

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

TELEPHONE (312) 858-2650

REGULATORY OPERATIONS, REGION III

A. RO Inspection Report No.

050-305/73-04

Transmittal Date

<u>May 1, 1973</u>

Distribution: RO Chief, RT&OB or RO Chief, RCB RO:HQ (5) <u>DR Central Files</u> Regulatory Standards (3) Licensing (13)

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Distribution: RO Chief, M&FFB RO:HQ (4) L:D/D for Fuel & Materials DR Central Files

B. RO Inquiry Report No.

Transmittal Date

Distribution: RO Chief, RT&OB or RO Chief, RCB (2) RO:HQ (5) DR Central Files Regulatory Standards (3) Licensing (13)

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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

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May 1, 1973

Wisconsin Public Service Corporation Docket No. 50-305 ATTN: Mr. E. W. James, Senior Vice President

Power Generation and Engineering

P. 0. Box 1200

Green Bay, Wisconsin 54305

Gentlemen:

This refers to the inspection conducted by Messrs. Felerabend and Ogg of this office on March 20-22, 1973, of your activities at the Kewaunee Nuclear Power Plant authorized by AEC Construction Permit No. CPPR-50 and to the discussions with Mr. Glesler and other representatives on March 22, 1973.

Areas examined during this inspection included the status of radiation protection procedures, radiation protection training, instrumentation; radwaste management procedures, and environmental monitoring. Other areas examined included the status of preoperational testing; the status of personnel staffing and the program for verifying reactor core vibrational characteristics: Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with plant personnel and observations by the inspectors.

No violations of AEC requirements were identified within the ereas exemined during this inspection.

A copy of our report of this inspection is enclosed and, 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 the inspection report contains information which you or your contractors believe to be proprietary, it is necessary that you submit a written application to this office, within 20 days of the date of this letter, requesting that such information be withheld from public disclosure. If such an application is submitted, it must identify the basis for which information is claimed to be proprietary and should be prepared so that proprietary information identified is contained in a separate Wisconsin Public Service

May 1, 1973

part of the document, since the application, excluding this separate part, will also be placed in the Public Document Room. If we do not receive an application to withhold information, or are not otherwise contacted within the specified time period, the enclosed report will be placed in the Public Document Room with a copy of this letter.

2 ...

Unless you wish to make application to withhold information, no reply to this letter is necessary; however, should you have questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Boyce H. Grier Regional Director

Enclosure: RO Inspection Rpt-No. 050-305/73-04

cc: C. W. Giesler, Superintendent Nuclear Power, w/o encl

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



U. S. ATOMIC ENERGY COMMISSION DIRECTORATE OF REGULATORY OPERATIONS

REGION III

RO Inspection Report No. 050-305/73-04

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: Routine, Announced

Dates of Inspection: March 20-22, 1973

Dates of Previous Inspection: January 16-18, 1973

Principal Inspector: for C. D. Feierabend

Accompanying Inspectors: W. W. Ogg

Other Accompanying Personnel: None

Reviewed By: D. M. Hunnicutt, Chief Reactor Testing and Startup Branch

SUMMARY OF FINDINGS

Enforcement Action: None

Licensee Action on Previously Identified Enforcement Matters:

None included in the scope of this inspection

Unusual Occurrences: None

Other Significant Findings

A. Current Findings

Review of the status of training and procedures for radiation protection, health physics and radwaste management did not identify any significant deficiencies.

B. Unresolved Items: None

C. Status of Previously Reported Unresolved Items

Loss of Instrument Air Test (RO Inspection Reports No. 050-305/72-06 and 050-305/72-17)

The licensee preoperational test program now includes a test for plant response to the loss of instrument air system. This item is considered resolved.

Management Interview

A management interview was conducted with Messrs. Giesler, Luoma, Richmond and Palzer at the conclusion of the inspection on March 22, 1973.

Mr. Ogg discussed the scope of the radiation protection and health physics portion of the inspection and the results of the inspection.

A. Health Physics Aspects of Fuel Receiving and Handling

The inspector stated that the procedures and instrumentation for handling and storing the new fuel appeared adequate. (Paragraph 4)

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Radiation Protection Β.

The inspector stated that he had reviewed radiation protection procedures concerning radiation protection training, radiation

survey, personnel monitoring, and health physics instrumentation, and found them to be adequate. (Paragraph 5)

Health Physics Coverage on Backshifts C.

The licensee stated that auxiliary operators who have been trained to perform some radiation protection control procedures will not be used routinely as health physics technicians on backshifts. When needed, health physics technicians will be held over or called The inspector stated that this practice would be reviewed periodically to determine that it is workable. (Paragraph 5.b.)

Radwaste Management and Auxiliary Building Ventilation

The inspector stated that apparently only a few radwaste management procedures had yet been written. The licensee confirmed this. Regarding auxiliary building ventilation, the licensee stated that prior to criticality he would: (1) verify that ventilation flow routes agree with the FSAR, and (2) recheck the flow rate of the auxiliary vent after doors and other openings are closed as for normal operation. (Paragraph 6.a and 6.f.)

Ε. Filter Tests

D.

The inspector stated that he had reviewed the leak tests of the

F.

HEPA and charcoal filters and found that installation appears to

be according to standard requirements. (Paragraph 6.d.)

Environmental Monitoring

The inspector stated that he had reviewed the environmental monitoring program and found that it was apparently being conducted according to the technical specifications. (Paragraph 7)

Mr. Feierabend discussed the inspection of preoperational testing activities and stated that no violations had been identified during

G. Loss of Instrument Air Test

The inspector stated that the test index now included a test for loss of instrument air. The licensee verified that a test for plant response to loss of instrument air will be performed.

H. Personnel (Paragraph 1)

The inspector discussed the information received concerning the licensee's progress in obtaining additional personnel. The licensee verified that the information was current.

I. <u>Reactor Vessel Internals</u>, Vibration Monitoring (Paragraph 2)

The inspector stated that the inspection included review of the licensee's program for verification that the Kewaunee core performance is similar to that of Ginna; that he had no questions, but will be interested in examining the provisions for documenting the number of vibrations cycles and the results of visual or surface examinations after hot functional testing has been completed.

J. Containment Leak Rate Test

The inspector stated that he had received a copy of the revised test program and that this would be evaluated and discussed during a subsequent inspection.

K. Preoperational Testing (PT) (Paragraph 3)

The inspector stated that his review of test records indicated that although there was some progress in resolving deficiencies that were identified in a previous inspection report \underline{L} , some deficiencies were observed in the areas of changes in test procedures and in documentation of test performance reviews.

The licensee described actions that had been taken and some of those planned to resolve the deficiencies and to assure that similar deficiencies will not occur. The actions include reassignment of responsibility for quality control surveillance of the preoperations testing program from the plant operating staff to the Quality Assurance Supervisor.

The licensee stated that the actions taken would be described in response to a Region III letter $2^{/}$ identifying the violations. The inspector stated that subsequent inspections will include evaluation of actions to prevent recurrence.

1/ RO Inspection Report No. 050-305/73-02. 2/ RO:III letter to WPS dated 3-2-73.

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The inspector stated that none of the preoperational test results had not been reviewed and approved by the licensee, although several had been completed for several weeks. The licensee stated that provisions for expediting the review process were being planned, and would be implemented in the near future.

L. Test Schedules

The inspector stated that his review of the test schedule identified several system tests remaining that are prerequisite to filling and hydrostatic tests of the reactor coolant system. The licensee stated that these systems have been identified for expediting completion of construction testing and transfer to operations and that the current schedules provide for the hydrostatic test to be performed in late April 1973.

REPORT DETAILS

Section I - Prepared by C. Feierabend

Persons Contacted

The following personnel were contacted during the inspection:

Wisconsin Public Service Corporation (WPS)

C. Giesler, Superintendent, Nuclear Power
C. Luoma, Plant Superintendent
J. Richmond, General Engineer
L. Ramsett, QA Supervisor
D. Hintz, Test Engineer
M. Stern, Test Engineer
W. White, Test Engineer
L. Drosser, Records Clerk

Nuclear Service Corporation (NSC)

W. Rowley, Manual and Procedures Coordinator

- 1. <u>Personnel</u>
 - a. <u>Plant Staff</u>

The inspector was informed of the following personnel additions:

- (1) A nuclear engineer had accepted the position of Reactor Engineer and will be onsite the first week in April.
- (2) Two auxiliary operators have been hired. One will report in late March and the other in May.
- (3) One maintenance man has been selected for transfer from one of the licensee's fossil fueled plants and will report in the near future.
- (4) One equipment operator has already reported to the station to replace one being released for reassignment to one of the licensee's hydroelectric plants.

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b. Corporate Staff

A nuclear engineer has accepted a position in the licensee's Nuclear Engineering Group. The engineer is expected to join WPS the second week in April and will be initially assigned to the Kewaunee site to participate in the testing and startup activities.

c. <u>Contract Personnel</u>

The licensee has contracted with (NSC) for the services of additional engineers to supplement preoperational and startup testing. These will include a senior manager and three engineers with experience in design and testing of mechanical systems, fluid systems and instrument and control systems. In addition, the licensee has added two engineers for Southern Nuclear Engineering (SNE) to the site staff to assist in testing fluid systems. The licensee has also contracted for three quality control technicians, two from Pioneer Service & Engineering (PS&E) and one from NSC, to provide quality control function for preoperational testing.

2. <u>Reactor Vessel Internals</u>, Vibration Monitoring

Amendment 23 to the FSAR includes the licensee's response to L's questions concerning the steps taken to assure that the Kewaunee core internals are similar to those of the R. E. Ginna plant.

The inspector verified that Westinghouse (\underline{W}) had provided a procedure for installing displacement indication in the thermal shield and for removal after the hot functional test. The inspector was informed that the indicators had been installed by \underline{W} personnel, and that \underline{W} was responsible for removing the indicators and evaluation the results. The inspection points for visual examination after hot functional testing are identified in \underline{W} Topical Report No. WCAP-7718.

3. Preoperational Testing (PT)

The inspector discussed the results of several tests with the test engineers and reviewed the test records. The engineers were aware of the deficiencies that had been previously identified. and of actions planned to prevent recurrence. The test records had not yet been reviewed and approved by the licensee.

3/ RO Inspection Report No. 050-305/73-02.

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The inspector discussed resolution of test deficiencies with the test engineers. He was informed that it is the responsibility of each test engineer to follow up on resolution of all deficiencies for systems assigned, to assure that they are cleared.

A change in assignment of QC responsibilities had been implemented. QC surveillance of PT activities are now the direct responsibility of the QA Supervisor. The inspector reviewed the administrative control directive that provides the QC procedures for the PT program. The procedure provides for documentation of QC activities, reporting results to plant management and for verifying that test records are complete.

REPORT DETAILS

Section II

Prepared by:

W. W. Ogg Radiation Specialist

Reviewed by:

W. L. Fisher Senior Health Physicist

Persons Contacted

- C. Luoma, Plant Superintendent
- T. Palzer, Radiation and Chemistry Supervisor
- J. Larson, Radiation and Chemistry Assistant Supervisor
- G. Jarvela, Radiological Specialist
- T. Meinz, Startup Coordinator
- F. Fanello, Technical Staff Engineer
- D. Gardner, Radiation Protection Technician

4. Health Physics Aspects of Receipt, Storage, and Handling of New Fuel

The licensee will use a combination of health physics and operational procedures to control the inspection, handling, and storage of fuel prior to loading. In a telephone conversation with the licensee on April 10, 1973, the inspector confirmed that multiple smears will be taken at random on each fuel element. There will be a continuous radiation monitor with an alarm function in the storage area.

- Radiation Protection 5.
 - Radiation Survey (10 CFR 20.401, 20.201) а.

The inspector reviewed and found adequate procedures for the

(1) Routine Surveys

The licensee uses 35 plan drawings upon which results of radiation readings, smear tests, and air samples are tabulated. A copy is given to the room supervisor or to Operations, as applicable.

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(2) Survey Records

Survey records are kept in a file in the health physics office. The licensee stated that future plans include reducing records to microfilm for permanent storage.

(3) Written Procedures

The inspector reviewed 49 procedures in a document entitled "Radiation Protection Control Procedures," which appears to fulfill the requirements of Technical Specifications Section 6.4.d. This group includes the Radiation Work Permit procedure and procedures covering minor accidents.

Training in Health Physics **b**.

> The licensee has conducted major training programs for the following groups: Auxiliary Operators; Guard Force; Instruments and Controls, Maintenance; Clerks and Janitors; and Green Bay Office Technical and Safety Personnel.

(1) Auxiliary Operators

The licensee's representative stated that a 60-hour training course entitled, "Health Physics Training, Auxiliary Operators," was completed on March 16, 1973. The inspector reviewed the course, the outline of which

- (a) Introduction
- (b) Radioactivity
- (c) Radiation and Contamination
- (d) Biological Effects
- (e) Units and Terms

(f) Protection Against Radiation and Contamination (g) Standards and Guide Values

(h) Detection and Measurement of Radiation and Contamination (i) Survey Techniques

(j) Instrument Operating Procedures (k) Decontamination

(1) Waste Disposal

(m) Environmental Monitoring

(n) Site Emergency Plan

(o) Practical Training

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The training appeared to be adequate both in theoretical and practical scope.

The licensee stated that the specific duties of these men are now being formulated. He stated that their duties would include some control type radiation protection work. He stated that on the backshifts, the shifts supervisors, who will be licensed senior reactor operators and whose training includes radiation protection, would make plant-wide decisions regarding safety. Examinations for the course included both written and oral tests.

(2) Groups other than Auxiliary Operators

In addition, the inspector reviewed the training of those groups listed above other than auxiliary operators. Training duration varied. For example, the guard force course was for nine hours; the Green Bay Staff course was given over a 5 week period. The inspector noted that the training appeared to be adequate.

c. <u>Personnel Monitoring (10 CFR 20.101, 20.102, 20.202, 20.401)</u> Technical Specifications Paragraphs 6.5.2.e, 6.5.d.D.6, FSAR 11.2-30

The inspector reviewed personnel monitoring procedures and found them adequate.

- (1) Dose records; Form AEC-5 is kept.
- (2) Accumulated dose; Form AEC-4 is kept. The inspector reviewed sample letters of dose requests, and 10% of the individual files.
- (3) Internal dosimetry; whole body counting is performed by an outside contractor.
- (4) Visitor dosimetry; the gate guards follow the procedure "Special Radiation Control Duties." All persons are monitored.
- (5) Investigation of exposure; action is initiated automatically by greater than 50 mrem in any one day, 150 mrem in any week, and 600 mrem in any month.
- d. Radiation Protection Instrumentation
 - (1) Area and Process Continuous Monitors

The inspector noted that all monitors are physically installed but none have yet been electrically actuated. The licensee stated that the fuel storage room monitor would be actuated first. No calibration has been done. The inspector questioned the plans for calibration and was told that standard solid sources would be used for the area monitors. For the process monitors, mockup sources using two levels of activities and two energies were planned.

(2) <u>Complement of Portable Instruments</u>

The inspector confirmed that the complement of portable instruments included at least those listed in FSAR Table 11.2-9.

(3) Calibration Facility

The commercially purchased calibration facility was inspected. Procedures have been prepared to control access to the facility room and operation of the facility. The inspector found no problems.

6. Radwaste Management

a. Written Procedures

The licensee stated that only preliminary work had been done to date on formulating the liquid and gaseous radwaste management procedures. The inspector stated that radwaste management would be an item of later preoperational inspection.

b. Reporting by Safety Guide No. 21

The licensee stated his intent to report effluent releases according to the recommendations of Safety Guide No. 21.

c. Potential Release Via Sewage System

The inspector questioned the licensee's representative regarding his method of quantifying releases via the sewage system since the drawings show that the laundry waste can be released by this route. He stated that the sewage route will not be the normal route for laundry waste which will be processed in order to meet the lowest practical release criteria.

d. Leak Testing of HEPA and Charcoal Filters

The inspector reviewed the leak tests conducted by the filter vendor's representative on January 25, 29, 30, and 31, 1973. The vendor's report was titled, "Test Results Filter Systems for Kewaunee Station." Among the filters tested were the containment purge exhaust filters (charcoal), the auxiliary building exhaust filters (HEPA), and the spent fuel area exhaust filter. The leak rates during all tests were less than 0.01%. The inspector noted that the tests were made in conformance to the ANSI 101.1 Standard.

The inspector reminded the licensee that the charcoal efficiency tests must be performed according to the technical specifications. The licensee understands that the freon leak test does not qualify as an efficiency test.

e. Air Particulate Sampling

The inspector asked the licensee if he had verified that the particulate samplers sample isokinetically. He stated that it had not been done yet but that it would be done.

f. Auxiliary Building Ventilation and Stack Flow Rate

The inspector questioned whether ventilation flow paths and stack flow rate had been measured. The licensee stated that they had taken the construction contractor's values as accurate. The inspector reminded the licensee that technical specifications address release rate and, therefore, accurate knowledge of flows is necessary. The licensee stated that he was aware of this.

7. Environmental Monitoring

The inspector reviewed the licensee's radiological environmental monitoring vendor's preliminary report for January 1973 and found that environmental monitoring appeared to be in compliance with the requirements of Technical Specification Table 4.10-1.

The licensee stated that he had tested the vendor by submitting spiked samples of milk, water, and urine.

8. Quality Control-Quality Assurance for the Analytical Laboratory

The inspector noted that much of the counting room equipment is installed and operable. The supervisor has a quality control program for the technicians. He also receives samples from National Bureau of Standards (NBS) and Environmental Protection Agency (EPA) for quality assurance. Likewise, he expects to participate in the RO:III split sampling program. The inspector found no problems with these QA/QC procedures.

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

TELEPHONE (312) 858-2660

REGULATORY OPERATIONS, REGION III

A. RO Inspection Report No. 050-305/73-03

Transmittal Date

: April 30, 1973

Distribution: RO Chief, RT&OB or RO Chief, RCB RO:HQ (5) DR Central Files Regulatory Standards (3) Licensing (13)

Distribution: RO Chief, M&FFB RO: HQ (4) L:D/D for Fuel & Materials DR Central Files

Β. RO Inquiry Report No.

Transmittal Date

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UNITED STATES ATOMIC ENERGY COMMISSION DIRECTORATE OF REGULATORY OPERATIONS REGION 111 799 ROOSEVELT ROAD GLEN ELLYN, ILLINOIS 60137

April 30, 1973

TELEPHONE (312) 858-2660

Docket No. 50-305

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

Green Bay, Wisconsin 54305

Gentlemen:

This refers to the inspection of Messrs. Rohrbacher and Williams of this office on March 20 - 21, 1973, of construction activities at the Kewaunes site authorized by AEC Construction Permit No. CPPR-50 and to the discussion of our findings at the conclusion of the inspection with Messrs. Giesler, Ramsett, and Fitzpatrick of your staff.

Areas examined during the inspection are identified in the attached report. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

No violations of AEC requirements were identified within the areas examined during the inspection.

The inspectors also examined actions you have taken with respect to the matters identified in your letter of April 12, 1972. We find that appropriate, corrective action to bring about resolution of these matters is in progress. We will continue to review the progress of this corrective action during subsequent inspections.

A copy of our report of this inspection is enclosed and, 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 the enclosed inspection report contains information which you or your contractors believe to be proprietary, it is necessary that you submit a written application to this office, within 20 days of the date of this letter, requesting that such information be withheld from public disclosure. If such an application is submitted, it must identify the basis for which information is claimed to be proprietary and should be prepared so that proprietary information identified is contained in a separate part of the document, since the



Wisconsin Public Service Corporation

April 30, 1973

application, excluding this separate part, will also be placed in the Public Document Room. If we do not receive an application to withhold information, or are not otherwise contacted within the specified time period, the enclosed report will be placed in the Public Document Room with a copy of this letter.

- 2

Unless you wish to make application to withhold information, no reply to this letter is necessary; however, should you have questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Boyce H. Grier Regional Director

Enclosure: RO Inspection Rpt No. 050-305/73-03

bcc: RO Chief, CB RO Chief, OB RO:HQ (4) Licensing (4) <u>DR Central Files</u> Regions I & II PDR Local PDR NSIC DTIE OGC, Beth; P=506A R, Renfrow, GC (2)

U. S. ATOMIC ENERGY COMMISSION DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report of Construction Inspection

RO Inspection Report No. 050-305/73-03

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

PWR (W) - 560 Mwe Type of Licensee:

Type of Inspection: Routine, Announced

March 20 - 21, 1973 Dates of Inspection:

Dates of Previous Inspection: February 1, 2, and 5, 1973

Kalphankar R. A. Rohrbacher Lead Project Inspector

Principal Inspector:

Engineering Inspector

C.C. William

Accompanying Inspector: C. C. Williams

Other Accompanying Personnel: None

Reviewed By: D. W. Hayes, Senior Project Inspector (Acting) Reactor Construction Branch

 $\frac{4-23-73}{(Date)}$

april 23, 1973

 $\frac{4/25/73}{(Date)}$

SUMMARY OF FINDINGS

Enforcement Action

A. Violations

No violations were identified.

B. Safety Matters

No safety items were identified.

Licensee Action on Previously Identified Enforcement Matters

A. Absence of Procedures and Records Relative to the Storage of Reactor Vessel Internals Inside Containment (RO Inspection Reports No. 050-305/72-18 and No. 050-305/73-01)

Wisconsin Public Service Corporation (WPS) provided a satisfactory response (dated January 22, 1973) to the RO:III letter of January 17, 1973, in regard to this matter.

A procedure has been written which includes surveillance of the subject components. A detailed review of this procedure and its implementation will be made during the next routine inspection. (Details, Paragraph 1)

B. <u>Balance-of-Plant Wiring Found Common With Wiring for Both</u> Safeguard Systems (RO Inspection Report No. 050-305/72-03)

The Pioneer Service and Engineering Company (PS&E) has finished a review of the wiring installed within the control room consoles and panels. Corrective work, resulting from this review, is about 99% complete. Final completion depends upon the completion of other related work. This matter remains open.

C. Lack of Separation of Wiring for the Reactor Trip Channels (RO Inspection Report No. 050-305/72-03)

Work, to assure proper separation of the subject wiring, is in progress, and revised drawings have been completed. Cables have been pulled but not terminated. This matter remains open pending completion of the corrective work.

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D. <u>Solitary Manual Scram Switch Does Not Meet Single Failure Criterion</u> (RO Inspection Reports No. 050-305/72-03 and No. 050-305/72-16)

The second manual reactor scram switch has been installed and wiring has started. This matter remains open pending completion and review of the wiring.

Design Changes

A design change is in progress relative to postulated pipe failures in lines carrying high energy fluids outside the containment structure. Removal of portions of existing steam and feedwater lines has been initiated.

Unusual Occurrences

No unusual occurrences were identified.

Other Significant Findings

- A. Current Findings
 - 1. Construction Status

<u>Activity</u>

Electrical cables pulled and terminated	9 3
Instrumentation installed, wired, and checked	85
Major Piping installations	99*
Overall plant	96*

% Completion

Licensee construction status estimates with asterisks do not include additional activities resulting from the design change identified above.

2. <u>Personnel Changes</u>

In a previous report (RO Inspection Report No. 050-305/72-18) it was stated that C. W. Giesler, Superintendent, Nuclear Power, WPS, would assume responsibility for Kewaunee construction activities, previously assigned to R. C. Straub (now retired from WPS). This is not correct. E. R. Mathews, Manager, Power Engineering, has assumed this construction responsibility.

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W. J. Proper, WPS Quality Control Engineer for construction activities, will transfer to the Operations Department at the end of March 1973.

B. Unresolved Matters

1. Residual Heat Removal Pump No. 1-B Surface Condition

Observation of RHR Pump No. 1-B casing disclosed an apparently unacceptable sharp right angle notch at the base of the boss on the six-inch nozzle adjacent to the installation weld. (Appendix A, Paragraph 3)

2. <u>Residual Heat Removal Pump No. 1-A - Justification for Fillet</u> Weld

Review of a radiograph indicated that a fillet welded patch had been made on the volute splitter for pump No. 1-A. The Westinghouse Electric Corporation (\underline{W}) letter, regarding the use of this patch, did not appear to provide adequate justification. (Appendix A, Paragraph 2)

- C. Status of Previously Reported Unresolved Matters
 - 1. <u>Main Steam Line Check Valve Disk Cracks (RO Inquiry Report No.</u> 050-305/73-01Q (CDR) and RO Inspection Report No. 050-305/73-01)

During liquid penetrant testing, two 30" main steam line check valve disks were found to have significant crack indications. The defective disks have been returned to the valve manufacturer for additional examination and resolution. Inspection followup is planned. (Details, Paragraph 3)

2. Limitorque Valve Operator Failures (RO Inspection Report No. 050-305/73-01)

In response to an RO:III letter on this subject, WPS stated that 72 values of a type identified as subject to failure would be modified according to instructions and with technical assistance from the Limitorque Corporation. Corrective action is in progress. This matter remains open pending completion of the work.

3. Casting Quality of the Residual Heat Removal Pumps (RO Inquiry Report No. 050-305/72-01Q (CDR) and RO Inspection Reports No. 050-305/72-14 and No. 050-305/73-01)

WPS notified RO:III on August 31, 1972, pursuant to 10 CFR Part 50.55(e), of potential quality shortcomings relative to the RHR

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pumps. Later, WPS notified RO:III that both RHR pump castings were found to have rejectable defects and were returned to the vendor for repair. During the current inspection, the issues of radiographic quality control and traceability were considered to be resolved. This matter remains open pending resolution of RO:III questions relative to the notch on the Pump 1-B casting and the patched volute splitter on Pump 1-A. (Appendix A)

4. Identification of Reactor Protection System Equipment (RO Inspection Reports No. 050-305/72-11 and No. 050-305/73-01)

During a previous inspection, reactor protective system instrument components within the containment structure were not distinctly identified. Installation of identification tags is in progress, and this matter remains open for follow-up inspection.

5. <u>Separation of Redundant System Control Switches and Associated</u> <u>Wiring Within Panels (RO Inspection Reports No. 050-305/72-03</u> and No. 050-305/73-01)

Wiring to redundant system switches and other electrical components is being rerouted to obtain maximum possible separation within the control room consoles and panels and is presently about 96% complete. Installation of metal barriers, which are being installed between redundant wiring or components, not separated by at least six-inches of air, is about 98% complete. This matter remains open pending completion of the work.

6. Lack of Fire Barriers and Seals (RO Inspection Reports No. 050-305/72-03 and No. 050-305/73-01)

Support brackets and framing for fire barriers between the control and relay rooms have been installed. The barriers will be installed later, since access in this area is needed at the present time. Mounts for a fire barrier, designed to separate the controls for the redundant emergency diesel generator trains located on the control room console, have also been installed. A follow-up inspection, covering both of these matters, will be performed upon completion of this work.

7. Identification of Safeguard and Reactor Protection System Wiring (RO Inspection Report No. 050-305/72-03)

Identification of the subject wiring is about 90% complete and is being accomplished in conjunction with wire rerouting and other related work. This matter remains open for follow-up inspection.

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8. Lack of Adequate Electrical Cable Support (RO Inspection Report No. 050-305/72-03)

The licensee stated that corrective action in the form of tray edge protectors is planned, and these protectors will be installed after cable pulling is completed. This matter will receive follow-up attention.

9. <u>Safety Valve to Steam Header Attachments (RO Inspection Reports</u> No. 050-305/72-07 and No. 050-305/73-01)

PS&E has completed a re-evaluation of methods to attach the safety values to the main steam line headers. Approved drawings for the new installation method have been issued, and Barco joints in the safety value outlet piping have been installed. This matter remains open pending completion of the corrective action.

10. Feedwater Line Rerouting - Reactor Trip Switch Gear Protection (RO Inspection Report No. 050-305/72-04)

A feedwater line, which was located in the same room as the reactor trip switch gear, is being rerouted under a current design change relative to postulated pipe failures in lines carrying high energy fluids. This matter remains open.

11. <u>Steam Generator Stress Analysis Report (RO Inspection Reports</u> No. 050-305/72-03 and No. 050-305/72-07)

The stress analysis report for the subject equipment and the ASME Code Manufacturer's Data Report for design and shop fabrication were previously reviewed by the inspector and found to be satisfactory. However, the Code Manufacturer's Data Report cannot be completed until the hydrostatic test has been completed. This matter remains open.

12. Valve Wall Thickness Verification (RO Inspection Report No. 050-305/72-14 - Reopened)

In response to the RO:III letter, dated September 13, 1972, relative to certain Class I valve wall thickness measurements, the licensee provided a program they are instituting to meet the verification requirements. The program is in progress, and follow-up inspection is planned. (Details, Paragraph 2)

Management Interview

A. The following persons attended the management interview at the conclusion of the inspection.

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Wisconsin Public Service Corporation (WPS)

C. W. Giesler, Superintendent - Nuclear Power

L. O. Ramsett, Quality Assurance Supervisor G. V. Fitzpatrick, Quality Control Supervisor

- Matters discussed and comments, on the part of management personnel, Β.
 - The inspector stated that he had made a general review of the 1. recently issued cleanliness procedure, which included cleanliness, storage protection, access, and surveillance within the containment structure, and that he had no further questions at this time, but would review the procedure and its imple-
 - mentation during the next routine inspection. The valve wall thickness verification program was discussed. 2. The inspector stated that he had reviewed the progress and status of the program during the current inspection and had no further questions at this time.
 - 3.

The status of the RHR pumps and the results of a review of the QA data package for the RHR pump castings were discussed. The inspector stated that the questions regarding RT quality and identity for the RHR pump castings appear to have been resolved. The castings have been completely reradiographed, repaired where indicated, and identity (based on the unique casting mold closure dates) has been established. The inspector added that a review of the issues involved did not clearly establish why the initial W QCR for these pumps had indicated conformance since inconsistencies in casting quality and traceability apparently existed. The inspector further stated that the W representative had indicated that additional training and auditing of their field representatives, relative to QCR's, has been initiated.

The inspector stated that installation of RHR Pump No. 1-B is considered unresolved, due to the presence of a right angle notch at the base of the boss on the six-inch nozzle. tion, the inspector stated that review of the final radiography for RHR Pump No. 1-A disclosed a condition on the volute splitter of the pump, which does not appear to be adequately justified by the W letter (No. KW-P-1919) dated January 30, 1973, since the potential, or consequences, of a fillet weld failure are not

The licensee's representatives verified that WPS has established a reliable identity for the castings and have provided assurance

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that casting quality has been upgraded to meet the requirements. The licensee added that details, regarding this matter will be contained in their final report pursuant to the requirements of 10 CFR 50.55(e). Furthermore, the licensee stated that appropriate, corrective action would be taken regarding the notch noted on the Pump No. 1-B six-inch nozzle boss and the Pump No. 1-A volute splitter repair justification and evaluation by W.

4.

The inspector stated that he had observed work activities in progress relative to protection against postulated pipe failures in lines carrying high energy fluids and that subsequent inspections will include examinations in this area.

REPORT DETAILS

Persons Contacted

The following persons, in addition to individuals listed under the Management Interview Section of this report, were contacted during the inspection.

Wisconsin Public Service Corporation (WPS)

P. T. Trondson, Quality Control Engineer

- W. J. Proper, Quality Control Engineer
- E. R. Gasser, Consultant

Pioneer Service and Engineering Company (PS&E)

W. L. Lowry, Jr., Mechanical Engineer

Results of Inspection

1. Protection and Surveillance of RPV Components

Protection and surveillance activities have been included in a new cleanliness procedure prepared by PS&E (Cleanliness Procedure for Reactor Building and Auxiliary Building, dated March 19, 1973). This procedure was put into effect during the current inspection. The procedure also includes storage protection, cleanliness, and personnel and material restrictions in the RPV and fuel pool areas. A guard, guard station, and fencing have been provided for access control. Moreover, the procedure provides for daily inspections of this area and the submittal of weekly reports relative to these inspections. Implementation of this procedure will be reviewed during the next routine inspection.

2. Valve Wall Thickness Verification Program

Initial UT measurements of wall thickness have been made on 72 Class I valves, using a procedure prepared by PS&E (Valve Wall Thickness Verification Program, dated November 21, 1972). These valves, within the reactor coolant pressure boundary as defined in 10 CFR Part 50.55(a) are listed by valve number and include location, description, size, type, and ANSI pressure rating.

A data sheet is provided for each value listed, which includes value outline drawing(s) that show locations to be measured, minimum wall thickness required, system, service, identification, actual measurement data, calibration information, date of measurement, name of

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person who performed the work, and the name of the individual approving the work.

The minimum wall thicknesses required are based on the issue of USAS B16.5 and MSS-SP-66 in effect on the date of the valve purchase order. Magnaflux Corporation (Magnaflux) personnel, making the UT measurements, were qualified to Level II, and their supervisor was was qualified to Level III, based on the Magnaflux Testing Laboratory Quality Control Manual qualification and certification requirements (Section 8). Measuring equipment, couplant, calibration standards (including material certifications for test blocks) surfaces, procedures, and records appeared to be satisfactory.

PS&E will review the completed valve records and indicate approval if measurements equal or exceed the minimum wall thickness requirements. A preliminary review indicated that eight valves do not meet the above requirements. The licensee stated that it is planned to repair three of these valves to meet the required thicknesses, and the other five will be shown to exceed specified minimums acceptable to AEC based on extra material strength.

3. Main Steam Line Check Valve Disks

Representatives of the licensee are investigating the disk cracking problem associated with the subject valves. The Schutte-Koerting Company (S-K) the valve supplier, the Battelle Memorial Institute and the Republic Steel Corporation are also working on this problem. Samples from the cracked disks are being examined and tested. It has been tentatively concluded that this material (ASTM 538, Grade B) is not satisfactory for the anticipated service conditions.

A disk redesign is in progress, and a different material will most likely be used for the replacement disks. In addition, plans are being made to install and use "interim" carbon steel disks during hot functional and other tests, while the redesign and fabrication of "final" disks are in progress.

4. Displacement Indicators on RPV Lower Internals

Procedures, records, and installation of twelve displacement indicators on the reactor thermal shield were reviewed. The installation was completed on March 9, 1973, and appears to meet procedural requirements. This work was done by \underline{W} , and the indicators will be removed following the hot functional test.

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5. Barton Differential Pressure Transmitters

As requested by RO:III, WPS investigated the possible problem of maloperation of 23 Barton D/P transmitters (Models 386, 368, and 384) due to inadequate fabrication techniques. In response to an inquiry from WPS, ITT Barton stated in a letter dated March 8, 1973, that all the Barton transmitters, furnished for the Kewaunee facility (on W PO No. 546-C1C-1350850 and PS&E PO No. K-481) were fabricated subsequent to April 1971 and were free of problems identified with transmitters fabricated prior to April 1971.

Attachment: Appendix A

APPENDIX A

Prepared By:

1-1000/4/ Engineering Inspector

<u>4-23-</u> (Date)

Reviewed For Information: ICalchorhor Lead Project Inspector

Reviewed By: <u>Senior Reactor Inspector</u> <u>4/23/73</u>

<u>4-23-73</u> (Date)

Persons Contacted

The following persons, in addition to individuals listed under the Management Interview Section of this report, were contacted during

Westinghouse Electric Corporation

N. T. Dressel, Manager - Quality Assurance

Results of Inspection

Casting Quality of Residual Heat Removal Pumps

As previously reported, two 6" x 10" x 18" vertical residual heat removal pumps were procured by \underline{W} on Purchase Order No. 86098, issued to the Byron Jackson Company (B-J) and identified by PS&E Shop Order No. 205. The pumps were initially received at the Kewaunee site on April 7, 1971, without the required quality documentation. QCR No. 06842, dated March 23, 1971, and considered acceptable at that time was provided by \underline{W} on August 9,

Historically, W procured seven RHR pumps on a common purchase order from B-J, two for the Kewaunee site and four for another site. The seventh

The pump castings were originally procured and manufactured without a requirement for radiography. However, W issued Change Notice No. 002, dated March 3, 1970, which incorporated the Level II radiographic requirements of ASTM E-71, E-186, and E-280, as applicable. It appears that

complete control of the casting identity was lost in terms of heat numbers and shop route sheets, as well as quality in terms of radiography with the advent of this change notice. These deficiencies apparently were not identified within the <u>W</u> QCR program, but were detected by the Kewaunee site QA/QC program and personnel.

Subsequent to receipt of the pumps, site installation radiography by Phillips Getschow Company (P-G) disclosed shrinkage and sand defects in the nozzle ends and other areas of the pump castings. These defects exceeded the requirements of the acceptance criteria, although the original <u>W</u> QCR indicated this quality aspect to be acceptable. <u>W</u> subsequently instructed the site contractor to repair the nozzle defects.

As a result of further inquiries by Kewaunee QA personnel, \underline{W} reviewed the quality documentation, common to the pumps, and concluded, in \underline{W} letter No. KW-2-216 dated February 25, 1972, that: (1) the questioned radiography had been properly read, and (2) there was no reason to keep the pumps on hold. However, Kewaunee QA/QC site personnel could not resolve the questionable identity of the pump castings and noted that certain radiographic "land marks" could not be identified to the casting, as represented by \underline{W} . The castings were again placed on hold, as documented on WPS NCR No. 716.

Regarding the casting identity, Kewaunee QA disclosed that the casting heat numbers were: (1) stamped on the wrong castings, or that the same numbers were also stamped on pump castings located at another plant site, (2) one of the castings was stamped with two heat numbers, and (3) the shop route sheet numbers, used to identify the castings, were also apparently confused. Furthermore, the radiographs did not match the casting areas referenced on the film. Consequently, the pumps at the Kewaunee site were sent back to the B-J plant on September 1, 1972, for reradiography, repair, and proper identification.

Pump Serial No. 7 (site number 1-B) was returned to the site after repair on September 25, 1972, with QCR No. 06842-1 dated October 5, 1972, documenting its quality status. Pump Serial No. 1 (site number 1-A) was returned to the site with QCR No. 06842-2 dated October 26, 1972.

No QCR was issued for the RHR pump covers since the actual documentation, rather than a QCR, was available at the site.

1. Review of final documentation for RHR Pump No. 1-A disclosed that questions relative to its identity had been resolved by the licensee during several trips to the pump vendor's plant.

- 2 -

The licensee used the casted mold closure number to identify the proper heat and route sheet numbers from records provided by the vendor. For Pump No. 1-A, the mold closure number was $\frac{5-26}{7}$. The casting heat number was stamped and verified to be HT $\frac{7}{7}$ 3243-69. The cover for this casting was stamped RS No. 2723 and HT No. 1181169.

Review of final documentation for installed RHR Pump No. 1-B indicated that questions relative to its identity had also been resolved, and the actual identity has been confirmed. For Pump No. 1-B, the casting mold closure number is $\frac{7-16}{7}$ and the heat number is 3380-69.

2.

The pumps had been completely reradiographed. However, only the final radiography film was available at the site. Multiple repairs had been made to both pump castings and to one cover.

The entire repair history (original RT and repair records) could not be resurrected at the site. However, the <u>W</u> representative indicated that a portion of the radiographs showing defects could be made available. Approximately 85 final, double film radiographic exposures (of a total of about 250) were reviewed by the RO inspector for conformance and were found to be acceptable regarding technical and QA

However, one radiograph, No. C-band 5c-6c, on pump casting Serial No. 1 (Pump No. 1-A) indicated a questionable condition, as follows:

- a. It had been necessary to cut a repair access hole through the volute splitter. (This was described as a "window" in some of the documentation and during verbal discussion.)
- b. The access hole is an irregular rectangle approximately 1 3/4 inches by 3 1/2 inches.
- c. The hole had been closed by a slightly larger patch utilizing a fillet weld. As expected, the radiograph indicated a "root opening" at the bottom of the fillet.

W had generated a letter of jurisdiction for this condition dated January 30, 1973 (No. KW-P-19M) which states, in part, that "... The volute splitter is not a pressure boundary ... and ... even though the access hole weld is not a full penetration weld, it ... meets requirements ... " The inspector questioned the possibility of a fatigue failure of this fillet weld, due to turbulance in this area and the possible consequences. Moreover, the inspector indicated that the W letter did not appear to consider this possibility

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in justifying the fillet welded patch. The \underline{W} representative stated that this consideration had been made, although the letter does not specifically make reference to it. He indicated that this consideration would be clarified. This matter will receive follow-up attention during a subsequent inspection.

3. Observation of the installed pumps confirmed that the identification markings were properly related to the site documentation. The foundry code numbers, used to reestablish identity, were observed to be in essentially as-cast condition. The heat numbers and route sheet number were observed to be identifiable.

Review of final installation records and site repair records indicated conformance to requirements. However, observation of Pump No. 1-B showed that the boss on the six-inch nozzle, adjacent to the installation weld, displayed a sharp right angle notch at the base. There also appeared to be a possible linear discontinuity in this area.

The licensee's representative indicated that the site contractor would take the necessary, corrective action (additional grinding and LP test) as soon as \underline{W} has provided a documented release and/or instructions for this work. This matter will receive follow-up attention during a subsequent inspection.