U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-282/85020(DRSS); 50-306/85016(DRSS)

Docket Nos. 50-282; 50-306 License Nos. DPR-42; DPR-60

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

Facility Name: Prairie Island Nuclear Generating Plant, Units 1 and 2

Inspection At: Prairie Island Site, Redwing, MN

Inspection Conducted: September 16-20, 1985

Inspector: for W. B. Grant — 10/10/85 Date

Approved By: L. R. Greger, Chief
Facilities Radiation Protection Section — 10/10/85 Date

Inspection Summary

Inspection on September 16-20, 1985 (Report Nos. 50-282/85020(DRSS); 50-306/85016(DRSS))
Areas Inspected: Routine, unannounced inspection of the radiation protection program during Unit 2 refueling activities, operational activities of Unit 1 and solid radwaste, including: organization and management controls; training and qualifications; internal and external exposure control; audits and appraisals; changes; planning and preparation; control of radioactive materials and contamination; surveys and monitoring; maintaining exposures ALARA; shipments of solid radwaste; open items; and IE information notices. The inspection involved 36 inspector-hours onsite by one NRC inspector.
Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

D. Brown, Senior Production Engineer
*A. Hunstad, Staff Engineer
*A. Johnson, Radiation Protection Supervisor
G. Kolle, Training Department
*D. Mendele, Plant Superintendent, Engineering and Radiation Protection
J. Oelkers, Quality Control Specialist
*D. Schuelke, Superintendent, Radiation Protection
*E. Watzl, Plant Manager

*M. Moser, NRC Resident Inspector
*J. Hard, NRC Senior Resident Inspector

The inspector also contacted other licensee employees including technicians and technical and engineering staff members.

*Denotes those present at the exit meeting.

2. General

This inspection, which began at 12:30 p.m. on September 16, 1985, was conducted to examine the radiation protection program during operations of Unit 1 and during the Unit 2 outage, solid radwaste activities, open items and IE information notices. During facility tours, the inspector noted access to radiation areas was well controlled and posting and labeling were good. Housekeeping was good.

3. Licensee Action on Previous Inspection Findings

(Closed) Open Item (282/85017-01; 306/85018-01): Perform a QA audit of transportation activities. A QA audit of transportation and other radiological areas was conducted between March 18 and June 7, 1985. The audit was reviewed; no problems with transportation were noted.

(Open) Open Item (306/84-12-02): The control room special ventilation system does not have a deluge system. Current regulatory position 3.K of Regulatory Guide 1.52 recommends that the design of adsorber sections include a method for limiting desorption of iodine due to high temperatures. It could not be readily determined how this regulatory position has been satisfied at Prairie Island. This matter will be reviewed by a fire protection specialist during a future inspection.

(Closed) Open Item (306/84-12-03): Procedure for draining filter housing after actuation of deluge system. Alarm Response Procedures 0103, 0203, 0505, and 0506 have been revised to ensure proper draining of filter housing. The procedures were reviewed; no problems were noted.

The inspector informed the licensee of the incident at Hatch, Unit 1, (LER 85018-00) where inadvertently flooded ductwork leaked water onto an analog transmitter trip system (ATTS) panel. This in turn caused a malfunction of a safety relief valve and the High Pressure Coolant Injection System.

4. Organization and Management Controls

The inspector reviewed the licensee's organization and management controls for the radiation protection program including changes in the organizational structure and the authority, responsibility and effectiveness of the Radiation Protection Manager.

The radiation protection organization is not significantly changed from that described in a previous inspection report (50-282/84-17; 50-306/84-18). The chemist has transferred to training and a radiation protection specialist (RPS) has transferred to quality assurance. Three RPSs have been hired and are in qualification training. Replacement chemists have been interviewed and one should be hired in October 1985. No problems were noted.

The Radiation Protection Manager (RPM) who is also the Superintendent, Radiation Protection reports administratively to the Plant Superintendent, Engineering and Radiation Protection who in turn reports to the Plant Manager. When questioned about his direct access to the Plant Manager on radiation protection matters the RPM said he has direct access to the Plant Manager concerning radiation protection matters when necessary, but that regular meetings are not scheduled. The RPM has met with the Plant Manager during this outage and the Unit 1 outage in January 1985 to discuss radiation protection related matters. In addition, the Plant Manager is the former radiation protection manager. There appears to be no problem with RPM access to the Plant Manager.

The inspector reviewed Radiation Occurrence Reports (RORs) written during 1985 to date. RORs are written for RWP violations, personnel contamination incidents, injuries, lost TLDs, and pocket dosimeters off-scale. There appears to be an increasing number of low level personnel contaminations apparently resulting from residual contamination in protective clothing (PCs). The contamination usually takes place after the PCs are soaked through from perspiration and is detected on the frisk-all portal monitor. When surveyed on a frisker the contamination usually is less than 200 counts per minute. The licensee has sampled the dry cleaning solution for radioactivity carryover and found it within limits. A longer wash cycle was investigated but could not be programmed into the automatic washcycle. The licensee has lowered the current laundry monitor alarm point from 1000 cpm to 800 cpm and is designing and building a more sensitive laundry monitor. The problem is still being reviewed by the licensee. Corrective actions will be reviewed during a future inspection (Open Item 282/85020-01; 306/85016-01). It appears that adequate management tracking, review and corrective actions are being taken with the RORs. No other problems were noted.

The licensee radiation protection staff has remained relatively unchanged in the last three years. There was little turnover other than career progression.

No violations or deviations were identified.

5. Audits and Appraisals

The inspector reviewed reports of audits and appraisals conducted for or by the licensee including audits required by the technical specifications. Also reviewed were management techniques used to implement the audit program, and experience concerning identification and correction of programmatic weaknesses.

There were two audits, one internal and one by the corporate NSP staff, of radiation protection conducted since the previous radiation protection inspection in December 1984. The staff audit (AG 85-12-15) of radiation protection was conducted in February 1985. The audit found two minor respiratory protection program discrepancies and two areas of inconsistency in documenting routine smear surveys. Corrective action has been completed. The internal audit (A-336) of radiation and chemical control was conducted between March 18 and June 7, 1985. The scope of the audit included the control of procedures, qualifications of personnel, chemical inventory, meter calibration, analysis QA program, quality records, radioactive waste shipments, storage of radioactive materials, the establishment of procedures and implementation of procedures. The audit had two findings concerning radiation protection record storage and two recommendations concerning record control. The findings and recommendations were reviewed by the licensee and corrective actions are being taken.

No violations or deviations were identified.

6. Changes

The inspector reviewed changes in organization, personnel, facilities, equipment, programs, and procedures that could affect the outage radiation protection program.

D. Gauger, the plant chemist, transferred to the Prairie Island training department in September 1985. According to the licensee a chemist should be hired in October 1985. There are no specific ANSI N18.1-1971 requirements for this position. C. Propst, a radiation protection specialist (RPS) transferred to the Quality Assurance Department in 1985. Three RPSs have been hired and are in training. Their qualification and training will be reviewed during a future inspection. Other changes noted are discussed in Section 7.

7. Training and Qualifications of New Personnel

The inspector reviewed the education and experience qualifications of new plant and contractor radiation protection and chemistry personnel, and

training provided to them. Also reviewed was radiation protection training provided to other contractor personnel.

For the Unit 2 outage, the licensee has augmented the radiation protection staff with 35 contract technicians. A special training program was provided the contract technicians commensurate with their experience level and familiarity with the Prairie Island Plant. The basic training program consisted of about 12 hours of Prairie Island radiation protection procedures and policies, in addition to General Employee training (GET). The contract technicians also had to pass all plant radiation protection specialist qualification card requirements, including: contamination control, radiation survey, respiratory protection, access control, and radiation work permits (RWP) procedures.

The inspector reviewed the contract technicians technical training records and qualifications cards; no problems were identified.

No violations or deviations were identified.

8. Planning and Preparation

The inspector reviewed the outage planning and preparation performed by the licensee, including: additional staffing, special training, increased equipment supplies, and job related health physics considerations.

Staffing increases and training are discussed in Section 7. The following matters are examples of planning performed by the licensee for the current outage:

- Specialized training, mockups and shielding used for installation of the Remote Vessel Level Indication System (RVLIS), the Reactor Vessel ISI and the anti-vibration bar (AVB) replacement on the Unit 2 steam generators.

No violations or deviations were identified.

9. External Exposure Control

The inspector reviewed the licensee's external exposure control and personal dosimetry programs, including: changes in program to meet outage needs; use of dosimetry; whether requirements are met; planning and preparation for maintenance and refueling tasks including ALARA considerations; and required records, reports, and notifications.

The inspector reviewed whole body TLD results for 1985 to date. The dose to date in 1985, which includes a 10-year ISI outage for Unit 1 and a similar outage currently in progress for Unit 2 is about 276 person-rem. A 200 person-rem goal has been established for the Unit 2 outage. Individual exposures remain low; no regulatory limits have been exceeded. NRC Form-4s reviewed for selected individuals with exposures

greater than 1.25 rem/quarter, were completed in accordance with 10 CFR 20.102. A member of the radiation protection staff reviews daily exposure updates which list doses and permissible remaining exposure, to assure limits are not exceeded.

TLD and pocket dosimeter results are compared in accordance with RPIP 1116 TLD/Dosimeter Comparison. Comparison results reviewed were satisfactory; no problems were noted. Pocket dosimeter readings are used when TLD badge is lost.

No violations or deviations were identified.

10. Internal Exposure Control

The inspector reviewed the licensee's internal exposure control and assessment programs, including: changes to procedures affecting internal exposure control and personal exposure assessment; determination whether engineering controls, respiratory equipment, and assessment of individual intakes meet regulatory requirements; planning and preparation for maintenance and refueling tasks including ALARA considerations; and required records, reports, and notifications.

Review of whole body count data showed no indication of exposures approaching the 40 MPC-hour control measure. Whole body count data was reviewed for about 950 counts conducted between January and August 1985 for NSP and contractor personnel. Several followup counts were performed on persons who showed elevated initial counts. Followup counting was adequate to verify that the 40 MPC-hours control measure was not exceeded.

The licensee recently revised their policy on beards and currently allows all personnel to wear beards provided the following conditions are met.

- A person having a beard must keep it trimmed so that a full face mask worn with a Scott Air-Pak in the pressure mode would provide protection for a short time internal.
- When work requires the use of a tight fitting facepiece, the beard must be removed immediately.
- Beards must be removed for respirator fitting, which is conducted annually.
- Personnel involved in an Emergency Drill must be clean shaven during the drill.
- Plant management determines if beards are adequately trimmed to permit use with Scott Air-Paks.

This policy poses a problem because the presence of facial hair which interferes with the seal area of the facepiece will allow increased outleakage and therefore reduced stay-times before depletion of the

bottled air supply. It was pointed out to the licensee that Occupational Safety and Health Administration (OSHA) regulations prohibit facial hair which interferes with the facepiece seal.

The Prairie Island technical specification 6.1.c requires as a minimum one person qualified in radiation protection procedures and a fire brigade of at least five members to be maintained onsite at all times for response to emergencies. Each normal duty shift is composed of at least eleven people of which six (one rad protection and five fire brigade) shall be able to respond to emergencies and therefore must be clean shaven. Since all operators are trained and qualified in radiation protection procedures and are fire brigade members there appears to be no problem meeting the technical specification requirements judging by the current number of beards. However, the licensee needs to formulate a policy to ensure an adequate number of clean shaven personnel on each shift. This matter was discussed at the exit meeting and will be reviewed during a future inspection (Open Item 282/85020-02; 306/85016-02).

No violations or deviations were identified.

11. Control of Radioactive Materials and Contamination

The inspector reviewed the licensee's program for control of radioactive materials and contamination, including: adequacy of supply, maintenance, and calibration of contamination survey and monitoring equipment; effectiveness of survey methods, practices, equipment, and procedures; adequacy of review and dissemination of survey data; and effectiveness of methods of control of radioactive and contaminated materials.

The licensee maintains a dedicated group of nuclear plant helpers, five or six of which run the laundry and conduct decontamination activities. Areas of the auxiliary building that have been decontaminated since the last radiation protection inspection are: the recombiner room, waste gas compressor room and some valve galleries. Other areas such as the refueling water sampling area are currently being reviewed for possible modifications and decontamination.

The inspector reviewed routine area survey results. Radiation and contamination surveys are performed on daily, weekly and monthly schedules. No problems were noted. During controlled area tours, the inspector noted friskers were operable and located in low background areas. Posting, labelling, and housekeeping were good.

No violations or deviations were identified.

12. Maintaining Occupational Exposures ALARA

The inspector reviewed the licensee's program for maintaining occupational exposures ALARA, including: ALARA consideration for maintenance and refueling outage; worker involvement in the ALARA program; establishment of goals and objectives, and effectiveness in meeting them.

The licensee has held several pre-outage meetings for this outage. The meetings are held in part to identify and schedule high dose jobs and plan maintenance activities to reduce personal exposures. Some ALARA measures implemented during this outage are:

- Underwater replacement of the anti-vibration bars (AVB) in the steam generators which reduced the radiation level to the worker by a factor of about 15.
- Mockup training for AVB work.
- Mockup training for eddy current testing of steam generators.
- Mockup training for the reactor head modifications.

Good management and worker support for this program is indicated. No problems were noted.

No violations or deviations were identified.

13. Solid Radwaste

The inspector reviewed the licensee's solid radwaste program including: determination whether radioactive solid waste is effectively controlled and quantified.

Twenty-four shipments of solid radwaste including two shipments of greater than type A quantities have been made to date in 1985. A QA audit (inspection) of each shipment is made. Records of the shipments and the audits were reviewed; no problems were noted.

14. IE Information Notices

Information Notice 85-06: Contamination of Breathing Air Systems. The licensee uses the Station Air System for breathing air. When breathing air is required an inline PAC (particulate, absolute, charcoal) filter is used. In addition, radiation protection conducts a quarterly check of the breathing air quality including sampling for radioactive particulates and iodines.

Information Notice 85-42: Loose phosphor in Panasonic 800 Series Badge Thermoluminescent Dosimeter (TLD) Elements. The licensee uses Eberline as a vendor. The Eberline TLD has chips rather than teflon coated phosphor.

Information Notice 85-43: Radiography Events at Power Reactors. Radiation Protection Implementing Procedure No. 1131, Revision 0, Radiography, which was approved May 5, 1985, provides the Radiation Protection Group with guidelines for radiography job coverage. In addition to the requirements of 10 CFR 20 and 34 the procedure requires a member of the Prairie Island Radiation Protection Group to check posting and area control during radiography.

14. Exit Meeting

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on September 20, 1985. The inspector summarized the scope and findings in the inspection and discussed the likely content of this inspection report. The licensee did not indicate that any of the information disclosed during the inspection could be proprietary. The licensee acknowledged the inspectors comments concerning the current beard policy and the technical specification requirement for a minimum number of staff available for emergency response (Section 10).