

December 13, 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: LASALLE NUCLEAR GENERATING STATION - NRC INSPECTION REPORT  
50-373/00-20(DRS); 50-374/00-20(DRS)

Dear Mr. Kingsley:

On December 1, 2000, the NRC completed a routine inspection at your LaSalle Nuclear Generating Station, Units 1 and 2. The results were discussed on December 1, 2000, with Mr. Meister and other members of the LaSalle staff. The enclosed report presents the results of that inspection.

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. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, facility walkdowns, and interviews with personnel. Specifically, the inspection reviewed aspects of the occupational radiation safety program, and focused on the as-low-as-is-reasonably-achievable (ALARA) program for the Unit 2 refueling outage (L2R08).

No findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

O. Kingsley

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

Sincerely,

***/RA/***

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

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

Enclosure: Inspection Report 50-373/00-20(DRS);  
50-374/00-20(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  
C. Pardee, Site Vice President  
J. Meister, Station Manager  
W. Riffer, Regulatory Assurance Supervisor  
M. Aguilar, Assistant Attorney General  
State Liaison Officer  
Chairman, Illinois Commerce Commission

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-373/00-20(DRS); 50-374/00-20(DRS)

Licensee: Commonwealth Edison Company

Facility: LaSalle Nuclear Generating Station, Units 1 and 2

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

Dates: November 27 - December 1, 2000

Inspectors: Wayne Slawinski, Senior Radiation Specialist  
Robert Jickling, Emergency Preparedness Analyst

Observer: Ronald Schmitt, Radiation Specialist

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

## NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

<b>Reactor Safety</b>	<b>Radiation Safety</b>	<b>Safeguards</b>
<ul style="list-style-type: none"><li>● Initiating Events</li><li>● Mitigating Systems</li><li>● Barrier Integrity</li><li>● Emergency Preparedness</li></ul>	<ul style="list-style-type: none"><li>● Occupational</li><li>● Public</li></ul>	<ul style="list-style-type: none"><li>● Physical Protection</li></ul>

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

## SUMMARY OF FINDINGS

IR 05000373-00-20(DRS), 05000374-00-20(DRS), on 11/27-12/1/00, Commonwealth Edison Company, LaSalle Nuclear Generating Station, Units 1 and 2. Radiation Safety Specialist Report.

The inspection was conducted by a regional senior radiation specialist, who was assisted for part of the inspection by a regional emergency preparedness analyst.

Cornerstone: Occupational Radiation Safety

No findings of significance were identified.

## Report Details

### Summary of Plant Status

During this inspection, Unit 1 operated at or near full power and Unit 2 was shutdown for a scheduled refueling outage.

## **2. RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety

### 2OS1 Access Controls for Radiologically Significant Areas

#### .1 Plant Walkdowns and Radiological Boundary Verifications

##### a. Inspection Scope

The inspectors conducted walkdowns of the radiologically controlled area (RCA) to verify the adequacy of radiological boundaries, access controls and postings. Specifically, the inspectors walked down several radiologically significant area boundaries (high and locked high radiation areas) in the Turbine Building, Radwaste Building and the Unit 2 Reactor Building including the Unit 2 drywell. Also, confirmatory radiation measurements were performed by the inspectors to verify that these areas and selected radiation areas were properly posted and controlled in accordance with 10 CFR 20 and the licensee's procedures.

##### b. Findings

No findings of significance were identified.

### 2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls

#### .1 Radiation Dose Goals and Trending

##### a. Inspection Scope

The inspectors reviewed the station's historical outage exposure data and the outage dose goals and dose performance for the current refueling outage (L2R08), which took place between November 10 and December 1, 2000. In particular, historical outage doses were compared with L2R08 outage work scope and dose expenditures to assess the licensee's current performance. The inspectors also reviewed the licensee's processes for estimating outage job doses, and verified that sound technical bases for outage dose estimates and dose goals existed. The inspectors verified that licensee outage experiences, and industry experiences and data were used to establish dose estimates and goals. In addition, the inspectors selectively reviewed personnel exposures within work groups and evaluated the mechanisms used by the licensee to ensure that significant exposure variations did not occur without adequate justification.

The inspectors confirmed that no outage jobs which accrued greater than 5 rem collective exposure exceeded respective dose estimates by more than 50 percent.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors selected the following outage jobs that exceeded 5 rem or were otherwise conducted in the drywell, and assessed the adequacy of the radiological controls and work planning:

- Removal, Replacement, Modification and Calibration of Safety Relief Valves;
- Removal/Replacement and/or Repairs of Source Range Monitors (SRMs), Intermediate Range Monitors (IRMs) and Local Power Range Monitors (LPRMs);
- Replacement of Control Rod Drives (CRDs);
- Reactor Vessel and Nozzle In-Service-Inspection (ISI) and Support;
- Drywell ISI and Support;
- Disassembly and Reassembly or Reactor Vessel and Cavity Decontamination;
- Installation/Removal of Drywell Scaffolding; and
- Installation/Removal of Lead Shielding in Drywell.

The inspectors reviewed the radiation work permit (RWP) and the ALARA Action Review developed for each job, assessed radiological engineering controls and other dose mitigation techniques specified in these documents, and confirmed that job dose history files and both licensee and industry lessons learned were adequately integrated into each work package. The inspectors discussed the ALARA planning for selected jobs with station staff, and verified that adequate interfaces between operations, chemistry, radiation protection and maintenance groups occurred during job planning.

b. Findings

No findings of significance were identified.

.3 Implementation of ALARA Controls

a. Inspection Scope

The inspectors selected the following high exposure or high radiation area jobs completed during the outage, and evaluated the execution of the ALARA program. The inspectors discussed job performance with involved radiation protection (RP) staff, total effective dose equivalent (TEDE) ALARA evaluations and planned personnel contamination and intake evaluations completed by the licensee for certain jobs were assessed for technical adequacy, and documents including post job or work in progress reports, radiological survey data, RP logs and pre-job briefing information was reviewed:



- Refuel Floor Activities;
- CRD Replacement Work;
- Under-Vessel Sump Activities; and
- SRM/IRM/LPRM Detector Replacement.

b. Findings

No findings of significance were identified.

.4 Source Term Reduction and Control

a. Inspection Scope

The inspectors reviewed aspects of the licensee's source term reduction program, focusing on those initiatives completed for the outage such as hydrolazing, flushing and desludging, water chemistry initiatives, and installation of permanent and temporary shielding. Noble metal injection was initiated for Unit 2 during the outage and currently both units utilized hydrogen injection, depleted zinc oxide addition and the noble metals process. The inspectors also reviewed the station's overall source term reduction plan, which included improved water chemistry controls, cobalt reduction initiatives through stellite control, and installation of condensate pre-filters to reduce feedwater iron. The inspectors verified that source term control strategies were ongoing and future initiatives were being evaluated.

b. Findings

No findings of significance were identified.

.5 Verification of Exposure Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the methodology and assumptions used to develop outage exposure estimates and exposure goals, and compared actual exposure results with estimates for accuracy. The inspectors verified that job dose history files and dose reductions anticipated through lessons learned were appropriately used to forecast outage doses. The inspectors also verified that man-hour estimates for higher dose jobs were reasonably accurate when compared to actual results, with the exception of drywell scaffolding and shielding work which took longer than projected and was attributed to an inexperienced work force. The licensee's exposure tracking system was also reviewed to determine if the level of exposure tracking detail, exposure report timeliness and report distribution were sufficient to support control of collective exposures.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the results of an RP program self-assessment completed as part of an outage ALARA readiness review and a followup self-assessment completed during the outage, to evaluate the effectiveness of the licensee's ability to identify and characterize problems. The inspectors also reviewed outage related Nuclear Oversight Department field observations, outage generated condition reports and an Apparent Cause Evaluation related to an outage problem, and verified that the licensee adequately identified individual problems and trends, determined contributing causes and extent of condition, and was developing corrective actions to achieve lasting results. In addition, work in progress reports were reviewed and a post job review meeting was attended to further assess the licensee's problem identification and resolution capability for the RP program.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA6 Management Meetings

Exit Meeting Summary

The lead inspector presented the inspection results to Mr. Meister and other members of licensee management and staff at the conclusion of the inspection on December 1, 2000. The licensee acknowledged the information presented. No proprietary information was identified by the licensee.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

K. Bartes, Nuclear Oversight Manager  
A. Chinni, Safety/Industrial Hygiene Advisor  
J. Estes, Radiation Protection Engineering Supervisor  
J. Meister, Station Manager  
M. Phalen, Radiation Protection Field Supervisor  
B. Riffer, Regulatory Assurance Manager  
F. Spangenberg, Project Management  
S. Taylor, Radiation Protection Manager  
R. Williams, Regulatory Assurance  
E. Wolfe, Source Term Reduction Coordinator  
M. Wolfe, Health Physicist

NRC

E. Duncan, Senior Resident Inspector  
P. Krohn, Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

## LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
CR	Condition Report
CRD	Control Rod Drive
ISI	In-Service-Inspection
L2R08	Unit 2's eighth refueling outage
NRC	Nuclear Regulatory Commission
RCA	Radiologically Controlled Area
RP	Radiation Protection
RWP	Radiation Work Permit
SRM/IRM/LPRM	Source Range/Intermediate Range/ Local Power Range Monitor
TEDE	Total Effective Dose Equivalent

## PARTIAL LIST OF DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings.

### Station Procedures

RP-AA-350 (Revision 0)	Assessment of Radiologically Contaminated Personnel
LRP-5400-1 (Revision 6)	Guidelines for a Comprehensive Bioassay Program
LRP-6200-5 (Revision 6)	Preparing Radiation Work Permits
LAP-2200-7 (Revision 3)	ALARA Plans
RP-AA-441 (Revision 0)	Evaluation and Selection Process for Respirator Use

### RWPs and Associated ALARA Action Reviews

RWP #002202 (Rev 0)	SRV Removal and Replacement, SRV Modification, Calibration, and Associated Activities
RWP #002218 (Rev 0)	Remove/Replace 2D SRM and 2C/D/F IRMS. Also SRM, IRM, LPRM Connector Drive Repairs/Troubleshooting
RWP #002219 (Rev 0)	L2R08 Control Rod Drive (CRD) Replacements
RWP #002221 (Rev 0)	Reactor Vessel and Nozzle ISI and Support Activities
RWP #002222 (Rev 0)	Unit 2 Drywell ISI and Support Activities
RWP #002410 (Rev 0)	Disassemble and Reassemble Reactor Vessel, Fuel Moves, Reactor Cavity and Dryer Separator Pit Decon
RWP #002207 (Rev 0)	Install/Remove Scaffolding in Unit 2 Drywell
RWP #002205 (Rev 0)	Install/Remove Lead Shielding in Unit 2 Drywell

### Nuclear Oversight Field Observation Reports

ATM Nos. 0035651-95 (11/18/00), 0039095-16 (11/25/00), 0035651-97 (11/20/00), 0039095-03 (11/21/00), 0035651-91 (11/18/00), 0035651-90 (11/17/00), 0035651-92 (11/22/00), 0038683-08 (11/16/00), and 0038683-07 (11/15/00)

### Radiation Protection Self-Assessments

“L2R08 Outage Readiness,” September 14 -15, 2000.

“Access Control to Radiologically Significant Areas and ALARA Planning and Controls,”  
November 13-25, 2000

### Condition Reports and Related Evaluations

44 Condition Reports related to the RP program and generated between November 1-29, 2000  
Apparent Cause Evaluation (CR L2000-06659) “Poor Planning and Communications Cause  
CRD Shipping Delays and Excess Dose

### Other Documents

Outage dose tracking reports for a variety of jobs  
Historical outage exposure performance data  
Personnel contamination event trend data for L2R08  
TEDE ALARA reviews and planned intake and personnel contamination event evaluations for a variety of outage jobs  
Source Term Reduction Plan, November 2000, Rev 4  
L2R08 Source Term Reduction Activities  
Daily L2R08 exposure reports for selected jobs