

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report Nos. 50-295/81-12; 50-304/81-08

Docket Nos. 50-295; 50-304

License Nos. DPR-39; DPR-48

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

Facility Name: Zion Nuclear Power Station, Units 1 and 2

Inspection At: Corporate Office, Chicago, IL (May 12, 1981)
Zion Site, Zion, IL (May 13, 19, and 20, 1981)

Inspection Conducted: May 12-13, and May 19-20, 1981

Inspector: *M. J. Oestmann*
M. J. Oestmann

6/3/81

Approved By: *M. Schumacher*
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6/4/81

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Inspection Summary

Inspection on May 12-13, and May 19-20, 1981, (Report Nos. 50-295/81-12;
50-304/81-08)

Areas Inspected: Routine unannounced inspection of (1) radiological environmental monitoring program (REMP) including management controls, quality control, and program implementation; and (2) quality control of radiological and nonradiological measurements on reactor water systems including discharged effluents. The inspection involved 34 inspector-hours onsite by one NRC inspector.

Results: No violations were identified in three of the four areas examined. An apparent violation (Severity Level VI - failure to take a sediment sample at a required location) was identified in the area of environmental program implementation (Paragraph 6).

DETAILS

1. Persons Contacted

- *J. Golden, Supervisor, Radioecology/Emergency Planning, Technical Services Nuclear Department, (TSND) CECo
- R. Moore, Radioecologist, TSDN, CECo
- W. Shewiski, Manager, Quality Assurance, CECo
- **K. Graesser, Station Superintendent, Zion
- **G. Pliml, Assistant Station Superintendent
- **D. Edward, Rad/Chem Supervisor, Zion
- P. Zwilling, Chemist, Zion
- B. Schramer, Lead Chemist, Zion
- J. Jirka, Chemist, Zion
- R. Aker, Health Physicist, Zion
- **W. Fuller, Personnel Administrator, Zion
- **C. Ginn, Quality Control Inspector, Zion
- **B. Harl, Engineer, Quality Assurance, Zion

The inspector also interviewed other licensee employees during the course of the inspection, including health physicists and radiation chemistry technicians, members of the security force and training department, and general office personnel.

*Denotes those present at the corporate interview on May 12, 1981.

**Denotes those present at the station exit interview, May 20, 1981.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Infraction (50-295/80-11; 50-304-80-11): Failure to standardize the sodium hydroxide solution used in the boric acid titration. The licensee revised Procedure ZCP-23 on November 12, 1980, which requires this standardization to be done only for those shifts when a boron analysis is done. The inspector observed the standardization of a sodium hydroxide solution during a boric acid titration and reviewed selected 1981 records for this inspection. No problems were identified.
- b. (Closed) Infraction (50-295/80-11; 50-304/80-11): Failure to conduct the required conductivity measurements in accordance with ZCP-213. The licensee modified the procedure and check sheet on November 26, 1980 to assure the required analyses are performed. Review of 1981 records during this inspection confirmed the samples were being taken.
- c. (Closed) Deficiency (50-295/80-11; 50-304/80-11): Failure to provide documentation that the required surveillance had been conducted in accordance with ZCP-216. The licensee has modified record retention procedures to improve record keeping controls. The inspector has no further questions regarding this item.

- d. (Closed) Open Item (50-295/80-11): Discrepancies between sample numbers shown on the map in Section 4.16 of Appendix A, Technical Specifications and those actually used in the radiological environmental monitoring program (REMP) by the licensee contractor. The contractor (Eberline) has provided in the 1980 Annual Report a listing relating the two sets of sample numbers. The new contractor (Hazleton) will use a numbering system consistent with the Technical Specifications map.

3. General

The licensee's 1980 radiological and meteorological environmental monitoring program including implementation, sampling equipment and locations, and program results, were reviewed during this inspection. The inspector also reviewed internal audits of these programs.

The inspector examined the radiological and nonradiological chemistry program including quality assurance and quality control for the confirmatory measurements inspection program. An internal audit was also reviewed.

Appendix A, Technical Specifications, served as primary criteria during this inspection.

4. Administrative and Procedural Controls

The inspector reviewed the administrative and procedural controls for implementing the REMP program. Dr. J. Golden has prime responsibility for the conduct of the REMP as well as the meteorological monitoring program. Murray and Trettle, Inc., remains as the meteorological contractor but Hazleton Environmental Sciences Corporation became the new REMP contractor as of February 1, 1981. Eberline Instrument Corporation was the former contractor who performed the 1980 REMP.

No items of noncompliance or deviations were identified.

5. Licensee Audits

Licensee QA Department Audits made in July 1980, of the REMP contractor (Eberline) and in August 1980, of the meteorological contractor (Murray and Trettel) were reviewed. Audit findings and observations were followed up and the audits were not closed out until the contractors' corrective actions were completed.

An audit (QA-22-80-50) conducted on September 29, 1980, of the radiochemical and chemical control program at the plant noted nonuniform time intervals between successive measurements of conductivity in the secondary system. The licensee revised Procedure ZCP-213 to require conductivity measurements every four hours rather than twice per shift; a surveillance (QAD-8-22-80-82) conducted on December 2, 1980, verified implementation of the revised procedure.

No items of noncompliance or deviations were identified.

8. Quality Assurance and Quality Control of Analytical Measurements on Reactor Water Systems

a. Nonradiological Analysis of Reactor Coolant

Selected licensee laboratory procedures for nonradiological effluent and sampling and chemical analysis of reactor and secondary coolant were reviewed to determine their adequacy and completeness. Procedures updated during CY 1980 and 1981 to the date of this inspection included analyses for total alkalinity, aluminum, hydrogen, conductivity, boron, total suspended solids, chlorides, and sampling procedures. All procedures had been reviewed by the lead chemist and plant management.

The inspector also toured the licensee's nonradiological chemistry laboratory and observed that all laboratory instruments appeared to be functional and operable, and the chemical solutions were currently dated. Calibrations of laboratory instruments are verified on a monthly schedule. The inspector observed the rad-chem technicians performing various analyses on samples collected. No technical weaknesses were noted.

The inspector examined selected logs, check sheets and other records of analytical results (for the period of January 1, 1981 to date) which are reviewed daily by the lead chemist. No problems were identified.

b. Radiological Analysis of Reactor Coolant and Liquid Effluents

The inspector reviewed selected reactor coolant and radiological effluent procedures pertaining to radiochemical separations and analyses of radionuclides and counting room procedures. The lead chemist and plant management reviewed and approved several new procedures for CY 1980 and 1981 regarding operation of new counting instruments obtained during the past year. The licensee's daily checks of energy calibration of the new gamma spectrometers were also reviewed. A tour of the licensee's radiological chemistry laboratory revealed no major problem areas.

Selected results of quality and functional checks of the licensee's alpha-beta counter and multichannel analyzers were reviewed. All checks required by the procedures were conducted and recorded. No problems were identified.

c. Training of Chemistry Laboratory Personnel

Programs for training new chemistry laboratory personnel were discussed with the licensee. A formal training program includes a one-week orientation; a five week system-description of plant operation; a four month laboratory training program including hands-on laboratory experience. Examinations were given during the training period. The licensee's initial training program for chemical laboratory practices appeared to be adequate.

6. Implementation of the REMP

The inspector examined the licensee's REMP for CY 1980 for compliance with monitoring and reporting requirements in accordance with Sections 3.16 and 4.16 of the Appendix A, Technical Specifications. This included examination of the Annual Report submitted by the licensee to the NRC and the detailed monthly reports containing specific analytical data. Review of these documents indicated that all samples except sediment had been properly collected at the specified locations in accordance with T/S Table 4.16-1. The detailed monthly reports show that the sediment sample was collected at the Discharge for Unit 1 (Z-23S) and at the Discharge for Unit 2 (Z-23N) rather than at the Illinois Beach State Park (Z-25). This is an apparent violation of Technical Specification Table 4.16.1, Item 7.

The analytical results indicated no unusual results or trends ascribable to plant operation. The effects of the fallout from the weapons testing by the Peoples' Republic of China could be seen in air-filters collected in December 1980. The licensee also performed an annual milch animal census and found no milch animals within a five-mile radius of the station. The closest dairy animals on record are located just over five miles at 270° from the station (Z-32).

The inspector visited five air monitoring stations and found each station was in operation and properly maintained, and the TLDs properly placed. Records showed that the stations had been calibrated and maintained in accordance with Technical Specification (Table 4.16-1) requirements. No problems were identified.

The inspector reviewed the quality control program of the licensee's environmental contractor including the results from participation in the U.S. Environmental Protection Agency's cross check program. No technical weaknesses were identified.

One item of noncompliance was identified.

7. Meteorological Monitoring Program

The inspector reviewed the meteorological monitoring reports for CY-1980 prepared by the licensee's meteorological contractor. The overall recovery rate of meteorological data was 99.5% which meets the guidance of Regulatory Guide 1.23. The inspector noted the contractor had maintained and calibrated the meteorological instrumentation on a bi-monthly schedule. The licensee is installing new readout equipment which will use computers for dose calculations in the technical support center for emergency planning situations. At the present time the meteorological data are recorded through the microtel system at the licensee's corporate center.

No items of noncompliance or deviations were identified.

d. Laboratory and Counting Room Operations

The inspector examined the licensee's quality control practices for nonradiological and radiological measurements, including performance checks and calibrations of chemical and radiation counting equipment. The inspector noted that plant management is promptly notified when unusual results or chemical specifications are exceeded. However, spikes or blind samples are seldom given to technicians to check their laboratory results. The licensee representatives agreed to consider adoption of such quality control practices.

The inspector observed that laboratory operations had considerably improved since the previous inspection owing to new equipment, revised procedures, new personnel, and better working conditions.

No items of noncompliance or deviations were identified.

9. Exit Interviews

The inspector met with licensee representatives (denoted in Paragraph 1) on May 12, 1981, at the licensee's corporate headquarters and on May 20, 1981, at the plant site at the conclusion of this inspection. The inspector summarized the purpose, scope and findings of this inspection.