UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

A. RO Inspection Report No. 050-305/73-19

Transmittal Date : September 27, 1973

Distribution:
RO Chief, FS&EB
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)
RO Files

Distribution:
RO Chief, FS&EB
RO:HQ (4)
L:D/D for Fuel & Materials
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B. RO Inquiry Report No. _____

Transmittal Date : _____

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RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)
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RO Chief, FS&EB
RO:HQ
DR Central Files
RO Files

C. Incident Notification From: _____
(Licensee & Docket No. (or License No.)

Transmittal Date : _____

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UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137
TELEPHONE
(312) 858-2660

SEP 27 1973

Wisconsin Public Service Corporation
ATTN: Mr. E. W. James, Senior Vice
President
Power Generation & Engineering
P. O. Box 1200
Green Bay, Wisconsin 54305

Docket No. 50-305

Gentlemen:

This refers to the inspection conducted by Mr. Feierabend of this office on August 2-5, 15-16, and 20-24, 1973, of your activities at the Kewaunee Nuclear Power Plant authorized by AEC Construction Permit No. CPPR-50. This also refers to discussions of our findings during a meeting between Mr. Feierabend of this office with you and others of your staff in your corporate offices on August 24, and during meetings with Mr. Luoma and others of your staff at the reactor site on August 16 and 23, 1973.

Areas examined during this inspection included the performance of hot functional testing and your quality assurance program for operation. Within these areas, the inspection consisted of selective examinations of representative records and procedures, interviews with plant personnel, and observations by the inspector.

During this inspection, it was found that certain of your activities appear to be in violation of AEC requirements. The items and reference to the pertinent requirements are listed in the enclosure to this letter.

This letter is a notice of violation sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty (20) days of your receipt of this notice, a written statement or explanation in reply including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Such a statement or explanation should be provided for each of the items listed in the enclosure.

In accordance with Section 2.790 of the AEC's "Rules of Practice," Part 2 Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the AEC's Public Document Room. If this report contains any information that you believe to be proprietary, it is necessary that you make a written application within 20 days to this office to withhold such information from public disclosure. Any such application must include a full statement of the reasons on the basis of which it is claimed that the information is proprietary, and should be prepared so that proprietary information identified in the application is contained in a separate part of the document. If we do not hear from you in this regard within the specified period, the report will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

James G. Keppler
Regional Director

Enclosures:
1. Description of Violations
2. RO Inspection Rpt No. 050-305/73-19

cc: C. W. Giesler, Superintendent
Nuclear Power

bcc: RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
DR Central Files
RO Files
Regions I & II
PDR
Local PDR
NSIC
DTIE
OGC, Beth, P-506A
R. Renfrow, GC, (2)

ENCLOSURE

Wisconsin Public Service Corporation
Docket No. 50-305

Certain of your activities appear to be in noncompliance with AEC requirements. The apparent violation listed in paragraph A is considered to be of Category II severity. The apparent violation listed in paragraph B is considered to be of Category III severity.

A. 10 CFR Part 50, Appendix B, Criterion XI states, in part, that: "...all testing...is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance test limits contained in applicable design documents ... Test procedures shall include provisions for assuring that all prerequisites for the given test have been met ... Test results shall be documented and evaluated to assure that test requirements have been satisfied."

1. Contrary to the above, the inspector observed that, during performance of the RTD bypass loop flow verification test, the test records did not include identification of the test instrumentation used for the test.

2. Contrary to the above, it was observed during the inspection that testing of the turbine driven auxiliary feedwater pump was being conducted, although no written procedure was in evidence in the test area.

3. Contrary to the above, review of the test record indicated that testing of the turbine driven auxiliary feedwater pump had been performed in accordance with the original test procedure, although a change to the procedure had been approved prior to performance of the test.

B. 10 CFR Part 50, Appendix B, Criterion XVIII requires that "... The test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted."

1. Contrary to the above, the test record for the hot functional testing did not include identification of operating procedures verified nor identification of the personnel who verified the adequacy of the operating procedures used during the test.

2. Contrary to the above, test record data sheets for initial operation of the turbine driven auxiliary feedwater pump did not include identification of the data recorder.

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

RO Inspection Report No. 050-305/73-19

Licensee: Wisconsin Public Service Corporation
P. O. Box 1200
Green Bay, Wisconsin 54305

Kewaunee Nuclear Power Plant
Kewaunee, Wisconsin

License No. CPPR-50
Category: B

Type of Licensee: PWR 560 Mwe (W)

Type of Inspection: Special, Announced

Dates of Inspection: August 2-5, 15-16 and 20-24, 1973

Dates of Previous Inspection: July 25-27, 1973 (Testing and Startup)

Principal Inspector: for D M Hunnicutt C. D. Feierabend — 9/25/73 (Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: D M Hunnicutt D. M. Hunnicutt, Chief
Reactor Testing and Startup Branch — 9/25/73 (Date)

SUMMARY OF FINDINGS

Enforcement Action

A. Testing was not in accordance with Criterion XI, 10 CFR 50, Appendix B, and with the licensee's procedures. (Paragraphs 6 and 11.f)

B. Test records did not satisfy the requirements of Criterion XVII, 10 CFR 50, Appendix B. (Paragraph 4.a and 11.e)

Unusual Occurrences

A. During preoperational testing a diesel generator failed to start due to a faulty diode in the control system. (Paragraph 4.c.1)

B. During hot functional testing (HFT) the charging pump discharge lines and relief valves experienced excessive vibration causing cracks at the relief valve and relief valve malfunctions. (Paragraph 15)

C. A steam generator safety valve lifted as designed but failed to reseat because of a foreign object lodged in the valve spring. (Paragraph 4.c.3)

D. During HFT system expansion required removal of some concrete and grout in the areas of steam generator upper ring restraints and feedwater lines. (Paragraph 5)

E. During an electrical storm, lighting strikes tripped several feeder breakers. One offsite power source remained energized. A diesel generator was started and loaded as backup until a second offsite power source was restored. (Paragraph 4.c.4)

Other Significant Findings

A. Current Findings

Hot functional testing (HFT) was essentially complete. The generator was successfully synchronized with the grid on August 20, 1973. Preparations for cooldown and wet layup of the secondary system were in progress.

The licensee was in the process of reassessing plant status to assign priorities for completion of outstanding construction and test items remaining.

B. Unresolved Items

1. Main Steam isolation valve testing. (Paragraph 13)

2. Excessive vibration of the charging pump discharge lines. (Paragraph 15)

3. Lightning protection. (Paragraph 4.c.4)

4. RTD bypass loop calibration. (Paragraph 6)

5. Pressurizer level control. (Paragraph 8)

6. Pressurizer safety valve testing. (Paragraph 10)

7. Auxiliary feedwater flow instrumentation. (Paragraph 11.a)

Management Interview

A management interview was conducted in the licensee's corporate office on August 24, 1973, at the conclusion of the inspection. Exit interviews were conducted earlier with plant management personnel. Licensee personnel in attendance at the management interview were:

E. James, Vice President, Power Generation and Engineering
R. Solboe, Superintendent Steam Plants
C. Giesler, Superintendent, Nuclear Power

A. General

The inspector stated that due to the amount of testing involved, this inspection was performed in three parts. The first included observation of final preparations and initial heatup on August 2-5; observations of tests in progress on August 15-16 and observations of final testing and preparations for cooldown on August 20-24, 1973.

B. Hot Functional Testing

The inspector stated that HFT was successful in completing turbine rolls, synchronizing the generator and producing some power to the grid for a few minutes. The inspector commented that this was a commendable achievement, especially considering the status of several plant system modifications which involve much construction effort that is still in progress.

He stated that the test was started with systems that were not complete or fully tested, that some of the procedures were approved at the last minute, limiting the available time for test personnel to prepare and become familiar with the procedures, and that the detailed planning was not fully complete, leaving too much responsibility on one or two men. The inspector stated that those in charge of the test performed very well under the circumstances.

The inspector stated that his review of test records identified three problem areas that existed in varying degrees. These were: (1) that verification of prerequisites were not always complete or were waived by changing the procedure, (2) that verification of calibration of instrumentation was not always performed prior to starting specific tests, and (3) that signatures and dates were missing from some test data.

The inspector stated that citations would be issued for these violations and for observation of a test being performed with no procedure in evidence in the test area.

The inspector stated that several problems were identified during the HFT program and that no major problems were noted as a result of the test which would cause unusually long delays, but that there was still a large amount of construction and testing remaining.

The licensee stated that, from the information currently available, the testing appeared to be satisfactory, and that plant management personnel would followup on all problems identified during the testing to assure adequate resolution in a timely manner.

C. Status of Inspection Program

The inspector then discussed the status of RO:III inspection effort with regard to recommendation that an operating license be issued. He stated that he had discussed this during the management interview for the previous inspection[1/] and that he had not mentioned one area. This was that a final inspection in the area of physical security is also yet to be completed.

The inspector stated that the RO plan for inspection in the area of implementation of the licensee's QA program for operation is that the review will be a team effort, which will be performed when the licensee considers that the program has been implemented. He stated that the inspection was tentatively scheduled to be performed in October 1973.

1/ RO Inspection Report No. 050-305/73-14.

The inspector stated that he had reviewed the program, and that it appeared basically good. He stated that he had one reservation, this was that the Nuclear Safety Audit and Review Committee (NSARC) was not sufficiently independent. The Nuclear Power Superintendent has line responsibility for operation of the plant. He is responsible for all aspects of the QA Program for the Kewaunee plant, except for the reactor fuel. He is also Chairman of NSRAC.

The licensee stated that the inspector's comments in this area would be considered.

The inspector stated that other important items yet to be completed include review and approval of test results, approval of operating procedures, implementation of scheduled maintenance and surveillance testing programs, and resolution of items on various punch lists, deficiency lists and system modifications.

D. Plant Staff

The inspector stated that another item still to be resolved is the adequacy of the plant staff. This includes licensed operators, engineering and management personnel and maintenance personnel.

The licensee stated that a recent addition to the plant staff has considerable naval nuclear experience. He has been assigned as Assistant Operations Supervisor with responsibilities for implementing the surveillance testing program. The licensee also stated that offers have been made to maintenance personnel, and that the plant staff is expected to be at the current authorized strength in the near future.

E. Plant Schedule

The inspector asked for the current scheduled date for the plant to be ready for fuel loading. The licensee stated that a major effort to determine a realistic schedule is in progress, and that the current mid-September date would be adjusted accordingly.

The licensee then asked the inspector for his estimate of when the plant would be ready for fuel loading. The inspector stated that his best estimate would be late November 1973.

F. Exit Interviews

1. An exit interview was conducted with Messrs. Luoma and Ramsett on August 16, 1973.

The inspector stated that no exit interview was conducted on Sunday, August 5 when the inspector departed the site after testing had been temporarily suspended in order to correct the problem with the main steam isolation valve (MSIV) operators. (Paragraph 13)

The inspector stated that his inspection efforts thus far had included review of logs, test procedures, observations of verification of prerequisites and observation of testing in progress.

He stated that his observations and review of test records indicated that for the most part the testing had been satisfactory.

The inspector stated that the expansion measurement program for heatup appeared to be essentially complete, with some interference problems currently being resolved. He stated that there were several problems identified during the testing that will require resolution. (Paragraphs 5-12)

The inspector stated that he observed the initial roll of the turbine driven auxiliary feedwater pump. He stated that the turbine operated smoothly; however, two violations were identified in conjunction with the test. These were that the pre-operational test procedure was not used for the valve lineup or initial operation and that there were apparent errors in the test records. (Paragraph 11) The licensee acknowledged the inspector's comments and stated that the test supervisors and the QA technicians had been cautioned to strictly adhere to the procedures to prevent recurrence.

The inspector stated that he reviewed the licensee's Administrative Control Directive (ACD) that provides for incident reports and the reports that had been initiated. He stated that the reports provide valuable information and that the reports should be initiated for all occurrences defined as an incident in the ACD. After some discussion, the licensee stated that the reports had not been prepared for occurrences associated with components or systems that had not been transferred to operations, but that instructions would be issued to assure that the ACD will be fully implemented.

The inspector discussed the problem associated with the MSIV operators during initial heating of the primary system. (Paragraph 13) He stated that he had been informed of the

occurrence onsite, and that it appeared to be the result of a breakdown in quality assurance performance. The inspector asked if the occurrence would be reported in accordance with the requirements of 10 CFR 50.55(e).

The licensee disagreed that the cause was a breakdown in QA, but stated that a report on the MSIV actuators would be submitted in accordance with 10 CFR 50.55(e).

2. An exit interview was conducted with Mr. Luoma on August 23, 1973. The inspector stated that although a management interview was scheduled to be held in the corporate offices, an exit interview with plant management appeared appropriate.

The inspector discussed the areas inspected in greater detail including all the subjects discussed later in the management interview. The inspector stated that the letter forwarding the inspection report would include enforcement action for the violations identified.

The licensee stated that corrective action was being initiated to resolve the deficiencies identified during the inspection.

REPORT DETAILS

1. Persons Contacted

Wisconsin Public Service Corporation (WPS)

E. James, Vice President, Power Generation and Engineering
R. Solboe, Superintendent, Steam Plants
C. Giesler, Superintendent, Nuclear Power
C. Luoma, Plant Superintendent
R. Lange, Assistant Plant Superintendent
W. Truttman, Operations Supervisor
G. Kingston, Shift Supervisor
M. Singh, Shift Supervisor
D. Ristau, Shift Supervisor
W. White, Test Supervisor
M. Stern, Hot Functional Test Director
J. Richmond, Test Coordinator
A. Ninmer, Assistant Maintenance Supervisor
D. McSwain, Instrument Control Supervisor
G. Larson, Radio Chemistry Supervisor
L. Ramsett, Quality Assurance Supervisor
G. Fitzpatrick, Quality Control Supervisor

Pioneer Service and Engineering Company (PS&E)

F. Hickey, Site Construction Manager
T. Sideris, Test Engineer

Westinghouse Electric Corporation (W)

R. Schulz, Kewaunee Site Manager

Nuclear Services Corporation (NSC)

W. Rowley, Manual and Procedures Coordinator
C. Whitworth, Planning and Scheduling Engineer
J. Wimberly, Quality Assurance Technician
A. Ahrnsbrak, Startup Engineer
G. Bernards, Startup Engineer
F. Schrade, Startup Engineer
K. Weinhauer, Startup Engineer

2. General

The special inspection was to observe performance of Hot Functional

Testing (HFT). This included observation of preparations and completion of prerequisites, observations of testing in progress and review of some of the preliminary test data. Preparations for cooldown were in progress at the conclusion of the inspection.

3. Operations

Performance of HFT was conducted with the normal shift complement staffing. The normal plant shifts were supplemented with additional operators during some periods, and supplemented by crafts personnel for performance of certain tests. In general, the operating staff performed well, responding to several unexpected occurrences with appropriate corrective actions. On one occasion, operator inattention to a parameter during manual control caused a secondary system safety valve to actuate; however, subsequent actions in controlling the resulting transient were appropriate. Responses to other problems, such as recognizing that a problem existed with the MSIV's and response to loss of several offsite power sources were conducted in a technically competent manner. HFT included performance of certain operations, such as establishing and controlling pressurizer level, for operator training. During the latter portions of the HFT program L examinations were conducted on site for the Senior Reactor Operator (SRO) and Reactor Operator (RO) cold license candidates. Results of the examinations were not available.

4. Hot Functional Testing (HFT)

The inspector reviewed the HFT procedures, PT-RC-03, dated July 24, 1973, while verification of prerequisites was in progress.

a. Purpose

The stated purpose for the test included "... to demonstrate the adequacy of WPS normal operating procedures ..." During subsequent observation of testing in progress, the inspector observed some procedures being used, and in some cases being revised according to the licensee's directive for revisions. However, there was no documentation to show which procedures had been demonstrated (where no deficiencies were identified) by the operating staff, nor identification of the individual who had verified the procedure. (Violation of 10 CFR Appendix B, Section XVII.)

b. References

The inspector compared the references for the HFT procedure with the latest index and with system flow drawings used to record valve lineups for the test. Several of the drawings being used for lineup were not the latest revision; however, a check of the changes verified that only one of the drawings included a valve change (one valve had been added) and this had been corrected on the drawing in use.

c. Summary

The test procedure summary describes the HFT procedure as a control document designed to coordinate the HFT program and outlines the system tests to be completed at specified plant conditions. Completion of all the scheduled tests were not mandatory for successful completion of the HFT program.

The plant was heated up to operating pressure and temperature, utilizing RC pump heat. Several tests were successfully completed during heatup and pressurizations, including final test and inspection of welds performed during rerouting of a portion of the safety injection system piping.

The turbine was operated successfully several times at various speeds. The final test included synchronizing with the grid and generating at a rate of approximately 10 Mwe.

Observations of individual system and component tests (paragraphs 5 through 11) identify some areas where retesting is required prior to initial criticality.

During verifications of prerequisites and in performance of tests, several unanticipated events occurred. These events are briefly described in the "unusual occurrence" section above.

(1) Failure of a diode in the diesel generator start control was identified in an incident report (Paragraph 4.c.1) for resolution.

(2) During initial heatup of the primary system, the main steam isolation valves (MSIV) did not isolate the main steam lines. The system was cooled down to investigate the cause. The valves would not fully close because of interference with the travel of the valve operators. (Paragraph 13)

(3) During manual control of steam pressure, an operator failed to observe a pressure rise before the safety valve actuated to relieve the pressure. The safety valve did not reseat because a nut had lodged in the valve spring. Investigation did not identify the nut as a part of any operating system. The nut was apparently overlooked during a cleanup after construction activities in the area had been completed.

(4) A severe electrical storm occurred on August 19, 1973, during HFT. Lightning strikes tripped several feeder breakers, causing loss of power to one 4160V safeguards bus. The operator transferred that bus from the tertiary auxiliary transformer to the reserve auxiliary transformer, to restore power to the bus.

After the lightning strike only one offsite power source was available. A diesel generator was started and synchronized to a safeguards bus. There was resultant damage to many plant annunciators and to the plant and substation sequence of events recorders. Investigation and repairs were not complete at the time of the inspection.

d. Prerequisites for HFT

The inspector observed a portion of the verification of prerequisites. This included observing operators performing valve lineups, verification of primary and secondary system water quality, performing baseline thermal expansions measurements and visual inspections. The prerequisites required that many preoperational tests (PT's) be completed and the results accepted by licensee personnel. During initial preparations for the test, it became apparent that many of the PT's could not be completed before HFT.

The licensee evaluated the overall status and determined that the systems would be sufficiently operational to support HFT.

The licensee chose to waive these prerequisites, by amending the test procedure, and to rely on a statement of status for each system. Each statement was prepared and signed by the test engineer assigned responsibility for the system.

The inspector discussed the prerequisites with the test supervisors, and was assured that, although the systems

status could have some affect on the amount of good data obtained from the testing, the status would not compromise safety. The inspector agreed that there was no nuclear safety question involved unless pressure, temperature or heatup/cooldown rates were exceeded, but that any equipment damage that could occur would require evaluation and correction.

5. PT-RC-06, Thermal Expansion Test

The inspector reviewed the test procedure, observed installation of measurement point identification and measuring equipment (clamps, brackets, plumb bobs, etc.) and audited a sample of the cold measurement records prior to start of the test. The total test included approximately 270 measurement points and over 500 spring hangers.

The test procedure provided general instructions for making measurements and recording data. Details for each measurement were provided on a sketch, with predicted movements identified so that deviations from predictions were readily identified during the test. In addition, test personnel checked the spring hangers and observed rigid hangers.

Some small lines were observed to contact restraints during heatup. The restraints were removed and measurements made so that final installation should provide the restraint in the hot condition as designed.

Two areas were identified that require considerable effort to resolve. The feedwater lines contacted the sleeve through the concrete floor at the 649'6" level. This occurred at 450°F. The sleeve was cut and concrete was chipped away before continuing heatup. Contact reoccurred at 547°F so additional concrete was removed to provide the needed clearance.

The steam generator upper lateral support plate contacted the crush bars at 547°F. The support had been grouted in place, so the grout was being removed to provide adequate clearance in the hot condition. Reference measurements were made to record any movement after the grout was removed. These measurements were scheduled to receive special attention during cooldown.

The expansion test appeared to be well planned and documented.

6. PT-RC-07 RTD Bypass Loop Flow Verification

The inspector reviewed the test procedure and observed portions of the test. The test was not considered satisfactory by the inspector not by the licensee's test engineer.

a. Some of the prerequisites were not completed because some of the instrumentation scheduled for use in the test was not available. Subsequently, substitute instrumentation was installed and some measurements made.

b. Alarm setpoint verification could not be performed because of valve packing leaks in the test area.

c. A change was made in the location of the differential pressure measurement points.

d. The test record did not include identification of the test instrumentation and calibration data for the instrumentation used for the test. (Violation of 10 CFR 50 Appendix E, Section XI.)

The inspector discussed the results with the test engineer who stated that the test results were not considered satisfactory, but that the test would not be rerun during this HFT because of the valve leaks, etc. The test engineer stated that performance of the test did provide experience and information that will be of value during subsequent testing.

The test engineer stated that RTD calibration will be routinely performed and the actual ΔP valves observed will change somewhat after the core is installed.

The inspector stated that the flow calibration is a prerequisite for initial criticality. The test engineer agreed and stated that the procedure will be rewritten before the test is performed.

7. PT-RC-12 Heat Loss at Shutdown Conditions

Data was collected for this test; however, the amount of temporary insulation installed may have an affect on the validity of heat loss data. Evaluation by the licensee was not complete at the time of the inspection.

8. PT-RC-31 Pressurizer Level Control

Efforts to test automatic makeup control continued throughout HFT. It was expected that portions of the test will be rerun prior to criticality.

9. PT-RC-33 Pressurizer Relief Valve Tests

The inspector observed performance of a portion of the test, including manual and automatic actuation of valve PR-2B. Valve PR-2A did not respond. The inspector was informed that, after maintenance was performed on the associated solenoid valve, retesting of valve PR-2A was satisfactory.

10. PT-RC-34 Pressurizer Safety Valve Test

The procedure utilized the valve manufacturer's instructions and air set pressure device. The test utilized an air motor assist to check operation of the valve at normal operating temperature, with the primary system approximately 250 psig below the set pressure.

The first actuation of each valve was satisfactory. Subsequent actuations were at lower pressures. The test engineer stated that the cause for the lower actuation point will be investigated. He stated that valves will be removed, inspected and bench tested. He also stated that evaluation of the methods of testing will be performed, so that the specified setpoint is assured during plant operation.

11. PT-FW-02 Auxiliary Feedwater (AFW) Pumps and Valves Functional Tests

The inspector reviewed the test records for testing the motor driven (1A and 1B) AFW pump and valves and observed the initial operation of the turbine driven (1C) pump. Several deficiencies were identified in the test records and while observing performance of the AFW 1C pump test. The test had not been completed, so some of the deficiencies were corrected during the inspection. The deficiencies were discussed with the test engineer, the test director and with plant management during the esit interview.

a. An apparent error in instrument piping was identified. The flow transmitter for the header feeding the 1A steam generator was connected to the 1B header and vice versa. The problem was identified for resolution via a deficiency report in accordance with the licensee's ACD 10.1, Startup Program Manual.

b. A problem associated with the setpoint of the 1B auxiliary lube oil pump setpoint was also identified for resolution via a deficiency report.

c. AFW pump 1A experienced a failure of the shaft driven lube oil pumps. The AFW pump was operated, using the electrical driven auxiliary lube oil pump, to complete HFT.

d. The AFW pump discharge pressure indicators in the control room had insufficient range (1500 psig vs 1600 psig measured pump discharge pressures). A deficiency report was initiated to assure resolution of the problem.

e. Some of the data sheets that had been completed did not include dates nor identification of the data recorder (Violation of 10 CFR 50, Appendix B, Section XVII).

f. Initial operation of the turbine driven AFW pump was not performed in accordance with written test procedures (Violation of 10 CFR 50, Appendix B, Section XI).

(1) The inspector observed a portion of the testing in progress. No written procedure, manufacturer's literature, nor valve lineup checklists were available in the test area. The flow test was subsequently performed in accordance with the specified test procedures.

(2) Two revisions to test procedure PT-FW-02 were reviewed and approved prior to performance of the test; however, the test record did not indicate that the test had been performed in accordance with the revisions.

12. PT-MS-01 Main Steam Safety Valve Tests

The inspector reviewed the test procedure, reviewed the corresponding surveillance test procedure, observed preparations for the test and observed testing in progress. Tests were performed using the manufacturer's hydroset device with system pressure at approximately 800 psig. No deficiencies were noted.

The record for the surveillance test file was not yet complete; however, the test results were available and will be recorded in the surveillance test records in addition to the PT records.

13. Main Steam Isolation Valves (MSIV)

During initial heatup, the operators noted that the main steam line was also heating up, although the MSIV were closed. The valves were cycled and visually observed without determining the cause, so the system was cooled down to investigate. It was found that interference between the valve operator and a pipe plug in the housing prevented the valve from fully closing (not visible from outside the housing).

Further investigation revealed that modification of the valve operators had been in progress in the vendor's plant prior to HFT and that they had been returned at the licensee's request,

for use during HFT. There were records onsite that described the proposed modifications and were identified as "Not to be permanently installed, will be taken out for further modification following HFT," on a Nonconformance Report prepared by the licensee's site QA staff.

14. Incident Reports

The inspector reviewed the records of incident reports that had been prepared in accordance with the licensee's ACD 4.14. These are internal reports prepared for all incidents, defined as events that can be classified as abnormal occurrences, deficiencies, unusual events, abnormal conditions or technical specification violations.

The reports included signature of plant management, indicating review and indicated corrective action, with provisions for specifying additional reviews by committees and identifying reporting requirements.

The inspector discussed preparation, reviews and subsequent actions with plant management personnel and later during the exit interview. The inspector emphasized the importance of prompt identification of all incidents and prompt evaluation to determine if actions by committee and/or reporting to AEC are required.

The inspector stated that incident reports should be initiated for any event where a safety related system did not respond to an actuation signal or when any such system was unintentionally actuated.

The inspector stated that several events had occurred which should have been reported to plant management in accordance with ACD 4.14. Examples are:

a. Unplanned circulating water pump trips caused by actuation of the low forebay level instrumentation.

b. Unplanned pressurization of the main steam line during plant heatup.

c. Lightning strikes tripped several breakers and caused plant damage. (The inspector was informed that this report was being prepared; however, it was not complete at the conclusion of the inspection, five days after the occurrence.)

15. Charging System

During HFT the charging pump discharge lines and relief valves were observed to vibrate excessively. This vibration resulted in cracking of the pipe nipples at the base of the respective relief valves and caused a reduction in the relief pressure set points of the relief valves. This change in relieving pressure set points resulted in relief valve leakage.

The licensee will evaluate proposed corrective action necessary to preclude similar problems in the future. The licensee's corrective actions will be reviewed during a subsequent inspection.