California Public Utilities Commission

2011 Audit of *Ormond Beach Generating Station*

August 2011

STAFF REPORT

PREPARED BY THE ELECTRIC GENERATION SAFETY AND PERFORMANCE BRANCH

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I. Introduction

This is the 2011 Audit Report of the Ormond Beach Generating Station ("Ormond Beach" or "the plant") prepared by the California Public Utilities Commission's ("CPUC's" or "Commission's") Electric Generator Performance Branch (EGPB). EGPB audited the plant for compliance with Commission General Order (GO) 167, which includes Operation, Maintenance, and Logbook Standards for power plants. GO 167 requires generating asset owners to operate and maintain their power plant in a safe and reliable manner. Electricity is vital to the State's economic well-being and the safety of its residents. Therefore, EGPB enforces GO 167 and regularly conducts compliance audits to ensure electric generation reliability and availability for the State.

In January 2011, EGPB notified Ormond Beach of the audit and requested pertinent documents. EGPB visited the plant site from February 28 to March 4, 2011 to observe plant operations, inspect equipment, review documents, and interview plant staff. From these activities, EGPB evaluated whether the plant 1) complies with GO 167 Operation, Maintenance, and Logbook Standards, and 2) could improve its programs, policies or practices to enhance safety and reliability.

EGPB found 28 violations of GO 167 and identified four immediate safety hazards. Finding 1 describes the plant's lack of concern regarding the condition of a "safety valve" on a high pressure, high temperature steam pipeline. Findings 2 and 3 describe three corrosive conditions that threaten plant reliability and the safety of employees and visitors to the plant. On March 15, 2011, EGPB requested the plant to take immediate action to correct these safety hazards. On March 31, 2011, the plant submitted a Corrective Action Plan (CAP).

The remaining violations include additional equipment corrosion and poor practices that, while serious, do not present imminent danger. EGPB directs the plant to submit a Corrective Action Plan for Findings 4 through 28 by October 3, 2011.

II. Power Plant Performance

EGPB reviewed Ormond Beach's performance metrics from a database maintained by the North American Electric Reliability Corporation (NERC)[1]. The following factors represent Ormond Beach Generating Station's operational profile in 2009[2]:

Table 1. Ormond Beach Generating Station's NERC GADS Factors in 2009

	Ormond Beach's NERC GADS Factors in 2009
Net Capacity Factor (NCF)	2.20 %
Equivalent Availability Factor (EAF)	88.07 %
Start Reliability (SR)	78 %
Forced Outage Factor (FOF)	1.22 %

[1] The Commission requires jurisdictional plants to self-report outage data to NERC.
[2] The data for 2010 was not available at the time this report was written.

- NCF measures the actual energy generated as a fraction of the maximum possible energy it could have generated at maximum operating capacity. For example, a 50% NCF indicates a plant generates just half of what it can produce.

- EAF measures the fraction of net maximum generation that could be provided after all outage types and derates are taken into account. For example, if a plant breaks down frequently, and is unavailable to produce power, EAF will be low.

- SR calculates the ratio of actual starts to attempted starts. The SR index suggests how well the GAO maintains a plant and trains the operators, i.e. if operated properly, a well-maintained plant starts reliably.

- Finally, FOF measures the percent of time during a specific period that a unit is out of service due to forced outages, i.e. how frequently a plant is forced offline. A low FOF is desirable.

III. Violations Requiring Corrective Action

Finding 1 – The plant fails to maintain a high pressure safety valve.

The plant failed to inspect or overhaul a high pressure safety valve on a Unit 2 Superheater.[3] According to the latest relief valve report[4], the plant last overhauled superheater Safety Valve #2-PSV-3304 on March 4, 2003, and hydro-set the valve to 4,360 pounds per square inch (psi) on May 29, 2003. Hydro-set is a method of determining the amount of pressure needed to open the relief valve. The plant's own maintenance policies[5] specify that the valve should to be inspected every three years, and completely disassembled at a maximum interval of six years.

EGPB described its concerns regarding the untested safety valve, in a letter dated March 15, 2011. The letter recommended the plant act immediately to:

- Disassemble the superheater safety valve #2-PSV-3304.
- Update relevant Safety Valve Data Tables.
- Attach a tag or other visual marker to identify which superheater safety valves require hydro setting.[6]

On March 31, 2011, the GAO reported to CPSD that it overhauled the Unit 2 division wall safety valve (PSV-3304) on March 15, 2011. The GAO affixed a corner-cut-off-tag on the safety valve to indicate a hydro-set is needed when the unit is online and able to provide adequate pressure to perform the task. The GAO also performed a complete review of safety valves listed in the GAO's Standard Application Program to ensure that no other safety valves were overlooked.

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[3] Operation Standard 12

[4] Bermingham Relief Valve Data Sheet – (2-SV-3304), Customer PO#214239/403/409/458

[5] West Region Plant Operations Maintenance Policy - Safety Valves

[6] The plant needs to run to generate enough pressure to hydro set the high pressure safety valve. A VR stamp can only be applied to a safety valve after hydro setting.

Finding 2 – The plant fails to systematically prevent, detect and repair corrosion on high-consequence equipment.

While the plant recently began to address corrosion at Ormond Beach, its actions fall short of a comprehensive program.[7] EGPB considers the lack of corrosion control at Ormond Beach a serious safety concern. On March 15, 2011, EGPB alerted the plant to two conditions (Unit 2's main transformer, and critical pressure gauge line) that require immediate action.

First, the plant lacks a comprehensive Flow Assisted Corrosion (FAC) program. As a result, the plant lacks key information regarding the true condition of its piping system, which hinders appropriate targeted maintenance and repair. FAC should be a significant concern for power plants due to the high consequences of FAC-related equipment failure, both to plant reliability and worker safety. As hot deoxygenated water flows swiftly through steel pipes, it removes the pipe's inner layer of protective oxide. Thus, a thorough FAC program must consider multiple factors, such as the water's flow rate, pH level, oxygen content and temperature, as well as the geometry of the piping system.

In February 2011, Ormond Beach developed procedures to address FAC. Those procedures lack sufficient details. One section lists several Non-Destructive Examination (NDE) testing methods but fail to explain which NDE method is applicable or appropriate under specific circumstances. For example, if a test involves piping with complex geometry, the procedure would direct the plant towards radiographic testing (RT) rather than ultrasonic testing (UT).

The procedures should also be more precise, especially when referencing standards or codes. For example, the "Technical Concerns" section states, "*Failures due to general ID wall loss occur typically at 10% of the ASME B31.1 Code calculated minimum wall.*" For a pipe in service, any reduction in its wall thickness would likely occur in the inside diameter due to erosion or corrosion. However, the criteria are unclear for determining the minimum wall thickness. The "ASME B31.1" document is voluminous. Without specifying the exact code section and/or the formula for minimum wall calculation, the procedure's simple reference does not provide enough information, and may confuse or complicate matters if a worker cannot easily locate the reference document. By the end of 2011, the plant should, at a minimum, expand its procedures to:

- Identify the appropriate Non-Destructive Examination testing method to use on different piping configurations and/or operating environment.
- Demonstrate that plant management conducts periodic review to ensure accurate and up to date information.
- Provide detailed citations (exact document name, section number, page number, paragraph heading, and equation number) for standards and codes.

Second, severe corrosion to the Unit 2 main transformers jeopardizes safe operation (Photos 1-5). Unless repaired or replaced, the oil circulation pipes and heat exchanger housing on the Phase A, B and C transformers could leak or release hot oil into the immediate area, which increases the risk of fire and employee injury.

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[7] Maintenance Standard 7, Guideline L

The plant's March 31, 2011 CAP proposes to replace the Unit 2 components with stainless steel piping/housing, similar to a recently-completed retrofit on Unit 1. The plant plans to complete the replacement by Spring 2012.

Third, the plant fails to control corrosion on a critical pressure gauge line. The line monitors steam conditions, primarily suction and discharge, within the Units 1 and 2 Boiler Feed Pumps (BFP) (Photo 6). The plant's highest steam pressures (up to 4,500 psig) occur in the BFP piping system, and thus require thorough periodic inspections to assess whether pipe wall thickness remains within pressure design limits. EGPB also observed similar rust and corrosion on the line and root valve which convey condensate feedwater to the reheat attemperator (Photos 7-8).

The plant completed corrections on Unit 2 by removing the line and adding a new isolation valve for a future pipe connection, if needed. The plant must advise EGPB if similar examination was done on Unit 1 BFP pressure sensing lines.

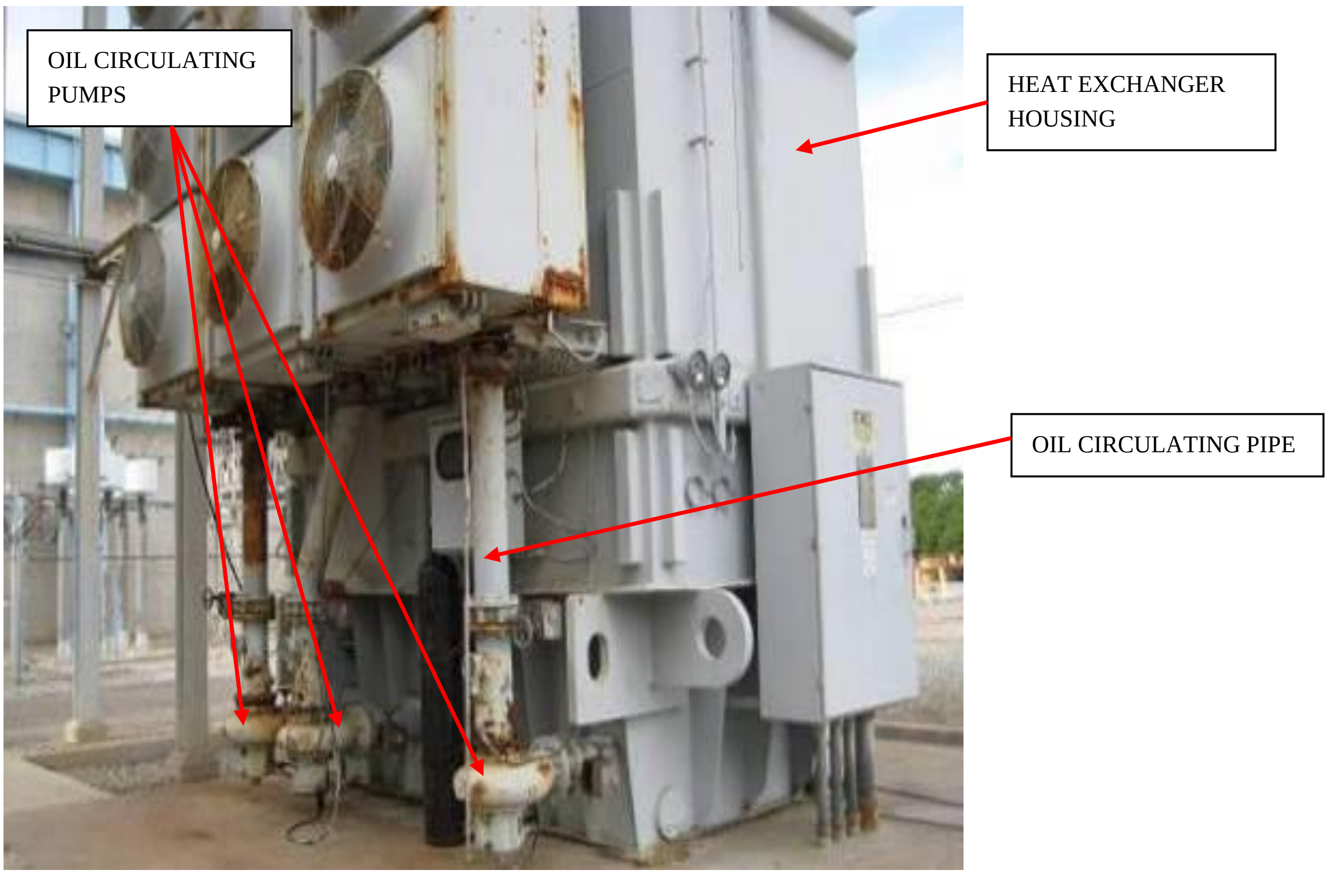

Photo 1: Typical Unit 2 Main Transformer (one for each phase).

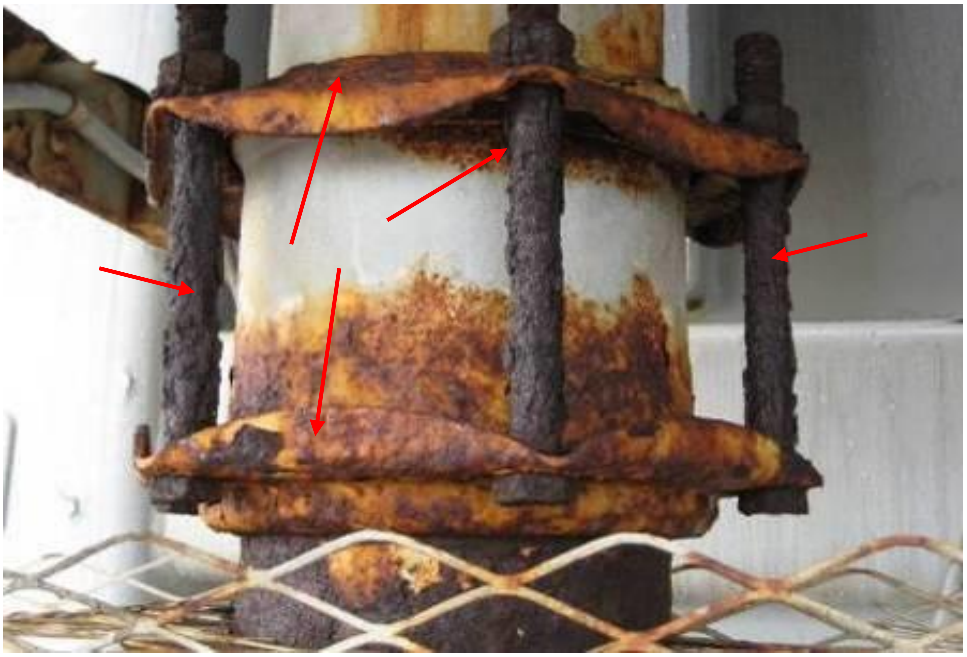
Photo 2: Severe corrosion of flange that connects bolts at lower housing.


Photo 3: Severe corrosion at circulating oil pump flange bolts.

Photo 4: Severe corrosion at lower portion of heat exchanger housing.

Photo 5: Completed containment mitigations, Unit 2 Phase C transformer.


Photo 6: Pressure gauge sensing line; BFP suction and discharge.


Photo 7: Severely corroded root valve.

Photo 8: Corroded root valve and piping.

Finding 3 - The plant lacks a comprehensive program to address "Corrosion Under Insulation."

The plant's location and infrequent run times expose pipe insulation to continuous moisture and salty sea air. Those elements settle underneath insulation and corrode the exterior surface of a wrapped pipe, thus the term "Corrosion Under Insulation" (CUI).

The plant's generic CUI procedure lacks a detailed process to locate and test for CUI. The plant created the CUI procedure in response to a "root cause analysis" report on a CUI incident where the Integral Separator Startup System drain line failed in March 2010. At a minimum, the plant should expand its procedures to:

- Routinely inspect and monitor piping, and identify existing CUI areas.
- Identify pipes most susceptible to CUI.
- Identify pipe hanger locations most susceptible to CUI.
- Mitigate CUI through insulation design and sealing methods.
- State the available test methods to find CUI.
- Include an initial schedule for CUI inspections.
- Refer to industry standards for inspection guidelines and safety requirements.[8]

The plant agreed to revise its CUI program and submit the revised version to EGPB upon completion, but no later than September 1, 2011.

Finding 4 - Rust, corrosion and cracks degrade plant equipment and infrastructure.

[8] The American Petroleum Institute Standard 570 and Operation Safety and Hazards (OSHSA) 1910.

Rust and corrosion cover piping systems and equipment throughout the plant[9]. Many piping systems carry high pressure, high temperature liquids. If corrosion causes such systems to leak or catastrophically fail, the pipes could release very hot, high-pressure steam or liquid into the immediate area, injuring workers and plant visitors, as well as damaging equipment.

For example, instrument piping that controls water level for two feedwater heaters is extremely corroded. EGPB found pitting and metal loss on many sections of the piping. The pipes carry high pressure and high temperature steam from the steam turbine extractions, thus a major leak could be dangerous and destructive. In fact, during the EGPB audit visit, plant staff removed the thermal insulation from the feedheaters to locate a vacuum leak (Photos 9-11).

Photo 9: Corroded piping attached to two feedwater heaters

[9] Maintenance Standard 7, Guideline L; and 13, Guideline J

Photo 10: Corroded feedwater pipes.

Photo 11: Close-up of corroded pipes.

Similarly, the concrete foundation, metal anchors, and metal piping supports for the condensate polisher trains are extremely corroded (Photo 12). Corrosion has shorn bolts heads from the stem, particularly the metal anchor bolts that fasten piping supports to the concrete foundation pad (Photos 13). Several pipes, such as those for the condensate polisher's inlet, outlet, and regeneration carry acidic or caustic fluids. Corroded anchors and supports place additional stress on the condensate polisher piping, which is an immediate safety risk for plant employees and visitors.

Photo 12: Cracked foundation beneath corroded pump and motor.

Photo 13: Piping support system; corrosion sheared bolt heads off stems.

In addition, many of the pipe supports along the north and south retention ponds are extremely corroded (Photo 14). A steel base and anchor support a fiberglass pipe which, in turn, discharges rinse water from the reverse osmosis (RO) water treatment system. EGPB observed visible metal loss on the support, due to corrosion (Photo 15). The RO discharge fluid drains into the retention ponds, where the fluid is tested for contaminants and removed from the premises. If a support fails and damages the RO discharge pipe, it could impact safe operation of the reverse osmosis system and affect the plant's ability to provide makeup water for its boilers.

Photo 14: Corroded pipe supports and anchors along the RO discharge pipe.

Photo 15: Corroded support and anchor

And finally, large cracks and corroded rebar degrade the structural integrity of concrete foundations throughout the plant. Photos 16-18 depict cracks and spalling to the foundation pad beneath cooling water heat exchangers. The heat exchangers provide cooling water for the main generator and air compressors, as well as bearings for the forced draft and recirculation fans, and the boiler feed pump.

Photo 16: Two cooling water heat exchangers.


Photo 17: Cracked foundation exposes rusted rebar


Photo 18: Cracked foundation.

Similarly, the concrete foundation for the Mariculture Lab pump is cracked, and the metal pump base is corroded (Photos 19-20). The pump delivers sea water to a laboratory where the plant raises abalone.

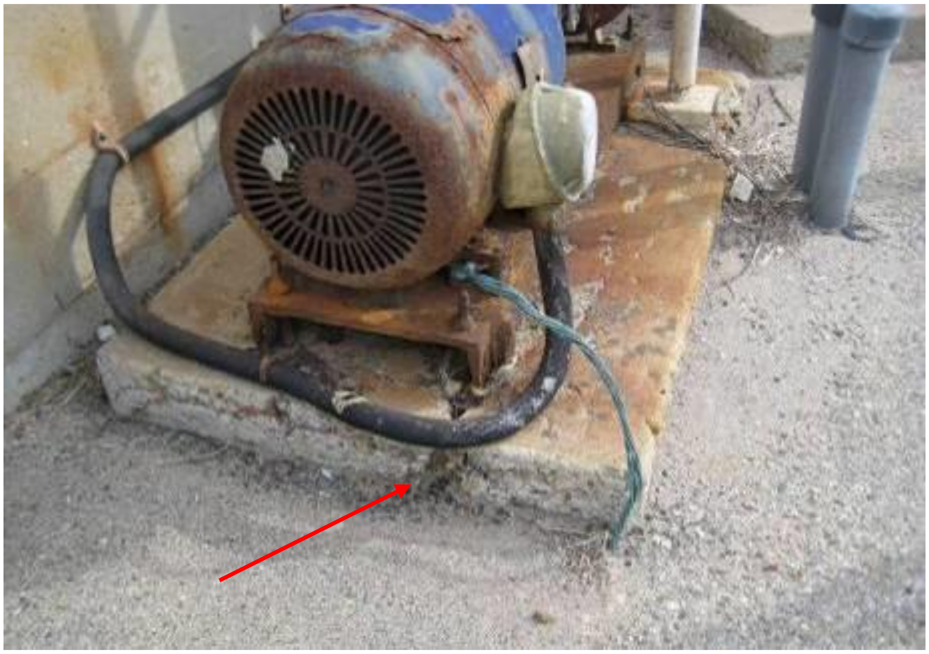
Photo 19: Cracked motor foundation.

Photo 20: Crumbling pump foundation

Finding 5 – The plant lacks a complete preventive maintenance program for all but one circuit breaker system.

Although the plant developed preventive maintenance procedures for the 480V circuit breaker system, other systems, such as the 1.9 kV circuit breaker, lack similar procedures, a violation of the Operation and Maintenance Standards.[10] Circuit breakers perform a critical safety function: to protect equipment from overcurrent. The plant must develop and follow preventive maintenance procedures for all circuit breakers to ensure adequate protection for equipment. Plant staff stated that the electrical coordinator believes he can have the preventive maintenance set up for the 4kV and the 13.8kV breakers by the end of 2011.

Finding 6 – The plant lacks a comprehensive program to safely remove equipment from service.

The plant's existing lockout/tagout (LOTO) program lacks sufficient physical isolation requirements, a procedure to create new clearances, and a complete equipment identification system. [11]

First, EGPB reviewed the "Red Tag" database for clearance tags. The Red Tag database generates predetermined, plant-specific clearances for several hundred pieces of equipment and systems. Clearance tags 7014 and 7015 for the boiler feed pump lacked any reference to the

[10] Maintenance Standard 8; Operation Standard 8, Guidelines A, B, C, D, E and F
[11] Maintenance Standard 1; and Operation Standard 14, Guideline H

physical isolation method known as "block and bleed."[12] The block and bleed method provides superior safety features (see Diagram 1 below) over single valve isolation, which increases protection for employees working on high energy systems. EGPB suspects the plant does not use "block and bleed" to physically isolate other high energy systems as well. To fully protect employees from potential high energy hazards, the plant's physical isolation procedures could include the "block and bleed" method.

Second, the plant's LOTO program lacks a procedure to create new clearance for equipment not covered by the "Red Tag" system. At a minimum, such a procedure would identify drawings that locate high energy points, include walk-downs for physical verification, and require a safety analysis to ensure workers identify all high energy hazards.

And last, equipment descriptions in the Red Tag database lack the corresponding nominal valve size (in inches). Such information would help employees to more easily locate, tag and/or lock specific equipment valves.

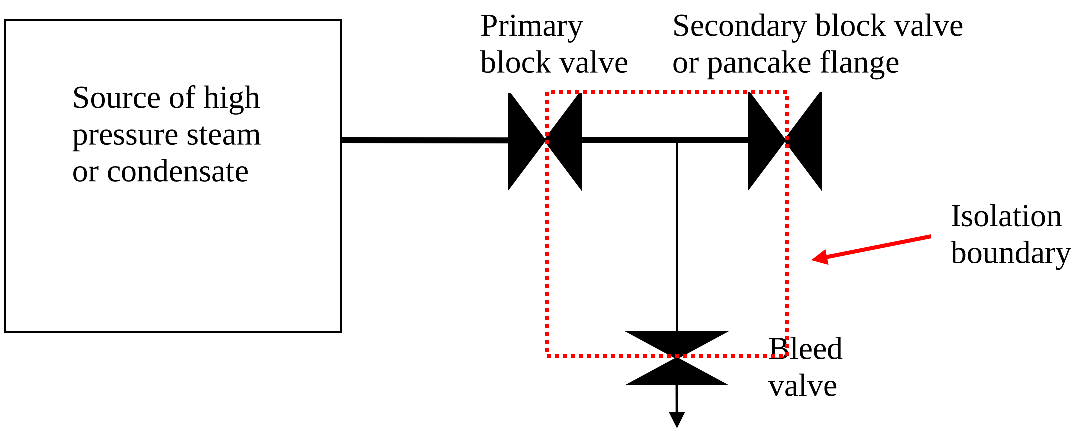

Diagram 1: Block and Bleed Valve Arrangement for Isolating High Pressure Energy

Finding 7 – Transformers lack adequate fire protection.

The plant's main transformers lack fire protection, such as an automatic water spray system or a barrier wall.[13]

In October 2010, a contractor, "Global Risk Consultants," performed a risk analysis on Ormond Beach's fire protection system. The plant's sole fire protection measure for the main transformers is concrete curb containment for oil leaks (Photo 21). The contractor recommended that the plant install automatic water spray systems on the main, auxiliary, and service transformers, in accordance with guidelines from the National Fire Protection Association (NFPA), Factory Mutual (FM) Global, and Electric Power Research Institute (EPRI).

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[12] The "block and bleed" method is achieved by installing a primary and secondary block valve in series to ensure that the high energy source is contained within its boundaries; then a "bleed" valve is placed between the primary and secondary valves to check for pressure leak within its boundaries.
[13] Operation Standard 28

As of February 2011, the plant had neither evaluated the contractor's recommendations nor installed additional fire protection on the transformers. While EGPB does not require plants to follow contractor recommendations, it does expect plants to evaluate such recommendations within a reasonable amount of time, and to explain and support any decision to implement or decline such recommendations.

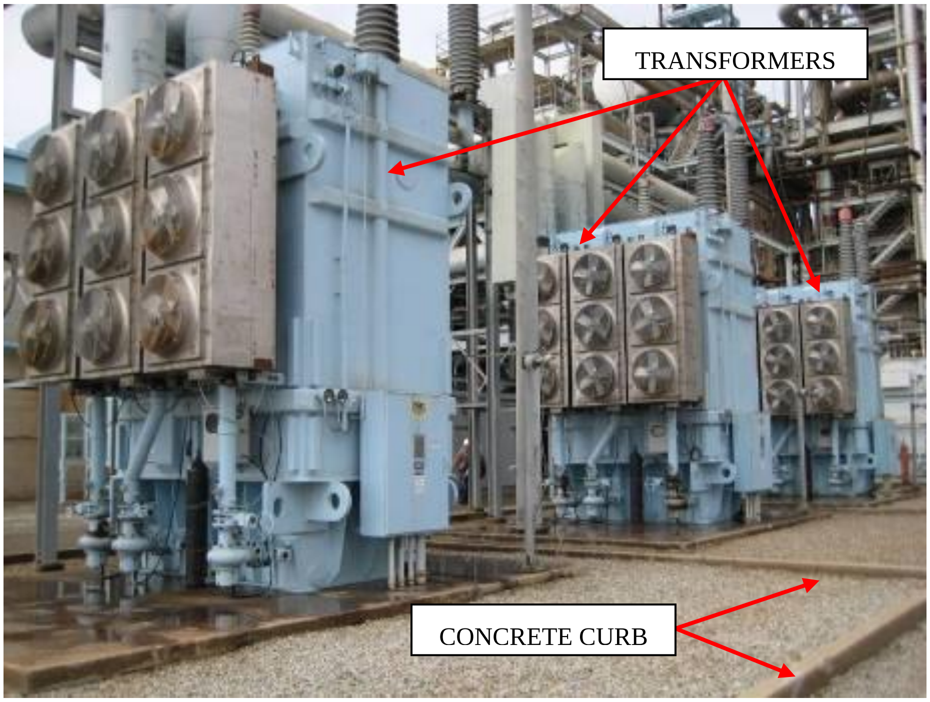

Photo 21: The plant's main transformers and concrete curb containment.

Finding 8 – Boiler feed pumps lack insulation.

The plant failed to insulate the hot casing on four boiler feed pumps (BFP.)[14] Although the pumps are exposed to foot traffic, the plant has neither erected barricades nor posted warning signs to keep workers and visitors away from the hot casing (Photo 22). Plant staff stated that in the past, Ormond Beach insulated the pumps. EGPB strongly recommends that the plant install thermal insulation or other safety measures to minimize the burn hazards posed by the BFPs.

[14] Maintenance Standard 1, Guideline C

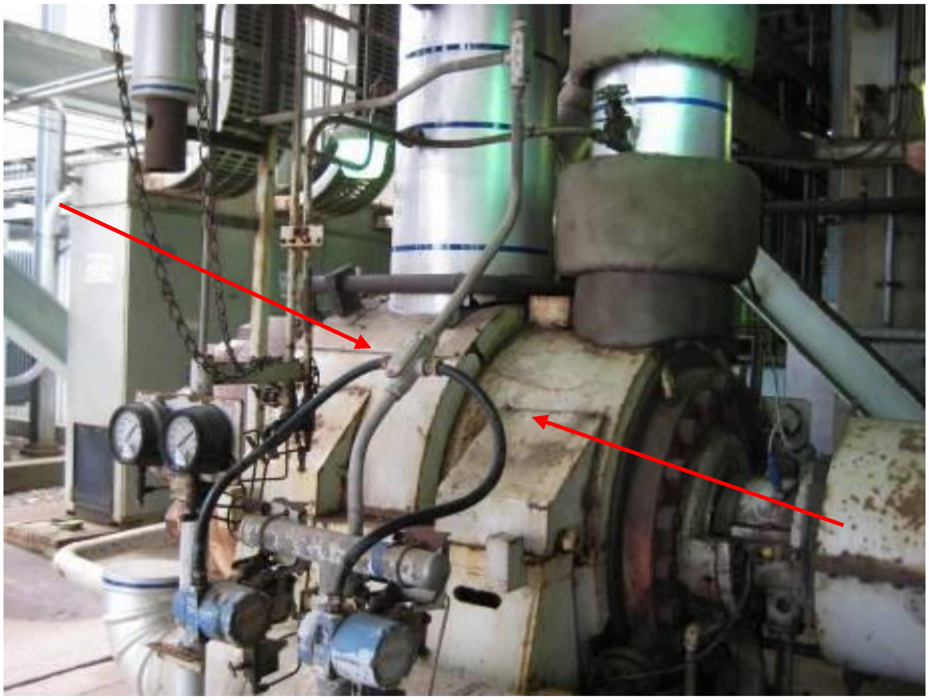

Photo 22: An uninsulated BFP casing.

Finding 9 – The plant's job hazard analysis lacks key information.

Before initiating electrical work, the plant conducts a Job Hazard Analysis (JHA) to assess each step of an operation, identify and correct potential hazards, and thus reduce safety risks to workers and equipment. The plant's JHA form fails to define or describe specific Personal Protective Equipment (PPE) requirements, such as rubber gloves, insulated tools, fire-resistant clothes, or eye protection.[15] Instead, the forms give vague instructions for employees to use "proper PPE." Further, the plant fails to define the term "proper PPE" in any other plant document.

Optimally, a plant develops minimum, job-specific PPE requirements based on a comprehensive assessment of the electric system, and conveys those requirements to the employees in clear terms.

Finding 10 – The plant demonstrates poor housekeeping practices

The plant fails to exercise good housekeeping practices at several locations, which exposes employees and/or equipment to potential hazards.[16]

First, the plant failed to repair or replace a damaged power cable near the Mariculture Lab building. A hole in the cable insulation exposes energized electrical wire (Photo 23). Because the location is open to foot traffic, employees could come in contact with the energized wiring, resulting in an electric shock or electrocution. The plant failed to cordon off the area, post

[15] "JHA: High voltage Elec motor ORBELEC megger" and "Troubleshoot 480V Electrical" JHA forms
[16] Maintenance Standard 1 and 7, Guideline L

warning signs or take other actions to protect employees until it repairs or replaces the damaged cable.

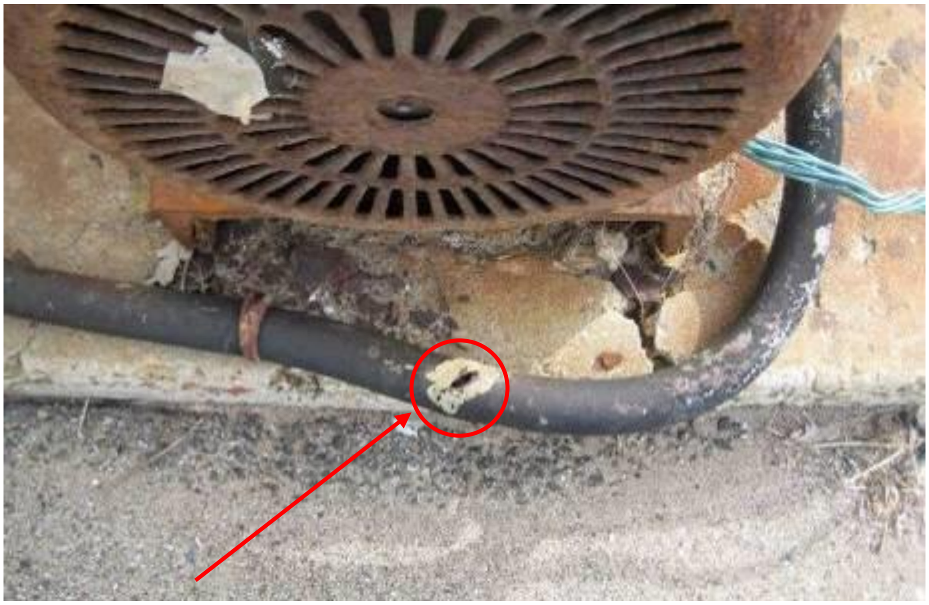

Photo 23: Damaged power cable exposes “hot” wiring.

Second, a loose panel dangled precariously from the roof of the hazardous waste storage area (Photo 24). The plant failed to secure the panel or post a sign to warn of overhead danger. The storage area is unenclosed, and thus subject to ambient conditions. A gust of wind could blow the panel from the roof, creating a fall-strike hazard to plant employees and visitors.

Photo 24: A loose roof panel hangs precariously over the storage area

Third, the plant failed to properly secure four Self Contained Breathing Apparatus (SCBA) tanks in the First Aid room (Photo 25). The tanks contain pressurized oxygen. If an unsecured tank tips over and damages the pressure regulator, the tank would essentially become an uncontrollable projectile that could seriously injure workers and damage equipment.

Photo 25: Unsecured, high pressure SCBA tanks in the First Aid room

Fourth, the plant fails to maintain warning and hazard identification signs throughout the premises. At the argon gas tank storage area, a sign meant to identify the type of gas dangled upside down from a rack (Photo 26). A broken sign post leans against a shed in a heat tracing monitor area. Two signs attached to the metal pole read, “Drowning Danger; Keep Off!” and “Be Careful; Slippery Ramp” (Photo 27). The safety warnings do not match the environment near the shed, which could mean that the intended location may lack sufficient signage to warn employees and visitors of slip and fall dangers.

Photo 26: Identification sign not visible behind argon gas tanks.

Photo 27: Broken sign post leans against a shed.

Finding 11 – The plant fails to prepare staff for cyclical use of hazardous materials.

The plant lacks audible alarms or visible warning devices to alert employees of plant activities that involve acidic or caustic chemicals.[17] Employees working near the regeneration piping are vulnerable to chemical exposure. As stated in Finding 4, corroded piping anchors and supports may place additional stress on the regeneration piping system, cause pipe joints to separate, and release caustic chemicals into the immediate area. The regeneration piping system delivers those chemicals to a "condensate polisher", which in turn, removes steam impurities that cause corrosion, such as iron oxide. The plant should ensure that employees know when polishers will regenerate and understand specific protective measures to minimize potential exposure to dangerous chemicals.

Finding 12 – The plant failed to complete maintenance work on high pressure safety valves.

The plant failed to complete maintenance work on high pressure safety valves.[18]
The plant's procedures to maintain high pressure safety valves describe three discrete activities. First, the plant disassembles the valve, and overhauls valve components. Next, the plant performs an in-line hydro set to properly adjust the safety valve settings. Finally, the plant applies a Repair of Safety Valve (VR) stamp on the valve identification tag to indicate the valve operates within tolerances set by the National Board of Boiler and Pressure Vessel Inspectors (NBBI).

In 2010, the plant overhauled several high pressure safety valves but failed to complete the in-line hydro set and VR stamp. During a hydro set, the plant must operate to achieve sufficient pressure for workers to adjust the valve to a proper setting. The plant has not run since

[17] Operation Standard 8, Guideline A10
[18] Operations Standard 23

September 2010. When the plant next starts, it must complete the valve maintenance prior to extensive operation.

Further, certain safety valves (02-PSV03394, 02-PSV-3305 and 02-PSV-3307) lack identification tags. Such tags contain key information, which includes the safety valve number and pressure setting (Photo 28).

Photo 28: Safety valve number 02-PSV-3307 lacks identification tag

Finding 13 – The plant fell behind on condition-based assessments of critical equipment.

The plant failed to evaluate the condition of critical equipment in a timely manner.[19] Over the past five years, the plant identified 241 pieces of critical equipment to assess on a one, three, or five year cycle, yet completed just 116 assessments. Condition-based assessment helps the plant decide if and when equipment should be repaired, replaced or upgraded to improve availability and reliability.

Further, the Ormond Beach condition-based assessment program lacks plant-specific procedures. Instead, a generic manual titled, "GenOn Maintenance Manager's Manual" forms the basis for the program. The manual makes a poor substitute for a complete program.

Finding 14 – Plant conditions conflict with the plant's Emergency Response and Evacuation Procedures.[20]

Plant staff failed to maintain accurate Emergency Response and Evacuation Procedures.[21]

[19] Maintenance Standards 7 and 8
[20] Operation Standard 20, Guidelines A, B and C.

EGPB found discrepancies between Ormond Beach's emergency procedures and actual conditions at the plant. The plant either failed to follow its emergency procedures, or failed to correct emergency procedures to accurately reflect plant conditions at multiple locations:

- Main Gate Security Building:[22] Emergency procedures require the plant to store three radios and a first aid kit in the Main Gate Security Building. The plant lacks a first aid kit, and stores just two radios in the building.
- Chemistry Lab: While emergency procedures indicate that the plant stores a first aid kit in the Chemistry Lab, EGPB did not find a kit in the lab.
- Storeroom:[23] Emergency procedures specify that the plant stores specific emergency supplies in the storeroom, such as emergency rations, drinking water, light sticks, blankets, flashlights and shovels. In practice, the storage room lacked emergency rations, drinking water, and light sticks.

In addition, the Ormond Beach Emergency Response and Evacuation procedures did not identify locations for at least four extra Hazardous Material Spill Response Kits: (Unit 1, Unit 2, Storage House #3, and the Drum Lube Oil Storage (Photos 29-31). Extra spill kits is a positive action that improves the plant's emergency response, and the plant should update its emergency procedures to accurately reflect all spill kit locations.

The plant lacks consistent quality and inventory control of all emergency equipment. For example, the plant completes a periodic Safety Equipment Checklist to ensure that first aid kits are fully packed and fire extinguishers are fully charged. If a security seal is broken on a first aid kit or fire extinguisher, the plant replaces the item immediately. However, the plant lacks a similar process to monitor inventory and quality of other safety equipment such as SCBA, emergency rations, drinking water, safety blankets, radios, and light sticks. EGPB found that certain emergency rations expired last year.

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[21] OB-S-57: "Safety Procedure Emergency Response Plan Rev 03," Issue Date: 06-01-2010; Revised: 06/01/2010; Reviewed: 06/14/2010

[22] OB-S-57: "Safety Procedure Emergency Response Plan" Rev 03 – Page 10 "Emergency Response Equipment" section

[23] OB-S-57: "Safety Procedure Emergency Response Plan" Rev 03 – Page 7 "Emergency Response Equipment" section

Photo 29: Unit 1 spill kit


Photo 30: Unit 2 spill kit


Photo 31: Spill kit in the Drum Lube Oil Storage area

Finding 15 – The plant fails to maintain the chemistry lab.

Poor housekeeping practices at the chemistry lab could accidentally contaminate test samples.[24] Flakes of deteriorated drywall fall onto the workstation ("grab sample" bench) where plant staff collects water samples and conduct tests. A panel system located behind the bench collects water samples from various sources in the plant. An accumulated pile of debris on the worktop surface indicates that the plant ignored the problem for quite some time. Because the deteriorated drywall is directly above the collected samples, debris may fall into open beakers, contaminate water samples, and adversely affect test results.

[24] Maintenance Standard 15, Guideline J

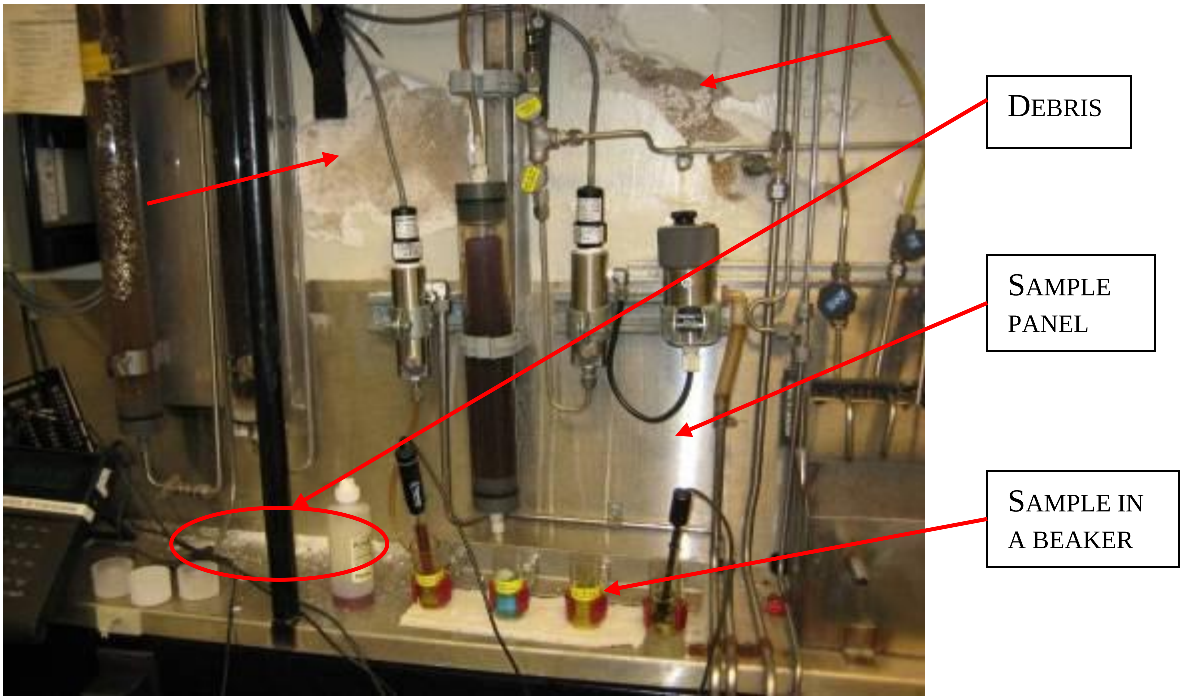

Photo 32: Deteriorated drywall flakes onto the lab bench.

Finding 16 – The plant lacks a procedure to report safety-related incidents to the Commission.

General Order (GO) 167, Section 10.4 requires plant owners to notify the CPUC of any safety-related incidents that meets the reporting criteria.[25] At a minimum, such a procedure would:

- Describe the reporting requirements of GO 167, Section 10.4.
- Designate a worker to evaluate whether an incident meets the reporting criteria.
- Designate a worker to report an incident to the CPUC.
- Describe how to report an incident to the CPUC.

Finding 17 – The plant fails to track work order errors and outstanding repairs.

The plant fails to monitor its Systems Applications and Products (SAP) for inaccurate work orders, and to track outstanding or incomplete repair work to completion. [26]

In July 2009, a contractor inspected the plant's electrical switchgear for "hot spots" and recommended specific repairs. EGPB discovered at least two outstanding repairs, which the contractor flagged as "medium priority" and "high priority," respectively. When EGPB asked the plant to produce the corresponding work orders from the SAP system,[27] the plant could not

[25] Maintenance Standard 16
[26] Maintenance Standard 10
[27] SAP is a maintenance and work order system used to plan, schedule, and record work activities at the plant.

locate the work order for the medium priority repair, and struggled to locate the work order flagged as high priority.[28]

When the plant eventually located the high priority work order,[29] the SAP system indicated the job status as “Waiting Scheduling Not Approved for Scheduling.” Plant staff stated that the work order information “appeared to have been entered incorrectly” into the SAP system because “multiple work orders were assigned to this particular job, instead of one work order per equipment.” As of February 2011, the plant had not completed the “high priority” repair.

Finding 18 – The plant fails to maintain accurate schematics.

The plant failed to update its schematics to accurately reflect design changes of certain equipment or systems:[30]

- Water treatment system: The plant removed the make-up demineralizers, and added a condensate polisher and reverse osmosis system. However, the plant schematic still illustrates the demineralizers as part of the water treatment system and does not depict the two new components (polisher and reverse osmosis).
- Forced draft (FD) fan: The plant replaced the FD fan inlet damper with a variable speed drive. Plant schematic does not reflect that change.
- Bulk nitrogen storage tank: The plant added a bulk nitrogen storage tank, which is not reflected in the schematic. According to plant staff, a revised schematic is underway but staff could not provide a completion date.

Photo 33: Bulk nitrogen storage tank is not recorded on plant schematic.

Finding 19 – Supply storage room lacks adequate quality and inventory control.

The plant stores oil and other lubricants in the “grease storage room.” [31] EGPB found the storage area in disarray. The plant apparently made no attempt to organize the lubricant drums in any

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[28] Picture #127: Sub Unit#1, Lighting Panel 2L13T Disconnect (High) from BEST Infrared Services, Inc. Infrared Inspection of Electrical Switchgear (July 2009)

[29] SAP Entry: “00,AP,MLDS,LP-24 Connection Hot IR”

[30] Maintenance Standard 11, Guideline B11; and Operation Standard 8, Guideline B3

[31] Operation Standard 11, Guideline C & D; Maintenance Standard 12

particular order to minimize the likelihood of staff selecting the wrong product. Because drum labels lack expiration dates, a lubricant could be stored beyond its useful shelf life, thus reducing its effectiveness. The plant also lacks a process to rotate supplies to ensure that workers always select the older lubricants first.

Further, the plant stores lubricants, grease dispensers and hand pumps on the floor, which increases the likelihood of contamination with dust, dirt, water, and other oils and fluids. In fact, dirt and dust coated the dispensers and hand pumps. Contaminants reduce the effectiveness of the lubricants to protect parts, which could lead to equipment failure. EGPB found a nearby floor drain clogged with debris and filled with an unknown liquid substance, posing further contamination and safety risk.

Photo 34: Sloppy storage of grease containers on racks and floor.

Photo 35: Clogged floor drain in the grease room.

Finding 20 – The plant failed to test the emission control system in 2010.[32]

The Ventura County Air Pollution Control District requires the plant to test the relative accuracy of the emission monitoring system once every four calendar quarters.[33] When EGPB asked to view the test records, the plant could not produce them. Plant staff stated that it did not test the emission monitoring system because the plant did not run past September 2010. EGPB is concerned that Ormond Beach's failure to comply with local emission requirements could jeopardize the plant's ability to operate when needed, especially during peak demand periods.

Finding 21 – The plant's practices conflict with its boiler protection procedures.[34]

Ormond Beach operates infrequently, and experiences long periods of "standby reserve." During the down time, the plant performs a "boiler lay-up" to protect its boiler from corrosion. According to the plant's boiler lay-up procedures,[35] the plant should fill the boiler with condensate, and adjust the pH level for the duration of the standby reserve period. Instead, the plant drains the boiler of condensate, and pressurizes it with nitrogen gas to prevent corrosion. While the nitrogen gas method is acceptable for boiler lay-up, the plant must reconcile the discrepancies between its boiler procedure and actual practice.

Finding 22 – The plant fails to document quality assurance inspections activities.[36]

The plant conducts a quality assurance (QA) inspection to verify all contractors' work on the electrical system. After the contractor finishes a job, plant staff performs a physical inspection to assess quality of the work and to verify completion of the items listed in the work scope. The plant's QA practice is a positive action. We urge the plant to document and preserve such QA inspections to support the overall maintenance program of the electrical system.

Finding 23 – The plant lacks several inspection records for the fire protection system. [37]

The plant's records lack at least six documents related to maintenance of the fire protection system. Specifically, the plant could not produce the following monthly inspection records:

- Preventative Maintenance (PM): *June 2008, November 2008*
- Hose House Inspection: *January 2009, October 2009, November 2009*
- Fire Extinguisher Inspection: *September 2008*

EGPB could not determine whether the missing reports are due to the plant's poor record keeping or a failure to conduct the inspections. Nonetheless, Ormond Beach must conduct timely inspections and retain sufficient records to support plant maintenance and operation.

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[32] Operations Standard 10; Maintenance Standard 16
[33] Code of Federal Regulations Title 40, Part 60 Appendix F
[34] Operation Standard 26, Guideline A
[35] OBGS Operating Procedure OB-04-06 (Rev. March 23, 2007)
[36] Maintenance Standard 8
[37] Operation Standard 17

Finding 24 – The plant fails to adequately manage employee training records.[38]

The plant manages employee training records through a database program called "Learning Management System" (LMS), yet fails to accurately track such training.

First, LMS does not allow the plant to cross-reference data between completed and outstanding classes for each employee. Consequently, the plant fails to accurately determine which classes an employee must yet attend to fulfill training requirements.

Second, according to an internal safety report,[39] the plant lost the records of three employees who completed the Qualified Electrical Worker Training on January 30, 2009.

Finally, Ormond Beach is inconsistent in its record keeping practice for all training documents. For example, the plant's two-page Hazardous Materials training records contain incorrect and conflicting information (Photo 36).

- "Hazardous Waste Manifest" Training: Documents 1 and 2 list a different first initial for an employee's last name (unless two employees have the same last name).

- "HAZWOPER First Responder Operations" class: Document 1 and Document 2 each list class attendees. Document 2 fails to list two particular employees whose names appear on Document 1.

- Other classes: Document 1 states that an employee completed three classes, while Document 2 does not list that employee on the roster.

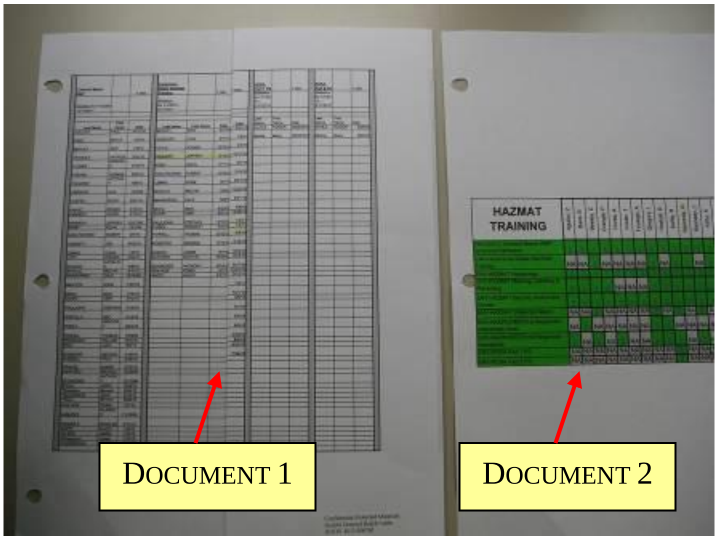

Photo 36: Hazmat training records provided to CPSD during the audit.

[38] Operation Standard 6, Maintenance Standard 6
[39] "Ormond Beach National Safety Performance Index (2010, 3rd quarter)",

Finding 25 – The plant fell behind schedule with employee performance evaluations.

The plant failed to evaluate staff performance or provide remedial training to certain plant staff.[40] A plant must ensure that employees operate equipment in a skilled and safe manner. Typically, a plant conducts periodic performance evaluations to determine a need for additional training to meet regulatory or self-imposed requirements. Within a three-year period, Ormond Beach exceeded regulatory limits[41] to evaluate four fork-lift operators by as much as four months. Also, according to an internal safety report,[42] two employees were past due in June 2009 for a remedial course regarding safe use of scaffolds.

Finding 26 – The plant failed to complete an outage investigation.

On March 15, 2010, Ormond Beach's Unit 1 main generator bearing #9 experienced high vibrations that resulted in a forced outage. Ormond Beach began, but did not complete, an investigation of the outage.[43]

The plant fills out an incident form to capture information gathered from an investigation, and to determine whether the event warrants a root cause analysis (RCA).

The incident form for the March 2010 forced outage contains multiple discrepancies. First, although the plant's own procedures require designated plant staff to review, understand, and approve an incident report, the March 15 incident report lacked a signature. Further, the worker who conducted the investigation and wrote the report failed to identify him/herself on the incident form. Finally, the worker and the approver failed to record a recommendation regarding the need to conduct an RCA .

Upon EGPB inquiry, plant staff gave conflicting explanations. One worker stated that the plant performed an RCA of the March 15 forced outage, while a second worker explained that because the plant did not complete the investigation, or recommend for or against an RCA, the plant did not conduct an RCA. EGPB suspects that Ormond Beach fails to thoroughly investigate problems at the plant, particularly those that could lead to an outage.

Finding 27 – Plant failed to conduct a periodic review of the Injury and Illness Prevention Plan.[44]

While Ormond Beach has long-standing procedures in place to annually review its Injury and Illness Prevention Plan (IIPP),[45] the plant failed to review the IIPP in 2010.[46] In 2009, the plant

[40] Operation Standard 5, Assessment F
[41] OSHA (cite rule)
[42] Ormond Beach National Safety Performance Index 2010, 4th quarter
[43] Maintenance Standards 3 and 4
[44] OB-S-16: Illness Prevention Program
[45] Section 7.1 Review: "This procedure shall be reviewed at a minimum annually."
[46] Operation Standard 12, Guidelines A, B, C and D

reviewed the IIPP but failed to record the revision date. In 2008, the plant reviewed the IIPP and recorded the review and revision dates on the plan.

Finding 28 – A sample of plant documents contain discrepancies.

The plant's documents contain conflicting information, a violation of the Maintenance Standards.[47] EGPB found discrepancies among the following plant documents:

- Operational Reliability Monthly PMs report: The plant is not consistent in completing the "Results" section. Usually, the plant fills in the section with either an "all OK" comment or information describing a problem. However, in multiple reports, the "Results" section lack any information at all.
- Contractor Services Manual: The Table of Contents fails to list the Appendices.
- Operating Procedure OB 10-4: The document is mis-labeled as "-0-4".

[47] Maintenance Standard 8