REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8303160228 DOC.DATE: 83/03/11 NOTARIZED: NO DOCKET #
FACIL:50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Submits addl info re human factors under appeal,per NRC mgt 830224-25 site visit,Current configuration of control board 206 will not pose increased risk to health & safety nor involve unreviewed safety question.

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	NRR/DHFS/HFEB	40	1	1	NRR/DHFS/LQB	32	1	1
	NRR/DL/SSPB		1	0	NRR/DSI/AEB	26	1	1
	NRR/DSI/ASB		1	1	NRR/DSI/CPB	10	1	1
	NRR/DSI/CSB	09	1	1	NRR/DSI/ICSB	16	1	1
	NRR/DSI/METB	12	1	1	NRR/DSI/PSB	19	1	1
	NRR/DSI/RAB	22	1	1	NRR/DSI/RSB	23	1	1
	REG FILE	04	1	1	RGN2		3	3
	RM/DDAMI/MIB		1	0				
EXTERNAL:	ACRS	41	6	6	BNL(AMDTS ONLY)		1	1
	DMB/DSS (AMDTS)		1	1	FEMA-REP DIV	39	1	1
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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8509160226 DOC.DATE: 85/09/[illegible] NOTARIZED: NO DOCKET #
FACIL:50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Submits addl info re human factors under appeal,per NRC 850?24-25 site visit.Current configuration of control board [illegible] will not pose increased risk to health & safety nor involve unreviewed safety question.

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INTERNAL:	ELD/HDS2	1	0	IE FILE	1	1
	IE/DEPER EPDS 35	1	1	IE/DEPER/EPLB 36	3	3
	NRR/DE/AEAB	1	0	NRR/DE/CEB 11	1	1
	NRR/DE/EQB 13	2	2	NRR/DE/GB 28	2	2
	NRR/DE/MEB 30	1	1	NRR/DE/MEB 18	1	1
	NRR/DE/MTEB 17	1	1	NRR/DE/QAB 21	1	1
	NRR/DE/SAB 24	1	1	NRR/DE/SEB 25	1	1
	NRR/DHFS/HFEB40	1	1	NRR/DHFS/LQB 32	1	1
	NRR/DL/SSPB	1	0	NRR/DSI/AEB 26	1	1
	NRR/DSI/ASB	1	1	NRR/DSI/CPB 10	1	1
	NRR/DSI/CSB 09	1	1	NRR/DSI/ICSB 16	1	1
	NRR/DSI/METB 12	1	1	NRR/DSI/PSB 19	1	1
	NRR/DSI/RAB 22	1	1	NRR/DSI/RSB 23	1	1
	REG FILE 04	1	1	RGN2	3	3
	RM/DDAMI/MIB	1	0			
EXTERNAL:	ACRS 41	6	6	BNL(AMDTS ONLY)	1	1
	DMB/DSS (AMDTS)	1	1	FEMA-REP DIV 39	1	1
	LPDR 03	1	1	NRC PDR 02	1	1
	NSIC 05	1	1	NTIS	1	1

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P. O. BOX 14000, JUNO BEACH, FL 33408

FLORIDA POWER & LIGHT COMPANY

March 11, 1983
L-83-145

Office of Nuclear Reactor Regulations
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Re: St. Lucie Unit No. 2
Docket No. 50-389
HFEB AUDIT FINDINGS
A.8.7 & A.8.9

As a result of a site visit by NRC Management on February 24 & 25, 1983 it was agreed that the human factors issues presently under appeal should include augmented information from FP&L. It was further agreed that upon receipt of the augmented information the NRC staff will perform a re-review of HFEB Audit Findings A.8.7 and A.8.9 of Appendix C to St. Lucie Unit #2 SER Supplement No. 1. The augmented information is provided below:

1) The instrumentation and controls in question deal with providing emergency borated water to the reactor vessel. The three systems or subsystems involved include: 1) the Safety Injection Tanks (SIT); 2) the Low Pressure Safety Injection (LPSI) system and; 3) the High Pressure Safety Injection (HPSI) system.

   The primary safety function of these three systems/subsystems are initiated automatically and do not require any operator action or intervention.

2) An analysis is provided below indicating when operator action is required, the conditions under which his action can lead to an error, the impact of an error on the performance of the safety system and the possibility of impacting the health and safety of the public.

B001

   a. SAFETY INJECTION N TANKS (SIT)

      This subsystem is entirely passive. There is no operator action required for the performance of its safety function. If the operator takes any action his action will not impact the operation of this subsystem and therefore he cannot

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make an error which would impact the health and safety of the public. Task analysis for the SIT's are not necessary due to their passive function. Attachment 1 provides a description of the controls associated with the SIT's.

b. LOW PRESSURE SAFETY INJECTION (LPSI).

This system actuates automatically and requires no operator action. Although not required, the operator may take action to correct a single failure in this redundant system or to isolate a ruptured header. In this case, the operator is not concerned with the relative location of the trains of equipment but only the results of the action he takes within that module. Each module has controls with left-to-right/top-to-bottom order. In addition, Attachment 1 provides the results of a task analysis where operator error is postulated. This task analysis assumes the operator selects corrective action on the wrong train and the results provide an estimate of the time required to recover from such an error. In either case, the system performance is not impaired by any error and the risk to the health and safety of the public is not increased.

c. HIGH PRESSURE SAFETY INJECTION (HPSI).

As with the LPSI system, this system actuates automatically and requires no operator action. Although not required, the operator may take action to correct a single failure in this redundant system or to isolate a ruptured header. In this case, the operator is not concerned with the relative location of the trains of equipment but only the results of the action he takes within that module. Each module has controls with left-to-right/top-to-bottom order. In addition, Attachment 1 provides the results of a task analysis where operator error is postulated. This task analysis assumes the operator selects corrective action on the wrong train and the results provide an estimate of the time required to recover from such an error. In either case, the system performance is not impaired by any error and the risk to the health and safety of the public is not increased.

3) The operators at St. Lucie Unit No. 2 are presently trained on control board #206 as presently arranged. Any changes to the board at this time would, of course, require retraining of the operators. FP&L's implementation of the final Control Room Design Review will occur at first refueling. Any changes made to the board at that time will require additional retraining of the operators.

In conclusion, FP&L has demonstrated that all three systems/subsystems affected are either automatically initiated or are completely passive requiring no operator intervention to accomplish its safety function. Based on this, FP&L is confident that the current configuration of control board #206 will not pose an increased risk to the health and safety of the public, nor does it involve an unreviewed safety question which would warrant rework of the board prior to exceeding five percent power.

If you have any questions regarding this submittal please contact me.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems and Technology

REU/RJS/JES/rms

Attachment

cc: J. P. O'Reilly, Region II
Harold F. Reis, Esquire

ATTACHMENT 1

TASK ANALYSIS

A task analysis was performed to assess the arrangement of the controls in control board #206. Those controls are associated with three methods of providing emergency borated water to the reactor vessel core via cold leg injection loops 2A1 and 2A2. The task analysis considered scenarios where operator error was postulated and consequences of such error were evaluated. In addition, this document indicates which controls are affected for each of the systems and provides a figure detailing their location within the board.

a. Safety Injection Tanks (SIT)

Of the equipment identified to be reworked (Attachment 2), eight displays, two hand controllers, eight hand switches and 12 indicating lights are associated with safety injection tanks 2A1 and 2A2. (See Item 1 on Figure 1).

The safety injection tanks are a passive element of the LPSI system requiring no operator action during any accident scenario which would require their utilization. A task analysis was not performed since there is no scenario where operator manual action could affect the SIT function.

b. Low Pressure Safety Injection (LPSI).

Of the equipment identified to be reworked (Attachment 2), two displays, two hand switches, and four indicating lights are associated with the low pressure injection supply to cold leg loops 2A1 and 2A2 (See Item 2, Figure 1). Low pressure injection is activated upon receiving an automatic safety injection activation signal. No operator intervention is required unless any of the equipment fails to align properly or a header break is indicated.

The task analysis postulated manual corrections by the operator in case of a ruptured header. In addition, in this scenario, the operator also selected to isolate the wrong header. The valves associated with the controls take between 10 and 15 seconds to stroke from full open to full close. They are also alarmed and annunciate if their safety injection position is overridden, thus providing the operator with: 1) a display indicating flow; 2) valve status lights indicating valve position; 3) valve position indicator (percent open) and; 4) valve safety injection signal actuation override annunciation. When the operator isolates the wrong header, operator error would be identified in less than 20 seconds when the ruptured header flow does not decrease and the header high flow alarm remains illuminated,

at which time the operator would correct the valve lineup by opening the isolated header valve and closing the correct header isolation valve. The total response time from the instant the error is made to the time the system is restored to proper alignment is expected to be less than 60 seconds. Florida Power & Light Company feels that there is no increased safety risk or reduction in operator performance if the subject displays, hand switches and indicating lights are not modified to conform to a left-to-right and top-to-bottom ascending order.

c. High Pressure Safety Injection (HPSI).

Of the remaining equipment to be reworked (Attachment #1), two displays are associated with the high pressure injection supply to Cold leg loops 2A1 and 2A2 (See Item 3, Figure 1). High pressure injection is activated upon receiving an automatic safety injection activation signal. No operator intervention is required unless any of the equipment fails to align properly or a cold leg header break is indicated.

The task analysis postulated manual corrections by the operator in case of a ruptured header. In addition, in this scenario, the operator also selected to isolate the wrong header.

The valves associated with these controls take 10 seconds to stroke from full open to full close. They are also alarmed and annunciate if their safety injection position is overridden thus providing the operator with: 1) a display indicating flow; 2) valve status lights indicating valve position; 3) valve position indicator (percent open); and 4) valve safety injection signal actuation override annunciation. Should the operator isolate the wrong header, the operator error would be identified in less than 20 seconds when the ruptured header flow does not decrease and the header high flow alarm remains illuminated at which time the operator would correct the valve lineup by opening the isolated header valve and closing the correct header isolation valve. The total response time from the instant the error is made to the time the system is restored to proper alignment is expected to be less than 60 seconds. Florida Power & Light Company feels that there is no increased safety risk or reduction in operator performance if the subject displays are not modified to conform to a left-to-right ascending order.

CONCLUSION

Florida Power & Light Company has demonstrated that the current configuration of Control Board #206 will not pose an increased risk to the health and safety of the public, nor does it involve an unreviewed safety question which would warrant rework of the control board prior to core load.

ATTACHMENT NO. 2

CONTROL BOARD 206 EQUIPMENT REWORK

SUMMARY

A. Displays to be relocated (Total 12)

1. Safety Injection Tanks
   a. LIA-3311 Label 103 Loop 2A2
   b. LIA-3312 Label 102 Loop 2A2
   c. PIA-3311 Label 101 Loop 2A2
   d. PIA-3319 Label 100 Loop 2A2
   e. LIA-3321 Label 97 Loop 2A1
   f. LIA-3322 Label 96 Loop 2A1
   g. PIA-3321 Label 95 Loop 2A1
   h. PIA-3329 Label 94 Loop 2A1

2. LPSI

   a. FI-3312 Label 67 Loop 2A2
   b. FI-3312 Label 57 Loop 2A1

3. HPSI

   a. FI-3311 Label 66 Loop 2A2
   b. FI-3321 Label 56 Loop 2A1

B. Hand controllers to be relocated (Total 2)

1. Safety Injection Tanks

   a. HIC-3618 Label 98 Loop 2A2
   b. HIC-3628 Label 93 Loop 2A1

C. Hand switches to be relocated (Total 10)

1. Safety Injection Tanks

   a. HS-242-1 Label 192 Loop 2A2
   b. HS-3612 Label 225 Loop 2A2
   c. HS-3733 Label 258 Loop 2A2
   d. HS-3614 Label 291 Loop 2A2
   e. HS-242-2 Label 189 Loop 2A2
   f. HS-3622 Label 222 Loop 2A2
   g. HS-3735 Label 255 Loop 2A2
   h. HS-3624 Label 288 Loop 2A2

2. LPSI

   a. HS-3615 Label 293 2A2 Loop 2A2
   b. HS-3625 Label 292 2A2 Loop 2A1

D. Indicating lights to be relocated (Total 16)

1. Safety injection tanks - 12 lamps for associated hand switches in C.1 above.

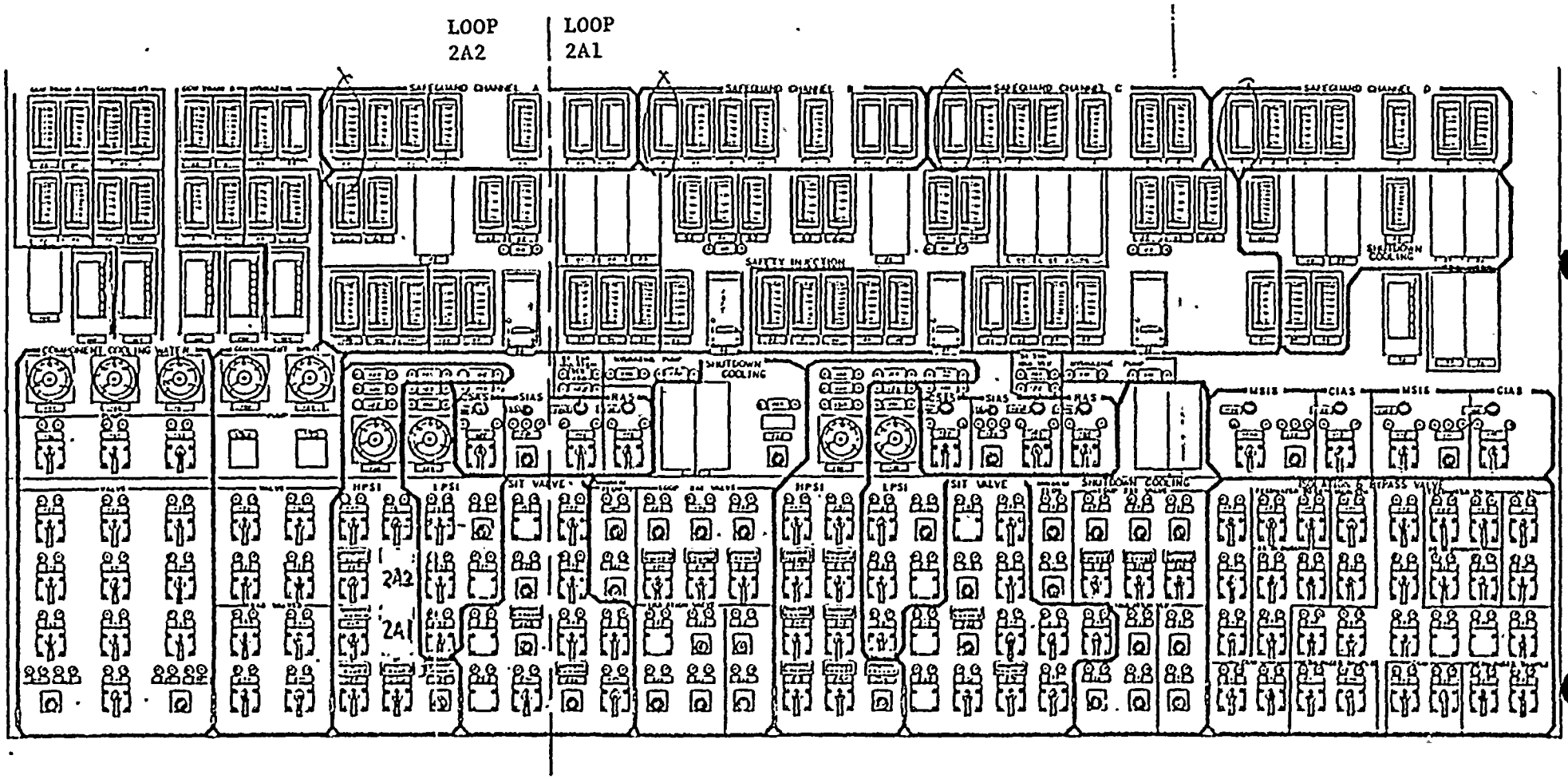
2. LPSI - 4 lamps for associated hand switches in C.2 above.

E. New wires to be pulled (Total 55)

F. Wires to be reused i.e. repulled and cut at new location (Total 55)

g. Wire marker changes (Total 349)

CONTROL BOARD 206



1) SAFETY INJECTION TANK

2) LOW PRESSURE INJECTION TANK

3) HIGH PRESSURE INJECTION TANK

FIGURE 1