

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



September 16, 2020

Joe Moura, Plant Manager
Marsh Landing Generating Station
3201-C Wilbur Avenue
P.O. Box 1687
Antioch, CA 94509

SUBJECT: Audit of Marsh Landing Power Plant- Audit Number GA2020-02MH

Dear Mr. Moura:

The Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC) has completed and enclosed the audit report of the 2020 Marsh Landing Power Plant audit that was conducted from August 24 through August 28, 2020.

During the audit, ESRB observed plant operations, inspected equipment, reviewed data, interviewed plant staff, and identified potential violations of General Order (GO) 167. A copy of the audit findings itemizing the violations is enclosed. Please advise me no later than October 14, 2020, by electronic or hard copy, of all actions and preventive measures taken and/or planned to be taken to resolve the findings/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 by October 14, 2020, please provide the projected completion dates to correct the violations and to achieve full compliance with GO 167.

Please submit your response to Stephen Lee at Stephen.Lee@cpuc.ca.gov. Please note that although Marsh Landing Power Plant has been given 30 days to respond, it has a continuing obligation to comply with all applicable GO 167 requirements; therefore, the response period does not alter this continuing duty.

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, using the heading "General Order 167 Confidentiality Claim". The request should be sent to Charlyn Hook at Charlyn.Hook@cpuc.ca.gov of our Legal Division, with a copy to Stephen Lee and me.

Thank you for your courtesy and cooperation throughout the audit process. If you have any questions concerning this audit, please contact Stephen Lee at Stephen.Lee@cpuc.ca.gov or (916) 713-4140.

Sincerely,

A handwritten signature in blue ink, appearing to read "Banu Acimis".

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

Attachment: Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
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CPUC AUDIT FINDINGS OF NRG MARSH LANDING GENERATING STATION August 24-28, 2020

I. Findings Requiring Corrective Action

Finding 1: Deteriorated signage

GO 167, Operation Standard 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. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority.”

ESRB identified deteriorated NFPA 704 and Confined Space signage around the Plant’s facilities, listed below in Figures 1 and 2. Signage is required to identify threats and safety hazards for staff, contractors, and emergency personnel. During the audit, Plant staff immediately repaired all identified deteriorated signs. The Plant must continue to monitor the condition of all signage and make repairs as necessary.



Figure 1: Deteriorated NFPA 704 Hazard Diamond on the (Left) Unit 4 Lube Oil skid and the (Right) emergency diesel generator skid

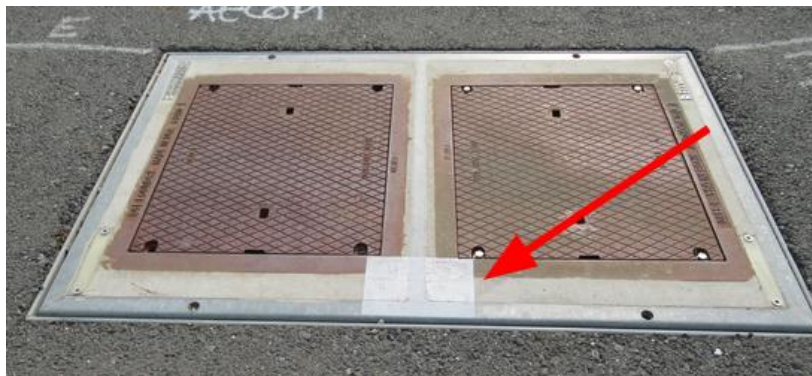


Figure 2: Faded confined space warning sign on a vault near the Unit 4 Lube Oil skid

Finding 2: A “Prohibited Items” sign is missing from all access gates.

GO 167, Operation Standard 1: Safety states in part:

“B. Managers in the organization contribute to the safety culture of the work environment through:

- 1. Establishing standards and clearly communicating expectations that safety is the highest priority.”*

GO 167, Operation Standard 21: Plant Security states:

“To ensure safe and continued operations, each GAO provides a prudent level of security for the plant, its personnel, operating information and communications, stepping up security measures when necessary.”

In addition to communicating prohibited items during the safety orientation, prohibited items signs must be physically posted and visible prior to allowing any entry into the facility. The Plant must warn all visitors and contractors prior to entering the facility of what items are prohibited and considered contraband. During the audit, the Plant installed two new prohibited items signs—one at the security gate and one at the main front gate.



Figure 3: (Left) Original main front gate without a prohibited items sign. (Right) Main front gate with a newly added prohibited items sign. Security gate not pictured.

Finding 3: The Plant lacks a “High Pressure Tank Storage Area” sign where the gas cylinders are stored.

GO 167, Operation Standard 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. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority.”

The Plant must provide a “High Pressure Tank Storage Area” sign, a “Danger High Pressure” sign, or similar for the high pressure compressed gas tank storage area. Posting danger signs is a common industry practice to alert first responders of the risks posed by the high-pressure gas cylinders. This helps emergency workers determine what safety precautions and equipment are needed and how to best respond to specific emergency scenarios.



Figure 4: View of the existing high-pressure tank storage area

Finding 4: Equipment Identification Tags are not attached to their respective equipment.

GO 167, Operation Standard 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. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority.”

GO 167, Operation Standard 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.”

ESRB identified a pile of unattached equipment identification tags near the fuel gas regulating skid. Equipment identification tags are essential to help staff identify equipment efficiently and accurately, such as during a Lock Out Tag Out. The Plant must reattach the equipment tags to their respective equipment and continue to monitor all Plant equipment for missing identification tags.



Figure 5: Pile of unattached equipment tags near the fuel gas regulating skid

Finding 5: The chemistry lab fume hood is dysfunctional and used as a storage area.

GO 167, Operation Standard 9: Engineering and Technical Support states in part:
“Engineering activities are conducted such that equipment performance supports reliable plant operation. Engineering provides the technical information necessary for the plant to be operated and maintained within the operating parameters defined by plant design.”

GO 167, Operation Standard 11: Operations Facilities, Tools and Equipment states:
“Facilities and equipment are adequate to effectively support operations activities.”

The fume hood in the water treatment building lacked adequate airflow to function as a proper fume hood. During the audit, Plant staff identified a loose belt drive on the fume hood’s fan and promptly corrected the issue. The fume hood also stored chemicals, reagents, and other items that could limit the available working space within the fume hood when in use. The Plant must continue to monitor the functionality of the fume hood and remove any non-essential items stored inside the fume hood.



Figure 6: Chemistry lab fume hood is dysfunctional and used as a storage area.

Finding 6: The Plant does not keep procedures updated in their reference binders.

GO 167, Operation Standard 7: Operation Procedures and Documentation states in part:

“Procedures are current to the actual methods being employed to accomplish the task and are comprehensive to ensure reliable energy delivery to the transmission grid.”

The Hazardous Hot Work Procedure in the Hot Work Permitting Binder was Revision 02. The current Hazardous Hot Work Procedure that is in effect is Revision 03. During the audit, Plant staff updated the Hazardous Hot Work Procedure in the binder to the current Revision 03. The Plant must review and update all procedures kept in reference binders with the most current revisions to ensure staff are following current procedures.

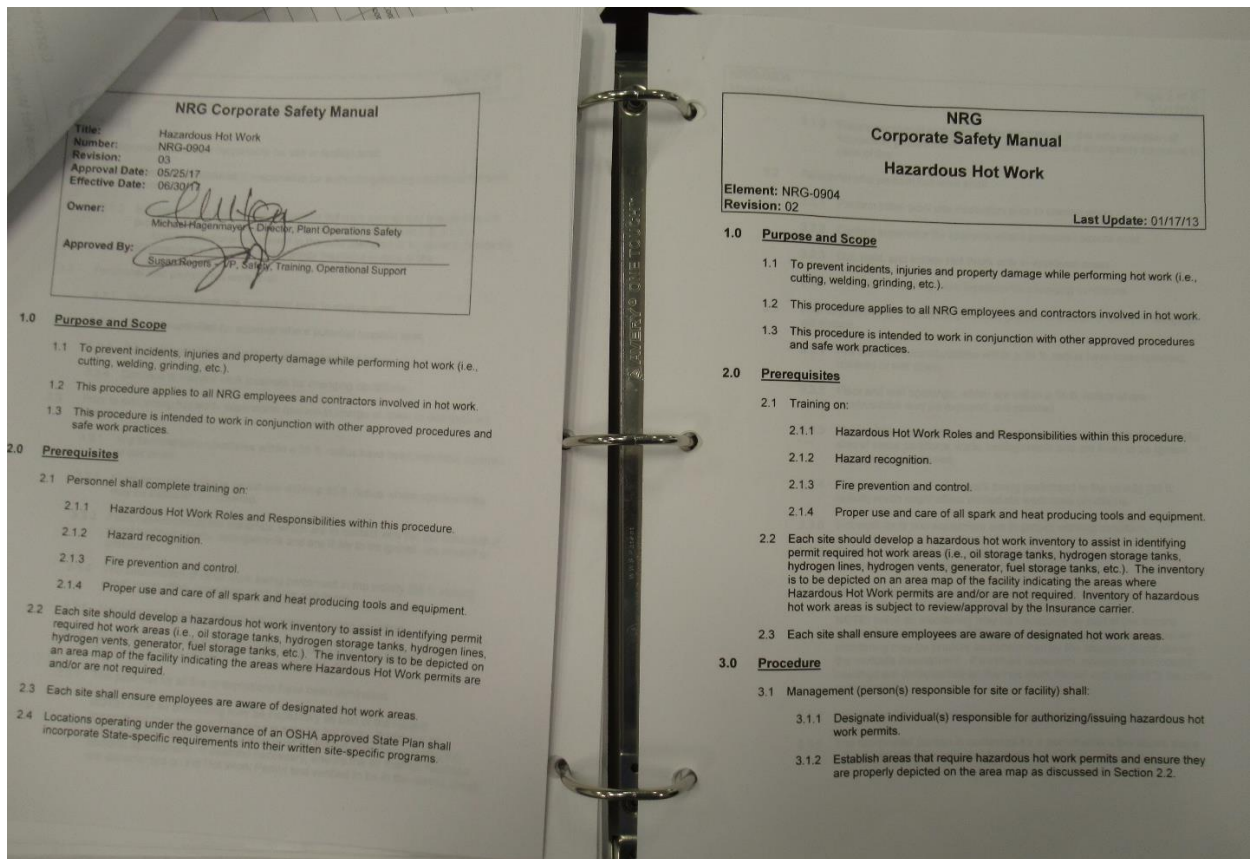


Figure 7: (Left) The current Hazardous Hot Work procedure, Revision 03. (Right) The Hazardous Hot Work procedure in the Hot Work Permitting Binder, Revision 02.

Finding 7: Hot Work Permits are not being recorded as “Closed” in the hot work permits log.

GO 167, Operation Standard 7: Operation Procedures and Documentation states in part:

“Operation procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant operation.”

ESRB identified hot work permits dating back to 2013 that have not been closed. The Plant must review the hot work permits log to verify the current status of all hot work permits to avoid possible confusions and delays.

Hot Work Permits

Permit #	Work Location & Description	Responsible Party	Dated Opened	Date Closed
001-13	URS Tank Containment Stairs	John Ehle	4/1/13	4/1/13
002-13	URS Tank Containment Stairs	John Ehle	5/6/13	4/1/13
003-13	West of PG Compting, Handrail	John Ehle	5/6/13	
004-13	Area TRANSDUCERS 14-2	John Ehle	5/6/13	5/26/13
005-13	Fuel Gas Cond. Sails Fuel Gas Regulators	John Ehle	5/6/13	5/9/13
006-13	Kiewit Construction Gas Piping Handrails	John Ehle	5/6/13	
007-13	Curtain Pipe in Lay Down Area to East of Dumpster	John Ehle	5/9/13	5/14/13
008-13	Fuel Gas Cond. Sails Handrails	John Ehle	5/9/13	5/14/13
009-13	Kiewit Construction Area Welding Clusters on Gases	John Ehle	5/9/13	5/14/13
010-13		John Ehle	5/9/13	5/14/13
011-13	Kiewit Const. Work Area Stairs on TRANSDUCERS	John Ehle	5/14/13	5/14/13
012-13	Kiewit Construction Gas Piping Handrails	John Ehle	5/14/13	5/14/13
013-13	Kiewit Construction Gas Piping Handrails	John Ehle	5/14/13	5/14/13
014-13	Kiewit Construction Gas Piping Handrails	John Ehle	5/14/13	5/14/13
015-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013
016-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013
017-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013
018-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013
019-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013
020-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013
021-13	OT3 ROTOR AIR COOLER SUPPORT	WRIGHT	2013	2013

Figure 8: Hot work permits from 2013 that are still open

Finding 8: The Plant missed one Weekly Spill Kit Inspection.

GO 167, Operation Standard 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. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority.”

GO 167, Operation Standard 13: Routine Inspections states in part:

“Routine inspections by plant personnel ensure that all areas and critical parameters of plant operations are continually monitored, equipment is operating normally, and that routine maintenance is being performed. Results of data collection and monitoring of parameters during routine inspections are utilized to identify and resolve problems, to improve plant operations, and to identify the need for maintenance. All personnel are trained in the routine inspections procedures relevant to their responsibilities.”

ESRB identified one missed weekly spill kit inspection (dated 6/19/20) in the Spill Kit Inventory Weekly Check List records for 2020. The Plant must continue conducting weekly spill kit inspections to verify the condition of its spill kits and spill kit contents.

Spill Kit Inventory Weekly Check List Marsh Landing Generating Station

Date: 6/19/20 Name: [REDACTED]

(#1) Hazardous Waste Storage Area Spill Equipment

Tamper-proof seals broken? (If yes, count and refill kit as needed) YES NO

2 - 8" x 10' L PIG® Oil-Only Absorbent Boom (BOM304)

2 - 16" W x 17" L x 1" H PIG® Skimmer Oil-Only Absorbent Pillow (PIL203)

50 - 16" W x 20" L PIG® Oil-Only Uv-Resistant Absorbent Mat Pad (MAT4105)

1 - PIG® Oil-Only Lite-Dri® Loose Absorbent (LP415)

10 - 36" W x 60" H Polyethylene Disposal Bags (BAG201-L)

Instruction Spill Manual 1 Instructions for Use

95 Gallon Overpack Drum on Wheels (1 Storage Container)

(#2) Hazardous Material Storage Area Spill Equipment

Tamper-proof seals not broken? (If yes, count and refill kit as needed) YES NO

4 - PIG® BLUE Absorbent Socks (4048)

25 - 15" x 20" PIG® Mat (MAT203)

4 - 21" x 17" PIG® Pillow (PIL201)

5 - Yellow Caution Disposal Bags and Tie

Instruction Spill Manual 1 Instructions for Use

30 Gallon Overpack Drum 1 Storage Container

Figure 9: The June 19, 2020 Spill Kit Inventory Weekly Check List is not complete (redacted for privacy)

II. Documents Reviewed

ESRB staff reviewed the following records and documents:

Category	Ref #	CPUC-Requested Documents
Safety	1	Orientation Program for Visitors and Contractors
	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 last 4 years
	9	OSHA Form 301 (Incident Report) in last 4 years
	10	List of all CPUC Reportable Incidents (last 5 years)
	11	Root Cause Analysis of all Reportable Incidents (if any)
	12	Fire Sprinklers Test Report (last 3 years)
	13	Insurance Report / Loss Prevention / Risk Survey (last 3 years)
	14	Lockout / Tagout Procedure
	15	Arcflash Analysis
	16	Confined Space Entry Procedure
	17	Plant Physical Security and Cyber Security Procedures and Records
	18	Fire Protection System Inspection Record
	19	Job Safety Analysis Program
	20	Hotwork Procedure
Training	21	Safety Training Records
	22	Skill-related Training Records
	23	Certifications for Welders, Forklift & Crane Operators
	24	Hazmat Training and Record
Contractor	25	Latest list of Qualified Contractors
	26	Contractor Selection / Qualification Procedure
	27	Contractor Certification Records
	28	Contractor Monitoring Program
Regulatory	29	Daily CEMS Calibration Records
	30	Air Permit
	31	Water Permit
	32	Spill Prevention Control Plan (SPCC)
	33	CalARP Risk Management Plan (RMP)
	34	RATA Test Results (past 5 years)
	35	Hazardous Waste Transfer Manifests (past 5 years)

	36	O&M
	37	Logbook
	38	List of Open/Backlogged Work Orders
	39	List of Closed/Retired Work Orders (last 4 quarters)
	40	Work Order Management Procedure (last 3 revisions, if applicable)
	41	Computerized Maintenance Management System (Demonstration Onsite)
	42	All Equipment Failure Root Cause Analyses (if any)
Gas Turbine	43	Borescope Inspection Reports (last 2 years)
	44	Maintenance & Inspection Procedures (or Related Documents) (last 3 revisions, if applicable)
	45	Combustors Inspection (CI) Reports
	46	Hot Gas Path (HGI) Inspection Reports
	47	Bearing Lube Oil Analysis Reports
	48	DC Lube Oil Pump Test Records
	49	Overspeed Trip Test Records
Main Plant Compressor(s)	50	Inspection Procedures and Records
Documents	51	P&IDs
	52	Vendor Manuals
Spare Parts	53	Spare Parts Inventory List
	54	Shelf-life Assessment Report
Management	55	Employee Performance Review Procedures and Verifications
	56	Organizational Chart
Generator	57	Bearing Lube Oil Analysis
	58	Maintenance & Inspection Procedures (or related documents)
	59	Polarization Test Records
Transformer	60	Hot Spots / IR Inspection Reports
	61	Oil Analysis Reports
Cathodic Protection	62	Procedures and Inspection Records
Instrumentation	63	Instrument Calibration Procedures and Records
Test Equipment	64	Calibration Procedures and Records
Emission Control Equipment (SCR and CO Catalysts)	65	Maintenance & Inspection Procedures and Records
Internal Audit	66	Internal Audit Procedures and Records