



July 1, 2005

L-2005-153
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: 2005-002-00
Date of Event: May 13, 2005
Valve Mispositioning Led to Inoperable Iodine Removal System Train

The attached Licensee Event Report 2005-002 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,


William Jefferson, Jr. *for*
Vice President
St. Lucie Nuclear Plant

WJ/KWF

Attachment

JE22

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME St. Lucie Unit 2	2. DOCKET NUMBER 05000389	3. PAGE Page 1 of 3
---	-------------------------------------	-------------------------------

4. TITLE
Valve Mispositioning Led to Inoperable Iodine Removal System Train

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	13	2005	2005	002	00	07	01	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)									
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

12. LICENSEE CONTACT FOR THIS LER

NAME Kenneth W. Frehafer, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (772) 467 - 7748
---	--

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	BE	N/A	N/A	NO	-	-	-	-	-

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO		MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On May 13, 2005, with Unit 2 in Mode 1 operation at 100 percent reactor power, valve V07408, the 2A hydrazine pump discharge to storage tank relief bypass valve, was found to be locked open instead of its required locked closed position. This rendered the 'A' train of the iodine removal system inoperable. The valve was immediately closed.

The investigation revealed that the train was inoperable due to non-licensed operator human errors during the restoration from a previous surveillance test, and that the condition existed longer than allowed by the Technical Specifications.

The operators involved received remediation and a non-licensed operator human fundamentals class is being developed to train on this event.

The redundant train was not affected by this condition. Additionally, the use of alternate analytical methods concluded that dose consequences were not impacted. Therefore, this event had no adverse impact on the health and safety of the public.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
St. Lucie Unit 2	05000389	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	Page 2 of 3
		2005	- 002	- 00	

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

Description of the Event

On May 13, 2005, with Unit 2 in Mode 1 operation at 100 percent reactor power, valve V07408, the 2A hydrazine pump discharge to storage tank relief bypass valve [EIIS:BE], was found to be in a locked open position, instead of the required locked closed position. The error was discovered by a Unit 2 non-licensed senior nuclear plant operator (SNPO) while performing the quarterly valve lineup for the containment spray and iodine removal system (IRS). The 'A' IRS train was subsequently declared inoperable, and a 72-hour shutdown action statement was entered. The 'A' IRS train was restored to service by placing valve V07408 in its required locked closed position in accordance with 2-NOP-07.41, "Containment Spray System Initial Alignment." Additionally, valve V07409, the 2B hydrazine pump discharge to storage tank relief bypass on the opposite train, was verified locked closed as required.

Cause of the Event

The last time V07408 was operated was approximately 78 hours earlier, on May 10, following the 2A containment spray pump surveillance test. During that surveillance testing, the hydrazine pump recirculation valve was throttled open to establish 35 psig discharge pressure to simulate hydrazine pump flow conditions that would be seen during the post accident containment spray injection phase. However, non-licensed operator human errors during the surveillance testing restoration activities led to valve V07408 being mispositioned.

The causes for the mispositioning of valve V07408 were the failure to use self-checking when initially restoring the valve position, and the failure to follow the restoration steps of the surveillance procedure when performing the independent verification of the valve position.

The operators involved in the incident received remediation and were placed back on shift. Additionally, Training is developing a non-licensed operator lesson plan to reinforce human performance fundamentals.

Analysis of the Event

Unit 2 Technical Specification 3.6.2.2, "Iodine Removal System," states that the allowed outage time for an inoperable hydrazine pump is 72 hours. Based on the timeline developed during the event investigation, the 'A' IRS train was inoperable for a time longer than allowed by Technical Specifications. Therefore, this condition is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B).

Analysis of Safety Significance

The containment spray system (CSS) is provided to perform the dual functions of removing heat and fission products from a post-accident containment atmosphere. The heat removal capability of the CSS is discussed in the Unit 2 Updated Final Safety Analysis Report (UFSAR) Section 6.2.2. The fission product removal function is carried out by the IRS, operating in conjunction with the CSS. The IRS is credited for removing radio-iodines from the containment atmosphere following a loss of coolant accident (LOCA) by adding controlled amounts of hydrazine to containment spray water.

The 1/2-inch recirculation lines for the 2A and 2B hydrazine pumps protect the pumps from damage by recirculating flow back to the hydrazine storage tank when the pumps are running with closed discharge header valves. The hydrazine pumps are slow speed

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
St. Lucie Unit 2	05000389	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	Page 3 of 3
		2005	- 002	- 00	

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

positive displacement pumps. With valve V07408 open, flow would be diverted back to the hydrazine tank, adversely affecting the pH buffering flow to the 'A' CCS train. This condition did not affect the design function of the CSS to provide containment heat removal, nor did it adversely affect the 'B' IRS train. The 'B' IRS train was always available to provide the required redundant 100 percent CSS radio-iodine removal capacity.

The St. Lucie licensing and design bases credit the use of the IRS during post accident conditions for a LOCA event. However, the need to use hydrazine for iodine removal or pH control was the subject of the recent St. Lucie alternate source term (AST) license amendment request. FPL letter L-2004-203, dated September 21, 2004, documents that hydrazine is no longer needed for pH control and iodine removal in the analysis supporting AST. The containment sump pH for Unit 2 is 6.93 at the most conservative time for recirculation and 7.1 at one hour. NUREG/CR-5950 indicates that at a pH of 6.93 and higher, no iodine re-evolution would occur. Considering the actual St. Lucie Unit 2 inputs at the time of recirculation, the fraction of iodine that may re-evolve is less than 0.000003. Numbers much larger than this value were already assumed in the AST analysis. Therefore, the radiological consequences after a design basis accident are not expected to increase due to inoperability of valve V07408 at the beginning of the accident. FPL concludes that this condition would not have had a significant effect on post-accident control room or offsite doses.

This condition is not applicable to the Unit 1 IRS as it does not have injection pumps or the associated recirculation valves. Additionally, FPL determined that valve mispositioning events concurrent with faulty independent verification are infrequent events. A review of St. Lucie Licensee Event Reports for the last five years concluded that no reportable events were due to this particular combination of human performance deficiencies.

Corrective Actions

1. Upon discovery the 'A' IRS train was restored to operable status and the 'B' IRS train valve positions were verified correct.
2. The operators involved in the incident completed their remedial training on June 1, 2005.
3. The St. Lucie Training department is developing a Human Performance Fundamental class for cycle 5.5 of non-licensed operator requalification training. This training is to include self-checking, procedural use and compliance, and independent verification. This training will include a case study of this event. The class will be developed by August 19, 2005.

Other Information

None