

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 3 8 2	PAGE (3) 1 OF 0 6
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TITLE (4)
Diesel Generator Fuel Oil Not Analyzed by Specified Procedure Due to Cognitive Personnel Error

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 NAMES		DOCKET NUMBER(S)
0 7	0 1	8 8	8 8	0 2	0 0	0 8	0 1	8 8	N/A		0 5 0 0 0
									N/A		0 5 0 0 0

OPERATING MODE (9) 1

POWER LEVEL (10) 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(b)	20.405(e)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(e)
20.405(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: R.E. Allen, Chemistry Department Head

TELEPHONE NUMBER: 5 0 4 4 6 4 - 1 3 1 2 9

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

At 1720 hours on July 1, 1988, Waterford Steam Electric Station Unit 3 was operating at 100% power when a chemistry technician discovered that a vendor was not performing Emergency Diesel Generator (EDG) fuel oil analyses in accordance with the related contract. Technical Specifications (TS) require that EDG fuel oil be analyzed in accordance with the tests specified in ASTM-D975. However, the vendor was not performing two of the analyses by the specified tests. It was also noted that Waterford performs one analysis with a different shaped centrifuge tube. Although the procedures and equipment used above are ASTM approved and of equivalent or better accuracy than those specified by ASTM-D975, the plant is considered to have operated in a condition prohibited by TS since initial plant startup.

The root cause of this event is personnel error in that specified procedures were not entirely followed. The vendor will now analyze the diesel fuel oil samples by the procedures specified in the Waterford contract. A TS change has been requested to require that the fuel oil quality meet the specifications of ASTM-D975, but not require the specific tests. Since the analyses results have always been within the values specified by ASTM-D975, even though the specified tests were not utilized, this event had no impact on operability of the EDGs.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 3 8 2 8 8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	- 0 2 0	- 0 0 0	2	OF 0 6

TEXT (if more space is required, use additional NRC Form 366A's) (17)

At 1720 hours on July 1, 1988, Waterford Steam Electric Station Unit 3 was operating at 100% power when a chemistry technician discovered a vendor was not performing Emergency Diesel Generator (EDG) fuel oil sample analyses in accordance with the related contract. Technical Specification (TS) 4.8.1.1.2.c requires that the EDG fuel oil be analyzed in accordance with the ASTM-D975-1977 "Standard Specification for Diesel Fuel Oils" specified procedures. The contract with the vendor requires the vendor to use the ASTM-D975-1977 specified procedures to analyze the EDG fuel oil samples. However, the vendor was not performing two of the analyses by the procedures specified. The two analyses were "Water and Sediment" and "Sulfur". It was also noted that Waterford 3 performs the "Water and Sediment" analysis using the procedure specified in ASTM-D975 but with a different shaped centrifuge tube than the one specified. Although all of the procedures and equipment in use were ASTM approved and of equivalent or better, accuracy and sensitivity, than those specified, the plant is considered to have been in a condition prohibited by TS since initial plant startup.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 3 8 2 8 8 — 0 2 0 — 0 0 0 3 OF 0 6	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 306A's) (17)

The vendor has been under contract with Waterford 3 to analyze the EDG fuel oil samples by the procedures specified in ASTM-D975-1977 since initial plant startup. The "Water and Sediment" procedure specified is ASTM-D1796 "Water and Sediment in Fuel Oils by the Centrifuge Method" and the procedure the vendor performed was ASTM-D2709 "Water and Sediment in Distillate Fuels by Centrifuge". Both of the procedures adequately determine whether the volume percent of water and sediment in fuel oil has exceeded 0.05%. Although ASTM-D2709 is a pass-fail test and not a quantitative analysis, it measures quantities readable to 0.005% volume and therefore is equivalent to the accuracy of test ASTM-D1796.

The "Sulfur" analysis procedure specified by ASTM-D975 is ASTM-D129, "Test for Sulfur in Petroleum Products by Bomb Method." ASTM-D129 has a minimum sensitivity of 0.1% sulfur. The vendor laboratory has been performing the sulfur analysis by ASTM-D4294, "Standard Test Method for Sulfur in Petroleum Products by Non-Dispersive X-Ray Fluorescence Spectrometry" which has a minimum sensitivity of 0.01% sulfur and therefore is more accurate than ASTM-D129. Several times during 1985, the vendor utilized the procedure ASTM-D1552 "Standard Test Method of Sulfur in Petroleum Products" to perform the analysis for sulfur. This procedure has a minimum sensitivity of 0.1% sulfur, the same as ASTM-D129.

Although the procedures performed by the vendor were not those specified by ASTM-D975, they were ASTM approved procedures and were adequate for diesel fuel oil analysis. The procedures performed were of equivalent or better, accuracy and sensitivity, than those procedures specified by ASTM-D975.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 3 8 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	- 0 2 0	- 0 0	0 4	OF 0 6

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

It was also discovered that Waterford 3 has not been performing the "Water and Sediment" analysis in complete accordance with ASTM-D1796. Technical procedure CE-3-602, "Determination of Water and Sediment in Oil", is used by Waterford 3 to analyze fuel oil for water and sediment. This procedure complies with ASTM-D1796 with the exception of the centrifuge tubes utilized. ASTM-D1796 calls for a "cone-shaped" centrifuge tube and CE-3-602 utilizes a "pear-shaped" centrifuge tube. However, this does not affect the analysis results since the measurement sensitivity for water and sediment in the "pear-shaped" tube utilized is equivalent to that of the specified "cone-shaped" tube. This is supported by ASTM-D96 "Standard Test Methods for Water and Sediment in Crude Oils" which demonstrates the equivalence of "cone-shaped" and "pear-shaped" centrifuge tubes. Further, the most important consideration in centrifugal separation is not the shape of the centrifuge tube used but the centrifugal force applied to the tube. Procedure CE-3-602 utilizes the same centrifugal force specified in ASTM-D1796. Therefore, it can be concluded that all of the "Water and Sediment" determinations performed by Waterford 3 were accurate.

The root cause of this event is cognitive personnel error. Contract laboratory personnel presumed that technically equivalent or superior methods were acceptable replacements for those specified, and personnel involved in developing CE-3-602 did not ensure the equipment used was in compliance with the specified methods. A technical evaluation was performed to determine if the analytical methods used to obtain the fuel oil analysis results had any effect on emergency diesel operability. The evaluation concluded that the fuel oil stored for and used by the EDGs is acceptable for use and presents no hazard to the EDGs. A telephone conversation with the vendor on July 1, 1988, and a visit by the Chemistry Department Head on July 5, 1988, resulted in the vendor performing a complete set of EDG fuel oil analyses in accordance with ASTM-D975 on July 5, 1988. The "Water and Sediment" and "Sulfur" analyses results were within the limits specified in ASTM-D975. A letter has been sent to the vendor to emphasize the importance of meeting the contract requirements.

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FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 3 8 2 8 8 - 0 2 0 - 0 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	05	OF
		88	020	00		

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

In order to prevent recurrence of this event the vendor will perform EDG fuel oil analysis procedures as specified in the contract and Waterford 3 is ordering new centrifuge equipment. The new centrifuge equipment is expected at Waterford 3 by August 31, 1988. A Technical Specification Change Request is under consideration to remove the strict TS requirement of performing the procedures specified in ASTM-D975 and to allow alternate procedures to be performed if they are equivalent or better than the procedures specified in ASTM-D975. This will allow the licensee to take advantage of improved equipment and analysis technology as it is developed. The analysis results will continue to be required to meet the qualities specified in ASTM-D975. Utility personnel have performed a technical audit of the contract laboratory to assure their detailed compliance with ASTM Procedures. No deviations from procedures were noted. The Waterford 3 contracting department is also determining the availability of alternate contractors who can perform diesel fuel oil analyses. All other Chemistry Department sample analyzation contracts are being performed as specified.

The diesel fuel oil analyses have always been performed by ASTM approved procedures and with ASTM approved equipment. Therefore, the results have always been accurate and in compliance with the specification requirements of ASTM-D975 and therefore acceptable for use in the EDGs. Since the intent of ASTM-D975 has been complied with; that ASTM approved procedures are utilized to obtain the results specified in Table 1 of ASTM-D975, operation with the diesel fuel oil as analyzed had no impact on the operability of the EDGs.

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FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 3 8 2 8 8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0	2	0	0	6

TEXT (if more space is required, use additional NRC Form 366A's) (17)

SIMILAR EVENTS

NONE

PLANT CONTACT

R.E. Allen, Chemistry Department Head, 504/464-3129



LOUISIANA
POWER & LIGHT

WATERFORD 3 SES • P.O. BOX 8 • KILLONA, LA 70066-0751

Ref: 10CFR50.73(a)(2)(i)

August 1, 1988

W3A88-0087
A4.05
QA

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

SUBJECT: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Reporting of Licensee Event Report

Attached is Licensee Event Report Number LER-88-020-00 for Waterford Steam Electric Station Unit 3. This Licensee Event Report is submitted pursuant to 10CFR50.73(a)(2)(i).

Very truly yours,

N.S. Carns
Plant Manager - Nuclear

NSC/WMC:rk

Attachment

cc: R.D. Martin, NRC Resident Inspectors Office, INPO Records Center
(J.T. Wheelock), E.L. Blake, W.M. Stevenson, D.L. Wigginton

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11