

The Light company

Houston Lighting & Power

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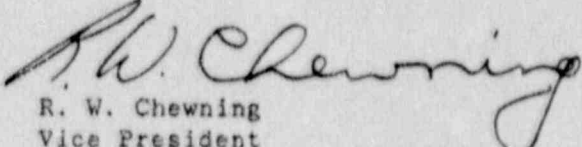
October 25, 1989
ST-HL-AE-3271
File No.: G26
10CFR50.73

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
Voluntary Licensee Event Report 89-017 Regarding
Inadvertent Contamination of Non-Radioactive Systems

Pursuant to 10CFR50.73, Houston Lighting & Power (HL&P) submits the attached voluntary Licensee Event Report 89-017 regarding the inadvertent contamination of non-radioactive systems. This event did not have any adverse impact on the health and safety of the public.

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


R. W. Chewning
Vice President
Nuclear Operations

RWC/BEM/nl

Attachment: LER 89-017, South Texas, Unit 1

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FDR ADOCK 05000498
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A Subsidiary of Houston Industries Incorporated

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cc:

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) South Texas, Unit 1

DOCKET NUMBER (2) 0510004981 OF 015

PAGE (3) 1 OF 015

TITLE (4)
Voluntary Report Regarding Inadvertent Contamination of Non-Radioactive Systems

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
08	14	89	89	017	00	10	24	89	
									DOCKET NUMBER(S) 051000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

OPERATING MODE (9) 1	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(e)	<input type="checkbox"/> 60.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
POWER LEVEL (10) 0.1 C 1.0	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 60.30(a)(1)	<input type="checkbox"/> 60.73(a)(2)(iv)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 60.30(a)(2)	<input type="checkbox"/> 60.73(a)(2)(v)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 306A)
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 60.73(a)(2)(ii)	<input type="checkbox"/> 60.73(a)(2)(v)(i)(A)	Voluntary
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 60.73(a)(2)(iii)	<input type="checkbox"/> 60.73(a)(2)(v)(i)(B)	
	<input type="checkbox"/> 20.406(a)(1)(vi)	<input type="checkbox"/> 60.73(a)(2)(iv)	<input type="checkbox"/> 60.73(a)(2)(iv)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: Charles Ayala - Supervising Licensing Engineer

TELEPHONE NUMBER: 511291721-18161218

AREA CODE: 5112

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH: DAY: YEAR:

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

On August 14, 1989, Unit 1 was in Mode 5 for a refueling outage. At 1400 hours, Health Physics personnel detected radiation levels of .3 to .8 mR/hr in the auxiliary steam line to the Liquid Waste Processing System (LWPS) Waste Evaporator. Further surveys indicated the presence of contamination in the LWPS condensate tank, the Auxiliary Boiler and the Inorganics Basin. The systems were immediately isolated and the areas posted. The sources of the contamination were two valves which were left open during shutdown of the LWPS Waste Evaporator which allowed liquid waste being transferred to a Waste Monitor Tank to backup through the Waste Evaporator Gas Stripper into the Auxiliary Steam System. The causes of this event were inadequate controls over interfaces between radioactive and non-radioactive systems, failure of Chemical Operations personnel to follow procedures, and the lack of radiation monitors in the auxiliary steam system. Corrective actions include a review of radioactive to non-radioactive system interfaces, procedure revisions and a review of the implementation of the station policy regarding procedure compliance. No release occurred from the Inorganics Basin. Analysis results indicate that had a release occurred to uncontrolled areas, it would have been a small fraction of Technical Specification limits.

NL.LER89017.U1

ATTACHMENT
ST-HL-AE-3271
PAGE 4 OF 9

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 1 0 0 0 4 9 8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	- 0 1 7	- 0 0	0 2	OF 0 5

TEXT (if more space is required, use additional NRC Form 305A's) (17)

DESCRIPTION OF OCCURRENCE:

On August 14, 1989, Unit 1 was in Mode 5 for a refueling outage. At 1400 hours, Health Physics personnel detected radiation levels of .3 to .8 mR/hr in the Auxiliary Steam line to the Liquid Waste Processing System (LWPS) Waste Evaporator. Further surveys indicated the presence of contamination in the LWPS condensate tank, the Auxiliary Boiler and the Inorganics Basin. These systems were immediately isolated and the contaminated areas posted. On August 15, 1989, a task force was formed to investigate the incident and implement corrective actions.

The LWPS waste evaporator is used to concentrate and degassify radioactive waste from various plant systems. At 0810 hours on August 10, 1989, the Waste Evaporator was placed in short term shutdown by a Chemical Operator. However, radioactive contamination in the waste evaporator gas stripper room prevented the Chemical Operator from accessing two valves required to isolate the gas stripper from the liquid waste processing header and the auxiliary steam system. The operator notified Health Physics of the contamination in the gas stripper room, noted the position of valves he could not reach in the operator log and informed his foreman of the condition. The Chemical Operator was relieved by the oncoming shift at approximately 1200 hours.

At 1408 hours, processing of the Condensate Polishing Regenerative Waste Collection Tank (CPRWCT) to the outdoor Waste Monitoring Tanks via the LWPS demineralizers began. At 1540 hours, high pressure and level alarms on the waste evaporator gas stripper were identified. At 1600 hours the CPRWCT pump was secured and the gas stripper alarms cleared. The Chemical Operator subsequently determined that the CPRWCT processing operation was backfilling the gas stripper. At 1645 hours he closed the waste evaporator feedline isolation valve to prevent further backfilling and resumed processing of the CPRWCT. The waste evaporator gas stripper was operated again on August 12, 1989 and again placed in short term shutdown with the two isolation valves which were required to be closed left open due to contamination in the gas stripper room.

On August 14, 1989, at approximately 0915 hours, contaminated leakage was discovered in the area of the south stairwell of the Mechanical Auxiliary building. This was the third time leakage had been discovered in the stairwell since August 11, 1989. Further surveys revealed radiation levels of .3 to .8 mR/hr in the auxiliary steam line to the LWPS Waste Evaporator.

NL.LER89017.U1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 05000498	LER NUMBER (6) YEAR SEQUENTIAL NUMBER REVISION NUMBER 89 — 017 — 00	PAGE (3) 03 OF 05
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TEXT (if more space is required, use additional NRC Form 305A's) (17)

DESCRIPTION OF OCCURRENCE Cont'd:

Chemical Operations personnel determined that radioactive water must have backed up into the auxiliary steam lines from the waste evaporator gas stripper through the two valves which had not been isolated during the previous shutdown of the waste evaporator. At 1500 hours, the valves were closed. At 1730 hours, the LWPS Condensate Return Tank pumps were verified to be off and the condensate from the Waste Evaporator was verified to be aligned to the Floor Drain Tank to prevent further leakage to the auxiliary boiler.

Samples were taken from various piping systems. At 2140 hours these samples indicated the presence of radioactive water in the auxiliary steam lines to the Waste Evaporator and in the LWPS condensate tank. Samples of the Auxiliary Boiler indicated the presence of contamination in the drip pans underneath the Auxiliary Boiler Feedwater Pumps. Further surveys and samples confirmed that the Waste Evaporator condensate return line, the Auxiliary Boiler feedwater pump suction line, and the deaerator drain line were also contaminated.

On August 15, 1989 at 0030 hours, the Inorganics Basin was determined to be contaminated. The Waste Evaporator, Auxiliary Boilers, and the Inorganics Basin were posted as contaminated areas. Temporary procedures are under development to restore the Inorganics Basin and Auxiliary Boilers to their normal condition. Samples previously collected on the Neutralization Basin outfall and samples collected since the Inorganics Basin was contaminated indicate that no activity has been discharged via the Neutralization Basin.

CAUSE OF OCCURRENCE:

The cause of this event was inadequate management controls and evaluations to prevent radioactive contamination from crossing boundaries between radioactive and non-radioactive systems. This is evidenced by the following conditions:

1. The Liquid Waste Processing System design did not include radiation monitoring features to alarm and automatically secure radioactive releases from contaminating non-radioactive systems.
2. The Chemical Operator involved did not follow the Plant Procedure Compliance Procedure in that the steps to shutdown the Waste Evaporator were performed out of sequence. The Chemical Operations Foreman did not follow the Conduct of Operations Procedure by placing the system in a safe and stable condition and notifying the Shift Supervisor.

NL.LER89017.U1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 8 9	LER NUMBER (3)			PAGE (3) 4 OF 5
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT (if more space is required, use additional NRC Form 366A's) (17)

CAUSE OF OCCURRENCE Cont'd:

3. The Liquid Waste Processing Procedures did not caution operators of the potential for contamination of non-radioactive systems during Waste Evaporator operation.

ANALYSIS OF EVENT:

The event described in this report does not meet the reporting criteria specified in 10CFR50.73 or 10CFR20, however, due to the potential generic implications, HL&P has elected to submit a voluntary LER.

An initial dose estimate was performed based on the actual activity present in the Inorganics Basin on August 18, 1989 to determine the potential impact on offsite dose had the entire contents (40,000 gal.) of the basin been discharged to the Main Cooling Reservoir (MCR) via the Neutralization Basin. This conservative estimate showed that there would have been no concern relative to Technical Specification dose limits, had the entire contents of the basin been released. No significant fraction of Iodine-131 was assumed to be released to the atmosphere due to the elevated pH of the basin which normally received blowdown and drainage from the Auxiliary Boilers.

Additional dose assessments were performed based on samples taken at various points in the piping during the determination of the boundaries of contamination egress. These dose estimates demonstrate that, had the liquid been discharged, the dose would have been only a small fraction of Technical Specification limits. Although Xenon was measured at a sample point on the line in the Mechanical Auxiliary Building at 2.7e-05 uci/ml (less than the Technical Specification limit of 2.0e-04 uci/ml), it was not detected in the Inorganics Basin. Assuming the concentration found in the pipe had been released from the basin to the atmosphere, there would have been negligible consequences.

Samples previously collected on the Neutralization Basin outfall and samples collected since the Inorganics Basin was contaminated indicate that no activity has been discharged via the Neutralization Basin.

Based on the samples taken, it has been determined that contaminated liquid was not discharged to an unrestricted area. Based on the dose calculations performed on the samples taken, it has been determined that, had there been a release to an unrestricted area, resulting doses would have been a small fraction of Technical Specification limits. Therefore, no hazard existed to either onsite personnel or the public.

NL.LER89017.U1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 05000498	LER NUMBER (6)			PAGE (3)	
		YEAR 89	SEQUENTIAL NUMBER -017	REVISION NUMBER -010	05	OF 05

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

CORRECTIVE ACTION:

The following corrective actions are being taken as a result of this event:

1. Interfaces between radioactive and non-radioactive systems will be reviewed for potential release points which had not been previously identified. This action will be completed by December 15, 1989. Appropriate administrative controls or modifications to minimize the potential for inadvertent releases will be scheduled for implementation at that time. This will include the addition of radiation monitors as appropriate.
2. A memorandum has been issued to Chemical Operations personnel regarding adherence to procedures.
3. A review of the implementation of the station's procedure compliance policy will be performed with regard to employee understanding and management enforcement. The review will be completed and an action plan for enhancing procedure compliance will be developed by December 31, 1989.
4. Appropriate liquid waste processing system procedures will be revised to include a caution statement to warn operators of the potential for contamination of non radioactive systems during their performance. This action will be completed by December 1, 1989.

ADDITIONAL INFORMATION:

There have been no previous reportable events regarding the contamination of non-radioactive systems at STPEGS.

NL.LER89017.U1