

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-454/91029(DRP); 50-455/91029(DRP)

Docket Nos. 50-454; 50-455

License Nos. NPF-37; NPF-66

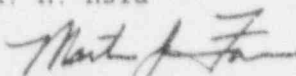
Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, Illinois

Inspection Conducted: December 10, 1991 through January 22, 1992

Inspectors: W. J. Kropp
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1/22/92
Date

Inspection Summary

Inspection from December 10, 1991 through January 22, 1992 (Report Nos. 50--454/91029(DRP); 50-455/91029(DRP)).

Areas Inspected: Routine, unannounced safety inspection by resident, region, and headquarters inspectors of action on previous inspection findings, operational safety verification, Unit 1 forced outage, onsite event follow-up, regenerative waste drain tank overpressurization, current material condition, housekeeping and plant cleanliness, radiological controls, security, safety assessment/quality verification, maintenance activities, Unit 1 diesel driven auxiliary feedwater (AFW) pump, surveillance activities, and fuel handling.

Results: In the fourteen areas inspected no violations were identified. Two open items identified during this inspection pertained to overpressurization of a radwaste drain tank (paragraph 3.c.2) and slow starts of the Unit 1 diesel driven AFW pump (paragraph 5.b). The following is a summary of the licensee's performance during this inspection period:

Plant Operations

The licensee's performance in this area was mixed. Shift briefings, plan of the day meetings, and operating engineers involvement in day to day plant activities continued to be strengths. The operator's response to a reactor coolant system pressure transient during a surveillance on Unit 2 was good;

however, main control board indication during the surveillance could have been used by the operator to mitigate the severity of the transient.

Safety Assessment/Quality Verification

During the inspection period, the inspectors reviewed three LERs and determined that the licensee continued to perform adequate root cause analyses. Corrective actions appeared adequate to prevent recurrence of the events. The licensee's performance in this area continued to be good.

Maintenance and Surveillance

The licensee's performance in this area was good. The licensee has been aggressive in pursuing resolution of the diesel driven auxiliary feedwater pump slow start problem. Actions by the licensee included use of vendor expertise and the establishment of a task force consisting of engineering, operations, and maintenance personnel. Preventive maintenance activities on the pressurizer spray valves to ensure that failure of the feedback linkage would not cause a reactor coolant system pressure transient were 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. B. Indle, 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
St. Clair, Project Engineer, ENC
L. Johnson, Technical Staff Supervisor
W. Grundmann, Quality Assurance Superintendent
*T. Tulon, Assistant Superintendent, Maintenance
M. Rauckhorst, PWR Projects Principal Engineer
W. Kouba, Operating Engineer, Unit 2
E. Zittle, Regulatory Assurance Staff
*R. Colglazier, Regulatory Assurance - Compliance
*W. Dean, Safety Assessment, Senior Engineer
*A. Javorik, Chemistry Supervisor
*W. Pirnat, Opex Administrator
*W. McNeill, Rad Protection/EP

*Denotes those attending the exit interview conducted on January 22, 1992.

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) Open Item (454/90017-04(DRP); 455/90016-04(DRP)): The calibration frequency of an installed plant instrument utilized for data during Technical Specification surveillances was not commensurate with the surveillance frequency. Also, surveillance procedures did not require the identification of plant installed test instruments used during surveillances. The licensee revised procedure BAP1310-A2, "Procedure Review Checklist", to include a step to verify that instruments used to obtain acceptance criteria are on a 18 month or less calibration frequency. Also, Technical Specification surveillance procedures were reviewed to identify any plant installed instruments

that exceeded a periodicity of 18 months. The inspectors have no further concerns in this area and this matter is considered closed.

3. Plant Operations

Unit 1 operated at power levels up to 100% from November 23, 1991 until January 8, 1992 when the unit was shut down to repair a steam leak. The unit was returned to service on January 10, 1992 and has been operating in the load following mode at power levels up to 100%.

Unit 2 operated in the load following mode, at power levels up to 100% from November 17, 1991 until January 16, 1992 when the unit commenced coastdown for a scheduled refueling outage that will begin on February 28, 1992.

a. Operational Safety Verification (71707)

The inspectors 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 the responsibilities for safe operation. During the review of Unit 2 control room log, the inspectors noted that the restoration of containment pressure channel 936 was not logged by the Unit 2 reactor operator. Overall, the logs have been maintained in a good manner and this instance of not logging the restoration of a tripped instrument channel was considered an isolated instance.

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. Unit 1 Forced Outage

On January 8, 1992, Unit 1 was shut down and the reactor taken to Mode 3 to repair a steam leak from a weld on a steam sample probe in the "D" steam line. The probes had been replaced on all four steam lines during the refueling outage that ended in November 1991, and this leak represented a possible common mode failure (improper weld preparation). All four steam line sample probes were removed and the holes capped and welded. Examination of the failed weld indicated that not all of the stainless steel had been removed prior to installing the new probe on the "D" steam line. As a result, stainless steel contamination in the carbon steel weld caused the weld to crack.

During the heatup from the outage, another steam leak occurred in the 1D main steam isolation valve (MSIV) room which required a

partial cooldown to locate and isolate the leak. The leak was on a flexible instrument line downstream of the isolation valve. The licensee isolated the leak and repair plans included modification of the flexible instrument line. The licensee examined similar lines with no other problems noted.

c. Onsite Event Follow-up (93702)

- (1) On January 16, 1992, during performance of Unit 2 Technical Specification (TS) surveillance procedure, 2BIS 3.1.1-039, "Calibration of Pressurizer Pressure Channel P-457", pressurizer power operated relief valve (PORV) 2RY455A inadvertently opened, as did both pressurizer spray valves, resulting in a reactor coolant system (RCS) pressure drop to approximately 2080 psig compared to a normal system pressure of 2235 psig. The Unit Nuclear Station Operator (NSO) reacted immediately to the open PORV by verifying that the pressure was below the PORV relief setpoint and manually closing the PORV and the spray valves. RCS pressure immediately trended back to normal operating pressure.

During recovery, the operators noted that the master pressurizer pressure controller responded to inputs from pressure channel 457, even though the channel was not selected as the controlling channel. This condition would explain why RCS pressure increased to approximately 2290 psig when channel 457 indication dropped to zero as the instrument was placed into the test position. Also this condition explained why PORV 2RY455A and the spray valves opened when the channel 457 indication increased to 2400 psig during calibration, even though the actual RCS pressure was below the PORV setpoint. Subsequent troubleshooting revealed a failed channel selector switch for the master pressurizer pressure controller. The switch was replaced, satisfactorily tested, and the master controller returned to service.

The operator's response to the RCS pressure drop to avert a reactor trip was good. However, the Unit 2 NSO operator failed to recognize the pressure increase when channel 457 was placed in test, which lasted about 8 minutes prior to the PORV opening. Annunciators that would normally have alerted the operator during the transient were already alarmed due to the tripped bistables when channel 457 was placed in test. In such a situation, operator attention was necessary to closely monitor vital plant parameters using the instrumentation that was available, including the pressurizer pressure strip recorder, pressurizer spray valve position and flow indication, OT Delta T strip recorder, and the safety parameter display system (SPDS) monitor. The SPDS monitor which averages the inputs from the operable pressure channels was updated every 20 seconds and appeared

to have provided a highly visible indication that RCS pressure was increasing.

(2) Regenerative Waste Drain Tank Overpressurization

The inspectors were informed that the regenerative waste drain tank (OWX25T) had been damaged by overpressurization resulting in the leakage of a few gallons of the contents onto the floor. Slightly contaminated water was being transferred by a 500 gpm pump to OWX25T from the liquid release tank, OWX26T. The transfer was stopped when an operator noted the distortion of the tank. The highest tank level was recorded at 92%. The licensee is evaluating the tank for repair or replacement, and investigating the root cause of the overpressurization. This matter is considered an Open Item pending further review by the licensee and NRC (454/91029-01(DRP)).

d. Current Material Condition (71707)

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. Material condition of the plant was considered satisfactory.

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. Housekeeping was considered satisfactory.

f. Radiological Controls (71707)

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

g. 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 searched by appropriate equipment or by hand.

No violations or deviations were identified.

4. Safety Assessment/Quality Verification (40500, 90712, 92700)

Through direct observations, discussions with licensee personnel, and review of records, the following Licensee 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:

(Closed) 454/90006-1L: Inadvertent train "A" safety injection. This supplement updated the root cause for the failure of the 2C reactor containment fan cooler low speed breaker to open. Analysis performed by Westinghouse determined that the failure mode was breaker contact misadjustment.

(Closed) 454/91004-1L: Inadvertent safety injection during refueling outage. The cause of the event was cognitive personnel error with a contributing factor of an inadequate procedure. The licensee revised the procedure.

(Closed) 455/91005-1L: Reactor trip on low-2 steam generator level. The design of the tap for level indication on D-5 steam generators (SG), results in level instabilities at low reactor power levels. These instabilities create problems for the reactor operators in trying to maintain SG level. The licensee plans to modify the tap for the level indication during the scheduled Unit 2 refueling outage in February 1992. The modification should eliminate the level instabilities.

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 reviewed:

- NWR B86723 - Modification M6-2-90-610
- NWR B90207 - Repair of nitrogen leak on 1B feedwater isolation valve operator
- NWR B90294 - Replacement of circuit card for the 1A feedwater regulating valve
- Blanket Work Request - Replacement of circuit card for Unit 1 main turbine anticipatory overspeed protection

The inspectors performed a review of the pressurizer spray valve controller maintenance work history in response to an incident at another nuclear site. The incident involved the failure of the feedback linkage of a Bailey controller which allowed the spray valve to fail full open. The maintenance history revealed that the feedback linkages of two spray valves had been checked for loose fasteners. In addition, the inspectors checked the feedwater regulating valves and feedwater regulating bypass valves which also have Bailey controllers. These controllers were in a preventive maintenance program to check for loose feedback linkages. This was as a result of the corrective action for Byron LER 89-02. This LER concerned a feedback linkage which failed a feedwater regulating valve in an open position resulting in a high steam generator level and subsequent manual reactor trip.

No violations or deviations were identified.

b. Unit 1 Diesel Driven Auxiliary Feedwater Pump (AFW)

The inspectors continued to closely monitor licensee maintenance and surveillance testing of the 1B diesel-driven AFW pump due to

relatively slow starts, as compared to the 2B diesel driven AFW pump, since the Fall of 1990. The diesel is designed to allow four cranking cycles over a 55 second period before "locking out". Since the 1B AFW pump has started within four cranking attempts during monthly surveillances the inspectors have no operability concerns. The licensee has noted that the slow starts were intermittent and only occurred when the engine remained idle for several weeks.

Since November 1990, the licensee has performed several maintenance activities as attempts to resolve the slow starting of the diesel. Initial troubleshooting included replacement of the fuel line check valve, fuel filter, and fuel strainer. In May 1991, the licensee replaced the fuel shutoff solenoid valve in response to a vendor recommendation. During the last refueling outage, the licensee also replaced the governor. The licensee's most recent action, which was performed on December 10, 1991, was to replace all the hoses and fittings which connect to the governor and governor reservoir.

On January 2, 1992, the diesel started on the second cranking cycle during the monthly surveillance. In response, the licensee will take the diesel out of service during the week of January 27, 1992 for troubleshooting. A vendor representative will be onsite to direct the further troubleshooting activities, which will include disconnecting the governor to fuel injector linkage and checking for binding of the linkage and fuel injector racks. The inspectors will track continued licensee maintenance & surveillance testing of the 1B AFW pump under Open Item 454/91029-02(DRP).

c. 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:

- 1 BOS 8.1.1.2.A-2 1B diesel generator operability - monthly
- 1 BVS 0.5-3.AF.1-1 ASME surveillance requirements for the
Unit 1 motor driven AFW pump
- 2 BVS AF-1 2B Diesel auxiliary feedwater pump battery
A capacity test
- 2 BVS 3.3.2-1 Moveable incore detectors operability
check

No violations or deviations were identified.

6. Fuel Handling

On several occasions the inspectors witnessed the receipt and storage of new fuel within the fuel handling building. The inspectors verified the appropriate documentation of new fuel and that station procedures were followed in unloading, lifting, moving, lowering, and inspecting new fuel assemblies. Appropriate cleanliness controls were implemented. Efficient communications between fuel handlers, crane operators, radchem technicians, and the fuel handling foremen facilitated fuel handling operations.

No violations or deviations were identified.

7. 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. Open Items disclosed during the inspection are discussed in Paragraphs 3.c.2 and 5.b.

8. Exit Meeting (30703)

The inspectors met with the licensee representatives denoted in paragraph 1 during the inspection period and at the conclusion of the inspection on January 22, 1992. 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.