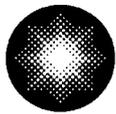


Dave Holm  
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**Constellation Energy**  
Generation Group

December 21, 2006

U.S. Nuclear Regulatory Commission  
Washington, DC 20555

**ATTENTION:** Document Control Desk

**SUBJECT:** **R.E. Ginna Nuclear Power Plant**  
Docket No. 50-244

LER 2006-008, Charcoal Filter Efficiency Test Failure

The attached Licensee Event Report (LER) 2006-008 is submitted in accordance with 10 CFR 50.73, Licensee Event Report System. Should you have questions regarding the information in this submittal, please contact Mr. Robert Randall at (585) 771-5219 or robert.randall@constellation.com.

Very truly yours,

David A. Holm

Attachments: (1) LER 2006-008

cc: S. J. Collins, NRC  
P.D. Milano, NRC  
Resident Inspector, NRC (Ginna)

1001698

JE22

**Attachment 1**

LER 2006-008

Charcoal Filter Efficiency Test Failure

# LICENSEE EVENT REPORT (LER)

(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.

<b>1. FACILITY NAME</b> R.E. Ginna Nuclear Power Plant	<b>2. DOCKET NUMBER</b> 05000 244	<b>3. PAGE</b> 1 OF 5
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**4. TITLE**  
Charcoal Filter Efficiency Test Failure

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
10	15	2006	2006	- 008 -	00	12	21	2006		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b>  6	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> <i>(Check all that apply)</i>									
<b>10. POWER LEVEL</b>  000	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

**12. LICENSEE CONTACT FOR THIS LER**

<b>FACILITY NAME</b> Robert Randall, Director of Licensing	<b>TELEPHONE NUMBER (Include Area Code)</b> (585) 771-5219
---	---

**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
A	VF	FLT		N					

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>				<b>15. EXPECTED SUBMISSION DATE</b>		
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)				<input checked="" type="checkbox"/> NO		
		MONTH	DAY	YEAR		

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

On October 26, 2006, with the plant shutdown for a refueling outage, and 29 days after a charcoal adsorber sample was taken from a Spent Fuel Pool Charcoal Adsorber System filter for penetration testing per Technical Specification (TS) surveillance SR 3.7.10.3 and specification 5.5.10, the methyl iodide penetration level of the charcoal sample was determined to be unacceptable.

Movement of irradiated fuel that had decayed < 60 days since being irradiated occurred in the Auxiliary Building commencing on October 15, 2006. As a result of the unsatisfactory test result, TS 3.7.10 was not met. Therefore, this occurrence is considered reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the Ginna Technical Specifications.

The cause of this event was due to incorrect test parameters being previously supplied to the vendor that performed the methyl iodide penetration testing and a delay in obtaining the test results. Corrective action to address the condition is outlined in Section V.

Subsequent analysis has concluded that a fuel handling accident with degraded charcoal filtration would not have resulted in applicable regulatory limits being exceeded; therefore, this event had no impact on the health and safety of the public.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
R.E. Ginna Nuclear Power Plant	05000 244	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		2006	008	00	

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

I. PRE-EVENT PLANT CONDITIONS:

At the time the condition was identified, the plant was in Mode 5 at 0% rated thermal power, following a refueling of the reactor.

II. DESCRIPTION OF EVENT:

A. EVENT:

Technical Specification LCO 3.7.10 requires that the Auxiliary Building Ventilation System (ABVS), of which the Spent Fuel Pool Charcoal Adsorber System is part of, be operable during movement of irradiated fuel assemblies in the Auxiliary Building when one or more fuel assemblies in the Auxiliary Building has decayed < 60 days since being irradiated.

On September 27, 2006, a charcoal sample was taken from a Spent Fuel Pool Charcoal Adsorber System filter for testing per Technical Specification (TS) surveillance SR 3.7.10.3 and specification 5.5.10, prior to refueling activities. On October 11, 2006, the sample was sent to NUCON's laboratory for methyl iodine removal efficiency testing. On October 15, 2006, movement of irradiated fuel that had decayed < 60 days since being irradiated commenced in the Auxiliary Building. On October 26, 2006, NUCON notified Ginna that the efficiency of the charcoal sample was 64.3%, which was less than the Ginna Technical Specification limit of > 85.5%. As such, the Spent Fuel Pool Charcoal Adsorber System was not operable per Technical Specification LCO 3.7.10. At the time of the discovery, no fuel was being moved in the Auxiliary Building. The Shift Manager and Refueling Engineer were notified of the condition and concurred that fuel movement in the Auxiliary Building would not be allowed pending further investigation.

This occurrence is considered reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.

B. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

Spent Fuel Pool Charcoal Adsorber System

C. DATES AND APPROXIMATE TIMES OF MAJOR OCCURENCES:

- 9/27/06, charcoal sample withdrawn from Spent Fuel Pool Charcoal Adsorber System filter.
- 10/11/06, charcoal sample sent to NUCON International in Columbus, Ohio.

**LICENSEE EVENT REPORT (LER)**

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

- 10/15/06, 1631, commenced movement of irradiated fuel in the Auxiliary Building. (Event date)
- 10/26/06, 1723, NUCON notified Ginna that the efficiency test of the charcoal sample had failed the test criteria of >85.5% efficiency. (Discovery date)

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None

E. METHOD OF DISCOVERY:

Notification of vendor test results.

F. SAFETY SYSTEM RESPONSES:

No safety systems were actuated.

III. CAUSE OF EVENT:

The cause of this event is that the laboratory results were received 11 days after irradiated fuel was moved in the Auxiliary building. Had the sample been sent out and tested earlier, this incident could have been avoided. Compared to past practices, a delay in obtaining a sample shortened the opportunity for advance warning of charcoal filter failure. Past practices had the samples taken at least one month prior to irradiated fuel moves. In this case, the sample was obtained about 18 days prior to irradiated fuel moves. A 12 day delay also occurred in shipping the sample to NUCON.

With regards to the charcoal sample test failure, an investigation determined that an incorrect filter face velocity had been used in the purchase order for the NUCON testing during 2002, 2003, and 2005. This incorrect test parameter resulted in a non-conservative result relative to actual face velocity conditions. The test results appeared satisfactory (e.g., above the Technical Specification value of 85.5%) when they were actually lower than reported. Since the previous test samples have been discarded, it is not possible to determine if the results from 2002, 2003, and 2005 were below Technical Specification values. There is also too much uncertainty to draw any inference about past operability. Because past testing used the wrong filter face velocity, charcoal degradation could not be previously identified, resulting in the inoperability.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Additional followup efficiency testing of other filter cells within the Spent Fuel Pool Charcoal Adsorber System resulted in test results ranging from 61.9% to 84.5% efficiency.

The cause of the incorrectly specified filter face velocity appears to be not following the procedural requirement for the calculation of the test velocity. Though required by the procedure, the request for testing form which is provided to the vendor does not specifically state to ensure the face velocity (ft/min) from the latest performance of the filter bank mass air flow check is entered. The same person submitted the purchase order for this test in 2000, 2002, 2003, and 2005. The filter face velocity was correct in 2000, but incorrect the next 3 times the purchase order was issued. This person is no longer employed at Ginna. The correct filter face velocity was submitted with the purchase order in 2006 by a different person. All other charcoal filtration systems have a fixed face velocity that is applied for testing, whereas this system has a calculation to determine the actual velocity. There is one other charcoal filtration system that uses a fixed test face velocity that is different from the standard face velocity of 40 ft/min. That is the Control Room Emergency Air treatment System (CREATS) which has a test face velocity of 61 ft/min. A review of the most recent CREATS test results validated that the correct test face velocity was used.

Discussion with the charcoal vendor (NUCON) identified that a 14 year life-time (the complete 33 filter bank was replaced in 1992 with new filters) for charcoal is about what is expected, although many variables contribute to the end of life, such as humidity, service time, temperature, etc. Although a charcoal poisoning event could not be ruled out, a comprehensive filter protection strategy has been in place throughout the time period that would prevent this type of event. No activities were identified that could have caused an event.

Based on the above, it is concluded that the most probable cause of the charcoal efficiency loss was end-of-life of the charcoal.

**IV. ASSESSMENT OF THE SAFETY CONSEQUENCES OF THE EVENT:**

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System, item (a)(2)(i)(B), which requires a report of, "Any operation or condition which was prohibited by the plant's Technical Specifications."

The operability of the Auxiliary Building Ventilation System (ABVS), and the Spent Fuel Pool Charcoal Adsorber System, ensures that in the event of a fuel handling accident in the auxiliary building that the offsite doses will remain well within the limits of 10 CFR 50.67. A dose sensitivity analysis was performed to assess the potential effect of the as-found condition of the Spent Fuel Pool Charcoal Adsorber System. The results of this analysis show that even with the degraded charcoal, that the fuel handling accident consequences are still well within the acceptance criteria (for the control room, approximately .2R TEDE compared to a limit of 5R TEDE). As such, the applicable regulatory acceptance criteria for design basis events would have been met and the Auxiliary Building Ventilation System remained capable of performing its intended safety function. Therefore, the reduced efficiency of the charcoal would not have adversely affected the health and safety of the public.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE	
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**17. NARRATIVE** (If more space is required, use additional copies of NRC Form 366A)

V. CORRECTIVE ACTIONS:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

- Immediate actions included not allowing any fuel movements in the Auxiliary Building.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

- The charcoal filter media will be replaced.
- An evaluation will be conducted to determine if a change in the Technical Specification requirements should be processed
- The charcoal testing request form will be modified to prompt the individual to use the correct test filter face velocity as determined from the procedural requirements.
- An evaluation will be conducted to determine the appropriate schedule for obtaining the charcoal filter sample.

VI. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

No other structures, systems, or components failed as result of this event.

B. PREVIOUS LERs ON SIMILAR EVENTS:

A similar Ginna LER event historical search was conducted which resulted in no similar events.

C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EII) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

COMPONENT	IEEE 803 FUNCTION NUMBER	IEEE 805 SYSTEM IDENTIFICATION
Filter	FLT	VF