



OFFICE OF ENERGY INFRASTRUCTURE SAFETY
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August 11, 2022

TO: Liberty Utilities (Liberty)
Dan Marsh, Senior Manager, Rates and Regulatory Affairs
701 National Ave
Tahoe Vista, California 96148

SUBJECT: Office of Energy Infrastructure Safety's Audit on Liberty's Substantial Vegetation Management Work in 2020

Pursuant to the requirements of California Public Utilities Code Section 8386.3(c)(5)(A), the Office of Energy Infrastructure Safety (Energy Safety) has completed and enclosed its audit of Liberty's substantial vegetation management work in 2020.

During the audit, Energy Safety reviewed data provided by Liberty, which Energy Safety compared to the representations Liberty made in its 2020 Wildfire Mitigation Plan (WMP). A copy of the audit is enclosed. Please submit by electronic copy the requested Substantial Vegetation Management Audit Response & Corrective Action Plan no later than 30 days from issuance of this letter to the [2020-SVM docket](#) in Energy Safety's e-filing system with a file named "Liberty 2020 SVM Audit Corrective Action Plan."

Thank you for your courtesy and cooperation throughout the audit process. If you have any questions concerning this audit, please contact MaryBeth Farley at Marybeth.Farley@energysafety.ca.gov, with a copy to compliance@energysafety.ca.gov.

Sincerely,

Koko Tomassian
Compliance Program Manager
Compliance Assurance Division
Office of Energy Infrastructure Safety

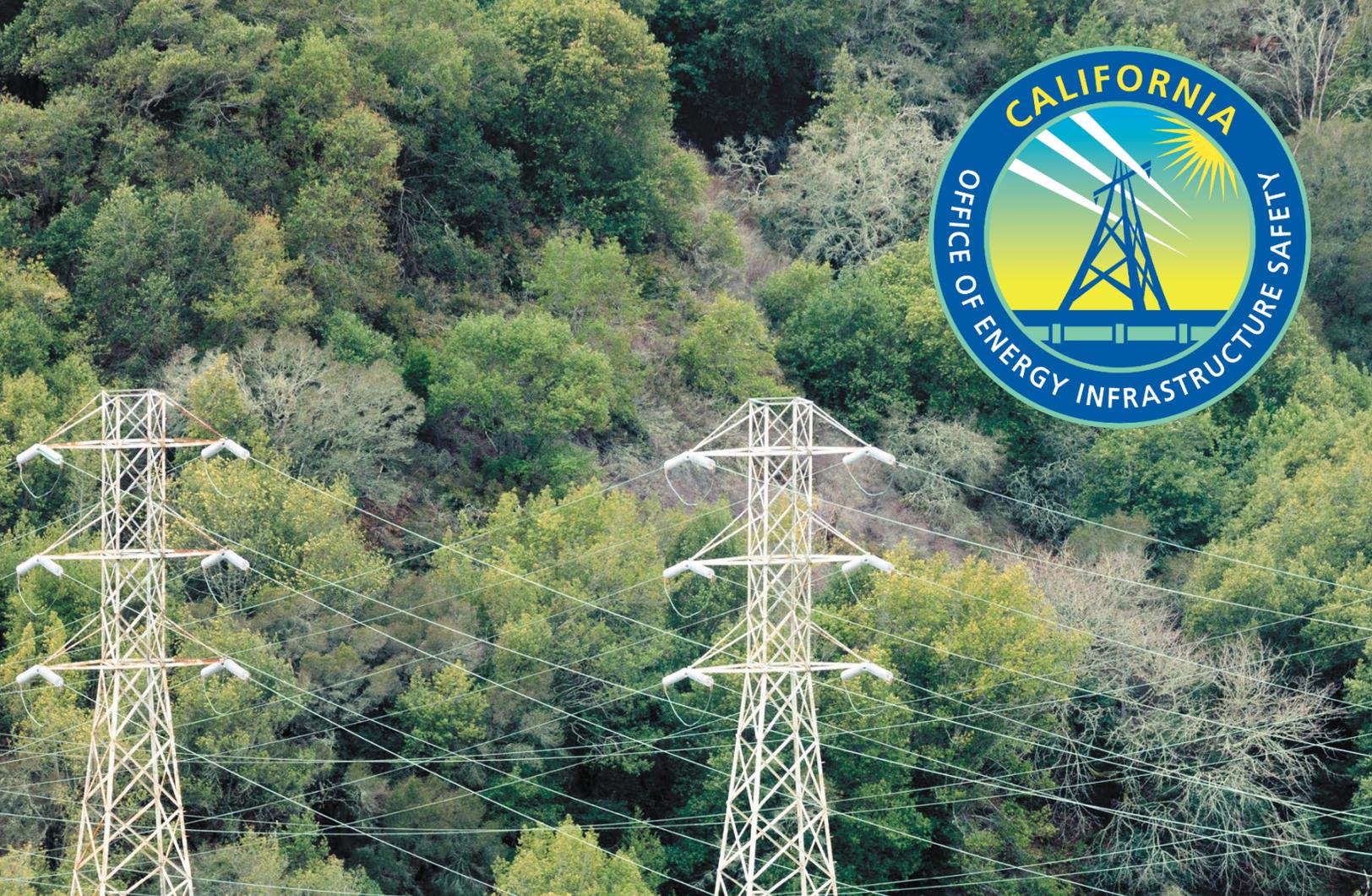
Attachment: 2020 SVM Audit

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**OFFICE OF ENERGY INFRASTRUCTURE SAFETY'S
2020 SUBSTANTIAL VEGETATION
MANAGEMENT AUDIT**

LIBERTY UTILITIES



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1.0 EXECUTIVE SUMMARY

Statute requires electrical corporations (utilities) to notify Energy Safety after completing substantial portions of vegetation management requirements in their approved Wildfire Mitigation Plans (WMPs) and requires Energy Safety to audit compliance with these requirements.¹ Energy Safety refers to this audit as the “Substantial Vegetation Management” (SVM) audit.

To conduct this audit, Energy Safety evaluated the vegetation management section of Liberty Utilities’ (Liberty’s) 2020 WMP.² The 2020 WMP Guidelines contained 20 initiatives in the vegetation management section. In reviewing the vegetation management section and initiatives in Liberty’s 2020 WMP, Energy Safety identified both quantitative commitments (e.g., miles of lines to inspect, minimum work quality thresholds, etc.) and verifiable statements (e.g., the utility will hold public meetings with communities regarding future vegetation management activities, the utility will train personnel on utilities protocols, etc.) made by Liberty. Energy Safety then reviewed available information and requested additional documentation to support the assessment of whether utilities met their quantitative commitments and executed their verifiable statements.

Based on the scope above and subsequent analysis, Energy Safety found Liberty was not compliant in two out of the 20 vegetation initiatives audited in its 2020 WMP, as detailed in Table 1 below. Additionally, one of the 20 vegetation initiatives was determined to be not applicable to Liberty’s SVM audit.

Table 1: Energy Safety’s Analysis of Liberty’s 2020 WMP Vegetation Management Initiatives

2020 WMP Initiative Number	2020 WMP Initiative Name	Determination ³
5.3.5.1	Additional Efforts to Manage Community and Environmental Impacts	Compliant
5.3.5.2	Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment	Compliant

¹ Cal. Pub. Util. Code § 8386.3, subd. (c)(5)(A)

² 2020 WMP Guidelines, R.18-10-007 page78, the 2020 WMP had 10 categories such as asset management and inspections, vegetation management and inspections, data governance, etc.

³ As used in this context, “Compliant” means the utility was able to provide Energy Safety document(s) to support statements made in its 2020 WMP. “Noncompliant” means the utility was not able to provide Energy Safety document(s) to support commitments and statements made in its 2020 WMP. “Not Applicable” means Energy Safety cannot conduct an analysis for this initiative. Energy Safety’s analysis did not assess the quality of how said WMP statement was executed.

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2020 WMP Initiative Number	2020 WMP Initiative Name	Determination ³
5.3.5.3	Detailed Inspections of Vegetation Around Transmission Electric Lines and Equipment	Compliant
5.3.5.4	Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions	Compliant
5.3.5.5	Fuel management and reduction of “slash” from vegetation management activities	Noncompliant
5.3.5.6	Improvement of Inspections	Compliant
5.3.5.7	LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment	Compliant
5.3.5.8	LiDAR Inspections of Vegetation Around Transmission Electric Lines and Equipment	Compliant
5.3.5.9	Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations	Compliant
5.3.5.10	Other Discretionary Inspection of Vegetation Around Transmission Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations	Compliant
5.3.5.11	Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment	Compliant
5.3.5.12	Patrol Inspections of Vegetation Around Transmission Electric Lines and Equipment	Compliant
5.3.5.13	Quality Assurance / Quality Control of Inspections	Compliant
5.3.5.14	Recruiting and Training of Vegetation Management Personnel	Compliant
5.3.5.15	Remediation of At-Risk Species	Noncompliant
5.3.5.16	Removal and Remediation of Trees with Strike Potential to Electric Lines and Equipment	Compliant
5.3.5.17	Substation Inspections	Not Applicable
5.3.5.18	Substation Vegetation Management	Compliant
5.3.5.19	Vegetation Inventory System	Compliant
5.3.5.20	Vegetation Management to Achieve Clearances Around Electric Lines and Equipment	Compliant

The 2020 WMP was the first year for which these SVM audit requirements were in effect. As with any inaugural process or effort, there was no existing precedent. Lessons learned in the execution of this audit will be carried over into future WMP Guidelines and compliance operations. Energy Safety looks forward to further refining and developing these SVM audits as the program matures.

2.0 PURPOSE

A utility must notify Energy Safety when it completes a substantial portion of the vegetation management requirements in its WMP on an annual basis.⁴ Energy Safety is then required to audit the utility's vegetation management work and specify any failure of the utility to comply with the vegetation management requirements in its WMP.⁵

Energy Safety conducted this audit based on the statutory language as described below:

Pursuant to the California Public Utilities Code (PUC), section (§)8386.3(c)(5)(A):

An electrical corporation shall notify the Wildfire Safety Division, within one month after it completes a substantial portion of the vegetation management requirements in its wildfire mitigation plan, of the completion. Upon receiving the notice from the electrical corporation, the division shall, consistent with its authority pursuant to paragraph (1) of subdivision (a) of section 326, promptly audit the work performed by, or on behalf of, the electrical corporation. The audit shall specify any failure of the electrical corporation to fully comply with the vegetation management requirements in the wildfire mitigation plan. The division shall provide the audit to the electrical corporation. The electrical corporation shall have a reasonable time, as determined by the division, to correct and eliminate any deficiency specified in the audit.

3.0 SCOPE OF THE SUBSTANTIAL VEGETATION MANAGEMENT AUDIT

To conduct this audit, Energy Safety evaluated the vegetation management section of Liberty's 2020 WMP.⁶ The 2020 WMP Guidelines contained 20 initiatives in the vegetation management section. In reviewing the vegetation management section and initiatives in Liberty's 2020 WMPs, Energy Safety identified both quantitative commitments (e.g., miles of lines to inspect, minimum work quality thresholds, etc.) and verifiable statements (e.g., the utility will hold public meetings with communities regarding future vegetation management activities, the

⁴ Cal. Pub. Util. Code § 8386.3, subd. (c)(5)(A)

⁵ Cal. Pub. Util. Code § 8386.3, subd. (c)(5)(A)

⁶ 2020 WMP Guidelines, R.18-10-007 p.78, the 2020 WMP had 10 categories such as asset management and inspections, vegetation management and inspections, data governance, etc.

utilities will train personnel on utility protocols, etc.) made by Liberty. Energy Safety then reviewed available information and requested additional documentation to support the assessment of whether Liberty met their quantitative commitments and executed their verifiable statements.

Liberty notified Energy Safety upon completion of a substantial portion of its 2020 WMP vegetation management requirements on May 25, 2021.⁷ In the notification,⁸ Liberty detailed its quantitative completion compared to quantitative targets for nine of the 20 vegetation management initiatives in the 2020 WMP. In support of its audit, Energy Safety requested documentation from Liberty to verify compliance with verifiable statements and quantifiable commitments in the vegetation management sections of its 2020 WMP. This audit did not assess the quality of how Liberty vegetation management programs were executed, beyond Liberty's own self-assessments of work quality.

4.0 BACKGROUND

4.1 Vegetation Management Programs

Liberty implements the following programs to perform vegetation management work along its distribution lines: Routine Vegetation Maintenance, Tier 3 Inspections, and the Catastrophic Event Memorandum Account (CEMA) Program. In its 2020 WMP, Liberty did not distinguish transmission vegetation management initiatives from distribution vegetation management initiatives. In addition, Liberty has a Quality Assurance and Quality Control program to oversee effective implementation of its vegetation management programs. Each of these programs is described in more detail below for reference throughout the audit.

- **Routine Vegetation Maintenance:** focuses on identifying and mitigating grow-ins or fall-in risk from vegetation and to conform to required laws and regulations.⁹
- **Tier 3 Inspections:** focuses on conducting an annual inspection of overhead conductors in Liberty's High Fire-Threat District Tier 3 areas, which encompasses approximately 50 miles, to address any vegetation management required "to obtain compliance with regulation requirements."¹⁰

⁷ Pursuant to Public Utilities Code section 326, subdivision (b), on July 1, 2021, the Wildfire Safety Division (WSD) transitioned from the Commission into the Office of Energy Infrastructure Safety (Energy Safety), a new department under the California Natural Resources Agency. Energy Safety "is the successor to" and "is vested with all of the duties, powers, and responsibilities of the Wildfire Safety Division" (Government Code Section 15475), including, but not limited to, jurisdiction for evaluating and approving or denying electrical corporations' WMPs and evaluating compliance with regulations related to the WMPs. The Commission and the newly formed Energy Safety will adhere to all statutory requirements pertaining to the WMP process. WSD is used to describe the work of the WSD prior to July 1, 2021. Energy Safety is used to describe the work of Energy Safety beginning on July 1, 2021. Any references to WSD action post July 1, 2021, or to Energy Safety action prior to July 1, 2021, are inadvertent and should be interpreted as the actions of WSD or Energy Safety as appropriate.

⁸ Liberty sent the notification via email to Director Thomas Jacobs on May 25, 2021.

⁹ 2020 WMP, page 79

¹⁰ 2020 WMP, page 74-75

- **Catastrophic Emergency Memorandum Account (CEMA) Program:** is an “accelerated inspection” via a “basic visual ground inspection” of trees that are dead and dying in response to the 2015 emergency declaration due to tree mortality in California.¹¹
- **Quality Assurance/Quality Control Program:** is the audit of “all vegetation inspection work as part of the review and permitting process.... Work quality is assessed for accuracy of the work order and for correct identification of tree work.”¹² However, as discussed further in this audit, Liberty was in the process of developing a formal Quality Assurance/Quality Control program in 2020.¹³

4.2 2020 WMP Vegetation Management Initiatives

In its 2020 WMP, Liberty identified 20 vegetation management initiatives, as listed below.

1. Additional efforts to manage community and environmental impacts
2. Detailed inspections of vegetation around distribution electric lines and equipment
3. Detailed inspections of vegetation around transmission electric lines and equipment
4. Emergency response vegetation management due to red flag warning or other urgent conditions
5. Fuel management and reduction of “slash” from vegetation management activities
6. Improvement of inspections
7. LiDAR inspections of vegetation around distribution electric lines and equipment
8. LiDAR inspections of vegetation around transmission electric lines and equipment
9. Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations
10. Other discretionary inspection of vegetation around transmission electric lines and equipment, beyond inspections mandated by rules and regulations
11. Patrol inspections of vegetation around distribution electric lines and equipment
12. Patrol inspections of vegetation around transmission electric lines and equipment
13. Quality assurance / quality control of inspections
14. Recruiting and training of vegetation management personnel
15. Remediation of at-risk species
16. Removal and remediation of trees with strike potential to electric lines and equipment
17. Substation inspections
18. Substation vegetation management
19. Vegetation inventory system
20. Vegetation management to achieve clearances around electric lines and equipment

¹¹ DR039-SVM-20211015, Supporting Materials, Schedule A – Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures Due to Tree Mortality; Accelerated Vegetation Inspections, page 1

¹² 2020 WMP, page 75

¹³ 2020 WMP, page 75

4.3 Liberty's Vegetation Management Programs and the 2020 WMP Initiatives

Through a review of Liberty's 2020 WMP, Energy Safety related Liberty's vegetation management programs listed in the section above to the following initiatives listed in its 2020 WMP:

Table 2: Liberty Vegetation Management Program and Corresponding 2020 WMP Vegetation Management Initiative

VM Program	2020 WMP Initiative Number
Routine Vegetation Maintenance	5.3.5.2
	5.3.5.3
	5.3.5.6
	5.3.5.15
	5.3.5.16
Tier 3 Inspections	5.3.5.19
	5.3.5.9
	5.3.5.10
CEMA Program	5.3.5.11
	5.3.5.12
	5.3.5.15
	5.3.5.16
Quality Assurance/Quality Control	5.3.5.13
	5.3.5.20

The above vegetation management program names are based on Energy Safety's assessment of Liberty's various vegetation management programs.

4.3.1 Documents Reviewed

In performing this audit, Energy Safety reviewed the following records and documents:

1. Liberty 2020 Wildfire Mitigation Plan Report Updated February 28, 2020 (2020 WMP)
2. Liberty notification letter from May 25, 2021
3. Liberty's Vegetation Management Plan¹⁴
4. Liberty's Pre-Inspection and Planning of Tree Work procedural document¹⁵
5. Liberty's CEMA Inspections procedural document¹⁶

¹⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan, revised June 2018

¹⁵ DR039-SVM-20211015, Supporting Materials, Schedule A – Specifications and Scope of Work Vegetation Management Services Pre-Inspection and Planning of Tree Work

¹⁶ DR039-SVM-20211015, Supporting Materials, Schedule A – Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures Due to Tree Mortality; Accelerated Vegetation Inspections

6. Liberty Utilities Resilience Corridors Project Decision Memo from the United States Forest Service (USFS)¹⁷
7. Liberty's response to data request DR28
8. Liberty's response to data request DR39
9. Liberty's responses to data request DR94
10. Liberty's response to data request DR103

Below is timeline of events that outlines Energy Safety communication with Liberty pertaining to this SVM audit. Communication below includes data requests, as listed above, and Liberty's subsequent responses.

Table 3: Timeline of Events Liberty's Communication with Energy Safety Regarding SVM Audit

Number	Date	Event
1	April 29, 2021	Energy Safety emailed Liberty requesting Liberty's notification for completing a substantial portion of its vegetation management requirements in its 2020 WMP.
2	May 24, 2021	Energy Safety sent Liberty another email requesting Liberty's notification for completing a substantial portion of its vegetation management requirements in its 2020 WMP.
3	May 25, 2021	Liberty notified Energy Safety that it completed a substantial portion of its vegetation management and provided the status of vegetation management activities by WMP Initiative Activity via quantifiable targets and completion.
4	June 2, 2021	Energy Safety submitted data request DR28-SVM-20210602 asking for supportive data supporting the completion of claims made in the notification letter above, which correlated to claims made in the 2021 WMP and fourth quarter Quarterly Initiative Update under nine initiatives.
5	August 20, 2021	Energy Safety requested a call with Liberty to review the supporting data for each initiative and for an overview of Liberty's quality assurance program.
6	August 25, 2021	Energy Safety and Liberty met to review the supporting data submitted. Because the supporting data was not submitted in the same units as claimed in the reporting documents (notification letter, 2021 WMP, and Quarterly Initiative Update), Energy Safety requested the Shapefiles (geospatial files) Liberty uses to validate the contractor's work on vegetation management initiatives 5.3.5.1, 5.3.5.2, 5.3.5.10, 5.3.5.11, 5.3.5.13, 5.3.5.15, 5.3.5.16. Energy Safety also asked for the treatment

¹⁷ This document was embedded in Liberty's 2020 WMP as a hyperlink on page 77, https://www.fs.usda.gov/nfs/11558/www/nepa/111291_FSPLT3_4880627.pdf. It is the National Environmental Protection Act decision memo, signed on October 7, 2019, authorizing the Forest Resilience Corridor to take place on the Tahoe National Forest and Lake Tahoe Basin Management Unit lands.

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Number	Date	Event
		documentation for parcels claimed under initiative 5.3.5.5, and for Liberty to resubmit some of the data originally presented as there were dates submitted outside of 2020 because the audit only pertains to work completed in 2020. ¹⁸ Energy Safety and Liberty scheduled a virtual walkthrough of the geospatial data submitted on August 30, 2021.
7	August 27, 2021	Liberty submitted the Shapefiles and other data requested.
8	August 30, 2021	Subsequent meeting was postponed due to Caldor Fire.
9	September 21, 2021	Energy Safety reached out to Liberty to reschedule GIS walkthrough.
10	September 28, 2021	Liberty performed a desktop validation exercise for Energy Safety, utilizing ArcGIS, a geospatial software program.
11	October 15, 2021	Energy Safety submitted data request: DR039-SVM-20211015 asking Liberty again to provide supportive data for each initiative because the data supplied in response to DR28-SVM-20210602, reported in units different than those used in the 2021 WMP and 2020 Q4 QIU, did not sufficiently address Energy Safety's request to validate the 2021 WMP and 2020 Q4 QIU reported units completed. In this second request, Energy Safety asked Liberty to provide the data in the format in which it is tracked by Liberty.
12	October 22, 2021	Energy Safety and Liberty met and discussed Liberty's informal process to verify vegetation work completed. Verification was conducted by using the plotted start and end points for contractor work to take place within ArcGIS and summing the miles of conductor in between those points. When inspections and tree work within the summed miles were complete and billed, this resulted in claimed miles completed. This was related to the anticipated response to DR039-SVM-20211015.
13	October 25, 2021	Energy Safety and Liberty met again and continued discussions of Liberty's process to verify contractor's work and Liberty's response to DR039-SVM-20211015. Liberty requested a one-week extension request for DR039-SVM-20211015.
14	October 26, 2021	Energy Safety granted the extension request.
15	November 5, 2021	Liberty submitted its response to DR039-SVM-20211015
16	May 13, 2022	Energy Safety and Liberty met to discuss DR-094-SVM-20220513; Energy Safety submitted the data request the same day
17	May 27, 2022	Liberty requested a two-day extension to DR-094-SVM-20220513.
18	May 31, 2022	Energy Safety granted the extension request.
19	June 1, 2022	Liberty submitted its response to DR-094-SVM-20220513.
20	June 24, 2022	Energy Safety submitted data request DR-103-SVM-202200624.
21	July 1, 2022	Liberty submitted its response to DR-103-SVM-202200624.

¹⁸ Verbally requested during the meeting on August 25, 2021 and via email on August 26, 2021

5.0 ANALYSIS

This section contains an initiative-by-initiative analysis of all vegetation management initiatives in Liberty’s 2020 WMP. Within each subsection, verifiable statements, supporting information, and Energy Safety analysis are provided for each initiative followed by a summary of Energy Safety’s disposition on utility compliance.

5.1 Initiative 5.3.5.1: Additional Efforts to Manage Community and Environmental Impacts

The purpose of this initiative is to describe the utility’s “strategy to mitigate negative impacts from utility vegetation management to local communities and the environment.”¹⁹

5.1.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In its 2020 WMP, Liberty states it is “committed to carrying out vegetation management work in an environmentally responsible manner while supporting the principals of ecologically sustainable development.”²⁰ Energy Safety reviewed Liberty’s Vegetation Management Plan, Liberty’s procedural document for vegetation management, and verified that it explained Liberty’s goal to conduct vegetation management activities in an “environmentally responsible manner, while supporting the principals of ecologically sustainable development.”²¹ For example, the Vegetation Management Plan directs contractors to “avoid the use of mechanical equipment within designated Water Body Buffer Zones,” and limit operations near known nests of protected species such as the California Spotted Owl during certain periods of the year.²² Therefore, Energy Safety’s audit found that Liberty was able to produce information consistent with the statement above regarding execution of vegetation management work in an environmentally responsible manner.

Liberty states in its 2020 WMP that it “strives to adhere to all regulations and policies as adopted by state, local, and federal agencies.”²³ Liberty’s Vegetation Management Plan directs contractors to follow state regulations such as Public Resource Code 4292 and 4293,²⁴ federal regulations such as Occupational Safety and Health Administration (OSHA) standards regarding tree trimming along conductors,²⁵ and local government agency policies such as those set forth by the Tahoe Regional Planning Agency and water quality ordinances by the Lahontan Regional

¹⁹ 2020 WMP Guidelines, R.18-10-007, page 78

²⁰ 2020 WMP, page 77

²¹ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 21, “Resource Protection”

²² DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 22

²³ 2020 WMP, page 77

²⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 7-8

²⁵ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 10

Water Quality Control Board.²⁶ Therefore, Energy Safety’s audit found that Liberty was able to produce information consistent with the statement above in its 2020 WMP regarding adhering to regulations and policies.

In its 2020 WMP, Liberty states that its Forest Resilience Corridor Project, a project to reduce fuels around infrastructure, was planned on “approximately... 7,600 acres of lands managed by the Lake Tahoe Basin Management Unit (LTBMU) and the Tahoe National Forest (Tahoe NF). The project comprises roughly 55 miles of Liberty... power lines, with [approximately] 54 miles on the LTBMU and one mile on the Tahoe NF.”²⁷ Additionally, the 2020 WMP states that Liberty planned to begin this project in 2020.²⁸ Energy Safety reviewed the approved National Environmental Protection Act (NEPA) decision memo authorizing this project that was included as a hyperlink to Liberty’s 2020 WMP.²⁹ The approved NEPA decision memo confirmed the project was planned for 7,600 acres, including 55 miles of Liberty power lines with 54 miles on the LTBMU and one mile on the TNF.³⁰ Additionally, Energy Safety reviewed an Excel file listing contractor invoice numbers, invoice dates, and job descriptions from 2020 for the Forest Resilience Corridor Project,³¹ showing Liberty completed 14.18 miles under this initiative.³² Therefore, Energy Safety’s audit found that Liberty was able to produce information consistent with the statement above regarding the planned Forest Resilience Corridor Project.

Additionally, the 2020 WMP continues by describing the vegetation management treatment for the Forest Resilience Corridor Project, breaking out the fuel treatment types (prescriptions) into three zones based on the distance from the power lines.³³ The approved NEPA decision memo details these three zones and their prescriptions.³⁴ Therefore, Energy Safety’s audit found that Liberty was able to produce information consistent with the 2020 WMP statement describing the fuel treatment types for the Forest Resilience Corridor Project.

Finally, Liberty’s 2020 WMP states under this initiative that it would target 14 miles.³⁵ See Energy Safety’s analysis above regarding Liberty treating 14 miles under the Forest Resilience Corridor Project. Therefore, Energy Safety’s audit found that Liberty was able to produce information consistent with the 2020 WMP statement.

5.1.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.1

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.1: Additional Efforts to Manage Community and Environmental Impacts.

²⁶ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 21

²⁷ 2020 WMP, page 77

²⁸ 2020 WMP, page 77

²⁹ 2020 WMP, page 77

³⁰ Liberty Utilities Resilience Corridors Project_Decision Memo.pdf, page 1

³¹ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “1.2”

³² DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “1”

³³ 2020 WMP, page 77-78

³⁴ Liberty Utilities Resilience Corridors Project_Decision Memo.pdf, page 3

³⁵ 2020 WMP, page 79

5.2 Initiative 5.3.5.2: Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s visual inspections of tree conditions within the utility’s distribution right-of-way.³⁶

5.2.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.2 and 5.3.5.3.³⁷

In its 2020 WMP, Liberty states that it “performs Routine Vegetation Maintenance through detailed inspections of entire circuits to prescribe trimming and removal of vegetation as a safeguard against grow-ins or fall-ins and to conform to required laws and regulations.”³⁸ Energy Safety reviewed Liberty’s Vegetation Management Plan and found the stated purpose of the Routine Vegetation Maintenance program is to prevent grow-ins and fall-ins throughout the circuit.³⁹ Additionally, see Energy Safety’s analysis of a similar statement regarding following required laws and regulations in initiative 5.3.5.1 above. Energy Safety also reviewed an Excel file provided by Liberty supporting inspections of electric lines.⁴⁰ The Excel file included respective contractor invoices⁴¹ and tree records from the inspections showing information including tree location, species, trim type, and dates.⁴² Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the 2020 WMP statement above regarding Routine Vegetation Maintenance inspections.

Liberty states in its 2020 WMP that

In prescribing trimming or removal, the following factors are considered: 1) The potential for vegetation to grow and/or encroach within the minimum allowed distances to the facilities within the cycle. 2) The potential for vegetation to structurally fail into the facilities within the cycle. Additional site conditions and factors are considered in prescribing tree work such as length of span, line sag, planned maintenance cycles, location of vegetation within the span, species type, species characteristics, vegetation growth rate, arboricultural practices, environmental characteristics of the site, local climate, and elevation.⁴³

³⁶ 2020 WMP Guidelines, R.18-10-007, page 78

³⁷ 2020 WMP, page 79

³⁸ 2020 WMP, page 79

³⁹ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 11

⁴⁰ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#2”

⁴¹ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#2.2”

⁴² DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#2.3”

⁴³ 2020 WMP, page 79

Energy Safety reviewed Liberty’s Vegetation Management Plan and found it directs contractors to consider encroachment within minimum allowed distances to the facilities based on species growth rates⁴⁴ and to note the potential for vegetation to fail into the facilities.⁴⁵ Additionally, the Vegetation Management Plan lists factors to be considered to obtain greater clearances including span length and sag, vegetation species, characteristics and location along the span, local climate, and elevation.⁴⁶ Also, the Vegetation Management Plan includes arboricultural practices such as “natural target pruning,”⁴⁷ and environmental characteristics such as fire risk⁴⁸ and PRC 4293 requirements that account for the surface terrain.⁴⁹ Additionally, Energy Safety reviewed a sample output from Liberty’s vegetation management database which showed fields for inspectors to input the tree growth rate, species, height, location within a span, failure probability, and required clearance.⁵⁰ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the 2020 WMP statement regarding the factors contractors consider when inspecting distribution circuits.

Finally, under this initiative, Liberty’s 2020 WMP states that it would target 230 miles.⁵¹ Energy Safety reviewed an Excel file provided by Liberty supporting 233.15 miles of inspections along distribution and transmission lines,⁵² respective contractor invoices,⁵³ and tree records from the inspections showing information including tree location, species, trim type, and dates.⁵⁴ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the 2020 WMP statement.

5.2.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.2

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.2: Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment.

5.3 Initiative 5.3.5.3: Detailed Inspections of Vegetation Around Transmission Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s visual inspections of the tree’s conditions within the utility’s transmission right-of-way.⁵⁵

⁴⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, pages 11, 13 and 14

⁴⁵ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, pages 11, 15, 17 and 18

⁴⁶ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 6

⁴⁷ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 12

⁴⁸ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 6

⁴⁹ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 7 and 8, “The distances for clearance requirements must be measured horizontally, not along the surface of sloping ground.”

⁵⁰ DR-094-SVM-20220513, response to question 26, DR-094-SVM-20220513 Q26_3.jpg

⁵¹ 2020 WMP, page 80

⁵² DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#2”

⁵³ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#2.2”

⁵⁴ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#2.3”

⁵⁵ 2020 WMP Guidelines, R.18-10-007, page 78

5.3.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In the 2020 WMP, Liberty combined initiatives 5.3.5.2 and 5.3.5.3,⁵⁶ therefore see Energy Safety's analysis for initiative 5.3.5.2 above.

5.3.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.3

See Energy Safety's determination for 5.3.5.2 above.

5.4 Initiative 5.3.5.4: Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions

The purpose of this initiative is to describe the utility's vegetation management in advance of weather conditions that increase ignition probability and wildfire consequence.⁵⁷

5.4.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Liberty's 2020 WMP states, "During red flag warnings or other urgent conditions, tree crews are available to respond to emergency situations as they arise."⁵⁸ Energy Safety reviewed contractor invoices and daily time and materials reports from 2020 indicating crews were available as "stand by" for storm response.⁵⁹ Additionally, Energy Safety reviewed email correspondences between Liberty and its contractors regarding red flag warnings and the contractor's operational response.⁶⁰ Therefore, Energy Safety's audit found Liberty was able to produce information consistent with the 2020 WMP statement above regarding availability of tree crews to respond to emergency situations.

In its 2020 WMP, Liberty states it "will examine best practices established by other utilities to determine whether there is a need for enhanced emergency vegetation management response during red flag warnings."⁶¹ As a sample of this, Energy Safety reviewed email correspondences and meeting agendas from 2020 between Liberty and Sacramento Municipal Utility District, a municipal electrical utility providing service to Sacramento and parts of Placer County.⁶² In the

⁵⁶ 2020 WMP, page 79

⁵⁷ 2020 WMP Guidelines, R.18-10-007, page 78

⁵⁸ 2020 WMP, page 81

⁵⁹ DR-094-SVM-20220513, response to question 1, DR-094-SVM-20220513 Q1.pdf, pages 4-21

⁶⁰ DR-094-SVM-20220513, response to question 1, DR-094-SVM-20220513 Q1.pdf, pages 1-3

⁶¹ 2020 WMP, page 81

⁶² DR-094-SVM-20220513, response to question 2, DR-094-SVM-20220513 Q2.pdf

email correspondences, Energy Safety found Liberty requested documents such as “Hazard tree protocols” and a vegetation management “outage investigation form.”⁶³ Energy Safety finds that Liberty’s efforts to view another utility’s outage investigation form and hazard tree protocols constitute Liberty examining best practices for emergency vegetation management response. Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the 2020 WMP statement above regarding working with other utilities on emergency vegetation management response.

Liberty’s 2020 WMP states its “2019 Fire Prevention Plan has established new operating guidelines and work restrictions depending on the forecasted fire danger using a proprietary Fire Potential Index (FPI).”⁶⁴ Energy Safety reviewed Liberty’s 2019 Fire Prevention Plan, revised in October 2019.⁶⁵ The 2019 Fire Prevention Plan includes work restrictions based on “cautionary periods issued by internal meteorological and predictive tools and [Red Flag Warnings] RFWs, as designated by the National Weather Service.”⁶⁶ Additionally, the Fire Prevention Plan noted operational procedures and maintenance decisions based on the FPI.⁶⁷ Energy Safety also reviewed email correspondence between a tree trimming contractor and Liberty, showing that contractor’s practice is to email field personnel daily with the Red Flag Warning status and the Fire Danger Level for the day.⁶⁸ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the 2020 WMP statement above regarding operational changes based on forecasted fire danger.

5.4.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.4

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP initiative 5.3.5.4: Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions.

5.5 Initiative 5.3.5.5: Fuel Management and Reduction of “Slash” From Vegetation Management Activities

The purpose of this initiative is to describe the utility’s efforts to reduce “the availability of fuel in proximity to potential sources of ignition, including “slash” from vegetation.”⁶⁹

⁶³ DR-094-SVM-20220513, response to question 2, DR-094-SVM-20220513 Q2.pdf, pages 2-3

⁶⁴ 2020 WMP, page 81

⁶⁵ DR-094-SVM-20220513, response to question 3, “Fire Prevention Plan for Overhead Electric Facilities,” page 1

⁶⁶ DR-094-SVM-20220513, response to question 3, “Fire Prevention Plan for Overhead Electric Facilities,” page 2

⁶⁷ DR-094-SVM-20220513, response to question 3, “Fire Prevention Plan for Overhead Electric Facilities,” page 2, 5, 7-9

⁶⁸ DR-094-SVM-20220513, response to question 1, DR-094-SVM-20220513 Q1.pdf, page 1

⁶⁹ 2020 WMP Guidelines, R.18-10-007, page 78

5.5.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In its 2020 WMP, Liberty states that it treats slash less than four (4) inches diameter based on location (i.e., residential or rural) and accessibility.⁷⁰ Specifically, in “residential areas accessible by roads... slash will be chipped. Chips may be hauled off site to a different location or may be broadcasted back onto the site.” In “rural or forested areas not accessible by roads... slash will be lopped and scattered in a non-continuous manner outside the utility right-of-way; or slash will be lopped and scattered as to ensure that the vertical height is not more than 18 [inches] above the ground.”⁷¹ Additionally, Liberty’s 2020 WMP continues by stating, “Wood greater than 4 [inches] diameter is not removed from the work location unless required under certain government authorizations.”⁷² Energy Safety reviewed Liberty’s Vegetation Management Plan and found that it directed contractors to treat slash via chipping for residential areas accessible by roads, and to treat via lopping and scattering in rural or forested areas not accessible by roads, as described in the WMP statement above.⁷³ The Vegetation Management Plan also directs contractors to leave wood greater than four inches in diameter at the wood location.⁷⁴ Energy Safety reviewed date-stamped photo documentation of slash management activities from 2020 in rural and residential areas.⁷⁵ Slash was either lopped and scattered or chipped in these photos. Additionally, wood greater than four inches in diameter was left on site in the photos reviewed.⁷⁶ Therefore, Energy Safety’s audit found that Liberty could produce information consistent with the statement above regarding slash and wood management.

In Liberty’s 2020 WMP, Liberty states that “Slash treatment is the responsibility of Liberty... contractors and is included in the costs of performing tree work.”⁷⁷ Energy Safety reviewed an Excel file listing contractor invoice numbers, invoice dates, and job descriptions from 2020 for slash management.⁷⁸ In the Excel file, there was a column for “notes,” which included entries of “fuel management” as additional description of the work completed. Therefore, Energy Safety’s audit found that Liberty could produce information consistent with the statement above regarding contractors managing slash treatment.

Liberty’s 2020 WMP states that it “plans to continue to work with the local and state agency land managers, as well as the local community to develop new standards for fuel reduction and slash treatment.”⁷⁹ Energy Safety reviewed Liberty guidance documentation from 2020 used in coordination with California Tahoe Conservancy (CTC)⁸⁰ regarding wood and slash

⁷⁰ 2020 WMP, page 81

⁷¹ 2020 WMP, page 81

⁷² 2020 WMP, page 81

⁷³ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 15

⁷⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 16

⁷⁵ DR-094-SVM-20220513, response to question 4

⁷⁶ DR-094-SVM-20220513, response to question 4

⁷⁷ 2020 WMP, page 81

⁷⁸ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “3.2”

⁷⁹ 2020 WMP, page 82

⁸⁰ DR-094-SVM-20220513, response to question 5, email correspondences on pages 2-3

management.⁸¹ Additionally, Energy Safety reviewed email correspondence from 2020 between Liberty and the local fire department requesting slash management, and a “Safety Tailboard” sign-in sheet for workers responsible for addressing the slash management request.⁸² Therefore, Energy Safety’s audit found that Liberty could produce information consistent with the statement above regarding working with local and state agency land managers and community on fuel reduction and slash management.

Additionally, Liberty’s 2020 WMP states it will “host workshops with subject matter experts from... agencies to assist in the development of a fuel reduction and wood removal program that will reduce fire risk and benefit the local community and surrounding forest.”⁸³ As a sample of this, Energy Safety reviewed a meeting invite for the annual “Tahoe Fire and Fuels Team Workshop” with CTC held in May 2020.⁸⁴ The goals of the meeting included focusing on “workforce development opportunities” and “annual work planning.”⁸⁵ Energy Safety also requested a list of workshop dates and attendees for the workshops.⁸⁶ Liberty failed to provide Energy Safety with the requested information to support the WMP statement regarding subject matter experts assisting with the fuel reduction and wood removal program. Therefore, Energy Safety’s audit found that Liberty could not produce information consistent with the statement above regarding workshops with the community to help reduce fire risk.

5.5.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.5

Based on the analysis above, Energy Safety finds Liberty not compliant with the 2020 WMP Initiative 5.3.5.5: Fuel Management and Reduction of “Slash” From Vegetation Management Activities.

5.6 Initiative 5.3.5.6: Improvement of Inspections

The purpose of this initiative is to describe the utility’s efforts to improve “inspection protocols and implementation of training and the evaluation of inspectors.”⁸⁷

5.6.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Liberty’s 2020 WMP states that it “frequently reviews inspection protocols and procedures with its contractors and make adjustments accordingly.”⁸⁸ As a sample of this process, Energy Safety reviewed a “benchmark” meeting invitation between Liberty and contractors, and the

⁸¹ DR-094-SVM-20220513, response to question 5, page 4-5

⁸² DR-094-SVM-20220513, response to question 5, email correspondence and “Safety Tailboard” sign in sheet on page 1

⁸³ 2020 WMP, page 82

⁸⁴ DR-094-SVM-20220513, response to question 6

⁸⁵ DR-094-SVM-20220513, response to question 6

⁸⁶ DR-094-SVM-20220513, question 6

⁸⁷ 2020 WMP Guidelines, R.18-10-007, page 79

⁸⁸ 2020 WMP, page 83

subsequent meeting notes from 2020.⁸⁹ The meeting notes included discussion of scope changes.⁹⁰ Additionally, Energy Safety reviewed the 2020 third-party report provided to Liberty which assessed Liberty's [Routine] maintenance cycle.⁹¹ Energy Safety also reviewed hand-written audit reports from Liberty that identified improvements to be made in the tree identification and record keeping process.⁹² Therefore, Energy Safety's audit found Liberty was able to produce information consistent with the statement above regarding reviewing inspection protocols and procedures with its contractors.

In its 2020 WMP, Liberty states

Every three years Liberty... has a third[-]party assessment of the vegetation management program which analyzes vegetation management protocols, production, resource allocation, cycle length, workload, compliance, and other aspects of the program. The report validates aspects of the program and provides recommendations for improvements to align with industry best practice.⁹³

Energy Safety reviewed Liberty-provided documentation showing contracts with third parties to assess vegetation management programs in the years 2014,⁹⁴ 2017,⁹⁵ and 2020.⁹⁶ The scope of the third party consultation in 2014 included advising "on a cost effective contract strategy for vegetation management activities... [and] advising on the optimum cycle length relative to the workload composition and prevailing conditions."⁹⁷ Additionally, Energy Safety reviewed a report provided in 2018 to Liberty from a third party consultant (2018 Report) that looked at the "vegetation management practices, policies, operating procedures, and current work techniques."⁹⁸ The 2018 Report identified gaps⁹⁹ and appropriate use of best management practices¹⁰⁰ in Liberty's vegetation management programs. Energy Safety reviewed the 2020 third-party report provided to Liberty which assessed Liberty's [Routine] maintenance cycle.¹⁰¹ Therefore, Energy Safety's audit found Liberty was able to produce information consistent with

⁸⁹ DR-094-SVM-20220513, response to question 7

⁹⁰ DR-094-SVM-20220513, response to question 7, page 2

⁹¹ DR-094-SVM-20220513, response to question 8, 2020 report titled "Liberty Utilities Vegetation Management Program Efficacy," page 163

⁹² DR-094-SVM-20220513, response to question 11, page 9

⁹³ 2020 WMP, page 83

⁹⁴ DR-094-SVM-20220513, response to question 8, pages 1-4

⁹⁵ DR-094-SVM-20220513, response to question 8, pages 5-161

⁹⁶ DR-094-SVM-20220513, response to question 8, pages 162-169

⁹⁷ DR-094-SVM-20220513, response to question 8, Utility Vegetation Assessment Agreement from 2014, page 2

⁹⁸ DR-094-SVM-20220513, response to question 8, 2018 report titled "Liberty Utilities (CalPeco Electric) LLC Distribution Vegetation management Program Assessment and Workload Projections," page 10

⁹⁹ Gaps included not treating stumps of deciduous trees and brush with an appropriate herbicide (DR-094-SVM-20220513, response to question 8, page 12)

¹⁰⁰ Appropriate use of a best management practice includes the use of a centralized vegetation management program (DR-094-SVM-20220513, response to question 8, page 14)

¹⁰¹ DR-094-SVM-20220513, response to question 8, 2020 report titled "Liberty Utilities Vegetation Management Program Efficacy," page 163

the statement above regarding consulting with a third-party company to assess its vegetation management program.

5.6.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.6

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.6: Improvement of Inspections.

5.7 Initiative 5.3.5.7: LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment

The purpose of this initiative is to describe the utility's Light Detection and Ranging (LiDAR) distribution right of way inspection program.¹⁰²

5.7.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.7 and 5.3.5.8.

In its 2020 WMP, Liberty states it is "exploring use cases for LiDAR inspections and will develop pilot projects that help to determine if LiDAR is more efficient and cost effective than traditional inspection methods."¹⁰³ To support this statement, Liberty provided an exported file listing meeting occurrences with consultants in 2020, including dates, meeting subjects, and attendees.¹⁰⁴ Energy Safety reviewed the file and found meeting subjects included "LiDAR Pilot," "LiDAR proposals," "WMP LiDAR Pilot Cont'd," and "LiDAR Uses with EVM Program and Wildfire Safety."¹⁰⁵ Energy Safety understands that starting a pilot project can be the first step in determining efficacy of a particular technology or program for broader implementation. Therefore, Energy Safety's audit found Liberty was able to produce information consistent with the statement above regarding developing LiDAR pilot projects and use cases in 2020.

5.7.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.7

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.7: LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment.

¹⁰² 2020 WMP Guidelines, R.18-10-007, page 79

¹⁰³ 2020 WMP, page 83

¹⁰⁴ DR-094-SVM-20220513, response to question 9

¹⁰⁵ DR-094-SVM-20220513, response to question 9, page 2

5.8 Initiative 5.3.5.8: LiDAR Inspections of Vegetation Around Transmission Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s Light Detection and Ranging (LiDAR) transmission right of way inspection program.¹⁰⁶

5.8.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.7 and 5.3.5.8,¹⁰⁷ therefore see Energy Safety’s analysis under initiative 5.3.5.7.

5.8.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.8

See Energy Safety’s determination for initiative 5.3.5.7.

5.9 Initiative 5.3.5.9: Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations

The purpose of this initiative is to describe the utility’s inspection program of the distribution right of ways and the adjacent vegetation that may be hazardous, which goes beyond the minimum standards in rules and regulations.¹⁰⁸

5.9.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.9 and 5.3.5.10.¹⁰⁹

In its 2020 WMP, Liberty states it “plans to implement annual vegetation inspections for the overhead distribution system within Tier 3 of the High Fire-Threat District [HFTD] to prescribe any pruning or removals necessary to obtain compliance with regulation requirements.”¹¹⁰ To support Liberty conducting inspections within Tier 3 HFTD areas on an annual basis, Energy Safety requested supporting documentation in the form of inspection records from 2020 and

¹⁰⁶ 2020 WMP Guidelines, R.18-10-007, page 79

¹⁰⁷ 2020 WMP, page 83

¹⁰⁸ 2020 WMP Guidelines, R.18-10-007, page 79

¹⁰⁹ 2020 WMP, page 83

¹¹⁰ 2020 WMP, page 83

2021.¹¹¹ As a sample of this process, Energy Safety reviewed inspection records and a map of LiDAR inspections within Tier 3 of the HFTD.¹¹² Based on a visual review of the LiDAR map provided and the VMS output of the inspections, Energy Safety found that Liberty inspected distribution lines in Tier 3 in 2020. Additionally, see Energy Safety’s analysis of Liberty’s LiDAR data in initiative 5.3.5.7. Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with conducting annual vegetation inspections along its distribution system in Tier 3 HFTD.

Finally, Liberty’s 2020 WMP states under this initiative that it would target 50 miles.¹¹³ Energy Safety reviewed an Excel file supporting 49.8 miles, or approximately 50 miles, of Tier 3 inspections along distribution and transmission circuits.¹¹⁴ Additionally, the Excel file included a list of invoice numbers, dates, and job descriptions.¹¹⁵ Finally, Energy Safety reviewed a sample of 82 trees inspected under “Tier 3 inspections” in 2020.¹¹⁶ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with conducting inspections along 50 miles under this initiative.

5.9.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.9

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.9: Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations.

5.10 Initiative 5.3.5.10: Other Discretionary Inspection of Vegetation Around Transmission Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations

The purpose of this initiative is to describe the utility’s inspection program of the transmission right of ways and the adjacent vegetation that may be hazardous which goes beyond the minimum standards in rules and regulations.¹¹⁷

¹¹¹ During a Microsoft Teams meeting Liberty vegetation management representatives suggested providing LiDAR data to help support inspections in 2021.

¹¹² DR-094-SVM-20220513, response to question 10

¹¹³ 2020 WMP, page 84

¹¹⁴ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#5”

¹¹⁵ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#5.2”

¹¹⁶ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#5.3”

¹¹⁷ 2020 WMP Guidelines, R.18-10-007, page 79

5.10.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.9 and 5.3.5.10,¹¹⁸ therefore see Energy Safety’s analysis under initiative 5.3.5.9.

5.10.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.10

See Energy Safety’s determination for initiative 5.3.5.9.

5.11 Initiative 5.3.5.11: Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s distribution right of way inspection program to identify “obvious [vegetation] hazards.”¹¹⁹

5.11.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.11 and 5.3.5.12.¹²⁰

In its 2020 WMP, Liberty states that its

...electric distribution facilities are surveyed consisting of a Level 1 inspection, involving a basic visual ground inspection of trees or populations of trees to identify dead or dying trees. Additionally, [the] contractor shall inspect for imminent hazards, G.O. 95 Rule 35 or PRC 4293 compliance infractions.¹²¹

According to ANSI A300 Part 9, Level 1 inspections consist of a limited visual inspection to identify obvious defects or damage to the tree that would result in an imminent or probably likelihood of failure.¹²² Level 2 inspections are more detailed assessments of the tree (i.e., a visual inspection completely around the tree including its roots, trunk, and branches) and the surrounding area.¹²³ Energy Safety reviewed Liberty’s procedural document for CEMA inspections, and found it directed contractors to survey electrical distribution facilities using a Level 1 inspection, and to inspect for “imminent hazards, GO 95 Rule 35 or PRC 4293

¹¹⁸ 2020 WMP, page 83

¹¹⁹ 2020 WMP Guidelines, R.18-10-007, page 79

¹²⁰ 2020 WMP, page 85

¹²¹ 2020 WMP, page 85

¹²² ANSI A300 Part 9 companion publication, “Tree Risk Assessment,” Second Edition published in 2017, pages 13-14

¹²³ ANSI A300 Part 9 companion publication, “Tree Risk Assessment,” Second Edition published in 2017, page 16

compliance infractions.”¹²⁴ Additionally, as a sample of this process, Energy Safety reviewed sample outputs from Liberty’s vegetation management database and found it included a field for inspectors to include hazards, such as “future grow-ins,” “dead branches,” and the tree’s failure probability.¹²⁵ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the statement above regarding contractors conducting a Level 1 inspection of electric distribution facilities.

Additionally, Liberty’s 2020 WMP states under this initiative that it would target 150 miles for inspection.¹²⁶ Energy Safety reviewed a Liberty-provided Excel sheet with showing it inspected 333.8 miles under this initiative as “CEMA Inspections,”¹²⁷ locations, with a subsequent Excel sheet detailing inspection results and work completion dates.¹²⁸ Additionally, Liberty provided supplemental data that included invoices and timesheets of contractors for the CEMA program.¹²⁹ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with Liberty targeting 150 miles inspected under this initiative.

5.11.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.11

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.11: Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment.

5.12 Initiative 5.3.5.12: Patrol Inspections of Vegetation Around Transmission Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s transmission right of way inspection program to identify “obvious [vegetation] hazards.”¹³⁰

5.12.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Note that in the 2020 WMP, Liberty combined initiatives 5.3.5.11 and 5.3.5.12,¹³¹ therefore see Energy Safety’s analysis under initiative 5.3.5.11.

¹²⁴ DR039-SVM-20211015, Supporting Materials, “Schedule A- Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures due to Tree Mortality; Accelerated Vegetation Inspections,” page 1

¹²⁵ DR-094-SVM-20220513, response to question 26, DR-094-SVM-20220513 Q26_1.jpg

¹²⁶ 2020 WMP, page 85

¹²⁷ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#6”

¹²⁸ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheet “#6.3”

¹²⁹ DR28-SVM-20210602 response, “Supporting Materials,” CEMA INSPECTION INVOICES.pdf

¹³⁰ 2020 WMP Guidelines, R.18-10-007, page 79

¹³¹ 2020 WMP, page 85

5.12.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.12

See Energy Safety's determination for initiative 5.3.5.11.

5.13 Initiative 5.3.5.13: Quality Assurance / Quality Control of Inspections

The purpose of this initiative is to describe the utility's program to audit completed vegetation work, including its input into "decision-making and related integrated workforce management processes."¹³²

5.13.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In its 2020 WMP, Liberty states that it "audits all vegetation inspection work as part of the review and permitting process for trees located on local, federal, and state agency land."¹³³ Energy Safety reviewed hand-written audit reports of work orders from 2020 on federal, state, and private (local) land.¹³⁴ The hand-written audit reports of work orders included reviews of property ownership, pre-inspector comments, and tree work prescriptions. Therefore, Energy Safety's audit found Liberty was able to produce information consistent with performing audits on local, federal, and state agency lands.

Liberty states in its 2020 WMP that "Work quality is assessed for accuracy of the work order and for correct identification of tree work. Work corrections are made in the field and reviewed with the contractor."¹³⁵ As a sample of this process, Energy Safety reviewed work order invoices from contractors to Liberty,¹³⁶ subsequent assessments for work quality in the form of an email correspondence from Liberty staff to the contract company district manager,¹³⁷ and work corrections made in the field¹³⁸ from 2020. Therefore, Energy Safety's audit found Liberty was able to produce information consistent with the WMP statement above.

In its 2020 WMP, Liberty states it "has recognized the need and will develop a formal Quality Assurance/Quality Control audit program for vegetation management activities that use a third party contractor to ensure quality of work."¹³⁹ Similarly, the 2020 WMP continues by stating Liberty would "implement [a] formal third party Quality Assurance/Quality Control Program."¹⁴⁰ As a sample of this effort, Energy Safety reviewed a meeting invitation from a third party

¹³² 2020 WMP Guidelines, R.18-10-007, page 79

¹³³ 2020 WMP, page 85

¹³⁴ DR-094-SVM-20220513, response to question 11

¹³⁵ 2020 WMP, page 85

¹³⁶ DR-094-SVM-20220513, response to question 12, pages 1-9

¹³⁷ DR-094-SVM-20220513, response to question 12, page 35

¹³⁸ DR-094-SVM-20220513, response to question 12, pages 36-39

¹³⁹ 2020 WMP, page 85

¹⁴⁰ 2020 WMP, page 86

contractor in October 2020, with the subject line “VM Audit Review – Draft App[lication] and Audit Process.”¹⁴¹ Energy Safety also reviewed email correspondences between Liberty and a third party consultant discussing a quality control audit in 2020,¹⁴² screen shots of Liberty’s Quality Assurance/Quality Control Program application used in 2020¹⁴³ and a third party audit report of Liberty’s vegetation management programs in 2020¹⁴⁴ that included auditing tree clearances.¹⁴⁵ Finally, Liberty provided an Excel file showing contractors conducted Quality Assurance/Quality Control audits on approximately 57 miles.¹⁴⁶ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the development of a Quality Assurance/Quality Control audit program in 2020.

5.13.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.13

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.13: Quality Assurance / Quality Control of inspections.

5.14 Initiative 5.3.5.14: Recruiting and Training of Vegetation Management Personnel

The purpose of this initiative is to describe the utility’s program to “identify and hire qualified vegetation management personnel” and to ensure they are “adequately trained to perform vegetation management work, according to the utility’s wildfire mitigation plan, in addition to rules and regulations for safety.”¹⁴⁷

5.14.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In its 2020 WMP, Liberty states it “contracts with a third[-]party company that specializes in utility arboriculture and provides utility arborists or pre-inspectors to conduct vegetation inspections.”¹⁴⁸ Throughout this Substantial Vegetation Management Audit, Energy Safety reviewed contractor invoices that inspect vegetation. See Energy Safety’s analysis under initiatives 5.3.5.2, 5.3.5.3, 5.3.5.9, and 5.3.5.10. Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the statement above regarding contracting out vegetation inspections.

¹⁴¹ DR-094-SVM-20220513, response to question 13, page 5

¹⁴² DR-094-SVM-20220513, response to question 14, page 3

¹⁴³ DR-094-SVM-20220513, response to question 14, pages 1-2

¹⁴⁴ DR28-SVM-20210602 response, “Supporting Materials,” “QA-QC,” Liberty Utilities Pole Clearing and Tree Work Audit Report – 2020 FINAL.pdf

¹⁴⁵ DR28-SVM-20210602 response, “Supporting Materials,” “QA-QC,” Liberty Utilities Pole Clearing and Tree Work Audit Report – 2020 FINAL.pdf, page 10

¹⁴⁶ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheets “#7” and “#7.2”

¹⁴⁷ 2020 WMP Guidelines, R.18-10-007, page 79

¹⁴⁸ 2020 WMP, page 86

Liberty states in its 2020 WMP that its contractors are qualified pre-inspectors and tree crews to perform work.¹⁴⁹ Energy Safety reviewed the job description of a journeyman tree trimmer for one of the contract companies Liberty utilizes,¹⁵⁰ which indicated the minimum requirements a person must hold for that position such as “a minimum of 18 months of related training and on-the-job experience.”¹⁵¹ Additionally, as a sample of this, Energy Safety reviewed a list of crew members who were qualified by the contract company in 2020.¹⁵² Energy Safety also reviewed training records of pre-inspectors from 2020.¹⁵³ Training topics included Wildland Fire Preparedness and Prevention Plan,¹⁵⁴ Tree Identification and Growth Rates,¹⁵⁵ and “Risk Tree ID: Target, Environmental Factors, and Propensity to Fail.”¹⁵⁶ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the statement above regarding the qualifications of its contractors.

In its 2020 WMP, Liberty states that it “employs vegetation management staff under supervision to the Vegetation Program Management to assist in management of the contractors, workload and the program as a whole.”¹⁵⁷ Liberty provided Energy Safety with the vegetation management staff’s performance evaluations conducted in 2020.¹⁵⁸ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the WMP statement above.

5.14.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.14

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP Initiative 5.3.5.14: Recruiting and Training of Vegetation Management Personnel.

5.15 Initiative 5.3.5.15: Remediation of At-Risk Species

The purpose of this initiative is to describe the utility’s actions to “reduce the ignition probability and wildfire consequence attributable to at-risk vegetation species....”¹⁵⁹

5.15.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In Liberty’s 2020 WMP, it states its

¹⁴⁹ 2020 WMP, page 86

¹⁵⁰ DR-094-SVM-20220513, response to question 15, Pages 1-4

¹⁵¹ DR-094-SVM-20220513, response to question 15, page 2, “Qualifications”

¹⁵² DR-094-SVM-20220513, response to question 15, pages 6-7

¹⁵³ DR-103-SVM-202200624, response to question 1

¹⁵⁴ DR-103-SVM-202200624, response to question 1, Wildland Fire Preparedness & Prevention Plan Training 2020 Lake Tahoe.xlsx

¹⁵⁵ DR-103-SVM-202200624, response to question 1, Training Checklist (1).xlsx

¹⁵⁶ DR-103-SVM-202200624, response to question 1, Training Checklist (1).xlsx

¹⁵⁷ 2020 WMP, page 86

¹⁵⁸ DR-094-SVM-20220513, response to question 16

¹⁵⁹ 2020 WMP Guidelines, R.18-10-007, page 79

...inspection process accounts for species growth and failure characteristics when determining if trees require remediation. Understanding species characteristics combined with local environmental conditions leads to the determination of whether a tree should be trimmed, removed, or left alone. Liberty... categorizes the growth potential of trees as slow, medium, and fast growing trees and are trimmed accordingly for their growth potential. In addition to growth rate and grow-in potential, species failure potential is also considered when identifying at-risk species.¹⁶⁰

Energy Safety reviewed Liberty's Vegetation Management Plan and its procedural document for CEMA inspections, and found the documents direct contractors to account for species,¹⁶¹ species growth,¹⁶² failure characteristics,¹⁶³ and local climate.¹⁶⁴ Also, Liberty's Vegetation Management Plan directs contractors to trim distances based on the growth rates of tree species.¹⁶⁵ Additionally, Liberty provided Energy Safety with another procedural document originating from the USFS that was given to inspectors in 2020 and provides guidelines for identifying hazard trees.¹⁶⁶ The CEMA inspections procedural document directs contractors to "inventory dead and dying trees that may pose an increased risk to the facilities."¹⁶⁷ Furthermore, Energy Safety reviewed a sample output of Liberty's vegetation management database which included fields for inspectors to input the tree growth rate, species, height, location within a span, failure probability, and required clearance.¹⁶⁸ Therefore, Energy Safety's audit found Liberty was able to produce information consistent with the WMP statement above regarding Liberty's inspection process.

Liberty's 2020 WMP states it "is in the process of developing a tree failure database that will use tree related outage data to explore other opportunities for targeting reliability/at-risk species and how to treat them."¹⁶⁹ Additionally, in its 2020 WMP, Liberty states it would "Implement outage investigations and tree failure database to be able to compile data for system reliability and identifying at-risk species."¹⁷⁰ Energy Safety reviewed Outlook meeting invitations and email correspondences among Liberty vegetation management staff discussing components of the data inputs for outage investigations in 2020.¹⁷¹ Also, Energy Safety reviewed screenshots of the outage investigation application¹⁷² and the outputs from the tree

¹⁶⁰ 2020 WMP, page 87

¹⁶¹ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 6

¹⁶² DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 12

¹⁶³ DR039-SVM-20211015, Supporting Materials, "Schedule A- Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures due to Tree Mortality; Accelerated Vegetation Inspections," page 1

¹⁶⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 6

¹⁶⁵ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 13

¹⁶⁶ DR-094-SVM-20220513, response to question 17

¹⁶⁷ DR039-SVM-20211015, Supporting Materials, "Schedule A- Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures due to Tree Mortality; Accelerated Vegetation Inspections," page 3

¹⁶⁸ DR-094-SVM-20220513, response to question 26, DR-094-SVM-20220513 Q26_3.jpg

¹⁶⁹ 2020 WMP, page 87

¹⁷⁰ 2020 WMP, page 87

¹⁷¹ DR-094-SVM-20220513, response to question 18

¹⁷² DR-094-SVM-20220513, response to question 19, pages 1-3

failure database from 2020.¹⁷³ Liberty investigated nine vegetation-caused outages in 2020.¹⁷⁴ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the WMP statement above.

Liberty targeted 380 miles to be treated (i.e. tree work) under this initiative in its 2020 WMP.¹⁷⁵ However, in Liberty’s fourth quarter Quarterly Initiative Update for 2020, Liberty claimed it had targeted 230 miles under this initiative.¹⁷⁶ Energy Safety notes that the only mechanism for changing initiative targets in an approved WMP is to go through the formal process of requesting a Change Order. Liberty made no such requests for its 2020 WMP. Regardless of the difference in the targeted miles to treat, Energy Safety reviewed an Excel file showing only 131.7 “Miles Completed” for Routine Vegetation Maintenance work, well short of both targets.¹⁷⁷ Additional data in the Excel file showed tree identifiers, locations, circuit names, outcome of the inspection, and completion dates.¹⁷⁸ Liberty provided 240 document packages of invoices for time and materials and customer notification letters to support this data. Despite Liberty providing documentation supporting tree work occurred on 131.7 miles, Liberty failed to provide documentation supporting all 380 miles completed under this initiative as targeted in the approved 2020 WMP. Therefore, Energy Safety’s audit found Liberty was unable to produce information consistent with the WMP statement above.

5.15.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.15

Based on the analysis above, Energy Safety finds Liberty not compliant with the 2020 WMP Initiative 5.3.5.15: Remediation of At-Risk Species.

5.16 Initiative 5.3.5.16: Removal and Remediation of Trees with Strike Potential to Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s program to remove or remediate strike-potential trees.”¹⁷⁹

5.16.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In its 2020 WMP, Liberty states it

¹⁷³ DR-094-SVM-20220513, response to question 19, pages 8-28

¹⁷⁴ DR-094-SVM-20220513, response to question 19, pages 4-7

¹⁷⁵ 2020 WMP, page 87

¹⁷⁶ lib-2020-q4-qiu.xlsx, cell Q35

¹⁷⁷ Substantial Vegetation Work Completed.xlsx, sheet “#8,” column “F”

¹⁷⁸ Substantial Vegetation Work Completed.xlsx, sheet “#8.3”

¹⁷⁹ 2020 WMP Guidelines, R.18-10-007, page 79

...complies with G.O. 95 Rule 35, by removing trees when “dead, rotten or diseased trees or dead, rotten or diseased portions of otherwise healthy trees overhang or lean toward and may fall into a span of supply or communication lines” Additionally, Liberty.... complies with Public Resources Code 4293 by removing “Dead tree, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line...”¹⁸⁰

Energy Safety reviewed Liberty’s procedural document for CEMA inspections and found it directed contractors to inspect for dead and dying trees posing a risk to the electric lines, and other vegetation-related hazards per General Order 95, Rule 35 or PRC 4293 such as fungal fruiting bodies and severe leans toward the lines.¹⁸¹ In total, Liberty removed 1,753 dead, rotten or diseased trees under the CEMA program in 2020.¹⁸² Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the WMP statement above.

Liberty’s 2020 WMP states

Hazard trees are identified through vegetation inspection programs and are evaluated by best practices derived from the CalFire Power Line Fire Prevention Field Guide, The USFS Region 5 Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region, and [American National Standards Institute] ANSI A300 Standards (Part 9) – Tree Risk Assessment.¹⁸³

Energy Safety reviewed Liberty-provided vegetation management procedure documents,¹⁸⁴ Routine Vegetation Maintenance scope of work,¹⁸⁵ and a USFS permit for vegetation management.¹⁸⁶ The Vegetation Management Plan procedural document directs contractors to refer to the CALFIRE Power Line Fire Prevention Field Guide, which is included as an attachment, when contractors are assessing for hazard trees.¹⁸⁷ Additionally, the CEMA inspection procedural document directs contractors to take note of structural defects of trees, such as fungal fruiting bodies and large cracks,¹⁸⁸ which are also included in the CALFIRE Power Line Fire Prevention Field Guide. The Routine Vegetation Maintenance scope of work document for 2020 describes tree removal work to include “trees requiring removal that show evidence of

¹⁸⁰ 2020 WMP, page 88

¹⁸¹ DR039-SVM-20211015, Supporting Materials, “Schedule A- Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures due to Tree Mortality; Accelerated Vegetation Inspections,” pages 1-3

¹⁸² DR-094-SVM-20220513, response to question 20

¹⁸³ 2020 WMP, page 88

¹⁸⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf

¹⁸⁵ DR-094-SVM-20220513, response to question 21c, DR-094-SVM-20220513 Q21c.pdf

¹⁸⁶ DR-094-SVM-20220513, response to question 21b, DR-094-SVM-20220513 Q21b.pdf

¹⁸⁷ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 7, 9

¹⁸⁸ DR039-SVM-20211015, Supporting Materials, “Schedule A- Specifications and Scope of Work: Fire Hazard and Public Safety Prevention Measures due to Tree Mortality; Accelerated Vegetation Inspections,” page 1

structural defect making them susceptible to failure or are dead.”¹⁸⁹ Additionally, the scope of work document directs contractors to perform tree pruning and removal “in accordance with the current version of... ANSI... A-300.”¹⁹⁰ Finally, the USFS permit used for 2020 work, as supplied by Liberty, referred to Region 6 rather than Region 5, as referenced in the WMP. The permit states “Trees are evaluated for failure potential according to the USFS R-6 Field Guide for Danger Tree Identification and Response.”¹⁹¹ Energy Safety compared the Region 5 and Region 6 hazard tree field guides and found they identify similar tree defects in both documents. There is a comment embedded in the document written by the vegetation management manager of Liberty explaining that the USFS Region 5 Handbook “was developed after the 30 [year] permit was issued, but the documents do not differ enough to necessitate amending the permit.” As additional supporting documentation, Energy Safety reviewed a list of “Hazard Trees to be Removed,” that included information on species, location, and “TreeID” (the unique identifier of the tree).¹⁹² Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the WMP statement above regarding evaluating hazard trees by best practices from the CALFIRE Power Line Fire Prevention Field Guide, USFS Hazard Tree Guidelines, and ANSI A300 Standards (Part 9).

In its 2020 WMP, Liberty states

Assessing strike potential begins with determining if the tree is tall enough to reach the electrical facilities. Tree height is measured using forestry devices such as a line tape and clinometer, or laser rangefinder/hypsometer. If a tree, or part of a tree, is tall enough to reach an electrical facility, it must also have a path to the target. Direction of fall (slope, lean, etc.) and protection (trees or other objects blocking the path) are also considered when determining the strike potential of a tree.¹⁹³

Energy Safety reviewed Liberty’s pre-inspection procedural document¹⁹⁴ and the Hazard Tree Guidelines¹⁹⁵ used by contractors in 2020. Liberty’s pre-inspection procedural document directs contractors to consider tree height using a rangefinder or similar equipment¹⁹⁶ when prescribing trees that have the “potential to fail into the facilities”¹⁹⁷ for removal. Additionally, the pre-inspection procedural document requires pre-inspectors to document tree height, distance of tree to conductor, and type of hazard or defect.¹⁹⁸ The Hazard Tree Guidelines

¹⁸⁹ DR-094-SVM-20220513, response to question 21c, DR-094-SVM-20220513 Q21c.pdf, page 3

¹⁹⁰ DR-094-SVM-20220513, response to question 21c, DR-094-SVM-20220513 Q21c.pdf, page 4

¹⁹¹ DR-094-SVM-20220513, response to question 21b, DR-094-SVM-20220513 Q21b, page 1

¹⁹² DR039-SVM-20211015, Supporting Materials, “Hazard Trees to be Removed” on pages 3-7

¹⁹³ 2020 WMP, page 88

¹⁹⁴ DR039-SVM-20211015, Supporting Materials, Schedule A- Specifications and Scope of Work Vegetation Management Services Pre-Inspection and Planning of Tree Work.pdf

¹⁹⁵ DR-094-SVM-20220513, response to question 22

¹⁹⁶ DR039-SVM-20211015, Supporting Materials, Schedule A- Specifications and Scope of Work Vegetation Management Services Pre-Inspection and Planning of Tree Work.pdf, page 1

¹⁹⁷ DR039-SVM-20211015, Supporting Materials, Schedule A- Specifications and Scope of Work Vegetation Management Services Pre-Inspection and Planning of Tree Work.pdf, page 6

¹⁹⁸ DR039-SVM-20211015, Supporting Materials, Schedule A- Specifications and Scope of Work Vegetation Management Services Pre-Inspection and Planning of Tree Work.pdf, pages 3 and 4

details noting the direction and type of tree lean as a risk to identify when assessing for defects.¹⁹⁹ Energy Safety reviewed pre-inspector training records from 2020, which included topics such as “Risk Tree ID: Target, Environmental Factors, and Propensity to Fail.”²⁰⁰ Also, Energy Safety reviewed data from Liberty’s Vegetation Management System (VMS) database that included tree heights.²⁰¹ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the WMP statement about inspectors assessing a tree’s potential to strike the electrical facilities.

Liberty’s 2020 WMP states, “Removal and remediation of trees with strike potential is continuous and ongoing through Routine Vegetation Maintenance and CEMA programs in accordance with required laws and regulations.”²⁰² Liberty provided Energy Safety with data from its VMS database from 2020.²⁰³ The data showed that Liberty removed and remediated 1,753 strike potential trees under its CEMA program and 2,981 strike potential trees under its Routine Vegetation Maintenance program in 2020.²⁰⁴ Therefore, Energy Safety’s audit found Liberty was able to produce information consistent with the WMP statement about tree removals via its Routine Vegetation Maintenance and CEMA programs.

5.16.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.16

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP initiative 5.3.5.16: Removal and Remediation of Trees with Strike Potential to Electric Lines and Equipment.

5.17 Initiative 5.3.5.17: Substation Inspections

The purpose of this initiative is to describe the utility’s vegetation inspection program around its substations.”²⁰⁵

5.17.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Liberty’s 2020 WMP directs readers to the “discussion on Substation Inspections in Section 5.3.4.15.”²⁰⁶ However, Energy Safety’s review of initiative 5.3.4.15 showed Liberty did not specifically detail substation inspections with respect to vegetation management efforts related to such facilities. Therefore, Energy Safety could not conduct an analysis of this initiative.

¹⁹⁹ DR-094-SVM-20220513, response to question 22, page 17

²⁰⁰ DR-103-SVM-202200624, response to question 1, Training Checklist (1).xlsx

²⁰¹ DR-094-SVM-20220513, response to question 23, DR-094-SVM-20220513-WKKB.xlsx, sheet “VMS Data,” column W “Height Class”

²⁰² 2020 WMP, page 88

²⁰³ DR-094-SVM-20220513, response to question 23, DR-094-SVM-20220513-WKKB.xlsx, sheet “VMS Data,” column “BL” “Date Complete”

²⁰⁴ DR-094-SVM-20220513, response to question 23, DR-094-SVM-20220513-WKKB.xlsx, sheet “Q23”

²⁰⁵ 2020 WMP Guidelines, R.18-10-007, page 79

²⁰⁶ 2020 WMP, page 88

5.17.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.17

Based on initiative 5.3.5.17 directing readers to an initiative that does not discuss vegetation management efforts, Energy Safety's evaluation of this initiative is not appropriate within the context of the SVM audit, and therefore not relevant for discussion.

5.18 Initiative 5.3.5.18: Substation Vegetation Management

The purpose of this initiative is to describe the utility's vegetation management program for substations in terms of "actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment."²⁰⁷

5.18.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Liberty's 2020 WMP states that "Within the substation footprint,²⁰⁸ the ground is kept clear from vegetation on an as-needed basis using herbicide, pre-emergent and hand treatment."²⁰⁹ In DR-094, Energy Safety requested supporting documentation in the form of invoices for the vegetation management around substations in 2020 from Liberty.²¹⁰ In response, Liberty stated it "did not complete vegetation management within any of its substation footprints in 2020."²¹¹ Also, Liberty's Vegetation Management Plan addresses herbicide use within substations on an as-needed basis to prevent growth.²¹² Therefore, Energy Safety's audit found Liberty was able to provide documentation supporting its 2020 WMP statement of keeping the ground clear from vegetation on an as-needed basis within substation footprints.

5.18.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.18

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP initiative 5.3.5.18: Substation Vegetation Management.

²⁰⁷ 2020 WMP Guidelines, R.18-10-007, page 80

²⁰⁸ Energy Safety understands "footprint" to mean the inside the perimeter of the substation fence.

²⁰⁹ 2020 WMP, page 88

²¹⁰ DR-094-SVM-20220513, question 24

²¹¹ Energy Safety to Liberty - DR-094_Spreadsheet Response.xlsx, cell "J25"

²¹² DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 33

5.19 Initiative 5.3.5.19: Vegetation Inventory System

The purpose of this initiative is to describe the utility’s efforts toward having a “centralized inventory of vegetation clearances” that includes species, growth forecast, and grow-in, fly-in, or fall-in risk.”²¹³

5.19.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

Liberty’s 2020 WMP states that it

...manages tree work inventories and workloads through the Vegetation Management System (VMS) database. The VMS tracks circuit inspections, notification and tree work progress, provides work orders, notification letters and report generating functions, retains historical inspection and tree work data, and also has a variety of query options to specify select tree inventories as needed (i.e., routine circuit work on Federal lands for a specific inspection year or a random sample for quality control or assurance audits).²¹⁴

Energy Safety reviewed screenshots of the VMS database showing circuit inspections,²¹⁵ notification and tree work progress query functions,²¹⁶ work orders, notification letters, and report generating functions.²¹⁷ Additionally, Energy Safety reviewed screenshots of inspection records from 2019²¹⁸ and a sample of a circuit with Routine Vegetation Maintenance work on Federal lands in 2020.²¹⁹ Therefore, Energy Safety’s audit found Liberty was able to provide documentation, in the form of screenshots, supporting the WMP statement above regarding the VMS database.

In its 2020 WMP, Liberty states, “Trees are inventoried if that specific tree is requiring remediation for the current inspection, therefore a new tree is only added to the inventory in VMS if it is being listed for tree work.”²²⁰ As a sample of this process, Energy Safety reviewed screenshots of Liberty’s process of adding inspection and prescribed treatment details to a tree previously included in the VMS, including the inspectors view of the field-based application²²¹ and how the information syncs to the VMS.²²² Therefore, Energy Safety’s audit found Liberty

²¹³ 2020 WMP Guidelines, R.18-10-007, page 80

²¹⁴ 2020 WMP, page 88

²¹⁵ DR-094-SVM-20220513, response to question 25a, DR-094-SVM-20220513 Q25a.png,

²¹⁶ DR-094-SVM-20220513, response to question 25b, DR-094-SVM-20220513 Q25b.jpg

²¹⁷ DR-094-SVM-20220513, response to question 25c and 25d, DR-094-SVM-20220513 Q25 c and d.jpg

²¹⁸ DR-094-SVM-20220513, response to question 25e, DR-094-SVM-20220513 Q25e.jpg

²¹⁹ DR-094-SVM-20220513, response to question 25f, DR-094-SVM-20220513 Q25f.jpg

²²⁰ 2020 WMP, page 88

²²¹ DR-094-SVM-20220513, response to question 26, DR-094-SVM-20220513 Q26_1.jpg

²²² DR-094-SVM-20220513, response to question 26, DR-094-SVM-20220513 Q26_2.jpg and DR-094-SVM-20220513 Q26_3.jpg

was able to provide documentation consistent with the WMP statement above regarding its process of inventorying trees requiring remediation.

Liberty's 2020 WMP states, "Every tree inventoried on the system is assigned its own Tree Identification Number."²²³ Throughout this audit, Energy Safety reviewed Liberty-provided data showing individual tree identification numbers. Therefore, Energy Safety's audit found Liberty was able to provide supporting documentation showing trees are assigned a unique identification number.

In its 2020 WMP, Liberty states that "The past work orders and inspection records for that tree are retained."²²⁴ Energy Safety reviewed a sample of tree records that were inspected in 2020 and a previous year, and the corresponding work orders for those inspections, which showed tree records are retained through time.²²⁵ Therefore, Energy Safety's audit found Liberty was able to provide supporting documentation for the VMS database retaining past work orders and inspection dates for trees.

Liberty's 2020 WMP states, "Photographs, Tree Work Authorization Forms and other documents associated with specific trees can be linked to the tree records through local network drives."²²⁶ Energy Safety reviewed a screenshot of the VMS database showing fields where an "image" can be uploaded, and documents such as Tree Work Notification (Authorization) Forms can be saved in the "Scan Files" field.²²⁷ Therefore, Energy Safety's audit found Liberty was able to provide supporting documentation for the WMP statement above.

Liberty states in its 2020 WMP that "Each individual tree is also assigned a status drop down in order to track notifications, project progress, and tree work completion."²²⁸ In the VMS database screenshot described in the previous paragraph, Energy Safety found there was a drop down menu for the individual tree record titled "Status."²²⁹ Additionally, the WMP continues by stating that "Upon receipt of a signed and completed work requests[sic], an individual tree records[sic] status is changed to a completed status."²³⁰ In the case of the screenshot provided, the "Status" was "BILLED." Liberty considers work completed when it receives invoices for the work.²³¹ Therefore, Energy Safety's audit found Liberty was able to produce supporting documentation consistent with the WMP statement above.

In its 2020 WMP, Liberty states it "plans to continue discussing improvements in tracking overall circuit work" and "to continue discussions to implement dashboard screen to better

²²³ 2020 WMP, page 88

²²⁴ 2020 WMP, page 89

²²⁵ DR-094-SVM-20220513, response to question 27, DR-094-SVM-20220513 Q27.pdf, page 2

²²⁶ 2020 WMP, page 89

²²⁷ DR-094-SVM-20220513, response to question 28, DR-094-SVM-20220513 Q28-30.jpg

²²⁸ 2020 WMP, page 89

²²⁹ DR-094-SVM-20220513, response to question 28, DR-094-SVM-20220513 Q28-30.jpg

²³⁰ 2020 WMP, page 89

²³¹ Per a Microsoft Teams meeting between Energy Safety, Liberty and Liberty's consultant on November 22, 2021. Additionally, when Energy Safety asked Liberty for documentation supporting completion of miles completed in DR039-SVM-20211015, Liberty provided invoices.

track overall circuit progress and status.”²³² In response to Energy Safety’s request for supporting documentation of Liberty’s continued discussion of improvements in tracking overall circuit work and implementing a dashboard screen to track circuit progress and status, Energy Safety was provided and reviewed a screenshot of Outlook meeting invites from 2020²³³ “related to project planning and tracking.”²³⁴ Therefore, Energy Safety’s audit found Liberty was able to produce supporting documentation consistent with the WMP statement above regarding improvements to tracking vegetation management work.

5.19.2 Energy Safety’s Determination for 2020 WMP Initiative 5.3.5.19

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP initiative 5.3.5.19: Vegetation Inventory System.

5.20 Initiative 5.3.5.20: Vegetation Management to Achieve Clearances Around Electric Lines and Equipment

The purpose of this initiative is to describe the utility’s actions to safeguard vegetation so that it does not encroach upon the minimum clearances in GO 95.²³⁵

5.20.1 2020 WMP Initiative Statements, Supporting Information, and Analysis

In its 2020 WMP, Liberty states that it “adopted and incorporated General Order 95, Appendix E recommended clearances at time of trimming in its vegetation management plan. Minimum clearance, at time of trim, is 12 feet for distribution lines (up to 60kV) and is 30 feet for 120kV lines.”²³⁶ Energy Safety reviewed Liberty’s Vegetation Management Plan which directs contractors to achieve clearances of 12 feet for slow and medium growing trees and 15 feet for fast growing trees for equipment (conductors) operating up to 60kV.²³⁷ For 120kV lines, the time of trim clearances are described as 30 feet for slow to medium growing trees, and 35 feet for the fast growing trees.²³⁸ Therefore, Energy Safety’s audit found Liberty was able to produce information in the form of its procedural document consistent with the WMP statement above about clearance requirements.

In its 2020 WMP, Liberty states it

²³² 2020 WMP, page 89

²³³ DR-094-SVM-20220513, response to question 31, DR-094-SVM-20220513 Q31.jpg

²³⁴ DR-094-SVM-20220513, Energy Safety to Liberty - DR-094_Spreadsheet Response.xlsx, cell J32

²³⁵ 2020 WMP Guidelines, R.18-10-007, page 80

²³⁶ 2020 WMP, page 89

²³⁷ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 14

²³⁸ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 14

...will obtain greater clearances as needed to ensure compliance until the next scheduled maintenance. The consideration to obtain greater clearances will be based on multiple factors, including: length of span, line sag, planned maintenance cycles, location of vegetation within the span, species type, species characteristics, vegetation growth rate, arboricultural practices, local climate, and elevation.²³⁹

Energy Safety reviewed Liberty's Vegetation Management Plan and found it directs contractors to consider encroachment within minimum allowed distances to the facilities based on species growth rates²⁴⁰ and to note the potential for vegetation to fail into the facilities.²⁴¹ Additionally, the Vegetation Management Plan lists factors to be considered to obtain greater clearances including span length and sag, vegetation species, characteristics and location along the span, local climate, and elevation.²⁴² Also, the Vegetation Management Plan includes arboricultural practices such as "natural target pruning,"²⁴³ and environmental characteristics such as fire risk²⁴⁴ and PRC 4293 requirements that account for the surface terrain.²⁴⁵ Additionally, Energy Safety reviewed a screenshot of Liberty's VMS database, which includes fields for inspectors to input the tree growth rate, species, height, location within a span, failure probability, and required clearance.²⁴⁶ Therefore, Energy Safety's audit found Liberty was able to produce information consistent with the 2020 WMP statement regarding the factors contractors consider when inspecting distribution circuits.

In its 2020 WMP, Liberty states that it "plans to continue to develop a formalized Quality Control and Quality Assurance auditing system to ensure proper clearances are being achieved and compliance is met."²⁴⁷ Additionally, the 2020 WMP states Liberty will "Implement a formalized Quality Control and Quality Assurance auditing system to ensure proper clearances are being achieved at time of trimming."²⁴⁸ As a sample of this effort, Energy Safety reviewed a meeting invitation from a third party contractor in October 2020, with the subject line "VM Audit Review – Draft App[lication] and Audit Process."²⁴⁹ Additionally, Energy Safety reviewed email correspondences between Liberty and a third party consultant discussing a quality control audit in 2020,²⁵⁰ screen shots of Liberty's Quality Assurance/Quality Control Program application used in 2020,²⁵¹ and a third party audit report of Liberty's vegetation management

²³⁹ 2020 WMP, page 89

²⁴⁰ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, pages 11, 13 and 14

²⁴¹ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, pages 11, 15, 17 and 18

²⁴² DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 6

²⁴³ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 12

²⁴⁴ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 6

²⁴⁵ DR039-SVM-20211015, Supporting Materials, Vegetation Management Plan.pdf, page 7 and 8, "The distances for clearance requirements must be measured horizontally, not along the surface of sloping ground."

²⁴⁶ DR-094-SVM-20220513, response to question 26, DR-094-SVM-20220513 Q26_3.jpg

²⁴⁷ 2020 WMP, page 89

²⁴⁸ 2020 WMP, page 89

²⁴⁹ DR-094-SVM-20220513, response to question 13, page 5

²⁵⁰ DR-094-SVM-20220513, response to question 14, page 3

²⁵¹ DR-094-SVM-20220513, response to question 14, pages 1-2

programs in 2020²⁵² that included auditing tree clearances.²⁵³ Finally, Liberty provided an Excel file showing contractors conducted Quality Assurance/Quality Control audits on approximately 57 miles.²⁵⁴ Therefore, Energy Safety's audit found Liberty was able to produce information consistent with Liberty recognizing the need for, and working towards, a formal Quality Assurance/Quality Control audit program in 2020.

5.20.2 Energy Safety's Determination for 2020 WMP Initiative 5.3.5.20

Based on the analysis above, Energy Safety finds Liberty compliant with the 2020 WMP initiative 5.3.5.20: Vegetation Management to Achieve Clearances Around Electric Lines and Equipment.

²⁵² DR28-SVM-20210602 response, "Supporting Materials," "QA-QC," Liberty Utilities Pole Clearing and Tree Work Audit Report – 2020 FINAL.pdf

²⁵³ DR28-SVM-20210602 response, "Supporting Materials," "QA-QC," Liberty Utilities Pole Clearing and Tree Work Audit Report – 2020 FINAL.pdf, page 10

²⁵⁴ DR28-SVM-20210602 response, Substantial Vegetation Work Completed.xlsx, sheets "#7" and "#7.2"

6.0 CONCLUSION

Energy Safety reviewed all 20 initiatives pertaining to vegetation management in Liberty's 2020 WMP. Energy Safety's audit found Liberty noncompliant with two of the 20 vegetation management initiatives in its 2020 WMP. In these instances of noncompliance, Energy Safety's audit found that Liberty was unable to provide supporting documentation or information consistent with statements made in its 2020 WMP regarding its vegetation management initiatives.

This audit is not an assessment of the quality of Liberty's execution of its vegetation management programs.

See Table 4 below for a summary of Energy Safety's findings and corrective actions for Liberty pertaining to this audit. Liberty shall file its response to the below Corrective Actions on the 2020 SVM Docket in the E-Filing Database of Energy Safety's website with a file named "Liberty 2020 SVM Audit Corrective Action Plan" within 30 days of receipt of this audit.

Within 60 days of receipt of this audit, Liberty shall file supporting documentation addressing corrective actions as listed below in Table 4.

Corrective Actions

Table 4: Findings and Corresponding Corrective Actions from Energy Safety's 2020 SVM Audit

Noncompliant Initiative Number	Finding	Corrective Action
5.3.5.5	1. Liberty failed to provide either a list of attendees or the dates of the workshops it hosted in 2020, beyond one annual Tahoe Fire and Fuels Team Workshop, to assist in the development of a fuel reduction and wood removal program that will reduce fire risk and benefit the local community and surrounding forest.	Liberty shall a) confirm whether it hosted any workshops besides the annual Tahoe Fire and Fuels Team Workshop provided, b) provide an explanation why it failed to provide the list of attendees and the dates of the workshop(s) it hosted in 2020, and c) detail Liberty's process to ensure vegetation management operations are consistent with statements made in this initiative of the WMP.
5.3.5.15	2i. Liberty targeted treating 380 miles under this initiative in its approved 2020 WMP, but Liberty's fourth quarter QIU for 2020 stated Liberty targeted 230 miles.	Liberty shall a) explain why there is a discrepancy between Liberty-submitted documents, the 2020 WMP and the fourth quarter 2020 QIU regarding the applicable target for this initiative, b) specify whether Liberty followed Energy Safety's established "Change Order" process to

Noncompliant Initiative Number	Finding	Corrective Action
		initiate such a target change, and if not, explain why, and c) detail Liberty’s process to ensure the initiative targets claimed are consistent across all reporting documents such as, but not limited to, the WMP and the QIU.
5.3.5.15	2ii. Liberty failed to provide documentation supporting completion of 380 miles under this initiative in its 2020 WMP.	Liberty shall a) provide an explanation why it was unable to provide supporting documentation in a way that allowed Energy Safety to confirm target completion, and b) detail Liberty’s process to ensure vegetation management record keeping practices (for Liberty staff and its contractors) allow for cross-confirmation against targets claimed in documents and reports provided to Energy Safety.

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