

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-266/92008(DRS); No. 50-301/92008(DRS)

Docket Nos.: 50-266; 50-301 Licenses No. DPR-24; No. DPR-27

Licensee: Wisconsin Electric Power Company
231 West Michigan Street - P379
Milwaukee, WI 53201

Facility Name: Point Beach Nuclear Plant - Units 1 and 2

Inspection At: Two Rivers, Wisconsin

Inspection Conducted: April 20-24, 1992

Telephone Exit: May 27, 1992

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Inspection Summary

Inspection conducted April 20 through 24, 1992 (Reports No. 50-266/92008(DRS); No. 50-301/92008(DRS))

Areas Inspected: Announced safety issues inspection of the licensee's response to Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs" (2515/114).

Results: The licensee has developed a program which is generally consistent with the guidance of GL 89-04. The inspection disclosed two violations (Paragraphs 3.a. and 4.b.), one deviation (Paragraph 2.j.), and one unresolved item Paragraphs 2.d, 2.k, and 4.a).

The licensee demonstrated weaknesses in the following areas:

- Relief requests were not always submitted for conditions which required them.
- The alert range for pump and valve test results appears to rely on a computer system without a supporting written procedure.
- Virtually no self-assessment has been performed in the area of inservice testing (IST) since the GL was issued in 1989.

The licensee demonstrated strengths in the following areas:

- Full-flow recirculation lines were being installed with full instrumentation to facilitate inservice testing of the residual heat removal (RHR), safety injection (SI), and containment spray (CS) systems.
- A leakage reduction program was implemented in addition to that required by IST.

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DETAILS

1. Persons Contacted

Wisconsin Electric Power Company (WEPCo)

- *G. Maxfield, Plant Manager
- #*J. Becka, Manager, Regulatory Services
- *F. Flentje, Admin. Specialist, Regulatory Services
- #*N. Hoefert, Manager, Operations
- *F. Padovano, Engineer, Licensing
- *J. Reisenbuechler, Manager, Operations and Technical Support
- #*T. Staskal, Senior Project Engineer, Mechanical Systems Engineering
- #L. Hawki, Engineer Nuclear, Operations
- #D. Kimble, IST Engineer

U. S. Nuclear Regulatory Commission (NRC)

- *K. Jury, Senior Resident Inspector
- *J. Gavula, Reactor Inspector, RJII
- #J. Gadzala, Resident Inspector

* Denotes those personnel attending the exit meeting on April 24, 1992.

Denotes those personnel involved in the telephone exit on May 27, 1992.

2. Inspection of the Point Beach Program Developed in Response to Generic Letter 89-04

a. Background

The NRC issued Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," on April 3, 1989. The updated IST program for the Point Beach Nuclear Plant, Units 1 and 2, was submitted by WEPCo in a December 21, 1990 letter, with a revision dated June 10, 1991. A Safety Evaluation (SE) for the third 10-year IST program was issued by the NRC on April 17, 1992.

The third IST program interval incorporated a significant number of additional valves to be tested; however, as of this inspection, not all test procedures had been written.

This inspection was performed in accordance with the guidance of Temporary Instruction 2515/114, "Inspection Requirements for Generic Letter 89-04, Acceptable Inservice Testing Programs." The licensee's responses to and the implementation of the recommendations of GL 89-04 were reviewed. In addition to the programmatic reviews, three systems were selected to assess for inservice testing requirements: (1) safety injection, (2) auxiliary feedwater, and (3) service water. A review was also performed on the pressure isolation valves and on the testing of the main steam safety and pressurizer safety valves.

b. Pump and Valve Inservice Testing Program

The bases for the various aspects of the IST program were documented in the "ASME Inservice Testing Program Background Document." This document clearly stated the licensee's position on Code requirements, scope of component testing, and tests required for each component.

The third ten-year interval program was written to comply with the requirements of the 1986 Edition of the ASME Code, Section XI. By reference in IWV-3500, the testing of safety and relief valves is to be performed in accordance with OM-1-1981, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices." Procedures for the main steam safety valves and the pressurizer safety valves were already revised to comply with OM-1 1981.

c. Manual Valves

Manual valves which may be required to be repositioned during, or in recovery from, an accident condition were included in the program. Additionally, valves which have position indication were included for verification of the position indication even though other testing was not applicable. The inclusion of these valves is considered to be in compliance with the guidance of GL 89-04.

d. Valve Categorization

Several valves categorized as Category A or A/C were leak tested on a system basis. The leakage rates determined on a system basis were not in accordance with the requirements of ASME Section XI, IWV-3420. In order to continue to categorize these valves as "A" or "A/C," the licensee should either submit relief requests as appropriate, or test in accordance with

IWV-3420. This is considered to be an example of an unresolved item (266/92008-1a; 301/92008-1a) pending reevaluation of valve categorization, submittal of relief requests, or testing in accordance with the Code.

The licensee established a leakage reduction program which includes the testing of valves on a system basis. The program was established to monitor and reduce leakage between redundant trains of systems and to atmosphere. The implementation of this program is considered a strength.

e. Hot Shutdown versus Cold Shutdown

The "Background Document" identifies that safe shutdown for the Point Beach facility is hot shutdown rather than cold shutdown. As the scope of Section XI, IWV-1100, is for components required to perform a specific function in shutting down a reactor to the cold shutdown condition, the licensee should submit a relief request to address this anomaly.

f. Test Frequency

Testing on a number of components was performed monthly, rather than quarterly as stated in Section XI, based on Technical Specification (TS) requirements. However, the licensee indicated an intent to submit changes to the TS to test at the updated Code frequency of quarterly.

g. Full-Flow Recirculation Lines

Full-flow instrumented recirculation lines were either installed or were being installed for the safety injection, residual heat removal, and containment spray pump discharge lines. The modifications to add the full-flow recirculation lines were determined necessary to address concerns identified in NRC Bulletin 88-04, "Potential Safety-Related Pump Loss." These modifications preclude pump damage due to operation for extended periods on minimum recirculation. The modifications also incorporated instrumentation to comply with Section XI for inservice testing. The NRC recognizes these modifications as major upgrades and the licensee was commended for the initiative. The conception and implementation of these modifications are considered a strength.

h. Post Maintenance Testing

Post maintenance testing requirements were delineated in Administrative Procedure PBNP 3.2.6, "Post-Maintenance Testing." This procedure included guidance on various types of maintenance activities which could affect the performance parameters of pumps and valves. With adequate procedure implementation, the guidance is expected to provide a level of assurance that the post-maintenance testing requirements of Section XI are met.

i. Post Modification IST

The procedure for design modification requests included provisions for inservice testing following modifications. Additionally, Procedure QP-3-2 included Codes, Standards, and regulatory requirements as a design input, requiring consideration of the inservice testing requirements when developing a modification. The procedure should provide a level of assurance that IST requirements are addressed for modification implementation.

j. IST Operability Determination

In the January 16, 1991 response to GL 89-04, Position 8, the licensee indicated that immediate operability determinations were made for components following inservice testing. The response stated that procedures were revised to include a sign-off for the comparison of test results to limits in the Operations Standing Order and an operability determination, following testing. Several procedures were reviewed which did not require an operability sign-off. The specific procedures were identified to the licensee. The inspectors considered the lack of operability signoffs to be a deviation from a commitment contained in the licensee's response to GL 89-04 (50-266/92008-02(DRS); 50-301/92008-02(DRS)).

k. Background Document

The licensee's "Background Document," Item 3.8, indicated that all valves designated as high-low pressure interface valves (pressure isolation valves - PIVs) were to be included in the program as Category A valves, referencing GL 89-04, Position 4. The guidance in Position 4 is that all PIVs listed in TS be considered Category A valves in the IST program. Only the Event V valves are listed in the Point Beach TS (Table 15.4.16-1), and were verified to be in the IST program as Category A valves requiring individual

leakage rates to be measured in accordance with IWV-3420. Other PIVs were included in the licensee's response to Generic Letter 87-06, "Periodic Verification of Leak Tight Integrity of Pressure Isolation Valves," but were not individually leak tested. This is considered an example of the unresolved item (266/92008-01b; 301/92008-01b) pending licensee evaluation of this discrepancy and revision to the program documentation accordingly.

The "Background Document", Item 3.13, stated that the failure of passive system components was assumed only for non-safety grade systems. However, SAR Section 6.2.2 indicated that the containment sump recirculation valves, SI-850A/B and SI-851A/B, could be closed in the event of a passive failure in the affected (safety-related) line. No inservice test was performed on these valves in the closed direction since this is a safety related passive failure. This is considered an example of an unresolved item (266/92008-01c; 301/92008-01c) pending licensee review of the testing requirements for these valves and Item 3.13 in light of the statements in the SAR.

3. Programmatic Issues

a. IST Acceptance Criteria

Acceptance criteria for the pumps and valves in the IST program were specified in procedure 4.12.17, "Point Beach Nuclear Plant Operations Standing Orders," Attachments E, F, and G. Acceptance criteria are design parameters which are important to the safety of the plant. Improper changes in these criteria can result in violations of Technical Specifications and NRC commitments. Changes in these criteria must be reviewed by the originating organization and appropriate design control measures applied. However, procedure PBNP 4.12 specifically classified Operations Group Standing Orders as non-safety related documents. As a result, changes to the IST acceptance criteria could be made without the application of required design controls and reviews. Examples of incorrect acceptance criteria in the Standing Order are discussed in Paragraphs 4.b. and 5.a. of this report. Failure to require application of appropriate design control measures with respect to IST acceptance criteria is considered to be a violation of 10 CFR 50, Appendix B, Criterion III, Design Control (50-266/92008-03(DRS); 50-301/92008-03(DRS)).

b. Licensee Evaluation of Test Results in the Alert Range

After pumps and valves were screened for operability, the need for possible increased surveillance frequency was considered. "Alert" ranges for pumps and valve stroke times were maintained in a computer database. The computer indicated degrading trends in the test results and identified when "alert" limits had been reached. Pumps and valves with test results in the "alert" range were identified for increased test frequency.

The computer output for all other pumps and valves was a trace of the points over a period of time with no indication of where the "alert" range was. The system had two weaknesses: (1) there were no written criteria describing the basis for the computer evaluation and (2) the computer output did not identify the extent of the "alert" range unless it was violated. Therefore, an erroneous "accept" by the computer could not be detected based on the computer output. The program was not designed to be readily monitored by personnel not directly involved in processing IST data.

4. Review of IST Scope and Testing

a. Valves

The inspectors reviewed several IST procedures and completed IST packages. In most cases the procedures appeared to be adequate to test the pumps and valves as required. The inspection revealed no significant anomalies in the auxiliary feedwater system. However, the following items in the safety injection and service water systems should be reviewed by the licensee to determine if IST program changes are required:

- ° Valve SI-626 had position indication on the "SI SPRAY READY" status board on panel C01 in the control room, but no position indication verification was performed in the IST program.
- ° Valves SI-834A/B had a fail-safe test and were fail-closed, but the stroke time was measured in the open direction versus the closed direction.
- ° Several manual valves in the service water system (SVC) appeared to perform safety functions, but were not included in the IST program and no justification for their absence was included in the background document. These valves included the component cooling water heat exchanger (CCWHX)

inlet valves (SW-286, SW-346, SW-290, and SW-296). The background document for the CCWHX outlet valves stated that these valves must be opened to provide flow through the CCWHX for post-accident heat rejection, while the CCWHX inlet valves were not included in the program even though two valves were normally closed. These valves should be reviewed to determine if inclusion into the program is warranted.

These three issues are considered an example of an unresolved item (266/92008-01d; 301/92008-01d) pending licensee review to determine if the valves and associated testing should be included in the IST program.

b. Service Water Pumps

Test procedure IT-07, Revision 18, "Service Water Pumps and Valves (Quarterly)," was performed on January 3, 1992, and the test data was compared against the acceptance criteria contained in PBNP 4.12.17, Revision 24. This comparison determined that all the pumps and valves were operable. On January 6, 1992, the operations department performed their 96 hour review and found that the acceptance criteria for the service water pumps in PBNP 4.12.17 were different from those in the computer program and that the differential pressure values for pumps P32E and P32F were in the required action range. A further review of the differential pressure acceptance criteria indicated that the values listed for all six pumps included in the procedure were incorrect. The incorrect values were corrected in PBNP 4.12.17, Revision 25.

The pumps discovered to fall within the required action range were not declared inoperable because the operations department suspected that the discharge pressure instruments were not correct. These instruments were checked and determined to be within their calibration tolerances. Flow instrument F-4459B, however, was calibrated on January 21, 1992 and determined to be out of tolerance on the low side. An evaluation performed at that time, using corrected flow data, confirmed that both pumps were operable.

Once the pumps were determined to be in the required action range for high differential pressure, the operations department should have notified the control room and declared the pumps inoperable as required by ASME Code, Section XI, IWP-3230(b). As stated in Position 8, Attachment 1 of GL 89-04, "The provisions

of IWP3230(d) to recalibrate the test instruments and rerun the test to show the pump is still capable of fulfilling its function are an alternative to replacement or repair, not an additional action that can be taken before declaring the pump inoperable." Failure to adequately evaluate test results and declare service water pumps P32E and P32F inoperable when it was determined that differential pressure was in the required action range is considered to be a violation of 10 CFR 50.55a (50-266/92008-04(DRS); 50-301/92008-04(DRS)).

A subsequent test performed on the service water pumps in April 1992 also found the differential pressure for P32E and P32F in the required action range (high). In this case, both pumps were declared inoperable and engineering analyses were performed to return the pumps to an operable status. These analyses supported the establishment of new reference values for each pump. Revision 28 to PBNP 4.12.17 incorporated the new reference values; however, it did not appear that the operation department acceptance criteria values had been updated for these two pumps. The licensee should review and resolve anomalies in this area.

c. Valve Stroke Times Exceeding SAR Limit

During the licensee's review of valve stroke time limits, conducted in accordance with the guidance of GL 89-04, Position 5, twelve safety injection valves were found to have stroke times in excess of 10 seconds. SAR, Section 6.2, states that valve stroke times are based on full safety injection flow being achieved in less than 10 seconds. An engineering analysis was performed and included in the response to GL 89-04, Position 5. Because the analysis includes information supplemental to the SAR, and it appears to conflict with the statements in the SAR, the licensee should incorporate the analysis into the SAR.

d. PORV Stroke Time

In the licensee's original response to GL 89-04, Position 6, the PORV was indicated as a rapid acting valve (stroke time less than 2 seconds). It was later determined that the valve stroke time was greater than 2 seconds; in fact, prior to 1989, stroke times of between 3 and 5 seconds were measured. An analysis was performed which determined that the stroke time required to meet the low temperature overpressure protection function is 2.3 seconds. Modifications to the valve actuator were effected, and a review of test

data indicated the valve was capable of meeting the 2.3 seconds or less stroke time requirements.

e. Main Steam Safety Valves and Pressurizer Safety Valves

Results of the setpoint testing of main steam safety valves and pressurizer safety valves were reviewed. One test identified a setpoint deviation of greater than the allowable 3% maximum. The licensee took appropriate actions to test an additional two valves and to report the condition in Licensee Event Report 50-301/90-002. Currently, the licensee performs "information only" testing onsite using a nitrogen test stand, but must ship the valves to a test facility to perform "official" tests with steam. Previously, the nitrogen test had been used as the official setpoint test; however, this is unacceptable under OM-1-1981 without verified correlation factors for the test media and test temperature. All valves currently installed have been setpoint tested with steam. Previous valve maintenance performed at the test facility, utilized a "jack-and-lap" method (reference NRC Information Notice 91-74, "Changes in Pressurizer Safety Valve Setpoints Before Installation"). The licensee now requires a setpoint test following the "jack-and-lap" seat lapping method.

f. Check Valves

Check valves that cannot be full flow tested are disassembled and inspected per Procedure MI 5.5.4, Revision 0, "General Inspection of Check Valves." The procedure contains an adequate amount of instructions, including manually stroking the valve prior to and after maintenance, and criteria for performing inspections; however, there is no requirement for a determination of operability for the valve. As found conditions are recorded on a Check Valve Data Sheet.

The inspectors reviewed the results of the last inspection for the turbine-driven auxiliary feedwater pump service water cooling inlet check valves. On May 14, 1991, valve SW-135A was found to contain a significant amount of sludge and corrosion which prevented the disc from swinging freely; however, no operability determination was made, nor was there an evaluation as to whether the same valve in the opposite unit was also affected. The valve was cleaned and returned to normal service. During the next scheduled refueling outage on October 8, 1991, valve SW-112A inspection did not identify any problems. The licensee should revise the procedure to include an operability

determination. In addition, if an operability concern is identified, a review as to how this may affect a similar component in the operating unit should be conducted.

5. Observation of Testing Activities

a. RHR Pumps 1P-10A and 1P-10B

An inservice test of the residual heat removal (RHR) pumps, 1P-10A and 1P-10B, was observed. In IST program Relief Request PRR-4, the licensee indicated that testing of the RHR pumps would be performed at three values of flow and that test data taken at these points would be evaluated in accordance with the ASME Code, Section XI, IWP-3200. The test procedure, IT-03A, did include testing at three values of flow: 1000 gpm, 1560 gpm, and 2000 gpm; however, the operability determination was made by comparing the test results to the Operations Standing Order at a single value of 1000 gpm. Furthermore, the actual reference values established for these pumps were 1012 gpm (1P-10A) and 1020 gpm (1P-10B), rather than 1000 gpm.

The allowable range for instruments utilized for the tests is three times the reference value or less. The instrumentation range for the flow instruments used in the test was 4000 gpm; therefore, the reference value of 1000 gpm was outside of the acceptable range of the instrumentation. The variance between the expected differential pressure measured at 1000 gpm versus 1012 gpm or 1020 gpm using the manufacturer's reference curve was reviewed with the IST engineer and it was determined that the resulting values demonstrated acceptable operation. The licensee should determine why the incorrect values were in the standing order, and determine which value for flow is appropriate for future testing, considering the range of the flow instrument. The range of the pressure indicators was acceptable, and the vibration monitoring equipment was self-ranging.

Subsequent to the inspection, the licensee has considered withdrawing Relief Request PRR-4 and has revised IT-03A and its associated Standing Order acceptance criteria and test reference value to determine operability at 1560 gpm. These actions appear appropriate to resolve the inspectors concerns.

b. RWST Check Valve and LHSI Train A Core Deluge Check Valves

The inspectors witnessed the full stroke exercise of RWST suction check valves 1SI-854A, B and LHSI train A core deluge check valves 1SI-853A, B, C, D performed in accordance with the requirements of Procedure IT-750. The test was performed in an acceptable manner.

6. Licensee Self-Assessment

The licensee has performed no formal self-assessment in the area of inservice testing since the beginning of the GL 89-04 program. The program and most of the documents associated with it do not appear to require extensive involvement of the Quality Assurance or Engineering staff to confirm that the activities are being performed in compliance with the plant's regulatory commitments.

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during this inspection are discussed in Paragraphs 2.d, 2.k, and 4.a of this report.

8. Exit Meeting

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on April 24, 1992. The inspectors re-exited with licensee representatives (denoted in Paragraph 1) during a telephone conference on May 27, 1992. The inspectors summarized the purpose and scope of the inspection and the findings. The inspectors informed the licensee of the two violations, one deviation, and one unresolved item identified during this inspection and discussed the likely informational content of the inspection report. The licensee identified none of the documents or processes reviewed by the inspectors during the inspection to be proprietary.