

February 26, 2001

Mr. Oliver D. Kingsley
Chief Nuclear Officer
Exelon Generation Company
1400 Opus Place
Downers Grove, IL 60515-5701

SUBJECT: LIMERICK GENERATING STATION NRC INSPECTION REPORT
05000352/2001-002, 05000353/2001-002

Dear Mr. Kingsley:

On February 10, 2001, the NRC completed an inspection at your Limerick Units 1 and 2. The enclosed report documents the inspection findings which were discussed on February 22, 2001, with Mr. Levis and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings of significance were identified.

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Sincerely,

/RA/

Curtis J. Cowgill, Chief
Project Branch 4
Division of Reactor Projects

Docket Nos.: 050-352; 50-353
License Nos: NPF-39; NPF-85

Enclosure: Inspection Report 05000352/2001-002, 05000353/2001-002

Attachments: (1) Supplemental Information
(2) NRC's Revised Reactor Oversight Process

cc w/encl:
J. Hagan, Senior Vice President, Mid-Atlantic Regional Operating Group

O. D. Kingsley

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J. Skolds, Chief Operating Officer

G. Hunger, Chairman, Nuclear Review Board

J. Hutton, Director of Licensing

J. Benjamin, Licensing Vice President, Exelon Nuclear

W. Levis, Vice President, Limerick Generating Station

R. Braun, Plant Manager, Limerick Generating Station

K. Gallogly, Manager, Experience Assessment

Secretary, Nuclear Committee of the Board

Commonwealth of Pennsylvania

O. D. Kingsley

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U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket Nos: 05000352; 05000353
License Nos: NPF-39, NPF-85

Report No: 05000352/2001-002, 05000353/2001-002

Licensee: Exelon Generation Company (EGC)

Facility: Limerick Generating Station, Units 1 & 2

Location: Evergreen and Sanatoga Roads
Sanatoga, PA 19464

Dates: January 1, 2001 to February 10, 2001

Inspectors: A. Burritt, Senior Resident Inspector
B. Welling, Resident Inspector
J. Jang, Senior Health Physicist

Approved by: Curtis J. Cowgill, Chief
Projects Branch 4
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000352/2001-002, IR 05000353/2001-002; on 01/01-02/10/2001; Exelon Generation Company; Limerick Generating Station; Units 1 and 2; Resident Inspector Report.

This report was conducted by resident inspectors and a regional radiation specialist. The inspection identified no findings of significance.

The significance of findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP) (see Attachment 2). Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation.

Report Details

Summary of Plant Status

Unit 1 began this inspection period operating at 100% power and remained at or near that power level except for brief periods of planned testing and control rod pattern adjustments.

Unit 2 began this inspection period operating at 98% power, in end-of-cycle coastdown. The unit remained near that power level, except for brief periods for planned testing and control rod pattern adjustments. Power level at the end of the period was 96%.

1. REACTOR SAFETY Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors toured the Schuylkill River pump house and reviewed the adequacy of cold weather protection for key components and instrument sensing lines.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment Walkdowns (71111.04)

a. Inspection Scope

The inspectors performed a partial walkdown of the Unit 1 "B", "C", and "D" residual heat removal trains, while the Unit 1 "A" residual heat removal train was out of service for planned maintenance. The inspectors also performed a walkdown of Unit 1 "A" core spray train, while the Unit 1 "B" core spray train was out of service for planned maintenance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors toured high risk areas at both Limerick units to assess EGC's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The fire areas included:

- Unit 2 reactor water clean up area (fire area 70)
- Unit 2 control rod drive hydraulic control unit area (fire area 68)
- Unit 1 reactor building elevation 313' (fire area 48)

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors observed simulator training on three occasions during the inspection period.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed EGC's actions with respect to the Maintenance Rule for the following equipment performance problems:

- 2D low pressure coolant injection initiation permissive (reactor low pressure) - relay failure (Action Request A1288563)
- 1A residual heat removal system 125A valve failure (PEP I0012050, Action Request A1296408)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors reviewed EGC's risk management and risk assessments as required by 10 CFR 50.65 (a)(4) of the following emergent and planned maintenance activities:

- 1A residual heat removal system outage window
- 1B core spray system outage window
- D21 4Kv bus overcurrent relay replacements

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)a. Inspection Scope

The inspectors reviewed EGC's personnel performance during non-routine plant evolutions:

- Removing 6A feedwater heater from service for end of cycle coastdown
- D24 emergency diesel generator special test
- 1A reactor water cleanup system steam flood damper isolation/emergency operating procedure (T-103) entry
- Hydrogen water chemistry benchmark test

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)a. Inspection Scope

The inspectors reviewed operability evaluations associated with the following plant equipment conditions:

- Reactor core isolation cooling system steam leak detection delta temperature - circuit miswired
- D-11 emergency diesel generator unexpected reactive load shift

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)a. Inspection Scope

The inspectors reviewed 2A reactor water cleanup pump replacement and piping modification. This inspection primarily focused on the impact to the high energy line break analysis to support the component and configuration changes.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope

The inspectors observed the post-maintenance test and reviewed the test data for the following:

- 1B standby liquid control pump packing replacement

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed and reviewed the results of several scheduled equipment surveillance tests, including:

- ST-2-051-105-2, Unit 2 Division I Residual Heat Removal Logic System Functional Test
- ST-6-092-311-1, D11 Emergency Diesel Generator Slow Start Surveillance Test
- RT-2-056-606-1, High Pressure Coolant Injection Turbine Exhaust Pressure and Pump Suction Pressure Test (Unit 1)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspector reviewed the temporary changes to the 2A reactor water cleanup compartment during modification work. Specifically the inspector reviewed the analysis to support removal of the door and boring holes through the wall which provides a flooding and high energy line break barrier.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety (PS)

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope

The inspector reviewed the following documents to evaluate the effectiveness of the licensee's radioactive gaseous and liquid effluent control programs. The requirements of the radioactive effluent controls were specified in the Technical Specifications/Offsite Dose Calculation Manual (TS/ODCM):

- 1999 Radiological Annual Effluent Release Report and Radiation Dose Assessment Report;
- ODCM, Revision 20, September 1999, and technical justifications and 10 CFR 50.59 evaluations, for ODCM changes made;
- analytical results for charcoal cartridges, particulate filters, noble gases, and radioactive liquid effluent samples;
- implementation of the compensatory sampling and analysis program when the effluent radiation monitoring system (RMS) is out of service;
- radioactive liquid release permits;
- monthly radioactive gas releases including quantification technique and projected dose calculation results to the public;
- associated effluent control procedures, including analytical laboratory procedures;
- calibration records for laboratory measurements equipment (gamma spectrometry systems, liquid scintillation counter, and proportional counters);
- implementation of measurement laboratory quality assurance and control programs specified in Section 6.8.1.j of the TS, including interlaboratory and intralaboratory comparisons;
- self-assessments;
- QA audits (LAR-00-006 and LAR-00-007) for the radiological effluent control/ODCM implementations;
- TS surveillance testing results performed either in 1999 or 2000 for: (1) control rooms (TS 3/4.7.2), (2) standby gas treatment system air cleaning systems (TS 3/4.6.5.3), and (3) the reactor enclosure area air cleaning system (TS 3/4.6.5.4);
- the response to the NRC Generic Letter 99-02, Laboratory Testing of Nuclear-Grade Activated Charcoal, including changed TS; and
- effluent RMS channel calibration and flow monitor calibration results (performed either in 1999 or in 2000) listed in ODCM Tables I3.2-2 and I3.3-2.

RMS Channel Calibration

- Liquid Radwaste Effluent Line Monitor
- Residual Heat Removal Service Water system Effluent Line Monitor
- Service Water System Effluent Line Monitor
- South Stack Noble Gas Monitors (Units 1 and 2)
- North Stack Noble Gas Monitor
- North Stack Wide Range Accident Monitor specified in TS 3.3.7.5 and ODCM Figure II-2-1

Flow Monitor Calibration

- Liquid Radwaste Effluent Line Flow Rate Measurement Device
- Discharge Line Flow Rate Measurement Device
- South Stack Effluent System Flow Rate Monitor
- North Stack Effluent System Flow Rate Monitor
- Hot Maintenance Shop Effluent System Flow Rate Monitor

The inspector also performed the following activities to evaluate the effectiveness of the licensee's radioactive gaseous and liquid effluent control programs:

- walk-down for determining the availability of radioactive liquid/gaseous effluent RMS and air cleaning systems and for determining the equipment material condition;
- observation for north and south stacks charcoal and filter sampling techniques;
- discussion for the ODCM updating process (Revision 21), including effluent radiation monitor setpoint calculation methodologies;
- discussion for the implementation of the Effluent ALARA specified in Section 6.8.4.d of the Technical Specifications, including tritium measurement in the holding pond and cooling tower water; and
- discussion for corrective actions for PEP 10010341 (regarding noble gas monitor data acquisition).

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed the accuracy and completeness of the supporting data for the following Limerick performance indicators:

- Safety System Failures (January - December 2000)
- Reactor Coolant System Specific Activity (April - December 2000)
- Public exposure (RETS/ODCM radiological effluent occurrences) (January - December 2000)

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

.1 Exit Meetings

The inspectors presented the inspection results to Mr. Levis and other members of station management on February 22, 2001.

The regional inspector presented the results of a radiological protection inspection to members of Exelon management at the conclusion of the inspection on January 12, 2001.

The inspectors asked EGC whether any materials examined during the inspections should be considered proprietary. No proprietary information was identified.

Attachment 1

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company

M. Alderfer	Senior Manager - Plant Engineering
J. Armstrong	Director - Site Engineering
R. Braun	Plant Manager
E. Callan	Director - Maintenance
K. Gallogly	Experience Assessment Manager
C. Gerdes	Manager, Chemistry
W. Levis	Site Vice President
J. Tucker	Senior Manager - Operations

ITEMS OPENED, CLOSED, AND DISCUSSED

None

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:

Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

Radiation Safety

- Occupational
- Public

Safeguards

- Physical Protection

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>.