UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

SEP 19 1977

Docket No. 50-305

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

Gentlemen:

This will acknowledge receipt of your letter dated August 19, 1977, in response to noncompliance items identified in our Report No. 77-11.

As your letter points out, you have been cited separately for two infractions related to a single incident. Infraction A in IE Inspection Report No. 050-305/77-01 concerned the failure to take adequate air samples during work by two contractor employees in containment on March 12, 1976. Infraction 1 of this inspection (050-305/77-11) concerned the failure to determine from whole body counter data that the exposure of these contractor employees had not exceeded the 10 CFR 20.103 limit of 40 MPC-hours. The evaluation summarized in your internal correspondence dated March 18, 1976 concluded that the 10 CFR 20 exposure limit had not been exceeded, because the body burdens were below those stated in NBS Handbook 69. However, the whole body counter data available at that time indicated exposures exceeding 40 MPC-hours. It was not until subsequent counts on March 24 and 29, 1976 that exposures less than 40 MPC-hours could be confirmed.

The adequacy of the exposure evaluation was left as an unresolved item after the 77-01 inspection, because your representatives indicated the existence of pertinent information not then available for the inspector's review. It was not until inspection 77-11 that the inadequacy of the evaluation was confirmed. Thus, the need for issuing two citations, which could have been combined had all the information been available to the inspector during the earlier inspection.

Regarding your statement that "10 CFR 20.201 refers to surveys and not evaluations," take note that 10 CFR 20.201(a) states, ". . . . 'survey' means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive

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materials or other sources of radiation under a specific set of conditions."

Your corrective action regarding these infractions will be reviewed during a future inspection.

Sincerely,

James G. Keppler
Director

cc: Mr. C. Luoma, Plant Superintendent

cc w/ltr dtd 8/19/77:
Central Files
Reproduction Unit NRC 20b
PDR
Local PDR
NSIC
TIC

See attached yellow sheet

OFFICE	RIII	RIII	RIII	RIII	RIII	RIII
SURNAME	Schumacher/ls	Fisher	Allan	Norelius	Keppler	Hunter
DATE	9/8/77			9/13/77	9/17/77	

NRC FORM 318 (9-76) NRCM 0240 ☆ U.S. GOVERNMENT PRINTING OFFICE: 1976 — 626-624

OFFICE	RIII	RIII	RIII	RIII	RIII	RIII
SURNAME	Schumacher/ls	Fisher	Allan	Norelius	Keppler	Hunter
DATE	9/8/77			9/9/77		

RFW for

WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

August 19, 1977

U. S. Nuclear Regulatory Commission
Office of Inspection & Enforcement
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

ATTN: Mr. James M. Allen
Fuel Facility & Materials Safety Branch

Gentlemen:

REF: Docket 50-305
Operating License DPR-43
IE Inspection Report No. 050-305/77-11

This letter is in response to certain apparent items of non-compliance reported in the referenced inspection report conducted by Mr. Schumacher of your office on June 27-July 1, 1977.

Infraction 1: "Contrary to 10 CFR 20.201(b), evaluation of bioassay data related to the airborne exposure to two contractor employees on March 12, 1976, was not adequate to confirm compliance with the limits of 10 CFR 20.103."

Response: We have been cited for the same incident twice under two separate interpretations of the same regulation in two separate inspection reports. We responded to this matter as Infraction A of IE Inspection Report 050-305/77-01 in which we were cited for not having made adequate surveys according to 10 CFR 20.201(b) to ensure compliance with 10 CFR 20.103. This citation alleges that our evaluation of this same incident was not adequate to confirm compliance with 10 CFR 20.103. 10 CFR 20.201 refers to surveys and not evaluations. We believe our evaluation was adequate and further investigation performed by the inspector, addressed with this inspection report, has confirmed that the doses received were below permissible limits as we had concluded. If sufficient data exists for the inspector to come to the conclusion that no overdose occurred, it appears questionable how the surveys have been demonstrated as being inadequate.

Nevertheless, in an effort to improve our method of evaluation in this area, we have incorporated several new techniques

including computer program evaluation methods. A technical review of this area has been performed by a consultant confirming the technical adequacy of our evaluation methods.

Infraction 2: "Contrary to 10 CFR 71.3, Type A packages containing greater than Type A quantities of materials identified as Group II Mixed Fission Products were shipped on seven occasions from January to June 1976 without authorization by the Commission."

Response: We have revised our method of determining proper Transport Groups by assignment of waste materials present prior to our last shipments on July 29 and August 10. These measures will provide a method of determination of proper transportation category and are presently in effect. These methods assure compliance with the requirements of the regulations.

Very truly yours,

E. W. James
Senior Vice President
Power Supply & Engineering

EWJ:sna

CENTRAL FILES

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUL 2 8 1977

Docket No. 50-305

Wisconsin Public Service
Corporation
ATTN: Mr. E. W. James, Senior
Vice President
Power Generation
and Engineering
Post Office Box 1200
Green Bay, WI 54305

Gentlemen:

This refers to the inspection conducted by Mr. M. C. Schumacher of this office on June 27-July 1, 1977, of activities at Kewaunee Nuclear Power Plant authorized by NRC License No. DPR-43 and to the discussion of our findings with Mr. Lange and others of your staff at the conclusion of the inspection and by telephone with Mr. Luoma on July 15, 1977.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

During this inspection, certain of your activities appeared to be in noncompliance with NRC requirements, as described in the enclosed Appendix A.

This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty days of your receipt of this notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a

copy of this letter, the enclosures, and your response to this letter will be placed in the NRC's Public Document Room, except as follows. If the enclosures contain information that you or your contractors believe to be proprietary, you must apply in writing to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. The application must include a full statement of the reasons for which the information is considered proprietary, and should be prepared so that proprietary information identified in the application is contained in an enclosure to the application.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

James M. Allan, Chief
Fuel Facility and
Materials Safety Branch

Enclosures:
1. Appendix A, Notice of Violation
2. IE Inspection Report No. 50-305/77-11

cc w/encls:
Mr. C. Luoma, Plant Superintendent
Central Files
Reproduction Unit NRC 20b
PDR
Local PDR
NSIC
TIC

OFFICE➤	RIII	RIII	RIII	RIII		
SURNAME➤	Schumacher/jb	Fisher	Allan	Hunter for		
DATE➤	7/25/77			7/26/77		

Appendix A

NOTICE OF VIOLATION

Wisconsin Public Service Corporation — Docket No. 50-305

Based on the inspection conducted June 27-July 1, 1977, certain of your activities appear to have been in noncompliance with NRC requirements, as noted below. Both items are infractions.

1. Contrary to 10 CFR 20.201(b), evaluation of bioassay data related to the airborne exposure to two contractor employees on March 12, 1976, was not adequate to confirm compliance with the limits of 10 CFR 20.103.

2. Contrary to 10 CFR 71.3, Type A packages containing greater than Type A quantities of materials identified as Group II Mixed Fission Products were shipped on seven occasions from January to June 1976 without authorization by the Commission.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-305/77-11

Docket No. 50-305 License No. DPR-43

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

Facility Name: Kewaunee Nuclear Power Plant

Inspection at: Kewaunee Site, Kewaunee, WI

Inspection Conducted: June 27-July 1, 1977

Inspector: W. L. Fisher for M. C. Schumacher 7/25/77

Approved by: W. L. Fisher, Chief 7/25/77
Fuel Facility Projects and
Radiation Support Section

Inspection Summary

Inspection on June 27-July 1, 1977 (Report No. 50-305/77-11)
Areas Inspected: Routine, unannounced inspection of radioactive waste systems, including: effluent releases; records and reports of effluents; effluent control instrumentation; procedures for controlling releases; containment air-cleaning systems; reactor coolant water quality; solid radioactive waste; and review of previous inspection findings. The inspection involved 40 inspector-hours on site by 1 NRC inspector.
Results: Of the eight areas inspected, no items of noncompliance were found in six areas. Two apparent items of noncompliance were found in two areas (infraction - inadequate evaluation of personal exposure - Paragraph 3; infraction - improper shipment of radioactive waste - Paragraph 10).

DETAILS

1. Persons Contacted

*R. Lange, Assistant Superintendent, Maintenance
*J. Richmond, Technical Supervisor
*G. Jarvella, Health Physics Supervisor
W. Winnowski, Chemistry Supervisor
C. Steinhardt, Assistant Superintendent, Operations
*G. Riuter, Nuclear Licensing Group, Green Bay
K. Smolinske, Nuclear Engineer

The inspector also talked with other licensee employees, including health physics and instrument maintenance technicians.

*denotes those present at the exit interview.

2. General

Following initial discussions with licensee representatives, a tour of the auxiliary and turbine buildings was made beginning at 10:00 a.m. on June 27, 1977. Radwaste facilities, including tanks, sumps, discharge piping, blowdown demineralizers, and effluent monitors were observed. Liquid samples were taken from the turbine floor sump and the waste neutralizer tank, nominally nonradioactive systems, and analysed with negative results by the licensee. Licensee control of access to restricted areas was also observed. No problems were identified.

3. Licensee Action on Previous Inspection Findings

(Closed) Infraction A (305/77-01): Inadequate air samples for work in containment on March 12, 1976. Review of records covering the refueling outage in the first quarter of 1977 indicated that the licensee had taken adequate corrective action to strengthen the air sampling program. Significant increase in the use of continuous air samples in general areas and in job specific air samples was noted.

(Closed) Infraction B (305/77-01): Failure to complete forms NRC-4 as required by 10 CFR 20.101(b). Review of individual records for persons exposed to greater than 1250 millirems per quarter indicated that adequate corrective action had been taken by the licensee.

(Closed) Unresolved Item A (305/77-01): Possible airborne exposures greater than 40 MPC-hours to a contractor employee on March 12, 1976. The inspector reviewed the results of a whole body count taken at the University of Pittsburgh on March 24, 1977. The inspector's evaluation using the model of the Task Group on Lung Dynamics for Class W aerosols indicated an exposure less than 40 MPC-hours.

(Closed) Unresolved Item B (305/77-01): Possibly inadequate evaluation of whole body count data to determine airborne exposures to two contractor employees on March 12, 1976. The licensee's evaluation of the data was apparently inadequate in that an assessment of airborne exposure (MPC-hours) was not made. Because the whole body count data showed a decrease within two days to below the Maximum Permissible Body Burdens given in NBS Handbook 69, it was assumed (correctly) that the doses were below permissible limits and that the airborne exposure had, therefore, been less than 40 MPC-hours. The initially high count rates were assumed but not demonstrated to be from external contamination. However, the data on hand at the time of the evaluation (March 18, 1976) would have indicated exposure well in excess of 40 MPC-hours for one of the two exposed individuals and the rapid early decrease did not appear to be inconsistent with the operation of early clearance mechanisms for inhaled, moderately soluble nuclides. Failure to make an evaluation of airborne exposure relative to the limits of 10 CFR 20.103 is regarded as noncompliance with 10 CFR 20.201(b).

(Closed) Infraction A3 (305/76-08): Inadequate calibration of certain effluent monitors. By letter dated December 30, 1976, this infraction was reduced to a deficiency based on inadequate documentation. Review of licensee calibration records during the current inspection showed that satisfactory corrective action has been taken by the licensee. (Paragraph 6)

4. Radioactive Effluent Releases

a. Airborne Releases

Licensee records of continuous and batch releases for the period May 1976 through June 1977 were reviewed.

Particular attention was given to the licensee's method of quantifying and reporting noble gas releases. Grab samples of each batch release and a daily grab sample from the continuous release pathways are taken. Until the fourth quarter of 1976, a 100 cc sphere was collected and counted on a gross beta-gamma detector and on a GeLi spectrometer. Beginning in the fourth quarter with containment releases, a larger

volume (3800 cc) Marinelli flask was used and counted only on the GeLi detector. By about February 1977, this sampling scheme had been adopted for all gas sampling.

Releases are reported in the format of Regulatory Guide 1.21. For total noble gases, the sum of the GeLi observed individual nuclides was reported; for releases with no identified peaks, the gross count results were used and reported as unidentified isotopes. If no gross counts were observed, the gross counter MDA of about 3E-7 μCi/cc was used. For releases sampled with the Marinelli flask, the total reported was either the total of the individual nuclides observed or the lowest GeLi MDA for a specific isotope (krypton 85m). No ratio scheme to account for other possibly present but unidentified isotopes is used. Because specific nuclides are not identified in most continuous releases and because the MDA used is a factor of about 1.5 to 3 times lower than that for xenon-133, the dominant isotope releases, the licensee may be underreporting total noble gas releases. For specific noble gas isotopes, the licensee reports only what is actually observed by the GeLi spectrometer. No MDA's or ratio scheme is used.

The licensee is currently reviewing his method of bookkeeping for and reporting of noble gas releases, a review prompted in part by receipt (January 1977) of Amendment 13 to the Technical Specification, which corrects the equation in Specification 3.9.b governing noble gas releases.[1/] The licensee has used the equation to calculate that the release implied by the GeLi MDA for noble gases is less than 1% of that permitted. The basis for Technical Specification 3.9.b states that the limit affords reasonable assurance that the site boundary dose rate will be less than 10 millirem per year.

No items of noncompliance were identified.

b. Liquid Releases

Licensee records of liquid releases for the period May 1976 through June 1977 were reviewed. Selected release permits and associated counting room records were examined to verify release calculations and to confirm release data in the licensee's semiannual effluent reports for 1976. No activity was identified in the steam generator blowdown; therefore, all releases were batch mode. They are classified according to origin as boron recycle, laundry, and miscellaneous. Boron

1/ RIII Inspection Rpt No. 50-305/75-09.

recycle wastes are treated by the boric acid evaporator. Batches in the latter two categories are treated by Steam Generator Blowdown Treatment System demineralizers when the concentration exceeds 9×10^{-4} μCi/ml. This value is calculated to maintain quarterly releases below the design objective of 1.25 curies, based on current (July 1976 - June 1977) average releases of about 30,000 gallons per week. The licensee does not use his waste evaporator, owing to its low efficiency. Total fission and activation product release (gross β-γ) for 1976 was less than 3 curies or about 7% of the technical specification limits. The records for the first half of 1977 indicate similar releases.

No items of noncompliance were identified.

5. Records and Reports of Effluents

Licensee semiannual reports for 1976 were reviewed. Apparent errors were noted in the noble gases released by batch mode in February and in May and therefore in the total release.

No items of noncompliance were identified.

6. Effluent Monitor Calibration

Records of functional tests and calibrations for effluent monitors indicated that Technical Specification requirements had been met. Calibrations were performed just before the January 1977 refueling outage and an additional calibration using krypton 85 and xenon 133 gaseous sources for the gas monitors was in progress during this inspection. The licensee procedures for calibration have been significantly improved with the use of mockups containing gel sources of cesium 137 and cobalt 60 for the liquid monitors[2/] and with the use of a new calibration chamber[3/] for the gas monitor. The data show significant deviations from vendor supplied calibration curves for several of the monitors, indicating weaknesses in past calibrations. The new calibration methods appear to be satisfactory and the previously identified[4/] noncompliance regarding calibration is considered resolved.

7. Procedures for Controlling Releases

Radwaste procedures amended since the previous inspection together with selected older procedures were reviewed.

RC-HP-53 (11/12/76): "Containment Building Discharge Permit."

2/ RIII Inspection Rpt No. 50-305/76-13.
3/ RIII Inspection Rpt No. 50-305/77-01.
4/ RIII Inspection Rpt No. 50-305/76-08.

RC-HP-54 (5/2/75):	"Gas Decay Tank Discharge Permit."
RC-HP-55 (8/17/76):	"Annulus Discharge Permit."
SP-137 (4/19/77):	"Shield Building Discharge Permit."
A-LWP-32A (1/6/73):	"Abnormal Liquid Waste Processing and Discharge System."
N-GWP-32B (5/6/74):	"Gaseous Waste Processing and Discharge Systems."
N-RM-45 (3/15/77):	"Radiation Monitoring System."
N-RWS-32 (1/14/77):	"Solid Waste Processing System."

Procedures RC-HP-53, RC-HP-54, RC-HP-55 and N-GWP-32B refer to the obsolete equation for the airborne release limit that was changed by Amendment No. 13 to the Technical Specifications. RC-HP-55 uses a questionable formula on which to determine conformity to technical specification limits for annulus release. The formula assumes a HEPA filter efficiency of 99.99% and a charcoal efficiency of 99% for particulates and halogens, respectively. The filter and laboratory tests reviewed during the inspection (Paragraph 8) indicated the filters were meeting these requirements. However, the technical specification requirements for these filters are 99% for HEPA filters (cold DOP) and 90% for methyl iodide (laboratory sample analysis).

No other significant problems were noted in review.

8. Containment Air Cleaning Systems

Records of in-place and laboratory tests on charcoal and HEPA filters in the Shield Building Ventilation System, the Auxiliary Building Ventilation System, and the Spent Fuel Pool Sweep System were reviewed. The performance requirements are given in Technical Specification 3.6.b.3 and 3.8.a.9; the surveillance requirements are given in Technical Specification 4.4.c, 4.4.d, and 4.12. The most recent tests were done during the period January-March 1977. Results were within the acceptable range; no items of noncompliance were identified.

The licensee's technical specifications give no requirements for testing of filters or charcoal adsorbers in the containment ventilation and purge systems. No tests were performed on these systems.

9. Reactor Coolant Water Quality

The inspector reviewed licensee records of primary and secondary coolant activity surveillance for the period July through May 1977. Gross beta-gamma in the primary was in the range of about 0.1 to 2 μCi/ml, with the maximum observed about 3.5 μCi/ml. No radioactivity above the MDA of about 1E-7 μCi/ml was observed in the secondary coolant.

No items of noncompliance were identified.

10. Solid Radioactive Waste

Solid waste shipment records for the period January 1976 through June 1976 were reviewed. The seven shipments made during the period contained a total of 58 curies in 387 drums. The material is transferred to ATCOR (NRC License No. 31-11640-01) for shipment by sole use vehicle belonging to Tri-State Trucking to Sheffield, Illinois or Morehead, Kentucky for burial. The shipments are classified by the station as Transport Group II, mixed fission products. No drums exceeded the 1000 millirem per hour reading at 3 feet required for Type A packaging. However, several drums in each shipment exceeded the Type A quantity limits of 0.05 curies for Transport Group II as given in 10 CFR 71. This is regarded as an item of noncompliance.

The inspector reviewed the licensee's method of calculating activity contained in drums, using exposure rate measurements at contact with a drum. The method appears satisfactory for homogeneous mixtures. Its applicability to nonhomogeneous packages is questionable and needs review.

11. Management Interview

The inspection findings were discussed with Mr. Lange, Assistant Plant Superintendent for Maintenance and other licensee representatives (Paragraph 2) at the close of the inspection. One item of apparent noncompliance regarding evaluation of personal exposure was identified. An item of possible noncompliance regarding shipment of greater than A type quantities of mixed fission products was identified; the inspector stated he would further review the matter and call back. On July 6, 1977, Mr. John Richmond, Technical Supervisor, was notified that the shipments were regarded as being in noncompliance with 10 CFR 71.3.

The findings of the inspection were reviewed by telephone with Mr. Charles Luoma, Plant Superintendent, on July 15, 1977.