

The Light company

Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

February 19, 1993
ST-HL-AE-4333
File No.: G26
10CFR50.73

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project
Unit 1
Docket No. STN 50-498
Licensee Event Report 93-005
Standby Diesel Generator 13 Failure to Start

Pursuant to 10CFR50.73, Houston Lighting & Power (HL&P) submits the attached Unit 1 Licensee Event Report (LER 93-005) regarding Standby Diesel Generator 13 failure to start, as required per Technical Specifications. This event did not have any adverse effect on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. J. M. Pinzon at (512) 972-8027 or me at (512) 972-7921.

W. H. Kinsey, Jr.
W. H. Kinsey, Jr.
Vice President,
Nuclear Generation

MKJ/sr

Attachment: LER 93-005 (South Texas, Unit 1)

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PDR ADDCK 05000498
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Project Manager on Behalf of the Participants in the South Texas Project

LE 93-005
Run front to back

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U.S. Nuclear Regulatory Comm.
Attn: Document Control Desk
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NRC FORM 366 (5-85)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
LICENSEE EVENT REPORT (LER)					
(See reverse for required number of digits/characters for each block)					
FACILITY NAME (1) South Texas, Unit 1				DOCKET NUMBER (2) 05000 498	PAGE (3) 1 OF 06
TITLE (4) Standby Diesel Generator 13 Failure to Start					
EVENT DATE (5)		LER NUMBER (6)		REPORT NUMBER (7)	OTHER FACILITIES INVOLVED (8)
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
0	1	20	93	93	005
0	2	1	99	3	
OPERATING MODE (9) 1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 4: (Check one or more) (11)			
POWER LEVEL (10) 95		<div style="display: flex; justify-content: space-between;"> <div> 20.402(b) 20.405(a)(1)(i) 20.405(a)(1)(ii) 20.405(a)(1)(iii) 20.405(a)(1)(iv) 20.405(a)(1)(v) </div> <div> 20.405(c) 50.36(c)(1) 50.36(c)(2) 50.73(a)(2)(i) 50.73(a)(2)(ii) 50.73(a)(2)(iii) </div> <div> 50.73(a)(2)(iv) 50.73(a)(2)(v) 50.73(a)(2)(vi) 50.73(a)(2)(vii)(A) 50.73(a)(2)(vii)(B) 50.73(a)(2)(x) </div> <div> 73.71(b) 73.71(c) OTHER <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> </div>			
SPCL RPT					
LICENSEE CONTACT FOR THIS LER (12)					
NAME Jairo Pinzon - Senior Engineer				TELEPHONE NUMBER (include Area Code) (512) 972-8027	
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	
E	EK	DG	C 6 3 4	YES	
SUPPLEMENTAL REPORT EXPECTED (14)					
YES (If yes, complete EXPECTED SUBMISSION DATE)				NO	
<input checked="" type="checkbox"/>				<input type="checkbox"/>	
EXPECTED SUBMISSION DATE (15)				MONTH	DAY
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)					
<p>On January 20, 1993, Unit 1 was in Mode 1 at 95% power. Standby Diesel Generator 13 failed to start during a monthly surveillance, due to paint which had been applied to the fuel injection pumps. The paint ran into the fuel metering rod ports and caused binding of the fuel metering rods. The primary cause of this event was the lack of proper work process control. Contributing causes were inadequate implementation of lessons learned from industry operating experience and inadequate verbal communications which led to a lack of clearly defined responsibility for ensuring paint was not applied inappropriately. Corrective actions that are being taken include revision of work process control documents to include specific guidance on painting activities and pre-job briefings. This event will be included in the Licensed Operators Regualification Program.</p>					
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REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 - FACILITY NAME 8 TOTAL - DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (INRB 7714), 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)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
South Texas, Unit 1		05000 498		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	02 OF 06
				9 3	0 0 5	0 0	

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

DESCRIPTION OF EVENT:

On January 20, 1993, Unit 1 was in Mode 1 at 95% power. Standby Diesel Generator (SDG) 13 failed to start during a scheduled monthly surveillance. Troubleshooting showed that paint which had been applied to the fuel injection pumps, ran into the fuel metering rod ports and caused binding of the fuel metering rods. The NRC was notified on January 20, 1993, at 2359 hours.

As part of the Materiel Condition Improvement Pilot Program, a contract for painting was awarded. At the request of the Pilot Program Leader (PPL) a work document was revised to paint SDG 13. The work document was revised by the planner on November 12, 1992, and signed by the Responsible Maintenance Authority on December 28, 1992.

On December 28, 1992, representatives from HL&P, the contractor Superintendent and contractor Foreman met to discuss the painting activities. Detailed directions were given by Maintenance on what was and what was not to be painted. The areas not to be painted centered on the fuel linkages. Instructions were given not to paint any labels, conduit, stainless steel, and shiny metal (alloys), or areas that had not been painted before.

The work request had an Operational Impact Assessment in it that required a Post Maintenance Test (PMT). This PMT was written to "verify proper operation after coating is complete to ensure that the throttle linkage is not binding". The Shift Supervisor was told that the work would take approximately two to three weeks to complete. The Shift Supervisor was not comfortable starting the SDG every day after painting was complete or waiting for the duration of the work to perform the PMT. The Shift Supervisor thought there were two options, (1) to declare the SDG inoperable every day that painting was performed and perform a PMT at the end of the day to restore operability of the SDG or (2) declare the SDG inoperable for the duration of the painting and perform the PMT at the end of that period. Neither option seemed viable to him at the time. The Shift Supervisor agreed that the PMT was not necessary when told of the actions planned to ensure that paint would not be applied to the inappropriate surfaces. These actions included a pre-job briefing with the HL&P representatives, the contractor Superintendent and the contractor Foreman. Additionally, the

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (4)	PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
South Texas, Unit 1	05000 498	93	005	00	OF 03 06

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

DESCRIPTION OF EVENT: (Con't)

contractor was given direction to pick five of their best painters, who would be under the constant supervision of the contractor Foreman.

When management learned of the removal of the PMT, the System Engineer was contacted to perform daily checks of the painting activities as an added precaution. Management intended that the System Engineer would be responsible for ensuring paint would not be applied inappropriately. The System Engineer did not understand that it was his sole responsibility for ensuring this happened.

Painting began on SDG 13 on December 29, 1992, and the majority of the work was completed within three days, followed by touch up of certain areas. The original prediction of two to three weeks was based on painting all components in the SDG room, not just the SDG.

A start of SDG 13 was attempted on January 20, 1993, as part of a scheduled monthly surveillance, and at 0627 hours SDG 13 was declared inoperable when it failed to start. Initially, the problem was thought to be in the controls, but was later traced to the fuel injection pumps. The fuel metering rods, which are connected to the throttle linkage, move in and out of the fuel injection pump. The fuel metering rod moves all the way through the pump, with a small portion exiting the inboard portion of the pump. The hole that the metering rod travels back and forth through, had paint obstructing the passage on 11 of the 20 pumps. The positioning of the pump is such that any extra paint on the body of the pump around the hole would allow paint to run into the hole and bind the metering rod. The affected fuel metering pumps were cleaned and lubricated. SDG 13 was returned to service on January 22, 1993, at 2101 hours.

CAUSE OF EVENT:

The primary cause of this event was lack of application of proper work process controls. The applicable painting procedure was inadequate, in that mandatory, in-process controls and maintenance tests were not required when painting safety-related components. An inappropriate decision to delete the PMT was made and the added precautions were inadequate. Additionally, an inadequate pre-job briefing was held.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
South Texas, Unit 1		05000 498		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	OF 04 06
				93	005	00	

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

CAUSE OF EVENT: (Con't)

A contributing cause was inadequate implementation of lessons learned from industry operating experience. Although previous industry events of a similar nature had been reviewed as part of the station Operating Experience Review Program, the personnel involved in the painting were not fully cognizant of this experience and controls were insufficient to ensure cited corrective actions were implemented.

Other contributing causes were inadequate verbal communications which led to a lack of clearly defined responsibility for ensuring paint was not applied inappropriately.

ANALYSIS OF EVENT:

Failure to meet a Technical Specification required surveillance is reportable pursuant to 10CFR50.73(a)(2)(i)(b). SDG 13 was inoperable from the time the painting began on December 29, 1992 to January 22, 1993, at 2101 hours when the SDG was returned to service. There was a period of 24 days where it was not known that the diesel was inoperable. Failure to restore SDG 13 to operable condition within 72 hours is in violation of Technical Specification 3.8.1.1.(b). During a review of the Operability Tracking Log (OTL) Index, indications were noted of cross train equipment being inoperable. Technical Specification 3.8.1.1.(d), requires systems that depend on the remaining operable SDGs as a source of emergency power remain operable. Additionally, during the review of the OTL Index, there was also a time period of approximately 61 hours where SDG 12 was inoperable during the same time frame that SDG 13 was inoperable. Technical Specification 3.8.1.1.(f) requires at least two SDGs to be restored to operable status within two hours. SDG 12 and SDG 13 were simultaneously inoperable for greater than two hours. In addition, Technical Specification 3.0.4 was violated since Unit 1 changed modes three times with SDG 13 inoperable.

If the SDG was challenged, it would not have been able to perform its safety function since it was unable to start. As such, this event is also being reported as a valid failure of an SDG.

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NRC FORM 366A (5-92)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
LICENSEE EVENT REPORT (LER) TEXT CONTINUATION				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 (MNBB 7714), 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)		DOCKET NUMBER (2)		LER NUMBER (6)	
South Texas, Unit 1		05000 498		YEAR	SEQUENTIAL NUMBER
				9 3	0 0 5
					0 0
					05 06
TEXT (If more space is required, use additional copies of NRC Form 366A) (17)					
<p><u>ANALYSIS OF EVENT:</u> (Con't)</p> <p>The risk significance of SDG 13 unavailability is dependent upon the simultaneous availability/unavailability of offsite power. During the time period from December 29, 1992 to January 22, 1993, no loss of offsite power events occurred at STPEGS. Therefore, no actual additional risk was experienced.</p> <p>For the purpose of evaluating the "conditional" risk significance of this event, the unavailability of SDG 13 was evaluated for its impact to core damage frequency. The conditional risk significance assumes that a loss of offsite power occurred during the time SDG 13 was inoperable. In order to evaluate this, the results of STP's Individual Plant Examination (IPE) was used as the basis to establish event significance.</p> <p>The Risk Achievement Worth is the method used for this evaluation. The Risk Achievement Worth is the increase in risk if a component is assumed to be failed for all failure modes. For this evaluation SDG 13 is assumed to be failed for 25 days. The resulting core damage frequency for the assumed one time only configuration and exposure duration is 4.44E-5 events/year for a 0.14% increase in core damage frequency.</p> <p><u>CORRECTIVE ACTIONS:</u></p> <ol style="list-style-type: none">1. The affected fuel metering rods were cleaned and lubricated. The SDG 13 was run satisfactorily and returned to service on January 22, 1993, at 2101 hours.2. The PMT Reference Manual and associated procedures will be revised to require that painting activities will require either declaring equipment inoperable or out of service during painting or have a plan for in-process controls and PMT at the end of the activities by July 20, 1993.					
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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (INRB 7714), 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)		DOCKET NUMBER (2)		LER NUMBER (4)			PAGE (3)
South Texas, Unit 1		05000 498		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	06 OF 06
				93	005	00	

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

CORRECTIVE ACTIONS: (Con't)

3. Appropriate Maintenance procedures will be revised to require a thorough, structured, pre-job briefing prior to any painting and coating activities. The procedure changes will establish methods to ensure that painting on safety-related equipment is adequately controlled. This action will be complete by May 28, 1993.
4. This event will be included in the Lessons Learned portion of Licensed Operator Regualification Training Program by August 12, 1993.
5. Until Maintenance pro edures are revised, work control documents for painting will include details of what items should not be painted and appropriate in-process controls, and PMTs prior to issue.
6. A recently completed Quality Assurance review of Auxiliary Feedwater Pumps revealed other instances where actions taken related to industry experience may not have been adequate. A similar review of SDGs is being conducted to assess whether a generic problem exists. This review will be complete by March 12, 1993. Based on the results of that review, a plan of action will be developed to address any identified generic concerns.

ADDITIONAL INFORMATION:

Including this event, there has been one valid failure in the last 20 valid tests and less than four valid failures in the last 100 tests, therefore, the testing frequency will remain at once per 31 days for SDG 13.