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the southern electric system

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HL-1420
00143

January 9, 1991

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

PLANT E. I. HATCH - UNIT 1
NRC DOCKET 50-321
OPERATING LICENSE DPR-57
LICENSEE EVENT REPORT
RADIOACTIVE LIQUID EFFLUENT SAMPLE ANALYSES
INCONSISTENT WITH TECHNICAL SPECIFICATIONS REQUIREMENTS

Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning analysis limits for radioactive liquid effluent samples which were inconsistent with Technical Specifications requirements for Lower Limit of Detection (LLD). This event occurred at Plant Hatch - Units 1 and 2.

Sincerely,



W. G. Hairston, III

JJP/CT
Enclosure: LER 50-321/1990-023

c: (See next page.)

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c: Georgia Power Company
Mr. H. L. Sumner, General Manager - Nuclear Plant
Mr. J. D. Heidt, Manager Engineering and Licensing - Hatch
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. Ebnetter, Regional Administrator
Mr. L. D. Wert, Senior Resident Inspector - Hatch

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **PLANT HATCH, UNIT 1** DOCKET NUMBER (2) **05000321** PAGE (3) **1** OF **5**

TITLE (4) **RADIOACTIVE LIQUID EFFLUENT SAMPLE ANALYSES INCONSISTENT WITH TECHNICAL SPECIFICATIONS REQUIREMENTS**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ NUM	REV	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
12	14	90	90	023	00	01	09	91	PLANT HATCH, UNIT 2	05000366
										05000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)

OPERATING MODE (9)	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
1				
POWER LEVEL	100	20.405(a)(1)(i)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.73(a)(2)(viii)	OTHER (Specify in Abstract below)
		20.405(a)(1)(iii)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
STEVEN B. TIPPS, MANAGER NUCLEAR SAFETY AND COMPLIANCE, HATCH	912 367-7851

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

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

ABSTRACT (16)

On 12/14/90 at approximately 1200 CST, Unit 1 and Unit 2 were in the Run mode at an approximate power level of 2436 CMWT (approximately 100% rated thermal power). At that time, it was determined some of the quarterly composite radioactive liquid effluent sample analyses did not meet the Unit 1 and Unit 2 Technical Specifications requirements for Lower Limit of Detection (LLD). Specifically, the Unit 1 and Unit 2 radioactive liquid effluent analyses for Strontium-89 (Sr-89) for the second quarter of 1990 and the Unit 1 radioactive liquid effluent analyses for Sr-89 for the third quarter of 1990 did not meet the LLD requirements as given in Unit 1 Technical Specifications Table 4.15.1-1 and Unit 2 Technical Specifications Table 4.11.1-1. A review of a sample of 1989 and 1990 radioactive gaseous effluent analyses results indicated they met the corresponding LLD requirements. Review of the Sr-89 concentrations in the discharged liquid at the site boundary for the referenced 1990 quarters indicates that no release limits were exceeded.

The cause of this event was a less than adequate procedure. Procedure 64CH-RPT-004-OS, "Liquid Effluents: Reports," did not require comparison of vendor analyses results with the Technical Specifications LLD requirements. Additionally, the procedure did not require a large enough sample to be sent to the vendor for analysis such that the LLD requirements could always be met.

Corrective actions include revising the forms on which the radioactive liquid and gaseous effluent composite sample results are recorded and revising procedures 64CH-RPT-004-OS and 64CH-RPT-001-OS, "Gaseous Effluents: Reports."

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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).

SUMMARY OF EVENT

On 12/14/90 at approximately 1200 CST, Unit 1 and Unit 2 were in the Run mode at an approximate power level of 2436 CMWT (approximately 100% rated thermal power). At that time, it was determined some of the quarterly composite radioactive liquid effluent sample analyses did not meet the Unit 1 and Unit 2 Technical Specifications requirements for Lower Limit of Detection (LLD). Specifically, the Unit 1 and Unit 2 radioactive liquid effluent analyses for Strontium-89 (Sr-89) for the second quarter of 1990 and the Unit 1 radioactive liquid effluent analyses for Sr-89 for the third quarter of 1990 did not meet the LLD requirements as given in Unit 1 Technical Specifications Table 4.15.1-1 and Unit 2 Technical Specifications Table 4.11.1-1. A review of a sample of 1989 and 1990 radioactive gaseous effluent analyses results indicated they met the corresponding LLD requirements. Review of the Sr-89 concentrations in the discharged liquid at the site boundary for the referenced 1990 quarters indicates that no release limits were exceeded.

The cause of this event was a less than adequate procedure. Procedure 64CH-RPT-004-OS, "Liquid Effluents: Reports," did not require comparison of vendor analyses results with the Technical Specifications LLD requirements. Additionally, the procedure did not require a large enough sample to be sent to the vendor for analysis such that the LLD requirements could always be met.

Corrective actions include revising the forms on which the radioactive liquid and gaseous effluent composite sample results are recorded and revising procedures 64CH-RPT-004-OS and 64CH-RPT-001-OS, "Gaseous Effluents: Reports."

DESCRIPTION OF THE EVENT

During a routine audit, plant Safety Audit and Engineering Review (SAER) personnel reviewed the results of vendor (Teledyne Isotopes) performed analyses of composite radioactive liquid effluent samples. These composite sample analyses are performed quarterly to meet the requirements of Unit 1 and Unit 2 Technical Specifications, Tables 4.15.1-1 and 4.11.1-1, respectively. SAER personnel questioned some of the composite radioactive liquid effluent analysis results for the second and third quarters of 1990. Specifically, they questioned whether the LLD requirements of the Unit 1 and Unit 2 Technical Specifications were met for some of the Strontium (Sr) analyses for this period.

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In response to these questions, plant Chemistry personnel reviewed the analyses results for the second and third quarters of 1990. They determined the Unit 1 and Unit 2 radioactive liquid effluent analyses for Sr-89 for the second quarter of 1990 and the Unit 1 analysis for Sr-89 for the third quarter of 1990 did not meet the Unit 1 and Unit 2 Technical Specifications LLD requirements for these analyses. The vendor reported minimum detectable levels for Sr-89 for the second quarter of 1990 were 7E-08 uCi/ml (Unit 1) and 6E-08 uCi/ml (Unit 2). The reported minimum detectable level for Sr-89 for the third quarter of 1990 was 2E-07 uCi/ml (Unit 1). The Unit 1 and Unit 2 Technical Specifications LLD requirement for Sr-89 is 5E-08 uCi/ml.

Upon discovery of this event, plant Chemistry personnel wrote a Deficiency Card per approved plant procedures. To assess the potential scope of the deficiency, plant Nuclear Safety and Compliance (NS&C) personnel reviewed radioactive liquid effluent composite sample analyses results for the fourth quarter of 1989 and the first quarter of 1990 and no further problems were found. Additionally, NS&C personnel reviewed a sample of 1989 and 1990 radioactive gaseous effluent analyses results. All analyses results reviewed met the LLD requirements for radioactive gaseous effluents sample analyses as contained in Unit 1 Technical Specifications Table 4.15.2-1 and Unit 2 Technical Specifications Table 4.11.2-1.

CAUSE OF THE EVENT

The cause of this event was a less than adequate procedure. Procedure 64CH-RPT-004-0S did not require comparison of vendor analyses results with the Technical Specifications LLD requirements. Consequently, plant personnel recording the vendor analyses results on the applicable plant forms did not verify the reported results met all appropriate Technical Specifications requirements.

Additionally, procedure 64CH-RPT-004-0S was less than adequate in that it did not require a large enough sample to be sent to the vendor for analysis such that the LLD requirements could always be met. Conversations with the vendor, during the investigation of this event, indicated the volume of the radioactive liquid effluent sample sent for the third quarter of 1990 was not sufficient to perform all the required analyses and, in all cases, meet Plant Hatch's LLD requirements without prohibitively long count times. A review of the second quarter 1990 data indicates the vendor was sent the same volume of sample as for the third quarter 1990 and both these volumes met the minimum volume required by the procedure. A further review of the data indicates the volumes sent in the fourth quarter of 1989 and the first quarter of 1990 were at least five times the volume of the samples sent in the second and third quarters of 1990. As stated earlier, there were no problems with the analyses results for the fourth quarter of 1989 and the first quarter of 1990.

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REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is required by 10 CFR 50.73(a)(2)(i) because a condition existed which was prohibited by the plant's Technical Specifications. Specifically, not all of the analyses requirements for radioactive liquid effluent composite samples were met. Some Sr-89 analyses for the second and third quarters of 1990 did not meet LLD requirements as given in Unit 1 Technical Specifications Table 4.15.1-1 and Unit 2 Technical Specifications Table 4.11.1-1.

Prior to each batch of radioactive liquid effluent being discharged to the environment, analysis is performed to assure that the release is mixed with sufficient non-radioactive dilution flow such that the instantaneous discharge limits of the Unit 1 Technical Specifications section 3.15.1.1 and Unit 2 Technical Specifications section 3.11.1.1 are not exceeded at the discharge point. The concentration of radioactive material in a particular batch is determined by measuring with on-site equipment the concentrations of the Gamma emitter radionuclides and adding a factor to account for the concentrations of the Beta emitter radionuclides based on the composite sample from the previous quarter. Since Beta emitter radionuclides require more complex analysis to measure their concentrations, it is performed by a vendor lab on a composite quarterly sample. Also, these radionuclide concentrations historically do not vary significantly from batch to batch which allows for the use of the previous quarter's results as noted above.

In this event, the LLD requirement for the quarterly composite sample analysis for Sr-89 was not met for the second quarter of 1990 for both Units 1 and 2 and for the third quarter of 1990 for Unit 1 only. The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95-percent probability, with a 5-percent probability of falsely concluding that a blank observation represents a real signal. The capability to meet the LLD requirement without prohibitively long count times is dependent on a number of factors, one of them being sample size. However, the composite sample analysis is performed on the liquid effluent without consideration of the significant dilution flow mixed with the radioactive effluent prior to being discharged to the environment. Therefore, it can be concluded that Technical Specifications release requirements were not exceeded at the site boundary. Specifically, the Sr-89 concentration in the discharged liquid at the site boundary was less than 0.008 percent and 0.03 percent of the limit for the second and third quarters of 1990, respectively.

Based on the above analysis, it is concluded that this event had no adverse impact on the health and safety of the public. Because the power level of the two units would have not changed the nature of the event, it is concluded that this event would not have been more severe under other operating conditions.

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CORRECTIVE ACTIONS

Procedure 64CH-RPT-004-OS will be revised by 01/31/91 to require comparison of radioactive liquid effluent sample analyses results with Technical Specifications LLD requirements and to require a sample of at least 500 ml be sent to the vendor for analysis. Also, procedure 64CH-RPT-001-OS will be revised by 01/31/91 to require comparison of radioactive gaseous effluent sample analyses results with Technical Specifications LLD requirements.

As an interim corrective action to ensure Technical Specifications compliance until the procedures can be revised, several forms contained in plant procedure 64CH-ADM-002-OS, "Chemistry Forms," were revised to include the appropriate LLD requirements. This will ensure the Chemistry technician and foreman have readily available information for comparison when completing the forms. The revised forms include HPX-0469, "Liquid Effluents: Composite Report," HPX-0364, "Gaseous Effluents: Strontium," HPX-0346, "Gaseous Effluents: Tritium," and HPX-0345, "Gaseous Effluents: Gross Alpha." The revised forms were effective 12/18/90.

As well, conversations will be held with the vendor to assure that they also monitor appropriately the composite liquid effluent sample analysis results and communicate any future problems with meeting LLD requirements to responsible plant personnel.

Any corrections necessary to the Semi-annual Radioactive Effluent Release Report for the first six months of 1990 will be included in the effluent release report submitted within 60 days of 1/1/91 per the requirements of Unit 1 and Unit 2 Technical Specifications Sections 6.9.1.8 and 5.9.1.9.

ADDITIONAL INFORMATION

No plant systems were affected by this event.

No failed components caused or resulted from this event.

No previous similar events in which a Technical Specifications required analysis did not meet LLD requirements have been reported in the last two years.