PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

December 23, 2024

Caleb Gardner
Wind Site Manager
High Winds Energy Center
6700 Birds Landing Road
Birds Landing, CA, 94512

SUBJECT: **Generation Audit of High Winds Energy Center - Audit Number GA2024-13HW**

Dear Mr. Gardner:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Matthew Yunge, Christopher Villalobos, and Evan Coughran of ESRB staff conducted a generation audit of High Winds Energy Center from October 21, 2024, through October 24, 2024.

During the audit, ESRB observed plant operations, inspected equipment, reviewed data, interviewed plant staff, and identified potential violations of General Order (GO) 167-B. A copy of the audit findings itemizing the violations is attached. Please advise me by email no later than January 24, 2025 by providing an electronic copy of all corrective actions and preventive measures taken and/or planned to be taken to resolve the violations.

Your response should include a Corrective Action Plan with a description and completion date of each action and measure completed. For any violations not corrected, please provide the projected completion dates to correct the violations and achieve full compliance with GO 167-B.

Please submit your response to Christopher Villalobos at Christopher.Villalobos@cpuc.ca.gov. Please note that although High Winds Energy Center has been given a response period, it has a continuing obligation to comply with all applicable GO 167-B requirements; therefore, the response period does not alter this continuing duty.

The CPUC intends to publish the audit report of High Winds Energy Center on the CPUC website. If you wish to make a claim of confidentiality covering any of the information in the report, you may submit a confidentiality request pursuant to Section 15.4 of GO 167-B, using the heading “General Order 167-B Confidentiality Claim" along with such redactions. Per GO 167-B Rule 15.4, the confidentiality claim should be for specific items and provide its corresponding justification, as opposed to a blanket confidentiality claim on the entire audit report. The request and redacted version of the audit report should be sent to Christopher Villalobos with a copy to me and the GO 167 inbox GO167@cpuc.ca.gov by January 24, 2025.

Please note that ESRB will also post High Winds Energy Center’s audit report response on the CPUC website. If there is any information in your response that you would like us to consider as confidential, we request that in addition to your confidential response, you provide us with a redacted version of your audit response that can be posted on the CPUC website.

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Thank you for your courtesy and cooperation throughout the audit process. If you have any questions concerning this audit, please contact Christopher Villalobos at Christopher.Villalobos@cpuc.ca.gov or (916) 268-7732

Sincerely,

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Attachment: CPUC Generation Audit Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
Rickey Tse, Program and Project Supervisor, ESRB, SED, CPUC
Stephen Hur, Senior Utilities Engineer, Supervisor, ESRB, SED, CPUC
Matthew Yunge, Senior Utilities Engineer, Specialist, ESRB, SED, CPUC
Christopher Villalobos, Utilities Engineer, ESRB, SED, CPUC
Evan Coughran, Utilities Engineer, ESRB, SED, CPUC

CPUC AUDIT FINDINGS OF
HIGH WINDS ENERGY CENTER
OCTOBER 21 – OCTOBER 24, 2024

I. Findings Requiring Corrective Action

Finding 1: The Plant failed to respond to California Public Utilities Commission (CPUC) Information Requests.

General Order (GO) 167-B, 10.0, Information Requirements states in part:

> *"10.1 Provision of Information. Upon Safety Enforcement Division's (SED) request, a Generating Asset Owner shall provide information in writing concerning (a) a Generating Asset; (b) the operation or maintenance of the Generating Asset; […] If SED has indicated when, where, and in what form the information is to be provided, the Generating Asset Owner will provide the information in that manner and will otherwise cooperate with SED in the provision of information.*

GO 167-B, 11.0, Audits, Inspections and Investigations states in part:

> *"11.1 General Requirement. A Generating Asset Owner shall cooperate with SED during any audit, inspection, or investigation (including but not limited to tests, technical evaluations, and physical access to facilities). An audit, inspection, or investigation may extend to any records pertaining to the specifications, warranties, logbooks, operations, or maintenance of the Generating Asset."*

CPUC's Electric Safety and Reliability Branch (ESRB) staff submitted a Pre-Audit Data Request to High Winds (the Plant) on August 23, 2024, notifying the Plant of the audit and requesting 62 items (**See Audit Report Section *II. List of Reviewed Documents***) for the Plant to submit to ESRB by September 23, 2024. Following the completion of the site visit, ESRB issued a Post-Audit Data Request on October 29, 2024, with a due date of November 12, 2024, and granted an extension to November 19, 2024. High Winds responded to the information requests; however, High Winds did not provide several items, including the Injury and Illness Prevention Plan, items related to the work orders, and Original Equipment Manufacturer (OEM) maintenance procedures.

1. Injury and Illness Prevention Plan[1]

   Per Title 8, California Code of Regulations (CCR) Division 1, Chapter 4, Subchapter 7, Section 3202, all employers in California are required to have an Injury and Illness Prevention Plan (IIPP). During the audit, the Plant was unaware of the requirement and the need for an IIPP and was unable to show an IIPP; however, in the GO 167-B Annual compliance filings, the Plant had indicated that the site had an IIPP. ESRB submitted a

[1] II. List of Documents Reviewed: Item 7 Injury and Illness Prevention Plan

Post-Audit Data request following the site visit to High Winds, requesting that the IIPP be submitted by November 12, 2024. The Plant requested an extension for its response to the Post-Audit Data Request, which ESRB approved. High Winds then provided an IIPP document that was last revised on November 13, 2024, and approved by High Winds Management on November 14, 2024. The document version was the sixth revision; however, in the revision table, which outlines the changes of each version, High Winds did not show any revisions made to the other five versions.

The Plant had adequate time to provide ESRB with the IIPP from the Audit notification letter on August 23, 2024, to the conclusion of the site visit, but was unable to produce the document until after the site visit and provided a document that had been modified after ESRB had requested the document via the Post-Audit Data Request. The Plant's failure to provide an IIPP in a timely manner and the subsequent submission of a newly revised document raises concerns of the Plant's compliance with Title 8, CCR Division 1, Chapter 4, Subchapter 7, Section 3202, safety practices, and the integrity of such plans and safety practices. Proactively maintaining and implementing an established and robust safety plan, is a regulatory obligation and a fundamental component of safe and reliable Plant operations. The Plant must establish a requirement to conduct annual reviews of the IIPP. High Winds must distribute the IIPP to all employees and conduct trainings to ensure awareness of the IIPP. The trainings must be a completed and tracked per company policy.

2. Work Order Management Related Documents[2]

   The Plant failed to provide items related to work orders. In the initial information request sent on August 23, 2024, ESRB requested a list of all the backlogged and open work orders, and a list of all completed work orders. The two items were omitted from High Winds's response to the data request. The Plant made the information available to ESRB during the site visit. The late filing of required documents unnecessarily delays ESRB's audit, as the Plant had to pull each document up on the conference room screen for review while auditors were onsite. Reviewing documents during the audit compromises the ability of ESRB staff to fully analyze the documents with the time and depth needed and limits the time staff can inspect equipment in the field. In the future, all pre-audit documentation must be submitted by the deadline to ensure a comprehensive audit process. ESRB submitted a second data request following the audit and High Winds provided the required documentation on November 14, 2024.

3. Maintenance Procedures and Turbine Specific Design Information[3]

   High Winds operates two different types of wind turbine generators from two manufacturers: Vestas and General Electric (GE). In the initial information request prior

[2] II. List of Documents Reviewed: Items 34 List of all Open/Backlogged Work Orders; 35 List of Closed/Retired Work Orders
[3] II. List of Documents Reviewed: Items 55 Turbine Design Data; 56 Vendor Manuals

to the site visit, ESRB requested the specification sheet for the turbines at the Plant. The Plant only provided a response for the Vestas turbines and not the GE Turbine. High Winds was unable to produce the GE turbine specification sheet during the site visit, either. ESRB issued a follow-up data request on October 29, 2024, requesting that High Winds provide the GE turbine specification sheet by November 12, 2024. High Winds requested an extension to November 19, 2024. At the time of this report, High Winds has still not provided the requested information.

Additionally, during the site visit, High Winds stated that its maintenance plan is based on the OEM Major and Minor maintenance schedules. The Major and Minor maintenance schedules outline various inspection and maintenance practices to be completed at a specified interval. High Winds stated it used the OEM maintenance plans and separated the lengthy Major and Minors inspection and maintenance activities: Majors and Minors, into multiple separate work orders that are completed for each turbine throughout the year. By doing this, High Winds has turned 2 lengthy maintenance activities, Major and Minors, into multiple smaller work orders. ESRB requested a copy of the Vestas Major and Minor maintenance plans to ensure that the inspections and maintenance being performed by High Winds are adequate and there are no shortcomings compared to the OEM Major and Minor maintenance plans. High Winds did not provide the requested document in the follow-up data request issued by ESRB. By denying ESRB the required information, ESRB is unable to verify if High Winds maintains its Vestas wind turbines in accordance with OEM prescribed maintenance. Adequate maintenance practices are critical for safe and reliable operations, [redacted]. As a part of the response to this audit report, High Winds must provide the OEM Major and Minor Maintenance procedures.

Finding 2: The Plant requires improvements to its work order practices.

GO 167-B, Appendix D, Maintenance Standard (MS) 9: Conduct of Maintenance states:

> *"Maintenance is conducted in an effective and efficient manner so equipment performance and materiel condition effectively support reliable plant operation."*

GO 167-B, Appendix E, Operation Standard (OS) 4: Problem Resolution and Continuing Improvement states:

> *"The GAO values and fosters an environment of continuous improvement and timely and effective problem resolution."*

GO 167-B Appendix E, OS 16: Participation by Operations Personnel in Work Orders states:

> *"Operations personnel identify potential system and equipment problems and initiate work orders necessary to correct system or equipment problems that may inhibit or prevent plant operations. Operations personnel monitor the progress of work orders*

affecting operations to ensure timely completion and closeout of the work orders, so that the components and systems are returned to service.

Among other things:

A. *Operations personnel identify problems requiring work orders, and initiate work orders to correct those problems.*
B. *The operations manager or other appropriate operating personnel periodically review work orders that affect operations to ensure timely completion and closeout of the work orders, so that components and systems are returned to service.*
C. *Personnel responsible for prioritizing work orders consult operations personnel to assure that work orders affecting the operations of the plant are properly prioritized.*
D. *Appropriate personnel are trained in and follow procedures applicable to work orders."*

While conducting the documentation review of the Plant, ESRB staff observed over 2,000 open preventative maintenance work orders across the entire site. Additionally, there were 821 open corrective work orders. Some of the work orders observed by ESRB were overdue by several years, dating back to 2021.

ESRB asked if on-site management had access to a dashboard or metric-tracking system for work orders. Plant management stated that they were not aware of any such tool. The Plant does not have a way to quickly see how the backlog of open work orders is changing at any given time to determine if it is increasing or decreasing. Because the count of over 2,800 open work orders is concerning, the Plant must have some way to determine if the number of open work orders is steadily decreasing, increasing, or just holding steady. Plant management stated that during the summer preventative maintenance work is postponed and that Plant staff catches up on those work orders later in the year. A review of the Plant's completed work orders shows that this is largely the case, with a breakdown of work orders completed shown below:

Table 1. Breakdown of Work Orders Completed from 2019 through 2024

Month	**Percentage of work orders completed**
Jan	10.54%
Feb	9.75%
Mar	10.31%
Apr	7.36%
May	6.31%
Jun	6.51%
Jul	6.15%
Aug	7.03%
Sep	7.62%

Oct	11.19%
Nov	8.80%
Dec	8.43%

Plant staff informed ESRB that a system called Total Cost Optimization ("TCO") was used to automatically prioritize work orders that were to be completed on a given day. There was no factor that increased the prioritization of work orders as they got older or overdue. This creates the possibility that a work order will be left uncompleted indefinitely so long as newer work orders end up being assigned a higher prioritization score. This may explain why there are 213 open work orders that were initially reported over two years ago.[4] Plant staff stated that even if a work order [redacted] This is especially important if all of the Plant's work prioritization is handled via an algorithm.

The Plant does not adequately use the work order system to document its work. ESRB observed an in-progress work order in which a technician left a note that work could not be completed that day and that it would be completed the following day. [redacted] However, that information completely depended on the recollection of Plant staff, as it was not recorded in any work order documentation. Similarly, ESRB observed several instances in which an in-progress work order had insufficient explanation of what work had been done thus far and why the work could not be completed. The work order system should be used to adequately track the status of work orders, including the status of in-progress work orders. This will allow other staff to complete those work orders without having to either duplicate work or rely on the memory of another staff member.

Lastly, there were multiple work orders that had completion dates that were earlier than the creation dates of those same work orders. The Plant explained that on occasion a site-wide creation of work orders may result in cases where completed work gets backdated, making it appear as if the work order was completed before it was created. Depending on the number of work orders where this occurs, this can lead to confusion when attempting to determine performance metrics related to how long it took to complete a work order once it has been created.

High Winds must establish a work order tracking method to manage and reduce the number of open and backlogged work orders. As a part of High Winds's corrective action plan, the Plant must develop a plan and schedule to address the extensive backlog of work orders. This plan must be established and result in improvements to the number of open work orders prior to summer

[4] Before November 12, 2022.

2025. Additionally, the Plant must develop a plan to track and complete work orders in a timely manner to prevent an extensive backlog from becoming a recurring issue. If summer postponement is a recurring issue, the Plant must plan accordingly to alter the amount of preventative maintenance in the summer and enhance preparations for the summer months.

Finding 3: The Plant had missing fire extinguishers and fire extinguishers that had not received monthly inspections.

GO 167-B, Appendix D, MS 9: Conduct of Maintenance states:

> *"Maintenance is conducted in an effective and efficient manner so equipment performance and materiel condition effectively support reliable plant operation."*

GO 167-B, Appendix E, OS 1: Safety states in part:

> *"The protection of life and limb for the work force is paramount. The company behavior ensures that individuals at all levels of the organization consider safety as the overriding priority."*

GO 167-B, Appendix E, OS 8: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

1. ESRB observed that there was a missing fire extinguisher at the Montezuma Operations and Maintenance (O&M) Building.[5] Safety equipment must be readily available at the identified locations in the event of an emergency. The Plant placed a fire extinguisher at this location during the audit.

[5] During the audit, ESRB inspected the O&M facilities for High Winds and Montezuma. High Winds staff typically operate out of the Montezuma O&M Building and vice versa. ESRB includes findings related to the Montezuma O&M Building if the equipment is expected to be used by or poses a risk to High Winds staff.

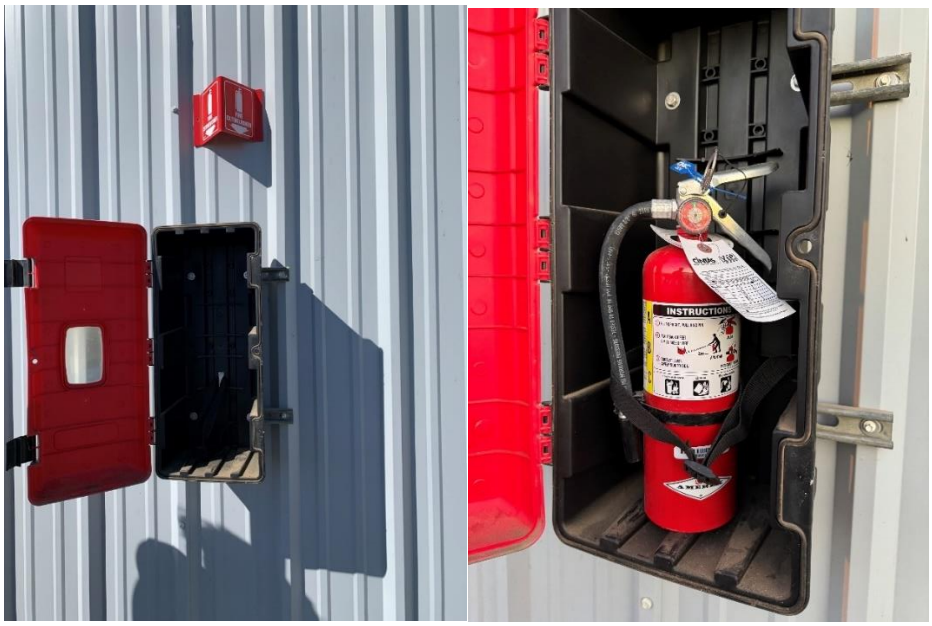

Figure 1: Missing (Left) and Replaced (Right) fire extinguisher [redacted]

2. Three fire extinguishers located in the High Winds Spare Parts Building had not been inspected in September, the month prior to ESRB's audit. These fire extinguishers were later inspected by the Plant during the audit.

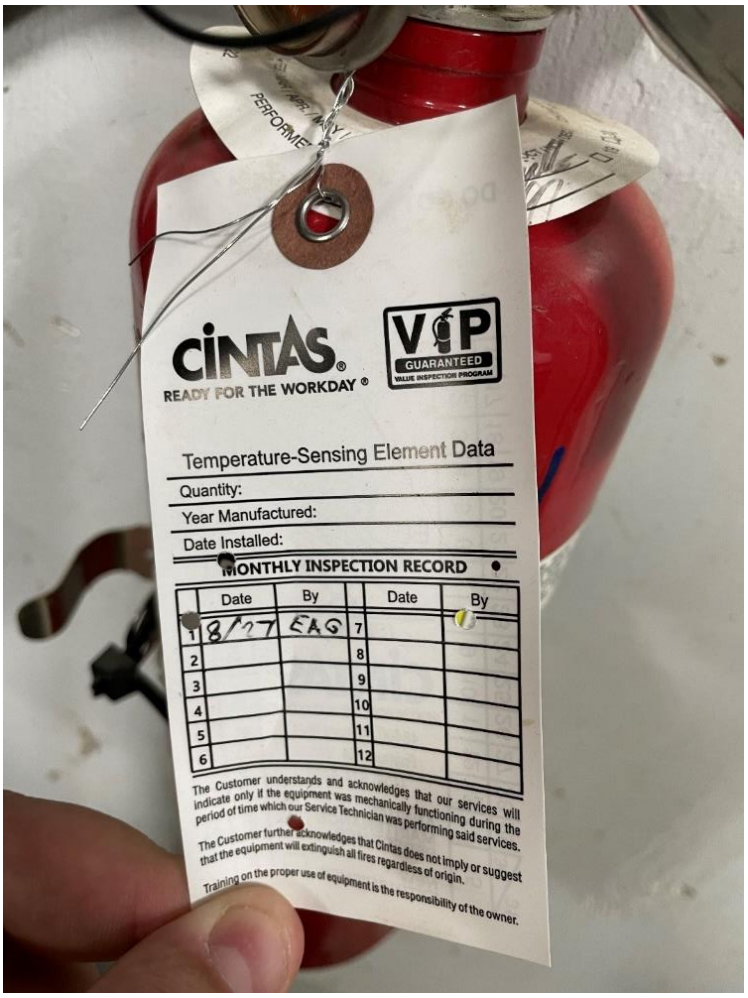

Figure 2: One example of the fire extinguishers in the High Winds Spare Parts Building.

Finding 4: The Plant has missing or deteriorated National Fire Protection Association (NFPA) 704 Placards.

GO 167-B, Appendix D, MS 1: Safety states in part:

"The protection of life and limb for the work force is paramount. The company behavior ensures that individuals at all levels of the organization consider safety as the overriding priority."

GO 167-B, Appendix E, OS 8: Plant Status and Configuration states:

"*Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

NFPA 704: 4.2.3.3 states in part:

"Where more than one chemical is present in a building or specific area, professional judgement shall be exercised to indicate ratings using the following methods:

1) Composite Method. Where many chemicals are present, a single sign shall summarize the maximum ratings contributed by the material(s) in each category and the special hazard category for the building and/or area."

1. The NFPA 704 placard on the propane tank was faded. This sign should be replaced so that the colors on the sign are legible. Colors on the NFPA 704 placard help easily identify the hazards associated with the material, such as propane.

Figure 3: NFPA 704 placard on propane tank [redacted]s faded.

2. The flammable material storage cabinets at both the Montezuma and High Winds O&M Buildings did not have the appropriate NFPA 704 placards showing the fire hazard of the contents in the cabinet. The appropriate NFPA 704 placards must be located on the cabinets and the at the primary entrances of the buildings housing them.

Figure 4: Fire cabinet [redacted]

Figure 5: Flammable Cabinet [redacted]

Finding 5: Flammable material storage cabinets did not have fully functional self-closing mechanisms.

GO 167-B, Appendix E, OS 10: Environmental Regulatory Requirements states in part:

> *"Environmental regulatory compliance is paramount in the operation of the generating asset."*

NFPA 1 60.1.2.23 (d) states:

> *"Doors shall be well fitted, self-closing, and equipped with a self-latching device."*

ESRB staff observed a flammable material storage cabinet that did not have self-closing mechanisms. The Plant performed a repair of the cabinet during the audit. Plant management must ensure that all flammable material storage cabinets on site are fitted with self-closing mechanisms including the following:

Figure 6. Flammable material storage cabinet [redacted] after letting the door attempt to close freely.

Finding 6: Substation battery terminals were corroded.

GO 167-B, Appendix D, MS 9: Conduct of Maintenance states:

> *"Maintenance is conducted in an effective and efficient manner, so equipment performance and materiel condition effectively support reliable plant operation."*

GO 167-B, Appendix D, MS 11: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support reliable and efficient operation."*

GO 167-B, Appendix D, MS 13: Equipment Performance and Materiel Condition states:

> *"Equipment performance and materiel condition support reliable plant operation. This is achieved using a strategy that includes methods to anticipate, prevent, identify, and promptly resolve equipment performance problems and degradation."*

Some of the battery terminals located in the substation control room had built up corrosion that required cleaning. Corrosion on battery terminals can impede electrical flow, reduce efficiency, accelerate terminal damage and risk further corrosion. The Plant cleaned the battery terminals during the audit.

Figure 7: Battery rack with corrosion on terminals.

Figure 8: Battery rack after cleaning the terminals

Finding 7: ESRB staff observed improper housekeeping across the Plant.

GO 167-B, Appendix E, OS 1: Safety states in part:

> *"The protection of life and limb for the work force is paramount. The company behavior ensures that individuals at all levels of the organization consider safety as the overriding priority."*

GO 167-B, Appendix E, OS 8: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

Two spill kits were not at their designated locations. This includes one spill kit located at the Montezuma Wind O&M Building and one at the High Winds O&M Building. Spill kits are required to be where indicated, as the location of spill kits are strategically set to respond to possible emergencies in the immediate vicinity. The Plant placed spill kits at those locations during the audit. The Plant must mark the locations of the spill kits on the Emergency response Plan Map and include this in the Spill Prevention Control and Countermeasure (SPCC) Plan. Routine inspections must verify the availability and condition of this emergency equipment.

Figure 9: Missing (Left) and Replaced (Right) spill kit at the Montezuma O&M Building.

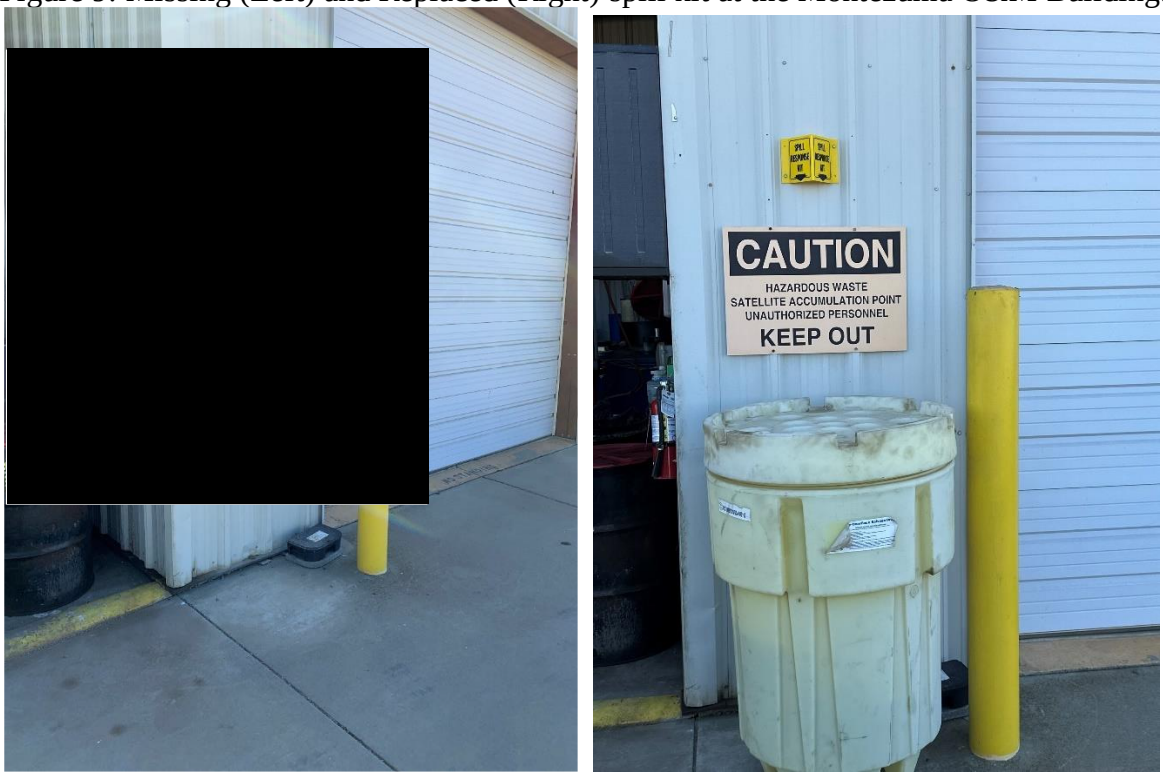

Figure 10: Missing (Left) and Replaced (Right) spill kit [redacted].

Finding 8: The Plant must replace deteriorating and missing signage in various places throughout the Plant.

GO 167-B, Appendix D, MS 4: Problem Resolution and Continuing Improvement states:

> *"The company values and fosters an environment of continuous improvement and timely and effective problem resolution."*

GO 167-B, Appendix D, MS 11: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

GO 167-B, Appendix E, OS 1: Safety states in part:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site..."*

ESRB noted that the Plant was either missing signs or had signs that were deteriorated at the following locations:

1. The [redacted] did not have an evacuation map posted. The Plant installed a new map during the audit.

Figure 11: Interior side of [redacted] is missing an evacuation map.

Figure 12: Interior doors of [redacted] with added evacuation Maps

2. At the High Winds O&M Building there were signs that were faded and tearing.

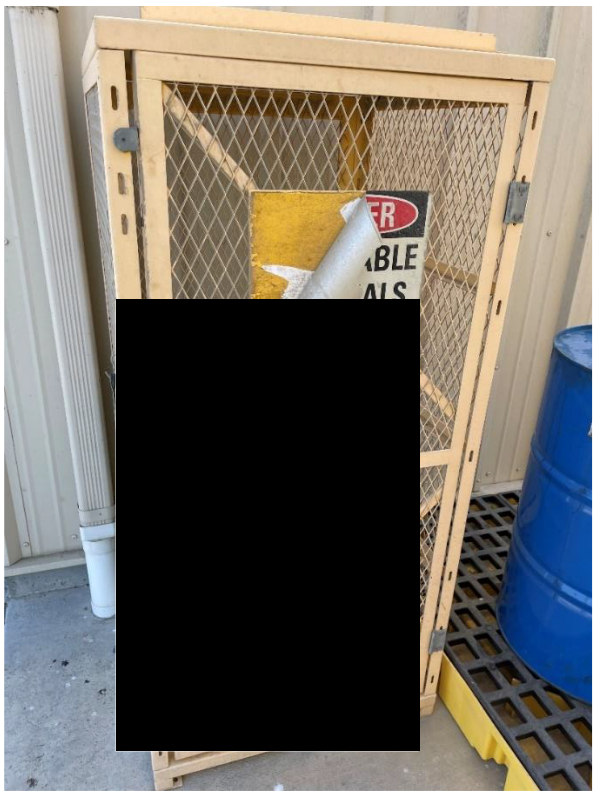

Figure 13: Canister cage at the High Winds O&M Building with torn signs.

Figure 14: “Danger” is illegible on Flammable Material storage

3. The muster point signage at Muster Point #1 [redacted] had been knocked off the fence and was lying face down on the ground. Having a clearly labeled muster point in the event of an emergency is critical for the safety of employees, contractors and visitors.

Figure 15: Muster point at [redacted]. Sign is face down.

Figure 16: Muster Point Sign

II. List of Documents Reviewed

Category	Reference #	CPUC-Requested Documents
Safety	1	Orientation Program for Visitors and Contractors (Onsite)
	2	Evacuation Procedure
	3	Evacuation Map and Plant Layout
	4	Evacuation Drill Report & Critique (last 3 years)
	5	Hazmat Handling Procedure
	6	MSDS for All Hazardous Chemicals
	7	Injury & Illness Prevention Plan (IIPP)
	8	OSHA Form 300 (Injury Log) in the last 4 years
	9	OSHA Form 301 (Incident Report) in the last 4 years
	10	List of all CPUC Reportable Incidents (last 5 years)
	11	Root Cause Analysis of all Reportable Incidents or Major Equipment Failures
	12	Fire Protection System Test Reports and Inspection Records (last 3 years)
	13	Insurance Report / Loss Prevention / Risk Survey
	14	Lockout / Tagout Procedure, In Plant Clearance Procedures
	15	Arcflash Analysis
	16	Confined Space Entry Procedure
	17	Plant Physical and Cyber Security Procedures
	18	Work at Height Procedure and Climb Certifications
	19	Emergency Preparedness and Response Plan
Training	20	Safety Training Records*
	21	Skill-related Training Records*
	22	Certifications for Welders, Forklift & Crane Operators*
	23	Hazmat Training and Records*
Contractor	24	Latest list of Qualified Contractors
	25	Contractor Selection / Qualification Procedure
	26	Contractor Certification Records
	27	Contractor Monitoring Program
Regulatory	28	Air Permit (if applicable)
	29	Water Permit (if applicable)
	30	Spill Prevention Control Plan (SPCC)
	31	CalARP Risk Management Plan (RMP)
O&M	32	Daily Round Sheets / Checklists (Onsite)
	33	Logbook (Onsite)

	34	List of all Open/Backlogged Work Orders*
	35	List of Closed/Retired Work Orders*
	36	Work Order Management Procedure
	37	Computerized Maintenance Management System (Demonstration Onsite)
	38	Standard Operating Procedures
	39	Vibration Analysis Reports
	40	Transformer Oil and Turbine Bearing Oil Analysis Reports
	41	Substation inspection records
	42	Test and inspection records of high voltage equipment
	43	Maintenance & Inspection Procedures for wind turbines
	44	Maintenance & Inspection Procedures for generators
	45	Maintenance & Inspection Procedures for transformers
	46	Maintenance & Inspection Procedures for gearboxes
	47	Maintenance & Inspection Procedures for other equipment
	48	Maintenance & Inspection Records for wind turbines
	49	Maintenance & Inspection Records for generators
	50	Maintenance & Inspection Records for transformers
	51	Maintenance & Inspection Records for gearboxes
	52	Maintenance & Inspection Records for other equipment
	53	SCADA System (Demonstration on-site)
Documents	54	Electrical Single-Line Diagrams
	55	Turbine design data
	56	Vendor Manuals (Onsite)
Spare Parts	57	Spare Parts Inventory List
Management	58	Employee Performance Review Procedures and Verifications
	59	Organizational Chart
Instrumentation	60	Instrument Calibration Procedures and Records
Test Equipment	61	Calibration Procedures and Records
Internal Audit	62	Internal audit reports