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

April 21, 2025

Sean Northcliffe
Operation Manager
100302 Yates Well Road
Nipton, CA 92364

SUBJECT: **Generation Audit Ivanpah Solar Generating Station**
Audit Number GA2025-01IS

Dear Mr. Northcliffe:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Emmanuel Salas, Evan Coughran, and Stephen Hur of ESRB staff conducted a generation audit of Ivanpah Solar Generating Station from January 27 through January 31, 2025.

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 May 19, 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 Emmanuel Salas at emmanuel.salas@cpuc.ca.gov. Please note that although Ivanpah Solar Generating Station has been given 30 days to respond, 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 Ivanpah Solar Generating Station 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 14.4 of GO 167-C, using the heading "General Order 167-C Confidentiality Claim" along with such redactions. The request and redacted version of the audit report should be sent to Emmanuel Salas with a copy to me and the GO-167 inbox GO167@cpuc.ca.gov by May 19, 2025.

Please note that ESRB will also post the Ivanpah Solar Generating Station 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 Emmanuel Salas at emmanuel.salas@cpuc.ca.gov or (916) 347-6415.

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
Eric Wu, Program Manager, ESRB, SED, CPUC
Stephen Hur, Senior Utilities Engineer - Supervisor, ESRB, SED, CPUC
Emmanuel Salas, Utilities Engineer, ESRB, SED, CPUC
Evan Coughran, Utilities Engineer, ESRB, SED, CPUC

CPUC AUDIT FINDINGS OF
IVANPAH SOLAR GENERATING STATION
January 27 – 31, 2025

I. Findings Requiring Corrective Actions

Finding 1: Ivanpah Solar Generating Station (Ivanpah) has not conducted an arc flash analysis since 2017.

General Order (GO) 167-B, Appendix D, Maintenance Standard (MS) 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-B, Appendix D, MS 10: Work Management states:

> *"Work is identified and selected based on value to maintaining reliable plant operation. Work is planned, scheduled, coordinated, controlled, and supported with resources for safe, timely, and effective completion."*

National Fire Protection Association (NFPA) 70E: 130.5 Arc Flash Risk Assessment states in part:

> *"The incident energy analysis shall be updated when changes occur in the electrical distribution system that could affect the results of the analysis. The incident energy analysis shall also be reviewed for accuracy at intervals not to exceed 5 years."*

During the documentation review, Electric Safety Reliability Branch (ESRB) inspectors found that Ivanpah has not performed an arc flash analysis since 2017. Ivanpah must conduct an arc flash analysis on all affected equipment as soon as possible to ensure compliance with safety standards and mitigate risks associated with arc flash hazards. Performing arc flash analyses is essential for maintaining the safety and reliability of electrical systems and protecting personnel from potential electrical hazards. Moving forward, Ivanpah must conduct an arc flash analysis at an interval of every five years to ensure worker safety.

Finding 2: ESRB inspectors observed recurring forced outages at Ivanpah due to high steam turbine vibrations.

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 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, Operating Standard (OS) 8: Safety states:

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

ESRB inspectors reviewed outage records and found that Ivanpah has experienced repeated forced outages due to high vibrations in the steam turbines, most recently [redacted], resulting in unit trips. While Ivanpah staff have investigated the issue [redacted], no definitive cause for the high vibration trips has been identified.

Unresolved high vibration issues pose a significant risk to unit reliability and overall plant performance, increasing the likelihood of continued forced outages and operational instability. Ivanpah must develop a comprehensive plan to further investigate the root cause of the high vibration trips[redacted] and implement corrective actions to prevent future occurrences. Ivanpah must submit the plan to ESRB for review and verification.

Figure 1: List of forced outages related to turbine vibration trips.

Finding 3: Ivanpah must conduct routine evacuation drills and provide written critiques of the executed drills.

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

"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 work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."

GO 167-B, Appendix E, OS 17: Records of Operation states:

"The GAO assures that data, reports and other records reasonably necessary for ensuring proper operation and monitoring of the generating asset are collected by trained personnel and retained for at least five years, and longer if appropriate."

GO 167-B, Appendix E, OS 20: Preparedness for On-Site and Off-Site Emergencies states in part:

"The GAO plans for, prepares for, and responds to reasonably anticipated emergencies on and off CSE site, primarily to protect plant personnel and the public, and secondarily to minimize damage to maintain the reliability and availability of CSE.

A. Plans for the continuity of management and communications during emergencies, both within and outside CSE,
B. Trains personnel in the emergency plan periodically, and
C. Ensures provision of emergency information and materials to personnel."

ESRB inspectors noted that Ivanpah did not maintain records of its annual emergency evacuation drills for 2022 and 2021. Additionally, Ivanpah did not provide records of attendees or details on the executed drill scenarios for the 2023 and 2024 evacuation drills that were conducted. Without proper documentation, ESRB inspectors were unable to verify whether Ivanpah employees have received adequate training or if the evacuation procedures remain effective.

Ivanpah must develop and implement a procedure to conduct and properly document annual emergency evacuation drills, ensuring that each drill includes a list of participants and a detailed account of the executed scenario. These drills are critical for identifying potential gaps in emergency preparedness and ensuring that all personnel are properly trained and familiar with evacuation procedures. Ivanpah must provide the procedure to ESRB for review.

Finding 4: ESRB inspectors observed missing muster point locations and emergency equipment markers on evacuation maps.

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

"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 work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."

GO 167-B, Appendix E, OS 20: Preparedness for On-Site and Off-Site Emergencies states in part:

"The GAO plans for, prepares for, and responds to reasonably anticipated emergencies on and off CSE site, primarily to protect plant personnel and the public, and secondarily to minimize damage to maintain the reliability and availability of CSE.

A. Plans for the continuity of management and communications during emergencies, both within and outside CSE,
B. Trains personnel in the emergency plan periodically, and

C. Ensures provision of emergency information and materials to personnel."

ESRB inspectors reviewed Ivanpah's emergency evacuation plan map and found that site muster point locations were not clearly marked. Previous versions of the procedure contained clear markings for muster points, but the current version lacks this critical information, making it difficult to determine designated assembly areas in the event of an emergency.

Further, ESRB inspectors observed that [redacted] does not indicate the locations of first aid kits, fire extinguishers, and the Automated External Defibrillator (AED). Clearly identifying these locations on emergency maps is essential to ensure that personnel can quickly access life-saving equipment when needed.

Ivanpah must update its evacuation procedure map to include clearly marked muster point locations and ensure that these locations are properly labeled in the field. Additionally, Ivanpah must revise [redacted] to display the locations of first aid kits and AEDs to enhance emergency preparedness and response. Ivanpah must provide the updated maps to ESRB for review.

Finding 5: ESRB inspectors observed an expired Permit to Operate for air pressure tank [redacted].

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

"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 work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."

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."

GO 167-B, Appendix E, OS 17: Records of Operation states:

"The GAO assures that data, reports and other records reasonably necessary for ensuring proper operation and monitoring of the generating asset are collected by trained personnel and retained for at least five years, and longer if appropriate."

ESRB inspectors observed that the Permit to Operate for air pressure tank [redacted] has expired. ESRB inspectors requested an up-to-date permit during the documentation review, but Ivanpah was unable to provide it because the permit could not be located. Maintaining an up-to-date permit is essential to ensuring that the pressure vessel is properly inspected, certified, and safe for continued operation.

Ivanpah must immediately locate or renew the Permit to Operate for air pressure tank [redacted] and ensure it is readily available for review. The permit must be provided to ESRB for

verification. The plant must also implement a document control process to track permit expirations and ensure compliance with all regulatory requirements.

Finding 6: ESRB inspectors noted Ivanpah is missing hoist inspection records.

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

> *"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 work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."*

GO 167-B, Appendix E, OS 17: Records of Operation states:

> *"The GAO assures that data, reports and other records reasonably necessary for ensuring proper operation and monitoring of the generating asset are collected by trained personnel and retained for at least five years, and longer if appropriate."*

California Code of Regulations (CCR), Title 8, Section 5021: Equipment Over Three Tons Rated Capacity states:

> *(a) All cranes and derricks used in lifting service, exceeding three tons rated capacity, and their accessory gear shall not be used until the employer has ascertained that such equipment has been certificated as evidenced by current and valid documents attesting to compliance with the following:*
>
> > *(1) Tests and examinations shall be conducted annually by a currently licensed certificating agency or designee listed in the certificating agency license, and a certificate shall be issued by the certificating agency;*
> >
> > *(2) Certificates (annual and quadrennial) attesting to current compliance with testing and examination standards of requirements shall be maintained for each crane or derrick and shall be in a form acceptable to the Division."*

ESRB inspectors reviewed Ivanpah's hoist inspection records and noted that Ivanpah provided [redacted]. Ivanpah provided [redacted]. For 2023, Ivanpah provided [redacted]. Ivanpah did not have a comprehensive inventory of hoists at the site with details on their tonnage. The CCR requires cranes and other hoisting equipment exceeding three tons in capacity to undergo quarterly and annual inspections, with annual certifications and quadrennial proof load testing. Without a formalized inspection program, hoists may not be receiving the required safety evaluations, posing potential operational and compliance risks.

Ivanpah must immediately develop a comprehensive inventory of all hoists on-site, including their tonnage, and establish a structured inspection program for hoists requiring quarterly and annual inspections in accordance with CCR regulations. Additionally, Ivanpah must submit the

complete hoist inventory and inspection plans for all applicable hoists to ESRB for review and verification.

Finding 7: ESRB inspectors observed that Ivanpah has missing rigging inspection records and is lacking a formal rigging inspection procedure.

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

> *"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 work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."*

GO 167-B, Appendix E, OS 17: Records of Operation states:

> *"The GAO assures that data, reports and other records reasonably necessary for ensuring proper operation and monitoring of the generating asset are collected by trained personnel and retained for at least five years, and longer if appropriate."*

ESRB inspectors noted that Ivanpah has rigging equipment but no inspection records for the equipment. Plant staff stated that the rigging has not been retested despite [redacted]. While the expired rigging is currently locked and tagged out, no formal process exists for tracking, inspecting, and maintaining rigging equipment. Additionally, no inventory list detailing the rigging equipment in use was available for review. Ivanpah must immediately develop a comprehensive inventory of all rigging equipment on-site and establish a formal rigging inspection procedure to ensure that all rigging is tested and recertified in compliance with Cal/OSHA requirements. Additionally, Ivanpah must submit the complete rigging inventory and inspection plan to ESRB for review and verification.

Finding 8: ESRB inspectors observed noncompliance with the required frequency of electronic overspeed testing for steam turbines.

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 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 inspectors reviewed Ivanpah's Overspeed Test Procedure and Records and found that Ivanpah is only conducting electronic overspeed tests (simulation) of steam turbines once per year, despite Section 3.2 of the procedure explicitly requiring these tests to be performed quarterly. Ivanpah staff stated that the corporate standard for electronic overspeed testing is annually, which ESRB confirmed through its review of the corporate procedures.

Ivanpah must take immediate action to resolve this discrepancy by either conducting electronic overspeed tests quarterly moving forward in accordance with the current site-specific procedure

or updating Section 3.2 of the Ivanpah Overspeed Test Procedure to align with corporate standards. If the procedure is revised, Ivanpah must submit a copy of the updated document to ESRB for review and verification.

Finding 9: ESRB inspectors observed a lack of formalized instrumentation calibration tracking procedure.

GO 167-B, Appendix D, MS 8: Maintenance Procedures and Documentation states:

> *"Maintenance procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant operation. Procedures must be current to the actual methods being employed to accomplish the task and are comprehensive to ensure reliable energy delivery to the transmission grid."*

GO 167-B, Appendix E, OS 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."*

ESRB inspectors requested instrumentation calibration procedures and records for gauges, transmitters, and other instrumentation equipment, but Ivanpah did not provide any records. ESRB inspectors also found that Ivanpah does not have a formal instrumentation calibration tracking system in place. Without a structured calibration program, critical instrumentation may operate outside acceptable tolerances, posing risks to plant safety, reliability, and regulatory compliance.

Ivanpah must immediately develop and implement a formal calibration tracking procedure to ensure all gauges, transmitters, and related instrumentation are routinely inspected and calibrated in accordance with best industry practices and manufacturer guidelines. Additionally, Ivanpah must submit the finalized procedure to ESRB, including a timeline for implementation.

Finding 10: Ivanpah's physical documents contain outdated information.

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."*

GO 167-B, Appendix E, OS 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 Inspectors observed that multiple control rooms throughout the facility contained outdated documents, including evacuation plans and Lockout/Tagout (LOTO) procedures. The evacuation plan in the Administration Building Control Room was last updated in 2023, despite the latest version being from 2025. Additionally, the Unit 2 Control Room Building contained an outdated evacuation plan and LOTO procedure, while the Unit 1 and Unit 3 Control Rooms had evacuation

procedures that were no longer current. These outdated documents may hinder the effectiveness of emergency response efforts by delaying access to the most up-to-date guidance.

Ivanpah must implement routine reviews of all physical emergency documents in control rooms to ensure they always remain current and readily available. Additionally, the plant must promptly replace all outdated evacuation plans and LOTO procedures with the most recent versions to ensure personnel have access to accurate emergency response information.

Finding 11: ESRB inspectors observed missing fire sprinkler system test records at Ivanpah.

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

> *"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 work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."*

GO 167-B, Appendix E, OS 17: Records of Operation states:

> *"The GAO assures that data, reports and other records reasonably necessary for ensuring proper operation and monitoring of the generating asset are collected by trained personnel and retained for at least five years, and longer if appropriate."*

ESRB inspectors reviewed fire sprinkler system test records and found that Ivanpah was missing the 2024 Quarter 1 wet pipe sprinkler and pre-action fire sprinkler system tests for [redacted]. Additionally, the Quarter 1 deluge sprinkler system water spray tests were missing for [redacted].

Routine testing of fire suppression systems is critical to ensuring they remain operational and effective in the event of an emergency. Ivanpah must establish a process to ensure all required quarterly inspections and tests are conducted on schedule and submit it to ESRB for review. Additionally, if the missing test records are located, Ivanpah must submit the documentation substantiating their completion.

Figure 2: List of missing fire suppression system test records.

Finding 12: Ivanpah must enforce procedures to close out work orders and document the work completed.

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

> *"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. 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.*

During the review of Ivanpah records, ESRB inspectors identified several open work orders in the work order management system that had already been completed but were not properly closed out. Additionally, ESRB inspectors noted that an issue identified in the annual [redacted] form was never converted into a work order for tracking and resolution. Ivanpah must ensure that all work that is completed is properly tracked and documented in the work order management system. Any issues or problems identified in the field or during routine inspections must be documented in a work order.

Finding 13: ESRB inspectors observed multiple active equipment alarms and faults.

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 4: Problem Resolution and Continuing Improvement states:

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

During the facility inspection, ESRB inspectors observed multiple instances of active equipment alarms or faults across various systems. The presence of these alarms on [redacted], indicates unresolved operational or maintenance issues that require immediate attention. Unaddressed alarms can impact plant reliability, operational efficiency, and overall safety.

Ivanpah must conduct a comprehensive review of all active alarms and faults, determine root causes, and implement corrective actions to resolve outstanding issues. Additionally, the plant must establish a structured monitoring and maintenance program to ensure timely identification, documentation, and resolution of alarms to maintain safe and reliable operations. The following must be addressed:

1. The [redacted] is displaying two supervisory alarms and four trouble alarms, indicating ongoing issues requiring investigation and resolution.

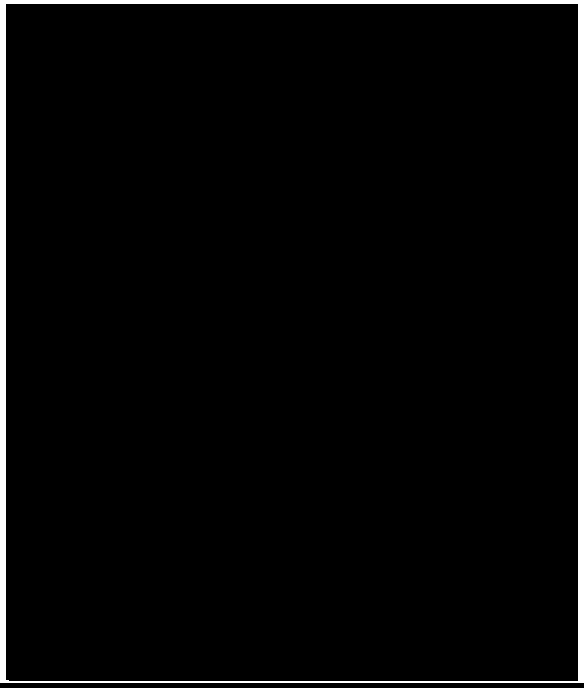

Figure 3: The [redacted] displaying two supervisory alarms and four trouble alarms.

2. The [redacted] is displaying a trouble alarm due to a communication fault (Comm Fault 2), which requires further investigation and resolution.

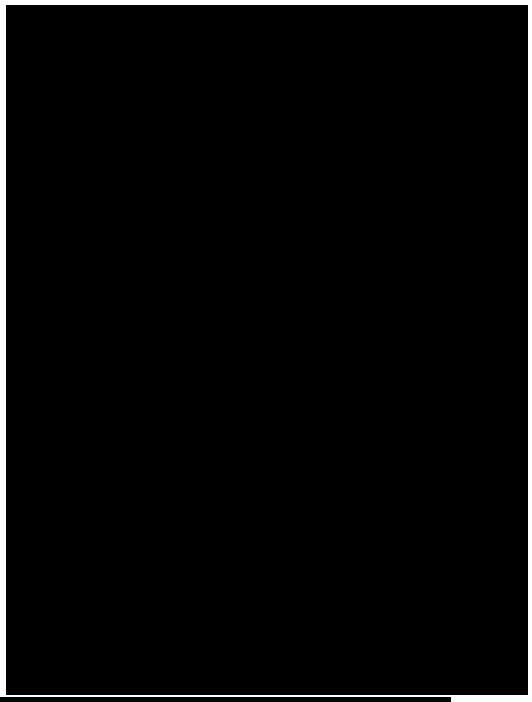

Figure 4: The [redacted] a trouble alarm due to a communication fault.

3. The [redacted] is displaying a trouble alarm for battery replacement on the [redacted] within the SoCal Edison interconnection system.

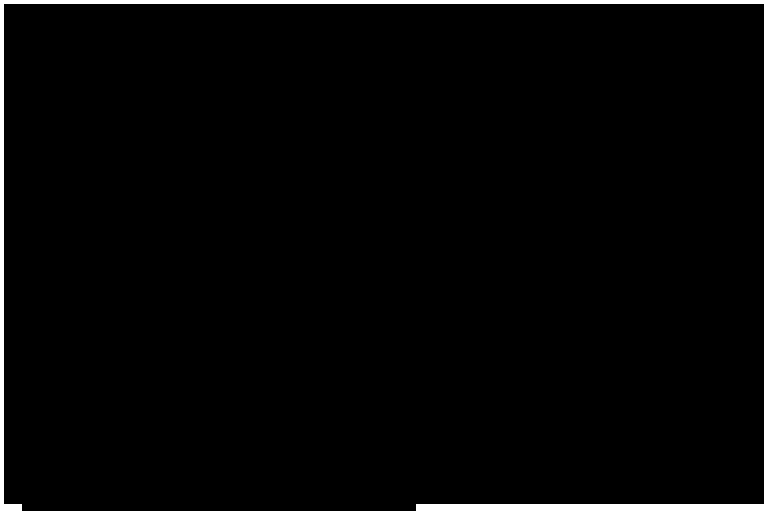

Figure 5: The [redacted] is displaying a trouble alarm for battery replacement

4. The [redacted] is indicating a breaker fault alarm on [redacted].

Figure 6: [redacted] indicates a breaker fault alarm.

5. The [redacted] currently displays an open limit alarm with a battery flat condition.

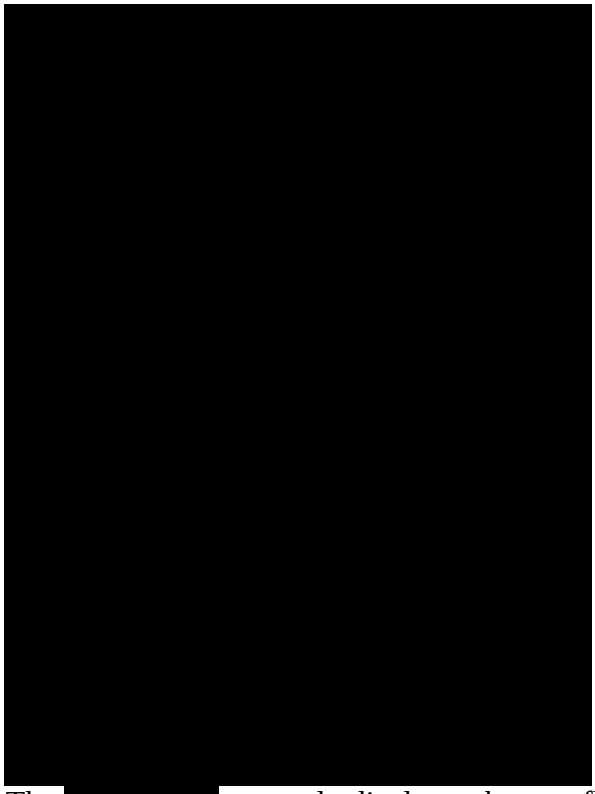

Figure 7: The [redacted] currently displays a battery flat alarm.

6. The [redacted] currently displays a trouble alarm for a configuration process failure on [redacted].

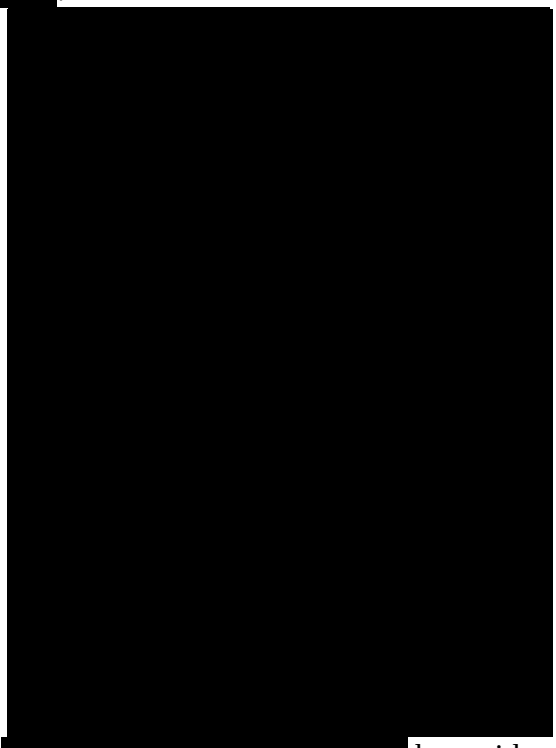

Figure 8: The [redacted] box with a trouble alarm.

7. The [redacted] currently displays two trouble alarms on the [redacted].

Figure 9: The [redacted] with two trouble alarms on the [redacted].

8. The [redacted] protection relay has an RTD failure alarm.

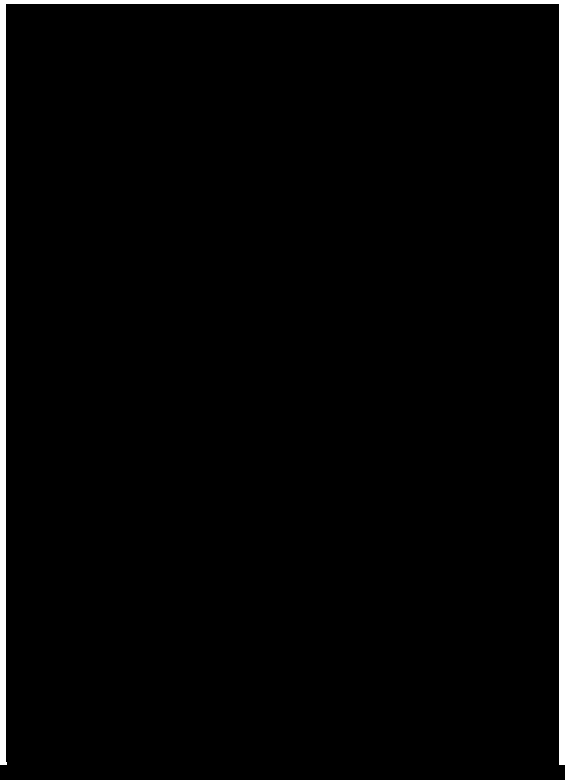

Figure 10: [redacted] with a RTD failure alarm.

9. The [redacted] currently displays alarms on the [redacted] Cabinet loopback sensors.

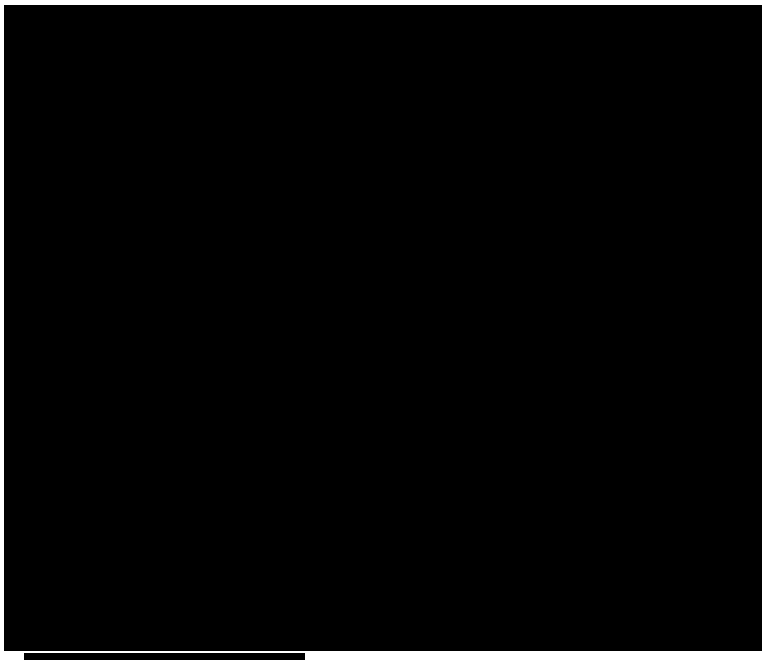

Figure 11: [redacted] cabinet loopback sensors with active alarms.

10. The [redacted] transformer currently has an active alarm on the [redacted] unit.

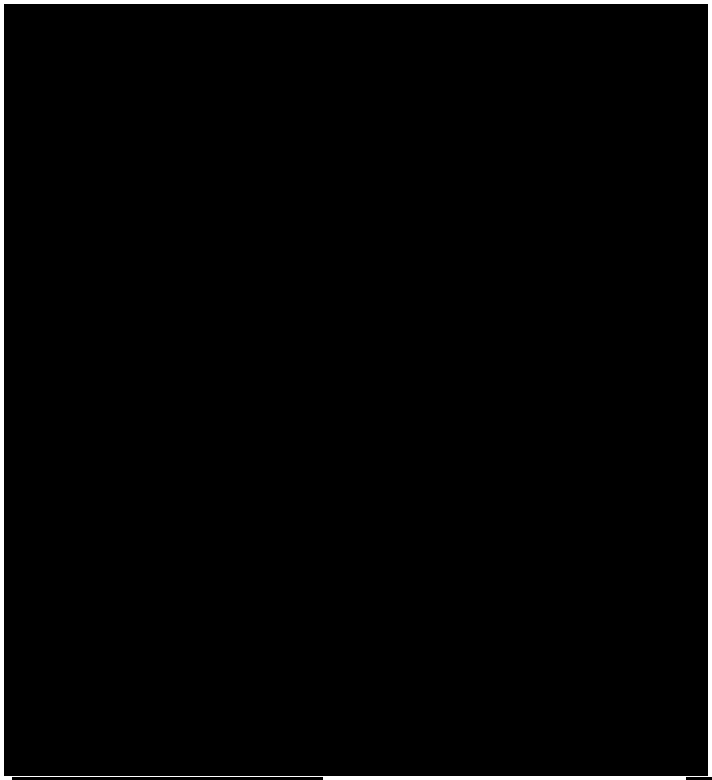

Figure 12: [redacted] with an active alarm on the [redacted] unit.

11. The [redacted] currently has two breaker trips on [redacted]

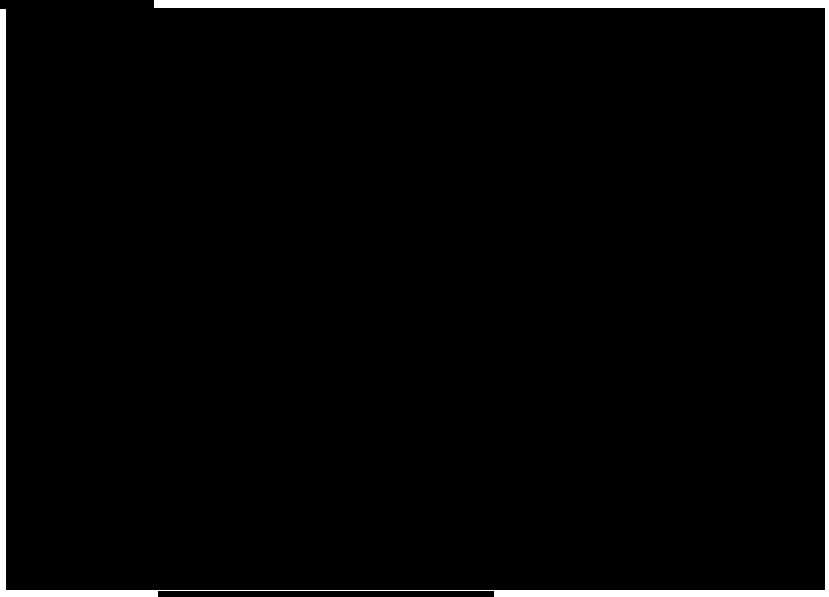

Figure 13: The [redacted] with two breaker trip alarms.

Finding 14: Evidence of water and steam leaks on various equipment in the Plant.

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."

During the plant inspection, ESRB inspectors identified water and steam leakage issues on several pieces of equipment. To ensure the facility's safety and reliability, regular inspections must be conducted to detect and address abnormal equipment conditions, including water and steam leaks. The following issues need to be resolved:

1. The [redacted] on both the north and west sides are leaking steam.

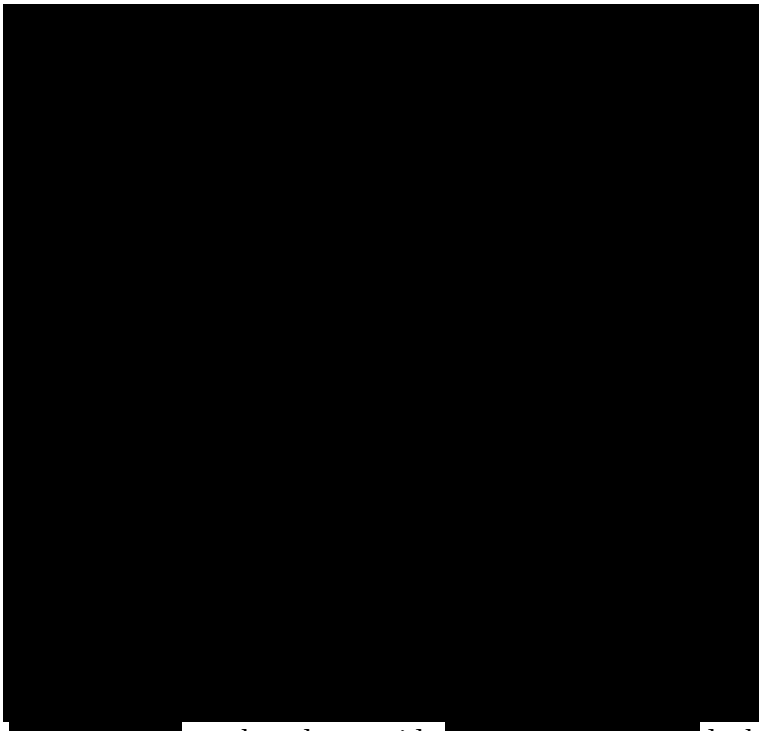

Figure 14: [redacted] north and west side [redacted] leaking steam.

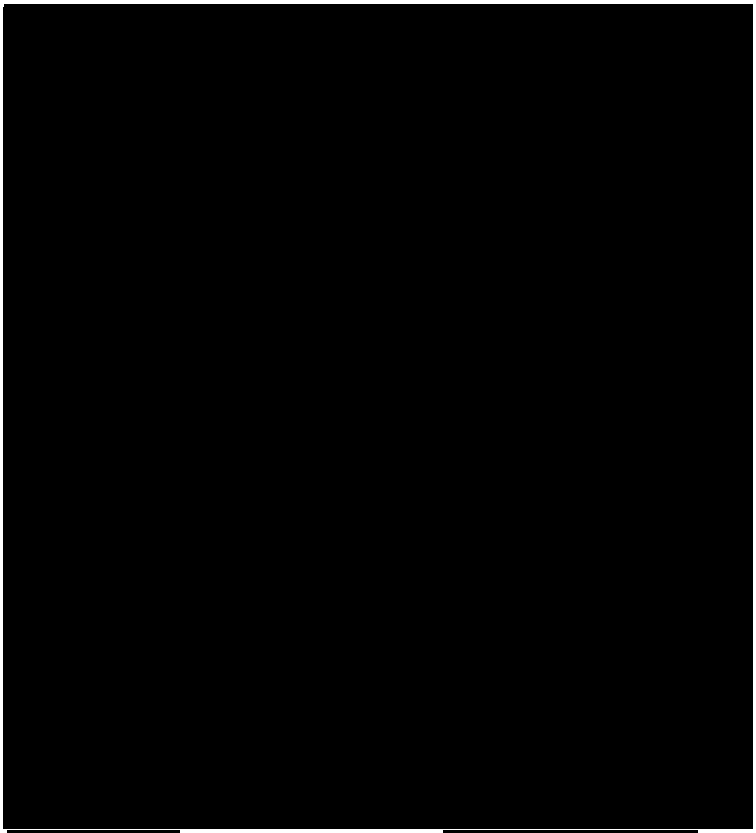

Figure 15: [redacted] north and west side [redacted] leaking steam.

2. The [redacted] pressure sensing line has a leaking hose line.

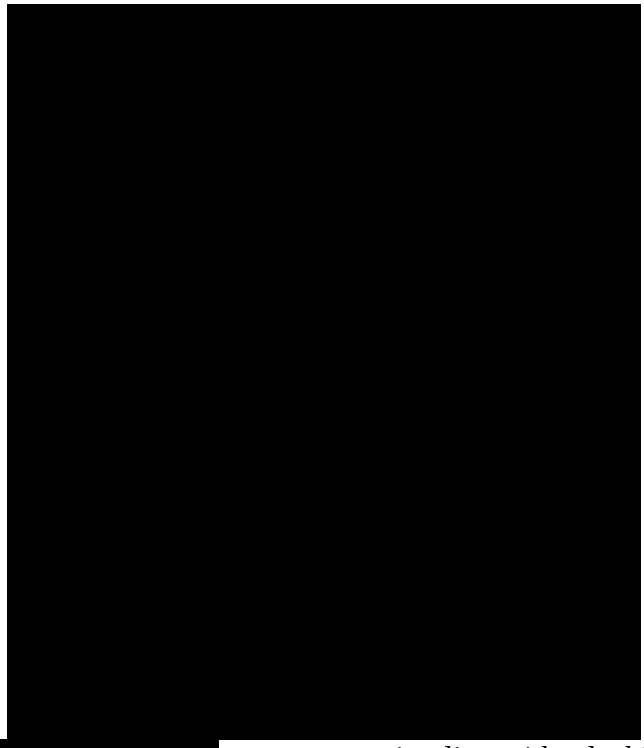

Figure 16: [redacted] pressure sensing line with a leaking hose line.

3. The [redacted] valve is leaking steam.

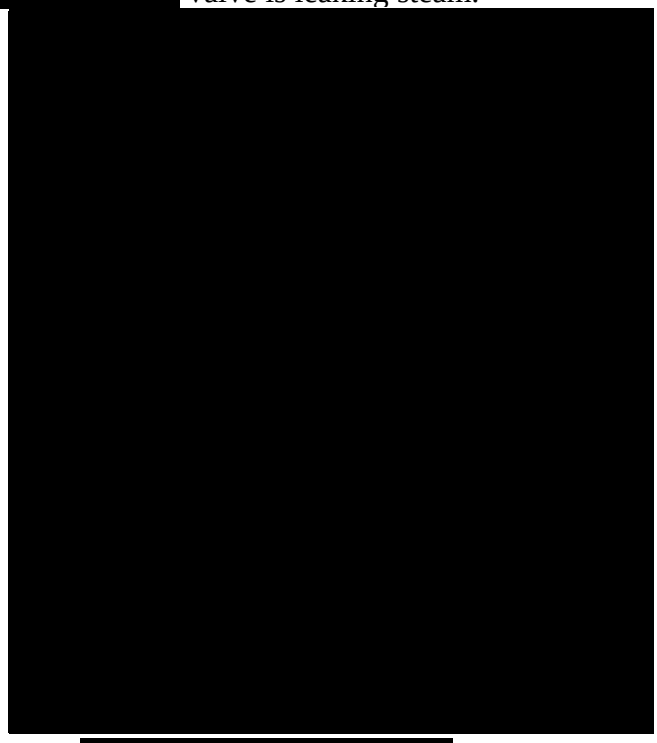

Figure 17: [redacted] valve leaking steam.

4. The [redacted] on the west side is leaking steam.

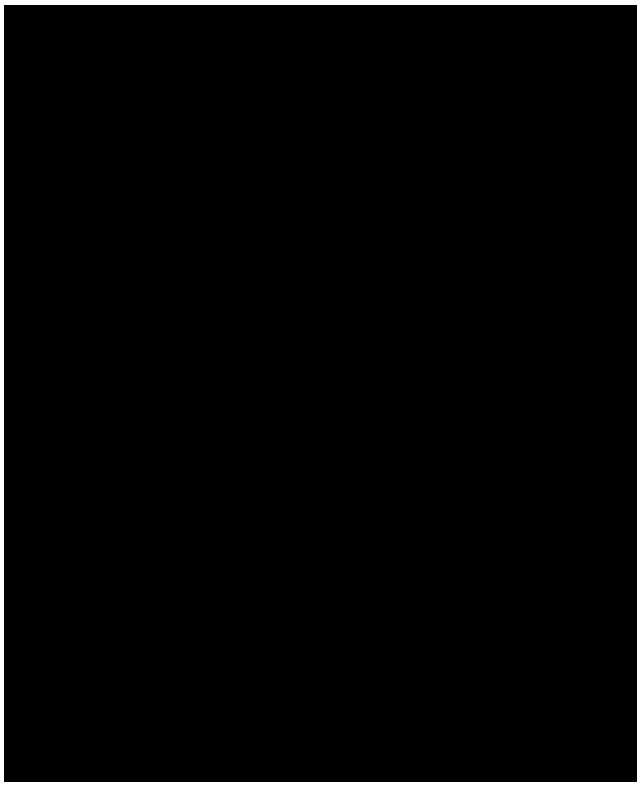

Figure 18: [redacted] on the west side leaking steam.

5. The [redacted] is leaking steam.

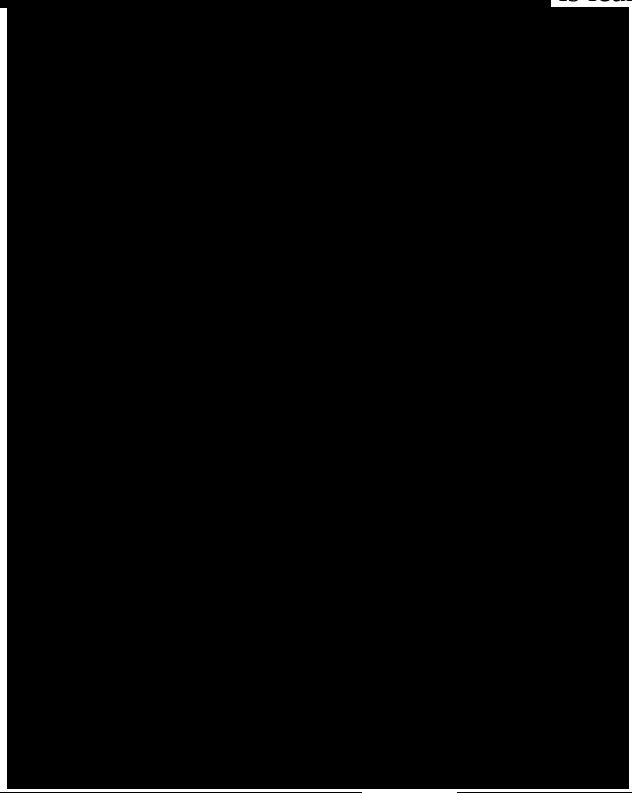

Figure 19: [redacted] on the [redacted] leaking steam.

6. The [redacted] is leaking steam.

Figure 20: [redacted] leaking steam.

7. The [redacted] has a valve leaking steam on [redacted].

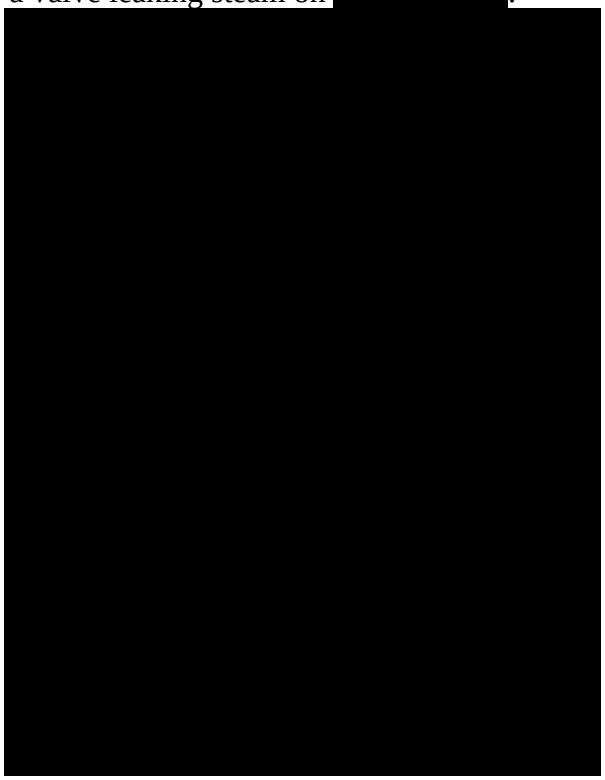

Figure 21: [redacted] valve leaking steam on [redacted].

8. The [redacted] valve is leaking.

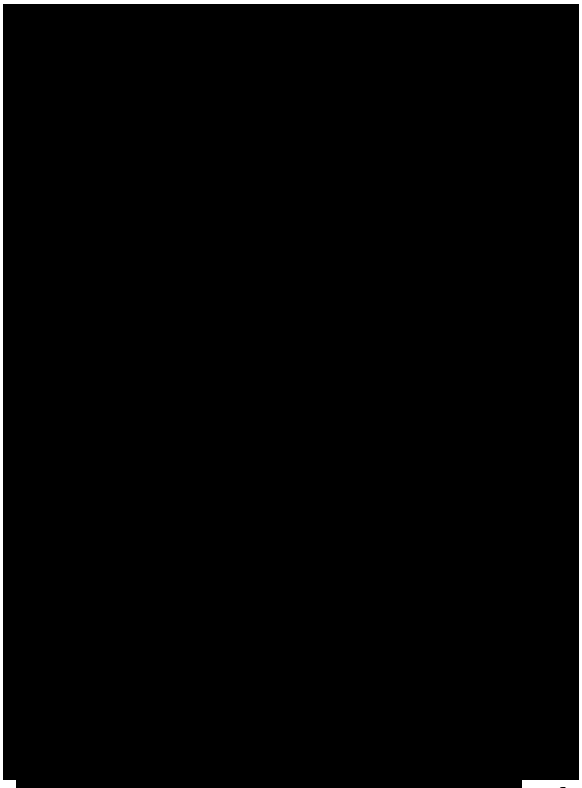

Figure 22: [redacted] valve leaking.

9. The [redacted] is leaking.

Figure 23: [redacted] leaking.

10. The [redacted] is leaking water.

Figure 24: [redacted] piping leaking water.

11. The [redacted] has a steam leak from valve.

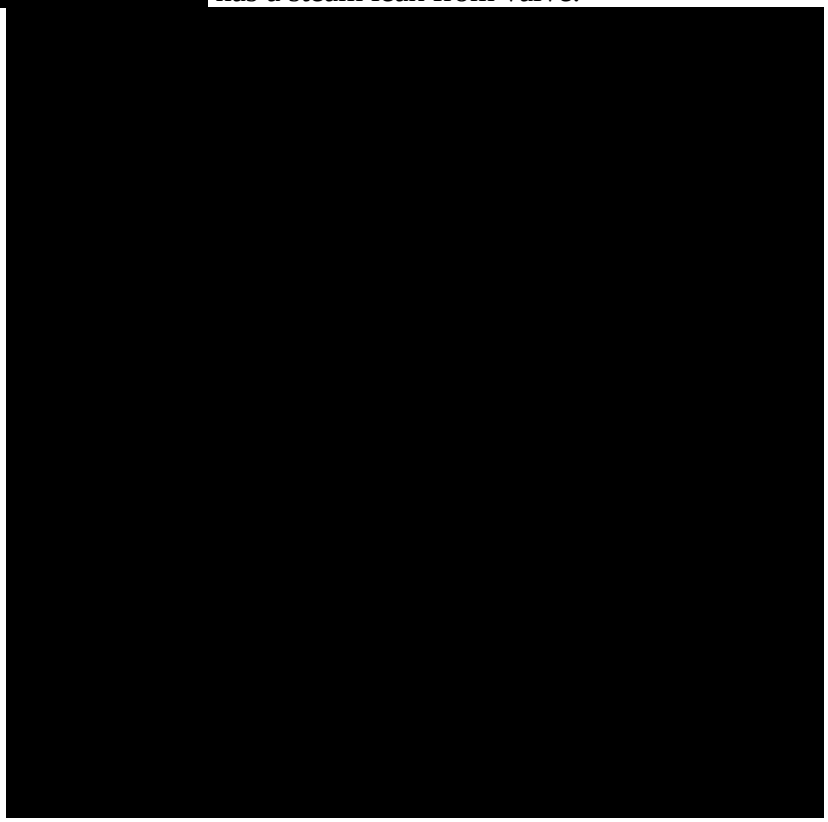

Figure 25: [redacted] from valve.

12. The [redacted] is leaking water.

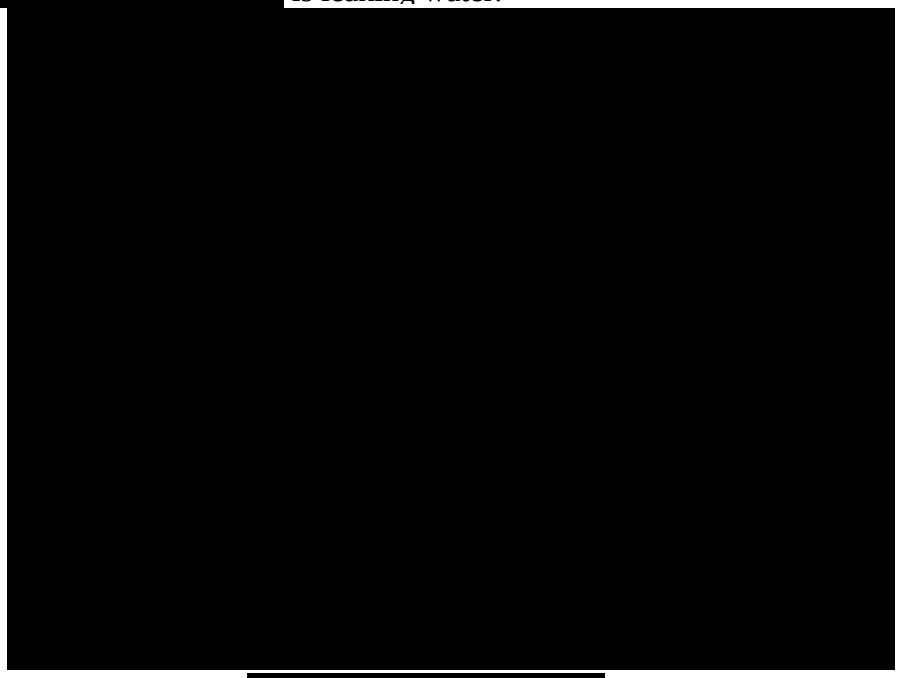

Figure 26: [redacted] leaking water.

13. An unidentified line on the [redacted] has an intense horizontal steam leak.

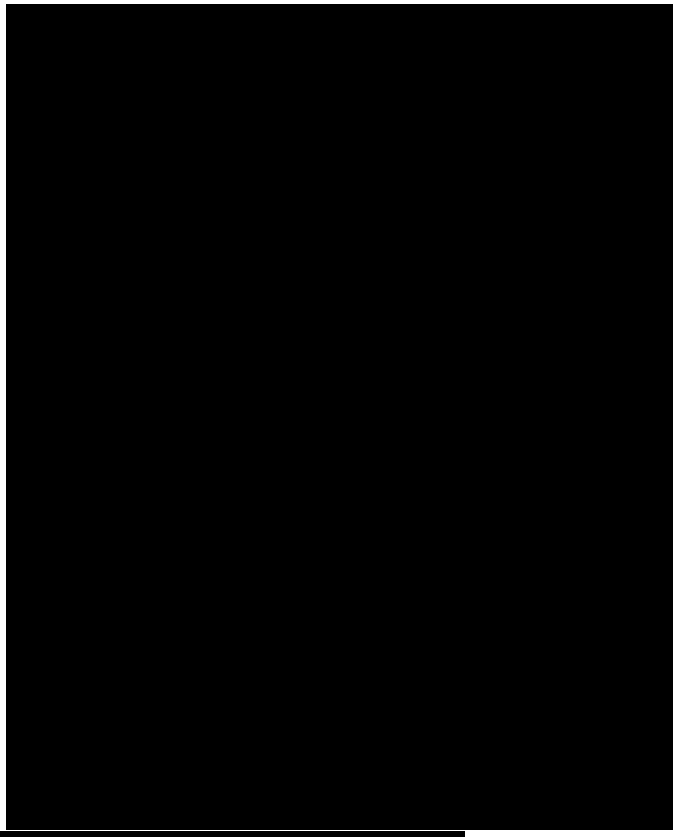

Figure 27: [redacted] with a horizontal steam leak.

14. The [redacted] steam valve on [redacted] is leaking.

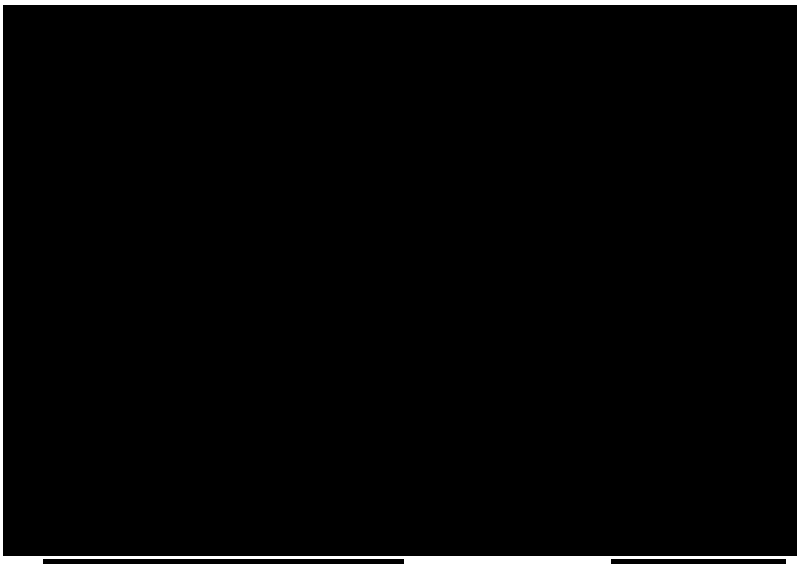

Figure 28: [redacted] steam valve on [redacted] leaking.

15. The [redacted] on the north side is leaking steam.

Figure 29: [redacted] on the north side leaking.

Finding 15: Evidence of oil leaks in various equipment throughout the Plant.

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."*

ESRB inspectors observed multiple oil leaks across various pieces of equipment throughout the plant. Unresolved oil leaks pose safety risks, including slip hazards, potential equipment damage, and decreased operational efficiency. Ivanpah must establish a structured inspection program to routinely identify and promptly address any oil leaks. The following issues require immediate corrective action:

1. The [redacted] displays signs of an active oil leak.

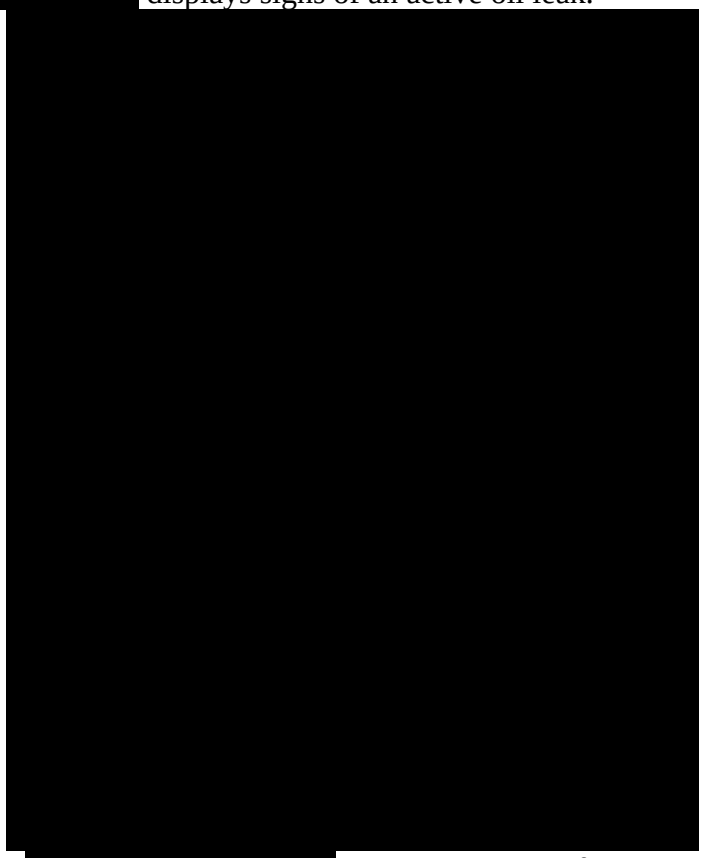

Figure 30: [redacted] displaying signs of an active oil leak.

2. The [redacted] pump is leaking oil.

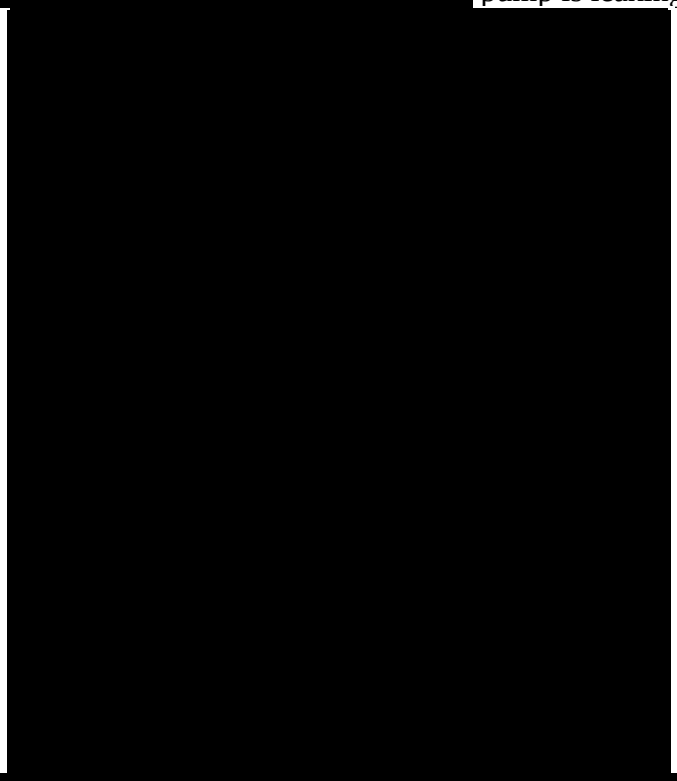

Figure 31: [redacted] leaking oil.

3. A pump in the [redacted], which supplies [redacted], is leaking.

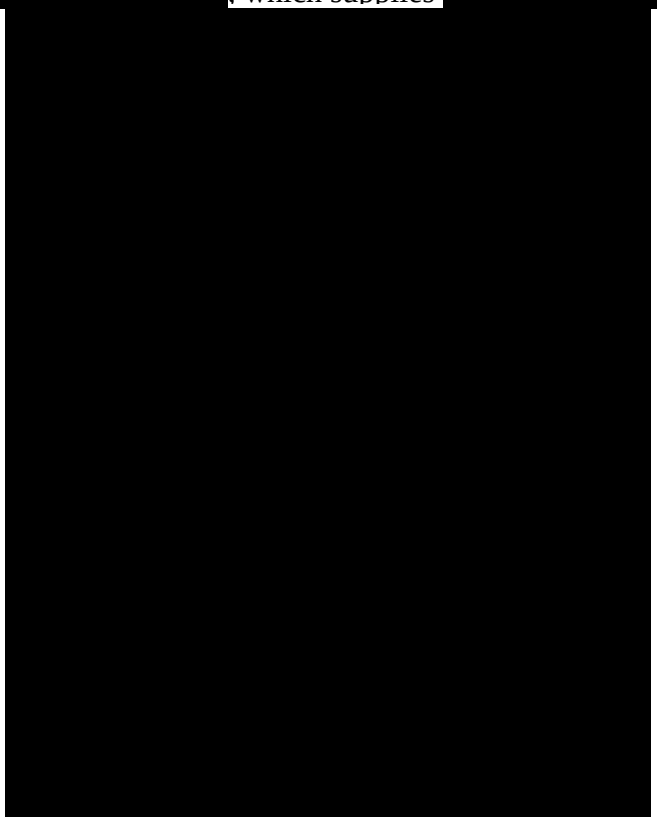

Figure 32: [redacted] supplying [redacted] is leaking.

4. The [redacted] displays signs of an active oil leak.

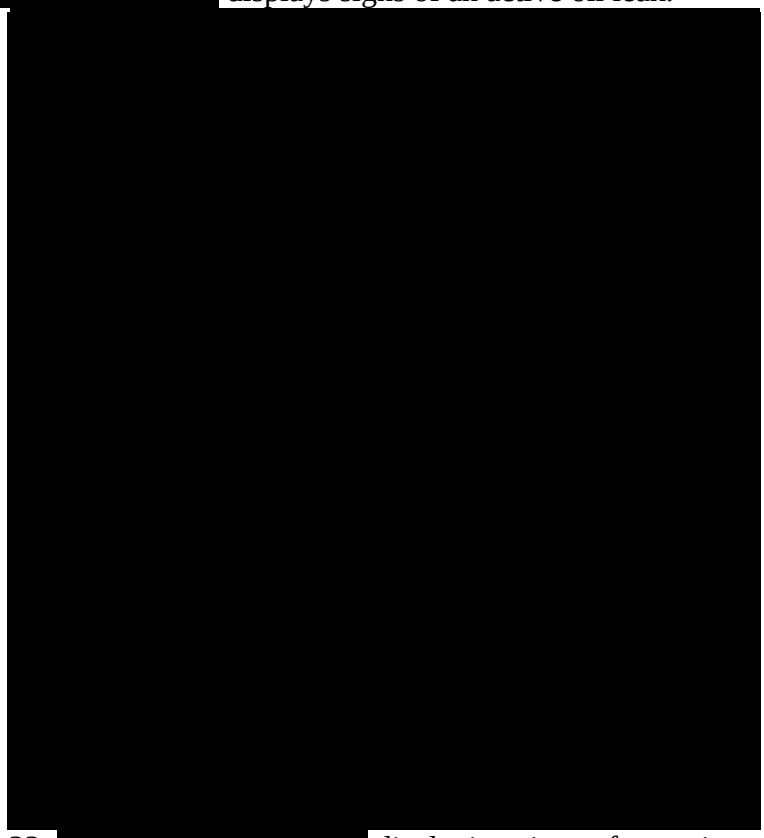

Figure 33: [redacted] displaying signs of an active oil leak.

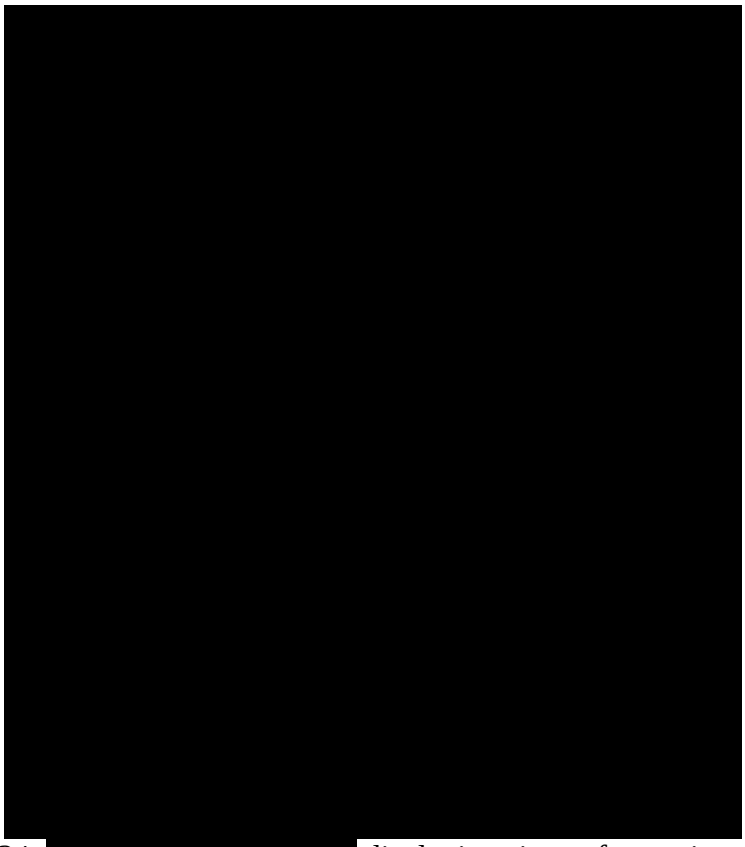

Figure 34: [redacted] displaying signs of an active oil leak.

5. The [redacted] Pump [redacted] has an active leak.

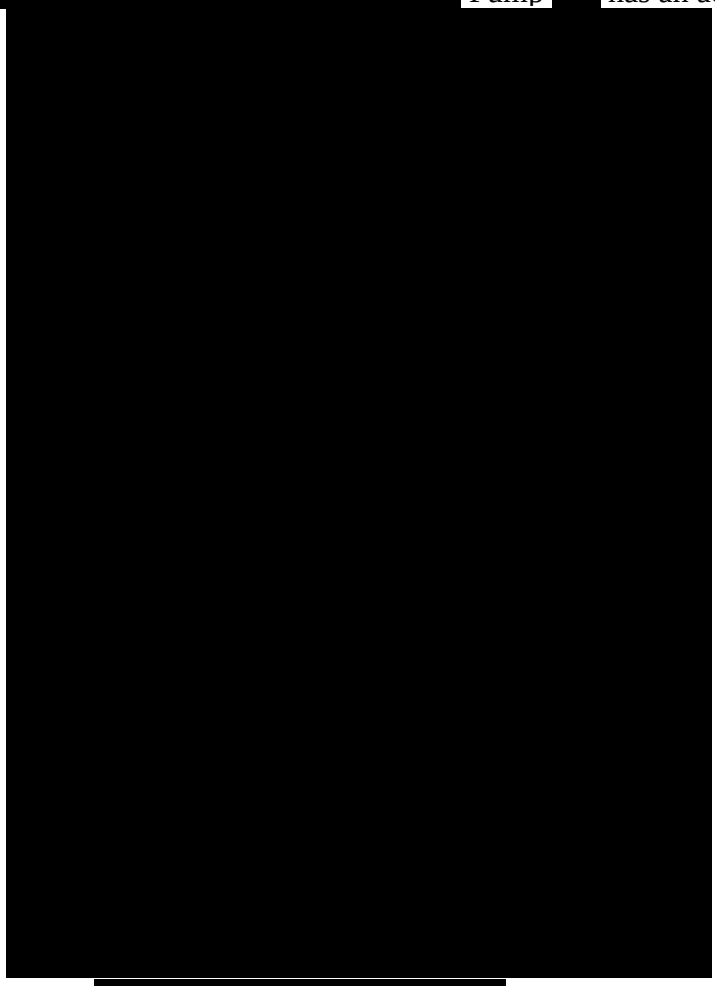

Figure 35: [redacted] with an active leak.

Finding 16: ESRB inspectors identified multiple instances of damaged or malfunctioning equipment throughout 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."

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."

During the Plant inspection, ESRB inspectors observed several instances of broken or malfunctioning equipment. Ivanpah must conduct thorough inspections to identify and promptly repair any damaged equipment including the following:

1. The lights on the [redacted] were not operational.

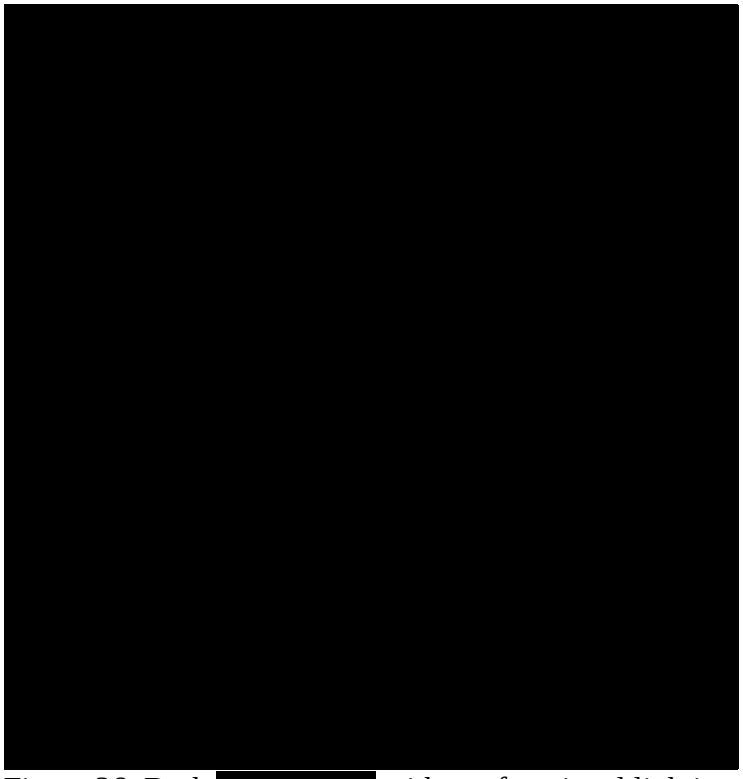

Figure 36: Dark [redacted] with nonfunctional lighting.

2. A lighting fixture was found full of water on the [redacted].

Figure 37: Lighting fixture full of water.

3. A Lighting fixture on [redacted] has a missing light with the wires dangling capped with wire nuts.

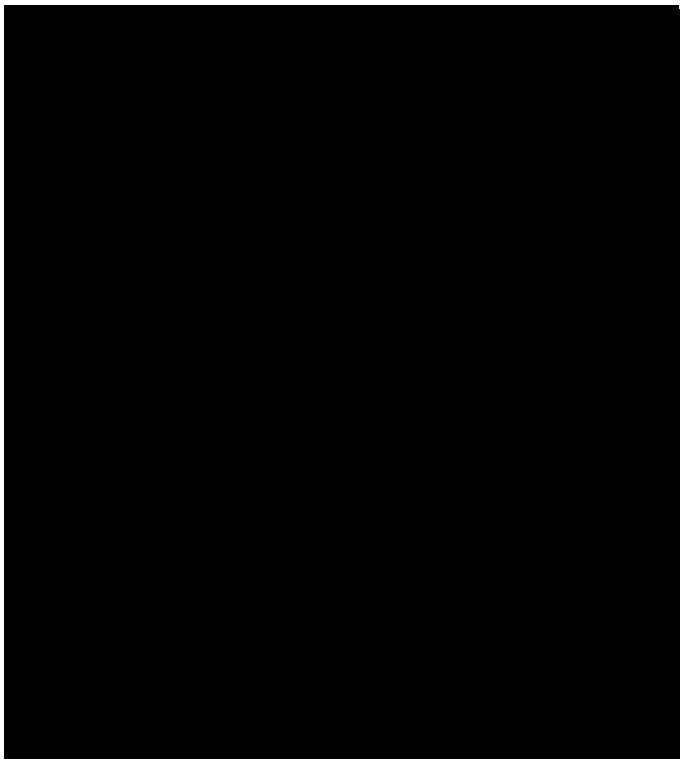

Figure 38: Lighting fixture wires dangling.

4. [redacted] has a loose bolt holding up a cooling fan.

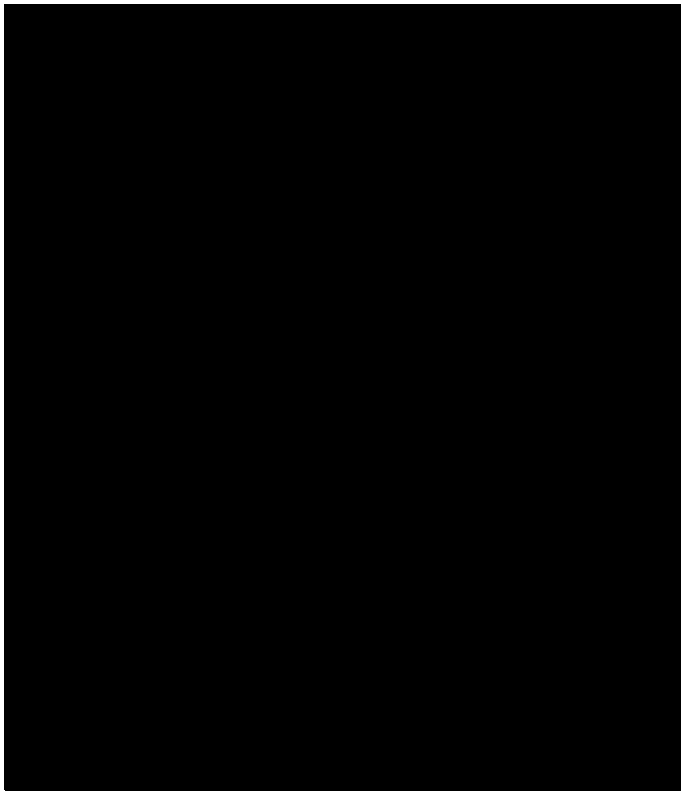

Figure 39: Loose bolt on cooling fan.

5. A junction box cover for a light in the [redacted] found loose and dangling.

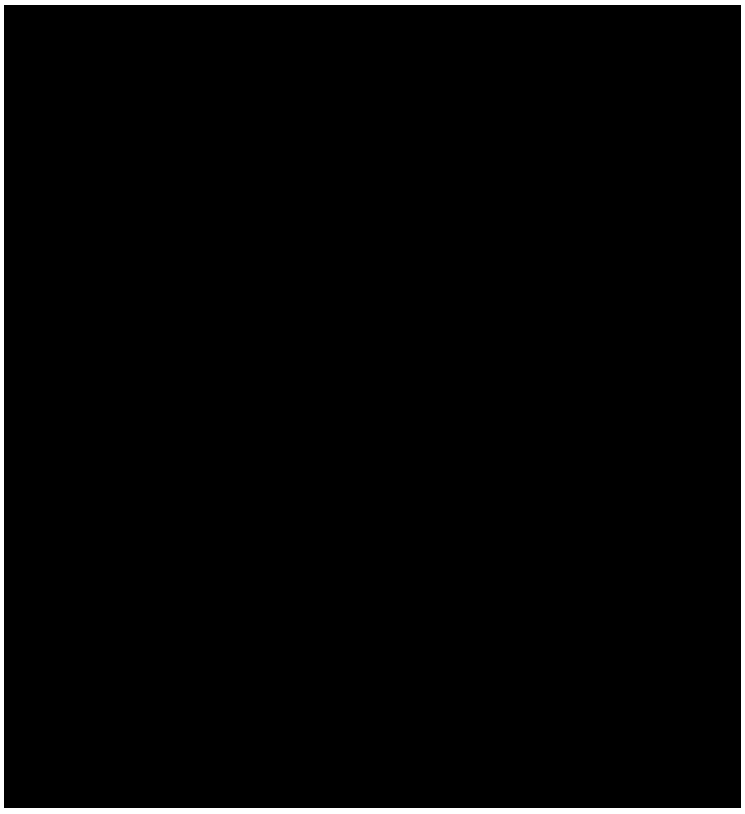

Figure 40: Junction box cover found loose and dangling.

6. A lighting fixture was found non-operational on [redacted].

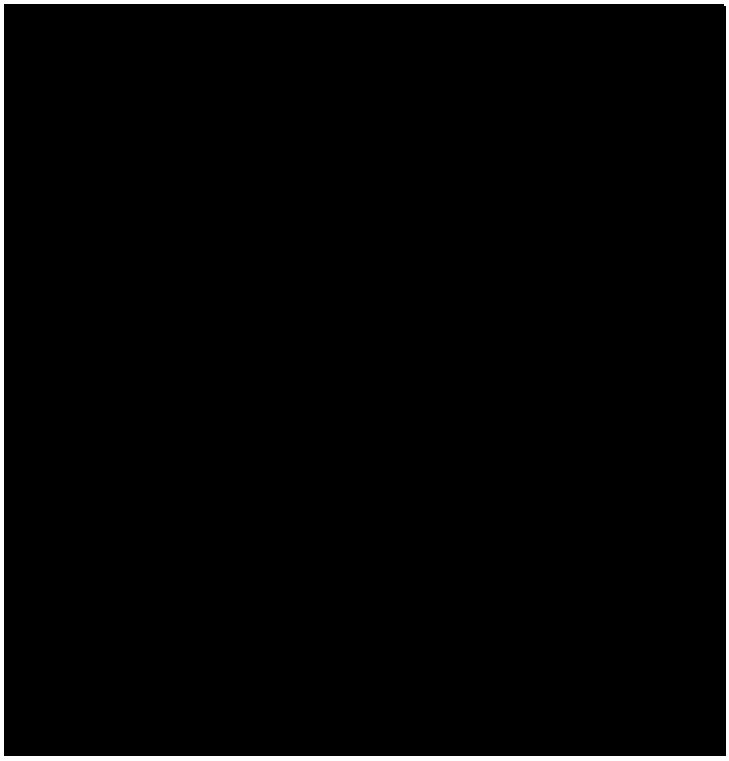

Figure 41: Broken lighting fixture.

7. Fire alarm box was found broken off and wires capped inside [redacted].

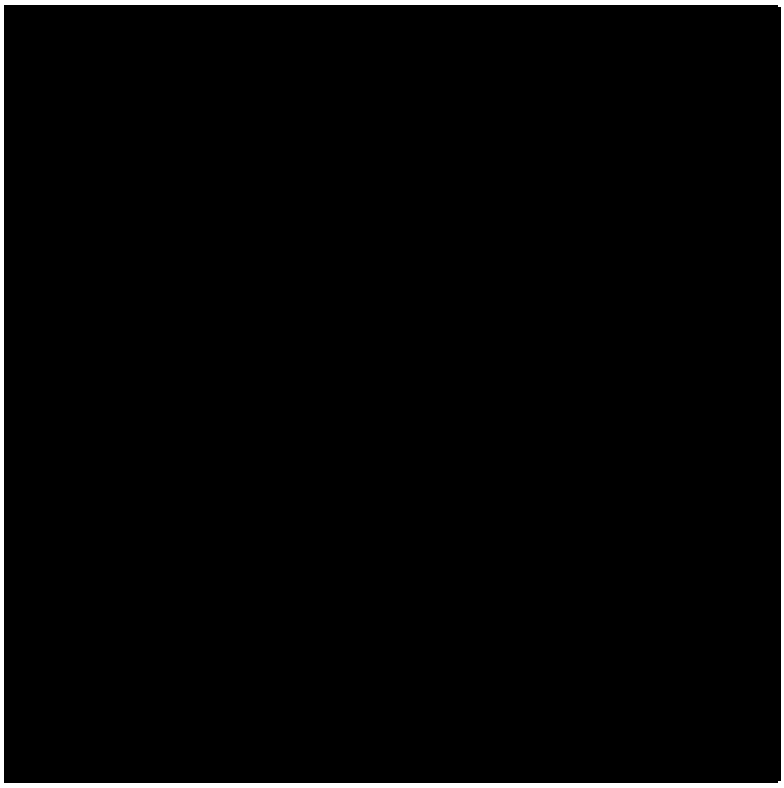

Figure 42: Broken fire alarm box with wires capped.

8. A lighting fixture was found non-operational on the [redacted].

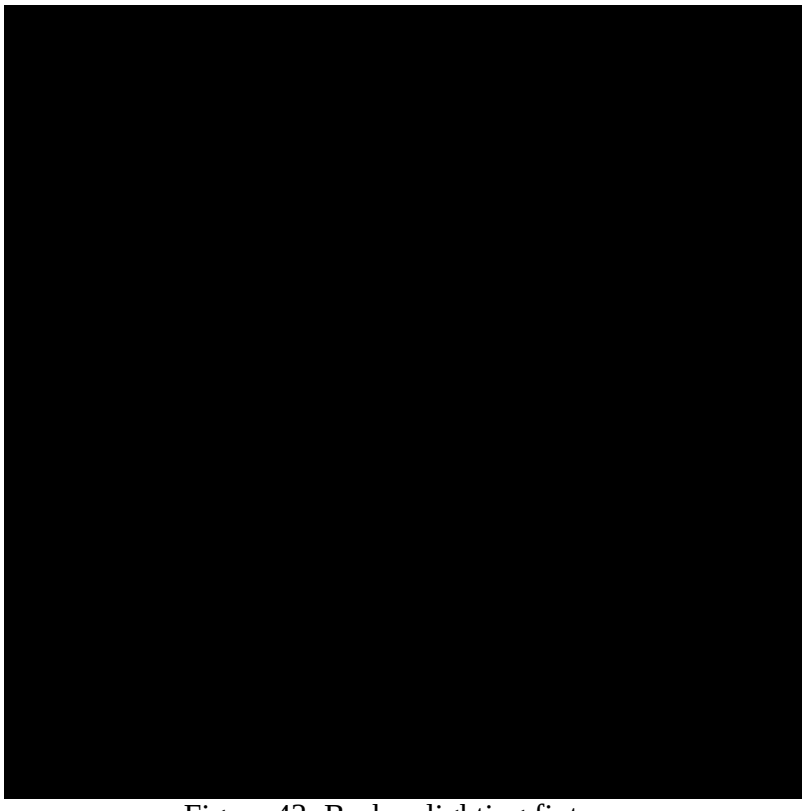

Figure 43: Broken lighting fixture.

9. The [redacted] had a cracked temperature gauge in need of repair.

Figure 44: Cracked temperature gauge.

Finding 17: ESRB inspectors observed numerous spring pipe hangers throughout the Plant outside of their designated travel range or missing visual scale.

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 safe, reliable and efficient operation."

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

"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 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."

During the site inspection, ESRB inspectors observed that numerous spring pipe hangers were operating outside of their designated travel ranges or missing any visual scale. Piping support is critical for accommodating dead weight and thermal expansion loads while maintaining flexibility. Spring pipe hangers must be maintained and serviced to operate within their designed cold-hot travel ranges. However, many spring pipe hangers were found to be outside their designated travel ranges. Additionally, it is paramount for all spring pipe hangers to be clearly

marked with their travel ranges to allow plant staff to quickly perform visual inspections of each spring pipe hanger during site walks. The marking of the cold-hot travel ranges must be easy to see from the designated path to ensure they are not missed during daily rounds or routine inspections.

Plant management must establish a routine visual inspection schedule of all spring hangers to identify and rectify any outside of their marked travel ranges. Ivanpah must also replace all missing cold-hot markers to enable personnel to quickly perform visual inspections during daily rounds or routine inspections. The following findings must be addressed:

1. An unmarked [redacted] spring pipe hanger near its max travel on [redacted].

Figure 45: Unmarked [redacted] spring pipe hanger near its max travel on [redacted].

2. An unmarked spring pipe support bottomed out on [redacted].

Figure 46: Unmarked spring pipe support bottomed out on [redacted].

3. Two spring pipe hangers outside of their indicated range of travel on [redacted].

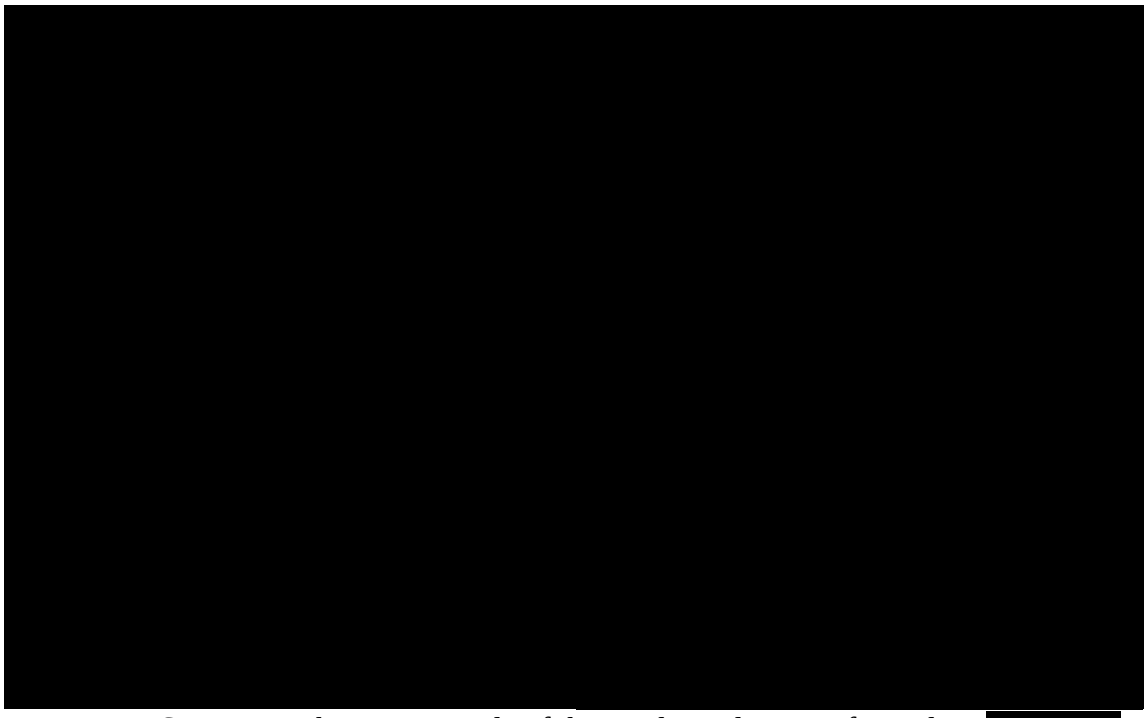

Figure 47: Spring pipe hangers outside of their indicated range of travel on [redacted].

4. A spring pipe support bottomed out outside of the indicated range on [redacted].

Figure 48: Spring pipe support outside of the indicated range on [redacted].

5. A spring pipe hanger outside of the indicated range of travel above the [redacted].

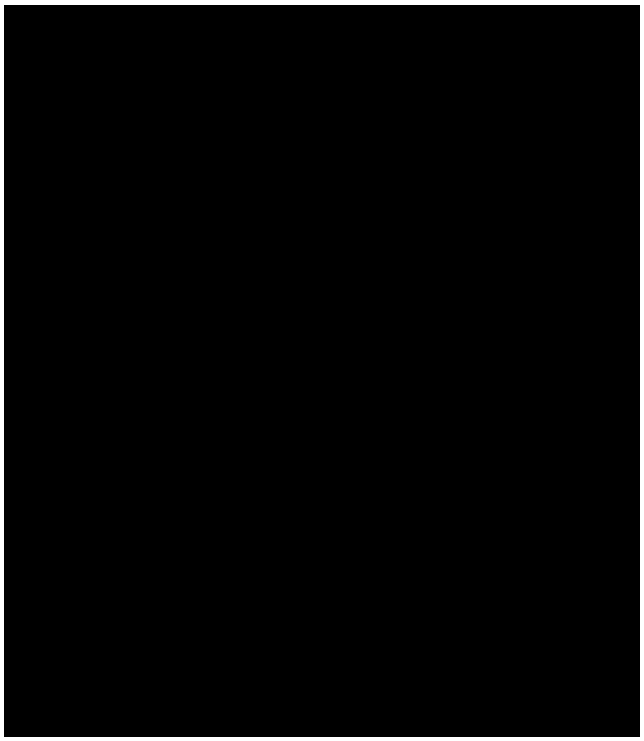

Figure 49: Spring pipe hanger outside the indicated range of travel on [redacted].

6. A spring pipe hanger outside of the indicated range of travel on the roof on [redacted].

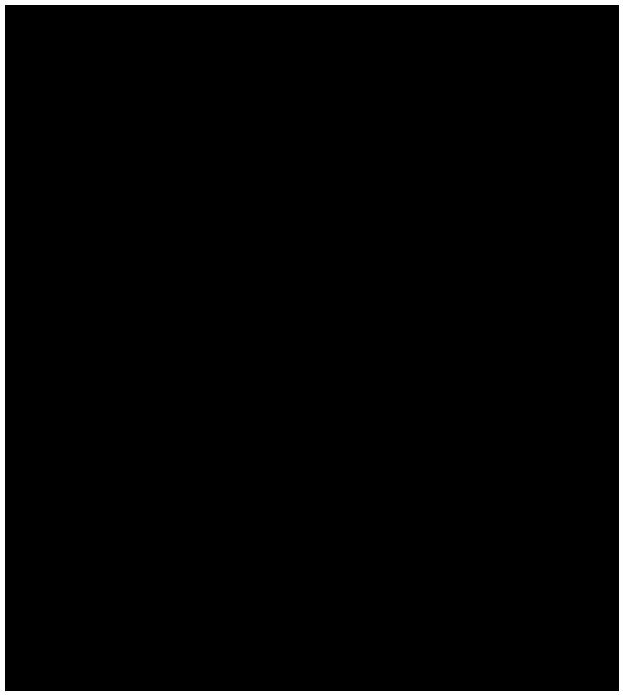

Figure 50: Spring pipe hanger outside of the indicated range of travel on [redacted] 3.

7. A spring pipe hanger outside of the indicated travel range on the [redacted].

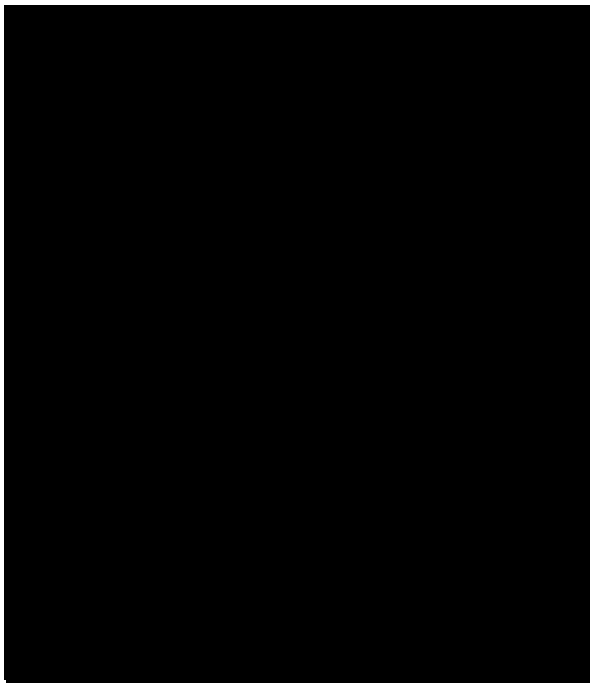

Figure 51: Spring pipe hanger outside indicated travel range on [redacted].

8. A spring pipe hanger outside of the indicated range of travel on the [redacted].

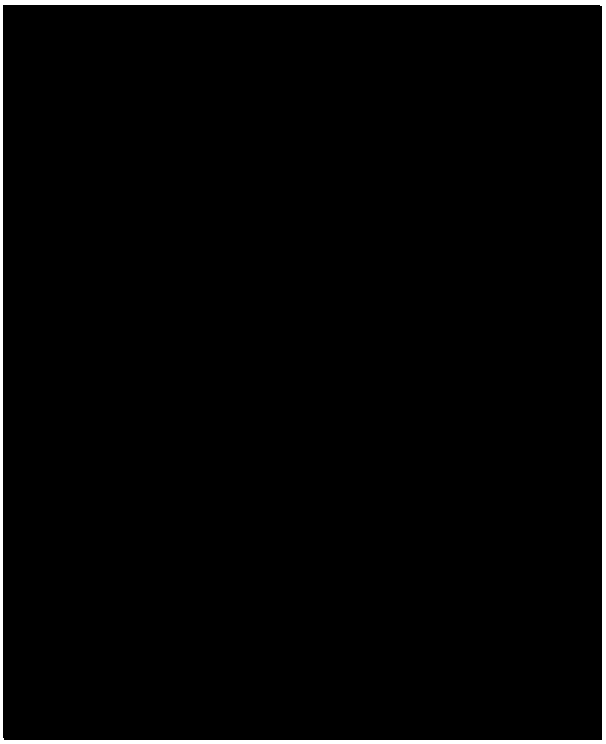

Figure 52: Spring pipe hanger outside of the indicated range of travel on the roof on [redacted] 1.

9. A spring pipe hanger outside of the indicated range of travel [redacted].

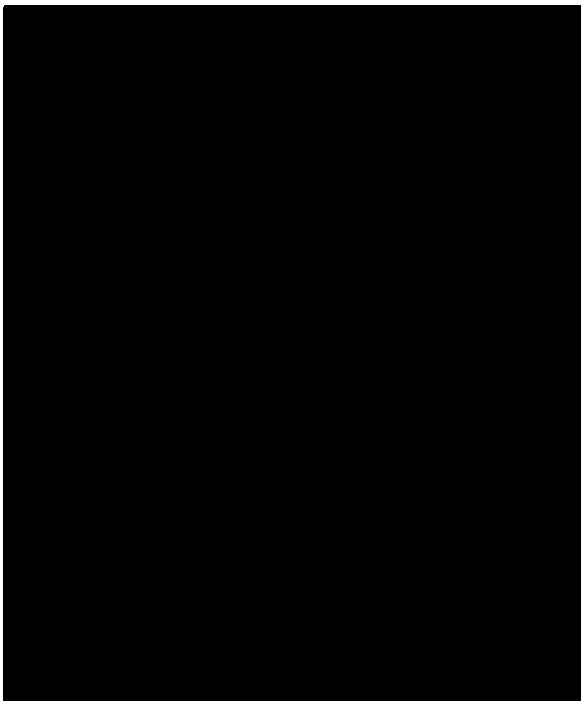

Figure 53: Spring pipe hanger outside the indicated range of travel on [redacted].

Finding 18: ESRB inspectors observed Post Indicator Valves (PIV) with damaged locks.

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..."

NFPA 25 13.3.1.3 states:

"Each normally open valve shall be secured by means of a seal or a lock or shall be electrically supervised in accordance with the applicable NFPA standard."

ESRB inspectors observed two PIVs with damaged locks [redacted]. Ivanpah must conduct routine inspections of their PIV's and ensure that the valves are in their correct position and that the locks are in proper working condition.

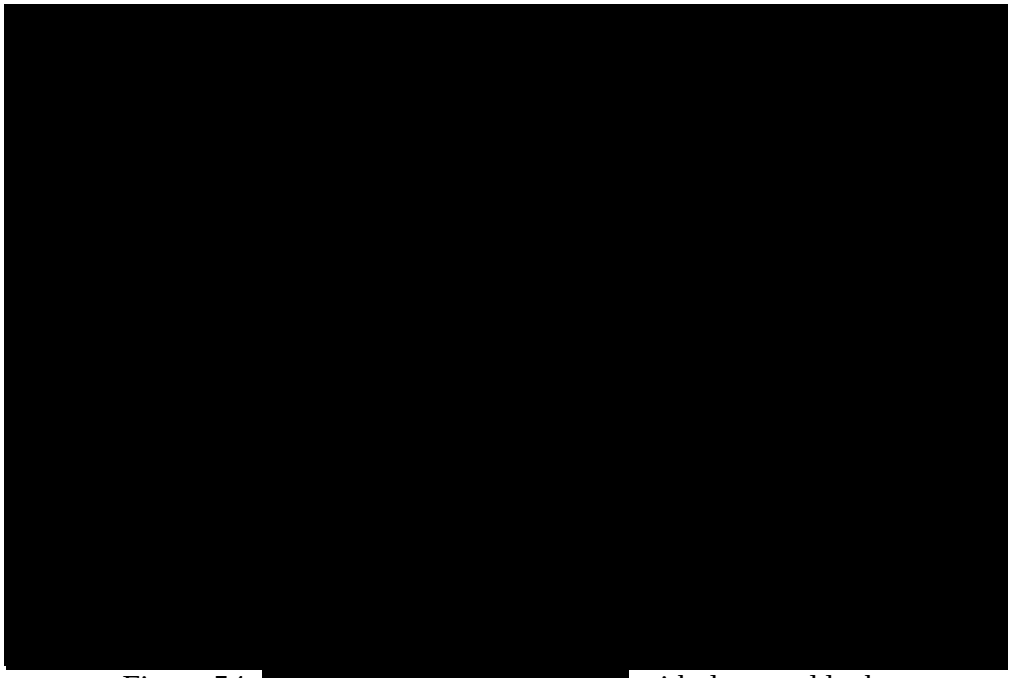

Figure 54: [redacted] with damaged lock.

Figure 55: [redacted] with damaged lock.

Finding 19: ESRB inspectors observed multiple fire extinguishers had missing annual inspections.

GO 167-B, Appendix D, MS 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-B, Appendix E, OS 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."*

ESRB inspectors observed multiple fire extinguishers throughout the Plant with outdated annual inspection tags. Ivanpah management explained to ESRB inspectors that the fire extinguishers that are missing updated tags were to be replaced with new fire extinguishers. Ivanpah must ensure that any fire extinguisher marked to be replaced are replaced before their inspections are lapsed. It is paramount that all fire extinguishers are properly inspected and in a well working condition at all times. Ivanpah must establish monthly inspection schedule for all fire extinguishers in the work order management systems and submit the established inspection schedules and 2024 annual inspection records to ESRB.

1. Multiple fire extinguishers throughout the workshop and main building with outdated annual inspection tags.

Figure 56: Fire extinguishers in [redacted] with outdated annual inspection tags.

2. Multiple fire extinguishers throughout [redacted] with outdated annual inspection tags.

Figure 57: fire extinguishers in [redacted] with outdated annual inspection tags

3. Multiple fire extinguishers throughout [redacted] with outdated annual inspection tags.

Figure 58: fire extinguishers at [redacted] with outdated annual inspection tags

Finding 20: ESRB inspectors observed damaged flammable material storage cabinets without 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 inspectors observed a flammable material storage cabinet in the Plant that did not have a self-closing mechanism. ESRB inspectors also observed multiple flammable material storage cabinets not in proper working condition. The indicated flammable material storage cabinets must be removed, repaired, or have all flammable storage stickers covered/removed from the cabinets

and ensure no flammable materials are stored in them. Ivanpah must ensure that all flammable material storage cabinets on site are fitted with self-closing mechanisms and are in proper operating condition. Ivanpah must ensure that all flammable material is stored safely in a properly working flammable material storage cabinet.

1. A flammable material storage cabinet with no self-closing mechanism in [redacted].

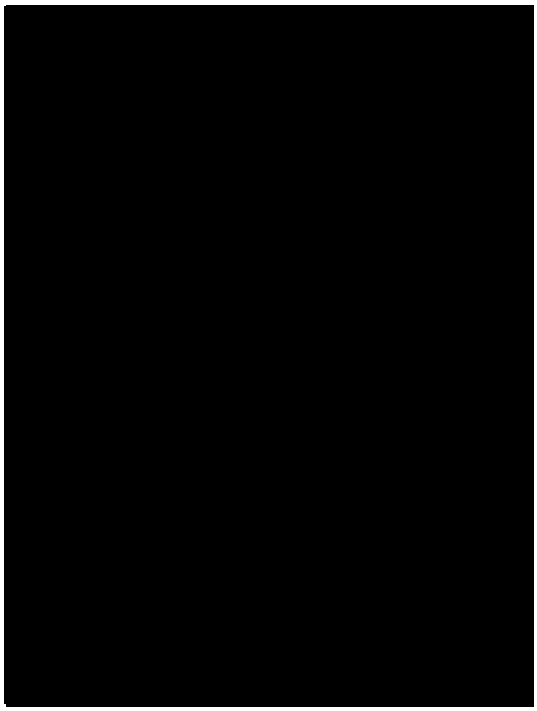

Figure 59: Flammable material storage cabinet with no self-closing mechanism in [redacted].

2. A damaged flammable material storage cabinet located in [redacted] with its door broken off the hinges.

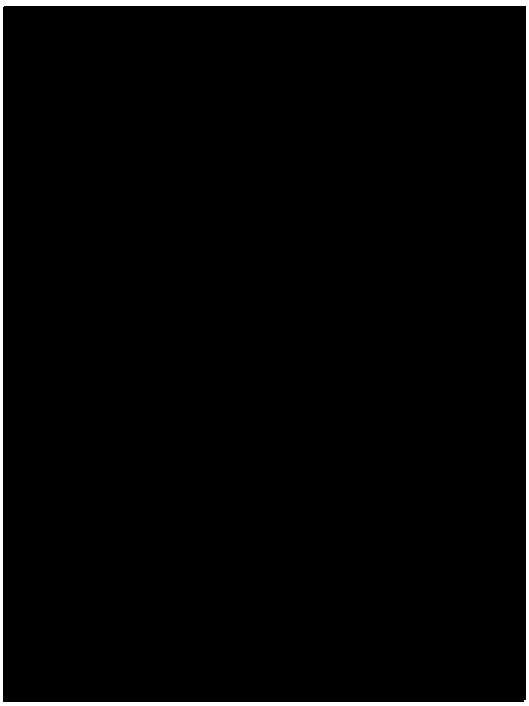

Figure 60: Damaged flammable material storage cabinet with door broken off its hinges.

3. A flammable material storage cabinet not self-latching at [redacted].

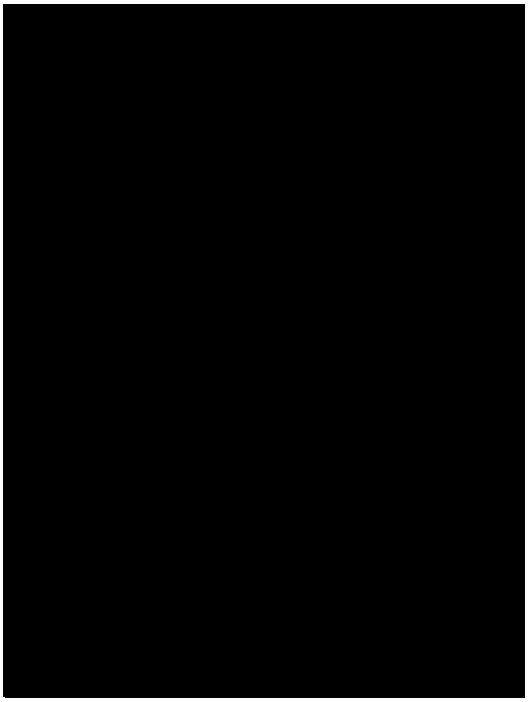

Figure 61: Flammable material storage cabinet not self-latching at [redacted].

4. Three flammable material storage cabinets with damaged self-latching mechanisms behind the hazardous waste storage area at [redacted].

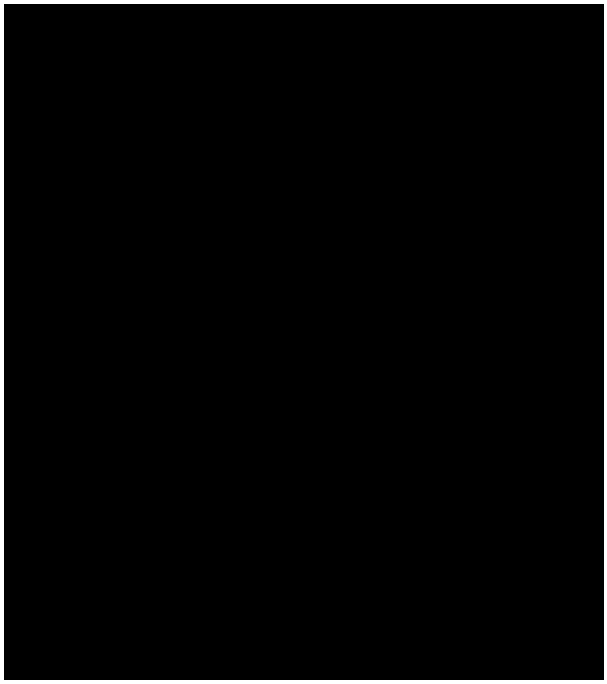

Figure 62: Three flammable material storage cabinets with damaged self-latching mechanisms.

Finding 21: ESRB inspectors observed multiple emergency exit lights that did not illuminate when tested or were in disrepair.

GO 167-B, Appendix D, MS 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-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 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."*

GO 167-B, Appendix E, OS 13: Routine Inspections states:

> *"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."*

ESRB inspectors observed multiple emergency exit lights that did not illuminate when tested or were in disrepair. Emergency exit lights are essential to ensure Plant personnel can safely egress the Plant in the event of an emergency. Ivanpah must conduct regular inspections and testing of the emergency exit lights and ensure they are in proper working condition. This includes monthly functional testing, annual comprehensive functional testing and maintaining written records for all

inspection and tests in accordance with the California Fire Code (CFC) and NFPA 101 standards. Ivanpah must also conduct a site-wide inspection of their emergency exit lights and ensure they are all in proper working condition.

1. A broken emergency exit sign was found in [redacted].

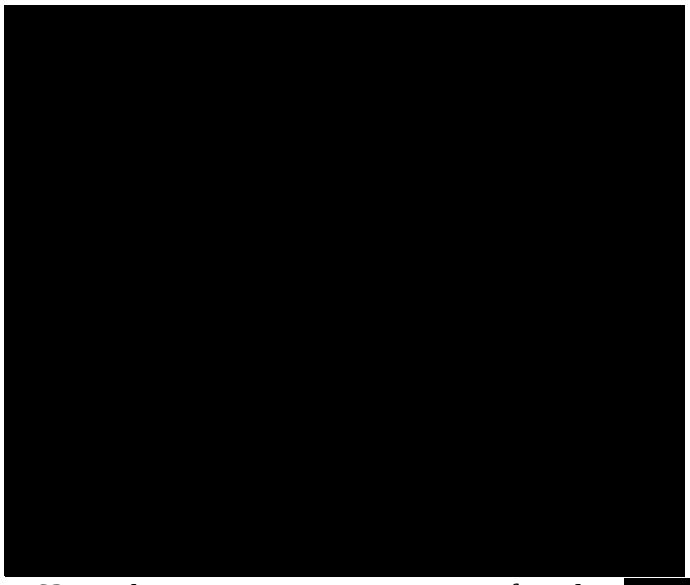

Figure 63: Broken emergency exit sign was found in [redacted].

2. Exit signs in the workshop warehouse did not illuminate when tested and they are missing emergency flood lighting. Ivanpah must ensure all areas of operation have proper emergency lighting in the event of a power outage.

Figure 64: Emergency exit sign with no emergency flood lighting in [redacted].

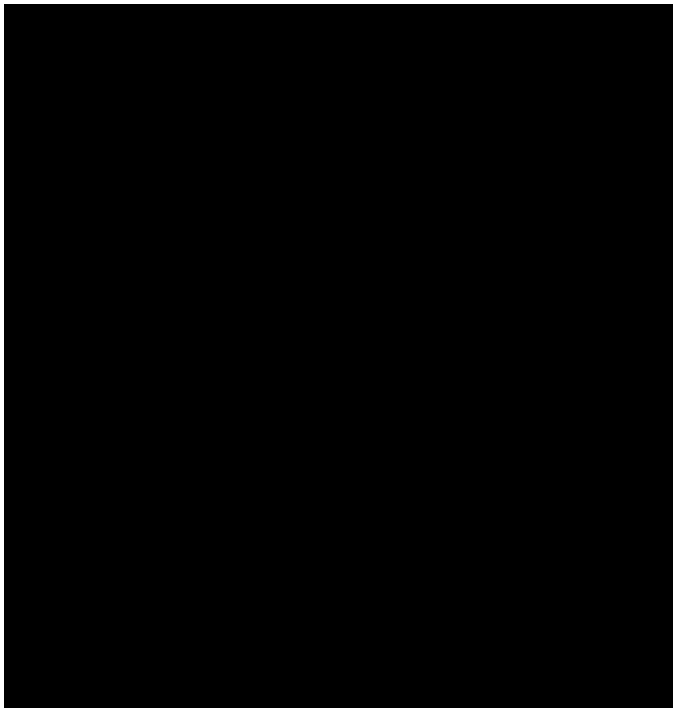

Figure 65: Another emergency exit sign with no emergency flood lighting in [redacted].

3. ESRB inspectors tested several emergency exit sign lights and found them to be non-operational.

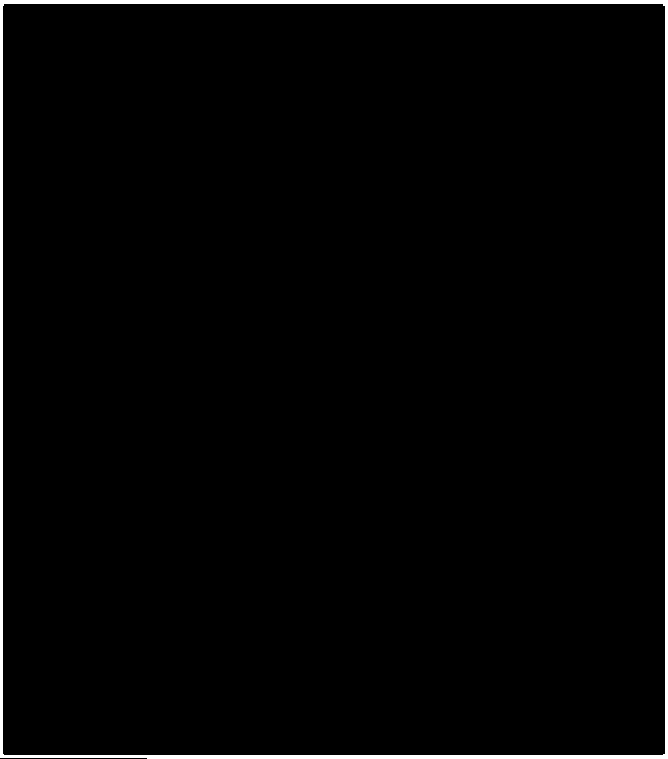

Figure 66: [redacted] emergency exit light failed to illuminate when tested.

Figure 67: [redacted] emergency exit light failed to illuminate when tested.

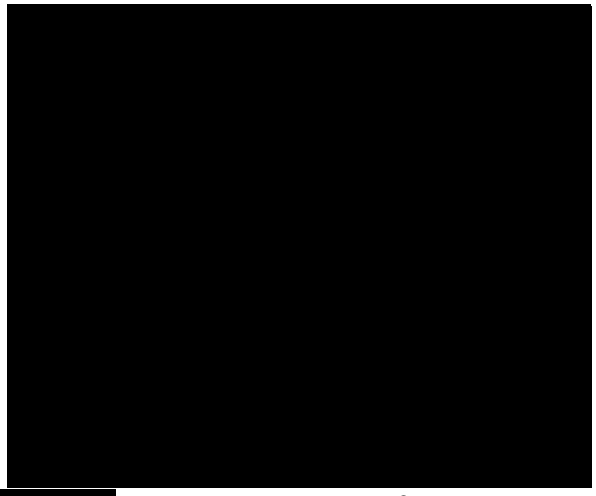

Figure 68: [redacted] emergency exit light failed to illuminate when tested.

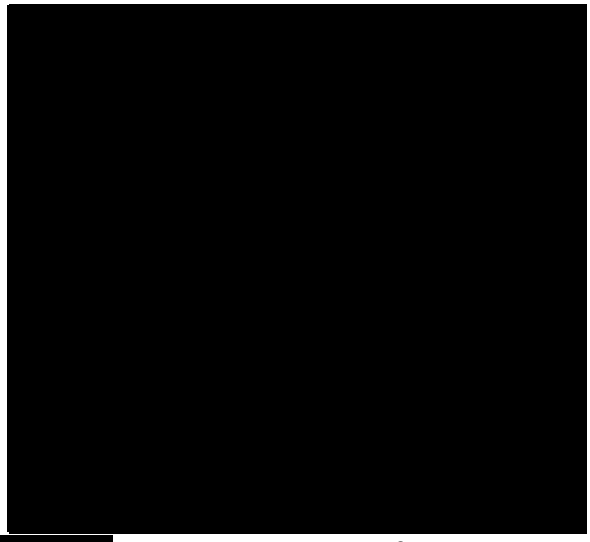

Figure 69: [redacted] emergency exit light failed to illuminate when tested.

Figure 70: [redacted] emergency exit light failed to illuminate when tested.

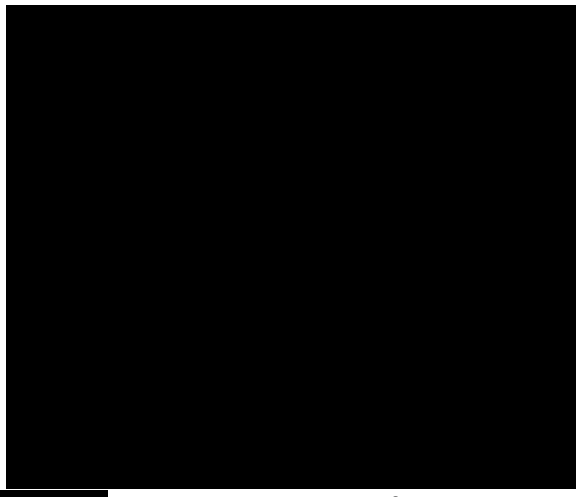

Figure 71: [redacted] emergency exit light failed to illuminate when tested.

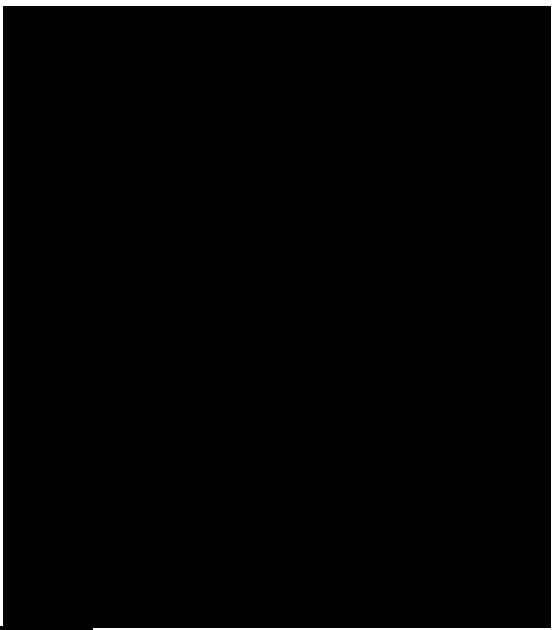

Figure 72: [redacted] emergency exit light failed to illuminate when tested.

Finding 22: New and used oil was found stored in the HAB without any secondary containment.

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."*

OS 10 - Environmental Regulatory Requirements states:

> *"Environmental regulatory compliance is paramount in the operation of the generating asset. Each regulatory event is identified, reported and appropriate action taken to prevent recurrence."*

ESRB inspectors observed new and used oil being stored inside of [redacted] without any form of secondary containment. Secondary containment of stored oil is essential to control any possible leaks from entering the environment. Ivanpah must have secondary containment for all stored oil and hazardous materials throughout the site.

Figure 73: Oil stored with no form of secondary containment.

Figure 74: More Oil stored with no form of secondary containment.

Finding 23: ESRB inspectors observed damaged insulation across the Plant.

GO 167-B, Appendix D, MS 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 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."*

ESRB inspectors observed damaged insulation throughout the Plant. Damaged insulation poses a risk of burn injuries to personnel, compromises functionality, and accelerates corrosion under the insulation which affects the Plant's operational reliability. Plant management must prioritize the immediate repair of identified insulation damage and develop a plan to ensure the ongoing integrity of facility wide insulation to maintain worker safety and operational reliability.

1. Insulation on [redacted] is missing insulation.

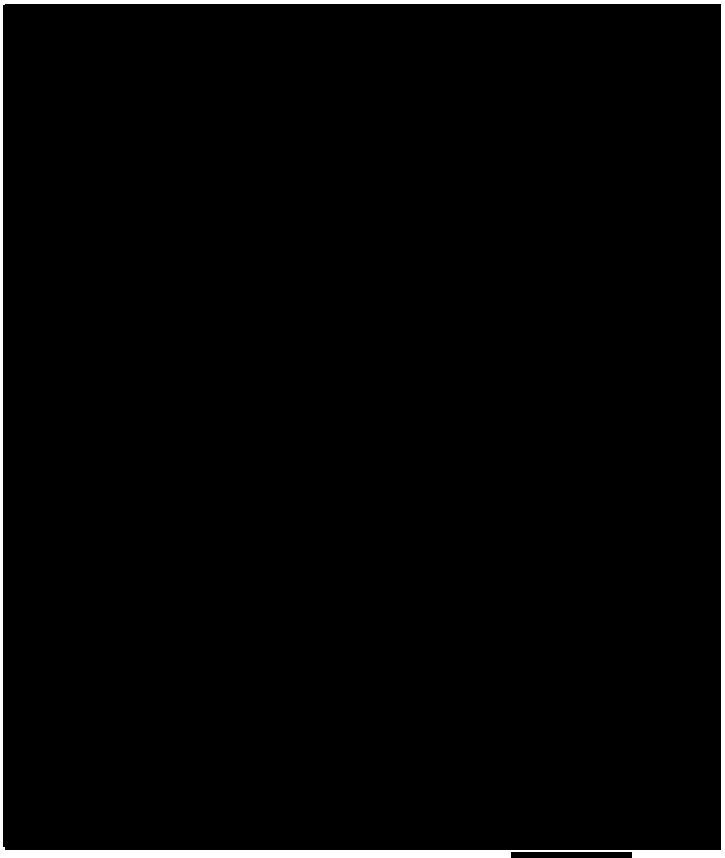

Figure 75: Missing insulation on [redacted].

2. Insulation on [redacted] for unit two has damaged insulation.

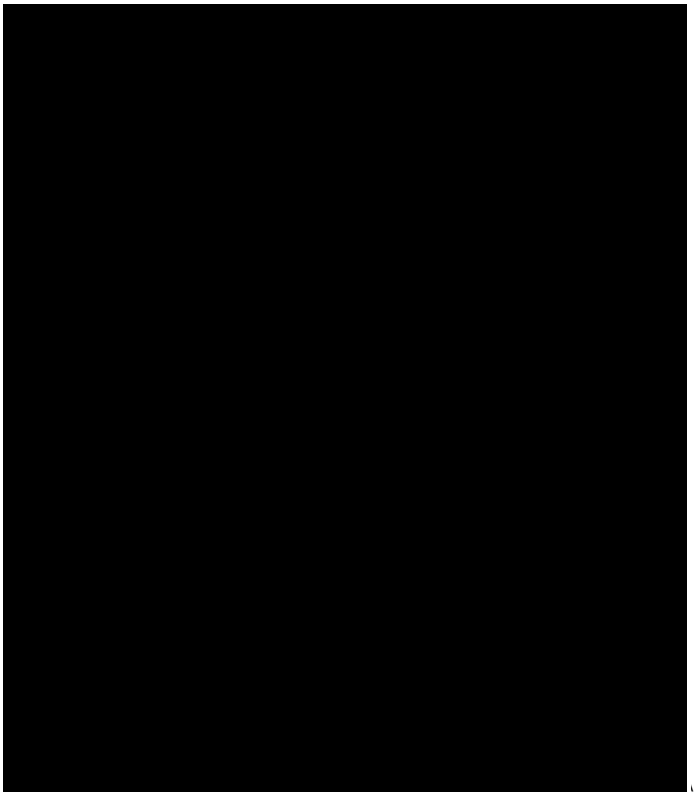

Figure 76: [redacted] with damaged insulation.

3. The [redacted] elbows have damaged insulation in need of repair.

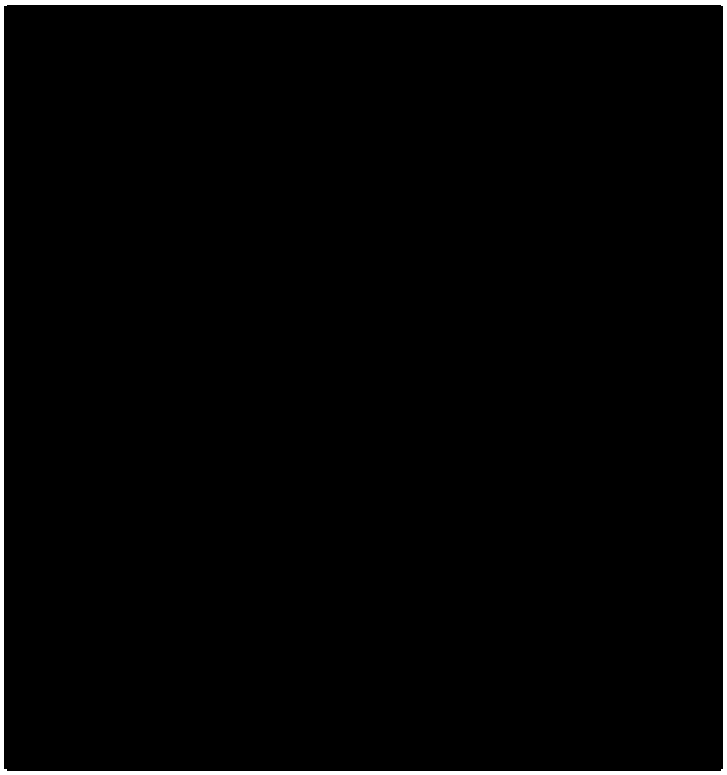

Figure 77: Damaged insulation on condensate vent elbows.

4. Insulation on the [redacted] is damaged.

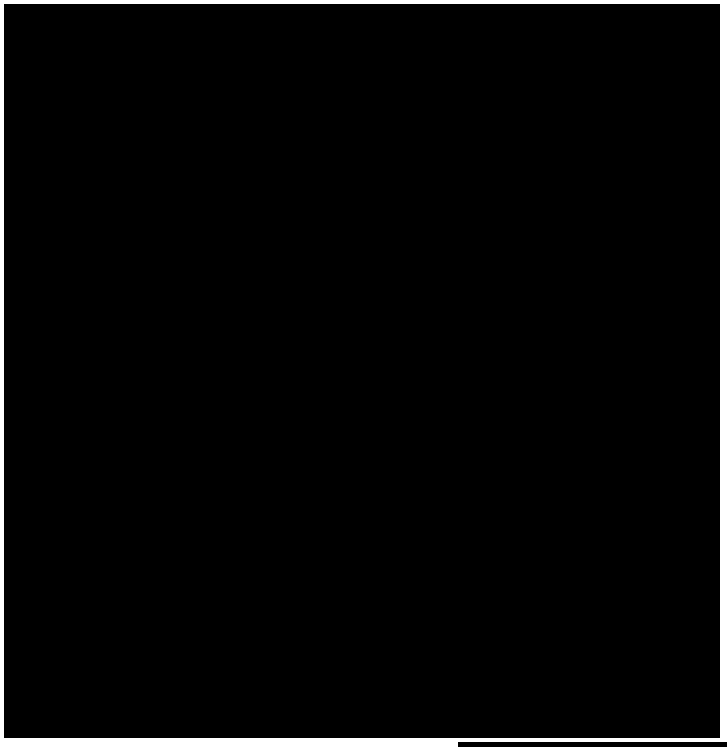

Figure 78: Dangling insulation on the [redacted].

5. Insulation on the [redacted] is missing a segment.

Figure 79: Missing segment of insulation for [redacted].

Finding 24: ESRB inspectors observed several pieces of scaffolding with missing or out-of-date tags.

GO 167-B Appendix E, OS 9: Engineering and Technical Support states:

"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. Engineering provides support, when needed, to operations and maintenance groups to resolve operations and maintenance problems."

GO 167-B Appendix E, OS 11: Operations Facilities, Tools and Equipment states:

"Facilities and equipment are adequate to effectively support operations activities."

Guidelines for Standard 11: Operation Facilities, Tools and Equipment states in part:

"A. Facility size and arrangement promote safe and effective work and training activities. Human factors are considered when designing and arranging equipment. Appropriate facilities are provided for work on equipment involving hazardous materials."

"F. Rigging equipment and scaffolding are identified, tested, and properly stored."

ESRB found several instances around Ivanpah where scaffolding has been left erected without the inspection forms being properly filled out and showing wear from age on the existing tags. During the audit Ivanpah management was made aware and informed ESRB inspectors that a change in scaffolding contractor had left older pieces of scaffolding without anyone taking responsibility for them. Ivanpah must take responsibility for all pieces of scaffolding erected at Ivanpah and ensure that they are properly removed or inspected and tagged. Ivanpah must ensure that all scaffolding on site is properly inspected and have well maintained accurate tags with relevant colors.

Ivanpah typically leaves scaffolding in place to complete repetitive activities, for example changing filters on the water polishers. Ivanpah must perform analysis to determine if there is a need to install permanent platforms where there is scaffolding consistently in place. The temporary scaffolding fixtures must be identified and removed after use is completed.

1. Scaffolding is being left up for years to perform routine maintenance of [redacted]. This was found at all three units.

Figure 80: Scaffolding that has been on site for years.

2. Scaffolding in the [redacted] was found with no erected date on the tag.

Figure 81: Scaffolding tag with no erected date.

3. Several older scaffolding tags were found to be illegible or blank where no useful safety information was available to staff.

Figure 82: Illegible scaffolding tags.

4. Scaffolding in [redacted] was found with a tag sitting on a control box next to the scaffolding not attached to the scaffolding.

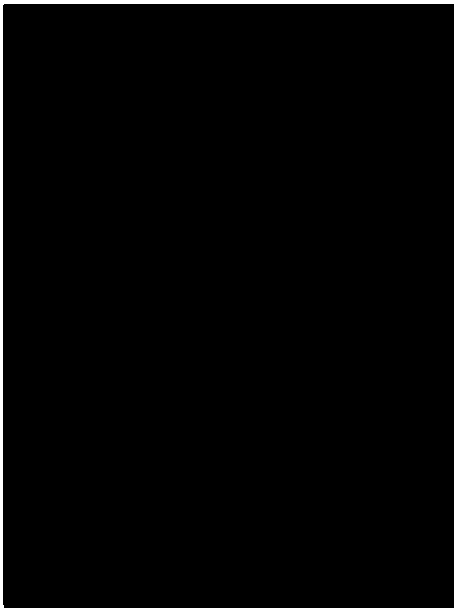

Figure 83: Scaffolding tag sitting near scaffolding.

Finding 25: Front gate to Unit 1, 2, and 3 missing NFPA 704 Placards.

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

> *"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 work environment and*

the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures."

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."*

[redacted]s are all missing an NFPA 704 placard. It is essential that this placard be installed to inform emergency responders, Ivanpah personnel, and visitors of the chemical hazards present within each Unit. Ivanpah must review all SDS's and correctly label [redacted] with NFPA 704 placards to reflect the maximum hazard ratings contributed by the chemicals in each category.

Figure 84: Ivanpah [redacted].

<u>Finding 26: Ivanpah must continue to maintain and replace missing or deteriorated signage.</u>

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 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 8: Guideline 10 states:

"Procedures are implemented to control the placement of caution, warning, information and other similar tags on plant equipment and operator aids in the plant."

ESRB inspectors noted deteriorating and missing signage throughout Ivanpah. Ivanpah must replace all faded and missing signage including the following:

1. [redacted] has a faded confined space sticker.

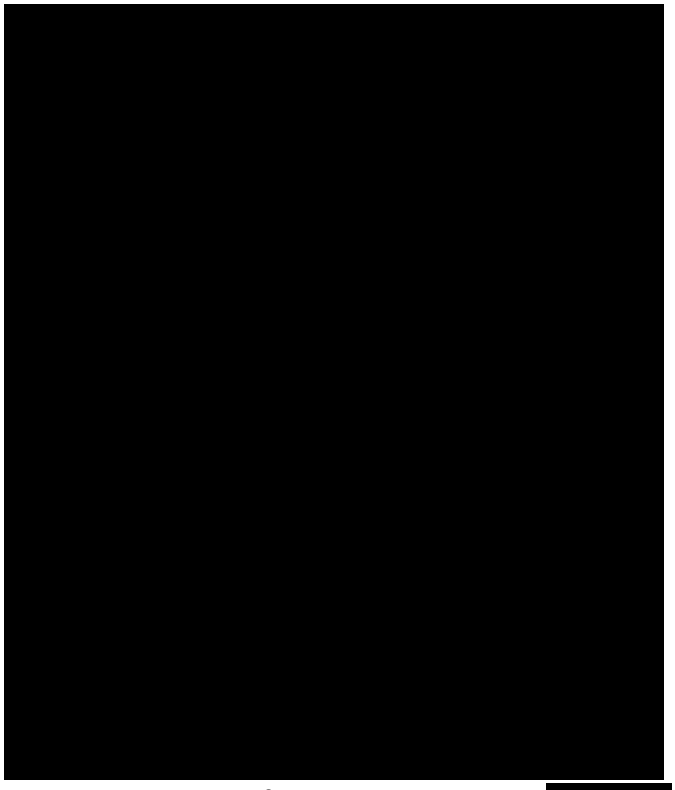

Figure 85: Faded confined space sticker on [redacted].

2. [redacted] has a faded confined space sticker.

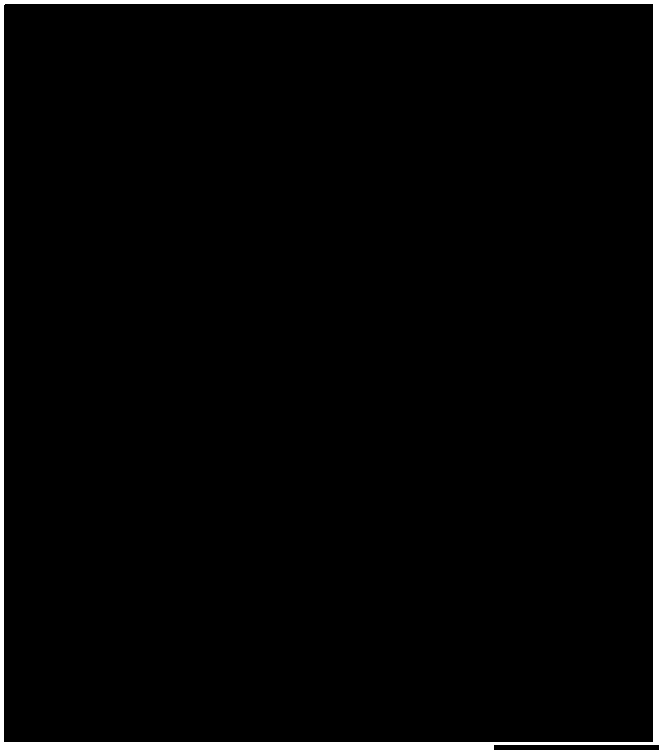

Figure 86: Faded confined space sticker on [redacted].

3. The [redacted] has faded container labels with no information about the chemical. All chemicals and chemical storage containers need to have the chemicals and hazards clearly labeled. Ivanpah personnel must be able to quickly identify all hazards associated with the chemical being stored.

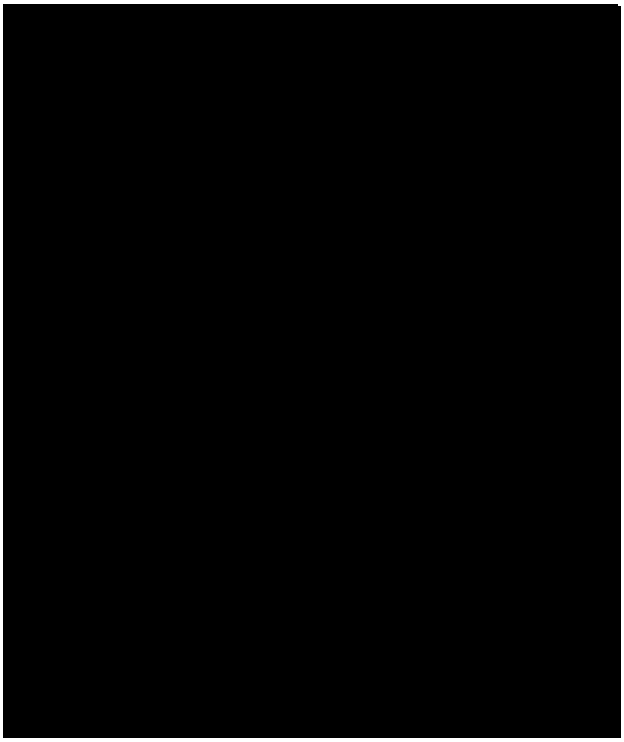

Figure 87: Faded label on [redacted].

4. [redacted] has a faded confined space sticker.

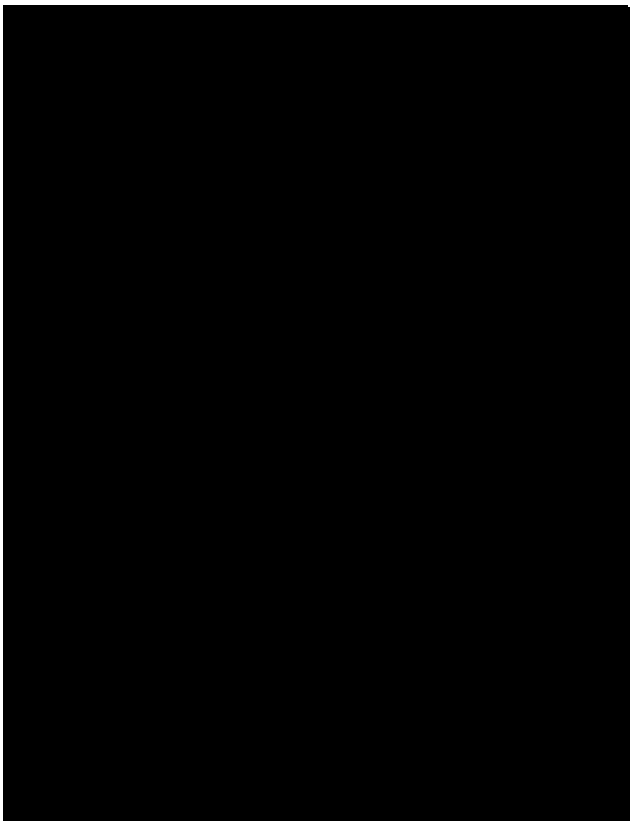

Figure 88: Faded confined space sticker on [redacted].

5. [redacted] has a missing confined space sticker.

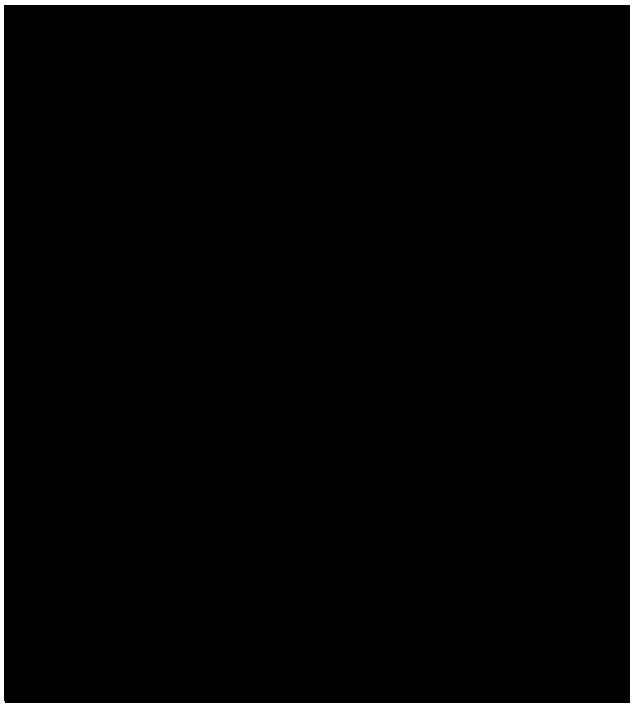

Figure 89: Missing confined space sticker on [redacted].

6. [redacted] has damaged NFPA diamond in need of replacement.

Figure 90: Damaged NFPA diamond at [redacted].

Finding 27: ESRB inspectors observed improper housekeeping.

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."*

ESRB inspectors identified housekeeping deficiencies in various areas of the Plant including the following:

1. [redacted] left open due to recent maintenance on [redacted]. Equipment must be returned to its normal operating state once maintenance is completed.

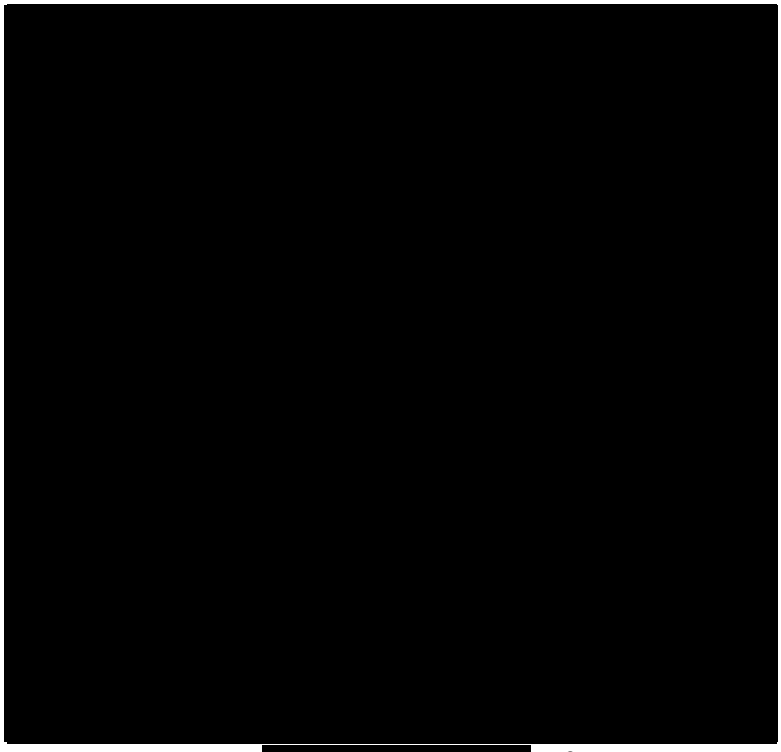

Figure 91: [redacted] left open.

2. A foldable table was left behind the [redacted]. The equipment must be returned to its proper storage location.

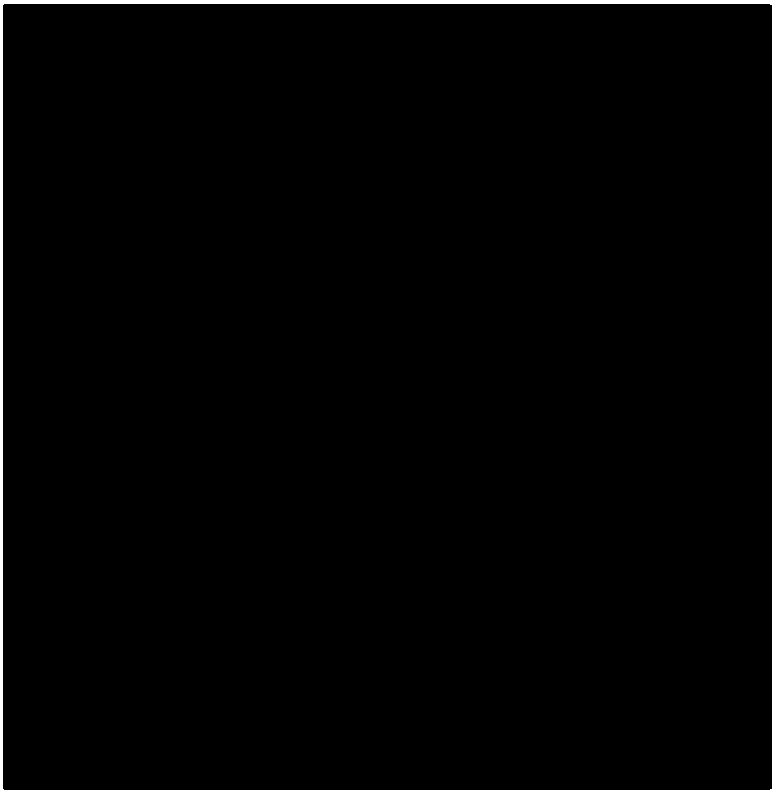

Figure 92: Unattended folding table.

3. [redacted] poses a tripping hazard due to the remaining equipment from construction. Ivanpah must ensure that any trip hazards are clearly marked or not accessible by Plant staff.

Figure 93: Tripping hazards in [redacted].

4. ESRB inspectors observed an electrical panel that was left open in [redacted].

Figure 94: Open electrical panel.

5. ESRB inspectors found debris and leftover construction material on various levels of the [redacted].

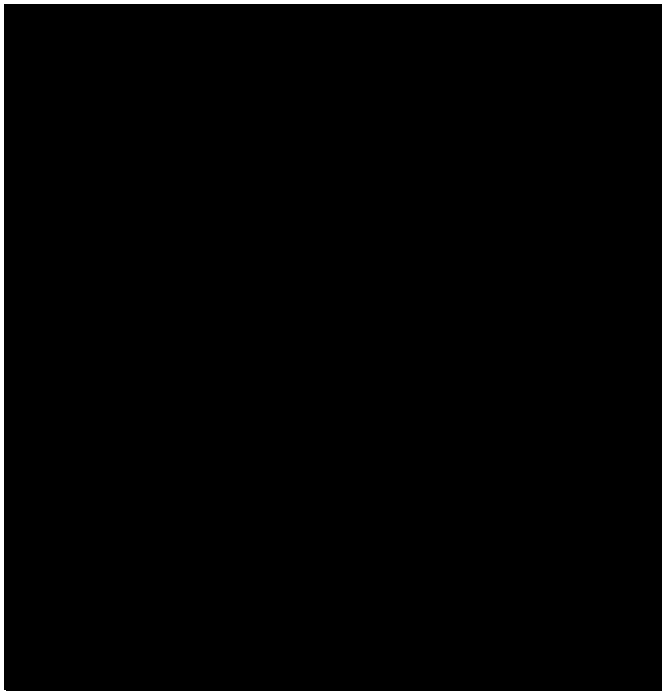

Figure 95: Debris and various material strewn about.

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	SDS 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 Analyses of all Reportable Incidents (last 5 years)
	12	Fire Protection System Test Report and Inspection Record (last 3 years)***
	13	Insurance Report / Loss Prevention / Risk Survey (last 3 years)
	14	Lockout / Tagout Procedure
	15	Arc flash Analysis
	16	Confined Space Entry Procedure
	17	Plant Physical Security and Cyber Security Procedures
	18	5-year Water Based 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 Records*
Contractor	23	Latest list of Qualified Contractors*
	24	Contractor Selection / Qualification Procedure
	25	Contractor Certification Records
	26	Contractor Monitoring Program
Regulatory	27	Air Permit
	28	Water Permit
	29	Spill Prevention Control Plan (SPCC)
	30	CalARP Risk Management Plan (RMP)
	31	Avian Conservation Strategy
O&M	32	Daily Round Sheets / Checklists (Onsite)**
	33	Feedwater Grab-sample Test Records (Onsite)**
	34	Water Chemistry Manual
	35	Logbook (Onsite)**
	36	List of Open/Backlogged Work Orders*
	37	List of Closed/Retired Work Orders*

	38	Work Order Management Procedure
	39	Computerized Maintenance Management System (Demonstration Onsite)**
	40	All Root Cause Analysis (if any)
	41	SCADA system (Demonstration On-site)**
	42	Maintenance and Inspection Records for Heliostats & Solar Trackers
	43	Maintenance and Inspection Records for Auxiliary Boilers
	44	Maintenance & Inspection Records for Switchgear/Breaker/Relays
	45	Maintenance & Inspection Records for Electrical System
	46	Maintenance & Inspection Records for Switchyard & Transmission Equipment
	47	Maintenance & Inspection Records for other equipment
	48	Backup Generator Test and Maintenance Records (last 3 years)
	49	Substation Battery Test and Maintenance Records (last 3 years)
	50	Vegetation Management Procedure and Policy
Main Plant Air Compressors	51	Inspection Procedures and Records (If Applicable)
Document	52	P&IDs for Solar Boiler and Steam Turbine Processes
	53	Single Line Diagram for Substation
	54	Vendor Manuals (Onsite)**
	55	Luz Power Tower 550 (LPT 550) Design Data & O/M manual
	56	Procedure Compliance Policy
Spare Parts	57	Spare Parts Inventory List
	58	Shelf-life Assessment Procedures and Reports
Management	59	Employee Performance Review Procedures and Verifications
	60	Organizational Chart
Solar Boiler	61	Inspection Procedures and Records
	62	Safety Valve Test Records
	63	Solar Power Tower Structural Integrity Assessment
HEP	64	FAC Inspection Procedure & Measurements
	65	Pipe Hangers / Support Calibration Records
	66	NDE Reports
	67	STG inspection reports
	68	Overspeed Trip Test Records
	69	Bearing Lube Oil Analysis Reports
	70	DC Lube Oil Pump Test Records
	71	Emergency Stop Valve Test Records on Main Steam Line
	72	Steam Turbine Water Induction Prevention Procedures

Steam Turbine Generators	73	Maintenance & Inspection Procedures (or related documents)
	74	Bearing Lube Oil Analysis
	75	Electrical Test Records (Reactive power verification, excitation control modeling, polarization, etc.)
Transformers (All)	76	Maintenance and Inspection Records
	77	Hot Spots / IR Inspection Reports
	78	Oil Analysis Reports
CEMS	79	Maintenance and Inspection Procedure & Test Records
Cathodic Protection	80	Procedures and Inspection Records
Air Cooled Condenser System	81	Cooling Fans & Motors Inspection Records
	82	Cooling Tower Structural Integrity Assessment
	83	Circulating Water Pumps Maintenance Records
Instrumentation	84	Instrument Calibration Procedures and Records
Test Equipment	85	Calibration Procedures and Records
Internal Audit	86	Internal Audit Procedures and all Records

If a requested document is not applicable or available, please indicate as such.

* 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.

*** Fire Protection Systems

a. Inspection, Testing, and Maintenance (ITM) records for plant's water-based fire protection systems

(e.g., deluge, wet pipe, pre-action sprinkler systems, hydrants)

b. ITM records for plant's engineered and pre-engineered fixed extinguishing systems (e.g., CO2,

Clean Agent, etc.)

c. ITM records for plant's fire alarm system

d. Annual flow testing records for plant's fire pumps (electric and/or diesel)