

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-305/84-10(DRSS)

Docket No. 50-305

License No. DPR-43

Licensee: Wisconsin Public Service Corporation
Post Office Box 1200
Green Bay, WI 54305

Facility Name: Kewaunee Nuclear Power Plant

Inspection At: Kewaunee Site, Kewaunee, WI

Inspection Conducted: August 2-3, 1984

Inspector: S. Rozak
S. Rozak

8/17/84
Date

Approved By: M. C. Schumacher
M. C. Schumacher, Chief
Independent Measurements and
Environmental Protection Section

8/17/84
Date

Inspection Summary

Inspection on August 2-3, 1984 (Report No. 50-305/84-10(DRSS))

Areas Inspected: Special announced inspection of implementation of 10 CFR Part 20 and 10 CFR Part 61 requirements for disposal of low-level radioactive wastes including management controls, quality control, tour of the facility, and implementation of waste form and waste classification requirements. The inspection involved 10 inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

- *J. Richmond, Plant Services Superintendent
- *M. Marchi, Plant Technical Superintendent
- *D. A. Padula, Plant Health Physicist
- *M. Lewis, Assistant to Nuclear Licensing and Systems Superintendent
 - S. Ziehms, Radwaste Operator
 - W. Winnowski, Chemistry Supervisor
 - L. Haworth, Lead QC Auditor
- *R. L. Nelson, NRC Senior Resident Inspector

*Denotes those present at exit meeting on August 3, 1984.

2. Management Controls and Organization

The inspector reviewed the administration and management of the licensee's radwaste program. Program responsibilities are defined in Administrative Control Directive 6.12. The Plant Health Physicist, who reports to the Plant Services Superintendent, is responsible for proper compaction, solidification, storage, labeling, and shipment of all solid radioactive waste in accordance with all applicable regulations. His responsibilities explicitly include proper waste classification. The Radwaste Operator, who reports to the Plant Health Physicist, does much of the work of packaging and sampling radwaste.

No items of noncompliance or deviations were identified.

3. Quality Assurance and Quality Control Program

The licensee has prepared a set of fifteen procedures controlling activities in radwaste preparation and shipment. Most of these procedures were approved in January 1984. The inspector examined selected portions of those procedures. In general, although adequate in other respects, currently approved procedures make little or no reference explicitly to 10 CFR 61 requirements. This set of procedures is currently under revision. Among other things, these revisions are to include specific references to 10 CFR 61 and 10 CFR 20.311 requirements. In response to inspector comments the licensee agreed to include in these revisions waste classification, manifest preparation, and shipment tracking requirements in 10 CFR 61 and 10 CFR 20.311. This will be examined in a future inspection (Open Item 50-305/84-10-01).

The Quality Control department is responsible for the inspection/review of all DOT Type B shipments. In practice they attempt to inspect all shipments. Their inspection, however, includes only procedural compliance; consequently, compliance with 10 CFR 61 and 10 CFR 20.311 are addressed only to the extent that these requirements are incorporated into applicable procedures.

The corporate quality assurance department has not conducted any audits in this area since the new regulations went into effect on December 27, 1983.

The inspector was unable to contact QA representatives by telephone during the inspection; however, QC representatives stated that QA audits encompass primarily compliance with applicable procedures. At the inspector's request the Plant Services Superintendent contacted members of the Nuclear Technical Review Committee to ensure that compliance with 10 CFR 61 and 10 CFR 20.311 is included in their review of procedural and program compliance with applicable regulations, scheduled for sometime in May 1985.

No items of noncompliance or deviations were identified.

4. Waste Classification and Form

The inspector reviewed the status of the licensee's implementation of the requirements of 10 CFR Part 20 and 10 CFR Part 61 applicable to low-level radwaste classification, waste form and stabilization. The licensee has made nine shipments to date since December 27, 1983, the effective date of the new regulations.

Because of a history of good fuel performance and little leakage across the steam generator tubes the licensee does not generate any solid radwaste in the secondary side of the plant. On the primary side waste media consist of spent bead resin, mechanical filters, and dry active waste (DAW).

Bead resin and filters are solidified in 55 gallon drums using a gypsum cement called Envirostone supplied by U. S. Gypsum Co. This system has not been used since May due to suspected contamination of the cement hoppers with residual lime cement from previous operations. This affected the setting time of the cement but U. S. Gypsum Co. representatives stated that stability of the final product was not appreciably affected. These hoppers are scheduled to be cleaned in the near future. The licensee has available 55 gallon high integrity containers (HICs) and expects to obtain larger volume HICs in the future. These may be used to supplement the solidification system in the future but have not been used to date.

DAW is compacted in 55 gallon drums using a high pressure compactor or shipped in LSA boxes.

U. S. Gypsum submitted a report on stability testing for Envirostone cement to NMSS on June 19, 1984, and expect the NRC review to be completed by April 1985. A preliminary report was sent to the licensee by U. S. Gypsum Co. on March 22, 1984.

The licensee has been sending resin samples to Science Application Inc. (SAI) for analysis since at least January 1981. These have been analyzed for gamma emitters, beta emitters, and transuranics. Additional samples are scheduled to be sent every six months. Whenever possible, these analysis results were used to correlate the activities of pure alpha and beta emitters to gamma emitters that can be measured more easily at the plant. Otherwise, fixed concentrations based on sample weight or water content are used. The licensee assumes that the same correlation factors and concentrations are applicable for other types of waste as well. This assumption is probably reasonable due to a long history of stable operations

and the fact that all solid radwaste is generated only from the primary system. It is also checked by comparing gamma analyses of all types of waste to those for resin samples. Comparisons have generally shown the same mix of gamma emitters in all types of samples. At the request of the inspector the licensee agreed to send samples of all other types of waste for analysis, when available, in order to check that the correlation factors and concentrations used for resin are applicable for these media also (Open Item 50-305/84-10-02).

Radwaste is classified in the case of solidified resin by taking samples and performing a gamma analysis after which suitable correlation factors are applied for the difficult to measure isotopes. For DAW and solidified filters dose to curie conversion factors are used to obtain total activity in the containers after which the total curie content is partitioned based on gamma analysis results of smear samples and/or previously determined correlation factors. Numerical calculations and classification are performed by an inhouse computer program called RADSHP.

No items of noncompliance or deviations were identified.

5. Shipping Manifests/Tracking

The inspector examined manifests and records for all radwaste shipments made since the new regulations went into effect. All shipments appeared to have been properly classified and all required paperwork was present. Currently approved procedures need to be revised to explicitly address waste classification, manifest preparation, and shipment tracking, as discussed in Section 3. The Plant Health Physicist is aware of the new requirements and current practices appear to have satisfied these requirements.

No items of noncompliance or deviations were identified.

6. Exit Meeting

The inspector reviewed the scope and findings of the inspection with licensee representatives (Section 1) following the inspection on August 3, 1984. In response to inspector comments licensee representatives agreed to the following actions:

- a. Revise radwaste procedures to include explicit requirements for waste classification, manifest preparation, and shipment tracking contained in 10 CFR 61 and 10 CFR 20.311 (Section 3).
- b. Send additional samples, when available, from all other radwaste media for analysis, to demonstrate applicability of correlation factors and concentrations generated from analysis of resin samples (Section 5).