REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8303160267 DOC.DATE: 83/03/10 NOTARIZED: YES DOCKET #
FACIL:50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards responses to Generic Ltr 82-28 re inadequate core cooling instrumentation sys for facilities.W/nine oversize drawings.Aperture cards are available in PDR.
SEE REPTS #8303160276 & SEE DRAWINGS
DISTRIBUTION CODE: A002S COPIES RECEIVED:LTR 3 ENCL 3 SIZE: 38+149
TITLE: OR Submittal:Inadequate Core Cooling (Item II.F.2) GL 82-28

NOTES: Aperture Card Dist.

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
INTERNAL:	NRR SHEA,J	01	1	1	NRR/DHFS/HFEB	15	1	1
	NRR/DHFS/PTRB	16	1	1	NRR/DL/ORAB	08	1	1
	NRR/DSI DIR	09	1	1	NRR/DSI/CPB	10	3	3
	~~NRR/DSI/ICSB~~	14	1	1	NRR/DSI/RSB	13	1	1
	REG FILES	04	1	1	RGN2	07	1	1
EXTERNAL:	ACRS	17	10	10	LPDR	03	1	1
	NRC PDR	02	1	1	NSIC	06	1	1
	NTIS	05	1	1				

DRWGS. to: BC-2 sets
Reg File - 1 set

TOTAL NUMBER OF COPIES REQUIRED: LTTR 26 ENCL 26

O. BOX 14000, JUNO BEACH, FL 33408

FLORIDA POWER & LIGHT COMPANY

March 10, 1983
L-83-135

Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20550

Dear Mr. Eisenhut:

Re: Turkey Point Units 3 & 4
Docket No. 50-250 & 50-251
Post-TMI Requirements
Inadequate Core Cooling Instrumentation System
Response to Generic Letter 82-28

Please find attached our response to Generic Letter No. 82-28 concerning the Inadequate Core Cooling Instrumentation System for Turkey Point Units 3 and 4. Please note that there is a separate document attached for each unit because the ICCS systems are on different schedules of implementation.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/PKG/js

Attachments

cc: Mr. James P. O'Reilly, Region II
Mr. Harold F. Reis, Esquire
PNS-LI-83-174-1

Aperture Card Dist
Drawings To: BC - 2 sets
Reg File - 1 Set

A002
3/3

RESPONSES TO NRC GENERIC LETTER NO. 82-28

TURKEY POINT PLANT UNIT 3

TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE

This document contains responses to the NRC Generic Letter No. 82-28, dated December 10, 1982, requesting information regarding the Inadequate Core Cooling Instrumentation System being installed in Turkey Point Plant Unit 3 to comply with the requirements of NUREG-0737, Section II.F.2.

The scope of this document covers the specific information requested in each one of the three separate items of the NRC letter which apply to Turkey Point Plant Unit 3. However, generic information is referenced when it is contained in a specific document.

The information included in this document includes the following topics:

1. Identification of the Reactor Coolant Inventory System selected for this plant.

2. Generic design description of the system.

3. Detailed schedule for engineering, procurement and installation of the system.

4. System compliance with the NUREG-0737 Section II.F.2.

2.0 REFERENCES

1. CEN-185, "DOCUMENTATION OF INADEQUATE CORE COOLING INSTRUMENTATION FOR COMBUSTION ENGINEERING NUCLEAR STEAM SUPPLY SYSTEMS," SEPTEMBER 1981, COMBUSTION ENGINEERING, INC.

2. CEN-185-P, SUPPLEMENT 1, "HEATED JUNCTION THERMOCOUPLE: PHASE 1 TEST REPORT," NOVEMBER, 1981, COMBUSTION ENGINEERING, INC.

3. CEN-185-P, SUPPLEMENT 2, " HEATED JUNCTION THERMOCOUPLE: PHASE II TEST REPORT," NOVEMBER 1981, COMBUSTION ENGINEERING, INC.

4. CEN-185-P, SUPPLEMENT 3, "HEATED JUNCTION THERMOCOUPLE: PHASE III TEST REPORT," JUNE, 1982, COMBUSTION ENGINEERING, INC.

5. CEN-181-P, "GENERIC RESPONSES TO NRC QUESTIONS ON THE C-E INADEQUATE CORE COOLING INSTRUMENTATION," SEPTEMBER, 1981, COMBUSTION ENGINEERING, INC.

6. CEN-152 Rev. 1, "CE EMERGENCY PROCEDURE GUIDELINES", NOVEMBER, 1982

7. FPL SUBMITTAL TO NRC DATED JANUARY 7, 1982 (LETTER L-82-5)

8. FPL SUBMITTAL TO NRC DATED JUNE 25, 1981, (LETTER L-81-263)

9. FPL SUBMITTAL TO NRC DATED DECEMBER 26, 1980, (LETTER L-80-419)

10. FPL SUBMITTAL TO NRC DATED MARCH 10, 1980 (LETTER L-80-79)

11. FPL SUBMITTAL TO NRC DATED JANUARY 11, 1980 (LETTER L-80-16)

NOTE: References 1 through 6 have been submitted to the NRC by the CE owner's group.

3.0 RESPONSES TO NRC REQUEST NO. 1 (GENERIC LETTER NO. 82-28)

The following discussion covers the ICCS asked for in Request No. 3 as well as the RCIS.

1. Identification of the Reactor Coolant Inventory System (RCIS) Selected for Turkey Point Plant Unit 3.

   The Combustion Engineering's Inadequate Core Cooling System (ICCS) which includes the "Heated Junction Thermocouple System" (HJTC) to detect Reactor Coolant Inventory, was selected for implementation in Turkey Point Plant Unit 3.

2. General Design Description of the Inadequate Core Cooling System (ICCS).

   (This description supersedes the generic description of our previous submittal, Reference 8).

   The ICCS as designed by C.E., is comprised of the following instrument sensor packages for detection of inadequate core cooling:

   (1) Heated Junction Thermocouple System (HJTC) as (RCIS).
   (2) Subcooling Margin Monitor (SMM) Detection System, which comprises hot leg and cold leg RTD's (Resistance Temperature Detectors), and Reactor Coolant System pressure sensors.
   (3) Core Exit Thermocouple System (CET's).

   The above instrument sensor packages are inputs to the Qualified Safety Parameter Display Cabinets (QSPDS), which comprises the sensor processing equipment, operator interface equipment, and isolated data link with the Safety Assessment System (SAS). The ICCS instrument sensor packages are described in the CE generic document, Reference 1. The plant specific ICCS inputs are described in the Data Bases, Attachment 4.

   The QSPDS is described in the CE generic document, Attachment 1. The plant specific functional design description for the QSPDS is detailed in Attachment 3. Note that the QSPDS for this plant is only used to process the ICCS parameters, and is not a back-up Safety Parameter Display System (SPDS) as described in Attachment 1.

   The QSPDS functional design for the display is described in the CE generic document Attachment 2. The plant specific display design for the QSPDS is detailed in Attachment 5.

   The display system for this plant only includes the ICCS sensor packages as described above.

   The HJTC sensors are located in part length control rod locations No. 59 and 60, which will be modified in the internals and pressure boundary to accommodate the new HJTC probe assemblies. (See Attachment 10 & 11)

Mineral insulated (MI) cable will be routed in two separate channels from the reactor head to the two redundant electrical penetrations designed for the ICCS inputs.

Outside the containment the HJTC sensors will be connected to the two redundant channels of QSPDS processing equipment, with organic cables, routed in two channels. The data link cables will interconnect the QSPDS cabinet with the display in the Control Room and the Safety Assessment System (SAS).

The CET cabling system including connectors will be up-graded to meet containment environmental qualification as required by NUREG-0737.

Plant Change Modification packages have been prepared for the installation of the ICCS. These implementation packages include the installation of the QSPDS equipment, electrical penetrations, MI cables inside containment, reactor head and reactor internals modification, interconnecting cables outside containment and Class IE power supply equipment for the ICCS.

3. Schedule for Engineering, Procurement and Installation of the ICCS

a) Engineering Schedule

a-1) The Engineering for the installation of the ICC System is essentially complete.

a-2) The Engineering for the ICC System hardware is essentially complete. Engineering documentation is available upon request.

b) Procurement Schedule

All ICCS hardware and software have been purchased. Some equipment has already been delivered to the plant site. The remainder of the equipment will be delivered before the refueling outage, October, 1983.

c) Installation Schedule

The ICCS installation is projected to be completed during the 1983 refueling outage and to be operational by January, 1984 pending delivery of the hardware.

The installation of the ICCS involve the following:

1. Modification of the part length control rods for the HJTC probes. This modification includes reactor internals and pressure boundary modification (Attachment 10 & 11 and Section 4.0, Note 5).

2. Replacement of the CET's connectors.

3. Installation of the MI cable for the HJTC system from the two new probe assemblies at the reactor head to the two new electrical penetrations for the ICCS inputs.

4. Installation of the MI cable for the CET's from the reactor head to the two electrical penetrations.

5. Installation of the two new electrical penetrations.

6. Installation of the QSPDS cabinets.

7. Installation of the ICCS plasma displays Power Supply and Page Control modules.

8. Installation of interconnecting cables outside containment, including communication cables from QSPDS to SAS and displays.

9. The Computer Room for the QSPDS will be completed by September, 1983.

The system will be used for operator training purposes until the control room design review and pre-implementation review by NRC is completed.

Qualification and test reports, operating procedures, emergency procedures and licensing documentation will be completed before the unit start-up. (See section 3-d below).

d) Test and Qualification Reports

The HJTC test reports are documented in supplements 1, 2 and 3 of CEN-185 (Reference 2, 3 and 4).

The QSPDS test is schedule to be completed by 1983 outage.

The MI cable qualification test report is projected to be completed by September 1, 1983.

The pressure boundary safety analysis and stress report will be available by the end of the refueling outage.

The qualification report for the electrical penetration will be available by the 1983 outage.

The qualification report for the complete ICCS will be available by September, 1983.

The operating procedure will be addressed in our response to the NRC Generic Letter No. 82-33.

4.0 RESPONSE TO NRC REQUEST NO. 2, GENERIC LETTER NO. 82-28

STATUS OF CONFORMANCE OF THE ICCS WITH NUREG 0737 SECTION II.F.2

TABLE 1

(Refers to same item number in the Appendix to the the generic letter 82-28)

Item	Reference No. ( )	Deviation (Note 3)	Schedule
1.a.	CEN-185 (1)	No	(Note 1)
	16081-ICE-3219 Attachment 4	No	(Note 2)
	NPROD-ICE-3201 Attachment 1	No	(Note 4)
	16081-ICE-3218 Attachment 3	No	(Note 2)
	NPROD-ICE-3202 Attachment 2	No	(Note 2)
	16081-ICE-3220 Attachment 5	No	(Note 2)
	CEN-181-P (5)	No	(Note 1)
	CEN-185 Suppl. 1 (2)	No	(Note 1)
	CEN-185 Suppl. 2 (3)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)

1.b. See our previous submittals, references 7, 8 and 9.

The existing Instrumentation systems which provide information pertinent to ICC considerations are the single channel Sub-cooling Margin Monitor (SMM) and the Core Exit Thermocouples.

The Subcooling Margin Monitor (SMM) displays temperature margin continuously and any hot leg RTD temperature or Reactor Coolant Pressure on demand. The hot leg RTD's range is 0°F to 750°F. The Reactor Coolant Pressure Transmitters range are 0 - 3000 psig.

There are (3) three hot leg RTD's (1) per loop inputs to the SMM. The two pressure transmitters are input to the single channel SMM. The SMM was upgraded per our commitments described in letter L-80-419, dated 12/26/80.

The Core Exit Thermocouples provide input to the Digital Data Processing System (DDPS).

1.c. The ICCS is projected to be completed during the present refueling outage pending delivery of hardware.

The hot leg temperature and pressure inputs to the existing SMM will be used as input for the ICCS.

The new three dual cold leg temperature RTD's inputs to the ICCS will be installed during the refueling outage and routed to the QSPDS cabinets through the new electrical penetrations.

The CET's will be separated in two channels and routed thru the two ICCS penetrations to the QSPDS cabinets.

Item	Reference No. ( ) Continued . . .	Deviation (Note 3)	Schedule
2.	CEN-185 (App. A) (1)	No	(Note 1)
	CEN-185 Suppl. 1 (2)	No	(Note 1)
	CEN-185 Suppl. 2 (3)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)
	CEN-181-P Question #2 (5)	No	(Note 1)
	CEOG letter 6/1/82 to D. Crutchfield (NRC) (Questions 1,2,3&4).	No	(Note 1)
	QSPDS Factory Test Report	No	1983 outage
3.	CEN-185 Suppl. 1 (2)	No	(Note 1)
	CEN-185 Suppl. 2 (3)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)
	CEN-185 Section 5.0 (1)	No	(Note 1)
	CEN-181-P Question #12 (5)	No	(Note 1)
	Qualification Report of the ICCS-(CE hardware)	No	Sept. 1, 83
	ICCS Technical Manual (including instrument calibration).		Sept. 1, 83
4.	CEN-185 Section 8 (1)	No	(Note 1)
	Table 2 of this document also addresses App. B NUREG 0737	No	
	Table 3 of this document Also addresses Attachment 1 NUREG 0737	No	
5.	CEN-185 Section 3 (1)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)
	NPROD-ICE-3201.01 Att. 1	No	(Note 2)
	NPROD-ICE-3202 Att. 2	No	(Note 2)
	16081-ICE-3218 Att. 3	No	(Note 2)
	16081-ICE-3219 Att. 4	No	(Note 2)
	16081-ICE-3220 Att. 5	No	(Note 2)
	16081-ICE-3111 Att. 6	No	(Note 2)
6.	Installation schedule for the new instrumentation is addressed in the response to NRC request No. 1.		
	ICCS test reports.	No	Sept. 1983
	ICCS instrument calibration will be included in the test reports.		

Item	Reference No. ( )	Deviation (Note 3)	Schedule
7.	CEN-185 Section 2 (1)	No	(Note 1)
	CEN-181-P Question 2 (5)	No	(Note 1)
	CEOG letter 6/1/82 to Crutchfield (NRC) (question #1)	No	(Note 1)
	CEN-152 Rev. 1 (6)	No	(Note 1)
8.	CEN-152 Rev. 1 (6)		(Note 1)
	Final Emergency Operating Procedure	No	(See 3.d)

9. No additional submittals are projected after this document.

Additonal information is available upon NRC request.

**B. The spacing of the HJTC sensor from the core alignment plate to the top of the Reactor Vessel head is shown on the Attachment 9.

Loss of a single sensor will not affect the ability of the system to detect an approach to ICC because the system is completely redundant. Two HJTC probes with eight sensors each are provided.

NOTES - Table 1

Note 1: Document submitted to NRC by CE owners group. (Complete)

Note 2: Document attached.

Note 3: After implementation of the ICCS there are no deviations from NUREG-0737 requirements, except Item 3 of Table 2.

Note 4: This document is proprietary and can only be reviewed at CE's or FPL's premises.

Note 5: This document is proprietary and can only be reviewed at W's or FPL's premises.

TABLE -2

CONFORMANCE WITH APPENDIX B OF NUREG-0737

Item	Reference	Deviation (Note 3)
1.	CEN-185 (section 5) (1) CEN-185 suppl. 3 (4) Test Report to comply with Req. Guide 1.89 (NUREG-0588)	No
2.	CEN-181-P (5) Question #11 CEOG - Letter 6/1/82 to NRC (Question #4)	No
3.	Plant Change Modification Package is available. (Class IE Power Supply for ICCS)*	Yes
4.	CEN-185 Suppl. 3 (4) CEN-181-P Question #12 CEOG letter 6/1/82 to NRC (Question #4)	No
5.	CE Quality Assurance Design Manual. All other manufacturers of Class IE equipment Q.A. manual	No
6.	CEN-185 (Section 2&4) (1)	No
7.	Recording is accomplished in the SAS.	
8.	Described in the Plant Change Modification Packages	No
9.	Isolation is accomplished in the QSPDS cabinet.	No

* Redundant Class IE power, backed-up by the Emergency Diesel Generator is provided instead of uninterruptible power supply. Existing Plant inverters will be upgraded at a later date to provide power to ICCS.

TABLE - 3

Conformance with NUREG-0737 II.F.2

ATTACHMENT 1
(CET Criteria)

1. Core exit thermocouple locations are shown on Attachment No. 7.

2. For a description of the primary operator display. Refers to the following documents:

NPROD-ICE-3202	Attachment 2
16081-ICE-3220	Attachment 5
See Attachment 8	

3. The back-up display is redundant to the primary display. (See item 2 above).

4. Emergency operating procedure for the ICCS will be addressed in our response to the NRC Generic Letter No. 82-33. The operators will be trained in the operation of the ICCS, per the Plant Specific Training Program.

5. a) Control Room design task analysis will be provided in the response to NRC generic letter No. 82-33, Supplement 1 to NUREG -0737, Requirement for Emergency Response Capability.

   b) The Core Exit Thermocouples meet the criteria of NUREG-0737, Attachment 1 and Appendix B.

6. The complete system is powered from two independent and redundant class IE power sources. Isolation is provided at the QSPDS cabinets.

7. Environmental qualification report will be provided for the CET's cabling and connectors. The CET's themselves are not required to be qualified per Regulatory Guide 1.97.

5.0 RESPONSE TO NRC REQUEST NO. 3 GENERIC LETTER NO. 82-28 INSTALLATION OF ICCS PLANT SPECIFIC SCHEDULE

The response to this request is included in Response No. 1.

RESPONSES TO NRC GENERIC LETTER NO. 82-28

TURKEY POINT PLANT UNIT 4

TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE

This document contains responses to the NRC Generic Letter No. 82-28, dated December 10, 1982, requesting information regarding the inadequate Core Cooling Instrumentation System being installed in Turkey Point Plant Unit 4 to comply with the requirements of NUREG-0737, Section II.F.2.

The scope of this document covers the specific information requested in each one of the three separate items of the NRC letter which apply to Turkey Point Plant Unit 4. However, generic information is referenced when it is contained in a specific document.

The information included in this document includes the following topics:

1. Identification of the Reactor Coolant Inventory System selected for this plant.

2. Generic design description of the system.

3. Detailed schedule for engineering, procurement and installation of the system.

4. System compliance with the NUREG-0737 Section II.F.2.

2.0 REFERENCES

1. CEN-185, "DOCUMENTATION OF INADEQUATE CORE COOLING INSTRUMENTATION FOR COMBUSTION ENGINEERING NUCLEAR STEAM SUPPLY SYSTEMS," SEPTEMBER 1981, COMBUSTION ENGINEERING, INC.

2. CEN-185-P, SUPPLEMENT 1, "HEATED JUNCTION THERMOCOUPLE: PHASE 1 TEST REPORT," NOVEMBER, 1981, COMBUSTION ENGINEERING, INC.

3. CEN-185-P, SUPPLEMENT 2, " HEATED JUNCTION THERMOCOUPLE: PHASE II TEST REPORT," NOVEMBER 1981, COMBUSTION ENGINEERING, INC.

4. CEN-185-P, SUPPLEMENT 3, "HEATED JUNCTION THERMOCOUPLE: PHASE III TEST REPORT," JUNE, 1982, COMBUSTION ENGINEERING, INC.

5. CEN-181-P, "GENERIC RESPONSES TO NRC QUESTIONS ON THE C-E INADEQUATE CORE COOLING INSTRUMENTATION," SEPTEMBER, 1981, COMBUSTION ENGINEERING, INC.

6. CEN-152 Rev. 1, "CE EMERGENCY PROCEDURE GUIDELINES", NOVEMBER, 1982

7. FPL SUBMITTAL TO NRC DATED JANUARY 7, 1982 (LETTER L-82-5)

8. FPL SUBMITTAL TO NRC DATED JUNE 25, 1981, (LETTER L-81-263)

9. FPL SUBMITTAL TO NRC DATED DECEMBER 26, 1980, (LETTER L-80-419)

10. FPL SUBMITTAL TO NRC DATED MARCH 10, 1980 (LETTER L-80-79)

11. FPL SUBMITTAL TO NRC DATED JANUARY 11, 1980 (LETTER L-80-16)

NOTE: References 1 through 6 have been submitted to the NRC by the CE owner's group.

3.0 RESPONSES TO NRC REQUEST NO. 1 (GENERIC LETTER NO. 82-28)

The following discussion covers the ICCS asked for in Request No. 3 as well as the Reactor Coolant Inventory System:

1. Identification of the Reactor Coolant Inventory System (RCIS) Selected for Turkey Point Plant Unit 4.

   The Combustion Engineering's Inadequate Core Cooling System (ICCS) which includes the "Heated Junction Thermocouple System" (HJTC) to detect Reactor Coolant Inventory, was selected for implementation in Turkey Point Plant Unit 4.

2. General Design Description of the Inadequate Core Cooling System (ICCS).

   (This description supersedes the generic description of our previous submittal, Reference 8).

   The ICCS as designed by C.E., is comprised of the following instrument sensor packages for detection of inadequate core cooling:

   (1) Heated Junction Thermocouple System (HJTC) as (RCIS).
   (2) Subcooling Margin Monitor (SMM) Detection System, which comprises hot leg and cold leg RTD's (Resistance Temperature Detectors), and Reactor Coolant System pressure sensors.
   (3) Core Exit Thermocouple System (CET's).

   The above instrument sensor packages are inputs to the Qualified Safety Parameter Display Cabinets (QSPDS), which comprises the sensor processing equipment, operator interface equipment, and isolated data link with the Safety Assessment System (SAS). The ICCS instrument sensor packages are described in the CE generic document, Reference 1. The plant specific ICCS inputs are described in the Data Bases, Attachment 4.

   The QSPDS is described in the CE generic document, Attachment 1. The plant specific functional design description for the QSPDS is detailed in Attachment 3. Note that the QSPDS for this plant is only used to process the ICCS parameters, and is not a back-up Safety Parameter Display System (SPDS) as described in Attachment 1.

   The QSPDS functional design for the display is described in the CE generic document Attachment 2. The plant specific display design for the QSPDS is detailed in Attachment 5.

   The display system for this plant only includes the three ICCS sensor packages as described above.

   The HJTC sensors are located in part length control rod locations No. 59 and 60, , which have been modified in the internals and pressure boundary to accommodate the new HJTC probe assemblies. (See Attachment 10 & 11)

Mineral insulated (MI) cable will be routed in two separate channels from the reactor head to the two redundant electrical penetrations designed for the ICCS inputs.

Outside the containment the HJTC sensors will be connected to the two redundant channels of QSPDS processing equipment with organic cables routed in two channels. The data link cables will interconnect the QSPDS cabinet with the display in the Control Room and the Safety Assessment System (SAS).

The CET cabling system including connectors is being up-graded to meet containment environmental qualification as required by NUREG-0737.

Plant Change Modification packages have been prepared for the installation of the ICCS. These implementation packages include the installation of the QSPDS equipment, electrical penetrations, MI cables inside containment, reactor head and reactor internals modification, interconnecting cables outside containment and Class IE power supply equipment for the ICCS.

3. Schedule for Engineering, Procurement and Installation of the ICCS

a) Engineering Schedule -

a-1) The Engineering for the installation of the ICC System is essentially complete.

a-2) The Engineering for the ICC System hardware is essentially complete. Engineering documentation is available upon request.

b) Procurement Schedule

All ICCS hardware and software have been purchased. Some equipment has already been delivered to the job site. The following is the projected delivery schedule for the remainder of the equipment.

QSPDS hardware (including electronics, display, page control module, power supply and cables).	March 10, 1983
HJTC Probe	March 18, 1983
Probe Handling Canister	March 15, 1983
MI Cable	March 12, 1983

c) Installation Schedule

The in containment portion of the CE ICCS installation is projected to be completed during the 1983 refueling outage pending delivery of the hardware. The balance of the installation is expected to be completed by January 1984.

The system will be used for operator training purposes until the control room design review and pre-implementation review of the ICCS by NRC is completed, and until the new qualified computer room for the QSPDS cabinets are completed and ready for operation.

The Computer Room is scheduled for completion by September, 1983.

The modifications of the part length control rods that will be used for the HJTC probes were completed. This modification includes reactor internals and pressure boundary modification (attachment 10 & 11 and section 4.0, Note 4). The rest of the installation involves the following:

1. Replacement of the CET connectors.

2. Installation of the MI cable for the HJTC system from the two new probe assemblies at the reactor head to the two new electrical penetrations for the ICCS inputs.

3. Installation of the MI cable for the CET's from the reactor head to the two electrical penetrations.

4. Installation of the two new electrical penetrations.

5. Installation of the QSPDS cabinets.

6. Installation of the ICCS plasma displays Power Supply and Page Control modules.

7. Installation of interconnecting cables outside containment, including communication cables from QSPDS to SAS and displays.

Qualification and test reports, operating procedures, emergency procedures and licensing documentation will be completed after the unit start-up. (See section 3-d below).

The existing Subcooling Margin Monitors (SMM) will remain in operation after the present outage until the ICCS is approved by the NRC for operation. The the existing Hot Leg temperature and Reactor Coolant system Pressure inputs will be re-connected to the QSPDS cabinets and the existing SMM equipment will be removed from the Control Room. (See Section 4.0 item 1.c)

d) Test and Qualification Reports

The HJTC test reports are documented in supplements 1, 2 and 3 of CEN-185 (Reference 2,3 and 4).

The QSPDS test is on-going and is schedule to be completed by June 1, 1983.

The MI cable qualification test report is projected to be completed by September 1, 1983.

The pressure boundary safety analysis and stress report will be available by the end of the refueling outage.

The qualification report for the electrical penetration will be available by September, 1983.

The qualification report for the complete ICCS will be available by September, 1983.

The operating procedure will be addressed in our response to the NRC Generic Letter No. 82-33.

4.0 RESPONSE TO NRC REQUEST NO. 2, GENERIC LETTER NO. 82-28

STATUS OF CONFORMANCE OF THE ICCS WITH NUREG 0737 SECTION II.F.2

TABLE 1

(Refers to same item number in the Appendix to the the generic letter 82-28)

Item	Reference No. ( )	Deviation (Note 3)	Schedule
1.a.	CEN-185 (1)	No	(Note 1)
	16081-ICE-3219 Attachment 4	No	(Note 2)
	NPROD-ICE-3201 Attachment 1	No	(Note 4)
	16081-ICE-3218 Attachment 3	No	(Note 2)
	NPROD-ICE-3202 Attachment 2	No	(Note 2)
	16081-ICE-3220 Attachment 5	No	(Note 2)
	CEN-181-P (5)	No	(Note 1)
	CEN-185 Suppl. 1 (2)	No	(Note 1)
	CEN-185 Suppl. 2 (3)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)

1.b. See our previous submittals, references 7, 8 and 9.

The existing Instrumentation systems which provide information pertinent to ICC considerations are the single channel Sub-cooling Margin Monitor (SMM) and the Core Exit Thermocouples.

The Subcooling Margin Monitor (SMM), displays temperature margin continuously and any hot leg RTD temperature or Reactor Coolant Pressure under demand. The hot leg RTD's range is 0°F to 750°F. The Reactor Coolant Pressure Transmitters range are 0 - 3000 psig.

There are (3) three hot leg RTD's (1) per loop inputs to the SMM. The two pressure transmitters are input to the single channel SMM. The SMM was upgraded per our commitments described in letter L-80-419, dated 12/26/80.

The Core Exit Thermocouples provide input to the Digital Data Processing System (DDPS).

1.c. The existing SMM described in item 1.b. will remain in operation after this outage. The ICCS is projected to be completed during the refueling outage pending delivery of hardware.

The existing hot leg temperature and pressure inputs to the SMM will be used as input for the ICCS.

The new three dual cold leg temperature RTD's inputs to the ICCS will be installed during the refueling outage and routed to the QSPDS cabinets through the new electrical penetrations.

The CET's will be separated in two channels and routed thru the two ICCS penetrations to the QSPDS cabinets.

Item	Reference No. ( ) Continued . . .	Deviation (Note 3)	Schedule
2.	CEN-185 (App. A) (1)	No	(Note 1)
	CEN-185 Suppl. 1 (2)	No	(Note 1)
	CEN-185 Suppl. 2 (3)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)
	CEN-181-P Question #2 (5)	No	(Note 1)
	CEOG letter 6/1/82 to D. Crutchfield (NRC) (Questions 1,2,3&4).	No	(Note 1)
	QSPDS Factory Test Report	No	Sept. 1983
3.	CEN-185 Suppl. 1 (2)	No	(Note 1)
	CEN-185 Suppl. 2 (3)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)
	CEN-185 Section 5.0 (1)	No	(Note 1)
	CEN-181-P Question #12 (5)	No	(Note 1)
	Qualification Report of the ICCS-(CE hardware)	No	Sept., 1983
	ICCS Technical Manual (including instrument calibration).	No	Sept., 1983
4.	CEN-185 Section 8 (1)	No	(Note 1)
	Table 2 of this document also addresses App. B NUREG-0737	No	(Note 1)
	Table 3 of this document Also addresses Attachment 1 NUREG-0737	No	(Note 1)
5.	CEN-185 Section 3 (1)	No	(Note 1)
	CEN-185 Suppl. 3 (4)	No	(Note 1)
	NPROD-ICE-3201.01 Att. 1	No	(Note 2)
	NPROD-ICE-3202 Att. 2	No	(Note 2)
	16081-ICE-3218 Att. 3	No	(Note 2)
	16081-ICE-3219 Att. 4	No	(Note 2)
	16081-ICE-3220 Att. 5	No	(Note 2)
	16081-ICE-3111 Att. 6	No	(Note 2)
6.	Installation schedule for the new instrumentation is addressed in the response to NRC request No. 1.	No	
	ICCS test reports.	No	Sept., 1983
	ICCS instrument calibration will be included in the test reports.		

Item	Reference No. ( ) Continued . . .	Deviation (Note 3)	Schedule
7.	CEN-185 Section 2 (1)	No	(Note 1)
	CEN-181-P Question 2 (5)	No	(Note 1)
	CEOG letter 6/1/82 to Crutchfield (NRC) (question #1)	No	(Note 1)
	CEN-152 Rev. 1 (6)	No	(Note 1)
8.	CEN-152 Rev. 1 (6)		(Note 1)
	Final Emergency Operating Procedure	No	(See 3.d)
9.	No additional submittals are projected after this document.		
	Additonal information is available upon NRC request.		
**B.	The spacing of the HJTC sensor from the core alignment plate to the top of the Reactor Vessel head is shown on the Attachment 9.		
	Loss of a single sensor will not affect the ability of the system to detect an approach to ICC because the system is completely redundant. Two HJTC probes with eight sensors each are provided.		

NOTES - Table 1

Note 1: Document submitted to NRC by CE owners group. (Complete)

Note 2: Document attached

Note 3: After implementation of the ICCS there are no deviations from NUREG-0737 requirements, except Item 3 of Table 2.

Note 4: This document is proprietary and can only be viewed at CE's or FPL's premises.

Note 5: This document is proprietary and can only be viewed at W's or FPL's premises.

TABLE -2

CONFORMANCE WITH APPENDIX B OF NUREG-0737

Item	Reference	Deviation (Note 3)
1.	CEN-185 (section 5) (1) CEN-185 suppl. 3 (4) Test Report to comply with Req. Guide 1.89 (NUREG-0588)	No
2.	CEN-181-P (5) Question #11 CEOG - Letter 6/1/82 to NRC (Question #4)	No
3.	Plant Change Modification Package is available. (Class IE Power Supply for ICCS)*	Yes
4.	CEN-185 Suppl. 3 (4) CEN-181-P Question #12 CEOG letter 6/1/82 to NRC (Question #4)	No
5.	CE Quality Assurance Design Manual. All other manufacturers of Class IE equipment Q.A. manual	No
6.	CEN-185 (Section 2&4) (1)	No
7.	Recording is accomplished in the SAS.	No
8.	Described in the Plant Change Modification Packages	No
9.	Isolation is accomplished in the QSPDS cabinet.	No

*Redundant Class IE power, backed-up by the Emergency Diesel Generator is provided instead of uninterruptible power supply. Existing Plant inverters will be upgraded at a later date to provide power to the ICCS.

TABLE - 3

Conformance with NUREG-0737 II.F.2

ATTACHMENT 1
(CET Criteria)

1. Core exit thermocouple locations are shown on Attachment No. 7.

2. For a description of the primary operator display. Refers to the following documents:

NPROD-ICE-3202	Attachment No. 2
16081-ICE-3220	Attachment No. 5
See Attachment 8	

3. The back-up display is redundant to the primary display. (See item 2 above).

4. Emergency operating procedure for the ICCS will be addressed in our response to the NRC Generic Letter No. 82-33. The operators will be trained in the operation of the ICCS, per the Plant specific training program.

5. a) Control Room design task analysis will be provided in the response to NRC generic letter No. 82-33, Supplement 1 to NUREG -0737, Requirement for Emergency Response Capability.

   b) The Core Exit Thermocouples meet the criteria of NUREG-0737, Attachment 1 and Appendix B.

6. The complete system is powered from two independent and redundant class IE power sources. Isolation is provided at the QSPDS cabinets.

7. Environmental qualification report will be provided for the CET cabling and connectors. The CET's themselves are not required to be qualified per Regulatory Guide 1.97.

5.0 RESPONSE TO NRC REQUEST NO. 3 GENERIC LETTER NO. 82-28 INSTALLATION OF ICCS PLANT SPECIFIC SCHEDULE

The response to this request is included in Response No. 1.

ATTACHMENT NO. 1

A
FUNCTIONAL DESIGN SPECIFICATION
FOR THE
QUALIFIED SAFETY PARAMETER DISPLAY SYSTEM
FUNCTIONAL DESIGN SPECIFICATION NO. NPROD-ICE-3201, REV. 02

NUCLEAR POWER SYSTEM
COMBUSTION ENGINEERING, INC.
WINDSOR, CONNECTICUT

Note: Since the above document is a Combustion Engineering proprietary document, it cannot be transmitted with our submittal.

A non-proprietary document will be prepared by Combustion Engineering at a later date.

ATTACHMENT NO. 7

CORE EXIT THERMOCOUPLE LOCATION DRAWINGS

UNIT 3

1. Drawing E-16081-165-051 Rev. 01; Incore CET Wiring Diagram Channel "A"
2. Drawing E-16081-165-052 Rev. 01; Incore CET Wiring Diagram Channel "B"

UNIT 4

1. Drawing E-16081-165-151 Rev. 01; Incore Wiring Diagram Channel "A"
2. Drawing E-16081-165-152 Rev. 01; Incore Wiring Diagram Channel "B"

ATTACHMENT NO. 8

DISPLAY PANEL LAYOUT AND INSTALLATION

UNIT 3

1. Sketch 1
2. Sketch 2
3. Drawing 5610-M-301-37-11 E-1714

UNIT 4

1. Sketch 1
2. Sketch 2
3. Drawing 5610-M-301-41-14 E-1718

ATTACHMENT NO. 9

HJTC PROBE ASSEMBLY DRAWING

UNIT 3

Drawing E-West-849-501 Rev. 02; Flexible HJTC Probe Assy.

UNIT 4

Drawing E-West-849-508 Rev. 02; Flexible HJTC Probe Assy.

ATTACHMENT NO. 10

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES DIVISION
PROCEDURE NO. MP-2.7.1 FPL-1
"MODIFICATION OF THE PART LENGTH
CRDM FOR THE C.E. RVLMS INSTALLATION"

Note: Since the above document is a Westinghouse proprietary document it cannot be transmitted with our submittal.

The document is available for your review at Westinghouse Nuclear Services Division, Pittsburgh, PA.

ATTACHMENT NO. 11

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES DIVISION
PROCEDURE NO. MP-2.7.1 FPL-2
"REPLACEMENT OF UPPER INTERNALS
GUIDE TUBE FOR THE C.E. RVLMS INSTALLATION"

Note: Since the above document is a Westinghouse proprietary document it cannot be transmitted with our submittal.

The document is available for your review at Westinghouse Nuclear Services Division, Pittsburgh, PA.

STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

Robert E. Uhrig, being first duly sworn, deposes and says:

That he is Vice President of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this said document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said

Robert E. Uhrig

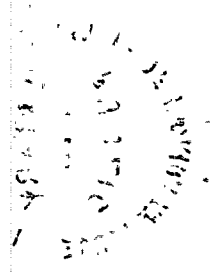
Subscribed and sworn to before me this

10th day of March, 1983

Cheryl L. Frederick

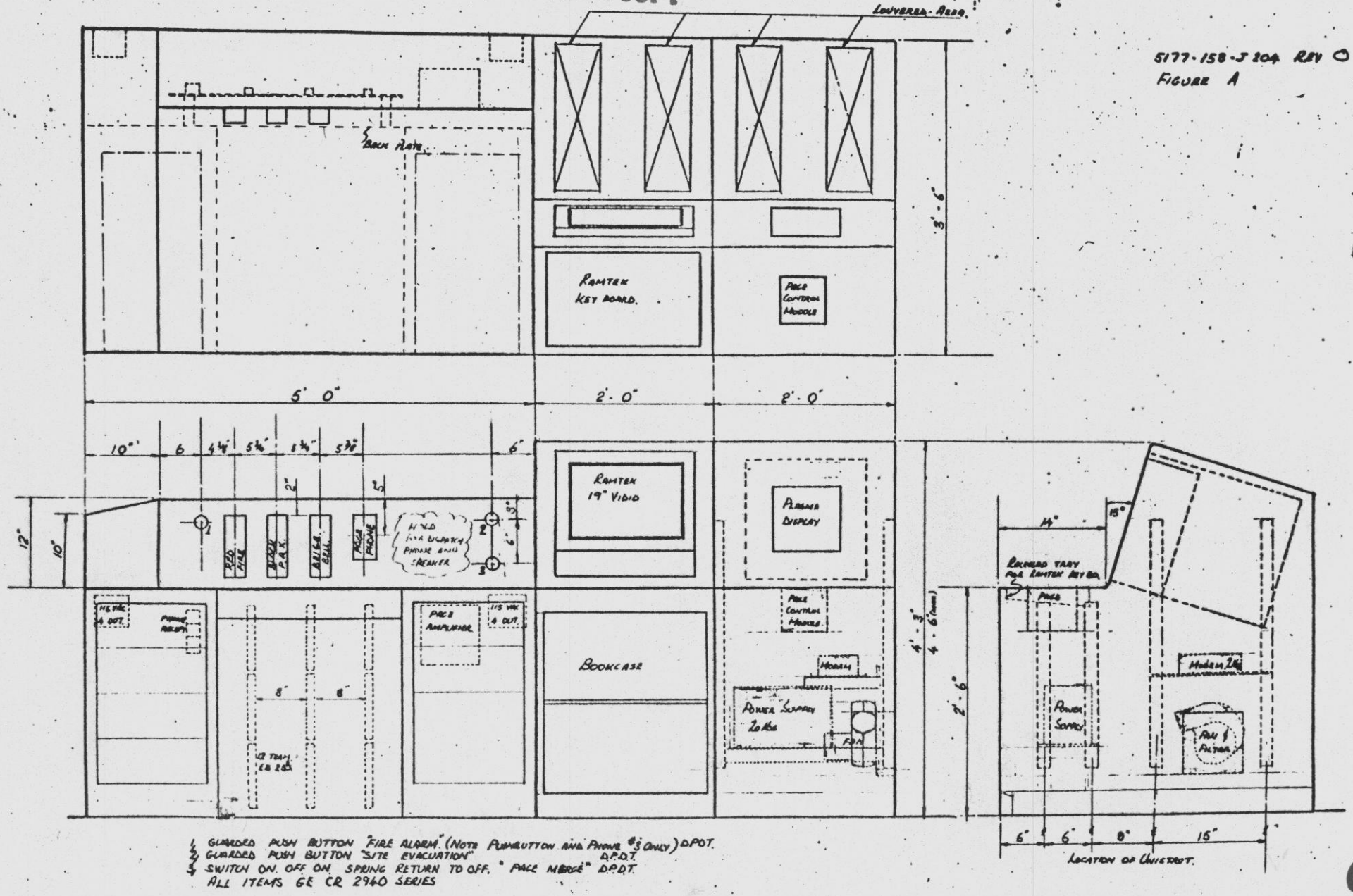
NOTARY PUBLIC, in and for the County of Dade, State of Florida

My commission expires: Notary Public, State of Florida at Large My Commission Expires October 30, 1983 Bonded thru Maynard Bonding Agency



SKETCH #2

5177-158-J 204 REV 0
FIGURE A



1. GUARDED PUSH BUTTON "FIRE ALARM" (NOTE PUSHBUTTON AND PHONE #3 ONLY) D.P.D.T.
2. GUARDED PUSH BUTTON "SITE EVACUATION" D.P.D.T.
3. SWITCH ON. OFF ON. SPRING RETURN TO OFF. "PAGE MERGE" D.P.D.T.

ALL ITEMS GE CR 2940 SERIES

C