

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) South Texas, Unit 1		DOCKET NUMBER (2) 0 5 0 0 0 4 1 9 8	PAGE (3) 1 OF 0 3
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TITLE (4)  
ESF Actuation Due to Inverter Failure

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 2	2 4	8 8	8 8	0 2 1	0 1	0 6	1 5	8 8			0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9) 3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)										
POWER LEVEL (10) 0 1 0 1 0	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.38(a)(1)		50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.38(a)(2)		50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)						
	20.405(a)(1)(iii)	50.7. 2(i)		50.73(a)(2)(vii)(A)							
	20.405(a)(1)(iv)	50.73(a)(2)(iv)		50.73(a)(2)(vii)(B)							
	20.405(a)(1)(v)	50.73(a)(2)(v)		50.73(a)(2)(viii)							

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME	AREA CODE	
Charles A. Ayala - Supervising Licensing Engineer	5 1 2	9 7 2 - 8 6 2 8

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD'S	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD'S	
X	E/F	INVERT	E 2 0 1 9	No						

SUPPLEMENTAL REPORT EXPECTED (14)	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO			

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

At approximately 0624 hours on February 24, 1988 with Unit 1 in Mode 3, prior to initial criticality, a number of control room annunciators alarmed along with ESF actuations of Control Room Envelope HVAC, Fuel Handling Building HVAC, and Containment Ventilation. The actuations were traced to the failure of inverter IV-C01. A failed DC to DC converter assembly from the inverter was returned to the vendor for failure analysis. The analysis identified that the failure was random and was not the result of design or manufacturing defects.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	0 2 1	0 1 0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 365A's) (17)

I. DESCRIPTION OF EVENT:

At approximately 0624 hours on February 24, 1988 with Unit 1 in Mode 3, prior to initial criticality, a number of annunciators alarmed in the Control Room, along with ESF actuations of Control Room Envelope HVAC, Fuel Handling Building HVAC, and Containment Ventilation. It was discovered that Inverter IV-001 was not operating. The local inverter indications were "DC Fuse" blown and inverter "Low Output". Distribution Panel DP001, which is normally fed by this inverter, was re-energized from its alternate power supply.

The NRC was notified pursuant to 10CFR 50.72(b)(2)(ii) at 1018 on February 24, 1988. There were no adverse safety consequences as a result of this event.

An investigation revealed that the inverter (IV-001) failed when fuse F1 blew. This was caused by failure of the DC to DC converter assembly which acts as a power supply for the inverter electronic control circuits. A replacement DC to DC converter from an operating Unit 2 inverter was installed and performed satisfactorily. The inverter was then energized, load was transferred from the alternate source back to the inverter, and the unit was returned to service.

II. CAUSE OF OCCURRENCE:

The root cause of this problem was a failure of the DC to DC converter assembly. The failed assembly was returned to the vendor for failure analysis. The analysis determined the failure was random and did not result from defects in design or manufacturing.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

III. ANALYSIS OF EVENTS:

This event is reportable pursuant to 10CFR50.73(a)(2)(iv). The Control Room Envelope HVAC, Fuel Handling Building HVAC and Containment Ventilation ESF actuations occurred as designed. There were no adverse safety or radiological consequences as a result of the event. The plant had not yet been critical and no radioactivity had been produced. The event did not result in any additional risk to the public.

Distribution Panel DP001 was re-energized from its alternate power supply within two hours, and Inverter IV-001 was returned to service within twenty-four hours as required by Tech Spec 3.8.3.1 Action Statement b.(2).

IV. CORRECTIVE ACTIONS:

The following actions have been taken:

1. Plant Engineering Department reviewed the results of the vendor's failure analysis on the DC to DC converter assembly for other corrective actions. The failures were identified as random.
2. Plant Engineering Department checked for similar failures at other operating plants to identify potential generic implications. No failures which would indicate generic implications were found.

V. ADDITIONAL INFORMATION:

The affected inverter was manufactured by Elgar and is identified as model number UPS 253-1-112.

No previous similar events have occurred at STPEGS concerning ESF actuations due to Elgar inverter failures.

NL.LER8021

# The Light company

Houston Lighting & Power

P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

June 15, 1988  
ST-HL-AE-2686  
File No.: G26  
10CFR50.73

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

South Texas Project Electric Generating Station  
Unit 1  
Docket No. STN 50-498  
Revision 1 Licensee Event Report 88-021 Regarding  
ESF Actuation Due to Inverter Failure

On March 25, 1988 Houston Lighting & Power (HL&P) submitted Licensee Event Report 88-021 regarding ESF actuations due to failure of an inverter. The event did not have any adverse affect on the health and safety of the public. Based on a further investigation, HL&P submits the attached Revision 1 to LER 88-021.

If you should have any questions on this matter, please contact Mr. C.A. Ayala at (512) 972-8628.



G. E. Vaughn  
Vice President  
Nuclear Plant Operations

GEV/BEM/pm

Attachment: Revision 1 to Licensee Event Report  
88-021 Regarding ESF Actuation Due  
to Inverter Failure

NL.LER88021

A Subsidiary of Houston Industries Incorporated

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