

March 3, 2000

Mr. Oliver D. Kingsley  
President, Nuclear Generation Group  
Commonwealth Edison Company  
ATTN: Regulatory Services  
Executive Towers West III  
1400 Opus Place, Suite 500  
Downers Grove, IL 60515

SUBJECT: NRC RADIATION PROTECTION INSPECTION REPORT  
50-373/2000002(DRS); 50-374/2000002(DRS)

Dear Mr. Kingsley:

On February 17, 2000, the NRC completed a routine inspection at the LaSalle Nuclear Generating Station, Units 1 and 2. A meeting was conducted at the LaSalle Station at the conclusion of the site inspection on February 8, 2000, and the preliminary inspection findings were discussed. Your staff provided additional information and documentation subsequent to the site inspection, which was reviewed in the Region III Office. On February 17, 2000, a telephone conversation was conducted with members of the LaSalle radiation protection staff, to discuss the results of that review. The enclosed report summarizes the results of that inspection. No violations of NRC requirements were identified.

The inspection was an examination of activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and with the conditions of your license. Specifically, the inspection focused on the radiological effluent monitoring and control program, including effluent radiation monitor calibration and testing and Offsite Dose Calculation Manual (ODCM) implementation. The testing of engineered safety feature (ESF) ventilation filtration systems and the calibration of meteorological tower equipment were also reviewed. Within these areas, the inspection consisted of selective examinations of procedures and representative records, observations, and interviews with personnel.

Overall, the radiological effluent monitoring and control program was effectively implemented. In particular, effluent releases and offsite doses for 1997, 1998, and 1999 remained well below regulatory limits, and offsite doses were calculated in accordance with the ODCM. Also, effluent monitors were calibrated as required and monitor reliability was improved.

O. Kingsley

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In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

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Gary L. Shear, Chief  
Plant Support Branch

Docket Nos. 50-373; 50-374  
License Nos. NPF-11; NPF-18

Enclosure: Inspection Report 50-373/2000002(DRS);  
50-374/2000002(DRS)

cc w/encl: D. Helwig, Senior Vice President, Nuclear Services  
C. Crane, Senior Vice President, Nuclear Operations  
H. Stanley, Vice President, Nuclear Operations  
R. Krich, Vice President, Regulatory Services  
DCD - Licensing  
J. Benjamin, Site Vice President  
J. Meister, Station Manager  
F. Spangenberg, Regulatory Assurance Supervisor  
M. Aguilar, Assistant Attorney General  
State Liaison Officer  
Chairman, Illinois Commerce Commission

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DATE	02/29/00	03/2/00	03/03/00	

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-373; 50-374  
License Nos: NPF-11; NPF-18

Report No: 50-373/2000002(DRS); 50-374/2000002(DRS)

Licensee: Commonwealth Edison Company (ComEd)

Facility: LaSalle Nuclear Generating Station, Units 1 and 2

Location: 2605 N. 21<sup>st</sup> Road  
Marseilles, IL 51341-9756

Dates: February 2-4 and 7-8, 2000, with continued in-office review  
through February 17, 2000

Inspector: W. Slawinski, Senior Radiation Specialist

Approved by: Gary L. Shear, Chief, Plant Support Branch  
Division of Reactor Safety

## EXECUTIVE SUMMARY

LaSalle Nuclear Generating Station, Units 1 and 2  
NRC Inspection Report 50-373/2000002(DRS); 50-374/2000002(DRS)

This routine, announced inspection evaluated the effectiveness of the licensee's radiological effluent monitoring and control program, including effluent radiation monitor calibration and testing and Offsite Dose Calculation Manual (ODCM) implementation. The testing of engineered safety feature (ESF) ventilation filtration systems and the calibration of meteorological tower equipment were also reviewed. No violations of regulatory requirements were identified. The following conclusions were made in these areas:

### Plant Support

- Radiological effluents were adequately controlled and properly quantified. Offsite dose from effluents was determined consistent with the ODCM. The total activity released in 1997, 1998, and 1999, and the associated offsite doses remained well below regulatory limits (Section R1.1).
- The liquid and gaseous effluent monitoring program was generally implemented effectively. Effluents were properly monitored and sampled; effluent monitoring systems were calibrated at required intervals; and the monitor calibration and test program was implemented consistent with station procedures and industry standards (Section R2.1).
- As found out-of-tolerance conditions noted by the station staff during effluent monitor calibrations were not trended to identify potentially degraded monitor performance, which the licensee recently recognized and planned to address (Section R2.1).
- The ESF filter ventilation system test program was implemented consistent with technical specifications and industry standards, and system engineer oversight of the test program was effective (Section R2.2).
- The meteorological tower equipment calibration and test program was adequately implemented (Section R2.3).
- No significant material condition or radiological housekeeping issues were identified in the radioactive waste (radwaste) control room or in general areas of the radwaste building, and efforts to reduce the backlog of radwaste system work requests were successful (Section R2.4).
- Recent assessment activities included aspects of the effluent monitoring and control program that were relevant to effective program implementation; however, not all key areas of the effluent monitoring program were regularly assessed (Section R7.1).

## Report Details

### IV. Plant Support

#### **R1 Radiological Protection and Chemistry (RP&C) Controls**

##### R1.1 Control of Gaseous and Liquid Effluents

###### a. Inspection Scope (84750)

The inspector evaluated the licensee's program for controlling and quantifying gaseous and liquid effluents. The Updated Final Safety Analysis Report (UFSAR), Offsite Dose Calculation Manual (ODCM), effluent summary data, selected release packages, and associated procedures were reviewed; portions of release pathways and liquid radioactive waste (radwaste) processing systems were walked-down; and radiation protection (RP), chemistry and representatives of the radwaste staffs were interviewed by the inspector.

###### b. Observations and Findings

The inspector verified that effluent treatment systems and normal release pathways for liquid and gaseous radwaste streams were as described in the UFSAR and ODCM, except for those liquid processing systems previously described in Inspection Report 50-373/99011(DRS); 50-374/99011(DRS). The station made three revisions to the ODCM in 1999. The revisions addressed meteorological tower relocation, provided guidance on implementing continuous air sampling in the turbine building at time of positive pressure, clarified information including stack release rate units and monitor alarm setpoints, and corrected an inconsistency in an equation used to calculate the off-gas post treatment monitor isolation value. The inspector verified that the changes did not impact the effectiveness of the effluent monitoring program and determined that they generally served to clarify the document and ensure consistency with station practices.

The liquid radwaste system was designed to recycle as much processed liquid waste as could be accommodated within the station water balance. However, liquid radwastes were occasionally released on a batch basis from the radwaste discharge tanks, after sampling and analysis demonstrated that the releases were within regulatory limits. Gaseous releases were conducted primarily on a continuous basis during operations via the station vent stack. Occasionally, gaseous effluents were batch released during drywell purges, after grab samples were analyzed and calculations verified that the dose from the release was small relative to limits.

The inspector's review of semi-annual effluent reports for 1997 and 1998, and effluent summary data for 1999 disclosed no problems. The reports were submitted as required by 10 CFR 50.36 and technical specifications, and followed the format of Regulatory Guide 1.21. An abnormal (gaseous effluent) release that occurred in the second half of 1997 was well documented in the effluent report, and the quantity released was conservatively calculated. The licensee released very small quantities of gaseous

effluents in 1997 and 1998, while both units were shutdown for most of that period. While the quantity of gaseous effluents released in 1999 significantly increased with both units operational and because a small leak in a Unit -1 fuel bundle emerged, the offsite doses from gaseous effluents remained well below (less than 0.5%) regulatory limits. Similarly, the dose from liquid effluents was about 0.01% of regulatory limits in 1997 and 1998, when small quantities were batch released to the environment. No liquid radwaste effluents were released to the environment in 1999.

The inspector determined that offsite doses from effluents were determined consistent with the ODCM and the methodology in NRC Regulatory Guide 1.109. Also, the inspector independently verified that the total release rate and quantity released from selected drywell purges in 1999 were correctly calculated based on chemistry sampling results.

c. Conclusions

Radiological effluents were adequately controlled, effluents were properly quantified and doses were determined consistent with the ODCM. The total activity released in 1997 through 1999 and the associated offsite doses remained well below regulatory limits.

**R2 Status of RP&C Facilities and Equipment**

R2.1 Monitoring of Gaseous and Liquid Effluents

a. Inspection Scope (84750)

The inspector reviewed the performance history and evaluated the calibration program for effluent radiation monitoring systems. Walkdowns of selected effluent monitors were performed by the inspector; monitor reliability and availability information, calibration records, and associated procedures were reviewed; and RP and system engineering staffs were interviewed. The inspector also reviewed liquid radwaste discharge packages for two releases made in 1998. The inspector's review focused on the following effluent monitors:

- Station Vent Stack (SVS) Wide Range Gas Monitor (WRGM)
- Standby Gas Treatment System (SBGTS) Wide Range Gas Monitor
- Main Condenser Offgas Post Treatment Monitor
- Liquid Radwaste Effluent Monitor

b. Observations and Findings

During walkdowns of the SVS, SBGTS and liquid radwaste monitor, the inspector noted that the material condition of the monitors and associated equipment was good and that the monitors were operational. Few work request tags were observed on the monitoring equipment.

Calibrations of the Radiological Effluent Technical Specification (RETS) required effluent monitors were previously performed using National Institute of Standards and

Technology primary gaseous and liquid sources. These initial calibrations established instrument efficiency and linearity. Subsequent “secondary” calibrations used sources traceable to primary sources to verify detector response and efficiency.

The inspector reviewed records of the last two secondary calibrations and the associated procedures for the above listed effluent monitors and discussed the calibration program with involved RP staff. Calibrations were performed by both instrument maintenance (IM) and RP groups, depending on the type of surveillance performed. Separate procedures were used by the two groups and focused on different aspects of the test program. The RP group completed those portions of the calibration that involved the use of radioactive sources to determine detector efficiency and linearity, while the IM department conducted electrical component related tests. Test results were reviewed and approved by appropriate supervisory personnel to ensure that each calibration segment satisfied acceptance criteria. The inspector verified that the secondary calibrations were performed within RETS required frequencies and encompassed instrument alarm and trip function response, consistent with regulatory guidance and industry standards. Calibrations were performed in accordance with approved procedures and acceptance criteria were met. While no problems or regulatory issues were identified with the secondary calibration program, the inspector discussed the benefit of performing multi-point calibrations of the liquid effluent monitors, which the RP staff acknowledged and planned to evaluate.

During the review of IM calibration data, the inspector noted that “as found” conditions periodically exceeded acceptance criteria. Although problem identification forms (PIFs) were usually generated to document the specific finding, the out of tolerance data was not trended to allow monitor performance to be better assessed and to identify potentially degraded components. The observation was acknowledged by the system engineer responsible for the effluent monitoring systems, who also recognized the deficiency and had recently begun to evaluate component performance data and was developing a tracking mechanism.

Gaseous effluent monitor alarm setpoint methodology was reviewed by the inspector and found to be consistent with the ODCM. Monitor alarm setpoints last calculated by the RP staff in 1999 were verified by the inspector to be accurately computed. The inspector also reviewed records of two river discharge batch releases that took place in 1998 and verified that monitor alarm setpoints were appropriate for the source term and background radiation levels. The review determined that the releases were properly quantified and completed in accordance with procedural requirements.

System health data showed that effluent monitor performance and reliability improved considerably over the last several years. However, the station WRGMs and certain liquid effluent process monitors remained as maintenance rule category (a)(1) systems, because reliability and/or availability criteria were not met. The inspector noted that action plans were developed for system upgrades and for a needed preventative maintenance program. The inspector also observed that recurrent WRGM pump and detector high voltage power supply problems and liquid radwaste monitor pump and sample chamber seal failures were being rectified. The inspector concluded that system engineer (SE) involvement and oversight of the effluent monitoring system was effective and contributed to the system’s improved performance. The licensee closely tracked

monitor out-of-service times, and the inspector selectively verified that compensatory samples were taken and analyzed as required to satisfy RETS action statements.

c. Conclusions

The liquid and gaseous effluent monitoring program was generally implemented effectively. Effluents were properly monitored and sampled; effluent monitoring systems were calibrated at required intervals; and the calibration and test program was implemented consistent with station procedures and industry standards. Effluent monitoring system reliability and operability improved, and a deficiency in monitor component performance trending was recognized and being addressed.

R2.2 Engineered Safety Feature (ESF) Ventilation Filtration Systems

a. Inspection Scope (84750)

The inspector reviewed the licensee's ventilation filter testing program for technical specification required ESF filter ventilation systems and discussed system performance and reviewed system oversight with one of the SEs.

b. Observations and Findings

The inspector reviewed test results and test procedures for the high efficiency particulate air (HEPA) and charcoal filters associated with the SBGTS and control room emergency makeup and recirculation trains and the auxiliary electric equipment room ventilation system. The inspector found that the HEPA and charcoal filters were in-place and laboratory tested at technical specification required intervals and that the licensee adhered to applicable standards of the American Society of Mechanical Engineers (ASME) N510-1989 and the American Society for Testing and Materials (ASTM) D3803-1989. Test results indicated satisfactory component performance, and technical specification acceptance criteria were met for all systems.

The inspector noted that the licensee revised its technical specifications and test procedures in 1998 to reference the 1989 ASTM standard for laboratory tests of charcoal adsorbers, prior to the issuance of Generic Letter (GL) 99-02. The GL alerted licensee's that testing nuclear grade activated charcoal to standards other than the 1989 ASTM standard did not provide assurance for complying with the current licensing basis as it related to the dose limits of General Design Criteria (GDC) 19 of Appendix A to 10 CFR Part 50.

Inspector walkdown of the control room and SBGTS filtration units disclosed no material condition problems. The inspector noted that previous station turnover in SEs assigned to the control room ventilation system had stabilized and that the current control room ventilation system SE was extremely knowledgeable of system design and closely tracked system performance and operability.

c. Conclusions

The ESF filter ventilation system test program was implemented consistent with technical specification requirements and industry standards, and SE oversight was effective.

### R2.3 Meteorological Tower Equipment

#### a. Inspection Scope (84750)

The inspector reviewed calibration records, surveillance logs and performance tracking information for the meteorological tower equipment and discussed equipment operability with the SE.

#### b. Observations and Findings

The licensee relocated its meteorological tower and installed new equipment in 1998 to improve equipment performance, which was adversely affected by station structures located in close proximity to the previous tower. The inspector reviewed equipment calibration records and surveillance logs for 1998 and 1999, which demonstrated that the equipment testing satisfied technical specification requirements and met acceptance criteria.

Wind direction potentiometer switch problems and other more minor problems with the new equipment were rectified, and tracking data showed that equipment operability was adequate. The inspector noted that licensee oversight of the vendor's surveillance and calibration program was adequate, as both the SE and RP staff monitored contractor activities.

#### c. Conclusions

The meteorological tower equipment calibration and test program was adequately implemented.

### R2.4 Walkdowns and Observations

#### a. Inspection Scope (84750)

The inspector conducted a walkdown of the radwaste control room and selected radwaste processing areas, evaluated material condition and housekeeping, and discussed equipment performance and the status of the radwaste tank cleanup project with radwaste operations and chemistry staffs.

#### b. Observations and Findings

Station initiatives to reduce the radwaste system work request backlog have been successful, and a previously large backlog of corrective work requests was significantly reduced in 1998 and 1999. The radwaste control room was neat and orderly, and only a few, more recent work request tags were noted on the control room panel. A radwaste operator interviewed by the inspector was knowledgeable of equipment status, control panel indications, configuration controls and operating procedures.

No significant material condition or radiological housekeeping issues were identified during the walkdown of general areas of the radwaste building. The inspector noted that the housekeeping in the radwaste truck bay and dry active waste storage areas had improved, although overall area conditions were not yet equivalent to those maintained in the turbine and reactor buildings.

The inspector noted that the radwaste tank cleanup project discussed in Inspection Report No. 50-373/99011(DRS); 50-374/99011(DRS) commenced as scheduled, and that the RP staff was involved in efforts to reduce dose and address a tank sludge removal problem encountered early in the project.

c. Conclusions

No significant material condition or radiological housekeeping concerns were identified in the radwaste control room or in general areas of the radwaste building, and efforts to reduce the backlog of radwaste system work requests were successful.

**R4 Staff Knowledge and Performance in RP&C**

R4.1 Chemistry and Health Physics Staff Knowledge and Practices

The inspector accompanied a station chemistry technician while the SVS particulate and iodine filters were changed and processed. The technician closely followed procedural requirements and was knowledgeable of sampling system operations. Also, good analytical techniques were displayed throughout the process, and radiation protection practices were appropriate after one of the sample cartridges was dropped in a potentially contaminated area.

**R7 Quality Assurance in RP&C Activities**

R7.1 Audit and Assessment Activities

a. Inspection Scope (84750)

The inspector reviewed audit and assessment activities completed in 1999, to the date of the inspection and evaluated the station's ability to identify and correct problems related to the effluent monitoring and control program. The inspector reviewed nuclear oversight assessment reports, results of field monitoring activities and an RP self-assessment, and discussed the assessment program with involved staff.

b. Observations and Findings

The inspector determined that while recent assessment activities included aspects of the effluent monitoring and control program relevant to effective program implementation, some areas important to the station's effluent monitoring capabilities were not regularly assessed. Specifically, a variety of assessment and field monitoring activities related to the effluents program were completed since 1999 and included a review of chemistry sampling and laboratory practices, aspects of ODCM

implementation and a review of radiological effluent data and associated effluent reports. The inspector selectively verified that PIFs were generated to document assessment findings and that remedial actions were appropriately tracked as part of the corrective action program. However, the inspector noted that certain key areas of the effluent monitoring and control program, such as effluent monitor calibration and testing, were not recently assessed. This observation was discussed at the exit meeting and acknowledged by licensee management, who directed the nuclear oversight staff to review the assessment program to ensure consistency with Regulatory Guide 4.15.

c. Conclusions

Recent assessment activities included aspects of the effluent monitoring and control program relevant to effective program implementation; however, certain key areas of the monitoring program were not regularly assessed.

## **V. Management Meetings**

### **X1 Exit Meeting Summary**

The inspector presented the preliminary inspection results to Mr. Benjamin and other licensee management and staff at the conclusion of the site inspection on February 8, 2000. On February 17, 2000, a telephone conversation was conducted with Messrs. Quealy and Greene of the radiation protection organization, to discuss the results of NRC's review of additional information provided by the licensee's staff subsequent to the end of the site inspection. The licensee acknowledged the inspection findings and identified no proprietary information.

## **PARTIAL LIST OF PERSONS CONTACTED**

J. Benjamin, Site Vice President  
D. Bost, Engineering Manager  
J. Burns, Chemistry Manager  
L. Dawsin, System Engineer  
A. Duncan, Regulatory Assurance  
R. Gilbert, Operations Manager  
T. Greene, Health Physicist  
D. Hieggelke, Nuclear Oversight  
C. Jeanblanc, Chemistry  
S. Kovall, Health Physicist/Shipping Specialist  
P. Lucky, Self Assurance  
J. Meister, Station Manager  
R. Pande, System Engineer  
J. Rappeport, Chemistry  
B. Riffer, Nuclear Oversight Manager  
J. Schuster, Regulatory Assurance  
F. Spangenberg, Regulatory Assurance Manager  
S. Taylor, Radiation Protection Manager

## **INSPECTION PROCEDURES USED**

IP 84750: Radioactive Waste Treatment, and Effluent and Environmental Monitoring

## **ITEMS OPENED, CLOSED AND DISCUSSED**

Opened

None

Closed

None

Discussed

None

## LIST OF ACRONYMS USED

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
ESF	Engineered Safety Feature
GL	Generic Letter
HEPA	High Efficiency Particulate Air
IM	Instrument Maintenance
NO	Nuclear Oversight
ODCM	Offsite Dose Calculation Manual
PIF	Problem Identification Form
QA	Quality Assurance
Radwaste	Radioactive Waste
RP	Radiation Protection
RETS	Radiological Effluent Technical Specifications
RP&C	Radiological Protection and Chemistry
SBGTS	Standby Gas Treatment System
SE	System Engineer
UFSAR	Updated Final Safety Analysis Report
WRGM	Wide Range Gas Monitor

## PARTIAL LIST OF DOCUMENTS REVIEWED

### Station Procedures

LCP-140-7 (Rev 27)	Analysis of Radwaste Discharge Tanks and Determination of Discharge Flowrate and Liquid Radwaste Effluent Monitor Response
LOP-WF-20 (Rev 34)	Radwaste Discharge Tank Discharge to the Lake Blowdown Line
LRP-5820-33 (Rev 0)	Station Vent Stack and Standby Gas Treatment System Wide Range Gas Monitor Effluent Release rate Alarm Setpoint
LRP-5820-34 (Rev 1)	Condenser Offgas Pre and Post Treatment Effluent Release Rate Alarm Setpoint
LYP-1300-1 (Rev 9)	Offsite Dose Calculation For Drywell Purge
LTS -400-16 (Rev 11)	Charcoal Adsorber Lab Testing
LTS-400-02 (Rev 8)	Standby Gas Treatment System Charcoal Filter Testing
LTS-400-01 (Rev 7)	Standby Gas Treatment System HEPA Filter Testing
LTS-400-13 (Rev 8)	Control Room Emergency Makeup Train Charcoal Filter In-Place Leak Test
LIS-PR-001 (Rev 10)	Radwaste Liquid Effluent Radiation Monitor Calibration

### Assessments

Radiation Protection Assessment Report (January 12-13, 2000), Pre NRC Assessment RP Department  
Nuclear Oversight Assessment Report NOA-01-99-PS54 (December 16, 1999), Chemistry  
Nuclear Oversight Assessment Report NOA-01-99-031 (May 28, 1999), Radwaste Shipping, Effluent Monitoring

### Other Documents

Sargent & Lundy Engineers Calculation #L-002356, WRGM Calibration Constants, Setpoints and Adjustment Factors  
Semi-Annual Radioactive Effluent Report for 1997  
Annual Radiological Environmental Operating Report for 1997 and 1998