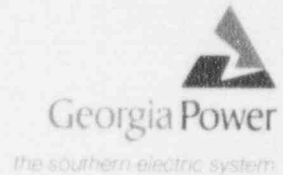


Georgia Power Company  
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Post Office Box 1295  
Birmingham, Alabama 35201  
Telephone 205 877-7279

J. T. Beckham, Jr.  
Vice President - Nuclear  
Hatch Project

July 8, 1994



Docket No. 50-321

HL-4641

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Edwin I. Hatch Nuclear Plant - Unit 1  
Licensee Event Report  
Main Control Room Environmental  
Control Systems Carbon Deficiencies

Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i) and (v), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning carbon deficiencies in the Main Control Room Environmental Control Systems.

Sincerely,

J. T. Beckham, Jr.

OCV/cr

Enclosure: LER 50-321/1994-007

cc: Georgia Power Company

Mr. H. L. Sumner, General Manager - Nuclear Plant  
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.  
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II  
Mr. S. D. Ebner, Regional Administrator  
Mr. B. L. Holbrook, Senior Resident Inspector - Hatch

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## LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB87714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

Edwin I. Hatch Nuclear Plant - Unit 1

DOCKET NUMBER (2)

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TITLE (4)

Main Control Room Environmental Control System Carbon Deficiencies

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER(S)
0	6	1	9	4	0	0	7	0	Plant E. I. Hatch, Unit 2	0 5 0 0 0 3 6 6
0	6	1	3	9	4	9	4	0		0 5 0 0 0 1 1 1
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 7: (Check one or more of the following) (11)								
1		20.402(b)			20.405(c)			50.73(a)(2)(iv)		
POWER LEVEL (10)		20.405(a)(1)(i)			50.36(c)(1)			X 50.73(a)(2)(v)		
1 0 0		20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)		
		20.405(a)(1)(iii)			X 50.73(a)(2)(i)			50.73(a)(2)(viii)(A)		
		20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)		
		20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(ix)		

NAME

Steven B. Tipps, Nuclear Safety &amp; Compliance Manager

TELEPHONE NUMBER (include area code)

AREA CODE 9 1 2 3 6 7 - 7 8 5 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	
X	V	I	F	L	T	F	0	3	0	Yes

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X					

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-space typewritten lines) (16)

On 6/13/94, at approximately 1300 EDT, Unit 1 and Unit 2 were both in the Run mode at 2436 CMWT (100 percent rated thermal power). At that time, it was determined that a plant procedure contained an acceptance criterion for carbon efficiency for the Main Control Room Environmental Control System (MCRECS) that was nonconservative with respect to the requirements of the Unit 2 Technical Specifications. In investigating the discrepancy, two instances were identified in the past five years in which the carbon efficiency was less than that required by the Unit 2 Technical Specifications. In each case, only the "B" train of MCRECS was affected. The Unit 2 Technical Specifications require that with the efficiency less than 99 percent the carbon should be replaced within seven days or the unit brought to Hot and then Cold Shutdown within the following 12 and 24 hours, respectively. However, plant personnel were not aware of the conditions at the time of occurrence; therefore, the actions were not taken. The carbon had already been replaced at the time the events were discovered. Also, discussions with the Architect Engineer revealed that even though the procedural limits were in compliance with the Unit 1 Technical Specifications, 10 CFR 50, App. A, GDC 19 limits could have been exceeded in the unlikely event of an accident if the carbon efficiency for both filter trains was at the procedural limit. The investigation into the causes of the event was inconclusive but the causes appear to involve less than adequate procedural controls, less than adequate Technical Specifications, and personnel error. Corrective actions include revising procedures and revising the Technical Specifications.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

Energy Industry Identification System Codes are identified in the text as (EIIIS Code XX).

DESCRIPTION OF EVENT

On 6/13/94, at approximately 1300 EDT, Unit 1 was in the Run mode at 2436 CMWT (100 percent rated thermal power) and Unit 2 was in the Run mode at 2436 CMWT (100 percent rated thermal power). At that time, during activities associated with the implementation of the Improved Technical Specifications, it was determined that procedure 42SV-Z41-002-0S, "Testing of Control Room Habitability Filter Trains," contained an acceptance criterion for carbon efficiency for the Main Control Room Environmental Control System (MCRECS, EIIIS Code VI) that was nonconservative with respect to the requirements of the Unit 2 Technical Specifications.

MCRECS is a unit-common system that is designed to maintain habitability of the Main Control Room (MCR), which houses the controls for Unit 1 and Unit 2. As such, both units' Technical Specifications contain testing requirements for the system filter trains. Procedure 42SV-Z41-002-0S requires a greater than or equal to 90 percent carbon efficiency for MCRECS filter trains, where as the Unit 2 Technical Specifications require greater than or equal to 99 percent by reference. (The Unit 2 Technical Specifications actually refer to Regulatory Guide (RG) 1.52, Revision 1, "Design, Testing, and Maintenance Criteria for Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," which in turn requires the greater than or equal to 99 percent acceptance criterion for the particular system design associated with MCRECS.) The Unit 1 Technical Specifications requirement is greater than or equal to 90 percent.

With the procedural acceptance criterion being nonconservative with respect to the Unit 2 Technical Specifications, it was realized that the results of the most recent carbon efficiency tests needed to be reviewed to determine if the carbon material currently in place was in compliance with the Unit 2 Technical Specifications requirements. The most recent tests on the MCRECS carbon had been performed in June of 1993. The results of these tests were as follows: 99.975 percent carbon efficiency for the "A" filter train carbon, and 99.578 for the "B" filter train carbon. The actual dates for these tests were 6/16/93 and 6/17/93 for the "A" and "B" trains, respectively. However, in reviewing the data from these tests, it was determined at approximately 1330 EDT, on 6/13/94, that these tests were improperly performed in that a four-inch carbon bed configuration was used in the

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testing as opposed to a two-inch bed configuration. The MCRECS filter trains are designed with a two-inch carbon filter bank; therefore, the test should have likewise been performed on a two-inch sample bed.

Typically, for the same carbon sample, a four inch bed test would yield a higher filtration efficiency than that for a two inch bed. Thus, the filter train efficiency determined in June of 1993 was in question. As a result, an evaluation by the Architect Engineer (A/E) was initiated to determine the carbon efficiency for a two inch bed, based on the June 1993 four inch bed test data.

The carbon in the MCRECS filter trains was installed in December of 1991 and was relatively new. Furthermore, the service life of the carbon was favorable. That is, the system is typically operated approximately two hours per month and the probability of the carbon being subjected to adsorption poisons was very low. Also, the results for the four-inch bed tests were high. It was therefore concluded that the analysis would probably show that the carbon efficiency for the two-inch bed configuration would be greater than or equal to 99 percent. Thus, it was further concluded that pending the completion of the analysis the MCREC filter trains were operable.

As a conservative measure, however, the carbon filter for the MCRECS train "B" was replaced. The appropriate functional tests were performed and the filter train was returned to service by 0230 EDT, on 6/14/94. The evaluation of the "A" train carbon was completed and the results received from the A/E at approximately 1400 EDT, on 6/14/94. The efficiency of the "A" train carbon was analytically determined to be 99.28 percent. The "A" train was therefore shown to be operable. However, as a conservative measure, plans were also made to replace the "A" train carbon filter. The filter was subsequently replaced, the appropriate functional testing was performed, and the filter train was returned to service on 6/17/94, at 1222 EDT.

Samples of the replaced carbon for both filter trains were sent offsite to a laboratory for testing to determine the efficiency of the carbon as of June of 1994. The results of the testing were as follows: 98.73 percent for the "A" train and 99.198 percent for the "B" train. The results for the "A" train carbon are not necessarily reflective of the performance of the carbon at the time the test was improperly performed in June of 1993. This is because the carbon, having been in service for approximately a year since the test was performed, experienced some amount of degradation. It is

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possible that in June of 1993 the carbon had an efficiency of 99.28 percent as predicted by analysis and then degraded over the following year to an efficiency of 98.73. In conclusion, the test results do not necessarily invalidate the analysis performed by the A/E.

On 6/17/94, at approximately 1400 EDT, in investigating this event, two instances were identified in the past five years in which the Unit 2 Technical Specifications were unknowingly and unintentionally violated. In each case, only the "B" train of MCRECS was affected. The date of the events, the carbon efficiencies, and the dates when the carbon was replaced are included below:

Event Date	Carbon Performance	Date Carbon Replaced
3/23/89	95.795%	7/19/90
7/19/90	98.648%	12/17/90

The Unit 2 Technical Specifications require that with the carbon efficiency less than 99 percent, the carbon should be replaced within seven days or the unit brought to Hot and then Cold Shutdown within the following 12 and 24 hours, respectively. Since plant personnel were not aware of the conditions, the Technical Specifications actions were not implemented. As shown in the table above, the carbon had already been replaced at the time these events were discovered, and no further actions related to Technical Specifications compliance were needed.

Subsequent discussions with the A/E revealed that the carbon efficiency acceptance criterion found in procedure 42SV-Z41-002-0S and the Unit 1 Technical Specifications (greater than or equal to 90 percent) was too low to ensure that 10 CFR 50, Appendix A, GDC 19 limits regarding doses to MCR personnel would not be exceeded in the unlikely event of a design basis accident. Specifically, at a 90 percent carbon efficiency, it appears that the carbon filters of the MCRECS filter trains may not be able to filter out sufficient levels of radioactive iodine under postulated accident conditions to ensure that the GDC limits were not exceeded. However, a review of the filter train performance over the last five years shows that at no time, during this period, were the trains degraded to the extent where the GDC 19 limits might have been exceeded in the event of an accident. It is noted that Unit 1 is licensed with the greater than or equal to 90 percent criterion.



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CAUSE OF EVENT

The investigation into the causes of the procedure being nonconservative regarding the carbon efficiency requirements was inconclusive. However, it appears that the causes include less than adequate Technical Specifications and personnel error. The early versions of the Unit 1 Technical Specifications did not contain specific carbon efficiency requirements for the MCREC filter trains. Consequently, the NRC directed Georgia Power Company to amend the Technical Specifications by incorporating the appropriate sections of the Model Technical Specifications (reference NRC to GPC letter dated 12/13/74). The Model Technical Specifications contained a criterion of greater than or equal to 90 percent and an accompanying basis. The actions were taken as directed. The NRC approved the amendment application (Amendment No. 22) and issued the amendment on 11/10/75.

Procedure 42SV-Z41-002-0s did not reflect the more restrictive Unit 2 Technical Specifications value for efficiency because of personnel error. The cause for the error is unknown. This error has apparently existed since original licensing of Unit 2. A contributory cause may be that Unit 2 did not explicitly list the 99% value, but rather only referenced RG 1.52, whereas the Unit 1 Technical Specifications explicitly stated greater than or equal to 90%.

The cause of the June of 1993 testing being performed improperly was less than adequate procedural controls and personnel error by persons unknown. Testing of the MCRECS filter trains is addressed in procedure 42SV-Z41-002-0S. The procedure directs plant personnel to have the carbon sample that was removed during performance of the testing sent offsite for retention testing. The procedure specifies the standard by which the carbon is to be tested and the temperature and humidity to which the carbon is to be subjected during the test. However, the procedure does not specify the bed depth configuration required for the test. Subsequently, when the samples were sent to the offsite testing facility, it is apparent that either the system engineer told the lab technician to perform the test using the incorrect bed depth or the technician confused the sample with other tests performed for the plant using a four-inch bed configuration.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is required pursuant to 10 CFR 50.73 (a) (2) (i) because MCRECS filter train carbon efficiency did not meet Technical Specifications requirements on two separate occasions. However, because plant personnel were unaware of these situations, the required actions were not taken, resulting in violations of the Technical Specifications. This report is also required pursuant to 10

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CFR 50.73 (a) (2) (v) because the Unit 1 Technical Specifications and procedure 42SV-Z41-002-0S with the greater than or equal to 90 percent MCRECS carbon efficiency criterion could have theoretically allowed the filter trains to have degraded to the point such that the 10 CFR 50, Appendix A, GDC 19 limits could have been exceeded in the unlikely event of an accident. A review of MCRECS carbon efficiency over the past five years showed that, during that period of time, the MCRECS carbon efficiency was adequate to ensure that GDC 19 limits would not be exceeded in an accident.

MCRECS is designed in part to maintain the habitability of the MCR by pressurizing the MCR with radiologically clean air in the unlikely event of an accident thereby limiting exposure to MCR personnel to within 10 CFR 50, Appendix A requirements. In this event, it was determined that on two separate occasions the carbon efficiency for the "B" train of MCRECS did not meet the Unit 2 Technical Specifications requirements, rendering the "B" train inoperable on both occasions. However, during the associated time periods, the "A" train of MCRECS was fully operable and capable of performing its intended function.

Also, in this event, it was determined that procedure 42SV-Z41-002-0S and the Unit 1 Technical Specifications could have allowed the carbon filters of both MCRECS filter trains to degrade to the point where GDC 19 limits could have been exceeded in the unlikely event of an accident. Specifically, discussions with the A/E revealed that with a 90 percent carbon efficiency, which is allowed by the Unit 1 Technical Specifications and procedure 42SV-Z41-002-0S, the MCRECS filter trains might not be able to maintain MCR doses to within GDC 19 limits assuming a design basis LOCA. It is noted that Unit 1 is licensed with the greater than or equal to 90 percent criterion. As previously discussed, the historical performance of the filter trains was reviewed for the past five years. The review showed that at no time during the past five years were both filter trains degraded to the extent that GDC 19 limits could have been exceeded in the unlikely event of an accident.

Based on the above information, it is concluded that this event had no adverse impact on nuclear safety. This assessment applies to all operating conditions.

CORRECTIVE ACTIONS

The carbon in the "A" and "B" MCRECS filter trains was replaced on 6/17/94 and 6/14/94, respectively.

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Procedure 42SV-Z41-002-0S will be revised to change the carbon retention requirement to greater than or equal to 99 percent. The procedure will also be revised to incorporate the bed depth requirements for retention testing. The procedure revision will be completed by 8/31/94, before the next scheduled test of the MCRECS filter trains.

The carbon efficiency criterion for MCRECS in the Unit 1 Technical Specifications will be corrected with the issuance of the Improved Technical Specifications. The Improved Technical Specifications contains the appropriate carbon efficiency requirements and is currently scheduled to be implemented in March of 1995.

No personnel counseling was performed since it was inconclusive as to which individuals were involved.

ADDITIONAL INFORMATION

No systems other than those previously identified in this report were affected by this event.

Four similar events have occurred in the past two years in which Technical Specifications actions statements were not implemented as required. The events were addressed in the following reports:

50-321/92-17, dated 7/21/92,  
50-321/93-08, dated 7/3/93,  
50-366/92-11, dated 8/14/92, and  
50-366/92-27, dated 12/21/92.

Corrective actions for these events included counseling personnel, revising procedures, implementing a design change, repairing components, and training personnel. These actions could not have prevented this event because they had no impact on procedure 42SV-Z41-002-0S and the carbon performance acceptance criterion found in the procedure.



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Seven similar events have occurred in the past two years in which a condition resulted in or could have resulted in a system being rendered incapable of performing its intended safety function. The events were addressed in the following reports:

50-321/93-15, dated 12/21/93,  
50-321/94-06, dated 6/13/94,  
50-366/92-28, dated 1/11/93,  
50-366/93-06, dated 8/18/93,  
50-366/93-07, dated 9/23/93,  
50-366/93-08, dated 11/30/93, and  
50-366/94-02, dated 3/29/94.

Corrective actions for these events included replacing failed components, developing procedural controls, performing corrective maintenance, performing a modification, and counseling and training personnel. These corrective actions could not have prevented this event because they had no bearing on the carbon efficiency requirements found in the Unit 1 Technical Specifications and in procedure 42SV-Z41-002-0S.

## Failed Components Information:

Master Parts List Number: 1Z41-D004A and B  
Type: Filter Train Carbon Filter  
Manufacturer: Farr Co.  
Model Number: NPP-1  
Manufacturer Code: F030  
EHS System Code: VI  
EHS Component Code: FLT  
Root Cause Code: X  
Reportable to NPRDS: Yes