Pacific Gas and Electric Company®

Lise Jordan
Senior Director

300 Lakeside Drive
Oakland, CA 94612

Mailing Address:
Mail Code N13V
P.O. Box 770000
San Francisco, CA 94177

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Mr. Koko Tomassian
Program Manager, Compliance Assurance Division
Office of Energy Infrastructure Safety
715 P Street, 20th Floor
Sacramento, CA 95814

> Reference: PGE 2020 SVM Audit Corrective Action Plan (Docket No. 2020-SVM)
> Audit Report: California Public Utilities Code Section 8386.3(c)(5)(A), the Office of Energy Infrastructure Safety (Energy Safety)

Dear Mr. Tomassian:

This letter is in response to the June 14, 2022, Office of Energy Infrastructure Safety (Energy Safety) Audit of PG&E's Substantial Vegetation Management (SVM) Work in 2020. The audit evaluated the vegetation management section of PG&E's 2020 Wildfire Mitigation Plan (WMP) to determine compliance with the 2020 WMP vegetation management requirements. We recognize and appreciate the significant effort that Energy Safety put into the assessment of the implementation and execution of our 2020 WMP vegetation management work. Energy Safety found PG&E compliant with thirteen (13) of twenty (20) initiatives in the 2020 WMP but found PG&E not fully compliant in seven (7) initiatives.

As a result of these findings, Energy Safety directed PG&E to undertake certain corrective actions associated with the seven non-compliant areas. Below is a summary of the corrective actions identified by Energy Safety from Table 5 in the SVM Audit Report:

Table 5: Corrective Actions from Energy Safety's 2020 SVM Audit of PG&E		
Noncompliant Initiative Number	**Finding**	**Corrective Action**
5.3.5.1	**1.** PG&E failed to provide the number of times contractors were trained in Best Management Practices in 2020.	PG&E shall a) provide a reason why it failed to provide the number of times contractors were trained in Best Management Practices, as requested in DR086-SVM-20220429, and b) detail the steps it is taking to ensure vegetation management operations are consistent with statements made in this initiative of the WMP.
5.3.5.5	**2.** PG&E failed to implement a fuel reduction program as described in its 2020 WMP.	PG&E shall provide the steps it is taking to ensure statements made in this initiative of the WMP are consistent with vegetation management operations.
5.3.5.7	**3a.** PG&E failed to provide a sample dataset of its LiDAR data quality control program that was field reviewed in 2020. PG&E did not generate quality control reports until 2021.	PG&E shall a) provide a reason why it failed to generate quality control reports until 2021, and b) detail the steps it is taking to ensure appropriate quality control reporting occurs.
5.3.5.7	**3b.** PG&E failed to provide a pattern identified by LiDAR from 2020.	PG&E shall a) explain what pattern(s) it is trying to assess with LiDAR data under this WMP initiative, b) provide an explanation of why it failed to provide a pattern identified by LiDAR from 2020, as requested in DR-063-SVM-20220119, and c) detail the steps it is taking to ensure LiDAR use is consistent with statements made in this initiative of the WMP.
5.3.5.13	**4a.** PG&E failed to provide the 2020 QA protocol, instead providing the 2021 QA protocol. Due to this inability to provide documentation, Energy Safety's assessment is PG&E	PG&E shall a) state whether the 2021 QA protocol, that was published in January 2021, was in place in 2020 b) if it did have the QA protocol in place in 2020, explain why it did not provide the 2020 QA protocol as requested in DR-063-SVM-20220119, and c) detail the steps it is taking

Table 5: Corrective Actions from Energy Safety's 2020 SVM Audit of PG&E		
Noncompliant Initiative Number	**Finding**	**Corrective Action**
	did not have a formal QA protocol in 2020.	to ensure QA protocols are consistent with statements made in this initiative of the WMP.
5.3.5.13	**4b.** PG&E failed to conduct Work Verification (WV) on 100% of the EVM miles in 2020.	PG&E shall a) explain why there is a discrepancy between PG&E-submitted documents for total miles completed under the EVM scope in 2020, b) confirm whether it conducted WV on 100% of the EVM miles in 2020, and if PG&E did not conduct WV on 100% of the EVM miles in 2020, explain why not, and c) explain the steps it takes to ensure 100% of the EVM miles are Work Verified.
5.3.5.13	**4c.** PG&E failed to provide a sample of a QA assessment for the EVM program in 2020.	PG&E shall a) provide the reason why QA is not applied to the EVM program, b) explain why PG&E's responses to DR034-SVM-20211008 and DR-063-SVM-20220119 directly contradict statements made in the 2020 WMP, c) detail the steps it is taking to assure the EVM program is executed in accordance with expected quality standards, and d) detail the steps it is taking to ensure the implementation of quality assurance programs for EVM are consistent with statements made in this initiative of the WMP.
5.3.5.14	**5.** PG&E failed to provide Energy Safety with documentation supporting EVM pre-inspectors showing competency in the EVM program requirements through the skills assessment test.	PG&E shall a) state whether it tracked pass rates of the skills assessment test performed in 2020, b) if not, provide an explanation of why, c) explain how it tracked the "checks" performed in 2020 to ensure EVM pre-inspectors are competent in the EVM program requirements, and d) if PG&E did not track these "checks," explain why.

Table 5: Corrective Actions from Energy Safety's 2020 SVM Audit of PG&E		
Noncompliant Initiative Number	**Finding**	**Corrective Action**
5.3.5.15	**6a.** The language in the 2020 WMP conflicts with the EVM scope as described in PG&E's procedural document.	PG&E shall a) explain why the WMP statement regarding the EVM scope contradicts TD-7106P-01 "Enhanced Vegetation Management Pre-Inspection Procedure" as described in Section 5.15.1 of this audit and b) detail the steps it is taking to ensure vegetation management operations are consistent with statements made in this initiative of the WMP as described in Section 5.15.1 of this audit.
5.3.5.15	**6b.** PG&E failed to provide sample documentation consistent with its WMP statement indicating it would begin the process to study and assess the need for, and scope of, the targeted species program with other California utilities in 2020. Due to this inability to provide documentation consistent with its WMP statement, Energy Safety concludes PG&E did not start the process with other California utilities to develop a targeted species program in 2020.	PG&E shall a) state whether it started this process with other California utilities in 2020, b) if not, provide an explanation of why, c) if it did start this process, explain why it did not provide the documentation as requested in DR-063-SVM-20220119, and d) detail the steps it is taking to ensure that it is studying and assessing the need for and scope of the targeted species program with other California utilities consistent with statements made in this initiative of the WMP.
5.3.5.19	**7.** PG&E failed to utilize a central database for vegetation, as stated in its 2020 WMP, and instead has at least six databases for tracking vegetation data.	PG&E shall provide: a) a draft of the project plan and documented processes to support the development of central vegetation inventory system, b) documentation to outline the proof-of-concepts with vendors in 2021, c) an explanation of how it is implementing controls to ensure consistency across programs while it builds the central vegetation inventory system, d) a

Table 5: Corrective Actions from Energy Safety's 2020 SVM Audit of PG&E		
Noncompliant Initiative Number	**Finding**	**Corrective Action**
		description of controls in place to migrate data from legacy databases, e) a list and description of supportive tools to help PG&E and contract vegetation management staff successfully transition to using the centralized vegetation inventory system, f) a timeline for completion, and g) the steps it is taking to ensure vegetation data is tracked in a manner consistent with statements made in this initiative of the WMP.
Multiple	**8.** PG&E is inconsistent in its naming of various vegetation management programs.	PG&E shall a) state whether it has a process, protocol or procedure to ensure consistent use of vegetation management program names across its various documents (i.e., vegetation management procedural documents, WMP, etc.), b) if such processes, protocols, or procedures exist, provide Energy Safety with a copy of all such documents, or c) if such processes, protocols, or procedures do not exist, produce such documentation to ensure consistent naming convention in all documents (i.e. vegetation management procedural documents, WMP, etc.) moving forward.

Energy Safety requested that PG&E submit a response to the corrective actions listed in Table 5 (above) and any supporting documentation within 60 days from the issuance date of the report (or by August 15, 2022) to the 2020-SVM docket in Energy Safety's e-filing system. PG&E's response to each of the corrective actions is provided below.

General Response

We have made significant progress since 2020 to streamline our WMP tracking and reporting processes. This includes improvements to align our WMP initiatives and commitments with the work performed by our Vegetation Management and other operations teams, including:

1. Improving WMP reporting practices by defining the unit completion and records required to substantiate completion for WMP targets as well as adding additional internal reviews of the records.

2. Identifying in our 2022 WMP quantitative commitments and verifiable statements made regarding vegetation management and working to ensure that our vegetation management operations team executes a plan to satisfy these commitments and statements. The 2022 WMP also describes our process for monitoring and auditing WMP implementation, including the implementation of vegetation management initiatives.[1]

3. Instituting a Lean Operating System to create a more effective operating structure that establishes daily operating reviews to improve visibility into all facets of our performance, including safety, quality, and work completion for our wildfire risk reduction programs. The Lean Operating System facilitates rapid response and problem-solving at both the regional and functional levels and accelerated our WMP implementation in a standardized and coordinated way across the company.

In addition, based on our review of the SVM Audit Report, we note that in a number of instances the supporting documentation originally provided in response to Energy Safety data requests was not sufficient and, in some cases, not responsive based on a misunderstanding of the request. To prevent this from happening in the future, we will more closely coordinate with Energy Safety staff to make sure that we understand data requests and the specific information being requested so that we can be fully responsive. In response to the SVM Audit Report, documentation to support completion of 2020 WMP vegetation management initiatives are provided in this letter to the extent it was not previously provided in data requests based on a misunderstanding of the requests.

Below, we provide a response to each of the findings and corrective actions identified in Table 5 of the SVM Audit Report. For each item, we provide the Initiative Number, Energy Safety's finding, the corrective action and our response.

Initiative Number:	5.3.5.1
Finding:	1. PG&E failed to provide the number of times contractors were trained in Best Management Practices in 2020.
Corrective Action(s):	PG&E shall a) provide a reason why it failed to provide the number of times contractors were trained in Best Management Practices, as requested in DR086-SVM-20220429, and b) detail the steps it is taking to ensure vegetation management operations are consistent with statements made in this initiative of the WMP.

Response:

a) We did not provide the number of times contractors were trained in Best Management Practice courses in 2020 because we misunderstood Question 2 in data request DR086-SVM-20220429.

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[1] 2022 Revised WMP, pp. 366-367.

We interpreted the question to request the number of attempts an individual took to successfully pass the course. As explained in our response to Question 2 in DR086-SVM-20220429, Best Management Practice courses are self-directed web-based courses that do not track individual attempts. However, we can provide the number of individuals who successfully passed the courses. In some cases, courses were implemented late in 2020 and would have been taken primarily in 2021. Additionally, because pre-inspectors have 90 days to complete the courses, pre-inspectors onboarded late in 2020 may have taken these courses in 2021, which we believe met the intent of the commitment.

Please see below for the total number of individuals who passed the courses outlined in DR086-SVM-20220429 in 2020. Please note, contract pre-inspectors onboarded in 2020 were automatically enrolled in Best Management Practice courses within 90 days of assignment.

Course Title	Number of Individuals (2020)
ENVR-0070WBT	288
ENVR-0220WBT	338
ENVR-0402WBT	26
ENVR-9032WBT	28
ENVR-9033WBT	11
ENVR-9090RVL	711
ENVR-9091RVL	697
VEGM-0301WBT	37

b) We understand that the corrective action identified by Energy Safety is prospective in nature (i.e., PG&E is taking steps to make sure that our 2022 WMP and future WMP vegetation management initiatives are consistent with vegetation management operations). Please refer to the "General Response" section above, for the 2022 WMP enhancements to ensure consistency with vegetation management operations.

Initiative Number:	5.3.5.5
Finding:	2. PG&E failed to implement a fuel reduction program as described in its 2020 WMP.
Corrective Action(s):	PG&E shall provide the steps it is taking to ensure statements made in this initiative of the WMP are consistent with vegetation management operations.

Response:

We began our fuel reduction program in 2018, as described in the 2020 WMP, performing ground-to-conductor vegetative fuel reduction work (i.e., under and adjacent to power lines) in select locations. However, we determined in approximately April 2020 that the program was not efficient in supporting fuel reduction efforts at the time. We paused the program in 2020 to further evaluate its scope: (1) Utility Defensible Space (UDS); and (2) fire retardant within transmission right-of-way. In 2021, we launched our revised fuel reduction program with a refined scope and requirements. This program now addresses fuels underneath and adjacent to overhead distribution primary voltage power lines in High Fire Threat District (HFTD) areas.

We understand that the corrective action identified by Energy Safety is prospective in nature (i.e., PG&E is taking steps to ensure that our 2022 and future WMP vegetation management initiatives are consistent with vegetation management operations). Please refer to the "General Response" section above, for the 2022 WMP enhancements to ensure consistency with vegetation management operations.

Initiative Number:	5.3.5.7
Finding:	3a. PG&E failed to provide a sample dataset of its LiDAR data quality control program that was field reviewed in 2020. PG&E did not generate quality control reports until 2021.
Corrective Action(s):	PG&E shall a) provide a reason why it failed to generate quality control reports until 2021, and b) detail the steps it is taking to ensure appropriate quality control reporting occurs.

Response:

a) We did not provide the LiDAR data collected from our vendor as we interpreted the data request DR063-SVM-20220119 to be referring to the IT quality control (QC) process, which is what we provided. With that said, Sharper Shape collected 2020 WMP LiDAR data in 2019 and delivered it to PG&E in 2020 and we inspected the data from 2020 through 2022. Additionally, GeoWing completed LiDAR data quality control in 2020. Please refer to the table below for these reports QC reports.

Attachments Name	Description
Attachment 01_5.3.5.7_3a_Ref 19 WAVE_ZONE1_QC_REPORT_GeoWing.pdf	QC Report
Attachment 02_5.3.5.7_3a_Ref 19 WAVE_ZONE2_QC_REPORT_GeoWing.pdf	QC Report

Attachment 03_5.3.5.7_3a_Ref 19 WAVE_ZONE3_QC_REPORT_GeoWing.pdf	QC Report
Attachment 04_5.3.5.7_3a_Ref 19 WAVE_ZONE4_QC_REPORT_GeoWing.pdf	QC Report
Attachment 05_5.3.5.7_3a_Ref 19 WAVE_ZONE5_QC_REPORT_GeoWing.pdf	QC Report

VM conducted additional LiDAR Vegetation QC inspections beginning in April 2020. We did not understand data request DR-063-SVM-20220119 to ask for the 2020 field review data and are providing it here instead. Please see attachment "*Attachment 06_5.3.5.7_3a_Total Detection Buffer 04 foot PI_111221_2020_Redacted.xlsx*" for a sample of data field reviewed in 2020.

b) Our LiDAR Vendor contracts detail the data QC sampling process. Please see LiDAR data contract language below.
- Standard completeness/correctness of delivery:
  - <u>Completeness</u>: at least 95% of all the specified objects that are part of this product specification and are visible on the Cyclorama, and within distance specification from the Cyclorama recording locations, are inventoried.
  - <u>Correctness</u>: of the objects inventoried, each individual attribute type is subject to a 95% correctness.
- Quality control is done via a statistical process where the number of checks (sample size) depends on the size of the dataset, with sample size determined using random sampling methodology. 100% quality assurance (QA) is not performed.

Initiative Number:	5.3.5.7
Finding:	3b. PG&E failed to provide a pattern identified by LiDAR from 2020.
Corrective Action(s):	PG&E shall a) explain what pattern(s) it is trying to assess with LiDAR data under this WMP initiative, b) provide an explanation of why it failed to provide a pattern identified by LiDAR from 2020, as requested in DR-063-SVM-20220119, and c) detail the steps it is taking to ensure LiDAR use is consistent with statements made in this initiative of the WMP.

Response:

a) For LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment, LiDAR identified patterns where vegetation was potentially within four (4) feet of an HFTD electric distribution primary line. We refer to these patterns as "detections."

b) DR-063-SVM-20220119 requested: "Documentation of one pattern and one risk identified via LiDAR in 2020. Highlight, or otherwise mark, area of document responsive to this question."

In our response, we provided one example of a LiDAR Detection pattern identified from the LiDAR data delivered in 2020 with the field review in 2021. However, a field review of patterns identified by LiDAR data delivered in 2020 began in April 2020, and we did not understand the data request to ask for the field review on the data provided to be conducted in 2020. Please refer to our response to 5.3.5.7 (3a) above for a sample of data field reviewed in 2020.

c) In 2022, VM developed ArcGIS Online and Power Business Intelligence (BI) reporting and tracking tools for Distribution LiDAR detections. In addition, we shared LiDAR identified patterns with VM inspectors for review, consistent with statements made in this initiative. VM Work Verification team uses the Work Verification for Defined Scope tool on ArcGIS Online. The tool prompts Work Verification inspectors to create priority tags for any LiDAR Detections that require additional Tree Work.

We understand that the corrective action identified by Energy Safety is prospective in nature (i.e., PG&E is taking steps to ensure that our 2022 WMP and future WMP vegetation management initiatives are consistent with vegetation management operations). Please refer to the "General Response" section above, for the 2022 WMP enhancements to ensure consistency with vegetation management operations.

Initiative Number:	5.3.5.13
Finding:	4a. PG&E failed to provide the 2020 QA protocol, instead providing the 2021 QA protocol. Due to this inability to provide documentation, Energy Safety's assessment is PG&E did not have a formal QA protocol in 2020.
Corrective Action(s):	PG&E shall a) state whether the 2021 QA protocol, that was published in January 2021, was in place in 2020 b) if it did have the QA protocol in place in 2020, explain why it did not provide the 2020 QA protocol as requested in DR-063-SVM-20220119, and c) detail the steps it is taking to ensure QA protocols are consistent with statements made in this initiative of the WMP.

Response:

a) The 2021 revision we provided to Energy Safety was effectively in place for 2020 because it reflected the actual protocols field personnel used in 2020. The QA protocol did not fundamentally change from 2015 to 2020, except for corrective actions assignment and tracking. The audit protocol published in 2015 underwent a revision throughout 2020 to capture changes QA made and implemented in 2020. We published the revised QA protocol in early 2021. Some of the job titles, forms, and attachments used may differ slightly (especially for audits started prior to March of 2020), but all of the steps followed in 2020 were consistent with the 2021 revised QA protocol.

b) As articulated in part (a) above, the 2015 QA protocol that was effective in 2020 did not include the corrective action assignment and tracking process. Since the corrective action process was utilized in 2020, we included the 2021 version. Please see attachment "*Attachment 07_5.3.5.13_4a_TD 7104P-1 VM QA Distribution Audit Procedure_Redacted.pdf*" for the 2020 QA procedure.

c) We understand that the corrective action identified by Energy Safety is prospective in nature (i.e., PG&E is taking steps to ensure that our 2022 WMP and future WMP vegetation management initiatives are consistent with vegetation management operations). Please refer to the "General Response" section above, for the 2022 WMP enhancements to ensure consistency with vegetation management operations.

Initiative Number:	5.3.5.13
Finding:	4b. PG&E failed to conduct Work Verification (WV) on 100% of the EVM miles in 2020.
Corrective Action(s):	PG&E shall a) explain why there is a discrepancy between PG&E-submitted documents for total miles completed under the EVM scope in 2020, b) confirm whether it conducted WV on 100% of the EVM miles in 2020, and if PG&E did not conduct WV on 100% of the EVM miles in 2020, explain why not, and c) explain the steps it takes to ensure 100% of the EVM miles are Work Verified.

Response:

a) We verified 100% of EVM work in 2020, however, the discrepancy was related to 86.26 carry over miles which were part of 2019 but completed in 2020. More specifically, in response to data request DR063-SVM-20220119, Question 17, we provided an excel spreadsheet ("*DRU_4631_Q17_Atch01_CONF.xlsx*"). On Tab "*DRU-4631 Q17a Summary*", column E, we show that 1,791.68 miles were completed per the 2020 EVM work plan, but we did not include all 2020 completed and Work Verified miles. Please see attachment "*Attachment 08_5.3.5.13_4b_2020_WV.xlsx*" column "WV_CLAIMED_MILES" for all completed and work verified miles in EVM in 2020. Completed and work verified miles in 2020 total 1,877.94, which includes 1,791.68 miles from the 2020 work plan and 86.26 carry over miles which were part of 2019 but completed in 2020. Please see column "NOTE" for miles completed and work verified not from the EVM 2020 work plan, which total 86.26. This is the gap between the 1,791.68 completed miles on the 2020 EVM plan provided in the prior response and the total 1,877.94 miles completed and work verified in 2020. Those miles are identified by the note "Work completed in 2020 and WV Claimed in 2020 on this circuit were along portions of the Circuit that were considered "Carry Over" work from prior year work."

b) As articulated in part (a) above, we verified 100% of EVM work in 2020. In response to data request DR063-SVM-20220119, Question 17, we provided an excel spreadsheet ("DRU_4631_Q17_Atch01_CONF.xlsx"). On Tab "DRU-4631 Q17a Summary", column E, we show that 1,791.68 miles were completed per the 2020 EVM work plan, but we did not include all 2020 completed and Work Verified miles.

c) EVM miles are not recorded as complete until they are work verified.

Initiative Number:	5.3.5.13
Finding:	4c. PG&E failed to provide a sample of a QA assessment for the EVM program in 2020.
Corrective Action(s):	PG&E shall a) provide the reason why QA is not applied to the EVM program, b) explain why PG&E's responses to DR034-SVM-20211008 and DR-063-SVM-20220119 directly contradict statements made in the 2020 WMP, c) detail the steps it is taking to assure the EVM program is executed in accordance with expected quality standards, and d) detail the steps it is taking to ensure the implementation of quality assurance programs for EVM are consistent with statements made in this initiative of the WMP.

Response:

a) We noted the type of work described in the 2020 WMP (Section 5.3.5.13) represents the Quality Verification (QV) scope of work (audit of recently completed work using a statistically significant sample to calculate a work quality rate) and incorrectly refers to Quality Assurance (QA). Additional clarification is included in our responses to DR-034-SVM-20211008 and DR-063-SVM-20220119 to more distinctly describe the QA and QV scopes of work. The contradiction to the 2020 WMP is a result of misidentification of QA work versus QV work. Accordingly, Quality Verification (QV) did stand up a sample-based assessment of Enhanced Vegetation Management (EVM) in 2020 as described in the WMP. That assessment began on September 23, 2020. Please see attachment "*Attachment 09_5.3.5.13_4c_2020_QV_EVM Audit_Redacted.pdf*" for the EVM work verification.

b) Please see response to part (a) above.

c) QV performs monthly field reviews on EVM work verification, which is the final control that VM execution uses to ensure that the program is properly executed. These reviews will examine a statistically significant random sample of EVM "Work Verification Pass" segments that have been classified as "Pass" to provide relative assurance that "Work Verification Pass" segments meeting the EVM Scope as defined in TD-7106P-01. Additionally, QA plans to

perform an EVM program maturity assessment in 2022. Please see attachment "*Attachment 10_5.3.5.13_4c_QVVM-Risk-6301P-10_Quality Verification VM Audit Procedure_Redacted.pdf*" for the Quality Verification Vegetation Management Audit procedure.

d) QA is conducting an EVM program audit in 2022 Q3. The audit will identify regional process inefficiencies, program execution inconsistencies, resource constraints, and collect feedback for future program improvements. This audit will follow the QA Vegetation Management Distribution Audit Procedure (RISK 6301P-06). QA is not conducting any other audit on the EVM program in 2022.

We understand that the corrective action identified by Energy Safety is prospective in nature (i.e., PG&E is taking steps to ensure that our 2022 WMP and future WMP vegetation management initiatives are consistent with vegetation management operations). Please refer to the "General Response" section above, for the 2022 WMP enhancements to ensure consistency with vegetation management operations.

Initiative Number:	5.3.5.14
Finding:	5. PG&E failed to provide Energy Safety with documentation supporting EVM pre-inspectors showing competency in the EVM program requirements through the skills assessment test.
Corrective Action(s):	PG&E shall a) state whether it tracked pass rates of the skills assessment test performed in 2020, b) if not, provide an explanation of why, c) explain how it tracked the "checks" performed in 2020 to ensure EVM pre-inspectors are competent in the EVM program requirements, and d) if PG&E did not track these "checks," explain why.

Response:

a) In 2020, we utilized a knowledge check system for the skills assessment test, which produces a "Pass" or "Fail" but did not track employee attempts needed to successfully pass the course. Accordingly, all 2020 pre-inspectors passed the knowledge checks, demonstrating their program requirements competency.

b) As outlined in part (a), we did not track the number of times a test was failed. We instead tracked which individuals needed to take the knowledge check, documented when they passed, and granted them access to EVM tools only after we confirmed they had passed.

c) In 2020, we profiled workers and tracked the completion of the knowledge checks through the PG&E Learning Academy. Prior to gaining access to EVM tools, all pre-inspectors were required to pass knowledge checks to show their program requirements competency. Since 2021, we have instituted a requirement that pre-inspectors pass the assessment within no more than three attempts.

d) Please see response to part (c) above.

Initiative Number:	5.3.5.15
Finding:	6a. The language in the 2020 WMP conflicts with the EVM scope as described in PG&E's procedural document.
Corrective Action(s):	PG&E shall a) explain why the WMP statement regarding the EVM scope contradicts TD-7106P-01 "Enhanced Vegetation Management Pre-Inspection Procedure" as described in Section 5.15.1 of this audit and b) detail the steps it is taking to ensure vegetation management operations are consistent with statements made in this initiative of the WMP as described in Section 5.15.1 of this audit.

Response:

a) We acknowledge the 2020 WMP EVM scope description in section 5.3.5.15 does not clearly define the caveat described in TD-7106P-01, however the statement "at the time of trim" refers to the pre-inspector's evaluation of whether the tree requires trimming to maintain compliance, per procedural guidance. Trees that are not in compliance or will not comply before the next routine/compliance tree work cycle, at the time of trim, require a 12-foot minimum radial clearance.

b) In June 2021, we implemented VEGM-0450, an EVM Field Evaluation. VEGM-0450 is proctored in the field and pre-inspectors must evaluate trees in real world power line-situations to ensure understanding and competency. This includes a practical exam by looking at trees to determine whether they are in scope for EVM. This field evaluation ensures alignment between field inspections and TD-7106P-01. The evaluation is graded and must be passed within 3 attempts.

We understand that the corrective action identified by Energy Safety is prospective in nature (i.e., PG&E is taking steps to ensure that our 2022 WMP and future WMP vegetation management initiatives are consistent with vegetation management operations). Please refer to the "General Response" section above, for the 2022 WMP enhancements to ensure consistency with vegetation management operations.

Initiative Number:	5.3.5.15
Finding:	6b. PG&E failed to provide sample documentation consistent with its WMP statement indicating it would begin the process to study and assess the need for, and scope of, the targeted species program with other California utilities in 2020. Due to this inability to provide documentation consistent with its WMP statement, Energy Safety concludes PG&E did not start the process with other California utilities to develop a targeted species program in 2020.
Corrective Action(s):	PG&E shall a) state whether it started this process with other California utilities in 2020, b) if not, provide an explanation of why, c) if it did start this process, explain why it did not provide the documentation as requested in DR-063-SVM-20220119, and d) detail the steps it is taking to ensure that it is studying and assessing the need for and scope of the targeted species program with other California utilities consistent with statements made in this initiative of the WMP.

Response:

a) We did not start this process with other California utilities in 2020, however we started the process internally to study and assess the need for, and scope of, and identify a vendor to conduct a targeted tree species study.

b) Southern California Edison Company (SCE) began targeted tree species studies before we began the process in 2020 and as such, we began an individual study internally through a third-party vendor. The study was completed on March 31, 2022. Please see attachment "*Attachment 11_5.3.5.15_6b_Targeted Tree Species Study_FINAL REPORT_Redacted.pdf*" for the final report.

c) Please see responses to part (a) and (b) above.

d) While we did not perform a joint study on targeted tree species, we are currently benchmarking with SCE and San Diego Gas & Electric Company (SDG&E) on the effectiveness of enhanced clearances by correlating the trends in vegetation-caused outages with the amount of enhanced clearances achieved at the time of trim. As part of this benchmarking process there will be a comparison of vegetation management data between investor-owned utilities (IOUs) to identify common tree species issues and discuss possible solutions.

Initiative Number:	5.3.5.19
Finding:	7. PG&E failed to utilize a central database for vegetation, as stated in its 2020 WMP, and instead has at least six databases for tracking vegetation data.
Corrective Action(s):	PG&E shall provide: a) a draft of the project plan and documented processes to support the development of central vegetation inventory system, b) documentation to outline the proof-of-concepts with vendors in 2021, c) an explanation of how it is implementing controls to ensure consistency across programs while it builds the central vegetation inventory system, d) a description of controls in place to migrate data from legacy databases, e) a list and description of supportive tools to help PG&E and contract vegetation management staff successfully transition to using the centralized vegetation inventory system, f) a timeline for completion, and g) the steps it is taking to ensure vegetation data is tracked in a manner consistent with statements made in this initiative of the WMP.

Response:

a) Please see attachment *"Attachment 12_5.3.5.19_7a_One Veg High Level Project Plan.xlsx"* for the draft project plan and documented processes to support the development of the One VM Tool, the central vegetation inventory system. Please note the project plan is subject to change based upon IT developments, user feedback, and leadership input.

b) Please see attachment *"Attachment 13_5.3.5.19_7b_One VM POC Evaluation_Redacted.xlsx"* for the proof-of-concept distributed to four different vendors to ensure alignment with our goals in One VM Tool development. Our leadership selected Salesforce as the vendor.

c) While developing a central database for vegetation through the One VM Tool, VM continues to drive consistency and reliability across programs through quality control, work verification, and centralized and Regional VM Leadership that oversees execution for all VM programs. All programs experience quality control oversight that assures integrity in the work performed by all personnel. We have also implemented work verification and Senior Vegetation Management Inspector (SVMI) programs to monitor and evaluate our VM projects and programs.
In order to maintain consistent communication and in alignment with our Lean Operating System, Daily Operating Reviews (DOR) are held each day at multiple levels within our organization. We have a DOR among our officer and leadership team and a DOR at the regional level with all of our regions represented. Contractors are also included in the region-level Daily Operating Reviews. In addition, we hold monthly VM All-Hands meetings.

We have also implemented the Management of Change process, which incorporates a Change Control Board representing each VM line of business workstream and essential stakeholders responsible for reviewing potential changes to VM standards and practices and approving them before they are implemented.

d) For Routine operations, we currently use the Vegetation Management Database (VMD) to track vegetation inspections and tree trimming work to maintain compliance with state and federal utility regulations. For EVM, we currently use ArcGIS Online to track inspections and tree trimming work.

Vegetation inspection and work history in VMD will not be migrated to the One VM Tool. Only new work records will be entered into VMD or the One VM Tool on a project-by-project basis, with the exception of span inspections. We will manually enter all 2022 completed inspections into the One VM Tool to ensure 100% of all conductors are inspected in 2022 during the transition period. Eventually, all work will transition into the One VM Tool, and the VMD system will be kept online for historical reporting and analysis purposes only.

Methodology:

We added known reference data inventories into the One VM Tool to assist field user inspection and work records entry. This reference data includes trees, spans, projects, project spans, parcel alerts, tree alerts, poles, conductor, parcels, and customer information.

The process to provide these reference items is described below.

- **Trees** – All current trees with GPS coordinates were extracted from VMD and all trees from the EVM program, including LiDAR collected trees, were overlaid into the inventory. Where EVM trees overlapped an existing VMD point, within a 15-meter buffer, the EVM tree replaced the VMD tree. The merged set of VMD and EVM trees totaled approximately 7 million tree points.
- **Spans** – The One VM Tool system is designed to track inspections of all overhead conductor on a pole-to-pole "span" basis. We used the coordinates of all pole assets in GIS and overhead conductor to create pole-to-pole line segments, or span objects representing a "span". Span objects include the attributes of the "start" pole and "end" pole, as well as span length. In some cases, spans were not drawn in the tool. When users encounter a span not listed, or drawn, in the inventory, they will draw the missing span from pole to pole, indicating that a span should be added to the inventory. If a span in the inventory is found to not exist, field users can indicate the span should be removed from the inventory.
- **Projects** – All 2022 routine and Tree Mortality projects were copied to the One VM Tool and are available to patrol in the One VM Tool. Project managers will decide if a specific project is to be executed in either VMD or the One VM Tool.

- **Project Spans** – To prepare for the transition to the One VM Tool, the newly created span segments were compared to the paper patrol maps used in VMD, and analysts selected all spans related to each specific project. An "orphaned span" report was created as a control to ensure that all spans are attributed to at least one distribution project, ensuring 100% of all spans are inspected.
- **Parcel Alerts** – Parcel alerts, notifications of safety or property access issues were copied from the VMD system based on address and matched to the parcel address. A large number of known alerts did not match a specific parcel; therefore, users will need to add alerts as necessary.
- **Tree Alerts** – Tree alerts, notifications of issues specific to a tree such as an environmental issue, were copied for all trees sourced from the VMD system. For trees sourced from EVM, alerts can be added manually in the One VM Tool.
- **Poles** – Poles were extracted from EDGIS, our enterprise electric distribution GIS system.
- **Conductor** – Conductor attributes, such as circuit name, were related to a specific span record. If multiple circuits are on the same span, then each will be related to the same span object, or record. Conductor attributes were extracted from EDGIS.
- **Parcels** – Parcels were sourced from a third-party commercial database containing assessor records from all counties in CA.
- **Customer Information** – Customer records were extracted from both VMD and PG&E's customer information system (CC&B) and merged for each address. The customer records were then linked to each parcel by address.

e) The One VM Tool development team created an internal SharePoint website for PG&E and contract VM staff with supportive tools such as user guides, quick reference cards, how-to videos, a training information hub, sandbox access to allow users to practice with test data, and a case management system where users can submit a ticket for issues they see out in the field; this further helps development of the tool.

Personnel who will use the One VM Tool are required to complete training in the field with a One VM Trainer. Upon completion a roster must be sent to the internal support team for recording purposes. A user access request form must be completed depending upon the personnel and their duties. See below.

The following training courses are required for non-tree crew personnel - Vegetation Management Inspector (VMI), Data Management Specialist (DMS), Pre-Inspection Manager (PIM):
- **VEGM - 9101** – One VM for Veg Mgt Inspectors (VMI)
- **VEGM - 9104** – One VM for Tree Crew back-office support

- **VEGM - 9105** – One VM for Support Teams

Tree Crew Personnel must complete the following training courses:
- **VEGM - 9102** – One VM for Field Tree Crews
- **VEGM - 9103** – One VM for Field Tree Crews (Spanish version)

PG&E Employees (VPM, SVPM, BA) must complete the following training courses:
- **VEGM - 9101** – One VM for Veg Mgt Inspectors (VMI)
- **VEGM - 9105** – One VM for Support Teams

Upon completion a production URL is sent to the user after production access has been granted, production access is not granted until all One VM Training is completed and documented.

f) Please see response to part (a) for the One VM Tool Release 1 and Release 2 completion timeline. Please note the schedule is subject to change based upon IT developments, user feedback, and leadership input. The schedule is also copied below for reference.

Task Name	Start	Finish
Discovery Phase	**02/09/21**	**07/30/21**
R1A(Pilot Release)	**08/01/21**	**03/23/22**
Prep, Plan & Architect (HLD Milestone 1)	08/01/21	09/21/21
Construct R1	09/22/22	12/14/21
Validation R1A	10/20/21	01/06/22
Data Readiness & Mock Migration Run	11/30/21	01/11/22
PMO Deliverables and Approvals	08/15/21	01/05/22
R1A - Prod Deployment	01/05/21	01/14/22
Data Migration Production	01/12/22	01/17/22
SFDC Project Team Support R1A	01/17/22	01/21/22
Performance Test Run - R1A	12/01/21	02/25/22
Pilot Phase	01/19/22	03/23/22
R1B (Full Roll Out)	**01/17/22**	**06/01/22**
On-Going Peer Training Session	**04/29/22**	**08/15/22**
Release 2	**05/23/22**	**10/30/22**

g) We continue to maintain and update our vegetation management inventory systems and improve our tools to identify system enhancement opportunities. We are rolling out the One VM Tool in a phased approach. Please see above for the central vegetation inventory system implementation training and controls.

Initiative Number:	Multiple
Finding:	8. PG&E is inconsistent in its naming of various vegetation management programs.
Corrective Action(s):	PG&E shall a) state whether it has a process, protocol or procedure to ensure consistent use of vegetation management program names across its various documents (i.e., vegetation management procedural documents, WMP, etc.), b) if such processes, protocols, or procedures exist, provide Energy Safety with a copy of all such documents, or c) if such processes, protocols, or procedures do not exist, produce such documentation to ensure consistent naming convention in all documents (i.e., vegetation management procedural documents, WMP, etc.) moving forward.

Response:

a) In July 2021, PG&E rolled out the Management of Change (MOC) Standard for the entire enterprise. This systematic approach allows us to identify, execute, and document changes within the company. The process required Lines of Business (LOB) to ensure any approved changes to terminology are properly documented and communicated. Subsequently, our Vegetation Management MOC Procedure rolled out in July 2022.

b) Please see attachments "*Attachment 14_Multiple_SAFE-4300S_MOC Standard_Redacted.pdf*" for the Management of Change Standard and "*Attachment 15_Multiple_PPSOT-GUID-000018330_Redacted.pdf*" for the Vegetation Management MOC Procedure.

c) Please see a and b.

Please contact me at (415) 420-0422 if you have any questions regarding this response.

Sincerely,

Lise Jordan,
Sr. Director, Regulatory Compliance, Electric
Engineering, Planning, and Strategy

Cc: MaryBeth Farley, Energy Safety
        Elizabeth McAlpine, Energy Safety
        compliance@EnergySafety.ca.gov

Wade Greenacre, PG&E
Anne Beech, PG&E
Robert Morales, PG&E
Safi Rizvi, PG&E
Electric Data Requests, PG&E