

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-266/88009(DRP); 50-301/88009(DRP)

Dockets No. 50-266; 50-301

Licenses No. DPR-24; DPR-27

Licensee: Wisconsin Electric Company
231 West Michigan
Milwaukee, Wisconsin 53203

Facility Name: Point Beach Unit 1 and 2

Inspection At: Two Creeks, Wisconsin

Inspection Conducted: March 16 through April 30, 1988

Inspectors: R. L. Hague
R. J. Leemon

Approved By: *R. DeFayette*
R. DeFayette, Chief
Reactor Projects Section 3A

5/16/88
Date

Inspection Summary

Inspection from March 16 through April 30, 1988, (Report Nos. 50-266/88009(DRP); 50-301/88009(DRP))

Areas Inspected: Routine, unannounced inspection by resident inspectors of licensee action on previous inspection findings; operational safety; maintenance; surveillance; physical security; radiological protection; licensee event report followup; outages; and spent fuel pool activities.

Results: One violation was identified (Severity level IV) for failure to follow procedures in requesting equipment isolation. This led to the loss of the automatic isolation capability on the containment vent system. All other inspection results indicated acceptable licensee performance.

DETAILS

1. Persons Contacted

- *J. J. Zach, Manager, PBNP
- T. J. Koehler, General Superintendent
- G. J. Maxfield, Superintendent - Operations
- J. C. Reisenbuechler, Superintendent - EQRS
- W. J. Herrman, Superintendent - Maintenance & Construction
- D. F. Johnson, Superintendent - Health Physics
- R. Krukowski, Security Supervisor
- *F. A. Flentje, Administrative Specialist
- *J. E. Knorr, Regulatory Engineer
- T. L. Fredrichs, Superintendent - Chemistry

The inspectors also talked with and interviewed members of the Operation, Maintenance, Health Physics, Chemistry and Instrument and Control Sections.

*Denotes personnel attending exit interviews.

2. Licensee Action on Previous Inspection Findings (92701)

(CLOSED) Inspection for Verification of Quality Assurance Request Regarding Diesel Generator Fuel Oil, Multi-Plant Action Item A-15: TI 2515/93. The licensee responded by letter, Fay to Denton, dated March 24, 1980, confirming that diesel fuel oil is included in the licensee's quality assurance program. The inspector verified that this was done.

(CLOSED) Inspection for Verification of Licensee Changes Made to Comply with PWR Moderator Dilution Requirements, Multi-Plant Action Item B-03: TI 2515/94. The licensee responded by letter, Burstein to Case, dated December 2, 1977, stating that the PBNP units were not susceptible to the described potential dilution and that all other potential dilution incidents were adequately addressed in the safety analysis report, section 14.1.5. Therefore, no administrative or system changes were required. The inspector agrees with this.

(CLOSED) Generic Letter 85-07, Implementation of Integrated Schedules for Plant Modification. The licensee responded to the Generic Letter by letter, Fay to Thompson, dated July 3, 1985, stating that Wisconsin Electric is not interested in utilizing the integrated living schedule at this time but would consider using it in the future for scheduling major efforts such as the NUREG-0737 requirements.

(CLOSED) Generic Letter 86-07, Transmittal of NUREG-1190 Regarding the San Onofre Unit 1 Loss of Power and Water Hammer Event. The inspectors verified that the information in NUREG-1190 was included in the continuing training material cycle 87-5 which was completed in October, 1987, and that it has been included in initial training for operations personnel.

3. Operational Safety Verification and Engineered Safety Features System Walkdown (71707 and 71710)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the period of inspection. During these discussions and observations, the inspectors ascertained that the operators were alert, cognizant of plant conditions, attentive to changes in those conditions, and took prompt action when appropriate. The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Unit 1 Containment, and the Auxiliary and Turbine Buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance.

The inspectors observed plant housekeeping/cleanliness conditions. During the period of inspection, the inspectors walked down the accessible portions of the Auxiliary Feedwater, Vital Electrical, Diesel Generating, Component Cooling, Safety Injection, Containment Spray and Service Water systems to verify operability. All required systems were found to be operable and no major problems were observed. Minor discrepancies such as packing leaks, broken name tag securing wire and burned out light bulbs were brought to the licensee's attention. These discrepancies were corrected or maintenance work requests were generated.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under Technical Specifications, 10 CFR and administrative procedures.

At approximately 9:04 am, on April 7, 1988, Unit 2 experienced a reactor trip and safety injection actuation signal while attempting to switch red instrument bus power supplies. In preparation for maintenance personnel to perform annual routine maintenance on the normal red instrument bus inverter, 2DY01, operations personnel were following a procedure to transfer the red instrument bus to the swing inverter, DY0A. Due to previous voltage spikes during this evolution, the procedure called for placing rod control in manual and Power Range N41 in bypass to prevent a nuclear instrumentation negative rate runback from the anticipated voltage spike on the power range. When the preliminary steps of the procedure had been accomplished, a licensed operator (not the "control room" operator) went to the computer room, which is above the control room, to open the normal supply breaker and close the swing inverter supply breaker. This evolution is aided by a mechanical interlock which should allow only one of the two breakers to be closed at the same time. After making the switch, the operator returned to the control room and found that all instrumentation supplied by the red instrument bus was cycling erratically. The operator returned to the computer room and switched back to the normal inverter, this action returned the red instrument bus instrumentation to normal. Shortly thereafter, the unit experienced reactor trip and safety injection signals on low pressurizer pressure.

Preliminary indication is that the breaker from the normal inverter did not open thus causing the two inverters to operate in parallel for a period of approximately 2 minutes and 10 seconds. During this period significant voltage swings were produced on the red instrument bus. All instrumentation cycled as would be expected; however, some unexpected transients occurred in some of the control circuits. Both pressurizer spray valve controllers are powered from the red instrument bus and during the time that the inverters were operating in parallel, both spray valves went open to varying degrees and cycled independent of pressure. The valves then went shut when the operator returned the breakers to their normal positions. The result of the spray valve cycling reduced pressurizer pressure from the normal 1990 psi to 1840 psi. Despite the power range runback feature being in bypass, the turbine experienced approximately 21-0.6 second runbacks, reducing turbine power to about 50%. It was subsequently determined that the bypass feature is an energized relay which was dropping out and reenergizing with each voltage transient. Pressurizer pressure had just started to recover from the spray valve actuation when the operating supervisor realized he had a turbine runback with no rod motion because rods were in manual control. At 9:03:15 am, he placed rods in automatic and the resultant "in" rod motion at maximum speed caused an additional decrease in pressurizer pressure. The reactor trip occurred at 9:03:50 and the safety injection signal was received at 9:04:00. No water was injected because primary system pressure did not go below the shutoff head of the safety injection pumps. All systems operated as expected except Source Range N31, which experienced a failed detector. During the secondary side transient, several secondary system relief valves opened with at least two failing to immediately reset.

During recovery, after the safety injection signal had been reset, the shift superintendent ordered the main steam isolation bypass valves to be opened in order to help maintain condenser vacuum. This action coupled with auxiliary feedwater flow to the steam generators caused pressurizer pressure to decrease below the safety injection setpoint and a second safety injection actuation signal occurred. Again all systems functioned as required and no water was injected into the primary system.

Subsequent testing of the mechanical interlock on the instrument bus power supply breakers indicates that both breakers can be closed at the same time. The licensee has completed several test transfers of the power supplies without the use of the mechanical interlock and without voltage transients. Operator aides were posted on each of the power supply panels instructing the operator to not rely on the mechanical interlock when switching power supplies. The spray valves were tested satisfactorily to ensure proper operation.

Unit 2 was placed back on-line at 8:43 a.m. on April 8, 1988. During the power ascension, while placing a second main feedwater pump in operation, it was determined that the disc had separated from the stem of the feedwater pump discharge valve. The unit was taken off line at 1:51 a.m. on April 10, 1988, to replace the broken valve, and was placed back on line at 5:03 p.m. on April 11, 1988.

All activities observed were conducted in a satisfactory manner and no violations or deviations were identified.

4. Monthly Surveillance Observation (61726)

The inspector observed technical specifications required surveillance testing on the Reactor Protection and Safeguards Analog Channels and Nuclear Instrumentation and verified that testing was performed in accordance with adequate procedures; the test instrumentation was calibrated; that limiting conditions for operation were met; that removal and restoration of the affected components were accomplished; that test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test; and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed or reviewed portions of the following test activities:

TS-6 Rod Exercise, Unit 2

TS-32 Safety Valve Acoustic Monitoring - Subcooling
Margin Computing System - Containment Purge
Valve Position

5-year inspection of generator rotor retaining rings, Unit 1

As a result of the ultrasonic examination of the generator rotor retaining rings it was recommended by the vendor that new rings be installed. The replacement rings sent to the site were the wrong size. The correct size rings were not immediately available and had to be machined from rough castings. This could extend the outage by a week or more.

All activities observed were conducted in a satisfactory manner and no violations or deviations were identified.

5. Monthly Maintenance Observation (62703)

Station maintenance activities on safety related systems and components listed below were observed/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 considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activities were observed/reviewed:

- * Replacement of solenoid valve extension cables
- * Repair of refueling manipulator bridge
- * Replacement of various safeguard relays
- * Installation of service water flow measurement devices
- * Installation of annunciator to provide indication of loss of DC control power to MSIV's
- * Replacement of rod control system fuses

All activities observed were conducted in a satisfactory manner and no violations or deviations were identified.

6. Physical Security (71881)

The inspectors, by observation and direct interview, verified that physical security was being implemented in accordance with the station security plan.

During the inspection period, the inspectors verified that the security force compliment was as required by the security plan, that search equipment was operational, and that access control for personnel and packages was implemented in accordance with licensee procedures. The inspectors verified that the protected and vital area barriers were being well maintained and, when required, appropriate compensatory measures were taken.

On April 5, 1988 a security force shotgun was found not properly secure onsite. The loaded weapon was discovered inside a utility truck by a warehouseman. There was no sign-out required for the shotgun and no subsequent sign-in requirement, although such a requirement does exist for other weapons. Now all weapons taken out of the weapons room are signed in and out. Also, the weapons in the weapons room are inventoried once per shift. A security specialist from Region III will followup on this event during his next inspection. This is an open item (266/88009-01; 301/88009-01 (SGS)).

All activities observed were conducted in a satisfactory manner and no violations or deviations were identified.

7. Radiological Protection (71709)

During the inspection period, the inspectors verified that health physics supervisory personnel conducted plant tours and were aware of activities

which may cause unusual radiological conditions. The inspectors verified that radiation work permits (RWP) contained required information and for selected RWPs the inspectors verified controls were being implemented as required at the work site. The inspectors observed personnel within radiation controlled areas and determined that personnel monitoring equipment were properly worn and that the licensee's procedures for entry and exit were followed. The inspectors observed the posting of radiation areas, hot spots, contaminated areas, and labeling of containers holding radioactive material and verified postings using a calibrated beta-gamma portable survey meter.

All activities observed were conducted in a satisfactory manner and no violations or deviations were identified.

8. Event Followup (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following licensee event reports (LERs) were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications. The following events were of minor safety significance and did not represent program deficiencies. These reports are closed.

(CLOSED) LER 301/87003-00 Main Steam Isolation Valves Open Without Trip Power Available.

The DC control power to unit 2's main steam isolation valve solenoid operators, necessary to trip the valve closed upon an automatic or manually initiated signal, was found to be unavailable for about five hours while the reactor was at 2% power. This event occurred because of personnel error in clearing a red tag series following outage maintenance. The condition was identified by plant personnel and immediately corrected. Other corrective actions to preclude recurrence are: completion of a modification to annunciate the loss of DC control power to the MSIVs in the control room, the personnel involved in the event have been counselled on the necessary and required adherence to appropriate work practices, proper use of procedures, and the need to contact appropriate personnel in those situations having a potential for reportability. This event was the subject of escalated enforcement action which resulted in the imposition of a civil penalty in the amount of \$25,000 (see inspection report 301/87016 for more information).

9. Outages (60710, 61701)

The inspectors verified that prior to the handling of fuel in the core, all surveillance testing required by the Technical Specifications and the licensee's procedures had been completed; verified that during the outage the periodic testing of refueling related equipment was performed

as required by Technical Specifications; observed 7 shifts of the fuel handling operations (removal, inspection and insertion) and verified that activities were performed in accordance with the Technical Specifications and approved procedures; verified that containment integrity was maintained as required by Technical Specifications; verified that housekeeping was maintained in the refueling area; and verified that staffing during refueling was in accordance with Technical Specifications and approved procedures.

The major activities performed on Unit 1 during the refueling outage were:

- * Eddy current testing
- * Removal of SG tube lane obstructions
- * Inspection and replacement of the electrical generator rotor retaining rings
- * Replacement of "A" phase of the main transformer
- * Replaced the last of the copper tube heat exchangers with stainless steel heat exchangers on the plant secondary side

The licensee also used ultrasonic fuel assembly defect detection equipment to inspect all assemblies which were to be reused in the core reload. This equipment was installed on the floor of the refueling cavity which eliminated the need to send each assembly to the spent fuel pool for inspection. This saved a significant amount of time and reduced assembly manipulations to a minimum.

The inspectors observed the following refueling outage related surveillance testing on Unit 1 to verify that the tests were covered by properly approved procedures; that the procedures used were consistent with regulatory requirements, licensee commitments, and administrative controls; that minimum crew requirements were met, test prerequisites were completed, special test equipment was calibrated and in service, and required data was recorded for final review and analysis; that the qualifications of personnel conducting the test were adequate; and that the test results were adequate.

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| IT 240 | Inservice Testing of Safety Injection Accumulator Discharge Check Valves (Cold Shutdown), Unit 1 |
| IT 250 | Inservice Testing of Chemical & Volume Control & Component Cooling Valves (Cold Shutdown), Unit 1 |
| IT 290 | Inservice Testing of Auxiliary Feedwater System Check Valves and Flow Indicators, Unit 1 |
| IT 310 | Inservice Testing of Main Steam Line Non-Return Valves (Cold Shutdown), Unit 1 |

- IT 320 Inservice Testing of CVCS Valves (Cold Shutdown) Unit 1
- IT 370 Inservice Test of the Reactor Coolant Loop B Cold Leg SI Check Valve, Unit 1
- IT 700 Inservice Test of Reactor Coolant Gas Vent Valves (Refueling Shutdown) Unit 1
- IT 720 Inservice Testing of Environmentally Qualified Valves (Refueling Shutdown)
- IT 1130 10-year Hydrostatic Test of the CVSC System
- ICP 5.22 Feedwater Control
- ICP 4.33 Overpressure Mitigation Transmitters

RP-1C, "Refueling," requires that prior to head lift, prior to fuel motion, and prior to rod latching, radiation monitor RE-212 be tested with a source to ensure automatic isolation of containment vent and purge on a high radiation signal. This test was successfully performed prior to head lift and prior to fuel motion. In preparation for rod latching at 7:45 p.m. on April 28, 1988, RE-212 was source tested and containment ventilation failed to isolate. The ventilation valves were closed from the control room using the remote switches. An investigation of this event revealed that a tag-out for instrument and control (I&C) technicians to replace various safeguard relays had been made during the afternoon of April 27, 1988. This tag-out required the opening of two DC control power breakers in the control room. It was determined that those breakers supplied power for the automatic isolation of containment ventilation as well as for the logic circuits that the I&C technicians were working on.

Fuel motion had been completed at 2:17 p.m. on April 28, 1988, therefore automatic containment ventilation isolation was inoperable for approximately 24 hours during which fuel motion was being accomplished. As discussed above, remote manual isolation of these valves from the control room was not lost and in the event of a refueling accident in containment this action would have minimized any potential release.

One of the factors which contributed to this event was the poorly worded request for the tag-out which although designating the proper DC control breakers, did not specify when the tag-out was required. Therefore, operations personnel performing the tag-out could not adequately assess what plant conditions would be when the tag-out was actually made. Additionally, reference material is not available in the control room which specifies which safeguard relays would be deenergized by opening the designated DC control breakers. A third contributing factor was the fact that the I&C supervisor who requested the tag-out used as a reference a 1984 temporary change to a 1980 minor procedure which allowed both trains of safeguard relays to be deenergized at the same time. A

final factor which could have attributed to this event is a lack of clarity in the Technical Specification (15.3.8.7) which addresses the containment vent and purge system during refueling. As written, this Technical Specification does not specifically require the containment vent and purge system to be operable during fuel motion, only that it "be tested and verified operable immediately prior to refueling operations". The licensee has agreed to review the intent of the Technical Specification and possible rewording for clarification.

PBNP 4.13, Equipment Isolation Procedure, Section 5.1, states in part that: "The requesting individual desiring to remove from service or perform maintenance on any plant system or component that is subject to this procedure shall: submit a request for equipment isolation to the DSS specifying the time and date of the planned work activity" On April 25, 1988, an I&C supervisor submitted a request for equipment isolation to the duty shift supervisor (DSS). The blank labeled, "Time and Date Required", was filled in with the words: "Do not hang until requested by I&C". This procedural violation, which was overlooked by the DSS, coupled with the other contributing factors listed above made it impossible for the DSS or DOS to adequately evaluate whether the request would impact plant conditions or evolutions in progress. This failure to specify the time and date of the planned work activity is a violation of PBNP 4.13 (266/88009-02; 301/88009-02 (DRS)).

All other activities observed were conducted in a satisfactory manner.

10. Spent Fuel Pool Activities (86700)

The inspectors observed the handling of fuel, reviewed applicable logs, and inspection procedures, and conducted discussions with fuel handling personnel. During these discussions and observations, the inspectors ascertained that fuel handling operations were in conformance with Technical Specifications or approved procedures, that the personnel handling fuel were qualified to do so, and that they were appropriately supervised. The inspectors also observed the inspection of fuel assemblies.

All activities observed were conducted in a satisfactory manner and no violations or deviations were identified.

11. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further 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 6.

12. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the inspection period. Half-way through the inspection period the inspectors met with licensee management and were brought up-to-date

on the status of the outage. At the conclusion of the inspection period, the inspectors met with licensee management to summarize the scope and findings of the inspection activities. The licensee acknowledged the inspectors' comments. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary.