Exelon
Nuclear

10CFR50.73

April 22, 2009

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Limerick Generating Station, Units 1 and 2
Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: LER 2009-002-00, "A" Control Room Emergency Fresh Air Supply System Subsystem Inoperable

This Licensee Event Report (LER) addresses an event that resulted in a condition prohibited by Technical Specifications as a result of a failed charcoal analysis on the "A" Control Room Emergency Fresh Air Supply System Subsystem.

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

There are no commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

Original signed by Christopher H. Mudrick

Christopher H. Mudrick
Vice President – Limerick Generating Station
Exelon Generation Company, LLC

cc: S. J. Collins, Administrator Region I, USNRC
E. M. DiPaolo, USNRC Senior Resident Inspector, LGS

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE: "A" Control Room Emergency Fresh Air Supply System Subsystem Inoperable

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Limerick Unit 2	05000353
12	09	2008	2009	- 002 -	00	04	22	2009	FACILITY NAME	DOCKET NUMBER 05000

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)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☒ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER *(Include Area Code)*
Robert E. Kreider, Manager – Regulatory Assurance	610-718-3400

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
X	UG	ADS	C780	Y					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

The "A" Control Room Emergency Fresh Air Supply System Subsystem was inoperable for a period that exceeded the Technical Specification allowed outage time. This occurred due to the time from removal of the sample to the time the unsatisfactory results of the vendor analysis were obtained exceeding the 7-day Technical Specification allowed outage time for one subsystem being inoperable. The sample analysis was completed within 31 days after removal as specified by the surveillance requirement. The affected charcoal bed was replaced and the subsystem was returned to operable status within 3 days of receiving the unsatisfactory sample results. Charcoal bed age and penetration data have been added as inputs to bed performance monitoring and replacement decision making.

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

Unit Conditions Prior to the Event

Unit 1 was in Operational Condition (OPCON) 1 (Power Operation) at approximately 100% power. Unit 2 was in Operational Condition (OPCON) 1 (Power Operation) at approximately 100% power. There were no other structures, systems or components out of service that contributed to this event.

Description of the Event

On Friday November 21, 2008 a charcoal sample was removed from "A" Control Room Emergency Fresh Air Supply System (CREFAS) Subsystem (EIIS:UG) charcoal adsorber (EIIS:ADS) during performance of the 24-month "A" CREFAS Charcoal Analysis surveillance test (ST-4-078-801-0). The sample was shipped to a vendor for analysis. The analysis results became available on Tuesday December 9, 2008, at 0745 hours, which was 18 days after the sample was taken. The analysis results failed the test acceptance criteria that required the methyl iodide penetration to be less than 2.5 percent. The test results indicated that methyl iodide penetration was 5.013 percent. The "A" CREFAS subsystem was declared inoperable. The "A" CREFAS subsystem charcoal bed was replaced and the subsystem was returned to operable status on Thursday December 11, 2008 at 2022 hours.

At the time the sample was removed there was no firm evidence that "A" CREFAS was inoperable. The sample analysis failure on December 9, 2008, provided firm evidence that the "A" CREFAS subsystem charcoal had exceeded the Technical Specification (TS) 3.7.2 CREFAS surveillance requirement for methyl iodide penetration to be less than 2.5 percent on November 21, 2008, when the sample was removed. The "A" CREFAS subsystem charcoal was restored to less than 2.5 percent methyl iodide penetration on Thursday December 11, 2008. This resulted in a period of 20 days that the "A" CREFAS subsystem was inoperable since it could not satisfy the surveillance requirement. TS 3.7.2 Action

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

a.1 requires restoration of an inoperable CREFAS subsystem within 7 days. This requirement was not satisfied.

However, the subsystem was restored within three days of discovery of the condition.

This event resulted in the nuclear power plant being in a condition prohibited by Technical Specifications. This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

Analysis of the Event

There were no actual safety consequences associated with this event. The potential safety consequences of this event were minimal. The "B" CREFAS subsystem was operable during this period. In addition the "A" CREFAS subsystem was capable of operating at near design capacity. The potential increase in accident dose to the licensed operators in the main control room was determined to be negligible.

The TS surveillance requirement 4.7.2.1.c.2 states the following:

> Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration of less than 2.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%.

UFSAR section 6.5.1.2.1.d describes the design bases for the CREFAS charcoal adsorber. It states the following:

> The charcoal adsorber is rated 95.0% for trapping of radioactive iodine as elemental iodine (I2) and 95.0% trapping of radioactive iodine as methyl iodide (CH3I) when passing through charcoal (2 inch bed depth) at 70% relative humidity. The air residence time in the 2 inch charcoal bed is not less than 0.25 seconds.

The vendor test in accordance with ASTM D3803-1989 specifies an acceptance criterion of 97.500 percent efficiency, which correlates to 2.5 percent methyl iodide penetration. The plant design basis assumes the charcoal is 95 percent efficient. Therefore, a successful analysis ensures that a safety margin factor of 2 is maintained.

The actual analysis determined the methyl iodide penetration was 5.013 percent with an efficiency of 94.987 percent. This exceeded the plant design basis by 0.013 percent, which was less than the test uncertainty of plus or minus 0.052 percent.

Cause of the Event

The cause of the event was unplanned inoperability of the "A" CREFAS subsystem due to an increase in charcoal methyl iodide penetration. Charcoal bed performance may be adversely affected by several factors including bed age, run time, and contaminants. The TS allowed outage time was exceeded during the period when the routine sample was being analyzed by the vendor. Operations management was notified of the unsatisfactory analysis results when they became available but the seven-day TS allowed outage time had been exceeded prior to the notification.

Corrective Action Completed

The "A" CREFAS subsystem charcoal bed was replaced and tested.

Charcoal bed age and penetration data have been added as inputs to bed performance monitoring and replacement decision making.

Previous Similar Occurrences

There were no previous similar events during the last three years where charcoal sample analysis results rendered a safety system subsystem inoperable.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

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

Component data:

System: Control Room Emergency Fresh Air Supply System

Component: ADS Adsorber

Component Number: 0A-F161

Manufacturer: C780 CVI Corp

Charcoal supplier: NUCON International, Inc.