

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-373/880024(DRSS); 50-374/88023(DRSS)

Docket Nos. 50-373; 50-374

Licenses No. NPF-11; NPF-18

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: LaSalle County Station, Units 1 and 2

Inspection At: LaSalle County Station, Marseilles, Illinois

Inspection Conducted: August 31 through September 8, 1988

Inspector: *R. A. Paul*
R. A. Paul

9-23-88
Date

Approved By: *L. R. Greger*
L. R. Greger, Chief
Facilities Radiation Protection
Section

9-23-88
Date

Inspection Summary

Inspection on August 31 through September 8, 1988 (Reports No. 50-373/88024(DRSS);
No. 50-374/88023(DRSS))

Areas Inspected: Routine, unannounced inspection of the licensee's liquid and gaseous radwaste management program, including: gaseous radwaste (IP 84724 and IP 84750) and liquid radwaste (IP 84723 and IP 84750). Also reviewed were previous open items (IP 92701) and two incidents concerning control of radioactive material.

Results: The licensee's programs for controlling liquid and gaseous radwaste appear effective. No violations were identified. The inspector reviewed two incidents identified by the licensee involving weaknesses in the radiological and contamination control program. The licensee is taking actions to correct the identified problems.

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DETAILS

1. Persons Contacted

- *G. Diederich, Station Manager
- M. Friedmann, Health Physicist
- T. Greene, Health Physicist
- *D. Hieggelke, Lead Health Physicist
- W. Huntington, Services Superintendent
- J. Lewis, ALARA Coordinator
- W. Luett, Rad/Chem Supervisor Staff
- *P. Manning, Assistant Superintendent, Technical Services
- G. McCallum, Health Physicist
- *J. Renwick, Production Superintendent
- *J. Schrage, Technical Services Health Physicist

- *R. Kopriva, NRC Resident Inspector

The inspector also contacted other licensee and contractor personnel.

*Denotes those present at the exit meeting on September 8, 1988.

2. General

This inspection which began on August 31, 1988, was conducted to review the licensee's liquid and gaseous radwaste management programs. Previous open items and two radiation occurrence reports were also reviewed.

3. Licensee Action on Previous Inspection Findings (IP 92701 and 92702)

(Closed) Open Item 50-373/67032-02; 50-374/87031-02: Clarify procedure LRP-1340-10, calculation of MPC-hours from WBC Data. The licensee's corporate staff has revised the CECO generic procedure for computing MPC-hours from WBC data. The licensee has incorporated the changes into the above noted procedure. Based on the inspector's review, it appears the revised procedure can be adequately used to estimate MPC-hours from whole body count results for acute uptakes.

4. Gaseous Radioactive Waste (IP 84524, 84750)

The licensee's gaseous radwaste management program was reviewed, including determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; determination whether gaseous radioactive waste effluents were in accordance with regulatory requirements; adequacy of required records, reports, and notifications; determination whether process and effluent monitors are maintained, calibrated, and operated as required; and experience concerning identification and correction of programmatic weaknesses.

The inspector reviewed selected records of radioactive gaseous effluent records and semiannual effluent reports for 1987 and 1988 to date. The pathways sampled and analyses performed appear to comply with technical specification requirements.

Gaseous effluents are exhausted from the plant via a single vent stack. The standby gas treatment system (SGTS) has a separate flue inside the vent stack with a separate monitoring/sampling system. Containment vent and purges normally are exhausted via the regular vent stack but may be diverted through the SGTS if filtration is needed. Gaseous releases are quantified weekly from stack grab samples for noble gas and weekly particulate filter and charcoal samples. Similar samples are taken to quantify SGTS releases. Stack tritium samples are collected on silica gel weekly and under special conditions to meet technical specification requirements. Prior to containment purges noble gas and tritium samples are collected and analyzed from the vent stack and containment to verify that releases will not exceed the Offsite Dose Calculational Manual (ODCM) criteria. The CECO computer program for dose updates and projections is run weekly and before containment purges. Gamma and beta air doses, total body dose, skin dose and most restrictive organ doses are provided by the program using annual average meteorology.

Radioactive effluent release rates and offsite dose calculations were reviewed. In 1987, about 6200 curies of noble gas and about $3E-1$ curies of iodine-131 were released in gaseous effluents. An increase in 1987 gaseous effluents was caused by greater reactor availability. Through June 1988, 3000 curies of noble gas have been released. Using the ODCM methodology the licensee calculated maximum whole body and thyroid doses in 1987 to an individual beyond the site boundary were $5.5E-02$ mRem and $3.5E-02$ mRem respectively.

An apparent minor fuel cladding problem was identified in Unit 2 in July 1987, as evidenced by an increase in pre-treatment noble gas activity (about a tenfold increase before stabilizing) and was detectable at the stack. No significant increase in the dose equivalent I-131 of primary coolant resulted from the small leak.

5. Liquids and Liquid Radioactive Wastes (IP 84723, 84750)

The licensee's reactor liquids and liquid radwaste management programs were reviewed, including: determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; determination whether liquid radioactive waste effluents were in accordance with regulatory requirements; adequacy of required records, reports, and notifications; determination whether process and effluent monitors are maintained, calibrated, and operated as required; and experience concerning identification and correction of programmatic weaknesses.

The inspector reviewed selected records of radioactive liquid effluent sampling and analysis for 1988 and semiannual effluent reports for 1987 and through June 1988. The pathways sampled and the analyses performed appear to comply with technical specifications. In 1987, about $8.8E-01$ curies of gross beta-gamma activity (excluding tritium) and 1.09 curies of tritium were released in liquid effluent from both units combined; for the first six months of 1988, the gross beta-gamma and tritium released were 10.38 and 1.3 curies, respectively. The increase in liquid activity releases is the result of significantly increased reactor availability. The licensee calculated whole body and GI-LLI

doses to an individual in 1987 beyond the site boundary were $3.5E-5$ mRem and $1.5E-4$ mRem, respectively.

Liquid effluents are released on a batch basis from one of two tanks (following sampling and analysis) to a single release path which is a monitored (alarm and isolation functions) radwaste line. This line releases the effluent through the cooling lake blowdown line to provide adequate dilution to assure that the effluent reaching the river is below MPC for the mixture of all nuclides released.

Analyses of batch liquid releases include counting a sample of the recirculated liquid using a GeLi system to identify and determine the concentration of gamma emitting nuclides in Technical Specification Table 4.11.1-1. For pure beta emitters, including strontium-89 and 90, iron-55 and hydrogen-3, concentrations are considered to be identical to the concentrations in the latest analysis of monthly composite samples of liquid batch releases. The composite samples are sent to a contractor for beta analyses. The concentrations of each nuclide, as well as the cooling lake blowdown flow rate are fed into a computer program which provides the MPC fraction for each nuclide, the sum of MPC fractions, the allowable radwaste discharge flow rate and the setpoint (above background) of the monitor on the discharge line which has alarm and isolation functions. Selective review of recent release records identified no problems with setpoint determinations and settings.

During a selective review of recent release records, setpoint determinations and settings in the control room, a high background radiation level on the liquid radwaste effluent monitor was noted. The problem appears to be contamination of the detector chamber rather than elevated external background radiation. The chamber is routinely flushed with clean water after each discharge tank release, but flushing has been ineffective in reducing contamination levels. The configuration of the detector chamber tends to permit deposit of particles in the chamber and make flushing ineffective. Disassembly and decontamination of the monitor has become progressively less effective. The increased background has not reached the level where an adequate trip setpoint cannot be established but has reached the level where the internal check source had to be increased to adequately check operability. This matter was discussed at the exit interview and will be reviewed at a future inspection. (Open Item 373/88024-01; 374/88023-01)

Air Cleaning Systems (IP 84724, 84750)

Two ventilation systems have HEPA filters and charcoal adsorbers subject to technical specification surveillance requirements. These systems are the two trains of the control room and auxiliary electric equipment room emergency filtration system and the two trains (common to both reactor units) of the standby gas treatment system. Inplace testing of HEPA filters and charcoal adsorbers have been performed on a timely basis and records show the efficiency to be greater than the 99.95 percent criteria for the latest tests of the systems described above. In addition, a laboratory analysis of a representative carbon sample from each train for methyl iodide removal has been performed with records showing the removal

efficiency to be greater than the 90% criteria for the most recent test results available.

No violations or deviations were identified.

7. Calibrations and Surveillances of Gaseous and Liquid Process and Effluent Monitors

The inspector reviewed records for seven monitors on the liquid system, including the common radwaste discharge, the service water discharge for each reactor unit and two RHR service water monitors for each unit and several monitors on the gaseous system including, the SGTS and reactor building vent exhaust, the pre- and post-offgas and fuel pool exhaust lines monitors. Technical Specification 4.3.7.10 requires calibration of the liquid monitors at 18-month intervals and source check prior to each release. Technical Specification 4.3.7.11 requires calibration of the gaseous monitors described above at 18-month intervals and source checks at monthly intervals. The inspector reviewed selected calibration records and selected source checks for the liquid and gaseous effluent monitors described above for the period July 1987 to June 1988. The review showed proper calibrations.

During a review of the offgas post-treatment calibration data it was noted that the as-found alarm setpoints differed by as much as ten times greater than the as-set alarm setpoints for the upscale hi, and upscale hi-hi trip functions; a condition which permits the alarm to initiate in a non-conservative direction. Although the offgas post-treatment monitor will initiate an isolation of offgas only when the upscale hi-hi-hi setpoint is exceeded, (not the upscale hi or upscale hi-hi), such significant variations between the as-set and as-found readings should be investigated. The current procedure (LIS-OG-204) does not address this need for investigation. This matter was discussed at the exit meeting and will be reviewed at a future inspection. (Open Item 373/88024-02; 373/88023-02)

8. NRC Information Notice (IP 92701)

No. 88-22: Disposal of Sludge from Onsite Sewage Treatment Facilities at Nuclear Power Stations

Currently, LaSalle Station stores sewage treatment plant sludge onsite in 55-gallon drums. The sludge is contaminated with very low levels of Co-58 and Co-60. The station holds an Illinois EPA permit for onsite land application of sludge, but due to the low level contamination, the station must also obtain the approval of the Illinois Department of Nuclear Safety, since Illinois is an Agreement State, prior to onsite land application of sludge. LaSalle Station is proceeding in accordance with NRC Information Notice No. 88-22.

9. Review of Radiation Occurrence Report (ROR) 88-34, "Contaminated Material Found in an Uncontrolled Area"

During a survey conducted on August 5, 1988, of material designated for unconditional release and stored in an uncontrolled area, a piece of contaminated wood was identified. The uncontrolled area was outside

the radiologically controlled area (RCA) but within the licensee's restricted area fence. As a result of this finding, extensive surveys outside the RCA were initiated, and between August 5-31, 1988, numerous pieces of contaminated wood and 14 contaminated snubbers were found. The contamination levels on the wood ranged up to 10,000 dpm/100 cm² smearable and 100,000 dpm/17 cm² fixed. The levels on the snubbers ranged up to 5000 dpm/100 cm² smearable and 25,000 dpm/17 cm² fixed. The contaminated articles were either disposed of as DAW or stored in designated areas.

The licensee initiated an investigation to determine how the contaminated material, which should have been surveyed before leaving the RCA, was transferred to an uncontrolled area. The investigation was still in progress at the conclusion of this inspection on September 8, 1988; no determination had been made.

During this inspection, the inspector reviewed this matter with the lead health physicist and plant management, and observed surveys in progress of material in those areas where the contaminated material was found. As a result of this review the inspector indicated that attention should be given to emphasizing and ensuring that a better survey program for releasing material into uncontrolled areas be made, that the routine uncontrolled area survey program be strengthened, and that a review be made to ensure that material leaving the RCA is surveyed. The inspector also indicated that if the contaminated material found in the uncontrolled area was the result of a poor quality RCA survey program, then attention should also be given to ensure that the unconditional survey program quality is improved. These matters were discussed at the exit interview. The licensee's documented actions taken to prevent recurrence of incidents of this nature will be reviewed, at a future inspection. (Unresolved Item 373/88024-03; 374/88023-03)

10. Radiation Occurrence Report (ROR) 88-33 "Contamination of the MC (Clean Demineralized Water) System in Radwaste"

On July 27, 1988, thirteen station workers who had been mopping the 734' elevation of the radwaste building were found to have contaminated shoes at a whole body frisk booth upon completion of their work. The contaminated shoes ranged from 2000 dpm/17cm² to 25,000 dpm/17cm² direct.

The licensee investigated this matter and found that water used to mop the floor came from a contaminated MC tap. The spread of contamination was limited to the 734' level and a stairwell in the radwaste building. After discovery of the problem, the use of the MC system was suspended to prevent further contamination.

The source of the contaminated water was the Unit-1 Floor Drain Evaporator (1WF) which was connected to the MC system through a hose used for flushing contaminated sludge from the line used to transfer the sludge from the 1WF evaporator to a concentrator waste tank. The connection of the hose to the MC system was the result of a temporary system change and has been routinely used for several years to flush the batchout line. A

permanent flush line is scheduled to be installed in 1989. In response to IE Circular No. 80-14 concerning contamination of clean demineralized water systems, the licensee issued instructions to close the valve and disconnect the temporary hosing after use; these instructions were apparently not followed.

During normal operations, the pressure on the MC header is about 100 psi and the pressure on the recycle pump on the evaporator recycle system is about 20 psi. The difference between this pressure prevents the contaminated sludge from entering the clean MC system when the evaporator system is operating. This contamination event was caused when radwaste personnel operated the evaporator portion of the system when the MC portion of the system was taken out of service for valve repair. With the MC system out of service, the pressure on the evaporator system during operation was greater than that of the MC system, allowing the contaminated sludge to enter the clean MC system.

As a result of the investigation, the licensee identified several contributing causes for the incident and proposed several corrective actions to prevent recurrence. The inspector also reviewed the circumstances surrounding the incident, reviewed the proposed corrective actions, and discussed the matter at the exit meeting. The inspector will review the licensee's corrective actions at a future inspection. (Unresolved Item 373/88024-04; 374/88023-04)

11. Exit Meeting

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the onsite inspection on September 8, 1988. The inspector summarized the scope and findings of the inspection. The inspector also discussed the likely informational content of the inspection report with regard to documents and processes reviewed by the inspector during the inspection. The licensee did not identify any such documents or processes as proprietary. The following matters were discussed specifically by the inspector:

- a. The apparent need to reduce radiation background levels for the liquid radwaste discharge monitor. The licensee indicated they will investigate this matter (Section 5).
- b. The apparent need to revise the current "Post Treatment Monitor Calibration" procedure (LIS-OG-204) to ensure significant discrepancies found between the as-set and as-found alarm setpoints are investigated. The licensee will investigate this matter (Section 7).
- c. The need to strengthen the control of contaminated material from the RCA into uncontrolled areas. The licensee is taking corrective actions to prevent recurrence of this problem (Section 9).
- d. The need to strengthen controls for preventing contaminated water into the clean demineralized water system. The licensee is reviewing proposed corrective actions to prevent this type of problem from recurring (Section 10).