

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-409/85020(DRSS)

Docket No. 50-409

License No. DPR-45

Licensee: Dairyland Power Cooperative
2615 East Avenue - South
LaCrosse, WI 54601

Facility Name: LaCrosse Boiling Water Reactor

Inspection At: LaCrosse Boiling Water Reactor Site

Inspection Conducted: November 12-15, 1985

Inspector: *L. J. Hueter*
L. J. Hueter

12-4-85
Date

Approved By: *M. C. Schumacher*
M. C. Schumacher
M. C. Schumacher, Chief
Radiological Effluents
and Chemistry Section

12-4-85
Date

Inspection Summary

Inspection on November 12-15, 1985 (Report No. 50-409/85020(DRSS))

Areas Inspected: Routine unannounced inspection of gaseous and liquid radioactive program including: effluent releases records and reports of effluents; effluent control instrumentation; procedures for controlling releases; reactor coolant chemistry and activity, gaseous effluent filtration; and audits. The inspection involved 38 inspector-hours onsite by one NRC inspector.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

- *L. Goodman, Operations Engineer
- *L. Kelly, Assistant Operations Supervisor and Training Supervisor
- *L. Nelson, Health and Safety Supervisor
- *P. Shafer, Radiation Protection Engineer
- *R. Wery, Quality Assurance Supervisor
- *I. Villalva, NRC Senior Resident Inspector

The inspector also contacted other licensee personnel.

*Denotes those present at the exit meeting.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (409/84014-01): The new liquid effluent monitor had been installed but licensee was awaiting delivery of a spare sample chamber for use in performance of a primary fluid calibration of the monitor to be followed by establishment of set points. The spare sample chamber was delivered, the calibration completed and the set point established in April 1985.

3. Reactor Coolant Water Quality

The inspector reviewed 1985 to date licensee records to determine compliance with technical specification requirements for reactor coolant periodic tests, chemical control and radioactivity control. Records reviewed were chloride concentration, pH, conductivity, gross alpha, gross beta-gamma and dose equivalent I-131. Records showed that tests were being performed within required frequencies and that parameters were maintained within technical specification limits.

No violations or deviations were identified.

4. Gaseous Effluents

The inspector reviewed selected records of radioactive gaseous effluent sampling and analysis for 1985 to date and the semiannual effluent report for the first half of 1985. The pathway sampled and analysis performed appear to comply with the requirements of Technical Specification Table 5.3.2.2.

The release path for gaseous effluents is the 350' stack. Inputs to the stack include the ejector off-gas system, turbine building vent, containment building vent and waste treatment building vent. The stack effluent is continuously monitored/sampled by both an Eberline SPING-3 and an Eberline SPING-4, the latter serving as a backup to the SPING-3 for routine releases as well as for post accident monitoring/sampling.

The stack monitoring system has no isolation or activation functions other than the alert alarm and hi alarm functions. The low range noble gas monitoring channel of the Eberline SPING-3 is used to continuously monitor and quantify routine noble gas releases from the plant. The charcoal cartridges and particulate filters are collected and analyzed on a weekly basis (more frequently if needed) for quantification of iodine and particulate activity releases.

Records show that the SPING-3 and SPING-4 effluent monitors are being calibrated in accordance with the vendor procedures every 18 months. The latest calibrations were performed in April 1985. In addition, gaseous effluent grab samples are collected monthly from the stack and analyzed on a Geli system for noble gas activity. This data is used in calculating noble gas effluent releases for comparison with that indicated by the SPING-3 monitor. This comparison indicates that the SPING-3 effluent data is consistently within plus or minus ten percent of that calculated from the grab sample data. The inspection verified that the settings for alert alarm and hi alarm trip points for the stack monitor were set based on technical specification/ODCM criteria. The ODCM became effective March 1, 1985. Some minor revisions in the ODCM are now being finalized.

If current noble gas release rates continue for the remainder of 1985, there will be about a 15 percent reduction in noble gas releases compared to 1984, attributable primarily to very good fuel cladding integrity. Both years were about equivalent in operating time with one refueling outage and other short periods of down time.

Two of the systems that input to the stack have individual monitors which in turn have isolation functions. The containment building air exhaust gaseous and particulate monitors are designed to close the ventilation inlet and outlet dampers and containment vent header valve upon actuation of a high alarm. The set point of this monitor is conservatively set to assure that the gaseous effluent instantaneous dose rate limit is not exceeded, in accordance with set point requirements specified in Technical Specification 4.3.2.1.

The air ejector off-gas system has a monitor located between the upstream HEPA/charcoal filters and the recombiner system. The alarm of this monitor has an isolation function which closes a valve between the off-gas holdup/storage tanks and the downstream HEPA/charcoal filters, securing off-gas release and causing the off-gas to be compressed and stored in the off-gas holdup/storage tanks. The set point of this monitor is also conservatively set to assure that the gaseous effluent instantaneous dose rate limit is not exceeded.

No violations or deviations were identified.

5. Liquid Effluents

The inspector reviewed selected records and procedures associated with controlled radioactive liquid releases for 1985 to date and the semi annual effluent report for the first half of 1985. The pathway sampled and analysis performed appear to comply with the requirements of Technical Specification 5.3.1.2.

Batch liquid releases are made from one of three tanks all of which are released by a common pathway to the Mississippi River. The radwaste monitor monitors the undiluted radwaste before dilution by the service water and the circulating water; after dilution, it is monitored by turbine condenser monitor. The diluted waste is further diluted with the turbine condenser water from the adjacent large coal fired plant (G-3) before release to the river. About 175 batches have been released per year for the past several years. Higher level wastes, typically in the range of E-3 to E-4, $\mu\text{Ci/ml}$, are released from the 6,000 gallon containment building retention tank. Lower level wastes, typically in the range of E-5 to E-6, $\mu\text{Ci/ml}$, are released from the 3,000 gallon and the 4,500 gallon waste tanks that include laundry water, turbine building drains, etc. The radioactivity in the licensee's liquid releases has shown a gradual decline over the past several year (5.8 Ci in '82, 3.7 Ci in '83, 3.3 Ci in '84, and 1.1 Ci in first half of '85), but continue somewhat higher than the national average due primarily to the absence of liquid radioactive waste treatment. Some reduction in liquid effluents appears to have resulted from a modification/repair in early 1983 that provided a means for filtering resin backwash water. The backwash water contains a lot of material, mainly oxides, which had been filtered by the resin while in use but resuspended during resin backwash. The modification involved addition of a spent resin receiving tank which permits better transfer of spent resins and the use of a dewatering ion exchanger which had been plugged for several years. Unused but out of date or out of specification resins are used for the filter media for the suspended oxides.

Two backwashable filters were installed in the radwaste release line in early 1985 for removal of coarse materials. These filters are believed to have little effect on radioactivity released in liquid waste and have had no effect on calculated releases inasmuch as quantification samples are collected upstream of these filters. The backwashed material is disposed of with dewatered spent resins.

As noted in Section 2, the new liquid waste effluent monitor was calibrated in April 1985 and showed a uniform calibration constant indicative of a linear response when calibration was performed with two differing concentrations of activity; low level waste and a sample of liquid from the primary system. Review of records also showed satisfactory calibration in April 1985 of the turbine condenser monitor and the closed cooling water system monitor. Facility Change, FC No. 57/76-85-2, for replacement of these two older, less sensitive, non-linear monitors with new monitors like the liquid waste effluent monitor, is in final review stages and is planned to be completed by December 31, 1985.

A completed 10 CFR 50.59 review was included in the Facility Change package pursuant to the replacement of these two monitors. No problems were noted in the inspectors review of the licensee's 10 CFR 50.59 review.

The inspector reviewed the set points established by the licensee for both the liquid waste effluent monitor and for the turbine condenser monitor and verified that the settings were conservative.

One of the major reasons for obtaining the new liquid radwaste effluent monitor was the ease of removal of its liquid chamber (for decontamination) to maintain a low background count rate and improve sensitivity. However, during the inspectors review of release records, it was noted that the background count rate was being permitted to get very high before decontamination of the chamber. For example, on October 29, 1985, the background count rate was 24,000 cps before a release was initiated and the release was made without decontamination of the chamber. The chamber was decontaminated before the next release, reducing the background count rate to 3,000 cps. This matter was discussed at the exit. (Open Item 409/85020-01)

Several minor problems were identified during the inspectors review of the licensee's recently revised Administrative Control Procedure (ACP-70.1,) "Liquid Waste Batch Form Use." The most significant error was a cross reference to another step in the procedure which was not changed to reflect the revised procedure. The licensee stated that the procedure would be reviewed and corrected by December 16, 1985.

No violations were identified.

6. Air Cleaning Systems

The only air cleaning system addressed in the technical specifications is the containment building ventilation exhaust treatment system to reduce particulate radioactive materials in gaseous waste. The criteria address "operability", but not efficiency testing. The licensee's practice, as in the past, is to install a new HEPA filter each refueling outage or before that if the delta p across the filter approaches six inches of water. No in-place testing is performed nor does the the system have any provision for such testing. However, the licensee uses filters that have been pretested and certified by the vendor to meet criteria in accordance with ANSI-N509-1976.

The air ejector off-gas system has both a particulate filter and a charcoal adsorber (both an A and B train) located upstream of the recombiner and off-gas holdup/storage tanks and has identical filtration absorber trains located downstream of the recombiner and off-gas holdup/storage tanks. These filters and charcoal adsorbers are not addressed by technical specifications but are addressed and are being tested pursuant to health physics procedure HSP-06.16. The test calls for measuring both the upstream and downstream concentrations of particulate and iodine nuclides as appropriate for each train currently in use during reactor operation. The procedure specifies that any off-gas system particulate filters with efficiencies less than 99% and charcoal adsorbing filters with efficiencies less than 90% should be changed as soon as possible when conditions permit, which by policy is the next refueling outage, due to ALARA considerations. In the interim, the alternate filter train is utilized. The latest tests were conducted in September 1985. The test results for the upstream filter system showed acceptable efficiencies for both the particulate and charcoal adsorber filters. The downstream particulate filters, both A and B trains, were found to have efficiencies less than 99%. The measured efficiencies ranged from 70 to 85 percent. The licensee

plans to replace the downstream particulate filters in both A and B trains during the next refueling outage currently scheduled in March 1985 in accordance with procedure and policy. Using the current test procedure method, the downstream iodine concentration was too low to be detected; xenon was substituted in the analysis and indicated an acceptable efficiency for charcoal. However, use of xenon may be inappropriate for assessing iodine removal. This matter was discussed at the exit. (Open Item 409/85020-02).

No violations were identified.

7. Audits

An internal audit conducted annually by the Quality Assurance Department of Health and Safety Department activities was performed in September 1985. A small portion of this audit covered activities associated with the gaseous and liquid radwaste programs. Specific areas reviewed by the auditor were water chemistry procedures and records, stack effluent data, stack effluent monitor calibrations, and facility changes. No problems were identified by the auditor in these areas. The inspectors noted that the individual performing the audit has limited health and safety experience. The licensee stated that plans are underway to correct this concern by utilizing assistance during future health and safety audits of people in the licensee plant and/or corporate organization who have more experience.

No violations were identified.

8. Exit Interview

The inspector summarized the scope and findings of the inspection with licensee representatives (Section 1) at the conclusion of the inspection on November 15, 1985. The inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify such documents or processes as proprietary. In response to certain items discussed by the inspector, the licensee:

- a. Committed to evaluate and set a limit on the permissible background count rate on the liquid radwaste effluent monitor before the chamber is decontaminated. (Section 5)
- b. Committed to retest the off-gas downstream charcoal adsorber filters efficiency for iodine removal by January 31, 1986, and review and revise as needed the off-gas filter testing procedures used to confirm filter efficiencies by March 31, 1986. (Section 6)