U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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License Nos:	DPR-42; DPR-60
Report Nos:	50-282/98004(DRS); 50-306/98004(DRS)
Licensee:	Northern States Power Company
Facility:	Prairie Island Nuclear Generating Plant
Location:	1717 Wakonade Dr. East Welch, MN 55089
Dates:	February 10-13 and March 16-20, 1998
Inspector:	R. Glinski, Radiation Specialist
Approved by:	G. Shear, Chief, Plant Support Branch 2 Division of Reactor Safety

EXECUTIVE SUMMARY

Prairie Island Nuclear Generating Plant
NRC Inspection Reports 50-282/98004; 50-306/98004

This announced inspection included a review of the licensee's radiation protection (RP) performance during the Unit 1 refueling outage and the Unit 2 forced outage, calibration of the radiation monitoring system, ALARA reviews and implementation, and radiation worker practices. Overall, activities within the areas examined were well conducted and RP support for outage activities was effective. However, one Non-Cited Violation for the failure to post a high radiation area was identified.

- Effective implementation of ALARA measures for the Unit 1 refueling outage resulted in significant dose savings and indicated a continuing strong ALARA commitment. The ALARA post-job reviews were well done, as staff identified pertinent actions to further reduce dose for future activities. (Section R1.1)

- The control of radiological conditions and the ALARA measures associated with the partial length control rod drive mechanism (CRDM) forced outage were well implemented, and the dose expended was reasonable for the work accomplished. However, the inspector noted that better communication between work crews would have reduced radiation exposure. (Section R1.2)

- The RP staff exercised effective control of work practices and radiological conditions. Monitoring and control of airborne radioactivity and contamination was successful, as evidenced by the low number of radioactive intakes and personnel contaminations. Housekeeping and key control issues were noted for high radiation areas and one Non-Cited Violation for an unposted high radiation area was identified. (Section R1.3)

- The operability and materiel condition of the post accident monitoring equipment were excellent, and records indicated that staff were appropriately trained to operate the monitors to collect and analyze post accident samples. (Section R2.1)

- Improvements in the calibration program for the process and area radiation monitors were well implemented. These improvements included procedure revisions, thorough data review, more extensive testing, and timely instrument repair. The materiel condition of the monitors was very good, as evidenced by operability and performance data. In particular, the elevated reading of a containment radiation monitor was the first indication of the partial length CRDM leak. (Section R2.2)

- Radiation work practices and RP coverage for routine and non-routine tasks were appropriate. Pre-job briefings were effective and the staff generaly utilized low dose areas during their work. (Section R4.1)

- The RP program reviews met regulatory requirements and effectively identified site issues and action items for followup. The recommendations appropriately focussed on improved RP performance. In addition, various licensee observation reports were comprehensive and detailed. The RP supervisory staff did not identify any adverse performance trends. (Section R7.1)

Report Details

IV. Plant Support

R1 Status of Radiation Protection and Chemistry (RP&C) Controls

R1.1 As Low As Is Reasonably Achieveable (ALARA) Performance and Post-Job Reviews for the Unit 1 Refueling Outage

a. Inspection Scope (IP 83729)

The inspector reviewed radiation dose data and several ALARA post-job reviews from the Unit 1 refueling outage. Interviews with Radiation Protection (RP) supervisory staff regarding ALARA implementation and performance were also conducted.

b. Observations and Findings

The previous Unit 1 refueling outage expended 103 rem. Due to the different work scope for this Unit 1 outage, RP staff set a collective dose goal of 95 rem and the total collective dose for this Unit 1 refueling outage was approximately 71.5 rem (this included 7 rem for emergent work), which was 75% of the goal. Although the dose savings were primarily due to increased shielding and a reduced source term, the licensee also implemented an improved use of low dose areas, mock-up training, and greater control of vendor activities to ensure reduced radiation exposures. In addition, excellent secondary chemistry aided in maintaining the materiel condition of the steam generators, which resulted in a significant reduction in the amout of tube removal, sleeving, and plugging that was required. The estimated dose savings for steam generator work was approximately 13.3 rem.

The ALARA post-job reviews for this refueling outage tasks were conducted by an RP supervisor. In particular, these reviews attributed significant dose savings to the placement of an additional 4300 pounds of shielding over the previous Unit 1 refueling outage. The estimated dose savings from this increased shielding was at least 4.2 rem. Another shielding initiative was a partial flood up of the reactor cavity during work on the lower internals stand, which reduced the cavity dose rates by a factor of five, producing a dose reduction of approximately one rem. Unlike most outage work, the licensee did exceed the dose goal for the reactor head viewport installation by a factor of three. The higher than expected dose was due to the fact that this task was a first time evolution, and some rework occurred. As further ALARA actions, the RP staff has planned to consider permanent reactor head shielding and greater scrutiny regarding the number of workers required to accomplish certain outage jobs. The RP staff has also discussed the possibility of initiating zinc injection into the primary system to reduce dose rates.

c. Conclusions

Plant personnel effectively implemented ALARA measures for the Unit 1 refueling outage, resulting in a significant dose savings over the previous outage. The ALARA post-job reviews were comprehensive and critical, as RP staff identified actions which could further reduce dose. The success of the dose reduction initiatives for the Unit 1 outage indicated a continued strong ALARA commitment.

R1.2 Radiological Controls and ALARA Implementation for the Unit 2 Forced Outage

a. Inspection Scope (IP 83729)

The inspector reviewed radiation dose data and ALARA planning for the Unit 2 partial length control rod drive mechanism (CRDM) work during the forced outage. The inspector also observed radiation worker practices and the implementation of ALARA measures throughout containment.

b. Observations and Findings

The collective dose for the forced outage was approximately 32 rem. The inspector observed that the RP staff had placed approximately 4000 pounds of shielding on the reactor vessel head and around the CRDM stacks to reduce the dose rates. Both the reactor cavity and the tent used for cutting these CRDMs were controlled as high radiation areas, and both these areas were serviced by high efficiency particulate air (HEPA) filters. The RP staff utilized remote personnel dosimetry to monitor the radiation exposures encountered during the reactor cavity activities. Ventilation controls were effectively used to control any airborne radioactivity from cutting these highly contaminated components, as evidenced by the air sample data which showed that airborne concentrations were extremely low. Upon removal, the partial length CRDMs were bagged for efficient contamination control. The radiation protection specialists (RPSs) exercised proper work control for the placement of the foreign material exclusion cover on the vessel head. The occurrence of several dose rate alarms on electronic dosimeters effectively alerted staff to the areas near the CRDMs that had higher dose rates.

The inspector observed work practice deficiencies during the removal of the second partial length CRDM and its subsequent movement into the tent area. The inspector noted that maintenance and other staff were in elevated dose rate fields as the maintenance crew discussed the appropriate manner to adjust the transition piece between the overhead crane and the partial length CRDM. In addition, the initial orientation of the overhead crane was incorrect for placing this CRDM in the tent area. Therefore, the time required to adjust the transition piece and correct the crane position resulted in plant staff being in close proximity to this partial length CRDM for a longer time period. The inspector discussed these observations with RP supervision, and pointed out that since the first maintenance crew had already determined the proper manner to accomplish these activities, good communication between the work crews would have reduced the radiation exposure during this evolution. The RP supervisors indicated that RP staff had also identified work deficiencies, and that work crew communications and other issues regarding the partial length CRDM work would be reviewed to ensure that ALARA practices were emphasized.

The inspector noted effective ALARA actions during the Unit 2 forced outage. As an example, the greatest percentage of the dose expended for the installation of the Unit 1 reactor head shroud viewing window occurred during the removal of the insulation and the shroud. Since the partial length CRDM work already involved the removal of these components on Unit 2, the licensee installed the Unit 2 window during this forced outage. In addition, plant staff placed a camera in containment which enabled control room operators to continually monitor the reactor vessel water level without the need for

an operator to be continuously present in containment. This camera allowed operations staff to enter containment only once every 4 hours or when changes in water level were made.

c. Conclusions

The control of radiological conditions and the ALARA measures associated with the partial length CRDM forced outage were well implemented, and the dose expended was reasonable for the work accomplished. However, the inspector noted that better communication between work crews would have reduced radiation exposure.

R1.3 Observation of Airborne Radioactivity and Contamination Controls, Radiological Postings and Labeling, and Housekeeping

a. Inspection Scope (IP 83750)

The inspector conducted walkdowns and observed various activities in the containment and auxiliary buildings, with an emphasis on the high radiation areas (HRA). Radiological surveys, personnel contamination and whole body count data, and the circumstances surrounding an unposted HRA were also reviewed.

b. Observations and Findings

Radiological postings and survey maps reflected current plant conditions, and the inspector noted that the RP staff conducted surveys in accordance with the survey schedule. Survey data was recorded on diagrams of the plant at the RCA access control, containment access control, and outside various rooms throughout the auxiliary building. In general, housekeeping was effective and no radiological impediments to work activities were observed. The inspector noted that survey meters and air samplers were within calibration, and radioactive material (RAM) labels generally contained appropriate information.

Contamination controls were effective, as potentially contaminated items were either within the designated areas or were bagged and labeled appropriately. The inspector noted that RP staff conducted site-wide radiation surveys on a semi-annual basis to identify any possibility of RAM outside the Radiological Control Area (RCA). These site-wide surveys have not found any RAM outside the RCA in the past few years. Personnel contamination data indicated that the licensee was below the goals for the Unit 1 refueling outage, and the contaminations involved low levels of radioactivity.

The dose rates in the residual heat removal (RHR) pits, the aerated sump pit, and the decon sump area were monitored by alarming remote radiation detectors. HEPAs controlled any potential airborne radioactivity in these pits. Monitoring for airborne radioactivity was extensive, as air samplers were located throughout containment in close proximity to work areas. The data for a variety of jobs demonstrated that airborne radioactivity was very low. Dose assessments by whole body counting were conducted for suspected intakes, but none of these assessments exceeded the 25 mrem threshold for dose assignment. The inspector reviewed this data and determined that the dose assessments used appropriate methodology.

The inspector conducted a walkdown of the following HRAs in the auxiliary building: the volume control tank rooms, the seal water heat exchanger and letdown heat exchanger rooms, the waste holdup tank room, the chemistry drain tank room, the spent resin pump room, and the decon area sump. The inspector also walked down the radwaste barrel yard. The high radiation rooms and many hot spots were monitored with alarming remote radiation detectors. Although there were no materiel condition concerns in the HRAs, some minor housekeeping issues were identified.

Access to the HRAs was contolled with alarming locked doors (the alarms annunciated locally when the door was open more than 15 seconds) and high radiation (HiRad) keys were issued only to qualified staff. The HiRad keys were stored in a locked cabinet at the RCA access control desk, and only RP staff possessed keys to this cabinet. The inspector reviewed the key log and noted that the HiRad keys were adequately controlled. However, on March 17, 1998, at the end of a day shift, the inspector noted that one HiRad key had not been returned. The RP staff paged the individual (who was preparing to leave the site for the day) and the key was promptly returned and signed off. Another HiRad key that had been returned was not signed off as returned. Through interviews with RP staff, the inspector determined that these instances were isolated lapses of HiRad key control. Additionally, there were no RP performance problems that were related to HiRad key control issues.

The inspector reviewed a Radiation Occurrence Report and interviewed RP staff regarding an unposted high radiation area that was identified January 29, 1997. At 2:00 p.m. on January 28, 1997, operations staff informed RP staff that the reactor coolant system (RCS) was being drained, and at 3:40 p.m. an RP survey confirmed that the radiation area posting in the chemical volume and control holdup tank (CVCS-HUT) room was appropriate. The draining was completed about 6:30 p.m. and at about 1:15 a.m. on January 29, 1997, a quality control inspector walked through the CVCS-HUT room and noted that his electronic dosimeter (ED) beeped. Later, the ED computer indicated that the worker had received a dose rate alarm, which was set at 100 millirem per hour (mrem/h). Since the ED dose rate alarm is a constant signal and the alarm sounded only for a second, the worker didn't recognize the alarm. This worker's dose for the RCA entry was one mrem.

In response to this ED alarm, RP conducted a survey of the CVCS-HUT room and identified dose rates of 100-200 mrem/h at 30 centimeters from the tank in use. The CVCS-HUT room doors were then closed, and the room was posted as an HRA. The licensee determined that poor communication from the previous RP shift contributed to the failure to post the CVCS-HUT high radiation area. Subsequently, the licensee implemented the following corrective actions; (1) four operations procedures were revised to include a notification to the Access Control Lead RPS regarding RCS crud burst and draindown actions, (2) upon notification the RP staff are required to post and control the CVCS-HUT, RHR pits, and containment spray pump rooms as high radiation areas, and (3) a computerized turnover log which lists current evolutions is now utilized for RP shift turnovers. There has been no recurrence of unposted high radiation areas. This non-repetitive, licensee-identified, and corrected violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII. B.1 of the NRC Enforcement Policy (NCV 50-282/98004-01(DRS); NCV 50-306/98004-01(DRS)).

c. Conclusions

Overall, the RP staff exercised effective control of work practices and radiological conditions. Monitoring and control of airborne/contamination was successful as evidenced by the low number of personnel contaminations and the low levels of contamination. Minor housekeeping issues were observed in high radiation areas. One instance of inappropriate HiRad key control and one NCV for an unposted high radiation area were identified.

R2 Status of RP&C Facilities and Equipment

R2.1 Operability and Maintenance of the Post-Accident Monitors

a. Inspection Scope (IP 84750)

The inspector reviewed the applicable procedures, surveillance schedule, and training records for the maintenance and operation of post accident monitors. The inspector also interviewed chemistry staff and conducted walkdowns of selected post accident monitoring equipment.

b. Observations and Findings

The inspector observed that the materiel condition of the 1-R-50 and 2-R-50 accident monitors was very good, and the pump for the 2-R-50 monitor was replaced during this inspection period. As a compensatory measure while the 2-R-50 pump was out of service, an auxiliary pump was located at the monitor and available for use. In addition, the method to read and adjust the flowrate of air through these monitors was recently improved. The chemistry staff exchanged the particulate filters weekly and the silver zeolite filters monthly to maintain fresh sampling supplies. Although these two monitors were not specifically listed, the staff conducted a semi-annual maintenance on these monitors in accordance with the stack sampler maintenance procedure. The RP staff indicated that this procedure would be revised to include these post-accident monitors.

The inspector noted that various staff periodically received training for the collection and laboratory analysis of primary system liquid, primary system gas, and containment gas samples. The materiel condition and operability of the post-accident primary liquid and gas sampling equipment were well maintained, as these systems are essentially used to collect routine primary system samples. The inspector verified that the laboratory had a calibrated geometry for gamma spectrometry analysis of the post-accident samples.

c. Conclusions

The inspector determined that the operability and materiel condition of the post-accident monitoring equipment and supplies were excellent. Training records indicated that sufficient staff were qualified to operate the monitors, and collect and analyze post-accident samples.

R2.2 Calibration of Process and Area Radiation Monitors

a. Inspection Scope (IP 92904)

The inspector observed electronic and radiation source check calibrations for the process and area radiation monitors, and reviewed applicable procedures and calibration/performance data. Interviews with various plant staff regarding the improvements in the calibration program were also conducted.

b. Observations and Findings

The system engineer reviewed process and area radiation monitor (radmonitor) data for the past three performance checks and/or calibrations and determined that a change from the 12-month calibration frequency to an 18-month frequency was warranted. This change was reviewed by engineering and RP staff, and was found to be consistent with the applicable Technical Specifications. The current calibrations were conducted in accordance with the new calibration frequency.

The inspector had previously identified that Hi-Hi alarm setpoints for three radmonitors had electronically drifted beyond the check source tolerance (IR 97014). During this inspection, there were no radmonitors that had Hi-Hi alarm setpoints that had drifted beyond its tolerance. Engineering personnel had previously indicated that the Hi-Hi alarms may be eliminated, since these alarm setpoints were not safety-related, did not have control room annunciations, and did not have control functions. This potential elimination of the Hi-Hi-alarms is still under licensee review.

The inspector reviewed the primary calibration of the new sodium iodide detector in the 1R-15 radmonitor, which is a noble gas radmonitor with the condenser offgas/air ejector system. Plant personnel used certified radioactive gas with krypton-85, and volume control tank gas to conduct this calibration. The primary calibration was established by plotting detector response to several gaseous concentrations, which had been determined by laboratory gamma spectrometry analyses. The subsequent source checks were corrected for background, and were within the radmonitor tolerance. The calibration data demonstrated that detector response was consistent with expected values and no problems were identified.

The inspector observed the electronic calibration of the following radmonitors: 2R-9, a reactor coolant letdown line monitor which is a Geiger-Mueller detector; 2R-19, a steam generator blowdown monitor which is a sodium iodide detector; and the 1R-50 and 2R-50 high range shield building vent gas monitors. The R-50 radmonitors are ion chambers, and plant personnel indicated that these monitors were periodically sent to the vendor for maintenance and repair, due to erratic or high background readings. Instrumentation and Controls (I+C) staff had the applicable procedures in hand and the calibrations were performed accordingly. The I+C staff appropriately notified the control room operators prior to the calibration process and the initiation of alarms or annunciations. Checks and adjustments of the Hi and Lo alarm setpoints, remote readings of the radmonitors, power supply and high voltage settings, and the Emergency Response Computer System (ERCS) readings were successfully completed. The inspector noted that the electronic calibrations were well done.

Radiation source check calibrations were done by observing the detector response to either two or three levels of radiation, and the radiation levels generally differed by a decade. The inspector observed the radiation source check calibrations for the following radmonitors: R-1, R-23, and R-24 in the control room; 1R-2, 1R-48, and 1R-49 in Unit I containment. The inspector noted that interactions between the control room and RP staff were well coordinated, that the special ventilation units actuated in response to alarms, and that correct radmonitor settings were verified by personnel from both departments. The RP staff developed a spreadsheet for the source check data which flagged any value which was outside the acceptable tolerance. The calibration data indicated that 4 radmonitors each had one reading that was out-of-tolerance, and in all cases the error was conservative. The cause for these erroneous readings was still under review.

Overall, the radmonitors were reliable, and the limited operability problems did not require the need to initiate compensatory sampling measures. The performance of the radmonitors met licensee expectations. In particular, elevated readings from 2R-11, the Unit 2 containment/vent purge air particulate monitor, was the first indication of a leak which then enabled plant personnel to identify the crack in the partial length CRDM.

The engineering staff has implemented the following additional improvements: (1) staff ensured that information on the calibration cards and the data worksheets agree, (2) background readings were re-verified after the electronic calibration, (3) procedure revisions included greater control room involvement and more extensive testing of radmonitor components, and (4) faulty radmonitors received prompt attention. As an example of the latter, the radmonitors 2R-50, 1R-2, and R8 were succesfully repaired and returned to service during this inspection period. No radmonitor materiel condition concerns were identified.

During this radmonitor calibration evolution, the inspector noted minor transcription errors that engineering staff will address through another procedure revision. Also, the inspector identified that several of the "bug points" (specific check source locations which are drawn on plant structures, components, etc.) designated for radiation source checks were no longer applicable. The RP personnel indicated that some of these bug points were still in use, while others were not; and that one useful bug point was recently painted over. The inspector discussed with RP and engineering supervision whether the presence of both applicable and archaic bug points in the plant was confusing and could lead to calibration problems. The RP management indicated that the archaic bug points would be identified during the next monthly performance checks, and then eliminated.

c. Conclusions

Overall, the program for the calibration of the process and area radmonitors was well implemented. The inspector identified improvements in procedures, data review, radmonitor tests, and timely repair. The site staff conducted the electronic and radiation source calibrations in accordance with procedure, and the materiel condition of the radmonitors was very good, as evidenced by operability and performance data. In particular, the elevated reading of a containment radmonitor was the first indication of the partial length CRDM leak.

R4 Staff Knowledge and Performance in RP&C

R4.1 Radiological Controls for an At-Power Containment Entry and a Spent Resin Sluice

a. Inspection Scope (83750)

The inspector observed radiological controls, RPS coverage, and radiation worker performance for an at-power containment entry, a spent resin sluice, and routine RCA activities.

b. Observations and Findings

In general, the inspector observed that radworker practice was good, that dosimetry was properly worn, that boundaries were appropriately maintained, and that workers utilized personnel contamination monitors appropriately after exiting the RCA or containment. Effective RP coverage for specific jobs and routine rounds was evident, as the inspector observed that RPSs at the RCA access control and the containment access control adequately briefed workers and exercised appropriate control of various tasks.

During the containment entry, plant personnel conducted repair and source checks for radmonitors, and removed two vibration monitors. The entry and exits were well coordinated with control room personnel. The RPS and I+C personnel properly used survey instruments to monitor dose rates at the work areas and staff generally utilized low dose areas. The collective dose for this entry was low.

The inspector attended the pre-job briefing for the spent resin sluicing of two demineralizer beds. During this meeting, plant staff discussed the expected dose rates, high and low dose areas, protective clothing requirements, job hold points, line flushing, 10 CFR 61 sampling, and potential problems. The inspector verified that rooms with associated pumps and piping were posted and controlled as high radiation areas. The RPS conducted surveys to monitor the progress of the sluice. The collective dose for this work was 14 mrem, which was reasonable for the work accomplished. As a further ALARA initiative, the staff has planned to install a valve and hard pipe under the concrete floor to reduce dose and eliminate the need to utilize hoses for sluicing.

c. Conclusions

The inspector observed that radworker practices and RP coverage for routine and non-routine tasks were appropriate. Pre-job briefings were effective and the staff generally utilized low dose areas.

R7 Quality Assurance in RP&C

R7.1 RP Program Reviews and Various Quality/Supervisory Observations

a. Inspection Scope (IP 83750)

The inspector reviewed the 1996 and 1997 RP program reviews, Generation Quality Services (GQS) observation reports, and Chemistry/RP observation sheets. In addition, RP staff were interviewed regarding implementation of the RP&C program.

b. Observations and Findings

The inspector verified that staff conducted RP program reviews in accordance with 10 CFR 20.1101(c). These program reviews utilized information from outside agencies, GQS audits and findings, chemistry/RP supervisory observations, and various internal documents. The inspector noted that RP supervisors conducted these reviews which covered dose goals, RP training needs, plant issues and incidents, industry events, performance assessments, action item trending, and recommendations. In particular, the recommendations of the 1997 review included source term reduction, more thorough RP training for all plant personnel, improved communications, and additional hardware to enhance ALARA performance. The inspector noted that several 1996 action items (such as hot spot trending, dry cask neutron dose rates, ED/Friskall check out sequence, and respiratory protection review) were again designated for continued followup in the 1997 program review.

Recently completed GQS observation reports regarding the preparation and shipment of radioactive waste were comprehensive and detailed. The auditors observed tasks from the pre-job briefings to the final completion, and the observation reports indicated that the audit staff were very knowlegdable of regulatory and procedural requirements. The chemistry/RP observations were conducted by supervisory personnel, who periodically accompanied staff during their activities. No adverse trends were identified during these observations or during interviews with plant staff.

c. Conclusions

The inspector determined that the RP program reviews met regulatory requirements. The program reviews effectively identified site issues and action items for followup, and the recommendations focussed on improved RP performance. In addition, the various licensee observation reports were comprehensive and detailed, and supervisory staff did not identify any adverse performance trends.

R8 Miscellaneous RP&C Issues

R8.1 (Closed) IFI 50-282/97014-01; 50-306/97014-01: licensee actions to address NRC inspection findings with oversight of the area and process radiation monitors. The inspector noted that the current calibration process for the radmonitors was well done. Plant personnel implemented improvements in procedures, data review, radmonitor testing, and timely repair. The site staff conducted the electronic and radiation source calibrations in accordance with the new procedures, and no concerns were identified (See Section R2.2). This item is closed.

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management on March 20, 1998. The licensee did not indicate that any materials examined during the inspection should be considered proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

K. Holmstrom, Production Engineer
A. Johnson, Radiation Protection Supervisor
G. Malinowski, Radiation Protection Supervisor
D. Shuelke, General Superintendent of Radiation Protection and Chemistry
J. Sorensen, Plant Manager
P. Wildenborg, Health Physicist

NRC

P. Krohn, Resident Inspector, Prairie Island
S. Ray, Senior Resident Inspector, Prairie Island
S. Thomas, Resident Inspector, Prairie Island

INSPECTION PROCEDURES USED

IP 83750, "Occupational Exposure"
IP 83729, "Occupational Exposure During Extended Outages"
IP 84750, "Radioactive Waste Treatment, and Effluent and Environmental Monitoring"
IP 92904, "Followup - Plant Support"

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-282/98004-01	NCV	Failure to post the high radiation area in the CVCS holdup tank
50-306/98004-01	NCV	room

Closed

50-282/97014-01	IFI	Licensee actions to address NRC inspection findings with
50-306/97014-01	IFI	oversight of the area and process radiation monitors
50-282/98004-01	NCV	Failure to post the high radiation area in the CVCS holdup tank
50-306/98004-01	NCV	room

LISTING OF DOCUMENTS REVIEWED

Technical Specification Sections 3.1.C.1, 3.8.B.1, Table 3.5-2B, 3.6.C, 3.8.A.1(b) and (j)

The following ALARA Post-Job Reviews for the Unit 1 Refueling Outage:

Steam Generator Secondary Side Inspection, RWP #1079

Internals Lifting Rig Paint, RWP #1102

Reactor Coolant Pump Motor Preventative Maintenance, RWP #1101

Remove Irradiated Incore Detectors, RWP #1091

Sump C Entries with Stuck Incore Detector, RWP #1046

Reactor Vessel Weld #1 UT and Ligament UT Inspection, RWP #1099

Seal Weld RC-2-1 Body to Bonnet, RWP #1122

Cleaning Incore Thimbles, RWP #1090

SG Tube Sleeve Pulling, RWP #1028

SG Handhole Machining, RWP #1121

Reactor Head Shroud Viewing Windows, RWP #1116

Prairie Island Radiation Protection Implementing Procedure (RPIP) 4302, Revision 2, "Effluent Airborne Stack Sampler Maintenance".

Prairie Island RPIP 4528, Revision 7, "Effluent Surveilance Sample Collection".

Prairie Island RPIP 4007, Revision 10, "Effluent Release Spectrum Analysis".

Prairie Island RPIP 4511, Revision 4, "Airborne Continuous Release Report".

Prairie Island RPIP 1008, Revision 0, "Radiation Protection Key Control".

Praire Island RPIP 1160, Revision 3, "ALARA Reviews"

Praire Island RPIP 1120, Revision 13, "Posting of Restricted Areas"

Prairie Island Emergency Plan Implementing Procedure F3-20, Revision 15, "Determination of Radioactive Release Concentrations".

Prairie Island Emergency Plan Implementing Procedure F3-20.2. Revision 6, "Determination of Shield Building Vent Stack Dose Rates".

Job Performance Measure (JPM) P7420L-008, "Emergency Primary Sampling".

JPM P7420L-010, "Emergency Hot Cell".

JPM P7420L-009, "Emergency Containment Sampling".

Surveillance Procedure (SP) 1027, Revision 16, "Radiation Monitoring Annual Calibration".

SP 1028, Revision 32, "Radiation Monitoring Monthly Source Test".

SP 1783.6, Revision 0, "Victoreen Radiation Monitor Electric Calibration".

SP 1783.2, Revision 4, "NMC Radiation Monitor Electric Calibration".

SP 1783.1, Revision 4, "Westinghouse Radiation Monitor Electric Calibration".

Pericdic Test Procedure (TP) 1783.3, Revision 4, "Victoreen Area Radiation Monitor Electronic Calibration".

TP 1743, Revision 4, "Victoreen Area Radiation Monitor Calibration Test".

Prairie Island Radiation Protection Program Review (1997), dated 2/6/98.

Prairie Island Radiation Protection Program Overview (1996), dated 1/17/97.

GQS Observation Report 1998021, "Radioactive Material Shipment 98-002; Hi-Level Resin to Barnwell", dated 2/6/98.

GQS Observation Report 1998013, "Dewatering verification for a Resin-filled HIC", dated 1/20/98.

GQS Observation Report 1998006, "Resin sluice from the spent resin tank to a HIC", dated 1/14/98.

GQS Observation Report 1998017, "Prairie Island Unit 2 Forced Outage Activities".

LIST OF ACRONYMS USED

ALARA	As Low As is Reasonably Achievable
CRDM	Control Rod Drive Mechanism
CVCS-HUT	Chemical Volume and Control System Hold Up Tank
ERCS	Emergency Response Computer System
GQS	Generation Quality Services
HEPA	High Efficiency Particulate Air
HRA	High Radiation Area
I+C tech	Instrumentation and Controls Technician
NCV	Non-Cited Violation
RAM	Radioactive Material
RCA	Radiologically Controlled Area
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RP	Radiation Protection
RP&C	Radiation Protection and Chemistry
RPS	Radiation Protection Specialist
RWP	Radiation Work Permit