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LaSalle County Station
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Exelon Nuclear

July 1, 2005

10 CFR 50.73

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 1
Facility Operating License No. NPF 11
NRC Docket No. 50-373

Subject: Licensee Event Report

In accordance with 10 CFR 50.73 (a)(2)(vii), Exelon Generation Company, (EGC), LLC, is submitting Licensee Event Report Number 05-003-00, Docket No. 050-373.

Should you have any questions concerning this letter, please contact Mr. Terrence W. Simpkin, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

for

Daniel Enright
Plant Manager
LaSalle County Station

Attachment: Licensee Event Report

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

IE22

| NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007 |
|---|---|
| **LICENSEE EVENT REPORT (LER)**<br>(See reverse for required number of digits/characters for each block) | Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection. |

| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. PAGE |
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**4. TITLE** Main Steam Line High Flow Main Steam Isolation Valve Isolation Differential Pressure Switches Failed Due to Manufacturing Error

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---|---|---|---|---|---|---|---|---|---|---|
| MO | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO | MO | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 05 | 06 | 2005 | 2005 | - 003 - | 00 | 07 | 01 | 2005 | FACILITY NAME | DOCKET NUMBER |

| 9. OPERATING MODE | 1 |
|---|---|
| 10. POWER LEVEL | 100 |

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)**

| | | | |
|---|---|---|---|
| ☐ 20.2201(b) | ☐ 20.2203(a)(3)(ii) | ☐ 50.73(a)(2)(ii)(B) | ☐ 50.73(a)(2)(ix)(A) |
| ☐ 20.2201(d) | ☐ 20.2203(a)(4) | ☐ 50.73(a)(2)(iii) | ☐ 50.73(a)(2)(x) |
| ☐ 20.2203(a)(1) | ☐ 50.36(c)(1)(i)(A) | ☐ 50.73(a)(2)(iv)(A) | ☐ 73.71(a)(4) |
| ☐ 20.2203(a)(2)(i) | ☐ 50.36(c)(1)(ii)(A) | ☐ 50.73(a)(2)(v)(A) | ☐ 73.71(a)(5) |
| ☐ 20.2203(a)(2)(ii) | ☐ 50.36(c)(2) | ☐ 50.73(a)(2)(v)(B) | ☐ OTHER |
| ☐ 20.2203(a)(2)(iii) | ☐ 50.46(a)(3)(ii) | ☐ 50.73(a)(2)(v)(C) | Specify in Abstract below or in NRC From 366A |
| ☐ 20.2203(a)(2)(iv) | ☐ 50.73(a)(2)(i)(A) | ☐ 50.73(a)(2)(v)(D) | |
| ☐ 20.2203(a)(2)(v) | ☐ 50.73(a)(2)(i)(B) | ☒ 50.73(a)(2)(vii) | |
| ☐ 20.2203(a)(2)(vi) | ☐ 50.73(a)(2)(i)(C) | ☐ 50.73(a)(2)(viii)(A) | |
| ☐ 20.2203(a)(3)(i) | ☐ 50.73(a)(2)(ii)(A) | ☐ 50.73(a)(2)(viii)(B) | |

**12. LICENSEE CONTACT FOR THIS LER**

| NAME | TELEPHONE NUMBER (Include Area Code) |
|---|---|
| Russell Gremchuk, System Engineer | (815) 415-2809 |

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

| CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX | | CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX |
|---|---|---|---|---|---|---|---|---|---|---|
| B | IJ | FS | Static O-ring | Y | | | | | | |
| | | | | | | | | | | |

| 14. SUPPLEMENTAL REPORT EXPECTED | | 15. EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
|---|---|---|---|---|---|
| ☐ YES (If yes, complete EXPECTED SUBMISSION DATE) | ☒ NO | | | | |

**16. ABSTRACT** (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines)


On May 5, 2005, during performance of LIS-MS-102 "Main Steam Line High Flow MSIV Isolation Calibration," the high flow differential pressure switch (1E31-N008B) for the 'A' main steam line could not be calibrated to within the required band. The switch was replaced and tested successfully.

LIS-MS-102 was resumed, and the high flow differential pressure switch for the 'C' main steam line (1E31-N010B) also failed its calibration. It was also replaced and tested successfully.

The failed switches were sent to SOR for failure analysis, and the analysis report states that the causes of the failures were silicone contamination on the switch contacts, rusted bearings, and rust sediment in the low side pressure port cavity. The rust resulted from water intrusion into the switch, likely caused by a manufacturing defect. The failures were determined to be from a common cause.

The corrective action was to replace the failed differential pressure switches with an improved model that is expected to provide more reliable service.

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

**PLANT AND SYSTEM IDENTIFICATION**

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power

**A. CONDITION PRIOR TO EVENT**

Unit(s): 1 Event Date: 05/06/2005 Event Time: 1143 CDT
Reactor Mode(s): 1 Power Level(s): 100
Mode(s) Name: Run

**B. DESCRIPTION OF EVENT**

On May 5, 2005, during performance of LIS-MS-102 "Main Steam Line High Flow MSIV Isolation Calibration," the high flow differential pressure switch (1E31-N008B) for the 'A' main steam line could not be calibrated to within the required band. This switch is part of the Leak Detection (LD)[IJ] system, and provides an isolation signal to the Main Steam Line Isolation Valves (MSIV) and Main Steam Line Drain Valves in the event of a main steam line break. 1E31-N008B was declared inoperable at 1143 CDT on May 5, 2005. The switch was replaced and tested successfully, and at 1020 CDT on May 6, 2005, 1E31-N008B was declared operable.

LIS-MS-102 was resumed on May 6, 2005. At 1143 CDT, the high flow differential pressure switch for the 'C' main steam line (1E31-N010B) also failed its calibration, was declared inoperable, was replaced and tested successfully. 1E31-N010B was declared operable at 0430 CDT on May 7, 2005.

Both differential pressure switches were sent to the manufacturer, Static O-Ring (SOR), for failure analysis. It was determined that the cause of both failures was silicone contamination on the switch contacts, rusted bearings, and rust sediment in the low side pressure port cavity. The failures were therefore determined to have a common cause. SOR switches have a history of similar failures at LaSalle.

It is likely that the switches were simultaneously failed for a period of time. The 1E31-N010B and 1E31-N008B switches are in the same one-out-of-two-taken-twice logic channel (B1) for the isolation logic for the inboard MSIV and main steam line drains, and therefore there was no loss of safety function. However, the event is reportable under 10 CFR 50.73(a)(2)(vii) as an event where a single cause caused multiple independent channels to become inoperable in a single system designed to mitigate the consequences of an accident.

**C. CAUSE OF EVENT**

The failed switches were sent to SOR for failure analysis, and the analysis report states that the causes of the failures were silicone contamination on the switch contacts, rusted bearings, and rust sediment in the low side pressure port cavity. The rust resulted from water intrusion into the switch, likely caused by a manufacturing defect.

The use of SOR D/P switches at LaSalle has been documented in IE Bulletin 86-02 (7/18/86) and a Safety Evaluation Report (4/1/87) "Continued Use of SOR DP Switches at LaSalle County Station." LaSalle elected to replace the SOR switches for the reactor water level trip functions with Rosemount trip units. SOR switches were retained in less critical applications, including the Main Steam

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Line High Flow isolation. For these switches, quarterly (92 day) channel calibration surveillance intervals were established and incorporated into Technical Specification Surveillance Requirement 3.3.6.1.3, in order to ensure early detection of failures.

**D. SAFETY ANALYSIS**

The safety significance of this event was minimal. The 1E31-N010B and 1E31-N008B switches are in the same isolation logic trip string (B1) for the inboard MSIV and main steam line drains, and therefore there was no loss of safety function even though both switches were inoperable at the same time.

This was not a safety system functional failure.

**E. CORRECTIVE ACTIONS**

The model 102 SOR switches that failed were replaced with SOR model 131/141 switches. The new switches are improved over the previous model, and are expected to provide more reliable service.

**F. PREVIOUS OCCURRENCES**

| LER Number | Title |
|---|---|
| 373-03-003 | Reactor Core Isolation Cooling High Steam Flow Isolation Differential Pressure Switches Failed Due to Torn Diaphragm |

This LER involved two SOR switches in the Reactor Core Isolation Cooling (RCIC) steam line high flow isolation circuitry that failed the diaphragm integrity test. The cause in each case was a rupture of the Kapton diaphragm. This condition was a known performance issue with this model of SOR switch. The corrective action was to replace the failed switches, and would not have prevented this event.

| | |
|---|---|
| 374-95-011 | Inadvertent ESF Actuation and Reactor Core Isolation Cooling Isolation due to Personnel Error |

This LER involved an inadvertent isolation of the RCIC inboard steam line isolation valve that occurred following discovery of a ruptured diaphragm on D/P switch 2E31-N013BA. The isolation was due to a personnel error, in that the circuit breaker to the isolation valve was closed prior to resetting the high flow isolation logic signal. The corrective actions were to replace the failed D/P switch and to address the personnel error issues. These corrective actions would not have prevented this event.

| | |
|---|---|
| 374-93-001 | RCIC High Flow Isolation Static-O-Ring (SOR) Failure Due to a Torn Diaphragm |

This LER documented the failure of D/P switch 2E31-N013AA due to a torn diaphragm. Corrective actions were to replace the switch, and would not have prevented this event.

**G. COMPONENT FAILURE DATA**

Static O-Ring, D/P Switch, Model # 102AS-B403-NX-C1A-JJTTX6 and 102A-B305-NX-JJTTX6