

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/85019(DRSS); 50-265/85021(DRSS)

Docket Nos. 50-254; 50-265

Licenses No. DPR-29; DPR-30

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

Facility Name: Quad Cities Nuclear Power Station, Units 1 and 2

Inspection At: Quad Cities Site, Cordova, IL

Inspection Conducted: June 24-28, 1985

Inspector: *D. E. Miller*
D. E. Miller

7/18/85
Date

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

7/18/85
Date

Inspection Summary

Inspection on June 24-28, 1985 (Reports No. 50-254/85019(DRSS); 50-265/85021(DRSS))

Areas Inspected: Routine, unannounced inspection of the licensee's ALARA and contamination controls programs. Also reviewed were organization and management controls, open items, followup of reactor water recirculation system chemical cleaning, allegation followup, and a transportation reporting incident. The inspection involved 36 inspector-hours on site by one NRC inspector.

Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted:

- *R. Carson, Lead Health Physicist
- *D. Gibson, QA Supervisor
- K. Hall, Health Physics Coordinator
- S. Horvath, ALARA Health Physicist
- *N. Kalivianakis, Station Manager
- *G. Myrick, Field Services Engineer (CECo)
- J. Piercy, ALARA Coordinator
- G. Powell, Health Physicist
- J. Sirovy Rad/Chem Supervisor
- *B. Strub, Compliance Coordinator
- *T. Tamlyn, Services Superintendent
- M. Zinnen, ALARA Planner

- *A. Madison, NRC Senior Resident Inspector

The inspector also contacted several other licensee personnel including members of the technical and engineering staffs.

*Denotes those present at the exit meeting.

2. General

This inspection, which began at 9:30 a.m. on June 24, 1985, was conducted to examine the licensee's organization and management controls, and ALARA and contamination controls programs. Also reviewed were open items, recontamination of the reactor water recirculation system, allegation followup, and a transportation reporting incident. During the inspection, several tours of radiologically controlled areas were made by the inspector to review the adequacy of radiological postings, access controls, and contamination controls. No significant problems were identified. Housekeeping appeared good considering a refueling and maintenance outage was recently finished. A specific contamination control condition was discussed; corrective actions were initiated by the licensee.

3. Licensee Actions on Previous Inspection Finding

(Closed) Open Item (254/84013-01; 265/84020-01): Review need to provide program details to contract radiological technicians. The licensee has compiled a book of rad/chem policy and implementing information not otherwise contained in station procedures. The licensee intends to have contract radiological technicians review this information as part of their site specific training.

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 staffing, effectiveness of procedures and other management techniques used to implement these programs, experience concerning self-identification and correction of program implementation weaknesses, and effectiveness of audits of these programs.

Since previously reported in Inspection Reports No. 50-254/84022; 50-265/84020, several organizational changes have been made, including:

- a. T. Kovach, former Rad/Chem Supervisor, was promoted to Radiation Protection Director, Nuclear Services, at the General Office.
- b. J. Sirovy, former Plant Chemist, was promoted to Rad/Chem Supervisor.
- c. P. Behrens, former Chemist, was promoted to Plant Chemist.
- d. W. Bielasco, former Health Physics Coordinator, has been assigned to a new Special Projects Health Physicist position.
- e. K. Hall, former Health Physicist, has been promoted to Health Physics Coordinator.
- f. R. Venci, recent Nuclear Engineering graduate, was hired as a Health Physicist.

The above individuals meet the applicable ANSI N18.1-1971 requirements, for the positions they hold.

Prior to changes a. and b. above, the Rad/Chem Supervisor was designated the Radiation Protection Manager (RPM) per Regulatory Guide 1.8; this designation was specified in Technical Specification 6.1. According to the licensee, the Lead Health Physicist is now designated the RPM; a request for technical specification amendment, to reflect this change, is in progress. The inspector reviewed the qualifications of the Lead Health Physicist; he meets the requirements for RPM listed in Regulatory Guide 1.8. The Rad/Chem Supervisor is not RPM qualified.

In accordance with the licensee's quality assurance manual, the RPM has direct access to the Plant Manager in radiation safety matters. On March 18, 1985, CECO announced a Nuclear Stations Division reorganization which established the positions of Station Manager, Production Superintendent, Services Superintendent, and Assistant Services Superintendent; the reorganization resulted in two different individuals occupying intermediate management positions between the station manager and the Rad/Chem Supervisor, neither have health physics experience. Since the Rad/Chem Supervisor is not RPM qualified, there are three managers/supervisors between the Lead Health Physicist (RPM) and the station manager. When asked by the inspector, the Plant Manager, Services Superintendent, Rad/Chem Supervisor, and RPM stated that the direct access route remains

available and direct communication between the Plant Manager and RPM occurs when either person considers it necessary or expedient. Such meetings are not scheduled. It appears that direct access is available and used because of the specific persons occupying the management positions at Quad Cities Station. However, a personnel change could easily alter this situation. According to the Plant Manager, the new organizational structure was designed to provide enhanced management attention to specific technically oriented departments; he assured the inspector that routine contact between him and the RPM would be made to assure that health physics concerns are known and addressed.

The new organization, which became effective on March 18, 1985, is not in accordance with the organization shown in the licensee's technical specifications (Figure 6.1.2). However, this matter is considered an unresolved item pending clarification as to whether NRR approval is required before technical specification described organizational structures are changed. (254/85019-01; 265/85021-01)

Other than the organizational changes noted above, radiation protection personnel and staffing have remained relatively unchanged in the last year. There was little turnover. Only two Rad/Chem Technicians have left their position, one was promoted and one terminated employment.

No violations or deviations were noted.

5. Maintaining Occupational Exposures ALARA

The inspector reviewed the licensee's program for maintaining occupational exposures ALARA, including: changes in ALARA policy and procedures; worker awareness and involvement in the ALARA program; and establishment of goals and objectives and effectiveness in meeting them. Also reviewed were management techniques used to implement the program and experience concerning self-identification and correction of program implementation weaknesses.

The licensee's ALARA group consists of an ALARA Coordinator, an ALARA Health Physicist, and an ALARA Planner. The group reports to the Rad/Chem Supervisor.

In February 1985, the licensee implemented procedure QRP 2010-1, ALARA Action Review. The procedure establishes responsibilities, required actions, recommendations, documentation, and followups. The procedure includes required ALARA review of work order requests.

To aid in implementation of the ALARA program, the licensee:

- ° Has initiated a job specific history file for reference during future similar jobs.
- ° Has had built two scale models of the Unit 1 drywell for use in training, ALARA planning, and pre-job indoctrination.

- ° Continues to develop a photo file of radiologically significant areas. The photos are indexed, and valve/equipment identified to aid in job/ALARA planning.
- ° Is refining job specific dose accountability methods to better project estimated job specific exposures, and to identify routine tasks which should be given more thorough ALARA review.
- ° Has established internal programs to coordinate work group, ALARA group, radiation protection foreman, and radiation protection technician participation in the ALARA and radiation work permit systems to enhance effectiveness and timeliness of reviews and surveys.

The licensee's ALARA goal for 1984 was 1600 person-rem; the total whole body dose received was 1535 person-rem. The total person-rem for the previous year (1983) was 2200 person-rem. The licensee's ALARA goal for 1985 is 1220 person-rem. It appears that the station's commitment to dose reduction programs/methods is a major factor in the lowering of person-rem at the station. Circulation system decontamination, also a contributor, is discussed in Section 7. Completion of certain tasks, such as part of the hanger/snubber work, also contributed to the dose reduction.

No violations or deviations were identified.

6. Control of Radioactive Materials and Contamination

The inspector reviewed the licensee's program for control of radioactive materials and contamination, including: changes in instrumentation, equipment, and procedures; effectiveness of survey methods, practices, equipment and procedures; adequacy of review and dissemination of survey data; effectiveness of methods of control of radioactive and contaminated materials; and management techniques used to implement the program and experience concerning self-identification and correction of program implementation weaknesses.

The licensee is performing an evaluation of two models of the current generation of portal monitors, they are the Nuclear Enterprises LTD IPM-7, and the Eberline PCM-1. The licensee plans to enhance their current personal contamination monitoring program with the addition of one of these models to the IRT monitors currently being utilized. The evaluation is also being done to provide purchase recommendations to other CECO nuclear stations. The licensee's primary personal contamination detection method is frisking. In a memo, dated December 31, 1984, to all station persons from the Plant Manager, the required use of friskers as the primary personal contamination method was reinforced. During tours of the reactor and turbine buildings, no inadequate use of friskers was observed. The licensee is using extended handle pancake probe friskers. The extended handle, about 16 inches, makes frisking of hard to reach areas easier.

The licensee is equipping a new tool and equipment decontamination facility on the 647-foot level of the Unit 2 reactor building. Now inplace are a glovebox housed Freon decontamination system, a glovebox housed sandblaster, and a pressurized water spray decontamination booth. Lighting and power are yet to be permanently installed. The new decontamination facility is adjacent to the newly completed hot shop; each are in enclosed rooms. The licensee plans to diminish use of the tool/equipment decontamination area located adjacent to the maintenance shop; this decontamination facility does not have its own ventilation system.

A contamination control related project in progress is expansion and redesign of the control rod drive maintenance/repair facility. The facility is being expanded to provide better separation of the maintenance/repair area and storage areas. Also, the expanded facility is to have improved ventilation to preclude recurrence of past contamination spread incidents.

The licensee maintains building drawings which are grided so that the square footage of contaminated general access areas can be estimated; the square footage was nearly constant between May 1984 and April 1985, averaging about 25,000 square feet (even during outages). The licensee stated the refueling floor has remained potentially contaminated since the spring Unit 2 outage because of overhead crane replacement work. This area will be cleaned and cleared when the work is done, thereby significantly reducing the square footage. The licensee stated that considerable effort is expended to keep contaminated areas to a minimum, and that engineering controls are being evaluated which may permit further reduction in some area. These controls could include redundant pumps in some sumps, better retention of potential leaks, and more aggressive valve leakage repair.

The inspector selectively reviewed records of routine and job specific contamination surveys conducted during 1985 to date. No problems with extent, frequency, or procedure compliance were noted.

No violations or deviations were identified.

7. Followup of Chemical Decontamination of Unit 2 Reactor Water Recirculation System Piping

The Unit 2 circulating system was decontaminated using the London Nuclear process during October 1983. Contact radiation levels were determined, for 56 preselected spots, before and after decontamination. Using average before and after readings, the post decontamination contact readings were 15 percent of the pre-decontamination readings. (There is no method of adequately characterizing general area dose rate reductions because there are many contributors other than the circulating system. The circulating system, however, is a major contributor to general area radiation levels in portions of the drywell.)

On April 28, 1984, after about three months of power operation, the reactor was shutdown for unscheduled maintenance. During the outage, 32 of the 56 preselected survey points were resurveyed. Averaging the 32 readings before decontamination, and the readings during the outage, the outage readings were 33 percent of the predecontamination readings. The licensee used these readings, and expected work to be done at the next outage, to determine cost/dose effectiveness of performance of a second circulating system decontamination at the beginning of the 1985 refueling outage. The licensee projected an estimated dose savings of 228 person-rem. The licensee decided that it was not cost/dose effective to perform the decontamination.

On March 23, 1985, a few days after shutdown for refueling, contact radiation readings were taken at 45 of the preselected survey points. The average of the readings was 58 percent of the before decontamination readings.

The licensee had estimated that about 400 person-rem would be received in the drywell during the outage without performing a circulating system decontamination. Actual dose received was 318 person-rem including about 70 person-rem for unanticipated weld overlay work. The licensee stated that better estimates of expected dose should be possible as the data base on past similar jobs builds, and the lasting affect of circulating system decontamination is better understood.

No violations or deviations were identified.

8. Radioactive Material Transportation Problems

During November 1984 the licensee was preparing to ship a Type B package of radwaste for burial. The licensee discovered that they had failed to mail a notification to the NRC regional office postmarked at least seven days before the beginning of the seven-day period in which the shipment was to depart. The licensee informed the NRC Senior Resident Inspector and sent a notification to the regional office by express mail. The notification was received at the regional office four days before the seven-day period in which the shipment was to depart. The licensee has since revised their notification procedure; all later reports were mailed in accordance with requirements. The licensee's corrective actions were timely and adequate.

On December 6, 1984, the licensee shipped two oil samples (130 grams total) to a vendor for analysis of nonradioactive contaminants. On the following day the licensee discovered that the samples were shipped before the analysis for radioactive content was completed. The samples were found to contain minor but identifiable concentrations of two radioactive isotopes. The total activity in the samples was less than one microcurie. The licensee immediately called the vendor, who is not licensed to receive radioactive materials, and requested that the samples be returned to Quad Cities Station. The vendor returned the unopened samples to the licensee. The licensee has since reinstructed all appropriate department personnel concerning correct handling of oil samples. The licensee's corrective actions were timely and adequate.

No inspector identified violations or deviations were noted.

9. Inquiry from Representative Michel Concerning Former Contractor Employee

Information concerning alleged radiation injuries to a former contractor employee is discussed in Inspection Reports No. 50-254/84013; No. 50-265/84011. Subsequently, Representative Michel, Member of Congress, sent a letter, dated January 11, 1985, to the NRC Chairman regarding the concerns of the former contractor employee. A letter of response from NRC was sent to Representative Michel on February 5, 1985.

The letter, from Representative Michel to the NRC Chairman, related concerns of the former employee that: "The dangers of the working conditions at the power house are not fully explained to workers, and detection devices are not full calibrated for the large amounts of radiation encountered." On June 19, 1985, the inspector contacted the former contractor employee by telephone. The inspector asked the former employee for specific information regarding his concerns about training and dosimetry at Quad Cities Station. The former employee provided no specific information about his concerns. The inspector informed the former employee that previous inspections of general employee training and dosimetry calibration conducted during 1984, at Quad Cities Station, did not identify noncompliance with NRC regulations. Scheduling conflicts precluded a detailed review of these two areas during this inspection; they will be reviewed during a future inspection. (254/85019-02; 265/85021-02)

10. Followup of Stuck Calibration Source

During March 1985 the licensee informed NRC Region III that a Shepard calibrator, used to irradiate dosimetry devices, had stuck in the open (source exposed) position while in use. The licensee stated that a timer mechanism was designed to automatically return (drop) the source to its shielded position. The licensee used an override to manually return the source to its shielded position.

The calibrator contains a 20 curie Cs-137 source. To place the source in the exposed position, a timer is set and the source rod is manually lifted to a position where an electric solenoid latch holds it in place. The timer releases the electric power to the solenoid and a spring releases the latch. The licensee has installed an electric eye system that also terminates power to the solenoid if a person walks toward the exposed source beam.

The licensee contacted the vendor concerning the stuck source incident. After investigation, the vendor prescribed a lubricant for a portion of the unlatching mechanism. The licensee applied the lubricant and no further problems have been encountered.

According to a vendor representative contacted by the inspector, all owners of this model calibrator were subsequently contacted and instructed to apply the lubricant to the unlatching mechanism. The vendor is also revising the technical manual for this model calibrator.

No violations or deviations were noted.

11. Exit Meeting

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on June 28, 1985. The inspector discussed the scope and findings of the inspection. The inspector also discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee identified no such documents/processes as proprietary.