

ATTACHMENT 3

Corrective Action 02-02202-24 Expanded Extent of Condition

Objective

Enhance and expand the extent of condition for CR 02-02202. The extent of condition for CR 02-02202 performed an extensive review of Emergency Planning requirements, implementing procedures, and documentation but did not completely consider cross-cutting issues in other Beaver Valley organizations. Therefore, this expanded extent of condition will determine if the root and contributory cause of this issue have impacted other plant processes, equipment, or human performance. This determination will include an assessment of these root and contributory causes across (1) disciplines / departments other than Emergency Planning, (2) different programmatic activities, (3) human performance, and (4) different types of equipment.

This Extent of Condition effort will also include a review of past Quality Assurance (QA) identified issues and implementation of associated corrective actions.

Background

Root Cause - The root cause of the issue addressed in CR 02-02202 was that a “means {was} not provided for ensuring adequate equipment quality, reliability, and operability.” Specifically, the organization did not establish required testing, maintenance procedures, or processes.

Contributing Causes

- (1) Self-checking was not applied to ensure the intended action was correct. Self-identification of this deficient condition did not occur.
- (2) Inadequate implementation of corrective actions. Corrective actions associated with the Quality Assurance (QA) identified issues were not properly implemented.
- (3) Response to a known or repetitive problem was untimely. Corrective actions were limited to long term solutions and did not consider interim period actions.
- (4) Management follow-up or monitoring of activities did not identify problems
- (5) Personnel exhibit insufficient awareness of the impact on actions of safety. A lack of awareness of the impact of actions on safety. A lack of awareness allowed Personal Home Alert Devices (PHADs) to be removed from operation without the organization’s knowledge.

Scoping Analysis

This extent of condition will target the areas of Security and Environmental programs. Specifically, the means to ensure equipment quality, reliability, and operability will be assessed. The state of testing, maintenance procedures, and processes will be part of this review.

Additionally, the response and implementation of issues identified by the Quality Assurance organization will also be reviewed. Emergency Preparedness, Security and Environmental issues in or around the time period between 1998 and 2001 were reviewed to ensure that when required, Quality Assurance verification of completed corrective actions were performed.

The areas of Security and Environmental were chosen based on their similarity to the nature of the Emergency Planning functions and organization. These areas are governed by regulatory requirements but have systems, components, programs, and processes that do not typically utilize the site's work management system and fall under regulatory requirements other than Technical Specifications. The equipment quality, reliability, and operability of plant systems are typically processed in site work management systems and processes. Plant systems were also the recipient of rigid reviews such as those performed in response to the Updated Final Safety Analysis Report (UFSAR) validation process. "Latent Issues Reviews" is also an ongoing program that has and continues to assess system health and bases in depth. A Technical Specification (TS) review was also executed and docketed in mid 1997. This TS review validated that the Technical Specifications Surveillances were properly satisfied by approved procedures. Other programs to verify processes, equipment and human performance associated with plant systems include the Major Equipment Reliability Program (MERP) and Equipment Reliability program enhancements.

Methodology

1. Establish a multi-discipline team with the skills necessary to assess the areas of Security, Environmental, and Quality Assurance.

The team was comprised of:

M. Banko, with experience in Environmental and Chemistry

J. Bosiljevac, with experience in maintenance and telecommunications.

R. Harris, with experience in Chemistry, Training and Emergency Preparedness

S. Vicinie with experience in Chemistry, Quality Assurance and Emergency Preparedness

T. Cosgrove, Director of Work Management, Team Sponsor

2. Review the evaluation performed in CR 02-02202, highlighting the root and contributory causes.

3. Create review plan for the areas of Security, Environmental, and Quality Assurance.

The review plan included evaluating the Maintenance and Testing procedures in the areas of Environmental and Security and ensuring that the Quality Assurance Organization had verified implementation of Corrective Actions from QA initiated Condition Reports in the areas of Environmental, Security and Emergency Preparedness.

Environmental

1.0 DISCOVERY AND CONCLUSION

The Environmental Extent of Condition consisted of a review of items that included laboratory instruments, testing equipment, and other equipment used at Beaver Valley Power Station (BVPS) to satisfy environmental compliance and protection requirements. The review was conducted within the four traditional environmental categories of Air, Waste, Water, and Release Prevention and Response. Procedures, Condition Reports, and Corrective Actions were reviewed for all identified equipment.

- 1.1 The review is detailed in the attached Environmental Table.
- 1.2 The discovery process did not reveal any ineffective corrective actions.
- 1.3 The discovery did reveal at least one procedure with steps that direct a user to an apparently non-controlled vendor manual. Condition Report 03-04894 was written to correct the procedure, and to perform a review to identify any other similar procedures.
- 1.4 The discovery process did reveal issues regarding equipment maintenance and testing related to the Unit 1 and Unit 2 Sewage Treatment Plants (STP). Those issues, however, were previously identified in three Condition Reports with appropriate Corrective Actions generated.

CONCLUSION: As of the report date of this Extent of Condition review, there are no outstanding issues regarding the maintenance and testing of items used for environmental protection and compliance at BVPS.

2.0 Statutory bases for the categories are:

- 2.1.1 Air: The federal statute for air quality matters is the Clean Air Act (CAA) and amendments, most recently amended in 1990. Pennsylvania enacted the Air Pollution Control Act.
- 2.1.2 Waste: The federal statute for waste requirements, particularly Hazardous Waste are found in the Resource Conservation and Recovery Act (RCRA) of 1976. Pennsylvania enacted the Solid Waste Management Act.
- 2.1.3 Water: The federal statute (and subsequent amendments and parallel laws) for water quality matters is the Water Pollution Control Act of 1972 known as the Clean Water Act (CWA). Pennsylvania enacted the Clean Streams Law.
- 2.1.4 Numerous federal and state laws, including the previously listed air, waste, and water laws, were enacted to prevent spills and releases of harmful substances into the environment. Included are the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) re-authorized in 1986 as the Superfund Amendments and Reauthorization Act of 1986 (SARA) also known as the Emergency Planning and Community Right to Know Act (EPCRA). Pennsylvania enacted the Worker And Community Right-To-Know Act, and the Storage Tank Spill Prevention Act.
- 2.2 Most applicable rules for environmental compliance are found in Title 40, Code of Federal Regulations (40 CFR) – Protection of Environment, regulated by the US Environmental Protection Agency (EPA); and Title 25, Pennsylvania Code (25 PA Code) – Environmental Protection, regulated by the Pennsylvania Department of Environmental Protection (DEP).
- 2.3 The Licensing Basis for protection of the environment and compliance with environmental regulations is found in: “Appendix B to Beaver Valley Power Station Unit 2 Operating License No. NPF-73 – Environmental Protection Plan (EPP) Non-

Radiological. Its objectives are to maintain operation of BVPS in accordance with the conclusions of the Final Environmental Statement – Operating license Stage (FES-OL), maintain consistency between the NRC and other regulating agencies, and to keep the NRC informed of environmental issues related to BVPS operations.

- 2.4 BVPS, FENOC, and FirstEnergy Corporation have programs and procedures for environmental protection and compliance. At BVPS the “umbrella procedure” is 1/2-ADM-0600 – Environmental Protection and Compliance.

3.0 AIR: Condition Does Not Extend

- 3.1 Applicability to BVPS as a minor source are the requirements to maintain Air Operating Permits for certain plant fuel burning equipment, and for compliance with the General Duty Clause under Section 112(r) of the 1990 CAA amendments.
- 3.1.1 The Air Operating Permits for the Emergence Diesel Generators, and the Auxiliary Boilers, are currently captured administratively by a pending application for state-only permit by DEP. Currently, the only requirements are to track fuel usage (reported upon request to the FE Corporate Environmental Department upon request), and to pay annual administrative fees for the pending state-only permit application. Testing and maintenance of the generators, boilers, and ancillary equipment are covered by plant operations and maintenance procedures. **Therefore, the condition does not extend to the diesel generators and boilers.**
- 3.2 The General Duty clause of the 1990 CAA Amendments is applicable to BVPS. The requirements, however, deal with the quantity and management of certain hazardous materials and regulated flammables. For major storage, e.g., hydrogen tanks, the plant operations and maintenance procedures are applicable. Other responsibilities under the General Duty are primarily administrative controls such as procedures for controlling chemicals, e.g., NPDAP 3.8 – Chemicals and Hazardous Materials Management. **Therefore, the condition does not extend to compliance with the General Duty Clause.**

4.0 WASTE: Condition Does Not Extend

- 4.1 Federal and state waste regulations apply to BVPS. Applicable equipment or instruments in maintaining compliance are laboratory instruments used to perform waste analyses. BVPS uses either FENOC” Beta Laboratories or a qualified contracted laboratory to perform such analyses. Note also that Beta Laboratories is an ISO 9001 Certified Laboratory meaning that it must maintain procedures and records to high standards. The ISO program also includes routine audits for compliance. No other equipment or instruments that require maintenance or testing, are used for compliance with the waste regulations.
- 4.2 **Therefore, the condition does not extend to waste compliance at BVPS (see Environmental Table for description).**

5.0 WATER: Condition Extends to Water Regulatory Compliance- Identified Issues Are Addressed

- 5.1 Federal and state water regulations apply to BVPS. Waste water is regulated under NPDES Permit No. PA0025615. Equipment used for compliance include laboratory instruments, flow meters, and Maintenance and Testing Equipment (M&TE). The discovery is summarized in the Environmental Table.
- 5.1.1 BVPS Laboratory instruments used to perform analyses are controlled by Chemistry Manual procedures. The procedures address quality control testing, maintenance, and troubleshooting.
- 5.1.1.1 Procedures for instruments that are considered to be installed plant components reference controlled vendor manuals and as such, are not in the extent of condition.
- 5.1.1.2 Procedures for M&TE are controlled by the Plant Maintenance Section Procedures, and as such, are not in the extent of condition.

- 5.1.1.3 During the review, one procedure for laboratory equipment (sampling device) was found to direct a user to a non-controlled vendor manual in several steps. Condition Report 03-04894 was written to address that procedure, and to direct the review and revision, if necessary of other Chemistry laboratory instruments and equipment.
- 5.1.1.4 Unit 1 and Unit 2 Sewage Treatment Plants (STP) are regulated under the NPDES Permit. Three significant Condition Reports since June 2002 identified numerous issues, including those related to equipment and maintenance. Corrective Actions were identified and are in various stages of completion as of this report date. The applicable conditions and corrective actions are summarized in the Environmental Table.

6.0 EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW (SPILL & RELEASE PREVENTION & RESPONSE): Condition Does Not Extend

- 6.1 Environmental spill prevention, emergency planning, and response regulations apply to BVPS. Requirements include administrative controls, and routine maintenance of plant equipment under operations and maintenance procedures- to which the condition does not extend. However, oil pollution prevention, and storage tank regulations require inspections, testing, and maintenance when the need is identified. The discovery is summarized on the Environmental Table.
 - 6.1.1 Annual inspections are required of oil storage tanks and oil containing electrical equipment (e.g., certain transformers). Those inspections are performed under 1/2-ADM-0602 – Environmental Spill and Release Preparedness, Prevention and Response. Results are documented on Form 1/2-ADM-0602.F01. A step in the procedure directs the inspector to initiate corrective actions for systems, structures, and components to prevent spills or releases.
 - 6.1.2 Monthly inspections are required for regulated aboveground storage tanks (AST). They are also performed under 1/2-ADM-0602, and documented on 1/2-ADM-0602.F02. A step in the procedure directs the inspector to initiate corrective actions for systems, structures, and components to prevent spills or releases.
 - 6.1.2.1 Two vendor-owned regulated Above-ground storage tanks, containing sodium hypochlorite, are onsite. The requirements of 1/2-ADM-0602 are applicable. The monthly inspections are performed and documented by vendor personnel, and are submitted directly to the designated Environmental & Chemistry supervisor. The vendor procedures were verified to contain appropriate spill prevention steps to comply with BVPS programs, and direct users to 1/2-ADM-0602.
 - 6.1.3 Operations inspections are required every five years for regulated Underground storage tanks (UST). These inspections must be performed by a DEP Certified Tank Inspector. Due dates for performance of the inspections are included on the annual registration certificate issued by DEP. BVPS currently tracks the performance and scheduling of the inspections with CA-02-09959-17.
 - 6.1.4 In-Service Inspections are required every ten years for regulated ASTs. These inspections must be performed by a DEP Certified Tank Inspector. Due dates for performance of the inspections are included on the annual registration certificate issued by DEP. BVPS currently tracks the performance and scheduling of the inspections with CA-02-09959-22.
- 6.2 ***Therefore, the condition does not extend to Emergency Planning & Community Right-to-Know compliance at BVPS (see Environmental Table for description).***

Security

1.0 DISCOVERY AND CONCLUSION

A review of the Security Equipment Maintenance relative to the root cause for PHADS was performed.

The review covered NRC Cornerstone Performance Indicators (PI's), documentation and reports that feed the indicators, a vertical slice of two primary systems (Explosive Detectors and Intrusion Detection System), overview of other systems, Commercial Process Evaluation (DEER), a current Purchase Order in progress for security work and a random sample of CR's.

The Security Equipment Maintenance Coordinator (EMC), a Burns Security Contractor Representative who reports to the FENOC Security Supervisor, has the primary role in culmination of data and review for work coordination. Work coordinated with the Network Services Supervisor and in turn, Telecom Technicians for the performance of work. This reporting structure has gone through several changes since 1999.

The previous structure utilized I/C maintenance technicians, a maintenance supervisor and the use of a maintenance planner for parts acquisition and SWR work instructions/ package preparations. (future consideration for the utilization of a planner should be explored).

Review of the EMC responsibilities showed good ownership and knowledge of security process and records keeping associated the Security Plan requirements.

The vertical slice evaluation showed no discrepancies in the performance of documentation and related procedures of the primary system.

Other support systems on the Owner Controlled Property, (many are recently installed through the Design Exclusion Evaluation Request (DEER) process (NOP-CC-2003, Engineering Change) are functional but have no currently scheduled PM's and formal training has not yet been established. Because the completion of the Purchase Order that installed the equipment has not reached it's final milestone, a full determination of the spare parts, required Preventive Maintenance Tasks and training was not identified as a deficiency. Following an overview of the DEER and related PO, the concerns noted in the "comments" section do not appear to have direct hooks to implement or follow through as would be in an Engineering Change Package. Over an extended period of time, when commercial changes are made to the system, control of the system's as-built configuration control could become deficient. Condition Report 03-05145) was issued to review this area and make appropriate CA's. This should also include establishment of document controls for vendor manuals/prints. A separate records sector could be created for this information.

The review of CR's noted a 1999 CR that raised concerns with the level of detail in the procedures for maintenance and testing of security equipment. This concern was documented in CR 03-05017.

The timeliness of the corrective action implementation and the change in process from DCP to DEER with formulation of a request for business plan and funding could be strengthened. A review of the CR and proper close out should be made. Currently, the PI's for Security Equipment have reversed the trend and have been maintained in "Green". It appears that the indicator improvement was due to a more dedicated commitment of security maintenance technician resources and recent perimeter changes.

While some of the issues associated with the power system are still having impact on the security systems, appropriate compensatory actions are performed but do cause a demand on site resources. This issue needs to be pursued with diligence, but appropriate and immediate correctives actions

have been made. The Corrective Actions should be reviewed for appropriateness and assurance that all aspects of the original corrective actions are included in implementation.

CR 03-05145 was initiated to address this specific security issue. CR 03-05146 was initiated to review the DEER process to ensure that the program has sufficient measures in place to ensure that configuration control is maintained.

CORRECTIVE ACTION VERIFICATION BY QUALITY ASSURANCE

One of the significant issues from the Personal Home Alert Device issue was that the deficiency had been previously identified by Quality Assurance beginning in 1997, yet the deficiency was not corrected.

1.0 Discovery and Conclusion

The safety significant Condition Reports initiated by Quality Assurance in the areas of Environmental, Emergency Preparedness and Security were reviewed to ensure that the corrective actions were taken and were verified by Quality Assurance personnel. The expectation for verification of corrective actions by Quality Assurance personnel was documented in Condition Report 01-07694. The expectation is delineated in NOP-LP-2004 (effective date 5/13/02).

In each of the areas reviewed, there were cases identified in which the follow-up could not easily be determined. These issues will be evaluated and resolved under Condition Report 03-04788. CR 03-04788 (NF) generated to document failure to meet management expectations (see CR 01-7694), which sets 9/22/2001 as the date when NQA management expected that "...all NQA initiated CRs categorized as "CA" or above shall be designated "YES" for "Quality Organization Follow-up"." An instruction was added to this Condition Report to include an Extent of Condition to ensure that all NQA initiated Condition Reports with a category of "CA" and above have been properly verified by the Quality Assurance organization.

RESULTS:

In the area of the Environmental Investigation, one Condition Report 03-04894 was written to address one chemistry procedure that directed the user to a vendor manual that was not controlled. In the area of the Security Investigation, three Condition Reports (03-05017, 03-0545 and 03-0546) were issued. CR 03-05017 addresses potential enhancements to procedures used for maintenance and testing of security equipment. While no deficiencies were identified, several potential enhancements were identified and documented in the Condition Report. CR 03-0545 was written to address the weaknesses in application of the DEER process in some security equipment changes. CR 03-0546 was written to evaluate potential weaknesses in the DEER process itself. In the area of Quality Assurance, Condition Report 03-05017 was written to address failure to follow NOP-LP-2004. During the Extent of Condition investigation for CR 03-04138, it was discovered that NQA did not verify Category CA corrective action: 02-05983-02. Additionally neither the investigation nor corrective actions were verified for CR 02-08560 (CA).

Additional Considerations

CR 03-04138, NRC White Finding Not Closed and Recommendations for Root Cause Guidance and CARB, was initiated to:

1. Complete the expanded extent of condition described in CR 02-02202, corrective action #24
2. Enhance the instruction in the CR guides for Extent of Condition expectations.
3. Ensure that corrective actions are initiated for CRs associated with white, yellow, or red NRC findings that will document the station's readiness to close the NRC's issue prior to an NRC supplemental inspection.

4. Review the CARB meeting minutes process and initiate changes in order to ensure an outline of the discussion are covered are captured in the minutes.

ref: (1) NOBP-LP-2011, FENOC Root Cause Analysis Reference Guide, rev 00

(2) NOP-LP-2001, Condition Report Process, rev 4

(3) NOBP-LP-2008, Corrective Action Review Board, rev 0

Summary of Go-Forward Actions

1. CR 03-04894 - CHEMISTRY PROCEDURE STEPS DIRECT USER TO APPARENTLY NON-CONTROLLED VENDOR MANUAL
2. CR 03-04138 - NRC WHITE FINDING NOT CLOSED + RECOMMENDATIONS FOR ROOT CAUSE GUIDANCE AND CARB
3. CR 03-04788 - NQA FAILURE TO APPROVE CR INVESTIGATIONS - CA VERIFICATIONS
4. CR 03-05017 - POTENTIAL ENHANCEMENTS TO SECURITY MAINTENANCE AND TESTING PROCEDURES
5. CR 03-05145 - REVIEW OF CORRECTIVE ACTIONS FOR 992637 -TO ENSURE EFFECTIVE IMPLEMENTATION
6. CR 03-05146 - REVIEW OF DEER PROCESS TO ENSURE THAT PLANT CONFIGURATION CONTROL IS MAINTAINED.