

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9806020116 DOC. DATE: 98/05/28 NOTARIZED: NO DOCKET #
 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
 AUTH. NAME AUTHOR AFFILIATION
 FREHAFFER, K.W. Florida Power & Light Co.
 STALL, J.A. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 98-004-01: on 980430, discovered waste gas decay tank operation w/o available oxygen analyzers, which is prohibited by TS. Caused by inadequate licensee review of license amend. Oxygen analyzer recalibrated. W/980528 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

May 28, 1998

L-98-136
10 CFR 50.73

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

Re: St. Lucie Unit 2
Docket No. 50-389
Reportable Event: 98-004
Date of Event: April 30, 1998
Waste Gas Decay Tank Operation With No Available
Oxygen Analyzers Prohibited by Technical Specifications

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR 50.73.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/EJW/KWF

Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

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LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20565-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) ST LUCIE UNIT 2		DOCKET NUMBER (2) 05000389	PAGE (3) 1 OF 5
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TITLE (4)
Waste Gas Decay Tank Operation With No Available Oxygen Analyzers Prohibited by Technical Specifications

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
4	30	98	98	004	0	5	28	98	ST LUCIE UNIT 1	05000335
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	100	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)				
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)				
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71				
		20.2203(a)(2)(iii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER				
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 368A				
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)

NAME K. W. Frehafer	TELEPHONE NUMBER (Include Area Code) (561) 467-7748
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On April 30, 1998, Units 1 and 2 were in Mode 1 at approximately 100 percent power. The Unit 2 waste gas system was in service and lined up to waste gas decay tank 2A. On Unit 2 at approximately 04:15 on April 30, 1998, the 2A oxygen analyzer, O₂Y-6601, was removed from service. The 2B oxygen analyzer, O₂Y-6602, was also out of service at the time; removing O₂Y-6601 from service resulted in the waste gas system being in service with no operable oxygen analyzers. Technical Specification Surveillance Requirement 4.11.2.5.1 requires the continuous monitoring of the waste gases in the in service waste gas decay tank for oxygen content. The 2A Oxygen Analyzer, O₂Y-6601, was returned to service on May 1, 1998, at 0305 hours. Past operational history was reviewed, and a similar occurrence was discovered to have occurred on St. Lucie Unit 1 on April 3, 1998.

The cause of this event was an inadequate licensee review of the license amendment that was processed to relocate the explosive gas monitoring instrumentation requirements from the Technical Specifications to the UFSAR. The amendment introduced ambiguity in the allowed use of grab sampling for oxygen concentration when no oxygen monitors are available. Corrective actions included returning an oxygen analyzer to service, the development of a proposed license amendment, and procedural changes that prohibit this condition until the license amendment is approved for use at St. Lucie.

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

DESCRIPTION OF THE EVENT

On April 30, 1998, Units 1 and 2 were in Mode 1 at approximately 100 percent power. The Unit 2 waste gas system was in service and lined up to waste gas decay tank (GDT) 2A. On Unit 2 at approximately 04:15 on April 30, 1998, the oxygen analyzer, O₂Y-6601, indicated 0 percent oxygen concentration for the in service GDT. Based on previous experience, the 0 percent oxygen concentration reading was considered questionable and the analyzer was removed from service. The oxygen analyzer, O₂Y-6602, was also out of service; removing O₂Y-6601 from service resulted in the waste gas system being in service with no operable oxygen analyzers.

The design basis for the waste gas system is to discharge radioactive gaseous wastes from the plant after first being collected by the gaseous waste management system (GWMS). The principal design objective of the GWMS is to ensure that all releases of radioactive gases both in the plant and to the environment are as low as is reasonably achievable.

The GWMS is not designed to withstand the effects of an explosion. Rather, it is designed to detect and preclude the formation of potentially explosive mixtures of hydrogen and oxygen by an extensive combination of design features. Because the GWMS is normally operated hydrogen rich, to ensure that unacceptable mixtures will be detected and mitigated, the gas is analyzed for oxygen. Two oxygen analyzers are provided for determining oxygen concentrations. For Unit 2, oxygen analyzer O₂Y-6601, the auto gas analyzer, is used to sample the in service GDT, and oxygen analyzer O₂Y-6602, the continuous oxygen analyzer, is used to sample the combined stream of the sources at the gas surge header. For Unit 1, both oxygen analyzers O₂Y-6601 and O₂Y-6602 are in the same cabinet and are used to sample the in service GDT. If automatic analyzer operation is interrupted, samples can be obtained from the grab sample port on the analyzer and from local sample lines at selected locations in the GWMS.

Both of the gas analyzers are provided with an automatic control function, each of which can independently supply measurements verifying that oxygen is not present in potentially explosive concentrations. The control feature automatically isolates the source of oxygen from the system through use of a fail-closed valve in the suction line to the waste gas compressors at the high-high alarm setting.

A process flow bypass line that exists in the GWMS leads from the gas surge tank directly to the gas discharge header and bypasses the waste gas compressor and gas decay tanks. This flow path is used when Chemistry guidelines have determined that no holdup of gaseous effluent is required prior to release or when it is necessary to purge air from components after maintenance operations. The bypass flow passes through the radiation monitor in the plant vent stack.

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TEXT (If more space is required, use additional copies of NRC Form 368A) (17)

DESCRIPTION OF THE EVENT (cont'd)

Technical Specification 3.11.2.5, Radioactive Effluents-Explosive Gas Mixture, provides limits and surveillances to ensure that the concentration of potentially explosive gas mixtures contained in the in service GDT is maintained below the flammable limits of hydrogen and oxygen. Technical Specification Surveillance Requirement 4.11.2.5.1 requires the concentration of oxygen in the waste gas decay tank to be determined to within the Technical Specification limits (generally less than 2 percent) by continuously monitoring the waste gases in the in service GDT. The provisions of Technical Specification 3.0.3 or 3.0.4 are not applicable to these Technical Specifications.

As stated earlier, the Unit 2 waste gas system was in operation with no operable oxygen analyzers. Operations followed the allowed actions as specified in UFSAR Section 13.7.1.5 for gas monitoring instrumentation. UFSAR Table 13.7.1-5 requires at least one oxygen monitor to be operable, and states that, "with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 30 days provided samples of oxygen are analyzed by the lab gas partitioner at least once per 24 hours." Operations had Chemistry sample the in service waste gas decay tank 2A. The sample indicated oxygen concentration was less than 2 percent (no oxygen concentration detected). However, the use of a 24 hour grab sample for oxygen concentration of the in service GDT is contrary to the literal meaning of continuous monitoring as stated in the Technical Specifications. The Oxygen Analyzer, O₂Y-6601, was returned to service on May 1, 1998, at 0305 hours.

CAUSE OF THE EVENT

The cause of this event was an inadequate licensee review of the license amendment that was processed to relocate the Explosive Gas Monitoring Instrumentation requirements from the Technical Specifications to the UFSAR. The Explosive Gas Monitoring Instrumentation operability requirements were removed from the facility Technical Specifications for Unit 1 by License Amendment No. 147 and for Unit 2 by License Amendment No. 86 as documented in the NRC Safety Evaluation Report issued August 20, 1996. The intent of the amendments was to control acceptable concentrations of potentially explosive gas mixtures via the Technical Specification limiting conditions for operation and surveillance requirements, and to relocate the limiting conditions for the operation and surveillance requirements for Explosive Gas Monitoring Instrumentation to the UFSARs.

Technical Specification 3.3.3.10, which specified the limiting conditions for operation and surveillance requirements for the explosive gas monitoring instrumentation, was removed from the Technical Specifications and the information was transferred to the UFSARs (Unit 2 Section 13.7.1.5, Unit 1 Section 13.8.1.4). The UFSARs require at least one oxygen monitor to be operable, and states that, "with the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 30

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

CAUSE OF THE EVENT (cont'd)

days provided samples of oxygen are analyzed by the lab gas partitioner at least once per 24 hours." Therefore, the use of 24 hour grab samples to obtain oxygen concentrations in the waste gas system while the oxygen analyzers are removed from service was previously allowed by the facility licenses. Removal of Technical Specification 3.3.3.10, without addressing the use of 24 hour grab sampling in Technical Specification surveillance 4.11.2.5.1, caused the required action for continuous monitoring of the in-service gas decay tank with the oxygen analyzers removed from service to be unclear. Although 24 hour grab samples met the intent of the Technical Specification surveillance for explosive gas monitoring instrumentation as denoted in the UFSAR, literal compliance with Technical Specification surveillance 4.11.2.5.1 requires continuous oxygen monitoring.

Based on the above license amendments, License Amendments 152 (Unit 1) and 89 (Unit 2), approved by NRC Safety Evaluation Report dated September 22, 1997, administratively deleted the reference to Technical Specification 3.3.3.10 (previously relocated to the UFSAR) from Technical Specification surveillance 4.11.2.5.1. A more thorough licensee review of the amendments may have offered an additional opportunity to recognize that Technical Specification 4.11.2.5.1 and UFSAR Table 13.7.1-5 were inconsistent.

ANALYSIS OF THE EVENT

This event is reportable under 10 CFR 50.73(a)(2)(i)(B) as "any operation or condition prohibited by the plant's Technical Specifications," based upon the literal reading of the Technical Specification Surveillance 4.11.2.5.1. The Technical Specification requires continuous monitoring of the waste gases in the in service GDT, and this requirement was not met by the use of 24 hour grab samples. Past operation history was reviewed and a similar past occurrence was discovered where the waste gas system remained in service with no operable oxygen analyzers. Prior to this event, on April 3, 1998, both Unit 1 oxygen analyzers were out of service with a gas decay tank in service, and 24 hour sampling was in effect.

ASSESSMENT OF SAFETY SIGNIFICANCE

This event had no adverse impact to the health and safety of the public. This condition was caused by the need to comply with the explicit terms of Technical Specification 4.11.2.5.1 which had not been properly addressed by previous license amendments. The plant performed grab samples for oxygen concentration when the oxygen analyzers were removed from service, as allowed by the limiting conditions for operation and surveillance requirements for the explosive gas monitoring instrumentation documented in the UFSARs.

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CORRECTIVE ACTIONS

1. The 2A Oxygen Analyzer, O₂Y-6601, was recalibrated and returned to service on May 1, 1998, in order to establish compliance with the continuous monitoring requirement of Technical Specification Surveillance 4.11.2.5.
2. A proposed license amendment was developed and will be submitted to correct the ambiguity between Technical Specification Surveillance 4.11.2.5 and the limiting conditions for the operation and surveillance requirements for the Explosive Gas Monitoring Instrumentation as documented in the UFSARs.
3. Until corrective action 2 above is approved by the NRC, the waste gas system gas decay tanks will not be placed in service when no oxygen analyzers are in service; releases will be lined up to the plant stack and monitored as required by the Offsite Dose Calculation Manual.
4. Prior to this event, on February 18, 1998, St. Lucie implemented a new procedure, ADM-25.01, "Processing of Proposed or Approved License Amendments," to govern all administrative aspects of developing license amendments. This procedure includes a more rigorous process for the development, internal review, and implementation of proposed license amendments.

ADDITIONAL INFORMATION

Similar Events:

None

Failed Components Identified:

None