

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-282/92018(DRSS); 50-306/92018(DRSS)

Docket No. 50-282; 50-306

License No. DPR-42; DPR-60

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Facility Name: Prairie Island Nuclear Generating Plant

Inspection At: Prairie Island Site, Redwing, Minnesota

Inspection Conducted: August 3 - August 7, 1992

Inspector: *T. J. Kozak*
T. J. Kozak

8/13/92
Date

Accompanied By: R. E. Shewmaker

Approved By: *William Snell*
William Snell, Chief
Radiological Controls Section 2

8/13/92
Date

Inspection Summary

Inspection on August 3-7, 1992 (Report Nos. 50-282/92018(DRSS); 50-306/92018(DRSS))

Areas Inspected: Routine announced inspection of the radiation protection program (Inspection Procedure (IP) 83750) with a special emphasis on 10 CFR Parts 20 and 61 requirements (IP 84850) for transportation and disposal of low level radioactive wastes, including: organization and management controls, quality control, solid radwaste shipping, and implementation of waste classification and characterization requirements (IP 84850), and maintaining occupational exposures as low as reasonably achievable (ALARA) (IP 83750).

Results: The licensee's radiation protection program appears to be very effective in controlling radiological work and in protecting the public health and safety. The radwaste processing, shipping and disposal programs were good with an experienced staff effectively implementing the requirements of 10 CFR Parts 20 and 61. No violations or deviations were identified.

DETAILS

1. Persons Contacted

- *S. Derleth, Radiation Protection Specialist
- *A. Johnson, Radiation Protection Supervisor
- *S. Lappegaard, Chemistry Supervisor
- *J. McDonald, Superintendent, Site Quality Assurance
- *D. Schuelke, General Superintendent, Radiation Prot.
- *M. Sellman, Plant Manager
- *D. Stember, Radwaste Engineer

- *D. Kosloff, NRC, Resident Inspector
- *J. House, Senior Radiation Specialist

The inspectors also interviewed other licensee and contractor personnel during the course of the inspection.

* Denotes those present at the exit meeting on August 7, 1992.

2. General

This inspection was conducted to review aspects of the licensee's radioactive waste (radwaste) transportation and disposal program to ensure compliance with applicable regulations. The inspection included tours of radiologically controlled areas including the auxiliary building and radwaste facilities, observations of work in progress, reviews of representative records and discussions with licensee personnel. During performance of the tours, no significant access control, posting, or procedural adherence problems were noted.

3. Organization and Management Controls (IP 84850)

The inspectors reviewed the licensee's organization and procedures for radwaste processing to ensure that the responsible individuals have been clearly designated, that there has been clear delineation of the authorities and responsibilities of those individuals, and that written management-approved instructions have been established to carry out the various radwaste processing and packaging activities.

Investigations revealed that assignments and responsibilities for the radwaste processing program were clearly delineated. Responsibility for ensuring that the solid waste transportation and disposal programs are in compliance with the applicable regulations has been assigned

to the solid waste engineer who reports directly to the General Superintendent, Radiation Protection. A radiation protection technologist has been permanently assigned to this area and is responsible for the day-to-day implementation of the program including paperwork preparation, survey requirements, and job preparation and execution. Staff stability appears to be directly responsible for the effective implementation of controls to prevent shipping problems, maintain a low inventory of radwaste awaiting shipment and job familiarity leading to effective dose saving work techniques.

The licensee has developed detailed management approved procedures covering most aspects of the radwaste program. Most procedures are contained in section D of the Operations Manual. Procedure D59 contains the process control program which describes in general terms the methods used to process waste. Procedure D11 is a reiteration of the regulations in 10 CFR Parts 20.301 and 61. Procedures D11.1-11.9 are consumable procedures which contain checklists that are reproduced for each shipment of radioactive material/waste. The procedures in the Operations Manual refer to Radiation Protection Implementing Procedures (RPIPs) which contain more specific instructions for things such as dewatering resin liners. Finally, the licensee utilizes vendor procedures for other aspects of radwaste processing. The inspectors verified that the licensee's procedures contained provisions for all aspects of radioactive waste processing, shipping and disposal.

No violations or deviations were identified.

4. Quality Control (IP 84850)

The inspectors reviewed the results of Quality Assurance audits and surveillances conducted by the licensee since the last inspection. Also reviewed was the extent and thoroughness of the audits and surveillances.

There have been no audits performed of the radioactive waste program since the last radiation protection inspection. The inspector reviewed surveillances performed by the Quality Services Group of work evolutions since the last inspection. These surveillances are standardized and appear to be comprehensive. No significant findings were identified.

The quality control organization is involved with all shipments of primary resin. The procedures used for preparing this material for shipment specifically require quality control personnel to review all aspects of the job. Several quality control hold points were located in the procedures to ensure that a review of certain essential

actions were properly done prior to continuing preparations for the shipment. Quality control personnel also get involved in reviewing shipping documents for more routine shipments of radioactive waste. It appeared that the quality control organization was effectively utilized in the radwaste shipping and disposal programs to ensure that appropriate regulations were met.

No violations or deviations were identified.

5. Solid Radwaste Shipping (IPs 84850)

The inspectors reviewed licensee records for radwaste shipments from mid-1991 to date. There have been 14 radwaste shipments in this time from the licensee to either a contractor for further processing or a burial site for disposal. The total disposal volume for these shipments was approximately 3,900 cubic feet.

A review of selected radwaste shipment records verified the licensee's compliance with the manifest requirements of 10 CFR 20.311(b), (c), and (d) (5)-(7), and the shipping paper requirements of 49 CFR 172.200-204. Procedure and record reviews indicated that shipments of radwaste were marked and labeled in accordance with applicable regulations. Vehicle placarding requirements also appeared to have been properly met. Licensee procedures and records indicated that the system for tracking shipments and notifying the NRC of missing shipments was adequate. A checklist documenting shipment departure and arrival dates was maintained by the responsible RPT. The licensee stated that there have been no problems with missing shipments, late arrival of shipments, or delayed acknowledgement of receipt of shipments. In addition, adequate procedures to ensure that the applicable disposal site and waste processor license conditions were met. Finally, the licensee had current copies of the disposal site licenses on hand and readily available.

No violations or deviations were identified.

6. Waste Classification and Characterization (IP 84850)

The inspectors verified that the licensee was appropriately classifying and characterizing their radioactive waste. The licensee has identified four different waste streams; dry active waste (DAW), primary resin, secondary resin and activated metals. The licensee sends samples from these waste streams to a vendor for analysis to identify those isotopes which are not readily quantifiable using gamma spectroscopy and to develop specific scaling factors relating the difficult to measure isotopes to common gamma-

emitters such as Cs-137 and Co-60. DAW samples were sent at least every other year. Primary and secondary resin samples are sent for each shipment. The results of the resin samples are used for the next shipment as results are generally not available in time for the shipment from which they are obtained. The computer program RADMAN, which has an approved topical report with the NRC, was recently purchased for use in classifying waste shipments. A licensee developed computer program was previously used for this requirement. The inspectors verified that the licensee's scaling factors were properly applied and that the appropriate limits corresponding to those in the tables for waste classification in 10 CFR 61.55 were accurate.

A review of procedures and discussions with licensee personnel indicated that the waste form and characterization requirements of 10 CFR 61.56 were met. The licensee's solid radioactive waste processing program was verified to be as described in the process control program and the USAR. The licensee processed compactable dry active waste (DAW) by placing it in 52 gallon drums which are then crushed using a supercompactor and placed in 55 gallon drums. On average, approximately 2.3 crushed drums fit in the 55 gallon drums. The DAW is shipped for disposal in the 55-gallon drums. Metal boxes are used to ship activate metal to a vendor for further processing. Spent resin was handled two different ways. Waste processing system resin was directed to a HM-190 liner which was located in a pit under the floor in the drop area of the auxiliary building. Primary system resin, which contains much more activity than other resin, was remotely transferred to a RADLOK-500 liner located in a locally designed and constructed cement shield cask. The resin was dewatered in liners using an NRC approved vendor procedure. Files of disposal liners and shipping casks were maintained by the RPT. The HM-190 liner is used only for Class A shipments so no stabilization is required. The RADLOK-500 liner does not have an approved NRC topical report allowing it to provide stabilization for Class B and C waste. However, the 10 CFR Part 61 waste stabilization requirements are met through variances and Certificates of Compliance granted by the burial site host states which allow the liner to be placed in a concrete overpack container to provide waste stabilization.

No violations or deviations were identified.

7. Maintaining Occupational Exposures ALARA (83750)

The inspector reviewed the licensee's program for maintaining occupational exposures ALARA, including: changes in ALARA policy and procedures, and their implementation; ALARA considerations for planned maintenance

and refueling outages; worker awareness and involvement in the ALARA program; establishment of goals and objectives, and effectiveness in meeting them.

There did not appear to be any changes in the licensee's ALARA policy. The inspectors conducted interviews with licensee personnel to discuss their ALARA plans for the remainder of the year especially with regards to the upcoming dual unit outage in the fall. The outage schedule has been developed and all potential high dose jobs have been identified. Specific ALARA considerations for the outage will be reviewed during a future inspection.

The licensee's goal for total dose in 1992 is 200 person-rem. Personnel dose to date was approximately 67.2 person-rem, 64.8 of which was expended during the spring refueling outage. The dose during the refueling outage was well under the goal of 70 person-rem as the licensee continued to perform well by maintaining tight control over outage tasks.

As noted in a previous inspection report (IR 50-282/91026(DRSS); 50-306/91026(DRSS)), the licensee has adopted many dose saving work techniques to reduce overall exposure during radwaste activities. Maximum use is made of video equipment, remotely operated valves and inspection points, special tools to increase distance from the source and shielding during resin transfers. The licensee has reduced handling time of resin and depleted filters by reusing steam generator blowdown resin in their waste processing system and by disposing of filters in the secondary resin liner. Dose received during radwaste activities is a very small fraction of the overall dose expended at the plant.

No violations or deviations were identified.

8. Exit Interview

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on August 7, 1992, to discuss the scope and findings of the inspection.

During the exit interview, the inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. Licensee representatives did not identify any such documents or processes as proprietary. The inspector specifically discussed the following items:

- * The continued good radiological performance during radwaste processing

* The good radiological performance during the spring outage