

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-454/91026(DRP); 50-455/91026(DRP)

Docket Nos. 50-454; 50-455

License Nos. NPF-37; NPF-66

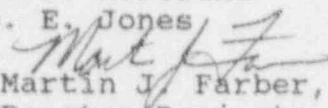
Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, Illinois

Inspection Conducted: October 30, 1991, through December 9, 1991

Inspectors: W. J. Kropp
C. H. Brown
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Approved By:  Martin J. Farber, Chief
Reactor Projects Section 1A

12/11/91
Date

Inspection Summary

Inspection from October 30, 1991, through December 9, 1991
(Report No. 50-454/91026(DRP); 50-455/91026(DRP)).

Areas Inspected: Routine, unannounced safety inspection by resident and region-based inspectors of action on previous inspection findings, operational safety verification, plant startup from refueling, engineered safety features systems, onsite event followup, housekeeping and plant cleanliness, current material condition, radiological controls, security, cold weather preparation, licensee event report followup, maintenance activities, surveillance activities, work planning, support system failures, engineering and technical support and report review.

Results: In the seventeen areas, one violation was identified concerning Technical Specification surveillance failures not being documented (paragraph 5.d). The following is a summary of the licensee's performance during this inspection period:

Plant Operations

The licensee's performance in this area continues to be good. Management provided additional shift personnel during the concurrent startup of both units. Also, the operator's response to events was considered good.

Safety Assessment/Quality Verification

The licensee's performance in this area was considered good based on review of LERs and the onsite review of the operability assessment of the ultimate heat sink (UHS) performed by the licensee's corporate engineering staff.

Maintenance and Surveillance

Licensee performance in this area was mixed. The investigation and repair of the seal injection filter and the safety system performance form used for work planning were considered good. However, the work planning process for the 2A AFW pump was not effective in ensuring that the system engineer was available for a required inspection. In addition, a violation for failure to document equipment problems noted during Technical Specification surveillances was identified.

Engineering and Technical Support

The licensee's corporate engineering operability assessment of the UHS was considered good.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- *R. Pleniewicz, Station Manager
- K. Schwartz, Production Superintendent
- *M. Burgess, Technical Superintendent
- *J. Kudalis, Services Director
- *D. Brindle, Regulatory Assurance Supervisor
- T. Didier, Operating Engineer, Unit 1
- *T. Gierich, Assistant Superintendent, Work Planning
- T. Higgins, Assistant Superintendent, Operations
- *J. Schrock, Operating Engineer, Administrative
- M. Snow, Operating Engineer, Unit 0
- D. Prisby, Quality Control Supervisor, Quality Control
- *D. St. Clair, Project Engineer, ENC
- *P. Johnson, Technical Staff Supervisor
- T. Tulon, Assistant Superintendent, Maintenance
- M. Rauckhorst, PWR Projects Principal Engineer
- W. Kouba, Operating Engineer, Unit 2
- *E. Zittle, Regulatory Assurance Staff

*Denotes those attending the exit interview conducted on December 9, 1991, and at other times throughout the inspection period.

The inspectors also had discussions with other licensee employees, including members of the technical and engineering staffs, reactor and auxiliary operators, shift engineers and foremen, and electrical, mechanical and instrument maintenance personnel, and contract security personnel.

2. Action on Previous Inspection Findings (92701 & 92702)

(Closed) Unresolved Item 454/91011(DRP); 455/91010(DRP): Operability assessment for the ultimate heat sink did not account for the worst case wet bulb temperature and did not directly assess the non-conservative assumption of 33,000 gpm total essential service water (SX) flow. The licensee's response, dated August 27, 1991, stated that compensatory actions should have been taken to monitor wet bulb temperature to ensure continued validity of the operability determination. The qualitative approach to the SX flow assumptions was utilized because the actual flowrates to the individual tower cells were not known, but were a function of the number and combination of tower cells in operation. This item is considered closed.

(Closed) Unresolved Item 454/91024-02(DRP); 455/91024-01(DRP): Support valves for safety related systems failed to perform as designed. This item is closed based on the identification of a violation discussed in paragraph 5.d of this report.

3. Plant Operations

On November 7, 1991, Unit 1 was synchronized to the grid following a scheduled 62 day refueling outage. On November 19, 1991, the unit was shut down to repair an unisolable leak on the common discharge header of the condensate pumps. The unit was returned to service on November 23, 1991, and has since operated at power levels up to 90% in the load following mode.

On November 7, 1991, subsequent to achieving criticality after an 11 day forced outage, a reactor trip occurred from 10% power. The unit was returned to service that same day and has operated at power levels up to 100% in the load following mode.

a. Operational Safety Verification (71707)

The inspector verified that the facility was being operated in conformance with the licenses and regulatory requirements, and that the licensee's management control system was effectively carrying out its responsibilities for safe operation.

On a sampling basis the inspectors verified proper control room staffing and coordination of plant activities; verified operator adherence with procedures and technical specifications; monitored control room indications for abnormalities; verified that electrical power was available; and observed the frequency of plant and control room visits by station management.

b. Plant Startup From Refueling (71711)

The inspectors witnessed the Unit 1 startup, and verified that the startup was performed in accordance with approved procedures and that Technical Specification (TS) surveillance tests required to be performed before the startup were satisfactorily completed.

Due to increased control room activities during the week of November 4, 1991, management provided additional personnel on shift to assist the normal shift manning. Extra assistance was deemed appropriate by management due to the startup of both units within a

short time span. The licensee's management assigned an additional startup Shift Foreman for each unit and a startup Shift Control Room Engineer for coverage around the clock. In addition, two Operating Engineers and the Assistant Superintendent of Operations provided management overview around the clock until both units were returned to service.

The inspectors identified a minor concern with procedure 1BGP 100-2, "Plant Startup", which required that 1BGP 100-2T2, "Mode 3 to 2 checklist", be completed prior to commencing reactor startup. However, the 1BGP 100-2 flowchart, which provided the sequence by which procedural steps were to be accomplished allowed for the checklist to be performed in parallel with the reactor startup. The licensee committed to evaluate the inspector's concern with 1BGP100-2. The inspectors have no further concern in this area.

c. Engineered Safety Features (ESF) Systems (71710)

The inspectors verified the status of selected accessible portions of the 1A containment spray system. Consideration was given to the plant mode, applicable Technical Specifications, Limiting Conditions for Operation Action Requirements (LCOARs), and other applicable requirements.

Various observations, where applicable, were made of hangers and supports; housekeeping; whether freeze protection, if required, was installed and operational; valve position and conditions; potential ignition sources; major component labeling, lubrication, cooling, etc.; whether instrumentation was properly installed and functioning and significant process parameter values were consistent with expected values; whether instrumentation was calibrated; whether necessary support systems were operational; and whether locally and remotely indicated breaker and valve positions agreed.

d. Onsite Event Follow-up (93702)

On October 30, 1991, with Unit 2 in Mode 4, a spurious Train B feedwater isolation signal occurred, closing various feedwater valves. The RHR system was providing decay heat removal and the Auxiliary Feedwater system was providing approximately 15 gallons per minute of feedwater to each Steam Generator (SG) to maintain acceptable chemistry. No testing was in progress at the time and SG levels were normal and stable. As

immediate corrective action, the feedwater isolation signal was reset and the valves were kept closed until the root cause of the event was determined. The licensee determined that the cause was due to failure of a logic card due to normal aging. The card was replaced and the appropriate surveillance was performed to verify proper operation of the affected circuits.

On November 7, 1991, subsequent to Unit 2 achieving criticality after an 11 day forced outage, a reactor trip occurred from 10% power. The cause of the trip was lo-lo level in the "A" SG due to instabilities in level during startup. The licensee plans to modify the SG level instrument taps during the next refueling outage which will remedy the problem. The unit was returned to service that same day.

On November 14, 1991, the station requested a Temporary Waiver of Compliance (TWOC) from Technical Specification (TS) 3.8.1.1 for both units. The TWOC was requested due to a condition that existed on each of the units' two Emergency Diesel Generators (EDG). The operability of the EDGs were in question due to an inadequate surveillance. TS surveillance 4.8.1.1.2.f.4a required that the engineered safety feature (ESF) busses be de-energized and the loads shedded during a degraded or undervoltage condition. The degraded voltage condition had been adequately tested but the ability of the ESF busses to deenergize and shed load on undervoltage condition had not been adequately tested. Untested circuit paths in the undervoltage relaying scheme were identified by the licensee as a result of a NRC inspection at the licensee's LaSalle County Station. The TWOC requested a 48 hour delay in the implementation of the applicable action requirement of TS LCO 3.8.1.1. The NRC granted the 48 hour delay at 6:45 pm on November 14, 1991. The licensee initiated action to test the previously untested circuit paths to verify the undervoltage relaying scheme was capable of deenergizing and load shedding the ESF busses. The tests were successfully completed within 24 hours and all EDGs were then declared operable. TS Action Statement 3.8.1.1 was then exited.

On November 19, 1991, Unit 1 was shut down from 7% power to repair an unisolable leak on the common discharge header of the condensate pumps. The source of the leak was a crack in the weld on a 2 inch drain line. A weld repair was completed and the unit was returned to service on November 23, 1991.

e. Housekeeping and Plant Cleanliness

The inspectors monitored the status of housekeeping and plant cleanliness for fire protection and protection of safety-related equipment from intrusion of foreign matter. Overall, housekeeping and plant cleanliness were considered good.

f. Current Material Condition

The inspectors performed general plant, as well as, selected system and component walkdowns to assess the general and specific material condition of the plant, to verify that Nuclear Work Requests (NWRs) had been initiated for identified equipment problems, and to evaluate housekeeping. Walkdowns included an assessment of the buildings, components, and systems for proper identification and tagging, accessibility, fire and security door integrity, scaffolding, radiological controls, and any unusual conditions. Unusual conditions included but were not limited to water, oil, or other liquids on the floor or equipment; indications of leakage through ceiling, walls or floors; loose insulation; corrosion; excessive noise; unusual temperatures; and abnormal ventilation and lighting. Overall, the material condition of the plant was considered good.

g. Radiological Controls

The inspectors verified that personnel followed health physics procedures for dosimetry, protective clothing, frisking, posting, etc. and randomly examined radiation protection instrumentation for use, operability, and calibration.

h. Security

Each week during routine activities or tours, the inspectors monitored the licensee's security program to ensure that observed actions were being implemented according to the approved security plan. The inspectors noted that persons within the protected area displayed proper photo-identification badges and those individuals requiring escorts were properly escorted. The inspectors also verified that checked vital areas were locked and alarmed. Additionally, the inspectors also observed that personnel and packages entering the protected area were either searched by appropriate equipment or by hand.

i. Cold Weather Preparations (71714)

The inspectors reviewed the licensee's preparations for cold weather. The surveillance, OBOS-XFT-A1, "Freezing Temperature Equipment Protection", was performed during the period September 28 to November 26, 1991. The surveillance included operability verification of plant heating systems and heat-tracing. The verification activities included interviews with plant personnel involved with the surveillance and observation of selected associated equipment.

No violations or deviations were identified.

4. Safety Assessment/Quality Verification (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, that immediate corrective action was accomplished, and that corrective action to prevent recurrence had been or would be accomplished in accordance with Technical Specifications (TS):

Closed 454/91005-LL: Unit 1 entered Mode 4 with both containment spray pumps out of service with the control switches in pull-to-lock, in violation of Technical Specifications. This event was reviewed in special inspection report 50-454/91027(DRP). This item is closed.

(Closed) 455/91003-LL: The licensee declared an Unusual Event and commenced shutdown of Unit 2 when reactor coolant system unidentified leakage was determined to be in excess of Technical Specification requirements. Shortly after entry into Mode 3, a containment entry inside the missile barrier identified the source as a packing leak on the Loop C RTD bypass manifold flow transmitter root valve. The valve was isolated to exit the Unusual Event, and the packing was replaced prior to returning the unit to power operations. Licensee corrective action in response to the event was considered appropriate. This item is closed.

(Closed) 455/91004-LL: The root cause analysis and corrective actions to the October 30, 1991, Unit 2 spurious feedwater isolation, as described in paragraph 3.d above, appear to be adequate. This item is closed.

In addition to the foregoing, the inspector reviewed the licensee's Deviation Reports (DVRs) generated during the inspection period. This was done in an effort to monitor the conditions related to plant or personnel performance,

potential trends, etc. DVRs were also reviewed to ensure that they were generated appropriately and dispositioned in a manner consistent with the applicable procedures and the QA manual.

No violations or deviations were identified.

5. Maintenance/Surveillance (62703 & 61726)

a. Maintenance Activities (62703)

Routinely, station maintenance activities were observed or reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and in conformance with technical specifications.

The following items were also considered during this review: approvals were obtained prior to initiating the work; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; and activities were accomplished by qualified personnel.

Portions of the following maintenance activities were observed and/or reviewed:

MWR 87026	Disassembly and Cleaning of Waterside of SX HTX
MWR 87922	Trevitest of Main Steam Safeties
MWR 89694	Seal Injection Filter Change-Out

No violations or deviations were identified.

b. Surveillance Activities (61726)

During the inspection period, the inspectors observed technical specification required surveillance testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that results conformed with technical specifications and procedure requirements and were reviewed, and that any deficiencies identified during the testing were properly resolved.

The inspectors also witnessed portions of the following surveillances:

1BIS FW-001	"Verification of Feedwater Valve Stroke Timing"
1BOS 8.1.1.2.a-2	"1B Diesel Generator Operability Monthly Surveillance"

2BVS 0.5-3.AF.1-1 "ASME Surveillance Requirements for
the Unit 2 Motor Driven AFP"
2BVS 5.2.f.3-1 "ASME Surveillance Requirements for
the Unit 2 RHR Pump"

c. Work Planning

During the review of maintenance activities on the 2A auxiliary feedwater pump (AFW), the inspectors had a concern with the coordination of the work with the availability of personnel. The 2A AFW pump was taken out of service on November 24, 1991, at 9:30 p.m. to perform preventive maintenance that included an oil change, repair of an oil leak, and inspection of the lube oil cooler. The appropriate Technical Specification Action Statement, 3.7.1.2.a was entered when the 2A AFW pump was taken out of service. The Action Statement required the pump to be returned to service in 72 hours or be in hot standby within the next 6 hours and hot shutdown within the following 6 hours. While reviewing the maintenance activities associated with the 2A AFW pump, the inspectors noted that the lube oil cooler had been removed from the pump and was laying on the floor on the morning of November 25, 1991, with no work activities in progress. The inspectors contacted the AFW back-up system engineer to determine the status of the lube oil cooler. The backup system engineer stated that the essential service water (SX) system engineer would be the person to discuss the status of the lube oil cooler. However, the SX system engineer was not available on the morning of November 25, 1991. The inspectors determined later from the SX system engineer that the lube oil cooler was being inspected for cleanliness and possible fouling as part of the Generic Letter 89-13 preventive maintenance program for heat exchanges cooled by SX water. The lube oil cooler was inspected by the SX system engineer on the afternoon of November 25, 1991. The 2A AFW pump was started at 4:10 p.m. for a post maintenance run and the action statement was exited at 8:00 pm on November 25, 1991, when the 2A AFW pump was returned to service. The inspectors reviewed the work planning process for the 2A AFW pump and had the following observations:

- The licensee recently established a Safety System Performance (SSP) equipment outage approval form that identified pending NWR and preventive maintenance items. The form also contains the current system performance indicator, projected system performance indicator, and total estimated duration of the NWRs. The Technical Staff system

engineer concurs with the planned maintenance work identified on the SSP form, with the form being approved by an Operating Engineer and the Assistant Superintendent of Work Planning. The SSP equipment outage form appears to be a good tool for controlling outages of safety related systems.

- The unavailability of a system engineer to inspect the lube oil cooler extended the outage time for the 2A AFW pump. The inspectors reviewed the completed SSP form and noted that the actual duration was recorded on the form but no explanation of why the actual duration exceeded the estimate by approximately 40%.
- The system performance indicator prior to the outage for the Unit 2 "A" train of AFW was considered good at .00698. The projected system performance indicator after the outage was approximately .00745, which was still considered good.

The inspectors considered the SSP form established by the licensee to control safety system outages at power as a good work planning tool. However, in the specific case of the 2A AFW maintenance outage on November 24 and 25, 1991, the unavailability of the system engineer to perform the inspection of the lube oil cooler needs to be evaluated by the licensee. This matter is considered an Open Item pending further review by the licensee and NRC (454/91026-01(DRP); 455/91026-01(DRP)).

d. Support System Failures

In Inspection Reports 454/91024(DRP) and 455/91024(DRP), the inspectors identified a concern with valves that failed to perform as designed during surveillances. The following three examples were identified where valves failed to perform as designed but the surveillance cover sheet did not document the failures, as required by procedure BAP 1400-9, "Technical Specification Data Package Cover Sheet Completion and Use":

- April 17, 1989, valve 1SX173 failed to open during surveillance 1BVS 7.1.2.1.a-2 on the 1B Auxiliary Feedwater (AFW) pump.

- September 26, 1990, valve 1SX173 failed to open during surveillance 1BVS 0.5-3.AF.1-2 on the 1B AFW pump and,
- April 18, 1991, valve 2SX169B failed to open prior to surveillance 2BOS 8.1.1.2.a-2 on the 2B Emergency Diesel Generator (EDG).

Not documenting failures on the surveillance cover sheet in the examples above is considered a violation of Technical Specification (TS) 6.8.1 (454/91026-02(DRP); 455/91026-02(DRP)). In addition to addressing the specific failures to document equipment problems on the surveillance package cover sheet, the licensee was requested to address the following:

- If failures of the SX supply valve to the EDGs, 1(2)SX169A(B), occur when these valves are stroked immediately prior to the performance of EDG TS surveillances, would the failures be considered as a EDG failure per TS Table 4.8.1.?
- The method(s) to be utilized to assess failures identified during surveillances that do not pertain to the Acceptance Criteria identified in the surveillance procedures but clearly affect operability of a system.

One violation was identified.

6. Engineering & Technical Support (37700)

On November 14, 1991, the inspectors and the NRR Licensing Project Manager met with the station and the licensee's corporate engineering staff to discuss OnSite Review (OSR) 91-172 for the operability assessment of the ultimate heat sink (UHS), dated November 1, 1991. The OSR performed by station personnel was thorough and appeared to cover all the salient points. The OSR included a review of the assumptions used by the licensee's Nuclear Engineering Department in the operability assessment and an evaluation of a supporting calculation. There are future actions still required, such as Technical Specification and UFSAR changes, with expected completion by May, 1992. At this time, the inspectors have no further questions concerning the operability of the UHS.

No violations or deviations were identified.

7. Report Review

During the inspection period, the inspector reviewed the licensee's Monthly Performance Report for October, 1991. The inspector confirmed that the information provided met the requirements of Technical Specification 6.9.1.8 and Regulatory Guide 1.16.

No violations or deviations were identified.

8. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed by the inspector and which involve some action on the part of the NRC or licensee or both. An Open Item disclosed during the inspection is discussed in Paragraph 5.c.

9. Meetings and Other Activities

a. Management Meetings (30702)

On November 15, 1991, Dr. C. J. Paperiello, Deputy Regional Administrator, H. B. Clayton, Chief, Division of Reactor Projects, Branch 1, and M. J. Farber, Chief, Division of Reactor Projects Section 1A toured the Byron plant and met with licensee management to discuss the SALP 10 Report.

b. Exit Interview (30703)

The inspectors met with the licensee representatives denoted in paragraph 1 during the inspection period and at the conclusion of the inspection on December 9, 1991. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.