

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-454/82-23(DETP); 50-455/82-17(DETP)

Docket Nos. 50-454; 50-455

Licenses No. CPPR-130; CPPR-131

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

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, IL

Inspection Conducted: November 16-19, 1982

*Loren J. Hueter*  
Inspector: Loren J. Hueter

12/14/82

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

12/16/82

Inspection Summary

Inspection on November 16-19, 1982 (Reports No. 50-454/82-23(DETP);  
50-455/82-17(DETP))

Areas Inspected: Routine, announced inspection of preoperational radiation protection program for Units 1 and 2. The inspection included organization and staffing, training, radiation protection procedures, facilities, instruments and equipment, respiratory protection program, and review of IE circulars/bulletins. The inspection involved 36 inspector-hours on site by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

## DETAILS

### 1. Persons Contacted

- S. Barrett, Station Chemist
- \*W. Burkamper, QA Superintendent, Operations
- \*P. Dale, Technical Staff
- G. Geisler, General Instructor
- M. Graham, Technical Staff
- T. Higgins, Training Supervisor
- K. Houghton, Health Physicist
- \*R. Querio, Station Superintendent
- \*J. Van Laere, Rad-Chem Supervisor
- \*R. Ward Assistant Superintendent, Administrative and Support Services
- \*K. Weaver, Rad-Chem Station Health Physicist
  
- \*K. Connaughton, NRC Resident Inspector

\*Denotes those present at the exit meeting.

### 2. General

This inspection of the radiation protection program for preoperational Units 1 and 2 began about 8:00 a.m. on November 16, 1982. It included tours of the turbine building, auxiliary building, and radwaste/service building.

### 3. Organization, Staffing, and Training

As reported in Inspection Report No. 50-454/82-08, the NRR staff position (Section 12.5.1 of the Byron SER dated February 5, 1982) is that the radiation protection section should be separate from the chemistry or the applicant should provide NRR an alternative proposal including documentation of the RCT training and retraining program to ensure that the Rad/Chem Technicians (RCTs) maintain adequate qualifications in both technical disciplines. In a letter dated October 14, 1982, which in part addresses this subject, the licensee states that the matter has been reviewed and a decision made to "keep chemistry and health physics in the same functional area" to provide more flexibility and that "RCT training and retraining will ensure that competency and program continuity are maintained." However, the licensee has committed to make several substantive changes in the Station Rad-Chem Department organization and to fully staff the new organization by fuel load. These changes include:

- a. Direct supervision of the foremen by the lead professionals in the areas of health physics and chemistry;
- b. Round-the-clock health physics supervision by health physics foremen, to direct the activities of the RCTs during each shift;

- c. Laboratory supervision by a dedicated foreman on the day shift Monday through Friday; and
- d. Adequate staff to divest the professionals and foremen from clerical activities such as scheduling and recordkeeping.

Although the licensee's October 14, 1982 letter did not contain a documented RCT training and retraining program, the licensee stated that such a document would be prepared and submitted to NRR for review in early 1983. If the foremen meet ANSI N18.1 qualifications for nonlicensed supervisors, the commitment to provide round-the-clock Rad/Chem Foremen coverage alleviates a concern expressed in Inspection Report No. 50-454/82-08 regarding less restrictive certification criteria in the FSAR for shift RCTs than the ANSI N18.1 qualification criteria.

Eighteen of the licensee's RCTs have completed the initial RCT training course consisting of 15-20 weeks of training. The licensee's RCT certification program has still not been formally instituted. The licensee plans to institute this program in early 1983 with about four weeks additional training in radiation protection and four in chemistry, including practical factors. All RCTs are currently participating in a refueling outage at another CECo station. Review of qualification of RCTs will continue following NRR review/approval of the Rad-Chem Department organizational structure, training/retraining program, and completion of the licensee's RCT certification program.

Since the previous inspection of the Rad-Chem Department conducted in May 1982, the licensee has added to the staff a third chemist, a third Chemistry Engineering Assistant, and three additional RCTs. The licensee has tentatively budgeted for eight additional RCTs in mid-1983.

It was reported in Inspection Report No. 50-454/82-08 that the Station Chemist does not meet the criteria of ANSI N18.1-1971 regarding a minimum of one years experience in radiochemistry. The Station Chemist had completed a 10-12 week Westinghouse Chemistry/Radiochemistry course (normally equated to one half-years experience) and was in the process of obtaining three months experience in radiochemistry at a nuclear power plant under operating conditions. This three months training has been completed. The inspector reviewed a listing of 22 activities related to the chemistry-radiochemistry program which the Station Chemist participated in during the three months. These included:

- a. Review of daily operating data;
- b. Calculation of condenser leak rate;
- c. Derivation and calculation of primary to secondary leak rate via steam generator tube leaks;
- d. Training in use of counting room equipment;
- e. Data management, including trending evaluations;
- f. Calculation of liquid release activity;
- g. Chemical addition to plant system;
- h. Quality control program;

- i. Calibration of the portable GeLi for the post-accident radiochemical analysis system; and
- j. Chemical/radiochemical activities associated with startup of both reactor units.

Additional experience will be gained in the Byron Station radiochemistry department when it becomes operational. Although the licensee planned to have the department operational (routine sampling and analysis) in August 1982, this goal was not met. It is now planned to implement this program in early 1983. Much of the equipment necessary for this program is onsite, set up, and calibrated. The qualifications of the Station chemist will be reviewed further during a future inspection.

The qualifications of one of the Rad/Chem Foremen compared to criteria in ANSI N18.1-1971 (supervisor not requiring NRC license) was questioned in Inspection Report No. 50-454/82-07 and 50-454/82-08. In the latter report, it was stated that the licensee planned to send the individual to a second refueling outage in the fall of 1982 at Quad-Cities Station in a Rad/Chem Foreman capacity.

This assignment was being carried out at the time of this inspection. The qualification of this Rad/Chem Foreman will be reviewed further during a future inspection.

CECo is finalizing a standardized NGET training program. Station training personnel stated they are confident that their current NGET training program encompasses 95 percent of the new program. The licensee hopes to have the final NGET training program by early 1983 to use for re-training of CECo people and initial training of contractors and visitors. Training records for the areas involving radiation protection were reviewed for randomly selected individuals. Records were verified for NGET training, RCT training, and respirator training. The quality of the tests used to evaluate the trainees' knowledge of the subject matter appeared acceptable.

No items of noncompliance or deviations were identified.

#### 4. Radiation Protection Procedures

Radiation protection procedures are estimated to be 90 percent complete. With the possible exception of procedures for some equipment which has not been received, the licensee is planning to complete these procedures by the end of 1982 and to begin using the procedures to train RCTs in early 1983. The chemistry procedures are estimated to be 80 percent complete. Much of the analytical and counting equipment has been received, set up, and calibrated. The licensee plans to start some routine sampling and analysis in early 1983 and to utilize this work for training purposes in the chemistry program.

The following radiation protection procedures were reviewed for consistency and compatibility with FSAR commitments and 10 CFR Parts 19 and 20 regulations.

BRP 1210-2	Revision 0	Exposure Review and Authorization
BRP 1210-3	Revision 1	Timekeeping
BRP 1210-4	Revision 0	Radiation Chemistry Exit Interview
BRP 1210-5	Revision 0	Notifications and Reports to Individuals
BRP 1240-1	Revision 0	Personnel Monitoring for Internal Radioactive Contamination
BRP 1240-2	Revision 0	Whole Body Counting Routine Operation
BRP 1310-1	Revision 0	Selection, Issuance and Control of Radiological Respiratory Protective Equipment
BRP 1310-2	Revision 0	Maintenance and Care of Respiratory Protective Equipment
BRP 1310-5	Revision 0 (in preparation)	Operation and Use of the Respiratory Test Facility
BRP 1310-6	Revision 0	Operation and Use of the Air-Line Supplied Air System
BRP 1310-8	Revision 0	Respiratory Protective Equipment Quality Inspections
BRP 1310-10	Revision 0	Operation and Use of the MSA Filter Respirator Tester
BRP 1340-1	Revision 0	Personnel Monitoring for Internal Radioactive Contamination
BRP 1360-1	Revision 0	Air Sampling of Suspected and Known Airborne Radioactivity Areas
BRP 1380-1	Revision 0	Assessment of Exposure to Radioactive Materials in Air
BRP 1480-1	Revision 1	Contamination Surveys

No significant problems were identified with the procedures. Several suggested changes, in the interest of clarity, were discussed with the licensee.

##### 5. Facilities, Instruments, and Equipment

The following rooms or areas, briefly described in Inspection Report No. 50-454/82-08, have still not been turned over to radiation protection for their intended use:



- a. Rooms for whole body counter and mask fit-test equipment;
- b. Personnel decontamination room;
- c. Respiratory equipment issue room;
- d. Hot maintenance and decontamination area; and
- e. Personnel clothing change room.

A new building is being constructed to house the training department. Rad-Chem supervisory personnel will then occupy some of the space vacated by the training department (RCT foremen will stay at the RCT facilities in the auxiliary building near the access control point).

As noted in Section 6, the double unit respirator fit-test booth has arrived onsite and has been set up and tested for proper operability at a temporary location. The licensee plans to have a whole body counter onsite by March 1, 1983, and begin baseline counts on permanent employees in April 1983.

Five IRT scintillation type portal monitors are in storage onsite. These are to be used at the radwaste building exit (one), the auxiliary building exit (two), and the security building exit (two).

About 700 dosimeters are onsite and have been source checked and quality tested at another CECO facility. Additional survey meters have been ordered from Eberline.

The Rad-Chem Supervisor and the Station Health Physicist are in the process of reviewing the future location of area monitors by locating installed conduit, and/or reviewing drawings, to assure that no intervening shielding exists to prevent the monitor from serving its intended function. The completed reviews have resulted in several recommended modifications to monitor locations. Documentation is being made of the reviews, recommended modifications, and verification of modifications.

During a tour of the radwaste facilities, the inspector observed the installation status of the following equipment: two waste gas compressors; three radwaste evaporators (50 gpm each); two systems for solidifying (cement) evaporator bottoms and spent resins in 55-gallon drums; a volume reduction system for shredded solids, evaporator bottoms, and contaminated oils (estimated 10 to 1 reduction); and many related tanks and equipment all in various stages of installation.

No items of noncompliance or deviations were identified.

#### 6. Respiratory Protection Program

Production Instruction No. 1-3-N-4 titled, "Respiratory Protection at Nuclear Generating Stations," dated as effective June 1, 1980, provides a written policy statement that addresses the required subjects specified in 10 CFR 20.103(c)(3). The Station Health Physicist has been assigned responsibility for the administration of the station respiratory protection program.

The inspector reviewed licensee procedures and criteria for collecting and analyzing air samples and for conducting routine and special bioassays to evaluate individual exposures. An RMC whole body counter will provide the principal means for bioassays. The unit has not arrived onsite yet. No problems were identified with the procedures and criteria reviewed.

The inspector also reviewed licensee plans and procedures governing the following areas of the respiratory protection program: training of personnel; fitting, inspecting, cleaning and maintaining respirators and related equipment; limiting use to NIOSH/MSHA certified equipment or Commission authorized equipment; advising of relief from respirator use; determining the physical fitness of an individual to use respiratory equipment; supplying adequate air flow to air-line respirators; providing for breathing air (from the various sources of supplied air utilized at the station); and requiring the individual to be clean shaven in the respirator seal area. Several suggested changes in the interest of clarity were discussed with the licensee.

The Frontier Fit-testing equipment, which permits testing two individuals simultaneously, has arrived onsite and has been set up and checked for proper operation at a temporary location. DOS, a noncarcinogenic oil will be used as the dispersant.

The selected area for mask issuance and maintenance has not been turned over from construction. A supply of MSA half and full face masks with filters, MSA full face air-line respirators with related equipment, Scott self-contained breathing apparatus, as well as electric and battery powered air samplers and air flow calibrators are in storage onsite. Additional supplies are being obtained as fuel loading approaches. The service air system will be utilized for air-line respirators. Bottled air will be obtained from either a portable compressor system which is to be obtained or from a local supplier of certified breathing air.

No items of noncompliance or deviations were identified.

7. Review of IE Circulars

The inspector reviewed the licensee's actions regarding the following IE Circulars.

IEC 80-18: Safety evaluations for changes to radioactive waste treatment systems.

Licensee's Action: Licensee procedures address the required safety evaluation. (Closed 454/80-18-CC; 455/80-18-CC)

IEC 81-07: Control of Radioactively Contaminated Material

Licensee Action: Licensee procedures specify minimum sensitivities of monitoring instruments consistent with this Circular. Incoming instruments are being checked

to assure the required sensitivity will be met. Unconditional release of material will not be permitted unless free of detectable contamination. (Closed 454/81-07-CC; 455/81-07-CC)

8. Review of IE Bulletins

The inspector reviewed the licensee's actions regarding the following IE Bulletin.

IEB 80-10: Contamination of nonradioactive systems and resulting potential for unmonitored, uncontrolled release of radioactivity to environment.

Licensee Action: The licensee has completed a study identifying nonradioactive systems that could possibly become contaminated through interfaces with radioactive systems and identified needed monitoring/sampling capabilities. Written procedures to establish a routine sampling/analysis or monitoring program are scheduled for completion by February 1, 1983. (Closed 454/80-10-EB; 455/80-10-BB)

9. Exit Meeting

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on November 19, 1982. The following matters were discussed:

- a. The purpose and scope of the inspection.
- b. The inspector noted that written procedures to establish a routine sampling/analysis or monitoring program for nonradioactive systems (in response to IE Bulletin 80-10) that could possibly become contaminated are not completed. The inspector stated that the licensee's action regarding this bulletin would be reviewed further following completion (scheduled by the licensee for February 1, 1983) of the written procedures. (Section 8).
- c. The inspector noted the licensee's decision to not separate the radiation protection section from the chemistry section and the licensee's commitment to submit a documented RCT training/retraining program to NRR for review in conjunction with this decision. The licensee stated that the training/retraining program will be submitted to NRR in early 1983. (Section 3)
- d. The inspector noted the licensee's commitment to make several substantive changes in the Rad-Chem Department organization including: direct supervision of foremen by the lead professionals in the area of health physics and chemistry; and round-the-clock health physics foremen coverage to direct activities of the RCTs. These changes are to be implemented before fuel load. The inspector discussed with the licensee the effort needed to obtain additional qualified foreman by August 31, 1983, the scheduled fuel load date. (Section 3)