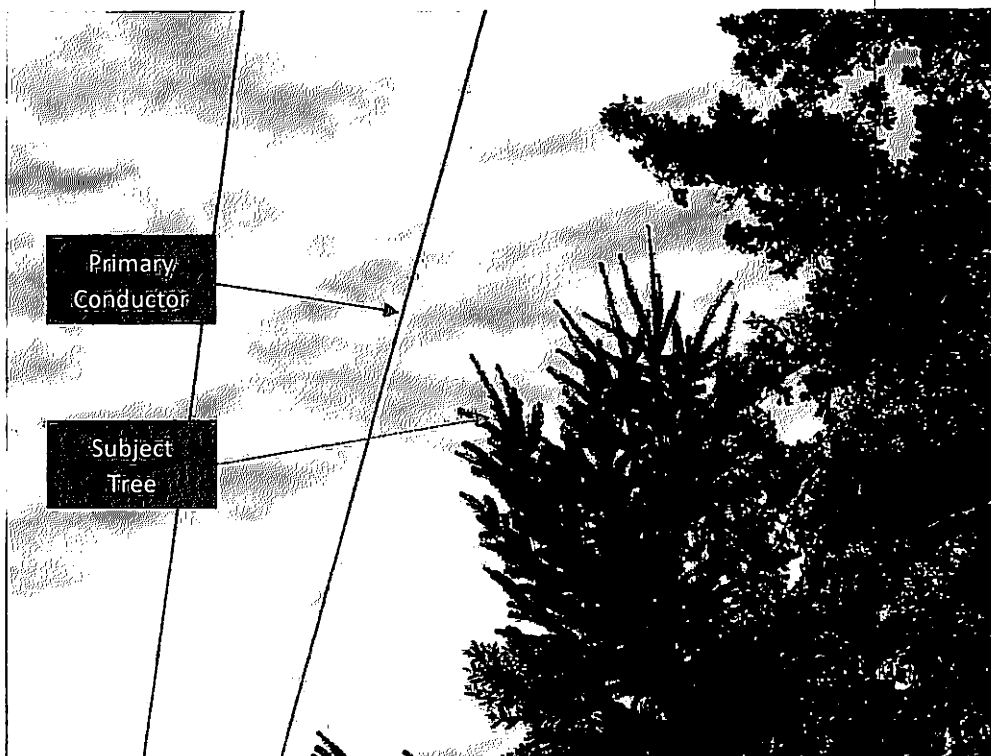


**Tree Information:**

PG&E ArcCollector Project Status	Wood Mgmt Complete	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	Yes	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Douglas Fir	
GPS Coordinates	38.555299, -122.451173	
Approx. Distance from Primary Conductor	Trunk of tree 2 feet north	
Approx. Height	30 feet	
Veg Type	Potential Radial Clearance Tree	
Monitor Arborist Comment	Vegetation observed within 4 feet of primary conductor	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



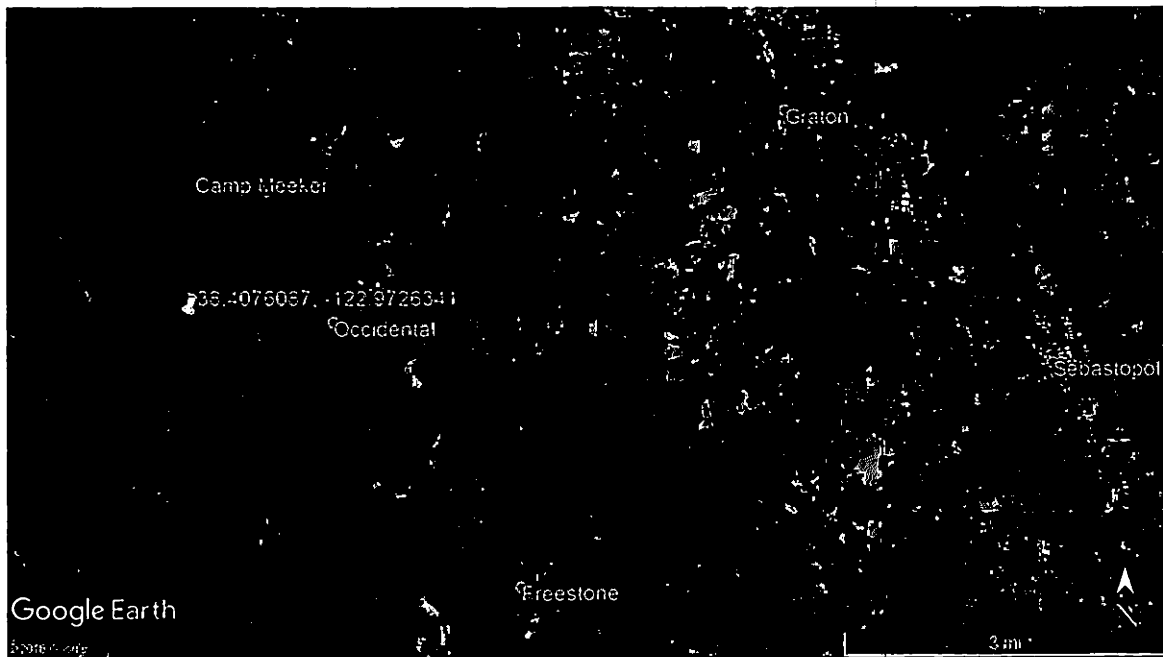






### Monitor Vegetation Inspection Report

A potential radial clearance tree was found during a Monitor Inspection on July 1, 2019 of Project *PR\_187996* on Circuit *Molino 1102*. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

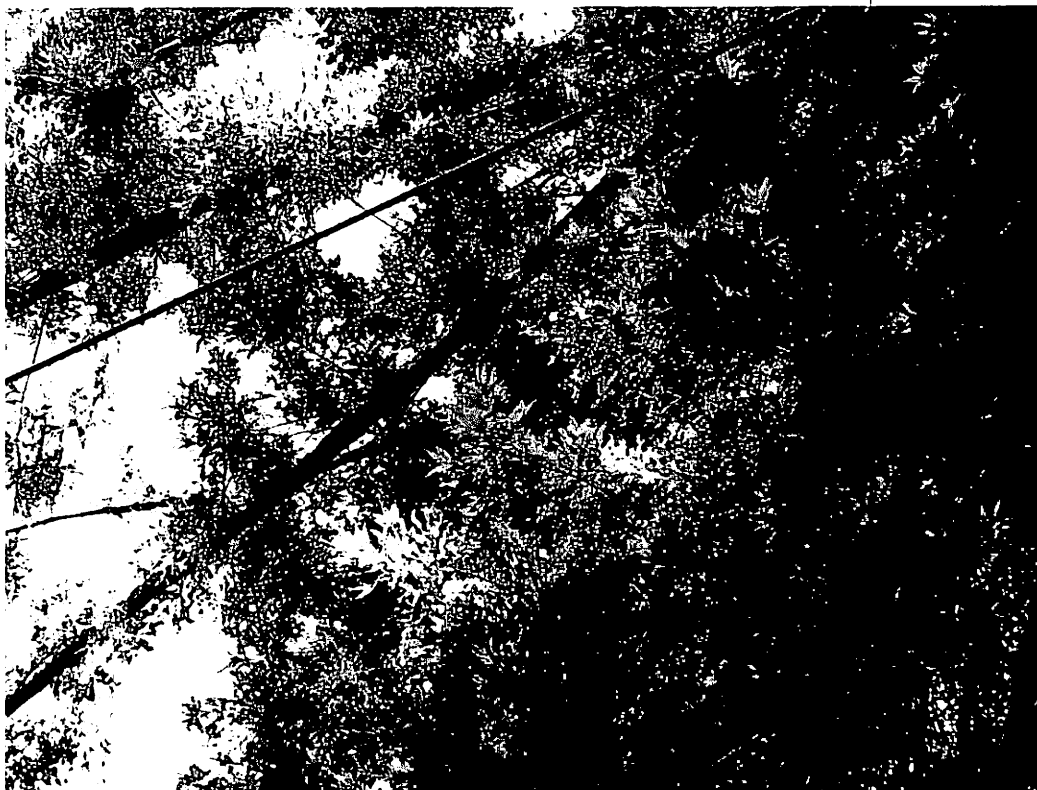
PG&E ArcCollector Project Status	Work Identified	
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No	
Monitor Team Observed Recent Tree Work on Subject Tree	No	
Tree Paint or Other Markings Observed	No paint observed	
Species	Coastal Redwood	
GPS Coordinates	38.4076087, -122.9726341	
Approx. Distance from Primary Conductor	Trunk of tree 2 feet south of the primary conductor	
Approx. Height	25 feet	
Veg Type	Potential Radial Clearance Tree	
Monitor Arborist Comment	Vegetation observed within 4 feet of primary conductor, and tree not visibly marked for pruning.	

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.



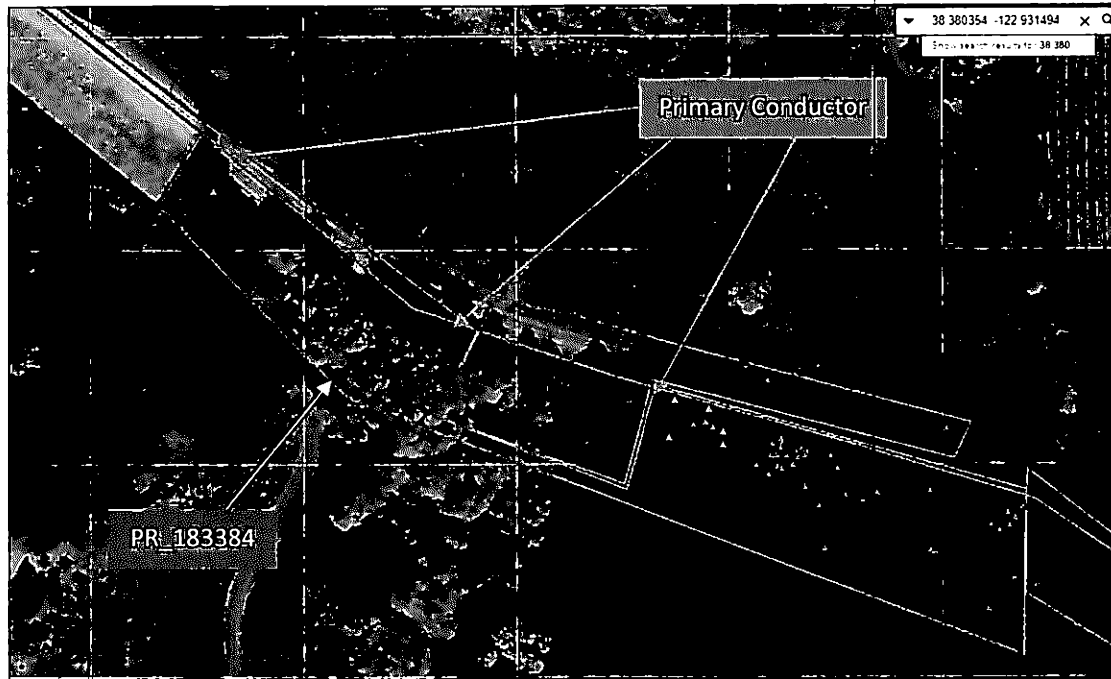
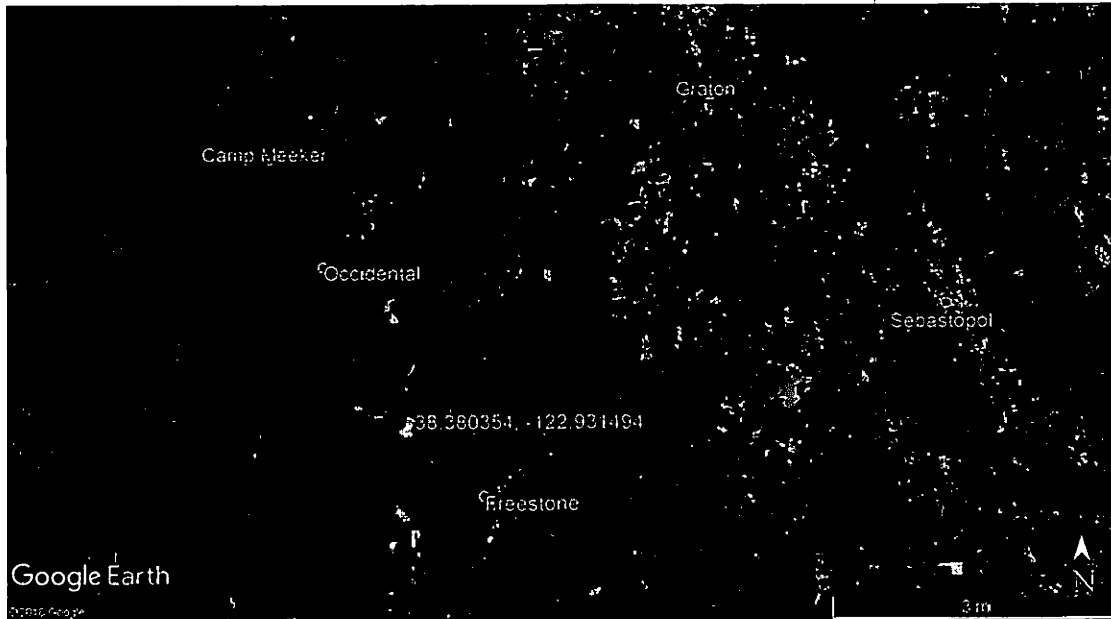






### Monitor Vegetation Inspection Report

A potential radial clearance tree was found during a Monitor Inspection on July 12, 2019 of Project *PR\_183384* on Circuit *Molino 1102*. This report follows up on an email to the Company on July 12 regarding this tree and Project. In general terms, this circuit is located on the outskirts of the city of Sebastopol, CA, running approximately 10 miles to the west of the city. This circuit is located in/near a Tier 3 fire threat area pursuant to the ArcCollector database. The approximate position of the tree is denoted as the red circle in the second graphic below.



**Tree Information:**

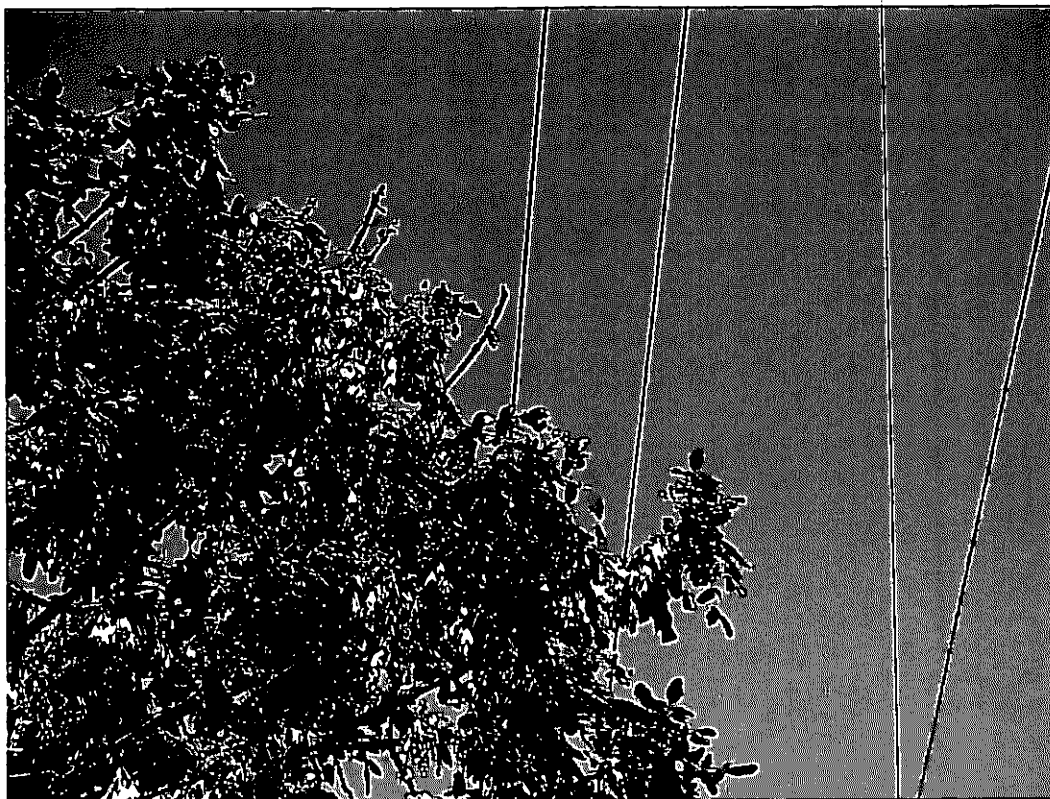
PG&E ArcCollector Project Status	Work Identified
Monitor Team Observed Tree Work in Immediate Vicinity of Subject Tree	No
Monitor Team Observed Recent Tree Work on Subject Tree	No
Tree Paint or Other Markings Observed	Flagging observed
Species	Ash
GPS Coordinates	38.380354, -122.931494
Approx. Distance from Primary Conductor	Trunk of tree 20 feet southwest
Approx. Height	32 feet
Veg Type	Potential Radial Clearance Tree
Monitor Arborist Comment	Vegetation observed within 4 feet of primary conductor, and tree has potentially been in contact with the primary conductor, as what appear to be singed branch tips can be observed from the ground.

**Tree Photos:**

Photographs below show subject tree and proximity to the primary conductor.







## **Sample Risk Tree Report**



Potential Risk Trees Through July 12, 2019  
Risk Tree Detail

Inspected by PG&E Prior to April 1, 2019

Project ID	Species										Total
	Black Oak	Coastal Live Oak	Live Oak	Tan Oak	Valley Oak	Gray Pine	Douglas Fir	Ponderosa Pine	Monterey Pine	Blue gum/Eucalyptus	
PR_000003	1							1			2
PR_000053		1						4			6
PR_000072		1				4				1	5
PR_000104											6
PR_000185							6				6
PR_000222		2									2
PR_000229		1									1
PR_000231											1
PR_000239											1
PR_000312						1		3			4
PR_000314								7			7
PR_000319							17				17
PR_000320		1									1
PR_000338							3	4			7
PR_000340	1						1				2
PR_000346							3				3
PR_000492	1						6	3			10
PR_000493							4	4			8
PR_000494							4	4			8
PR_000495							6				6
PR_000496							1				1
PR_000546		1					1				2
PR_000547							4				4
PR_000548											1
PR_000768								1			1
PR_000784							3	3			6
PR_000831		2					7	5			14
PR_000833							2	1			3
PR_000878								1			1
PR_000895							1				1
PR_000901						1					1
PR_000917		1						3			4
PR_001055	1						1				2
PR_001369	2						3				5
PR_001390		1									1
PR_001405											1
PR_001479	1	1					1				3
PR_001485		2									2
PR_001496							2				2
PR_001509		1									1
PR_001513		1					1				2
PR_001518											1
PR_001558							2				2
PR_001568		1									1
PR_001654		2									2
PR_001660							2				2
PR_001910		1					1				2
PR_001974							1				1
PR_002044											2
PR_002052						2		3			5
PR_002062							2				2
PR_002157		2					5				7







Potential Risk Trees Through July 12, 2019  
Risk Tree Detail

Inspected by PG&E On or After April 1, 2019

Project ID	Species										Total
	Black Oak	Coastal Live Oak	Live Oak	Tan Oak	Valley Oak	Gray Pine	Douglas Fir	Ponderosa Pine	Monterey Pine	Blue gum/Eucalyptus	
PR_000074	1	1	-	-	1	-	-	-	-	-	3
PR_000416	-	1	-	-	-	-	2	1	-	-	4
PR_000485	-	-	-	-	-	-	2	1	-	-	3
PR_000490	-	-	-	-	-	-	1	2	-	-	3
PR_000535	-	-	-	-	-	-	1	-	-	-	1
PR_000896	-	-	-	-	-	-	2	1	-	-	3
PR_001173	3	-	-	-	-	-	-	-	-	-	3
PR_001488	-	1	-	-	1	-	-	-	-	-	2
PR_001510	-	1	-	-	-	-	2	-	-	-	3
PR_002050	-	-	-	-	-	-	3	2	-	-	5
PR_002060	-	3	-	-	-	-	-	-	-	-	3
PR_002252	2	5	-	-	-	-	3	-	-	-	10
PR_002273	-	2	-	-	-	-	3	-	-	-	5
PR_002735	-	3	-	-	-	-	-	7	-	-	10
PR_002736	-	-	-	-	-	-	-	2	-	-	2
PR_003070	-	-	-	-	-	-	1	-	-	-	1
PR_004723	-	-	-	-	-	-	6	8	-	-	14
PR_006518	-	-	-	-	2	-	1	-	-	-	3
PR_012713	-	-	-	-	-	-	8	-	-	-	8
PR_012796	6	2	-	-	-	-	25	-	-	-	33
PR_012813	-	-	-	-	1	-	1	-	-	-	1
PR_012840	2	-	-	-	-	-	5	-	-	-	7
PR_013147	-	-	-	-	-	-	6	-	-	-	6
PR_013163	-	-	-	-	-	-	4	-	-	-	4
PR_013167	1	1	-	-	-	-	23	-	-	-	25
PR_013266	-	-	-	-	-	-	1	-	1	-	2
PR_013323	-	5	-	-	-	-	-	-	-	-	5
PR_014806	-	-	-	-	-	-	5	-	-	-	5
PR_020402	-	-	-	-	-	-	-	1	-	-	1
PR_020837	-	2	-	-	-	-	-	-	-	-	2
PR_029971	-	-	-	-	1	-	-	-	-	-	1
PR_032382	-	2	-	-	-	-	2	-	-	-	4
PR_032396	9	-	-	-	-	-	15	-	-	-	24
PR_037857	-	-	-	-	4	1	-	-	-	-	5
PR_037863	-	-	5	-	-	-	-	-	-	-	5
PR_046389	-	-	-	-	-	-	2	-	-	-	2
PR_050983	-	-	-	-	-	-	1	3	-	-	4
PR_166733	2	2	-	-	-	-	5	1	-	-	10
PR_166734	-	-	-	-	-	-	4	-	-	-	4
PR_178114	-	4	-	-	-	-	-	-	-	-	4
PR_178145	-	1	-	-	-	-	-	-	-	-	1
PR_178570	-	4	-	-	-	-	-	-	-	-	4
PR_178579	-	1	-	-	-	-	1	-	-	-	1
PR_178685	-	3	-	-	-	-	-	-	-	-	3
PR_178798	-	-	-	-	1	-	-	-	-	-	1
PR_178826	-	-	-	-	-	1	-	-	-	-	1
PR_178831	-	-	-	-	1	-	-	-	-	-	1
PR_178883	-	4	-	-	-	-	-	-	-	-	4
PR_179411	-	-	2	-	-	-	-	-	-	-	2
PR_179511	-	-	-	-	1	1	-	-	-	-	2
PR_180008	-	-	1	-	-	-	-	-	-	-	1















PR_188734	7	3	-	-	-	4	1	14	-	-	7	-	36
PR_188816	-	2	-	1	-	-	-	-	-	-	-	-	3
PR_188893	-	1	-	-	-	-	-	-	-	-	-	-	1
PR_189078	-	7	-	-	-	1	-	-	-	-	-	-	8
PR_189141	-	-	-	1	-	-	-	-	-	-	-	-	1
PR_189199	-	4	-	-	-	-	-	-	-	-	-	-	4
	79	547	56	21	158	25	905	60	107	132	2,090		