REPORT_F.MLM

From: John York, RTI
To: GGA GANDERSON, RTI
Date: 11/14/96 11:06am
Subject: Report For NIs

Mark,

Please review the body of the report. I have to change other parts of the report.

John

FF/2

**From:** Mark Miller, RTI
**To:** CAJ C Gilliom, RTI
**Date:** 11/14/96 6:34am
**Subject:** Responses to Stew's Request on St. Lu[illegible] Assessment

Here's the file I sent Kerry on 10/24. Addtitionally, theres a file with a PIM-like summary of events from '92-'93 that helped form the basis of what I said.

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Responses to RA Questions Regarding St. Lucie Self-Assessment

I. Specific Answers

a. Is the assessment correct?

Yes. The assessment addresses areas which we have identified formally as problems (corrective actions, programs/processes/procedures), areas which we have discussed informally (complacency, change management, communications), and areas we have not identified (training, self-assessment, accountability).

b. Did the NRC identify via inspections and/or SALP any indicators that should have prompted us to potential problems?

Yes. The NRC began to have concerns about St. Lucie's performance as early as Spring/Summer 1994, when an increase in the number of reactor trips (6 in 6 months) was noted. In April, 1994, the Site Integration Matrix was developed to attempt to identify the problems at St. Lucie. In June 1994, St. Lucie was removed from the NRC list of good performers. The following assessments were made:

- Plant Status Report, June 1994

  Reactor trips not seen as related, but additional attention to the adequacy of procedures was recommended. Weakness in review cited. Weaknesses in corrective actions discussed. Operations was assessed as continuing to be strong. Other functional area discussions indicated strong performance.

- Plant Status Report, August 1994

  Fundamentally the same assessment as June, 1994, although potential problems in vendor technical manuals noted in the maintenance area

- Plant Status Report/TPPR, October 1994

  PSR concluded that performance remained strong in all functional areas, however, SRI notes for the TPPR indicating a difficulty in identifying common causes for deficiencies identified through inspection. SRI's assessment was that some complacency existed, management standards were not firmly set and communicated, and too many people (in FPL) didn't believe that a real problem existed.

- Plant Status Report/PPR, March 1995

  Sharp decrease in the number of reactor trips cited. Weaknesses pointed

out in annunciator response procedures, corrective actions, logkeeping, and some aspects of FRG activities (reviews), however, Ops rated as strong overall. Some maintenance weaknesses were identified (VTMs, IVs, welding), but, overall, maintenance was seen as superior. Other functional areas were seen as continuing at superior levels.

- August, 1995

  Regional personnel perform a root cause analysis for indications of organizational and programmatic deficiencies, based on SIM data for 12 months. The predominant root cause for events observed at the plant was insufficient detail and scope in site programs and procedures. Deficiencies were noted in job skills, work practices, decisionmaking, interface among organizations, and unclear organizational responsibility and accountability. These weakness areas conform well to the licensee-identified limiting weaknesses in training, accountability, programs/processes/procedures, and communications management.

- Plant Status Report/PPR, September 1995

  Increase in personnel errors noted in Operations, including failures to follow procedure, inattention to detail, and failures to maintain awareness of equipment status. Overall, Operations' performance was seen as having declined. Maintenance performance was similarly seen as having declined, with procedural quality and adherence and attention to detail cited as problem areas. Engineering and Plant Support were seen as continuing to perform strongly.

A review of inspection eport findings from 1992-93 indicates that, primarily in the areas of equipment reliability and procedural adherence, problems existed. A cursory review indicates that opportunities for enforcement may have been missed in some cases. However, the SALP report covering the period indicates that only minor problems (operator attention-to-detail and maintenance procedure adherence) were identified and does not categorize problems into specific areas in a manner sufficient to conclude that declines in performance levels were occurring.

c. Did we pursue any of the indicators? If yes, how? If no, why not?

Prior to August, 1995, when significant plant events (e.g. containment spraydown, RCP seal failure) indicated a clear decline in performance, no specific inspection efforts were targeted at perceived weaknesses outside of the core inspection effort. A review of Inspection Reports from mid-1994 through the end of 1995 indicate that the only departures from the core inspection program were for allegation-related issues.

Miller's Assessment (Opinion)

The failure of the NRC to act more proactively in applying inspection effort to St. Lucie stemmed from several factors:

- A long history of superior performance leading to reduced inspection effort and a subsequent reduction in the number of findings
- A failure to act on the negative findings which were developed, as they tended to be masked by a large number of positive findings
- A failure to take advantage of the opinions of DRS and other visiting inspectors who, overwhelmingly, felt the plant was overrated
- A lack of a clear discriminator as to when negative findings warrant amplification over a larger number of positive findings

Additionally, the plant is now undergoing what has been described in several documents in that, with added inspection effort come more findings and more enforcement which tends to appear as a decline in performance when, in fact, conditions which had persisted for some time are only now being realized. The percived decline then invites additional inspection, which turns up more problems, and the cycle repeats.

The following table was assembled from NRC Inspection Reports for a period from late 1991 until early 1993. Only the more significant items are repeated, not all events that occurred have been captured here.

| Inspection Report | Description | NRC Response |
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| IR 91-22 | Over 1000 gallons of service water accidentally introduced into the Rx cavity. | Vio SL IV |
| IR 92-03 | Containment cooling system relief dampers inoperable. Unit 1's dampers were painted shut. | IFI dispositioned into no violations |
| IR 92-04 | Unattended combustible material found in cable spreading room. | Vio SL IV |
| IR 92-04 | Third radiation monitor reportable event in 4 months. This time the Unit 1 containment particulate and gaseous monitors were isolated. | None |
| IR 92-04 | Inspector noted that several packing retaining nuts were fully unthreaded on several drain valves that were in service. | None |
| IR 92-05 | Required quarterly code tests not performed on CCW equipment for over 2 years. | Vio SL IV |
| IR 92-05 | Valves MV-21-2 and MV-21-3 described in FSAR as qualified for submersible service. No positive documentation and no maintenance performed. | Cited as Deviation from commitment |
| IR 92-07 | "C" containment pressure transmitter O.O.S for at least one cycle. Also during this time period another channel was bypassed for approximately 3 hours. | Vio SL IV |
| IR 92-07 | Unit 2 turbine failed to trip automatically after manual Rx trip or manually from the control board. | None |
| IR 92-07 | "B" train 4KV circuit breaker for the generator aux transformer failed to close due to trash jamming the circuit breaker. | None |
| IR 92-07 | Operator closed incorrect switch during a test on 1A transformer. Licensee stated that it was a procedural/ human factors problem. | None |

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| IR 92-07 | The 2B EDG required rework when the procedure did not explicitly require all 3 fan belt drive hubs to be aligned. | None |
| IR 92-07 | Gages used to set MS Safeties were not accurate enough to satisfy the intent of the procedure. | Vio SL IV |
| IR 92-07 | The 2A HPSI pump failed to start due to breaker failure. Failure attributed to frequent use of HPSI pump to fill two weeping SITs. | None |
| IR 92-07 | Rad Gaseous Effluent Monitoring Instrumentation for fuel handling building O.O.S. for about 23 hours due to personnel error. | NCV |
| IR 92-07 | Containment Atmosphere Particulate and Gaseous Rad Monitors O.O.S. due to personnel error. | NCV |
| IR 92-08 | Several safety-related pump emergency load sequencer relay thumbwheels were set differently than expected. Investigation revealed thumbwheels inadvertently moved by contractor cleaning electrical buses. | URI that was determined to be no violation |
| IR 92-08 | Both 2A and 2B EDGs inadvertently wetted down with a water hose by cleaning crew. | IFI that was determined to have no effect on system. |
| IR 92-11 | Safety grade conduit not reattached to its seismic support after maintenance | Vio SL IV |
| IR 92-11 | Technical loss of boration flow path for 18 hours. | NCV |
| IR 92-11 | Cold leg RTD temperature transmitters to RRS and DDPS control systems incorrectly calibrated due to procedural and personnel errors. | NCV |
| IR 92-11 | Unit 2 Rx trip from 100% due to momentary loss of turbine load signal generated while testing. This was caused by an inadequate understanding of newly installed and designed components. | None |
| IR 92-11 | The 1A EDG tripped on high jacket water temperature due to loose spare screws in the temperature switches. | NCV |
| IR 92-16 | One of 4 starting air compressor pressure cutoff switches stuck causing 2B2 air receiver relief to lift repeatedly. | None |

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| IR 92-16 | The 2B2 travelling screens failed due to inadequate maintenance. | None |
| IR 92-16 | Unit 1 CCW pump motor bearing temperatures are elevated due to particulate plume caused by sand blasting. | None |
| IR 92-18 | Increased ICW pump noise due to mismatched upper bearings having been installed. | None |
| IR 92-18 | EPs had to be changed when Hurricane Andrew threatened. EP classifications were inconsistent and did not represent a logical progression of degraded safety conditions. | IFI later closed |
| IR 92-18 | Operator mistakenly de-energized a 480 V load center instead of operating an adjacent EDG governor control switch | None |
| IR 92-18 | Unit 1 shutdown due to leaking pressurizer safety. | None |
| IR 92-18 | Unit 2 CCW flow indication erratic. Known to be erratic for a long time with no repair. | None |
| IR 92-18 | Poor wiring practices caused a fire to occur in the 2C condensate pump | None |
| IR 92-21 | Inadvertent operation of CS pump 2B due to operator error. | None |
| IR 92-21 | During replacement of U2 MFW RTDs, all RTDs replaced were reading high. Actual CTP was about 101.6%. | URI later determined not to be a violation |
| IR 92-24 | Quench tank rupture disk ruptured in Unit 2 due to personnel error while cooling the quench tank and due to pressurizer safety leakage. | None |
| IR 92-24 | The 2B AFW Pump failed to start on Auto start signal due to misaligned contacts. | None |
| IR 92-24 | Turbine manually tripped during S/U due to abnormal noise. Noise caused by loose studs on main turbine shaft coupling. | None |
| IR 92-24 | Main turbine tripped manually due to high condenser pressure caused by a fouled waterbox and personnel error. | None |
| IR 92-24 | RCGVS pilot operated valves were installed with the pilot disk reversed. This contributed to leakage. | None |

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| IR 93-02 | The 2A1 RCP vibration and leakage caused about a 1 month unplanned shutdown to repair. | None |
| IR 93-02 | Licensee determined that a TS required surveillance to determine abnormal ECCS exhaust fan operation had not been performed adequately since Unit 1 construction. This was caused by inadequate understanding of the system. | LER later closed |
| IR 93-02 | Partial Unit 1 ESFAS actuation due to a relay failure. No pumps started and no water was injected. | LER later closed |
| IR 93-02 | Startup strainer found in CCW pump 2B. Licensee unable to determine when the strainer was installed, but could have been since construction. | URI later closed |
| IR 93-05 | Failure to follow procedure during Rx cooldown resulted in injection of some of the SIT volume. | None |
| IR 93-07 | Inadvertent start of 1B EDG by electrician while installing test gear for safeguards test. | None |
| IR 93-08 | Three of 4 steam space instruments on Unit 2 pressurizer replaced due to leakage. Repair performed not IAW ASME code. | Vio SL IV |
| IR 93-12 | The 1B LPSI pump failed due to inadequate lubrication to the bearings due to poor maintenance practices. | Vio SL IV |
| IR 93-12 | Seven CEAs in unit 2 were dropped. Apparent cause was a ground in the electrical system. | None |
| IR 93-15 | Upon restart of Unit 1, it was discovered that a dual unit CEA was not latched. | None |
| IR 93-15 | Since plant had to enter mode 5 to investigate CEA problem, the 1A2 RCP seal replaced due to leakage. | None |
| IR 93-15 | Turbine startup aborted when a tear was discovered in 1B condenser boot. | None |
| IR 93-15 | Five more attempts to bring the generator on-line were unsuccessful due to several minor secondary problems. | None |
| IR 93-18 | Approximately 55,000 gallons of water leaked from the Unit 1 RWT into the surrounding soil. | None |

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| IR 93-18 | Failure to follow a maintenance procedure caused an AFW MOV to fail. | NCV |
| IR 93-19 | Unit 2 S/D due to condenser tube leakage. | None |
| IR 93-19 | The 1A EDG tripped on a spurious high jacket water temperature signal during a routine load run. | None |
| IR 93-22 | Unit 1 taken off-line twice and Unit 2 power reduced once due to jelly fish intrusion. | None |
| IR 93-22 | Unit 2 power reduced due to unidentifiable chloride intrusion into the 2A SG. | None |
| IR 93-22 | Unit 1 power reduced due to high linear heat rate alarms. It was later determined that the alarm setpoints were reduced during the last jelly fish intrusion and never reset. | None |
| IR 93-22 | Power reduced on Unit 1 to effect repairs on a MFP. | None |
| IR 93-22 | Power reduced on Unit 2 due to a rupture in the screen wash system. | None |
| IR 93-22 | Unidentified leak rate on Unit 1 exceeded 1.0 gpm. Eventually determined that the cause was misaligned sample valves. | None |
| IR 93-22 | Written procedures were not implemented to install temporary air to UHS valves. | Vio SL IV |
| IR 93-22 | Licensee made changes to the facility as described in the FSAR without performing a safety analysis. | Vio SL IV |
| IR 93-23 | Unit 2 manually tripped due to high main generator H2 temperature caused by a faulty TCW temperature control valve. | None |
| IR 93-24 | Spent resin tank pressure exceeded allowable pressure during resin transfer due to not using procedure. | Vio SL IV |
| IR 93-24 | Unit 2 power reduced due to condenser tube rupture. | None |