

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8803110151 DOC. DATE: 88/03/07 NOTARIZED: NO DOCKET #
 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335
 AUTH. NAME AUTHOR AFFILIATION
 CONNOR, J.W. Florida Power & Light Co.
 CONWAY, W.F. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-001-03: on 880205, inadvertent start of high pressure safety injection pump 1C occurred.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

| | RECIPIENT ID CODE/NAME | COPIES | LTR | ENCL | RECIPIENT ID CODE/NAME | COPIES | LTR | ENCL |
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| | PD2-2 LA | 1 | | 1 | PD2-2 PD | 1 | | 1 |
| | TOURIGNY, E | 1 | | 1 | | | | |
| INTERNAL: | ACRS MICHELSON | 1 | | 1 | ACRS MOELLER | 2 | | 2 |
| | AEOD/DOA | 1 | | 1 | AEOD/DSP/NAS | 1 | | 1 |
| | AEOD/DSP/ROAB | 2 | | 2 | AEOD/DSP/TPAB | 1 | | 1 |
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| | NRR/DEST/ADS7E4 | 1 | | 0 | NRR/DEST/CEB8H7 | 1 | | 1 |
| | NRR/DEST/ESB 8D | 1 | | 1 | NRR/DEST/ICSB7A | 1 | | 1 |
| | NRR/DEST/MEB9H3 | 1 | | 1 | NRR/DEST/MTB 9H | 1 | | 1 |
| | NRR/DEST/PSB8D1 | 1 | | 1 | NRR/DEST/RSB 8E | 1 | | 1 |
| | NRR/DEST/SGB 8D | 1 | | 1 | NRR/DLPQ/HFB10D | 1 | | 1 |
| | NRR/DLPQ/QAB10A | 1 | | 1 | NRR/DOEA/EAB11E | 1 | | 1 |
| | NRR/DREP/RAB10A | 1 | | 1 | NRR/DREP/RPB10A | 2 | | 2 |
| | NRR/DRIS/SIB9A1 | 1 | | 1 | NRR/PMAS/ILRB12 | 1 | | 1 |
| | REG FILE 02 | 1 | | 1 | RES TELFORD, J | 1 | | 1 |
| | RES/DE/EIB | 1 | | 1 | RES/DRPS DIR | 1 | | 1 |
| | RGN2 FILE 01 | 1 | | 1 | | | | |
| EXTERNAL: | EG&G GROH, M | 5 | | 5 | FORD BLDG HOY, A | 1 | | 1 |
| | H ST LOBBY WARD | 1 | | 1 | LPDR | 1 | | 1 |
| | NRC PDR | 1 | | 1 | NSIC HARRIS, J | 1 | | 1 |
| | NSIC MAYS, G | 1 | | 1 | | | | |

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LICENSEE EVENT REPORT (LER)

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| FACILITY NAME (1) St. Lucie Unit #1 | DOCKET NUMBER (2) 0 5 0 0 0 3 3 5 1 | PAGE (3) 1 OF 0 3 |
|--|--|----------------------|

TITLE (4) INADVERTENT START OF 1C HIGH PRESSURE SAFETY INJECTION PUMP DUE TO ELECTRICAL TRANSIENT

| 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 | 0 5 | 8 8 | 8 8 | 0 0 1 | 0 0 | 0 3 | 0 7 | 8 8 | St. Lucie #1 | | 0 5 0 0 0 |
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|---------------------------|--|---|---|--|--|--|--|--|--|--|
| OPERATING MODE (9) 1 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | | | | | | | |
| POWER LEVEL (10) 1 0 0 | <input type="checkbox"/> 20.402(b) | <input type="checkbox"/> 20.406(e) | <input checked="" type="checkbox"/> 50.73(a)(2)(iv) | <input type="checkbox"/> 73.71(b) | | | | | | |
| | <input type="checkbox"/> 20.406(a)(1)(i) | <input type="checkbox"/> 50.38(c)(1) | <input type="checkbox"/> 50.73(a)(2)(v) | <input type="checkbox"/> 73.71(c) | | | | | | |
| | <input type="checkbox"/> 20.406(a)(1)(ii) | <input type="checkbox"/> 50.38(c)(2) | <input type="checkbox"/> 50.73(a)(2)(vi) | OTHER (Specify in Abstract below and in Text, NRC Form 365A) | | | | | | |
| | <input type="checkbox"/> 20.406(a)(1)(iii) | <input type="checkbox"/> 50.73(a)(2)(i) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | | | | | | | |
| | <input type="checkbox"/> 20.406(a)(1)(iv) | <input type="checkbox"/> 50.73(a)(2)(ii) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | | | | | | | |
| | <input type="checkbox"/> 20.406(a)(1)(v) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix) | | | | | | | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|----------------------------------|
| NAME J. W. Connor, Shift Technical Advisor | TELEPHONE NUMBER |
| | AREA CODE: 3 0 5 4 6 5 - 3 5 5 0 |

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

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPROS | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPROS |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
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SUPPLEMENTAL REPORT EXPECTED (14)

| | | | |
|--|--|-------------------------------|----------------|
| <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) | <input checked="" type="checkbox"/> NO | EXPECTED SUBMISSION DATE (15) | MONTH DAY YEAR |
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

While Unit 1 was at 100% power, Mode 1, the "C" High Pressure Safety Injection (HPSI) pump started due to a spurious trip and immediate reset of a breaker on a 120 VAC instrument buss. The Operations Department was investigating a ground indication which led them to this breaker (the ground was found subsequently in a safety injection tank sample valve indicating light). The breaker appeared in the tripped position and when the operator touched the breaker it tripped. He immediately reset the breaker. The Reactor Control Operator (RCO) saw the pump indicate a start. He verified that it was a spurious start and stopped the pump. There were no safety consequences of the event as the reactor remained at 100% power and no water was injected to the Reactor Coolant System (RCS). Corrective actions include: replacement of the breaker, coordination with the manufacturer of the safeguards equipment to evaluate the response of the equipment, and testing the equipment to assure proper operation.

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| | | | | | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | | | |
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

EVENT DESCRIPTION

The Operations Department was in the process of troubleshooting a ground on the 120 VAC system per ONOP 1-0960030. While executing the procedure, the operator noticed that the operating lever that trips and resets breaker #8, on the MA instrument buss (EIIS:EJ), appeared tripped. He called this to the attention of the Assistant Nuclear Plant Supervisor (ANPS) who went to investigate. The ANPS agreed that the breaker appeared tripped and touched it to verify this. When the ANPS touched the breaker it opened. The ANPS immediately reset the breaker. In the control room, bistable trips were received on Engineered Safety Features Actuation System (ESFAS) (EIIS:JE) channel MA for: Safety Injection Actuation Signal (SIAS) on containment pressure, Containment Spray Actuation Signal (CSAS) on containment pressure, Containment Isolation Signal (CIS) on containment pressure, and Recirculation Actuation Signal (RAS). The Reactor Protection System (RPS) channel A indicated a trip for high containment pressure as is expected since this trip comes from the same instrument loop as the ESFAS bistable. The Sequence Of Events Recorder (SOER) showed SIAS trip and immediate reset for channels A and B. Only the 1C HPSI pump (EIIS:BQ) started and was stopped by the RCO approximately 40 seconds later. No other engineered safety feature equipment was actuated. All alarms and trips were reset and the plant returned to normal. Although the Sequence Of Events Recorder indicated a SIAS on both A and B channels, SIAS was not locked in and did not require resetting.

CAUSE OF EVENT

A systematic evaluation of this event was performed and it was concluded that the spurious trip of circuit #8 breaker on 120 VAC instrument buss MA and immediately resetting it to be the most likely cause of the safeguards actuation. The resulting voltage transient on the instrument buss apparently caused the bistables to trip and perturbed the trip logic to produce a momentary trip signal. The Sequence of Events Recorder shows that the trip signal for the "A" side was present for only .022 seconds which is less than the .030 seconds required to lock in the SIAS trip. The trip signal for the "B" side was in for .018 seconds. The reason that only the 1C HPSI pump started would seem to be a "relay race" associated with such a brief spurious signal. This also explains the reason for the SOER indication of a trip but not having to reset it. The reason for the SOER indication of a "B" SIAS trip is still under investigation.

ANALYSIS OF EVENT

There were no safety consequences of the event as the reactor remained at 100% power and no water was injected to the RCS by the High Pressure Safety Injection pump. Were this event to occur during other modes of operation, there would still be no safety consequences as Plant Technical Specifications require disabling HPSI pumps as RCS temperature decreases to preclude the possibility of a low temperature overpressure situation.

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| FACILITY NAME (1) St. Lucie Unit #1 | DOCKET NUMBER (2) 0 5 0 0 0 3 3 5 | LER NUMBER (8) | | | PAGE (3) | | |
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | | |
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

CORRECTIVE ACTIONS

1. Replacement of the breaker would necessitate de-energizing the MA instrument buss power to the ESFAS cabinets. This is considered undesirable during power operation. However, the Electrical Maintenance Department has visually inspected the breaker and found no evidence of damage.
2. The Electrical Maintenance Department will remove the breaker during the next reactor shutdown and replace it.
3. Electrical Maintenance will then coordinate with the manufacturer of the breaker to find out if indeed there is a problem with the breaker and if it may pose additional concerns.
4. The I & C Department has checked the operation of the ESFAS equipment and has found it working properly. They have performed a check on the power supplies to the trip circuitry and found them to be satisfactory. The automatic test circuitry also indicates no problems.
5. I & C Maintenance is presently working with the manufacturer of our ESFAS system to determine why the system responded as it did. Preliminary conversations with the ESFAS supplier indicate that the rapid cycling of breaker #8 may have caused a spike that lasted long enough to register on the Sequence of Events Recorder and start the pump, but not long enough to lock in and cause a complete safety injection actuation signal. The supplier of the ESFAS system will continue to look into this actuation. I & C Maintenance will follow up on this investigation.
6. A functional test to verify that the system performs to its design basis will be conducted when the plant is in a suitable configuration during the next refueling outage.

ADDITIONAL INFORMATION

Component Failures

NONE - The breaker has not been examined yet.

Previous Similar Events

For a previous spurious Engineered Safeguard Actuation, although an unrelated cause, see LER 335-87-03.

FPL

MARCH 7, 1988

L-88-110
10 CFR 50.73


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

Gentlemen:

Re: St. Lucie Unit 1
Docket No. 50-335
Reportable Event: 88-01
Date of Event: February 5, 1988
Inadvertent Start of 1C High Pressure Safety
Injection Pump Due to Electrical Transient

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

Very truly yours,


W. F. Conway
Acting Group Vice President
Nuclear Energy

WFC/GRM/gp

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator,
Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant

GRM/001.LER

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