

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-373/85014(DRSS); 50-374/85014(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, IL

Inspection Conducted: May 9-10, 13-15 and 28, 1985

Inspectors: *MR Greger for*  
D. E. Miller

6/6/85  
Date

*MR Greger for*  
R. A. Paul

6/6/85  
Date

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

6/6/85  
Date

Inspection Summary

Inspection on May 9-10, 13-15 and 28, 1985 (Reports No. 50-373/84014(DRSS);  
50-374/84014(DRSS))

Areas Inspected: Routine unannounced inspection of the operational radiation protection program including organization and staffing, ALARA, control of radioactive materials and contamination and radiation occurrence reports. Also reviewed were past inspection findings, licensee event reports, and certain NUREG-0737 task action items. The inspection involved 80 inspector-hours on site by two NRC inspectors.

Results: No violations were identified in six of the seven areas inspected. One violation was identified in one area (failure to follow procedures - Section 7).

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## DETAILS

### 1. Persons Contacted

\*D. Adam, Lead Health Physics Field Services Engineer, CECO  
\*L. Aldrich, Lead Health Physicist  
\*R. Bare, Quality Assurance Inspector  
\*D. Berkman, Assistant Superintendent, Technical Services  
\*R. Bishop, Superintendent, Services  
W. DeLise, Engineer, Sargent and Lundy Engineers  
\*D. Hieggelke, ALARA Coordinator  
\*F. Lawless, Rad/Chem Supervisor  
\*J. Lewis, Health Physics Coordinator  
W. Luett, Group Leader, Technical Staff Engineering  
J. Schuster, Chemist  
B. Wong, SNED, CECO

T. Bjorgen, NRC Resident Inspector

The inspectors also contacted several rad/chem foremen, engineering assistants, and technicians.

\*Denotes those present at the exit meeting.

### 2. General

This inspection, which began at 9:00 a.m. on May 9, 1985, was conducted to examine the licensee's operational health physics program. Also reviewed were past inspection findings, licensee event reports, and certain NUREG-0737 task action items. One violation concerning failure to follow procedures was identified.

### 3. Licensee Action on Previous Inspection Findings

(Closed) Open Item (373/83033-01; 374/83032-01): Concerning high background on liquid radwaste effluent monitor. The monitor is being relocated to the turbine building from its previous remote site; the background radiation is less at the new location.

(Closed) Violation (373/84031-03; 374/84038-03): Concerning inadequate alarm/trip setpoint on the liquid radwaste effluent monitor, the inspector verified that the corrective actions listed in the licensee's response dated January 25, 1985, were implemented; the corrective actions appear adequate.

(Closed) Open Item (373/84021-02; 374/84027-02): Concerning a compliance study for portions of NUREG-0737 task item II.F.1.2, the study has been performed; the results are discussed in Section 10.

(Closed) Open Item (373/84021-01; 374/84027-01): Concerning frequency of contamination incidents. The licensee's corrective actions are discussed in Section 6.

(Closed) Open Item (373/84031-04; 374/84038-04): Concerning training/supervision of stationmen. The supervisory staff has been increased to three; most stationmen have since completed their designated training; and special training sessions were presented to stationmen by the ALARA Coordinator.

#### 4. Organization and Staffing

Since reported in Inspection Reports No. 50-373/84031; 50-374/84038, the following organizational changes have been made or are planned.

- . Two plant Health Physicists terminated employment with CECo.
- . A recent graduate with a B.S. in Environmental Health was hired to fill one of the vacated Health Physicist positions; he began employment in January 1985.
- . A second recent graduate is to begin employment as a health physicist during June 1985.

There are no specific ANSI N18.1-1971 qualification requirements for the health physicist position.

The two new degreed professional health physicists, who work for the Lead Health Physicist, have less than one year each practical experience at power reactors. According to licensee personnel, this lack of experience has negatively impacted the direct surveillance of work activities in controlled areas by the management/professional staff and has required other health physics supervisors/professionals to assist in the workload, thereby reducing time available to perform their own functions. (See Section 7 for further information.) The shortage of experienced health physics professionals at LaSalle County Station has necessitated that pre-procurement testing of portal monitor equipment be performed at another CECo station.

Since August 1983, three health physicists have terminated employment and one was promoted to the ALARA Coordinator position. The lack of health physics staff stability appears to have impacted negatively on the licensee's radiation protection program. This matter was discussed at the exit meeting.

No violations or deviations were identified.

#### 5. ALARA

The inspectors 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; 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 ALARA program establishes goals and sets measured standards for use by ALARA management. Station goals for 1985 include: setting an administrative limit of five rems for any individual; improving station awareness of ALARA; saving approximately 150 person-rems through ALARA activities; and maintaining annual radiation exposures to approximately 650 person-rems (this includes two outages during the year). ALARA activities to save personal exposure include use of temporary shielding, flushing of hot lines, use of extendable tools and improvement of worker knowledge of ALARA through mock-up training and pre-job briefings. In addition, the licensee has initiated a station contamination control program and continues to use the Radiation Evaluation Program (REP). Radiation-Chemistry Department goals for 1985 include: reduction and maintenance of radiologically contaminated general access areas; reducing the number of personal contamination events; maintaining Department individual radiation exposures below 4 rems, and increasing management time in the plant.

The licensee has a Radiation Evaluation Program (REP) which tracks radiation dose for the station, individual tasks, work groups and individuals. This program uses the dose accountability (white card) system which results in more accurate and thorough dose tracking and aids in the retrieval of ALARA records including radiation exposure and RWP data for individual work tasks performed.

Overall trends are recorded for individual and collective doses, number of persons exceeding regulatory standards, internal and external contamination instances, extent of contaminated areas, and the extent of low level radioactive waste reduction. ALARA is discussed in the NGET and retraining programs. The ALARA coordinator intends to review the NGET program to determine if sufficient emphasis is given to ALARA. The licensee currently has no plans to give additional training to RCT's and there are no immediate plans to develop a formal ALARA program for workers.

The ALARA coordinator is involved in the planning and assessment of work as outlined in Procedure LRP-1300-1 and LRP-1160-4. The use of the REP system in conjunction with the ALARA review is one of the major ways the ALARA coordinator identifies and corrects ALARA concerns. In addition to the formal audits of the radiation protection program conducted by the QA department, the radiation protection staff and the ALARA coordinator conduct reviews to identify problems which may involve ALARA.

No violations or deviations were identified.

#### 6. Control of Radioactive Materials and Contamination

The inspectors reviewed the licensee's program for control of radioactive materials and contamination, including: adequacy of supply, maintenance, and calibration of contamination survey and monitoring equipment; effectiveness of survey methods, practices, equipment, and procedures; adequacy of review and dissemination of survey data; and effectiveness of methods of control of radioactive and contaminated materials.

The licensee has a program for identifying, documenting and tracking personal contamination events. Reports to management detailing the total number of contamination events and whether the contamination was on clothing,



skin or both are listed. Because of the number of personal contamination events and repeat violations found as a result of this program, the licensee increased management attention and has taken the following actions to correct the problem: (1) Department Heads will personally interview all persons who had more than one contamination event during the period May 1984 through February 1985, and beginning April 1985 each contamination event will be investigated by the Department Head. The purpose of the meeting and investigation is to identify the cause of the contamination and the steps taken to prevent recurrence, and to emphasize the importance of following radiation protection requirements. In addition, each Department Head was instructed that in the case of procedural violations, discipline should be considered. These investigations are documented and status reports discussing the investigation, cause of the contamination, and corrective actions are sent to the appropriate Assistant Superintendent with copies to the Radiation Chemistry Supervisor, Superintendents, and Station Manager. (2) Procedure LRP-1410-1 "Protective Clothing" and LRP-1410-2 "Minimal Protective Clothing" are in the process of being revised to require two pairs of gloves instead of one as the minimum hand protection when entering a contaminated area.

Some of the major causes of personnel contamination were equipment malfunction which resulted in floor contamination, inadequate protective clothing prescribed for various jobs, and improper removal of respiratory protective equipment and/or protective clothing.

The licensee has initiated a radiological housekeeping and contamination control program as part of the station ALARA Program. The purpose of the program is to provide radiological support for housekeeping, maintaining general access areas free of contamination, and reducing the square footage in the plant designated and controlled as contamination areas (reclamation) and maintaining those areas clean. The program is managed by the ALARA coordinator, four stationmen and one RCT, (who rotates weekly). A program to trend the effectiveness of the contamination control program has been developed and implemented.

During the period January 1984 through January 1985, the total plant area which is controlled as contaminated rose from 171,00 ft<sup>2</sup> to 268,000 ft<sup>2</sup>; and from January through April 1985, the total declined from 268,000 ft<sup>2</sup> to 230,000 ft<sup>2</sup>. Of the 230,000 ft<sup>2</sup>, 20 per cent was greater than 22,000 dpm/cm<sup>2</sup>. Most of the contaminated areas are in the turbine and reactor buildings (85 per cent). The licensee indicated that some of the areas are controlled because of the potential for contamination while others, which are only slightly contaminated, are not reclaimed because the decontamination effort may not be worth the dose expenditure. To date, it appears the licensee's major effort in contamination control has been directed to general area decontamination and not in actively pursuing a reclamation program of reducing total contaminated areas. This matter was discussed at the exit meeting.

## 7. Surveillance-Plant Tours

The following problems were identified during tours of the plant:

(1) Several persons were wearing personal film badges on the hip section of their trousers and on their trouser pockets. Failure to wear personal dosimeters near each other on the front part of the body at or above waist level is considered a violation of the licensee's procedures (LRP-1250-3). These procedures are intended to ensure representativeness of personal dosimeters. (373/85014-01a; 374/85014-01a) (2) On two occasions, workers who had removed their protective clothing in accordance with the step-off pad instructions, exited from the step-off pad area without first performing a personal contamination survey. The failure to make a personal contamination survey (whole body frisk) after exiting from a step-off pad is a violation of the licensee's procedures (LRP-1410-1 and LRP 1480-4). (373/85014-01b; 374/85014-01b). Related to this violation are an inspector's findings during a previous inspection in which the inspector noted that most friskers at step-off-pads (SOPs) in the Unit 1 reactor building were switched to the "times 10" scale because of high background levels, which diminishes frisker sensitivity. The licensee stated, at that time, that methods of providing shielding were being investigated. During this inspection, the inspectors found no shielded friskers; in fact, the friskers had been removed and an instructional sign was placed at some of the SOPs directing people to survey at friskers located in another area. These friskers were frequently several floors distant from the SOP. (373/84031-01; 374/84038-01) (3) On two occasions, workers were observed exiting frisking stations without frisking their hands and only superficially frisking their shoes. The failure to survey their hands and to adequately frisk their shoes is a violation of the licensee's procedures (LRP-1480-4). The licensee has been aware of poor personal frisking habits, and as a result, the station manager issued a memo to all workers requesting strict adherence to procedural requirements, and instructed supervisors to enforce the requirements. Based on the above violation, and the inspectors' observations, it appears this corrective action has not been effective. It further appears that the continuation of procedural adherence problems is indicative of management weakness in aggressively pursuing corrective actions for this problem. (373/84014-01c; 374/85014-01c) These violations were discussed at the exit interview.

The following observations were made during plant tours: (1) RCT's were smearing and surveying rad waste barrels on the dock in the rad waste building. Although the facility has an installed shielded location to perform survey functions, it is not being used because the licensee has not installed a remote readout monitoring system for which the system was designed. The current method of surveying rad-waste barrels for shipment is not consistent with ALARA. The failure to obtain and install the correct monitors indicates possible management weaknesses in this area. This matter was discussed at the exit interview. (2) Film badge racks for licensee, contractor and security personnel are located in three different areas. Film badges are not issued with the workers security badge in the gate house. The practice of not issuing film badges in the gate house has caused CECO stations and other utilities problems concerning employee misuse of the film badge. This matter was discussed at the exit

interview. (3) Two Constant Air Monitors (CAM's) located on the refueling floor were inoperable. The licensee indicated they were aware of this condition; and work orders had been issued for their repair. (4) Other than the two portal monitors (IRT's) located in the guardhouse, the licensee currently does not use portal monitors at locations within the controlled area to supplement the portable frisking stations for personnel monitoring. This matter was discussed at the exit interview. (5) At most frisker stations, instructions are posted that require persons who have detected personnel contamination to go to the nearest telephone and notify the Rad/Chem department. However, protective shoe covers and gloves to minimize the potential spread of contamination are not provided at the frisker station. This matter was discussed at the exit meeting.

#### 8. Radiation Occurrence Reports

Radiation Occurrence Reports (RORs) for the period January through April 1985 were reviewed. The licensee continues to trend occurrences to determine repetitive violations and violators. Occurrence report summaries are issued monthly. No obvious indications of repeat violators was noted; however, repeat violations of high radiation area controls apparently remains a problem. A CEC Co corporate task force has been reviewing high radiation area controls at all CEC Co plants. The task force study is expected to be completed by mid-1985, including recommendations for improving high radiation area controls.

The inspectors noted that followup of RORs is being given greater management attention and investigation. It appears that management support for the ROR system has been strengthened. The inspectors noted that a technical staff engineer who violated radiation protection procedures/practices was assigned to radiation protection surveillance duties for one week, including one day without pay, to increase his awareness and understanding of the intent of radiation protection procedures and practices. However, based on inspector observations discussed in Section 7, it appears that either the licensee is not adequately identifying such problems or that RORs are not being written for identified problems. This matter was discussed with licensee personnel, and at the exit meeting.

No violations or deviations were identified.

#### 9. Licensee Event Reports Followup

Through direct observation, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been taken in accordance with technical specifications.

(Closed) 373/84086-00. Nonconservative liquid effluent monitor setpoint. This item was identified during licensee review of violation 373/84031-03; 374/84038-03. The corrective actions were presented in the licensee's response to the violation (Section 3).

(Closed) 373/85031-00. Nonconservative liquid effluent monitor setpoint. This incident resulted from failure of the equipment operator to properly read the chart recorder setpoint. The operator was instructed in the proper method, and additional training has been included in the Equipment Attendant Continuing Training Program.

No violations or deviations were identified.

10. Followup of Postimplementation Review of NUREG-0737 Task Item II.F.1.2

As described in Inspection Reports No. 50-373/84021; 50-374/84027, the inspectors had discussed the need to perform necessary studies to show compliance with certain Task Item II.F.1.2 matters. The study results are discussed below.

Science Applications International Corporation evaluated the main ventilation stack and the standby gas treatment system (SGTS) effluent sampling lines for transmission of radioiodines and particulates. They concluded that:

- ° Iodine transmission (main ventilation stack) to the normal sampler would be approximately 50 percent for elemental iodine and nearly 100 percent for other gaseous species at two hours after an activity increase. Equilibrium transmission for elemental iodine would occur at about 90 hours; the elemental iodine transmission would then be about 85 percent. The high range segment of the stack sample line shows good transmission, even for elemental iodine at two hours following an increase.
- ° Iodine transmission to the SGTS normal range sampler is similar to the main ventilation stack normal range sampler. However, transmission of elemental iodine to the SGTS high activity range sampler would be very low due to the low flow rate and long sample lines; transmission of other gaseous species would be adequate. According to the study, addition of heat-tracing to the sample lines would not appreciably increase transmission of elemental iodine.

Sargent and Lundy Engineers evaluated the source terms used for the iodine and particulate high range samplers, and evaluated compliance with GDC-19 requirements. The study indicated that proper source terms were used, and that although not needed to meet specific GDC-19 requirements, addition of one foot of concrete shadow shielding near a portion of the Unit 1 reactor building air supply ductwork would reduce the dose during sample collection by 50 mrem.

During discussions, the licensee stated that change requests have been written to alter the SGTS sampling lines to increase elemental iodine transmission, and that additional shielding would be provided for a portion of the Unit 1 reactor building air supply ductwork. These matters will be further reviewed during a future inspection.  
(373/85014-02; 374/85014-02)

No violations were identified.



## 11. Exit Meeting

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on May 15, 1985. The inspectors summarized the scope and findings of the inspection, including the violation (Section 7). The inspectors also discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary. In response to certain items discussed by the inspectors, the licensee:

- a. Acknowledged the inspectors' comment about apparent lack of stability of the health physics staff, and stated they are actively trying to hire more health physicists. (Section 4)
- b. Stated that the station is investigating what additional resources, if any, will be employed for the reclamation of contaminated areas. (Section 6)
- c. Stated that one of maintenance department ALARA goals for 1985 is to install a remote readout monitoring system for radwaste barrels. (Section 7)
- d. Stated that TLDs (along with security badges) will be maintained at the security facility after January 1986. Alternate control methods may be employed for contractors. (Section 7)
- e. Stated that additional portal monitors, for controlled area use, will be purchased upon completion of CECO corporate vendor evaluation. (Section 7)
- f. Stated that SGTS sampling lines would be altered to increase iodine transmission, and a shadow shielding wall would be provided for a portion of the Unit 1 reactor building to decrease doses during post accident sample collection. (Section 10)
- g. Stated that they no longer intend to report high radiation area technical specification violations as licensee event reports. Instead, such violations will be documented in radiation occurrence reports. The inspectors agreed with this practice.
- h. Stated that protective shoe covers and gloves will be provided at all frisker stations. (Section 7)

## 12. Management Meeting

During a management meeting with CECO personnel on May 28, 1985, the licensee was informed that their performance in the radiation protection area was worsening. This evaluation was based on observations during this and previous inspections concerning continuing procedural adherence problems, apparent management weaknesses, and radiation protection staff losses. The licensee stated that they were aware of several of these problems and were evaluating appropriate corrective action.