

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-454/83-14(DRMSP); 50-454⁵/83-12(DRMSP)

Docket Nos. 50-454; 50-455

License Nos. 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: March 16-18 and 31, 1983

M. J. Oestmann
Inspectors: M. J. Oestmann

4/22/83
Date

M. C. Schumacher
M. C. Schumacher

4/25/83
Date

M. C. Schumacher
Approved By: M. C. Schumacher, Chief
Independent Measurements and
Environmental Protection Section

4/25/83
Date

Inspection Summary

Inspection on March 16-18 and 31, 1983 (Reports No. 50-454/83-14(DRMSP); 50-455/83-12(DRMSP))

Areas Inspected: Routine unannounced inspection of environmental protection for both Units, including preoperational radiological environmental monitoring program implementation and results; management controls; quality assurance; implementation of the environmental protection program for onsite construction; a tour of the site, chemical laboratory and counting room facilities; review of chemical program and procedures; and review of corrective actions taken regarding previous open items. The inspection involved 67 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

R. Ward, Assistant Plant Superintendent for Administration and Support Services, Byron
*J. Van Leare, Rad/Chem Supervisor, Byron
*D. St. Clair, Technical Staff Supervisor, Byron
*W. Burkamper, Supervisor, Quality Assurance for Operations, Byron
*S. Gackstetter, Technical Staff, Byron
*D. Goldsmith, Chemist, Rad/Chem, Byron
*E. Houghton, Health Physicist, Rad/Chem, Byron
*L. Sues, Assistant Plant Superintendent for Maintenance, Byron
*R. Ploniewicz, Assistant Plant Superintendent for Operations, Byron
*A. Chernick, Supervisor, Quality Control, Byron
*K. Weaver, Station Health Physicist, Rad/Chem, Byron
*C. Lentz, Licensing, Byron
J. Weitzel, Engineering Assistant, Byron
D. Wolfe, Construction Site Environmental Coordinator, Byron
J. Golden, Supervisor, Health Physics and Emergency Planning, Technical Services - Nuclear, CECo Headquarters

The inspectors also interviewed several other licensee personnel during the course of the inspection including chemical and health physics personnel.

*Denotes those present at the plant exit interview.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Open Item (50-454/82-20-01; 50-455/82-15-01): Failure to have the correct keys to unlock the metal cabinets used to house the air samplers and a suitable ladder to reach the cabinets. During a tour of the air sampler stations, the inspectors observed that correct keys and a suitable ladder were available.
- b. (Closed) Open Item (50-454/82-20-02; 50-455/82-15-02): Installation of onsite air samplers. The licensee does not plan to install any onsite fixed air samplers but has identified different onsite locations where portable air samplers will be used during an emergency at the plant once the plant becomes operational.

The inspectors have no further questions regarding these items.

3. Management Controls

The inspectors reviewed the licensee's management controls for implementation of the requirements of the preoperational environmental monitoring and protection programs. These requirements are presented in the construction permits, the licensee's Environmental Reports (ER) and the NRC's Final Environmental Statements (FES) for construction and operation. The licensee's Construction Site Environmental Coordinator

uses the document "Onsite Environmental Monitoring Program" to implement the environmental protection requirements.

The licensee's nonradiological terrestrial and aquatic preoperational monitoring programs were completed by its contractors, Espey, Huston and Associates, Inc. in 1979. The licensee's preoperational radiological environmental monitoring program (REMP), initiated in July 1981, is conducted by the licensee's contractor, Hazleton Environmental Sciences Corporation.

Review of the FSAR Section 13.1.2 indicates that the onsite responsibility for environmental protection rests with the Station Health Physicist. He in turn assigns one of his health physicists to periodically check the environmental sampling locations and to accompany the Hazleton sample collector to ensure samples are collected and equipment operable and calibrated on schedule. The inspectors noted the health physicist, the Station Health Physicist, and Rad/Chem Supervisor confirm that samples are collected and air samplers calibrated on schedule by review of weekly sample collection data sheets.

The inspectors found, however, a number of problems in the REMP concerning: (1) insufficient technical review of the analytical data in the monthly and annual reports; (2) a need to review the formula for calculating radioiodine air concentrations to determine if it is conceptually correct as presented in the contractor's "Analytical Procedures Manual," Revision 0, dated February 11, 1977; and (3) a lack of knowledge of the nature of wells sampled and well depth by plant or corporate personnel. Although the licensee has a Procedure BRP 1720-1 "Review of Environmental Monitoring Reports," it does not provide guidance as to whether the plant personnel or the corporate Radioecology Section is responsible to conduct a technical review of the REMP data. In a telephone conversation on March 31, 1983, the Supervisor of Health Physics and Emergency Planning stated that he has the overall responsibility for coordination of conducting the technical review and administration of REMP. The corporate review takes into account a preliminary review done by plant personnel in accordance with BRP 1720-1. The Supervisor committed to followup on the above problems and clarify the role of the corporate and plant personnel in conducting a technical review. Guidance would be provided in conducting the review. These items were discussed at the exit interview and will be reviewed in future inspections.

No items of noncompliance or deviations were identified.

4. Implementation of the Preoperational Environmental Programs

a. Radiological Environmental Monitoring Program (REMP)

The inspectors reviewed the contractor's monthly and annual reports for CY1982 to ensure the licensee met his commitments in accordance with Section 6.1.5 of the ER-OL. The reports and weekly collection data sheets accounted for all samples collected and included appropriate reasons for missing samples. The data, particularly for air

particulates, showed the effects of fallout from weapons testing by the People's Republic of China.

Anomalous results were found for the river discharge water (Sample Location By-11) compared with the intake water (Sample Location By-10) during the latter half of 1982. The discharge water showed gross beta concentrations of a factor 5 to 7 times higher than the intake water concentrations, although there should be no radioactivity released from the plant. The Supervisor of Health Physics and Emergency Planning agreed to investigate this anomaly as discussed in Section 3.

The inspectors also noted during the review of the weekly sample collection sheets that the vacuum gauge on air sampler By-03 was inoperative from January 31, 1983 through February 28, 1983. By the end of the inspection, the licensee reported that the gauge had been repaired and was working properly.

The contractor's "Sampling Manual," dated January 20, 1981, was reviewed and was found to be acceptable. As stated in Section 3, the licensee agreed to review the formula for calculating radioiodine concentrations on charcoal adsorbers in the contractor's "Analytical Procedures Manual" to ensure it is conceptually correct.

The environmental results for the licensee's contractor participating in the EPA interlaboratory cross check and TLD intercomparison programs were reviewed and found to be satisfactory.

During a tour of selected environmental monitoring stations, the inspectors found air samplers operating properly. The collection data sheets indicated they are flow calibrated on a monthly schedule. The inspectors noted that the exhaust of one of the air samplers (By-06) was directed toward the intake which could have an effect on the collected samples. A licensee representative agreed to correct this item. The licensee also agreed to place stickers on air samplers after they have undergone an annual preventive maintenance. These will be examined in a future inspection.

The licensee's TLDs were found to be properly placed outside the cabinets housing the air samplers. No problems were noted in also examining one of the NRC TLDs.

The milk-producing animal census conducted in 1982 by the licensee's contractor showed the presence of milk cows at farms closer to the plant than those being sampled. The licensee agreed to review the possible need for change in sample locations. This item will be examined in a future inspection.

b. Environmental Protection Program

The inspector reviewed selective onsite environmental monitoring records for the period of August 1982 to date of this inspection, prepared by the Site Environmental Coordinator and approved by the Site Construction Superintendent and Quality Assurance Construction

Supervisor. These included daily, weekly, and monthly reports on road dust controls, onsite sewage disposal, trash disposal, equipment laydown areas, erosion control and other considerations as described in the "Onsite Environmental Monitoring Programs," the licensee's ER-OL, and in the NRC's FES. A tour of the site during this inspection and discussion with the coordinator confirmed that these requirements were being met. No problems were identified.

No items of noncompliance or deviations were identified.

5. The Licensee's Chemistry/Radiochemistry Program

The chemistry group has a two tiered procedures system consisting of:

- a. Byron Chemistry Procedures (BCPs), which are reviewed and approved by the Byron Onsite Review Board (BOSR), and
- b. Byron Program Descriptions (BPDs) and Byron Chemistry System Descriptions (BCD's) which are scheduled for approval by the Rad/Chemistry Supervisor.

The inspectors identified no problems in their review of the following BCPs:

BCP 100-1	Total Solids Determination
BCP 110-1	Low Range Sulfide Determination (<1.0 ppm)
BCP 110-2	Low Range Chloride Determination
BCP 110-3	Turbidity Determination Using the Monitek 21 Nephelometer
BCP 110-4	Determination of Silica
BCP 120-1	pH Meter Using 601 A Ion Analyzer
BCP 150-1	Conductivity
BCP 160-1	Unknown Sample Weight Using the Analytical Balance
BCP 160-2	Preselected Sample Weight Using the Analytical Balance
BCP 160-3	Unknown Sample Weight Using the Top-Loading Balance

These procedures had been reviewed and approved by the Byron Onsite Review Board (BOSR) in 1981 and 1982.

The inspectors' review of selected BCDs and BPDs indicated that the chemistry group is doing a good job preparing procedures and establishing quality assurance for nonradiological chemistry. The BPDs describe chemistry programs in such areas as primary system chemistry, pollution control (NPDES), chemical inventory, chemical safety, chemistry performance checks, and preventive maintenance for instruments and quality assurance. The BPDs contain a great deal of information about various aspects of the station's chemistry program including the technical and/or regulatory bases for it.

Similarly, the BCDs describe the chemistry program as it applies to the various plant systems. They pull together in one place information scattered in various places. Together, the BPDs and BCDs, most of which are not yet approved by the Rad/Chemistry Supervisor, are a valuable

information and training resource for the chemistry group. Licensee representatives in the exit interview agreed to provide these procedures to the inspectors when they are approved.

The question of having procedures exempt from BOSR review was discussed at the exit interview. It was also pointed out that the BPDs and BCDs were not included in the station's master index of procedures and that the onsite Quality Assurance group was unaware of their existence. Licensee representatives agreed that actions prescribed to meet or to ensure meeting regulatory requirements should be in BOSR-approved procedures and that a system for controlling changes to BCDs and BPDs is needed. The NRC resident inspectors will review this matter as procedures are developed.

A review of Procedure BPD 200-1, Revision 2, July 1982, "Byron Station Quality Control Program," of station records and discussion with chemistry group representatives indicated that a satisfactory quality assurance program is being instituted for nonradiological chemical analyses. The program covers laboratory and plant instrumentation, reagents and standards, sampling, procedure review, limits and corrective actions, reporting, data verification, record review and filing, and training. It incorporates analyzing replicate and spiked samples as a method of QC for technicians and management working in the group.

Currently, the station is testing technicians and management at approximately six month intervals using blind samples (nonradiological) obtained from Environmental Resource Associates. Several samples from each of several lot numbers are ordered to avoid having all analysts working toward the same result. The samples generally require analyses for trace metals, chlorine residuals and ammonia, grease and oil, various minerals, alkalinity, dissolved solids, hardness, pH and conductivity. The test results are reviewed by the Station Chemist. To date, tests have been given in November and December 1981, July 1982 and November 1982. In the July 1982 test, four persons failed the oil and grease test. Retraining has been initiated on this analysis prior to retesting.

The twelve technicians currently in training were tested in November 1982. According to a chemistry group representative, some problems were seen then and retraining in laboratory work was initiated. The test program is described in a procedure "Unknown Test Program Description" dated April 1981.

The inspectors were also told that the station also participates in an annual EPA Crosscheck program involving samples sent to NPDES permit holders. These results were found to be satisfactory. Overall, the station's program for nonradiological chemistry, including quality assurance, appears to be progressing well. To date, a comparable program has not yet been established for radiochemistry. The need for it was recognized by licensee management. This area will be reviewed during subsequent inspections.

During a tour of the cold and hot chemistry laboratories, the inspectors observed that analytical instruments had current calibration stickers and that calibration curves were up to date. The reagents also had dates of preparation and expiration on the labels. The licensee is in the process of testing new analytical instruments and counting equipment. Several RCT's were observed performing different chemical analyses of samples from various plant water systems. The sampling panel for secondary chemistry is located in the laboratory.

The inspectors reviewed records relating to several Quality Assurance Department audits of Chemistry group activities in 1982 and 1983. Audit QAA 0-6-83-04 found that an analytical balance used to make standard solutions were not calibrated every six months with NBS traceable weights as required. Although not officially closed in the audit, the inspectors reviewed chemistry department records that indicate corrective actions included vendor calibration (March 1983), writing of an open order for recurrent calibration of the three analytical balances every six months, and arrangements for vendor certification of weight traceability to NBS.

The audit also included an observation that an eyewash fountain was inaccessible and inoperable. The station's response that a procedure to address the problem would be written by May 1, 1983, was requested by QA and faster compliance was requested. The inspectors noted no significant problems in these audits.

Training of Chemistry personnel includes on the job experience, supervisory observation, and completion of a formal program to demonstrate proficiency in performing analytical measurements. New employees have formal lectures on chemistry practices and procedures.

6. Exit Interview

The inspection findings were discussed in a meeting with licensee representatives (Section 1) held at the conclusion of the inspection on March 18, 1983. Licensee representatives acknowledged the need for:

- (1) A procedure defining responsibility and giving guidance for technical review and followup of contractor-submitted REMP data (Sections 3 and 4.a) (Open Item 50-454/83-14-01, 50-455/83-12-01);
- (2) Resolution of anomalies identified in the REMP including the river intake/discharge radioactivity anomaly, nature and depth of wells sampled, correctness of the formula used by the REMP contractor to determine iodine in air samples, appropriateness of milk sampling locations, air sampler intake/discharge orientation, and placing stickers on air samplers after annual preventive maintenance (Section 4.a) (Open Item 50-454/83-14-02, 50-455/83-12-02)
- (3) Development of procedures and a QA/QC program for radiochemistry sampling, counting and analysis (Section 5) (Open Item 50-454/83-14-03, 50-455/83-12-03).
- (4) Approval of procedures (BCDs and BPDs) by BOSR which include regulatory requirements and development of a system to control changes to BCDs and BPDs. (Open Item 50-454/83-14-04; 50-455/83-12-04).