IE 7, 8, 5

50-305
75-01

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

November 18, 1975

Gen W. Roy, Chief, Field Coordination and Enforcement Branch
Office of Inspection and Enforcement, Headquarters
THRU: J. M. Allan, Chief, Fuel Facility and Materials Safety Branch

MONITORING OF THE KEWAUNEE SHIELD BUILDING VENTILATION SYSTEM

The following item is referred to you for resolution.

During an inspection performed at Kewaunee in May 1975 (IE Report No. 305/75-09) an unresolved item concerning monitoring of the Kewaunee shield building (annulus) ventilation system was identified. This system is the engineered safety system for collection and treatment of fission product leakage from the reactor containment during a design basis accident. It was noted during the inspection that the exhaust of this system is not monitored by the containment vent monitor (R21). Guidance provided by Section 5.5.1 of the FSAR is ambiguous in that, while it states that the system discharges to the monitored containment system vent, figure 5.4-1 in the same section clearly shows the pathway to be unmonitored.

By comparison, Prairie Island Nuclear Generating Station has a "Shield Building Vent Gas Monitor" system, which consists of a particulate filter, charcoal filter, and an off-line type radioactive gas monitor mounted in series. This system is in addition to the "Containment Purge Radioactive Gas Monitor." A high radiation alarm from the shield building vent gas monitor provides a closure signal to the same systems as the containment purge vent radiation gas monitor.

During a discussion of this item during a subsequent inspection in October (IE Report No. 305/75-17), the licensee stated that his review indicated that the as built system was in accord with the language and intent of the FSAR and that he intended to pursue the matter no further.

Region III requests an interpretation of the intent of the Kewaunee FSAR with regard to the necessity of continuous monitoring of this system.

W. L. Fisher
Section Leader
Fuel Facility Projects and
Radiation Support Section

IE:HQ
Central files

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

JUL 2 9 1975

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

Docket No. 50-305
75-9

Gentlemen:

Thank you for your letter dated July 15, 1975, informing us of the steps you have taken to correct the item of noncompliance which we brought to your attention in our letter dated June 27, 1975. We will examine this matter during a subsequent inspection.

Your cooperation with us is appreciated.

Sincerely yours,

Gaston Fiorelli, Chief
Reactor Operations Branch

bcc w/ltr dtd 7/15/75:
PDR
Local PDR
NSIC
TIC
OGC, Beth, P-506A

Inspection ltr.

BN

WISCONSIN PUBLIC SERVICE CORPORATION

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

July 15, 1975

U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

ATTN: Mr. Gaston Fiorelli, Chief
Reactor Operations Branch

Dear Mr. Fiorelli:

REF: Docket 50-305
Operating License DPR-43
Letter from Mr. G. Fiorelli to
Mr. E. W. James, dated June 27, 1975

Your letter referenced above transmitted IE Inspection Report No. 050-305/75-9 conducted by Mr. Schumacher. The report identifies one item of apparent violation of NRC requirements. This response is submitted in accordance with our twenty-day reply requirement.

The item identified as an apparent violation is:

> Contrary to Technical Specification 6.6.2.a, the licensee failed to report a release rate of halogens and particulates that initially appeared to have exceeded Technical Specification 3.9.6.2 on September 28-29, 1974.

Response

As noted in the inspection report, sampling records indicated the Technical Specification release rate had been exceeded. Subsequent to the inspection the sampling data upon which the records are based was reviewed and a mathematical error discovered. Correction of the error reduces the iodine release value by a factor of 100 for the I-131 and 1000 for I-132. Thus, the release rate was considerably below the Technical Specification limit. The original and recalculated values are:

Release Rate uCi/sec.	I-131	I-132
Original	5.65E-1	1.46E-1
Recalculated	5.66E-3	1.36E-4

In addition, and as noted in the inspection report, iodine release rates had been over reported by a factor of 8 due to calibration of counting equipment. The equipment has been recalibrated using an NRC standard and checked to be in agreement with the NRC reference laboratory.

The original sampling records indicating a release rate in excess of limits had been reviewed by supervisory personnel; however, the violation was not detected. To prevent recurrence, even though limits were not in fact exceeded, sample results are now being recorded in percent of Technical Specification limits. Thus a release rate exceeding specified limits will be readily apparent.

Very truly yours,

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

EWJ:sna

cc — Mr. Dwane Boyd

IE:HQ
DR Central Files

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

JUN 27 1975

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

Docket No. 50-305

Gentlemen:

This refers to the inspection conducted by Mr. Schumacher of this office on April 29, May 2 and May 13-16, 1975 of activities at Kewaunee Nuclear Power Plant authorized by NRC Operating License No. DPR 43 and to the discussion of our findings with Mr. Luoma and others of your staff at the conclusion of the inspection.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspector.

During this inspection, it was found that certain of your activities appear to be in noncompliance with NRC requirements. The item and reference to the pertinent requirements are listed under Enforcement Action in the Summary of Findings Section of the enclosed inspection report.

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: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further items of noncompliance; and (3) the date when full compliance will be achieved.

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RM

Another infraction identified through your internal audit program which was reported in a timely manner and corrected is listed under Noncompliance Identified and Corrected by the Licensee in the Summary of Findings section of the enclosed inspection report. No additional information is needed for this item at this time.

The inspector also examined actions you have taken with respect to the matters identified in your letter dated November 27, 1974, which we previously brought to your attention in our letter of November 14, 1974. We have no further questions regarding these matters.

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 notice, the enclosed inspection report, and your response to this notice will be placed in the NRC's Public Document Room. If this report contains any information that you or your contractors believe to be proprietary, it is necessary that you make a written application to this office, within twenty days of your receipt of this notice, to withhold such information from public disclosure. Any such application must include a full statement of the reasons for which it is claimed that the information is proprietary, and should be prepared so the proprietary information identified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph 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,

Gaston Fiorelli, Chief
Reactor Operations Branch

Enclosure:
IE Inspection Rpt No.
050-305/75-09

bcc: PDR
Local PDR
NSIC
TIC
OGC, Beth, P-506A

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

REGION III

Report of Operational Program Inspection

IE Inspection Report No. 050-305/75-09

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

Kewaunee Plant
Kewaunee, Wisconsin

License No. DPR-43
Category: C

Type of Licensee: PWR 560 MWe (W)

Type of Inspection: Routine - Annual Radwaste

Dates of Inspection: April 29-May 2, 1975 and May 13-16, 1975.

Principal Inspector: M. C. Schumacher 6/23/75 (Date)

Accompanying Inspector: None

Other Accompanying Personnel: None

Reviewed By: W. L. Fisher 6/23/75 (Date)
Senior Inspector
Radiological & Environmental
Protection Branch

SUMMARY OF FINDINGS

Inspection Summary

Inspection of April 29-May 2 and May 13-16, 1975. Reviewed abnormal occurrences, corrective action on noncompliance items reported in radiation protection management inspection of October 1974, modification of auxiliary building stack, procedures and records relating to radioactive effluents, surveillance records for primary and secondary chemistry, process monitor calibration records, and effluent data from July-December 1974 semiannual report. Observed installed process radiation monitors and solid radwaste facilities.

Enforcement Items

The following item of noncompliance was identified during the inspection:

Deficiency

Contrary to Technical Specification 6.6.2.a, the licensee failed to report a release rate of halogens and particulates that initially appeared to have exceeded Technical Specification 3.9.6.2. on September 28-29, 1974. (Paragraph 3.c)

Licensee Action on Previously Identifed Enforcement Items

Deficiencies identified during the radiation protection inspection of October 1974 relating to posting of documents pursuant to 10 CFR 10.11 and instructions to workers pursuant to 10 CFR .19.12 have been corrected. (Paragraph 10)

Other Significant Items

A. Systems and Components

Unresolved Item - Section 5.5 of the FSAR is not clear with respect to necessity of monitoring discharges via the shield building exhaust system. The licensee will pursue this matter with Licensing. (Paragraph 3.a)

B. Facility Items

Unresolved Item - The licensee will pursue with Licensing the matter of apparent inconsistencies in Technical Specification 3.9.b.1. governing release rate limits for gross gas release. (Paragraph 3.f)

Unresolved Item - The apparent inadequacy of monitoring devices to effect automatic isolation based on halogen and particulate release rates required by Technical Specification 3.9.b.4 will be pursued by the licensee with licensing. (Paragraph 3.a)

C. Managerial Items

None identified.

D. Noncompliance Identified And Corrected by Licensee

Infraction

The failure to monitor a containment purge in accordance with Technical Specification 3.9.b.4 on September 20, 1974 was identified, corrected, and reported by the licensee. (Paragraph 2.a)

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

None within the scope of this inspection.

Management Interview

A management interview was conducted at the close of the inspection with Messrs. C. Luoma, Plant Superintendent, J. Richmond, Technical Supervisor; G. Jarvella, Health Physics Supervisor; and J. Larson, Radiochemistry Supervisor.

A. The inspector stated that the failure to use the containment monitor (R11/12) to monitor the purging of containment on September 20, 1974 while the containment vent monitor was out of service appeared to be in noncompliance with Technical Specification 3.9.b.4. (Paragraph 2.a)

B. The inspector stated that the halogen release limit of Technical Specification 3.9.b.2 was apparently exceeded on September 28-29, 1974 and that the failure to report this occurrence was an item of non-compliance. (Paragraph 3.c)

C. The inspector stated that the following items appeared to need resolution:

1. Absence of monitoring on the shield building exhaust may be at variance with Section 5.5 of the FSAR. (Paragraph 3.a)

2. The apparent difficulty in meeting the requirement of Technical Specification 3.9.b.4 for automatic isolation devices capable of limiting halogen and particulate release rates to 0.51 μCi/second. (Paragraph 3.a)

3. The apparent inconsistencies in Technical Specification 3.9.b.1 which defines the limit for gross gas release. (Paragraph 3.f)

The licensee agreed to seek resolution of these problems with licensing.

D. The inspector noted the occurrence of several discrepancies between the licensee's sampling data for airborne releases and the values reported in his July-December semiannual report.

The licensee stated that the data would be reviewed and corrected in the next report. (Paragraph 3.b)

E. The inspector stated that the observed iodine in gas samples and xenon in charcoal samples should be accounted for in quantifying releases and the the implied sampling problem should be reviewed. The licensee agreed to investigate the problem. (Paragraph 3.c)

F. The inspector stated that the discrepancy between units specified on the analyses printouts and the units proper to a given sample not only made the records difficult to audit but were likely to cause quantification errors.

The licensee stated that an attempt would be made to change the program format or otherwise clear up the confusion. (Paragraph 3.c)

G. The inspector discussed problems associated with reporting releases based on measurements made upstream of treatment systems.

The licensee stated that reporting of containment releases would be changed to reflect particulate and iodine measurements made downstream of the filters. (Paragraph 3.c)

H. The licensee stated that the problems of quantifying airborne releases via the blowdown flash tank in the event of primary to secondary steam generator leaks is being studied. He also described a planned modification to the blowdown system that would eliminate this potential release pathway.

The licensee also stated that the turbine building sump, which receives air ejector drains, will be put on manual if primary to secondary leaks are observed. (Paragraph 7)

I. The inspector stated that he had no further questions concerning the reported overexposure to a WPS employee. (Paragraph 2.c)

J. The inspector noted that the licensee's in-house monitoring program enabled him to avoid potential problems resulting from missing chips in TLD badges supplied by the vendor, but stated that NRC wants to be promptly informed of such occurrences in order to preclude problems at other facilities.

The licensee stated that quality control checks of furnished badges will be part of a revised personal monitoring procedure. (Paragraph 2.d)

K. The inspector stated that the health physics aspects of the line break in containment described in AO 75-3 appeared to be properly handled, but noted that the report contained several errors.

The licensee stated that review of these reports, which are written in his corporate headquarters, would be improved. (Paragraph 2.b)

L. The inspector stated that the licensee's surveillance of primary and secondary chemistry appeared to be satisfactory and in accordance with the technical specifications. (Paragraph 6)

M. The inspector stated that calibration and testing of process radiation monitors appeared to be satisfactory, but noted some confusion between "as found" and "as left" instrument set points.

The licensee acknowledged this comment. (Paragraph 8)

N. The inspector also stated that the outage on the containment vent monitor appeared to be longer than neccessary.

The licensee stated that backup supply needs were originally underestimated, that delivery problems were encountered with the original supplier, and that addition of other suppliers has been made to the approved supplier list. (Paragraph 8)

O. The inspector stated that handling of solid radwaste appeared to be satisfactory. (Paragraph 5)

P. The inspector stated that liquid radwaste releases appeared to be properly quantified. (Paragraph 4)

Q. The inspector noted difficulties with the waste evaporator and questioned its adequacy.

The licensee stated that the evaporator operating at 1.5 gpm was adequate except for surges, which are processed via the blowdown treatment system. He also stated that the acquisition of a large (20-25 gpm) evaporator is under engineering study as a contingency item. (Paragraph 4)

R. The inspector noted the low radiation doses incurred by the station during its first year of operation but pointed out that almost half of the dose to WPS employees was incurred by the radiation protection department.

The licensee said this situation is being carefully followed. (Paragraph 9)

T. The inspector noted the licensee's corrective actions with respect to items of noncompliance identified in IE III inspection report 74-13 and stated that he had no further questions. (Paragraphs 10 and 11)

REPORT DETAILS

1. Persons Contacted

C. Luoma, Plant Superintendent
J. Richman, Technical Supervisor
G. Jarvella, Health Physics Supervisor
J. Larson, Radiochemistry Supervisor
T. Moore, Administrative Assistant
D. Mac Swain, Instrument and Control Supervisor
J. Hannon, Instrument Man

2. Unusual Occurrences

The radiological aspects of the following occurrences were examined.

a. Failure to Monitor Containment Purge September 20, 1974 (AO 74-16)[1/]

As a result of operator error, containment monitors R11/12 were switched to the "instrument purge" position for several hours during a containment purge on September 20, 1974. The licensee's records show that the containment monitor R21 was out of service; thus, the failure to switch monitors R11/12 to the "containment vent" position meant that no "real time" monitoring capable of initiating containment isolation was occurring. The shift supervisor's log showed that the reactor was shutdown except for a 40-minute period when the reactor was made critical for an operator examination. The licensee's records indicate that the containment atmosphere was properly analysed before the release and that sampling of particulates and iodines at the R21 location while purging was sufficient to quantify the release. No release limits were exceeded.

b. Leak in Charging Line Vent Piping, January 15, 1975 (A075-3)[2/]

A leak adjacent to a connecting tee in a charging line was observed by two instrument repairmen in containment on January 16, 1975. Containment was evacuated. Subsequent entry wearing fullface respirator was made by radiation protection for air sampling. Airborne radiation levels were not exceptional and no area or personal contamination was observed. Repair was effected on January 18. The date of occurrence was incorrectly given as January 17 in the licensee's abnormal occurrence report, which also appears to report incorrectly the gross activity (noble gas) in containment following the occurrence. The Licensee's sampling records showed a gaseous radioactivity

1/ Ltr WPS to DL dtd October 1, 1974.
2/ Ltr WPS to DL dtd January 27, 1975.

concentration 4E-5, rather than the 9.1E-5 microcuries per milliliter reported.

c. Investigation of Reported Overexposure to WPS Employee, January 1975[3/]

The licensee was notified by telphone by the TLD contractor of an apparent 3,140 mrem gamma dose recorded by a TLD dosimeter during January 1975. The subsequent formal report by the contractor received on February 24, 1975, indicated that the dose was 39,830 mrem gamma, and stated that a computer error had occurred and that a revision would be forthcoming. The revised report, received on March 3, 1975, indicated a dose of 31,740 mrem gamma. The licensee began an investigation upon the initial notification and concluded that the 189 millirem dose indicated by the employee's pocket dosimeter was a reasonable estimate of the dose received. The investigation included urinalysis, whole body counting, blood morphology, and a review of daily dosimeter logs.

d. Missing TLD Chips Discovered April 4, 1975.[4/]

The licensee discovered on April 4 that TLD chips were missing from 146 of 161 April badges received from the TLD contractor. The contractor indicated that several batches of incomplete badges had already been discovered and corrected; the Kewaunee shipment had been missed because it had been hand delivered by a contractor representative. Replacement badges were received on April 7. Although the empty badges were worn between April 1 and April 4, all personnel on site were monitored with pocket dosimeters and all but two persons doing work involving potentially significant exposures were also monitored by TLD program had been extended beginning on April 1, 1975, as a result of the reported overexposure in January. The licensee has begun a program of routinely examining a sample of the contractor-supplied badges for missing chips.

3. Airborne Radioactive Releases

a. Monitoring

Records of continuous and batch mode airborne releases for the period April 1974 to April 1975 were reviewed. Continuous mode releases via the auxiliary building vent are monitored by the auxiliary building vent monitors R13 and R14 and quantified based on samples taken near these monitors at a sample position designated as R13A. Batch mode releases consist of gas decay tank ventings via the auxiliary building vent and containment ventings,

3/ Ltr WPS to IE III dtd April 29, 1975.
4/ Ibid.

containment purges, and shield building purges which are released via the containment vent. The releases from containment are monitored by the containment vent monitor (R21) or alternately by containment monitors (R11 and R12) operating in the containment vent mode. Iodine and particulate samples are also taken during discharges at R21. Releases from the annulus are unmonitored because the annulus purge line enters the containment vent downstream of the containment vent monitor R21. This condition may be at variance with the FSAR Section 5.5.1, which states that the shield building ventilation discharges to the monitored containment system vent, although the diagram Figure 5.4-1 in the same section clearly shows the line to be unmonitored.

The above referenced monitors are capable of providing a signal for automatic isolation of discharges so that gas and particulate release rates are kept within the technical specifications. However, neither these monitors nor any other considered in the FSAR appear to be sensitive enough to initiate automatic isolation at halogen release rates below 0.51 microcuries per second as required in Technical Specification 3.9.b.4.

b. Continuous Release Quantification

Continuous releases via the auxiliary building vent are quantified based on samples taken at the R13A sampling position. Iodine and particulate samples are continuously drawn and analysed periodically. Gas samples are taken daily at the same location.

The 1974 releases were based on quarterly gas samples and weekly particulate and iodine samples, together with the hourly computer printout of the continuous monitor R14. The gas samples were generally near the detection limits for the counting procedures used.

The inspector observed apparent discrepancies in his review of the data for September and December 1974. No health and safety significance is attached to the discrepancies, because of the generally low levels of release. The data for 1975 appeared to be satisfactory.

c. Batch Release Quantification

A total of 46 batch releases were made in 1974. Quantifcation of these releases is done by pulling particulate, iodine, and gas samples from the atmospheres to be vented and counting them on a gamma spectrometer (GeLi) and counting the particulate filter on a gross beta-gamma counter as well. The analyser printout identifies nuclides by energy and prints out a quantity under the heading of pCi/liter. This heading appears to be a fixed parameter in the analysis program and not amenable to change

with the current memory limitations. Usually the stated units are not applicable to these samples and the analyst must be careful in converting the results to the appropriate concentration units.

Sampling records indicated that the release rate of halogens and particulates during a 25-hour period of containment venting on September 28-29, 1974 averaged 0.56 microcurie per second in contrast to the Techincal Specification 3.9.b.2 limit of 0.51 microcurie per second. This fact was apparently missed by the licensee and was not reported. Subsequently it was determined from the samples split with the NRC reference laboratory in the last quarter of 1974 and the first quarter of 1975 that the licensee had been consistently overreporting iodine releases by a factor of about 8, so that the limit had not, in fact, been exceeded.

The inspector noted that on two occasions in 1974 iodine identifed in the gas samples taken downstream of the charcoal filter in the sampling train was not accounted for in the batch release. Similarly, on three occasions xenon identifed on the charcoal sample was not included in the release. The errors resulting thereby ranged up to 25% of the release recorded but remained below the technical specification limits. A licensee representative stated that the problem would be investigated and proper accounting would be made when this occurs. Xenon was observed on one charcoal sample out of the 18 releases made in 1975 through May 5.

Generally, the licensee has tended to overestimate batch releases because they are usually based on samples taken upstream of any HEPA or charcoal filters in the release pathway. The licensee has indicated that, beginning in June 1975, containment releases will be based on samples taken at the containment monitor (R21) during the release. Prior samples from the containment atmosphere will still be analysed beforehand to determine whether to release by the purge or vent modes.

d. Isokinetic Sampling

The inspector reviewed design drawings and operating conditions for sampling probes installed for the containment vent monitor/sampler (R21) and the auxilary building vent sampler (R13A). The former appeared to be operating at an isokinetic flow of 10 cfm (4700 ft/min) except during the period of R21 outage when the flow approximately doubled. The R13A sampler appeared to flow at about 9cfm (2400 ft/min) which was reasonably close to the vent flow (1900 ft/min) with both fans in operation but would not be so when only 1 fan was used or during special ventilation (SV) mode.

e. Containment Purge Filter Efficiency

The containment purge system of HEPA filters, charcoal filters and a 4000 cfm fan are on a bypass loop on the containment vent pipe upstream of the containment exhuast fan (33,000 cfm design flow). The purge filter is used whenever iodine and particulate levels in containment exceed the occupational MPC. When purging, the purge fan is turned on, the exhuast fan remains on, the normal flow path is automatically blocked by a damper, and makeup air to the exhaust fan is drawn from the outside. A preoperational test of this system using Freon 12 found leakage of less than 0.01%. However, the test was run immediately across the filter and not across the entire bypass, so that the possibility of leakage past the damper was not evaluated.

f. Technical Specification 3.9.b.1

This technical specification governs the release of gross gaseous activity excluding halogens and particulates with half-lives longer than eight days. It requires that such releases not exceed $Qi \leq \Sigma \frac{MPCi}{3.6X10^{-6}}$ where Qi is the release rate in μCi/sec for isotope i and $3.6X10^{-6}$ is defined as the applicable site dispersion factor ($^{x}/Q$/in units of sec/m^3). The equation appears to be inconsistent with respect to the units specified for Qi, and the equation itself appears to be improperly formulated. The licensee interprets the MPC to refer to that governing the most restrictive isotope identified in the release.

g. Auxiliary Building Stack Modification

The inspector observed the recently completed modification intended to alleviate previously identified problems of recirculation of the auxiliary building intake.[5/] A structure was built which enclosed the former vent stack and raised the effective release point above the adjacent roof line. A licensee representative stated the effectiveness of this modification is not yet known because conditions associated with recirculation had not yet been observed.

4. Liquid Radioactive Effluents

The inspector reviewed the licensee's records of liquid releases for the period March 1975 through April 1975. All discharges appeared to have been made after required analyses, with the discharge monitor (R18) operable, and without exceeding any technical specification release limits. Discharges for the period were about 0.2 curies/quarter for gross activity (excluding tritium) and about 40 curies/

5/ IE III Inspection Report 305/74-13.

quarter for tritium. Released activity is determined from a gamma spectrometer scan of a sample of each batch released or a gross count if no isotopes are identified, plus the results of Sr89-Sr90 analyses done by the licensee on monthly composites of the discharges. Tritium analysis is done for each batch discharged. All releases are made via the circulating water discharge with a minimum dilution flow of 200,000 gpm.

The principal design pathway for discharge is from the waste holdup tank through the waste evaporator to a waste condensate tank for analysis. During the inspection the waste evaporator (2gpm) had been out of service for burned out bearings on the concentrates pump. Other difficulties have occurred and good operation is considered to be 1 to 1.5gpm with a DF of 100.

The steam generator blowdown system of holdup tanks, demineralizers, and monitor tanks is being operated as an adjunct to the waste treatment system. Surges are routed to the holdup tank and are directly discharged or processed via the demineralizer to the holdup tank before discharge, or are returned to the waste holdup tank, depending on the concentration and the availability of the waste evaporator.

Discharges are made from the CVCS monitor tanks after treatment by the boric acid evaporator system. The water is not returned to the primary make up water tank because the tank is in a clean area; tritium inventory within the plant is also controlled thereby.

Laundry and hot shower wastes are treated by filtration, sampled, and discharged.

5. Solid Wastes

The inspector reviewed the licensee's records of solid waste shipment. A single offsite shipment was made on January 22, 1975, to a licensed receiver in Peekskill, New York. The shipment, consisting of 75 drums of compacted and concreted waste having a total activity estimated at 2.1 curies, was shipped by sole use truck. Drum and truck surveys were properly documented and no problems were noted. The inspector inspected the solid waste handling area and observed it to be neat and in good order. Using a meter provided by the licensee the highest reading observed on a drum on the barrelling line was 15 mR/hour. The reading observed at the operator's station was 0.2 mR/hour.

6. Reactor Coolant Quality

The inspector reviewed the licensee's records of sampling tests made pursuant to Technical Specification 4.1, Table TS 4.1-2 for the period July 1974 through April 1975. Required sampling frequencies were met or exceeded and no results in excess of prescribed limits

were observed. Typical gross beta-gamma levels in the primary system of the order of 0.1 to 1 μCi/ml are maintained according to the licensee by continuous use of the letdown filter and mixed bed demineralizers in the CVCS system.

Secondary coolant radioactivity remained below minimum detectable levels of about 10^{-7} μCi/ml (gross $\beta\gamma$) and 10^{-5} μCi/ml (tritium) during the period. A licensee representative stated that analysis for iodine 131 will be done if tritium is observed in the secondary. This action is not specified in the governing surveillance procedure, SP-069, "Secondary Coolant Beta-gamma and Iodine 131 Activity Sample."

7. Steam Generator Blowdown Modification

A licensee representative stated that blowdown was running about 40 gpm per steam generator. No primary to secondary leaks have been observed. Normal venting of the blowdown flash tank is through a vent in the roof of the auxiliary building. A high signal on the blowdown sample monitor (R19) terminates blowdown and the vent will be manually realigned to the condenser. An emergency procedure calls for the operator to isolate blowdown on a high signal from the air ejector gas monitor (R15).

The all volatile steam generator chemistry now used requires higher blowdown rates than formerly and the licensee is progressing on a modification to reclaim energy (estimated at 3.5 MW for 100 gpm per generator blowdown rate) by using it to preheat feedwater via regenerative heat exchangers. Under this modification, the blowdown flash tank with its vent to atmosphere will be valved out of service and will no be normally used.

8. Radiation Monitor Tests

Monthly tests of process radiation monitors made through April 1975 were observed to have been done consistent with Technical Specification 4.1, Table TS 4.1-1. The tests were done according to the licensee's surveillance procedure SP-049, "Radiation Monitoring System Test." Surveillance procedure exception reports written for discovered anomalies were promptly acted upon by the licensee. It was noted that the containment vent monitor (R21) was out of service between August 19, 1974 and November 12, 1974. A licensee representative stated that the inability to obtain prompt delivery of a certified detector from the system vendor was responsible. During the outage the R11/12 monitor was used to monitor containment discharges except for a period on September 20, 1974 when that monitor was inadvertently switched to the wrong position. (Paragraph 2a)

The inspector noted that the provisional setpoint for the liquid waste discharge monitor (R18) was changed in March 1975 from 1200 cpm to 7000 cpm because of background readings. This appears to correspond to a nominal discharge concentration of 1E-7 uCi/ml with one circulating water pump (200,000 gpm) in operation.

The inspector noted occasional confusion in that the reading recorded under "as found" sometimes meant "as left." The test form does not designate that "as left" readings should be recorded separately.

The inspector reviewed records of preoperational calibration of the area radiation monitors and observed that the readings of these monitors when exposed to an external Cesium 137 source at varying distances were consistent with readings on portable instruments for the same geometry.

9. Station Doses 1974

The inspector was furnished the following resumé of station doses from the 1974 personal dosimetry records.

	Dose (mrem)	No. of	Average (mrem)
WPS Employees	14,000	84	170
Contractors	36,000	299	120
Total Station Dose	50,000	383	130
Radiation Protection	6,400	6	1100
Balance of Plant	7,500	78	100
Total WPS	14,000	84	170

10. Postings Pursuant to 10 CFR 19.

The inspector observed adequate posting of documents required pursuant to 10 CFR 19 on all doors used for entry to and exit from the facility.

11. Instructions to Workers Pursuant to 10 CFR 19.

The inspector reviewed the minutes of three station safety meetings which noted that 10 CFR 19 had been read. A licensee representative stated that these instructions will be included in the refresher training program. The licensee also gave training to female employees concerning prenatal exposure as addressed in Regulatory Guide 8.13.