

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



November 4, 2021

GA2021-06PE

Bob Johnston, Manager
Solar Star 1 & 2
15247 Avenue A
Rosamond, CA 93560

SUBJECT: Audit of Solar Star 1 & 2

Mr. Johnston:

On behalf of Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Saimon Islam, Stacey Ocampo, and Calvin Choi of my staff conducted a power plant audit of Solar Star 1 & 2 from July 19, 2021 through July 23, 2021.

During the audit, my staff observed plant operations, inspected equipment, reviewed data, interviewed plant staff, and identified violations of General Order (GO) 167-B. A copy of the audit findings itemizing the violations is enclosed. Please advise me no later than December 6, 2021, by electronic or hard copy, of all corrective measures taken by Solar Star 1 & 2 to remedy and prevent the recurrence of such violations. Your response should include a Corrective Action Plan with a description and completion date of each action and measure completed.

If you have any questions concerning this audit, you can contact Saimon Islam at Saimon.Islam@cpuc.ca.gov or (213) 326-2600.

Sincerely,

A handwritten signature in blue ink that reads "Fadi Daye".

Fadi Daye, 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
Nika Kjensli, Program Manager, ESRB, CPUC
Majed Ibrahim, Senior Utilities Engineer, ESRB, CPUC
Saimon Islam, Utilities Engineer, ESRB, CPUC

I. Findings Requiring Corrective Action

Finding No. 1: ESRB Inspectors witnessed paper boxes and tags inside the electrical cabinet

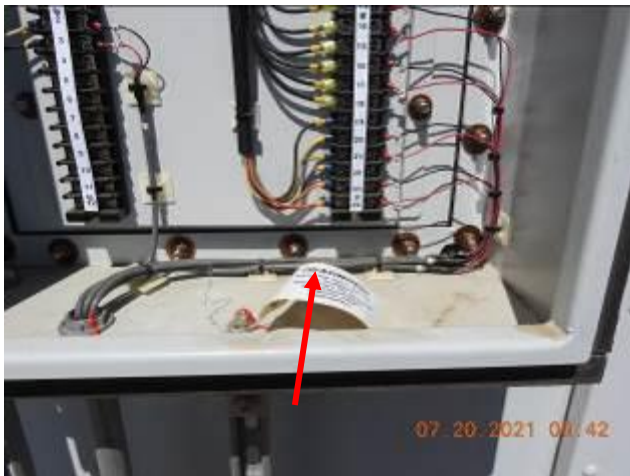
GO 167-B, Appendix D, Maintenance Standard 9: Conduct of Maintenance states:

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

GO 167-B, Appendix E, 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 Staff observed paper boxes and paper tags kept inside the electrical cabinet which can result in a fire hazard. The staff also observed a ladder on the ground which can result in a tripping hazard.



Paper Tags



paper boxes inside the cabinet



A ladder on the ground

Finding No. 2: ESRB Inspectors witnessed several broken door handles of inverter and also some doors were not locked

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

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

ESRB Inspectors witnessed several broken door handles of the inverters and also some doors were not locked properly.



Broken Door handles, some doors were not locked properly

Finding 3: ESRB Inspectors witnessed damaged inspection tags.

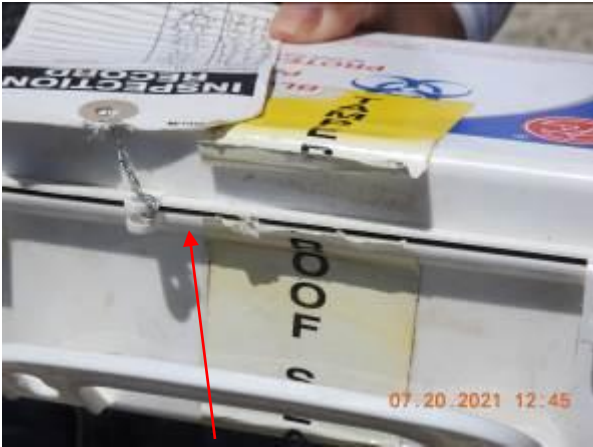
GO 167-B, Appendix D, Maintenance Standard 8: Maintenance Procedures and Documentation states in part:

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

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

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

ESRB Staff observed a damaged inspection tag and one tampered seal. The blood-borne kit in the truck was not inspected regularly which was a violation of Solar Star’s own policy of inspecting the kits regularly by the truck drivers.



Tampered seal



Damaged inspection tags

Finding No. 3: The Plant is not keeping pace with sign deterioration.

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

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

ESRB Staff observed some sound warning signs deteriorated beyond recognition. The plant personnel informed ESRB that the plant had performed a study and found the sound level below the threshold level of Cal OSHA. ESRB staff recommended that plant personnel take off the sign completely to avoid confusion.



Deteriorated Warning Sign

Finding 04: Missing NFPA Placard on the main gate.

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

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

NFPA 704: 4.3 Location of Signs states:

Signs shall be in locations approved by the authority having jurisdiction and as a minimum shall be posted at the following locations:

- 1) Two exterior walls or enclosures containing a means of access to a building or facility.*
- 2) Each access to a room or area.*
- 3) Each principal means of access to an exterior storage area.”*

ESRB observed that the Plant’s main gate did not have a National Fire Protection Association (NFPA) 704 warning placard. The Plant stockpiles and uses hazardous chemicals as part of its normal operation. NFPA 704 is a standard system for identifying hazards of materials for emergency response. The posting of an NFPA placard on the main gate is a common industry practice so first responders can quickly and easily identify the risks posed by a facility’s hazardous materials. This helps emergency personnel to determine what safety gear and precautions to use and how best to respond in emergencies.



Missing NFPA Placard on the main gate.

Finding 05: Missing NFPA (Fire diamond) sign on chemical storage cabinets

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

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

NFPA 1 (Uniform Fire Code) 60.1.2.23 (d) states:

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

NFPA 704: 4.3 Location of Signs states:

Signs shall be in locations approved by the authority having jurisdiction and as a minimum shall be posted at the following locations:

- 1) Two exterior walls or enclosures containing a means of access to a building or facility.*
- 2) Each access to a room or area.*
- 3) Each principal means of access to an exterior storage area.”*

ESRB staff found a missing NFPA sign (the fire diamond) on the cylinder storage cabinet and the chemical cabinets were not equipped with a self-latching device.



No NFPA Sign and doors were not equipped with the self-latching device.

Finding No. 6: ESRB staff observed vegetation near one of the solar panels

GO 167-B, Appendix D, Maintenance Standard 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.

ESRB staff observed vegetation near one of the solar panels which is a fire threat hazard.



Vegetation near solar panel

Finding No. 7: ESRB Inspectors found no exit sign in the battery storage room

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

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

CAL OSHA §3216. Exit Signs. States in part:

(b) Location. Exit or directional signs, or both, shall be provided at every exit door, at the intersection of corridors, at exit stairways or ramps and at such other locations and intervals as are necessary to provide the occupants with knowledge of the various means of egress available.

ESRB staff observed no exit sign in the battery storage rooms. Batteries contain acids that are considered a hazard and in case of an emergency, the Exit sign should be visible to all occupants.



No Exit sign

Finding No. 8: ESRB Inspectors found fibre cables out of the panel and not properly tied.

GO 167-B, Appendix D, Maintenance Standard 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.

ESRB Inspectors found fiber cables extending out of the panel and not properly tied.



II. Documents Reviewed

Category	Reference #	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) (last 3 years)
	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 (last 3 revisions, if applicable)
	15	Arc flash Analysis
	16	Confined Space Entry Procedure
	17	Plant Physical Security and Cyber Security Procedures and Records
	18	Fire Protection System Inspection Record
Training	19	Safety Training Records*
	20	Skill-related Training Records*
	21	Certifications for Welders, Forklift & Crane Operators*
	22	Hazmat Training and Record*
Contractor	23	Latest list of Qualified Contractors*
	24	Contractor Selection / Qualification Procedure
	25	Contractor Certification Records
	26	Contractor Monitoring Program
Regulatory	27	Daily CEMS Calibration Records
	28	Air Permit (if applicable)
	29	Water Permit (if applicable)
	30	Spill Prevention Control Plan (SPCC) (if applicable)
	31	CalARP Risk Management Plan (RMP)
O&M	31	Daily Round Sheets / Checklists
	32	Logbook**
	33	List of Open/Backlogged Work Orders*
	34	List of Closed/Retired Work Orders (last 4 quarters)*
	35	Work Order Management Procedure (last 3 revisions, if applicable)

	36	Computerized Maintenance Management System (Demonstration Onsite)**
	37	All Root Cause Analyses (if any)
	38	Maintenance & Inspection Procedures (or Related Documents) (last 3 revisions, if applicable)
	39	SCADA system
	40	Maintenance and Inspection Records for Solar Inverters
	41	Maintenance and Inspection Records for Solar Trackers
	42	Maintenance and Inspection Records for Solar Arrays/Collectors/Solar Field
	43	Maintenance and Inspection Records for Mounting System
	44	Maintenance and Inspection Records for Switchgear/breaker/relays
	45	Maintenance and Inspection Records for Electrical System
	46	Maintenance and Inspection Records for Main Transformer(s)
	47	Maintenance and Inspection Records for Switchyard & Transmission Equipment
	48	Maintenance and Inspection Records for other equipment
Document	49	P&IDs*
	50	Vendor Manuals*
	51	Solar Firm Equipment Design Data
	52	Procedure Compliance Policy
Spare Parts	53	Spare Parts Inventory List
	54	Shelf-life Assessment Report
Instrumentation	55	Instrument Calibration Procedures and Records
Test Equipment	56	Calibration Procedures and Records
Internal Audit	57	Internal Audit Procedures and all Records

* Provide data in a searchable format such as a searchable PDF, Word Document, Excel Spreadsheet, etc.

** These items may be provided on-site by the first day of the audit.