	FILE NO.
1. BACKGROUND INFORMATION	
A. FUNCTIONAL DRAWINGS	
1. For any "functional" or "logic" changes, provide diagrams and an explanation.	1A2 - Functional Drawings 1B2d-General System Description
2. Provide the loop diagrams, and functional diagrams for the RPS channels including the current revision of the modification package.	Existing: 1-D-1, 1-A-1 New: 1A2, 1D2
3. Provide rack internal and external arrangement drawings.	1G
4. Provide plant one-line power drawings (120v) feeding cabinets (new and existing).	Existing: 1E1 New: 1E2
7. Provide the existing elementary drawings - RPS only.	1-D-1
8. Provide the new elementary drawings - RPS only.	1-D-2
9. Provide rack assembly drawings.	1-G
B. System Architectural Descriptions	
1. Detailed drawings of the Foxboro Spec 200/Spec 200 Micro Electronics.	1-B-2b, drawings contained in Instruction Manuals
2. Provide Foxboro RPS equipment information including the Factory Acceptance Tests, Service Bulletins, trouble reports/maintenance requests.	Available at Foxboro
3. Provide assurance that the system, when installed, will meet the requirements of the plant design basis, including the FSAR and licensing commitments.	
- Origin of functional requirements	1-B1-B existing 1-B2-E new
- Provide functional block diagrams before/after the upgrade	V&V report in file 24A5, figures 1 and 2, and Section 2.2.
- Demonstrate equivalency, are there differences in the functional requirements.	1. 50.59 review 2. 4/21/92 presentation
4. Provide setpoints, gains, constants, resets, etc., traceable to design basis.	24.G.2

	FILE NO.
2. Applicable Reg Guide and Standards	
A. Describe the degree of conformance to IEEE 603, especially regarding:	
- Single Failure Criterion	1. V&V report in file 24A5 a. analog Spec 200 discussed in Sec 3.1.3 Discussion of IEEE-603-1980, Sect 5.1 b. Digital Spec 200 MICRO discussed in Section 3.2.3 Discussion of IEEE-603-1980, Sec 5.1 2. 2B1, page 6 of 13
- Completion of Protective Action	1. V&V report in file 24A5 a. Analog Spec 200 discussed in Sect. 3.1.3 Discussion of IEEE-603-1980, Sect 5.2 b. Digital Spec 200 MICRO discussed in Sect. 3.2.3 Discussion of IEEE-603-1980, Sect. 5.2 2. 2B1, page 6 of 13
- Independence	1. V&V report in file 24A5 a. Analog Spec 200 discussed in Sect. 3.1.3 Discussion of IEEE-603-1980, Sect. 5.6 b. Digital Spec 200 MICRO discussed in Sect. 3.2.3 Discussion of IEEE-603-1980, Sect. 5.6 2. 2B1, pages 8 and 9 of 13
- Test and Calibration Capabilities	1. V&V report in file 24A5 a. Analog Spec 200 discussed in Sect. 3.1.3 Discussion of IEEE-603-1980, Sect. 5.7 b. Digital Spec 200 MICRO discussed in Sect 3.1.2 Discussion of IEEE-603-1980, Sect. 5.7 2. 2B1, pages 9 and 10 of 13
B. Describe the degree of conformance of the installed system to IEEE 384, especially regarding:	V&V report in file 24A5, Sect. 2 and Sect. 3.1.3, discussion on IEEE-603-1980.
- Inputs; isolation, separation and barriers	1. V&V report in file 24A5, Sect. 2 and Sect. 3.1.3, discussion on IEEE-603-1980. 2. 2B1, pages 8 and 9 of 13

	FILE NO.
- Outputs; isolation, separation and barriers	1. V&V report in file 24A5, Sect. 2 and Sect. 3.1.3, discussion on IEEE-603-1980. 2. 2B1, pages 8 and 9 of 13
- Independence of safety/non-safety signals; isolation separation and barriers	1. V&V report in file 24A5, Sect. 2 and Sect. 3.1.3, discussion on IEEE-603-1980. 2. 2B1, pages 8 and 9 of 13
C. Details on how we meet all of the Reg. Guide, IEEE Standards, etc., referenced in our purchase order specification.	24A5 and 2B1

3. Specific Comparison to Haddam Neck for Both Hardware and Software	3-A

4. Temperature and Humidity	
A. Provide the evaluation that established the design temperature limits to be experienced within the enclosure for the new instrumentation.	4B page 2 of 4 Specifies equipment requirements The overall environmental report will not be written until February 1993.
B. Provide thermal test reports and plans.	4A 4B-reviews 4A 4C-add'l plan 4D-appv'l for 4C plan Items 4C and 4D are test procedures which will be performed to demonstrate that the heat rise in the circuit cards is acceptable.
C. Describe any anomalies that may have occurred during all of the Foxboro testing and how they were resolved.	4B An additional heat rise test will be done in January 1993.

	FILE NO.
5. Seismic	
A. Describe the conformance to IEEE 344 for the installed design. Provide the seismic evaluation accounting for any amplifications due to the installed configuration to demonstrate that this was considered.	5B, 5C, 1.B.2H(3 folders) 5E - overall seismic report, i.e. summary 1.B.2.H contains the QA test procedures and test report which qualifies the modules to IEE 344-1975
B. Provide seismic qualification test report and plan.	5B, 5C, 1.B.2H(3 folders) 5E - overall seismic report, i.e. summary 1.B.2.H contains the QA test procedures and test report which qualifies the modules to IEE 344-1975
C. Seismic test comparison (initial seismic tests with our present cabinet configuration).	5B, 5C, 1.B.2H(3 folders) 5E - overall seismic report, i.e., summary The original cabinets will continue to be used. Only the cabinet internals are being changed out.

6. EMI/RFI	
A. Effects of Retrofit of New Equipment to Existing Systems - Provide the documentation for EMI and SWC qualification performed by the vendor. Provide the test plan, methodology, acceptance criteria and results.	6A, 6B, 6C, 6D, 6E An additional report will be issued in late December
B. Describe the EMI design basis environment assumed in the design.	6H3
C. Provide any measurements of the plant EMI environment. What design features preclude the effects of radiated or conducted emissions from one channel to another. Has the common mode voltage present on the system inputs been measured.	6H3
D. Describe EMI test anomalies in terms of cause and effects.	6A, 6B, 6C, 6D, 6E An additional report will be issued in late December

	FILE NO.
7. FMEA	
A. Discuss licensee's commitment to updating the design basis FMEA.	We don't have a design basis FMEA
B. Identify any operational constraints on the test features provided in the new system.	15C, 15D
C. The modes and effects of failures due to out-of-range input data: (IEEE 603 requires in part that "...safety systems shall be designed to accomplish their safety functions under the full range of applicable conditions enumerated in the design basis".	7C
1. Demonstrate that these types of failures have been sufficiently considered and that their consequences are acceptable.	7C
2. Provide analyses demonstrating the range of "allowable" parameter values that will not result in system crash.	7C
3. Demonstrate how operator adjustable parameters will be controlled so as to assure system integrity and performance.	7C
D. Discuss fundamental design basis failure modes and effects.	7C
E. Provide a walk-through of a limited sample of design basis failure modes and their effects. Where appropriate, provide acceptance test data that conforms either directly or by inference, the following postulated failures:	7C
1. Loss of signal	7C
2. Open circuit of the signal leads	7C
3. Shorting of the signal leads	7C
4. Single grounds on the signal circuits	7C
5. Double grounds on the signal circuits	7C
6. Loss of signal power source	7C
7. Over and under voltage conditions on any circuit	33A, 33B
8. Power down/power up transients	9B
9. Lockups, etc.	182d, Document number MI-280-300, Page 13
F. Effects of System Failures on Transient Frequency and Severity	7C
1. General Design Criteria 21, "Protection System Reliability and Testability" includes the requirement that no single component failure shall falsely initiate unnecessary protection system action, demonstrate conformance for a selected channel.	7C

	FILE NO.
G. Provide an analysis to compare the new and old instrument interfaces and compare their vulnerabilities to short circuits, over voltage connections, etc.	7C
1. Provide analysis and/or tests to demonstrate protection from "digital type" failures such as lockup and timing hazards. Describe the detection and recovery schemes.	7C
2. Demonstrate that the diversity and segmentation provided by the original design has been preserved in the allocation of functions to the modules.	7C
H. FMEA analysis details including any supporting tests.	7C

	FILE NO.
8. Industry Experience Data	
A. Provide data on the total user base for the Foxboro line of equipment, organized by industry and application areas.	8A, 8C 1. File 8A contains list of nuclear applications. 2. File 8C contains list of all applications 3. Foxboro typically is not made aware of exactly how each module is used by its customers.
B. Details of Foxboro's industrial experience with the subject equipment.	8A, 8C 1. File 8A contains list of nuclear applications. 2. File 8C contains list of all applications 3. Foxboro typically is not made aware of exactly how each module is used by its customers.

9. Software Failures (See 1.B.2)	
A. Provide the operational history of the software to include such items as: what problems were encountered during field integration testing; how were they reported; how were they resolved; how are the problems categorized; etc.	24C1 9B
B. Reliability figures need to be provided for the software modules used in Cook Nuclear Plant upgrade system.	1. 87-SRR-001F 87-SRR-003F 87-SRR-008F Duane Growth Rate Curves Available at Foxboro 2. 24C3
C. Details on any software bugs and Part 21 reports.	9B 24A2 File 24A2 contains the Foxboro software functional testing report. The software bugs discussed here were discovered during testing. Only known software bug found during actual use was reported in a Part 21, see file 9B.
D. Provide any and all software variances.	24A2

10. Hardware Failures	
A. Details on any hardware failures and Part 21 reports.	10A and 10B

	FILE NO.
11. Response Time	
A. Demonstrate that the response times required by the FSAR are achievable with margin by the upgraded RPS channels.	11-B
B. Details of response times of Foxboro electronics.	11-B

12. Setpoints	
A. Accuracy specifications to be verified.	24T1-draft procedure 24T2 - review of draft procedure
B. Comparison of the Cook Nuclear Plant setpoint allowable values versus the new Foxboro systems performance values.	12A

13. Electrostatic Discharge	
A. Provide ESD test reports to identify compatibility of the ESD equipment ratings with the Licensee System Specification and the plant control room humidity limits.	6A, 6B, 6C, 6D
B. Describe on site ESD tests.	13C

14. Training	
A. Details on training of the Cook Nuclear Plant I&C persons, operators, etc.	14A

	FILE NO.
15. Procedures	
A. Have the instruction, maintenance, and data base manuals for the new equipment available for review during the audit.	Instruction and Maintenance Manuals: 1B2A and 1B2B Database Manuals: 1H
B. Plant-specific procedures concerning maintenance of the new Foxboro hardware, software, etc.	23C
C. Provide a representative sample of procedures that demonstrate how Spec 200 considerations have been incorporated. Provide examples of Abnormal Operation Procedures (surveillance, calibration, channel check) if available.	15C These are existing procedures New procedures are currently being written
D. Be prepared to discuss how digital specific and Spec 200 issues have been incorporated into these procedures. For example: introduction of noise, potential grounding problems, electrostatic discharge, and security requirements for rack and software entry.	13C New procedures are currently being written. File 13C contains ESD precautions
E. Provide a list of all types/categories of station procedures that are affected by the Spec 200 application.	15A
F. Provide any controlling procedures (administrative) or other documents which provide guidance on the update of all station procedures with regard to Spec 200.	15B

16. Describe impact on other issues, primarily Reg Guide 1.97.	16

17. Explain AMSAC impact/Provide RFC 3104 packet.	17
A. Explain the impact on the Cook Nuclear Plant AMSAC system due to loss of diversity.	17

	FILE NO.
18. Station Blackout Effects	
A. Temperature	
1. Demonstrate that the heat rise in the circuit cards is acceptable.	4C and 4D 4C and 4D are test procedures which will be performed to demonstrate that the heat rise in the circuit cards is acceptable.
2. Provide calculation on HVAC for SBO.	18A1 The calculation in file 18A1(ID. No. DCCHV12TA07N dated 3/12/91) provides the latest HVAC analysis for the rise of the temperatures within the Control Room following a Station Blackout
B. Battery Loading	
1. Demonstrate consistency with FSAR requirements, licensing commitments (including SBO), and vendor design qualification.	22A

	FILE NO.
19. Describe impact on bypass/trip indications, if any.	19

20. Provide errata sheets and evaluations of generic chip problems.	20
A. Was a parts stress analysis performed on the microprocessor boards?	The results of a parts stress analysis have been incorporated into Foxboro's engineering documents, which are available at Foxboro

21. Write Evaluation of Microwave and Radar Susceptibility	6C

22. Power	
A. Describe the design basis quality (e.g., surge, impulse, harmonic content conditions assumed for the plant power sources. Provide representative power quality data measured at the plant to verify the assumptions.	22B, page 23 Section 5.4
B. Provide the total power requirements for the new digital instrumentation.	22B, page 20
C. Provide past LERs on the power busses that will feed the Foxboro Spec 200 Microprocessor.	22B, pages 18 and 19 1B1a-contains LERs
D. Provide information on any failures in our solid state inverters.	22B, page 20 Section 5.3
E. Provide the plant vital power quality data for surges, harmonic distortion, spikes, and sags.	22B, pages 21 and 22
F. Provide the table of connections to the 120Vac power per the Licensee System specification. Inrush, etc. may be provided by the FAT.	22F
G. Provide plant LERs, NCEs, and significant MWRs pertinent to the instrument power system.	22E
H. Provide the power supply electrical loading during the qualifications testing.	22B, pages 11-14 Generic tests were performed on Foxboro power supplies. No formal Cook specific tests are planned.
I. Details of inverter loading.	22B
J. Details of power supply test.	22B Generic tests were performed on Foxboro power supplies. No formal Cook specific tests are planned.
K. Operation and design of watchdog timers	1B2d document number MI-280-300 page 13

	FILE NO.
23. Use of PC	
A. Describe how the configurator is used.	23C 1B28-document number SIO-00282
B. Be prepared to discuss in detail, provide demonstrations where appropriate, and provide support documentation where needed for the following topics:	
1. Hardware details of the equipment in (1)	1. 23A, page 11, item 57 of purchase order 2. pages A-6, A-7, A-9, and Attachment 1 of CE proposal Configurator originally purchased from CE, but we are using it as needed for Foxboro instrumentation
2. System interface and the affects on the system of the hardware and software of the equipment in (1)	23B
3. Use of passwords and administrative controls that will be used at Cook Nuclear Plant for the equipment in (1)	23C, 23D
4. Provide sample copies of surveillance and maintenance/calibration procedures (Cook Nuclear Plant) that demonstrate the administrative controls and that demonstrate system testing for Technical Specification compliance	These procedures will not be available until the summer of '93
5. How intrusive is the PC board?	23B

	FILE NO.
24. Software	
A. Licensee Information for the Audit.	
1. Software documentation file for all modules.	24B1, Page 13 CES 281 - available at Foxboro
2. Test plan and results of testing for the software modules.	23A2 and 24A3
3. Provide Software Control Procedures AEP GP 2.6, 3.7, 4.4, 15.5	24AB
4. Description of the change control procedures for the software modules to be used in the upgrade.	24E2 CES 280 - available at Foxboro
5. Results of acceptance procedures for existing software modules to be used in the upgrade.	24E1
6. Records of operational experience for existing software modules to be used.	9B
B. Vendor Information	
1. Requirements specification used.	CPS 1188 - available at Foxboro CPS 1189 - available at Foxboro
2. Provide descriptions of the vendors control algorithms used for this design application.	CPS 1188 - available at Foxboro 1B2b document number-MI 280-205
3. Provide the constants used in the system and the old system (gain constants, time constants, lead/lag ratios, etc.	1H
C. Design Activity	
1. Provide the V&V plan.	24A5
2. Provide the scope and results of static and dynamic tests.	24T1 - draft procedure 24T2 - review of draft procedure
3. The development process for existing or procured software modules to be used in the upgrade.	24A4

	FILE NO.
4. The procedures used to define the configuration for each replacement control element, and the procedure used.	23D
D. Provide the list of software modules which make up the firmware used in Cook Nuclear Plant upgrade system.	3A - last page
E. Provide information on what problems were encountered during software development: how they were discovered, how they were corrected and tested.	24C3
F. Provide QA manual on computer software.	24AC
G. Provide source listing samples.	available at Foxboro
H. How will configuration management be controlled.	24E1-how Foxboro controls 23D-how AEP will control
I. What changes have been made in the software since Haddam Neck?	3A

25. Provide the procurement spec/contract.	25

26. The software retest to be done. Provide information on problem (audit report) and how addressed.	26A audit report 24A3-software retest

27. Diversity	
A. Demonstrate signal path diversity	27C
B. How is function diversity provided. The NRC has told us to assume that a common mode software failure occurs during an accident and then detail how operations can mitigate the consequences of the accident.	27B
C. Provide details of defense in depth.	27B
D. Impact on control room indication assuming a failure of the new Foxboro equipment	27B

	FILE NO.

28. Provide description of the MOD 30 scope of work and explain interaction between protection and control.	36C
A. Address how separation is achieved between the Taylor Mod 30 instruments (control) and the new Foxboro instruments (protection).	28

29. Provide description and the MI of the 75V power supply to be used and how it will be incorporated into the various test documents, design, etc.	1B2b-document number MI-018-180 29

30. Grounding	
A. Describe the overall grounding, shielding, and isolation for the installed system with clear ground point identification.	30B, 13B
B. Provide a description of the vendor grounding requirements as stated in the Licensee System Specification para. 5.7.15 and describe how the plant grounding system designed for low frequency single point application will be adapted for a system with high frequencies (2MHz or more) contained within the cabinets.	30B, 13B

31. Installation	
A. Discuss in detail and provide documentation and procedures where needed, that support the intended installation and start-up testing of the new equipment and any intended equipment environment verification testing (temp., EMI, RFI, humidity, etc.).	31B Post installation test procedures being written
2. Did out of range test sufficiently cover extremes?	31B New surveillance/maintenance procedures are not scheduled to be complete until late 1993/early 1994. The new procedures will be similar to existing procedures located in file location 15C.
3. Do out of range conditions go to failsafe?	31B New surveillance/maintenance procedures are not scheduled to be complete until late 1993/early 1994. The new procedures will be similar to existing procedures located in file location 15C.

	FILE NO.
32. Lithium Battery Test and Results	
A. Provide testing and analysis on the lithium batteries (a failure modes and effects analysis). Their failure could create a fire, a high failure rate, etc.	32A and 32B
B. Provide an analysis demonstrating that the addition of 130+ Li batteries does not present a hazard in the control room. Address the effects of faults, charges/discharges and other failure modes that may result in damage. Identify protective features to be provided.	32A and 32B

33. Isolation	
A. Provide basis for qualification of the electrical isolation devices. Test data for input & output short circuits as well as maximum voltage shorts to both inputs and outputs to demonstrate no effects or equivalent compliance to IEEE 279-1971, Par. 4.7.2.	33A This report addresses the worse case which is 100VRMS=141.V. The test was done at 480 VRMS. Hence, both AC and DC were enveloped

34. How much radiation will equipment in the Control Room be exposed to in the event of an accident	25 page 14 of 22 of 04/03/89 approved spec

35. System Reliability Analysis	
A. Provide the reliability studies on the Foxboro Spec 200 Micro.	35D and 35C

	FILE NO.
36. Miscellaneous	
A. Have the Cook Nuclear Plant FSAR and Technical Specifications available during the audit.	UFSAR 35A T/S 35B NRC has copies
B. Integrated FAT Procedure	24T1-draft procedure 24T2-review of draft procedure The FAT test report will be available in May 1993
C. Has there been a microwave susceptibility study completed at the Cook Nuclear Plant (location of any microwave stations in the immediate area)? If so what is the field strengths of the local microwave systems close to the plant? What is the direction of the translators from the microwave transmission center? - If not, why and is there a concern. Was there testing in microwave range in the vendor's qualification tests?	field strengths: 6C, page 13 of 23, Section 3.2.1.3 direction: 6C, page 13 of 23, Section 3.2.1.3 testing: 6C, page 14 of 23, Section 3.2.2
D. What are the results of the security and susceptibility to microwave and low magnetic fields studies? Has Cook Nuclear Plant made provisions in this area?	6C, pages 13, Section 3.2.1.3
E. Has the common model rejection of the system been addressed? If so, state the issues that were resolved, and the issues that still pose a possible threat to the system safety? How did Cook Nuclear Plant address the common mode rejection in the installed wiring?	6C, pages 5-8, Section 3.1.2
F. Were the power supplies independently surge withstand tested? Applicability to Cook Nuclear Plant?	6D, report IT-220, Section III E
G. What was the acceptance criteria used for the Surge Withstand Capability tests?	6C
H. What were the burn-in requirements used for Spec 200 micro system i.e. infant mortality? - explain	25 page 16 of 22 of 04/03/89 approved spec
I. Are there any paging systems located in close proximity to the Spec 200? In any rooms close to the Spec installation?	6C
J. If a PRA was not done for Spec 200, what assurance is there that common mode failures have been properly identified and mitigated? Has there been a failure modes and effects analysis performed? - Please provide.	27B 7C

As of 12/15/92

DOCUMENTATION TRACKING LIST

The following items are those that the NRC expects to be available for review (after November 30, 1992). These items were identified during the April 21, 1992 meeting at NRR. The items, primary responsible group, and due date are as follows:

1. Background Information

   A. Functional Drawings
      1. Existing - **(AEPSC I&C - CMPLT)**
         2-98501 thru 2-98516

      2. New - **(Foxboro - CMPLT)**
         See Appendix G *

      3. Functional Requirement Summary - **(AEPSC I&C - CMPLT)**
         Report No. 2985-DPS-01 *

   B. System Architecture Description
      1. Existing
         a. Instruction Manuals - **(AEPSC I&C - CMPLT)**
            Foxboro Manuals Volumes I thru IV
         b. Simple Block Diagram - **(AEPSC I&C - CMPLT)**
            No Document No.

      2. New
         a. List of Applicable Instruction Manuals - **(Foxboro - CMPLT)**
            No Document no. - Attached as Appendix A
         b. Applicable Instruction Manuals - **(AEPSC I&C - CMPLT)**
            See Appendix A
         c. Write General System Description - **(Foxboro - CMPLT)**
            0310-4120

d. Approve General System Description - **(AEPSC I&C - CMPLT)**
Report No. 2985-WGS-03
e. Simple Block Diagram - **(Foxboro - CMPLT)**
No document no.
f. Provide TI 280-100 - **(Foxboro - CMPLT)**
TI 280-100
g. Provide TI 280-110 - **(Foxboro - CMPLT)**
TI 280-110
h. Qualification Test Reports/ Procedures - **(AEPSC I&C - CMPLT)**
See Appendix A

C. New module schematics (with instruction manuals - see item 1.B.2.b)

D. Interconnection (Elementary) Drawings
1. Existing - **(AEPSC I&C - CMPLT)**
See Appendix B

2. New - **(Foxboro - CMPLT)**
See Appendix F *

E. Power One-Line Drawings
1. Existing - **(AEPSC I&C - CMPLT)**
OP2-12050
OP2-98077
OP2-98081
OP2-98085
OP2-98089

2. New - **(AEPSC NDG- 4/30/93)**
Later

F. Project Schedule/ Reports/ Action Lists/ Etc. - **(AEPSC I&C - CMPLT)**
No document no. *

G. Approved U2 Set 1 Foxboro Drawings/ Complete Set - **(AEPSC I&C - CMPLT)** *
See Appendix F & G *

H. Approved U2 Set 1 Sys Decrip/ Config Data Base - **(AEPSC I&C - CMPLT)** *
Foxboro Doc No. TP-150 *
Foxboro Doc No. DB-151 *

2. Reg Guides and Standards applicable

A. Provide summary in revised RFC packet - **(AEPSC I&C - See Item 36.C)**
RFC 2985 Rev 1 packet *

B. Explain how we comply with each and any differences that apply.
1. Explain existing variances - **(AEPSC I&C - CMPLT)**
Report No. 2985-NCF-01 *

2. Explain any new equipment variances - **(Foxboro - None Identified/ No Specific Action)**

C. Describe any special conditions to our license and impact on standards compliance - **(AEPSC NS - CMPLT)**
See RFC DC-12-2985 packet Safety Review Memo file 36.C

3. Provide a specific comparison to Haddam Neck for both hardware and software

A. Update information provided at April 21, 1992 NRC meeting - **(AEPSC I&C - CMPLT)**
No document number

B. Provide applicable MI's as references (see Item 1.B.2.b)

4. Temperature and humidity

   A. Provide list of available test reports - **(CMPLT)**
   See Appendix A

   B. Review/ approve (including anomaly disposition) available test reports - **(AEPSC I&C - CMPLT)**
   *Report No. 2985-HEI-12 **

   C. Write supplemental rack heat rise test procedure - **(Foxboro - CMPLT)**
   *Foxboro Doc No. HR-210 **

   D. Review/ approve supplemental rack heat rise test procedure - **(AEPSC I&C - CMPLT)**
   *Report No.2985-HEI-09 **

   E. Perform/ Issue report supplemental rack heat rise tests - **(Foxboro - 12/31/92)**
   Later

   F. Review/ approve supplemental rack heat rise test report - **(AEPSC I&C - 1/15/93)**
   Later

   G. Write overall environmental evaluation report - **(AEPSC I&C - 2/11/93)**
   Later

   H. Evaluate heat load added to CR by new equipment - **(Include in item 4.G)**
   Later

5. Seismic

   A. Provide list of available test reports - **(CMPLT)**
   See Item 1.B.2.h

B. Review/ approve (including anomaly disposition) available test reports - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-08 *

C. Provide Cook specific analysis - **(Foxboro - CMPLT)**
Foxboro Report No. 1619 *

D. Review/ approve analysis - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-08 *

E. Write overall seismic evaluation report - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-07 *

6. EMI/ RFI

A. Provide available test report # 88-1033a - **(Foxboro - CMPLT)**
Foxboro Report No. 88-1033a

B. Provide available Radiated Emissions test report - **(Foxboro - CMPLT)**
Foxboro Report No. 85-1182A and Addendum

C. Review/ approve (including anomaly disposition) available test reports - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-03 *

D. Write supplemental EMI/ RFI test procedure - **(Foxboro - CMPLT)**
Plan No. 60095-93N and Addendum
Foxboro Document IT-220

E. Review/ approve supplemental EMI/ RFI test procedure - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-04 *

F. Perform/ Issue report supplemental EMI/ RFI tests - **(Foxboro - 12/23/92)**
Later

G. Review/ approve supplemental EMI/ RFI test report - **(AEPSC I&C - 1/22/93)**
Later

H. Complete site survey
1. Define survey test objectives - **(AEPSC I&C - CMPLT)**
Non-deliverable

2. Contract for survey services - **(AEPSC I&C - CMPLT)**
Non-deliverable

3. Perform survey/ Issue report - **(Survey Contractor - CMPLT)**
ABB CE Report No. 98689-ICE-37111
ABB CE Report No. 98689-ICE-3782 Rev 00
NTS Report No. 6032-93N

4. Review/ approve site survey test report - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-11 *

I. Evaluate Taylor MOD 30 EMI/ RFI emissions impact
1. Define test objectives - **(AEPSC I&C - CMPLT)**
Non-deliverable

2. Contract for testing services - **(AEPSC I&C - CMPLT)**
Non-deliverable

3. Perform Tests at Dolan Lab - **(AEPSC I&C - CMPLT)**
Report dated 11/4/92

4. Perform test/ Issue report - **(Test Contractor - 10/30/92 - RESCHEDULE FOR 12/31/92)**
Later

5. Review/ approve test report - **(AEPSC I&C - 11/13/92 - RESCHEDULE FOR 01/18/92)**
   Later

J. Write overall EMI/ RFI evaluation report - **(AEPSC I&C - 2/26/93)**
Later

7. FMEA **(Foxboro - 11/13/92)**

A. Provide preliminary Cook specific analysis - **(Foxboro - DELETE - WILL NOT BE ISSUED)**

B. Provide comments to analysis- **(AEPSC - DELETE - WILL NOT BE ISSUED)**

C. Provide Cook specific analysis - **(Foxboro - 11/13/92 - CMPLT)**
Foxboro Report No. FM-502 *
Foxboro Report No. FM-503 *
Foxboro Report No. 92-FM-02F *

D. Review/ approve analysis - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-014 *

E. Provide description of configured failure modes - **(Foxboro - Include in Item 7.C)**

8. Industry experience data

A. List of applications - Nuclear User's List - **(Foxboro - CMPLT)**
No document no. - dated 6/22/92 - Foxboro xmtl FTAEP-018

B. How equipment has been applied - Nuclear User's List - (Included in item 8.A)

C. Hardware and Software experience - Foxboro Reports Q132-1 & Q132-2 - **(Foxboro - CMPLT)**
Foxboro Report Q132-1
Foxboro Report Q132-2
Foxboro Letter No. FTAEP-059

D. List of similar applications - Nuclear User's List - (Included in item 8.A)

E. Description of formal feedback process for field problems/ failures - **(Foxboro - CMPLT)**
Foxboro Letter No. FTAEP-058

F. All experience information/ data - NON DELIVERABLE - on file at Foxboro - **(Foxboro - CMPLT)**

9. Software failures

A. Describe how resolved - NON DELIVERABLE - reports on file at Foxboro (also see Item 24.C.1) - **(Foxboro - CMPLT)**

B. Part 21's - **(Foxboro - CMPLT)**
Foxboro Letter dated April 1, 1990

10. Hardware failures (other than random)

A. Describe how resolved - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

B. Part 21's - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

11. Response time

A. Provide worst case time response - **(Foxboro - CMPLT)**
No document no. - Foxboro xmtl FTAEP-020

B. Prepare acceptability report - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-01 *

12. Setpoints

A. ECP's evaluating new equipment vs old - **(AEPSC I&C - CMPLT)**
EG-IC-004 * 2-RPC-04 * 2-RPC-08 * 12-RPC-17 *
12-RPC-01 * 2-RPC-05 * 12-RPC-10 * 1-2-OO-15 *
2-RPC-02 * 2-RPC-06 * 12-RPC-12 *
2-RPC-03 * 2-RPC-07 * 2-RPC-15 *

B. Determine acceptability of existing T.S. allowable values - **(AEPSC I&C - CMPLT)**
Report No. 2985-SKF-01 *

C. Provide accuracy data (or list of documents with necessary info) - **(Foxboro - CMPLT)**
Foxboro xmtl FTAEP-018

13. Electrostatic Discharge

A. Provide reports - **(Foxboro - CMPLT)**
Same as items 6.B

B. Provide evaluation of lightning strike effects - **(AEPSC I&C - see Item 30.B)**
Include in Grounding Study

C. Include ESD precautions in Plant procedures (provide sample procedure or guidance for future inclusion) - **(AEPSC I&C - CMPLT)**
Memo dated 11/20/92

D. Perform Site Testing - **(AEPSC/I&C - No Specific Action Required)**

14. Training

A. Explain training program for technicians and operations - **(Foxboro - CMPLT)**
No Document No.

15. Procedures

A. Provide list of impacted plant procedures - **(AEPSC I&C - CMPLT)**
See Appendix C *

B. Provide procedures that govern design change/ plant procedure reviews - **(AEPSC I&C - CMPLT)**
GP 3.1 *
NEP 3.1 *
PMP 5040 MOD.004 *

C. Provide representative sample of EOP's, Annunciator Response Procedures, and IMP's - **(AEPSC I&C - CMPLT)**
See Appendix C , Appendix D and Appendix E

D. EQ Review Guidelines - **(AEPSC I&C - CMPLT)**
Guideline EG-IC-005

16. Describe impact on other issues - primarily Reg Guide 1.97 - **(AEPSC I&C - CMPLT)**
Report No. 2985-WGS-01 *

17. Explain AMSAC impact RFC 3104 packet - **(AEPSC I&C - CMPLT)**
RFC 3104 packet *

18. Station blackout effects

A. Temperature
   1. Provide calc on CR temperatures - **(AEPSC I&C - CMPLT)**
      Calculation DCCHV12TA07N

   2. Provide cabinet heat rise report - See items 4.C and 4.D

B. Battery loading (include with item 22 deliverables)
   1. Provide loading data - **(Foxboro - CMPLT)**
      Later

   2. Provide evaluation report - **(AEPSC I&C - Include with Item 22.B)**

19. Describe impact on bypass/ trip indications, if any - **(AEPSC I&C - CMPLT)**

Note: There is no impact - *no deliverable*.

20. Provide errata sheets and evaluations of generic chip problems - **(Foxboro - CMPLT)**
Foxboro Letter No. FTAEP-070

21. Write evaluation of microwave and radar susceptibility - **(AEPSC I&C - Include in Item 6.C)**

Note: Eventually to be included in item 6.J.

22. Power

A. Provide Inverter loading evaluation - new vs old equipment - **(AEPSC I&C - Include in Item 22.B)**

B. Provide power quality evaluation as applied to spec 200 - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-06 *

C. Provide power requirement specifications - **(Foxboro - CMPLT)**
Same as item 1.B.1.a

D. Provide loading data - (see item 18.B.1)

E. Provide LER's on CRID power failures at Cook - **(AEPSC NS - CMPLT)**
LER No. 88-011
LER No. 89-014
PR No. 86-014
PR No. 87-139
PR No. 88-044
PR No. 88-673
PR No. 88-750
PR No. 89-720
PR No. 89-946
PR No. 89-1355
PR No. 90-1006
PR No. 90-1041

F. Provide 120VAC table of connections - **(Foxboro - CMPLT)**
Document No. AC-100 *

G. Provide general existing instrumentation cable tray specifications - **(AEPSC I&C - CMPLT)**
DCCEE-605-QCN
DCCPS-188-QCN
DCCPS-412-QCN
DCCPS-603-QCN
Dedication Plan DD 1023

H. Provide Electrical Physical Drawings of Control Room area - **(AEPSC I&C - CMPLT)**
2-1440 *2-1453*
2-1446 *2-1454*
2-1446B *2-1455*
2-1452 *2-1455A*

I. Provide review of aging effects on inverter and surge suppressor - **(AEPSC I&C - Include in Item 22.B)**

23. Use of PC

A. Provide Purchase Order - **(AEPSC I&C - CMPLT)**
AEPSC/CE Contract C-7756
CE P.O. No. 9084709 (Buisinessland)

B. Provide Description on intrusiveness to the process instruments - **(Foxboro - CMPLT)**
Foxboro Letter No. FTAEP-051

C. Provide policies/ procedures on the use and control of the PC as configurator - **(AEPSC I&C - CMPLT)**
MHI 6030 (draft) *

D. Provide policies/ procedures on the control of configuration data - **(AEPSC I&C - CMPLT)**
Policy Statement dated 1/29/90
NESP 19.04 Rev 3
PMI 5042

24. Software

A. System Design, Verification and Validation Summary (conformance to ANSI/ IEEE 7-4.3.2)

1. Provide new Software Test Plan No. ED2134 - **(Foxboro - CMPLT)**
   Foxboro Software Test Plan No. ED2134

2. Provide new Software Test Report No. 92-9024 - **(Foxboro - CMPLT)**
   Foxboro Software Test Report No. 92-9024

3. Review/ approve New Foxboro Software Test Report No. 92-9024 - **(AEPSC QA - CMPLT)**
   Memo dated 11/12/92

4. Review/ approve available Foxboro report Q0AAE02 Rev A - **(AEPSC QA - CMPLT)**
   Foxboro report Q0AAE02 Rev A
   Foxboro report Q0AAE01 Rev A
   Foxboro report Q0AAE04 Rev A
   Memo dated 10/8/92

5. Provide ANSI 7-4.3.2 Compliance Document - **(AEPSC QA - CMPLT)**
   Report No. 2985-HHH-01 *

B. Software V&V Plan and Summary

1. Review/ approve available Foxboro report Q0AAE03 Rev B - **(AEPSC QA - CMPLT)**
   Foxboro report Q0AAE03 Rev B
   Memo dated 10/8/92

C. Software Validation Basis

1. Review/ approve available Foxboro report Q0AAE05 Rev A - **(AEPSC QA - CMPLT)**
   Foxboro report Q0AAE05 Rev A
   Memo dated 10/8/92

2. Review/ approve New Foxboro Software Test Report No. 92-9024 - (included in item 24.A.3)

3. Review/ approve available Foxboro report Q0AAE05 Rev B - **(AEPSC QA - CMPLT)**
   Foxboro report Q0AAE05 Rev B
   Memo dated 11/12/92

D. Software QA plan for integration of hardware/ software
   1. Review/ approve available Foxboro report Q0AAE03 Rev B - (included in item 24.B.1)

E. Configuration Management/ Software Changes/ Error Reporting
   1. Review/ approve available Foxboro report Q0AAE06 Rev A - **(AEPSC QA - CMPLT)**
      Foxboro report Q0AAE06 Rev A

   2. Make available Foxboro internal document CQA 3.3.1 (revised per AEPSC audit) - NON DELIVERABLE - on file at Foxboro - **(Foxboro - CMPLT)**
      Foxboro document CQA 3.3.1

F. Software Development Plan
   1. Review/ approve available Foxboro report Q0AAE03 Rev B - (included in item 24.B.1)

G. Software Functional Requirements for Unit 2 Protection Set 1
   1. Provide Functional Drawings - (included in item 1.A.1)

   2. Provide ECP 2-05-01 - **(AEPSC I&C - CMPLT)**
      ECP 2-05-01 *

H. Details on Software Bugs, Hardware Failures, and Part 21 Reports
   1. Software Bugs - Review/ approve available Foxboro report Q0AAE05 Rev B - (included in item 24.C.1)

   2. Post development Hardware failures - Review/ approve available Foxboro report Q0AAE05 Rev B - (included in item 24.C.1)

   3. Part 21's - Specific reports available - (Included in item 10.B)

I. Software Design Standards, Specifications and Requirements
   1. Listed in Q0AAE03 Rev B - Specific documents available - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

J. System Design Requirements and Specifications
   1. Listed in Q0AAE03 Rev B - Specific documents available - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

K. Software Design Performance Specifications
   1. Listed in Q0AAE03 Rev B - Specific documents available - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

L. Software Coding Standards
   1. Listed in Foxboro internal document CES 281:19 - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

M. Software Configuration Requirements
   1. Listed in Foxboro internal documents CES 281:14 and CES 281:15 - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

   2. Review/ approve available Foxboro report Q0AAE06 Rev A - (include in item 24.E.1)

N. Software Configuration Management Plan
   1. Listed in Foxboro internal document CES 281:1 - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

   2. Review/ approve available Foxboro report Q0AAE06 Rev A - (include in item 24.E.1)

O. Software Configuration Validation Review Report
   1. Review/ approve available Foxboro report Q0AAE06 Rev A - (include in item 24.E.1)

P. Software Test Plan
   1. Provide new Software Test Plan No. ED2134 - (included in item 24.A.1)

Q. Software Verification Problem Reports
   1. Provide available code walkthroughs - NON DELIVERABLE - reports on file at Foxboro - **(Foxboro - CMPLT)**

R. Software Validation Problem Reports
   1. Provide new Software Test Report No. 92-9024 - (included in item 24.A.2)

S. Software Problem Reports (Generic, Module Level, Units Level)
   1. Described in Foxboro report Q0AAE05 Rev B - (included in item 24.C.1)

T. Factory Acceptance Test Report
   1. Provide Unit 2 Protection Set 1 procedure - **(Foxboro - CMPLT)**
      Foxboro Document No. TP-150 *
   2. Review/ approve procedure - **(AEPSC I&C - CMPLT)**
      Letter No. FOX-92-046
   3. Provide test results - **(Foxboro - 5/30/93)**
      Later

U. Software Reliability
   1. Evaluation provided in available Foxboro report Q0AAE03 Rev B - (included in item 24.B.1)

V. Software Modules/ Subroutines, etc.
   1. Provide Core Utilization Map - NON DELIVERABLE- Reports on file at FOXBORO **(Foxboro - CMPLT)**

W. Timing
   1. Provide a software timing breakdown - NON DELIVERABLE- Reports on file at FOXBORO **(Foxboro - CMPLT)**

X. Compiler
   1. Provide a description (use available documents) - NON DELIVERABLE- Reports on file at FOXBORO **(Foxboro - CMPLT)**

Y. A/D converter
   1. Provide a description - NON DELIVERABLE - on file at Foxboro - **(Foxboro - CMPLT)**
      Foxboro Internal Document CPS 1182

Z. Virus
   1. Address potential impact - **(Foxboro - CMPLT)**
      Foxboro Letter No. FTAEP-050

AA. Perform Internal Software QA Audit - **(Foxboro - CMPLT)**
   Foxboro memo dated 12/1/92

AB. Software Control Procedures - **(AEPSC/I&C - CMPLT)**
   GP 2.6
   GP 3.7
   GP 4.4
   GP 15.5

AC. Foxboro QA Manual - **(AEPSC/I&C - CMPLT)**
   Foxboro Manual CQA-2 Rev. G
   Foxboro Manual E01-000 Rev. C

25. Provide the procurement spec/contract - **(AEPSC I&C - CMPLT)**
   AEPSC/Foxboro Contract C-8741
   AEPSC Spec DCC-IC-500-QCN Rev 0

26. The software retest to be done - provide information on problem (audit report) and how addressed

A. Provide audit report - **(AEPSC QA - CMPLT)**
   QA Trip Report No. V-1079 dated 4/3/92

27. Diversity

A. Define (to AEPSC NS) What instrumentation effected and how effected - **(AEPSC I&C - CMPLT)**
AEPSC memo dated 10/29/92

B. Explain how each handled per each FSAR Chapter 14 transient assuming common mode software failure of RPS - **(AEPSC NS - CMPLT)**
Report No. 2985-VDV-01 *
Calculation No. OA-92-18 *

C. Document functional diversity review - **(AEPSC I&C - CMPLT)**
Report No. 2985-WGS-02 *
WCAP-7306

28. Provide description of the MOD 30 scope of work and explain interaction between Protection and Control - **(AEPSC I&C - CMPLT)**
Report No. 2985-WJE-01 *

29. Provide description and the MI of the 75V power supply to be used and how it will be incorporated into the various test documents, design, etc - **(Foxboro - CMPLT)**
Foxboro MI 018-018
Foxboro Qual Doc QOAAA20 (Section 4)

30. Grounding

A. Provide the requirements (drawings and MI's) - **(Foxboro - CMPLT)**
Report No.2985-HEI-02 *
Foxboro Drawings 92F12687-PWR-2101 Through 2104
See Appendix H

B. Provide report and drawings on how it will be done and an evaluation - **(AEPSC I&C - CMPLT)**
Report No.2985-HEI-02 *

C. Describe who is coordinating the work - **DELETE - Not a deliverable)**

D. Describe any checks to be done for ground faults. Describe what was done - **(AEPSC I&C - CMPLT)**
No document no.

31. Installation

A. Provide description of who is doing the work - **(AEPSC I&C - DELETED FROM LIST - Not a Deliverable)**

B. List/ provide any tests and procedures - **(AEPSC I&C - CMPLT)**
12 IHP 6030 IMP.059
2 IHP 4030 STP.100A

C. Test Program Summary - **(AEPSC I&C - CMPLT)**
Report No. 2985-BJB-01 *

Note: New Surveillance/ Maintenance Procedures are not scheduled to be complete until late 1993/ early 1994. The new procedures will be similar to existing procedures located in file location 15.C.

32. Lithium Battery Test and Results

A. Provide test report - **(Foxboro - CMPLT)**
Document No. BT-180A

B. Review and approve test report - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-10 *

33. Isolation

A. Provide test report - **(Foxboro - CMPLT)**
Foxboro Test Report No. 92-0029a
Foxboro Test procedure Document No. IT-140

B. Review and approve test report - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-13 *

34. Radiation

A. Provide TID requirement - **(AEPSC I&C - CMPLT)**
In AEPSC Spec DCC-IC-500-QCN Rev 0

35. System Reliability Analysis (MTBF)

A. Provide preliminary Cook Specific Analysis - **(Foxboro - DELETE - WILL NOT BE ISSUED)**

B. Provide comments on analysis - **(AEPSC I&C - 10/16/92 - DELETE - WILL NOT BE ISSUED)**

C. Provide Cook Specific Analysis - **(Foxboro - CMPLT)**
Foxboro Report No. 92-SA-50F *
Foxboro Report No. 92-SA-66F *

D. Review/ approve analysis - **(AEPSC I&C - CMPLT)**
Report No. 2985-HEI-15 *

36. Miscellaneous

A. Provide UFSAR - **(AEPSC I&C - CMPLT)**
UFSAR - In file by reference

B. Provide Tech Specs - **(AEPSC I&C - CMPLT)**
Unit 2 Tech Specs - In file by reference

C. Provide RFC packet - **(AEPSC I&C - CMPLT)**
*RFC DC-12-2985 Rev 0 and Rev 1 Packet **

D. Other Applicable Procedures - **(AEPSC I&C - CMPLT)**

GP 4.0	*NEP 3.0*	*NEP 4.0*
GP 5.2	*NEP 3.4*	*NEP 5.2*
GP 5.6	*NEP 3.5*	*NEP 5.6*
GP 7.1	*NEP 3.9*	*NEP 6.4*
GP 15.1		

Notes and Clarifications:
1. Only Unit 2 Protection Set 1 will be totally ready for audit by 11/30/92
2. Primary responsible group is the group performing the actual task. It does not denote reviewing groups or other end users.

* Updatable documentation

2985ATT.A4

APPENDIX A

Foxboro SPEC 200/SPEC 200 MICRO Documentation List

	Model No.	Qual Doc No.	MI/SI No.	Assoc Mod
*	N-2AI-C2L	QOAAB15	2AI-100	
*	N-2AI-H2V	QOAAA06	2AI-130	N-2AI-I2V
	N-2AI-I2V	QOAAB35	2AI-135	
*	N-2AI-P2V(C)	1-01878 **	1-01878	N-2AI-P2V
	N-2AI-P2V	QOAAB29	2AI-185	
*	N-2AI-T2V	QOAAB28	2AI-172	
*	N-2AX+VE	QOAAA06	2AI-172	N-2AX+P
*	N-2AX+P(C)	1-01833 **	1-01833	N-2AX+P
	N-2AX+P	QOAAB21		
*	N-2CCA-S	QOAAB69	280-300 0-00282	
*	N-2CCA-D	QOAAB69	280-300 0-00282	
*	N-2AO-L2C-R(C)	1-01830 **	1-01830	N-2AO-L2C-R
		QOAAB34	2AO-113	
		QOAAB60		
	N-2AO-V2H	QOAAA06	2AO-120	N-2AO-VAI
*	N-2AO-V2H(C)	TO BE ISSUED	TO BE ISSUED	N-2AO-V2H
	N-2AO-VAI	QOAAB17		
*	N-2AX+DP11	QOAAB69	280-315	
*	N-2AX=DP10-E	QOAAA06	2AX-202	N-2AX+DP10
	N-2AX+DP10	QOAAB14		
*	N-2ANU-DM	QOAAB69	2AN-105	
*	N-2ARPS05	QOAAA37 PART 2	2AR-103	
*	P0300CQ	QOAAA20 PART 4	018-180	
*	TEST PANEL	QOAAA20 PART 4		
*	WIRING	QOAAB61		
	General	QOAAA01		
		QOAAA02		
		QOAAA04 PARTS 1-4		
		QOAAA05		
		QOAAA08		
		QOAAA20 PARTS 1-4, Appx A		
		QOAAA24		
		QOAAA39		
		QOAAA40		
		QOAAB01		
		QOAAB58		

* Indicates modules used on project. Modules not marked are basis for similarity for associated modules. See QOAAA06.

** Filed with MI/SI's.

APPENDIX B

Unit 2

Loop Drawings

2-LD-001	2-LD-021	2-LD-042	2-LD-055
2-LD-002	2-LD-022	2-LD-043	2-LD-056
2-LD-003	2-LD-023	2-LD-044	2-LD-057
2-LD-004	2-LD-026	2-LD-045	2-LD-058
2-LD-011	2-LD-027	2-LD-046	2-LD-077
2-LD-012	2-LD-029	2-LD-047	2-LD-078
2-LD-013	2-LD-039	2-LD-048	2-LD-079
2-LD-014	2-LD-040	2-LD-049	2-LD-080
2-LD-020	2-LD-041	2-LD-051	2-LD-081
			2-LD-082
			2-LD-083

Elementary Drawings

OP-2-98338-10	OP-2-98546-8	OP-2-98575-6
98426-16	98550-6	98576-5
98447-4	98551-6	98577-9
98452-7	98552-7	98578-8
98454-7	98553-8	98579-4
98541-3	98567-11	98580-5
98542-12	98571-12	98584-9
98543-6	98572-6	98588-6
98544-7	98573-23	98592-2
98545-7	98574-3	98593-5
		98596-2

APPENDIX C

Procedures Required for RFC-2985
Unit 2 - Protection Set 1

2 IHP 6030 IMP.194, Rev. 11
199, Rev. 09
204, Rev. 08
208, Rev. 08
211, Rev. 08
212, Rev. 08
215, Rev. 09
219, Rev. 04
223, Rev. 07
256, Rev. 06
265, Rev. 02
267, Rev. 02
400, Rev. 02
401, Rev. 02

2 IHP 4030 STP.101, Rev. 03
104, Rev. 12
108, Rev. 08
111, Rev. 08
115, Rev. 04
119. Rev. 08
120, Rev. 07
146, Rev. 05

APPENDIX D

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

EMERGENCY OPERATING PROCEDURE (WOG ERG) INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
02-OHP 4023.E-0	REACTOR TRIP OR SAFETY INJECTION	REV. 5 11-07-91	CS 1 - 3
02-OHP 4023.ES-0.0	REDIAGNOSIS	REV. 1 05-19-89	
02-OHP 4023.ES-0.1	REACTOR TRIP RESPONSE	REV. 5 04-13-92	
02-OHP 4023.ES-0.2	NATURAL CIRCULATION COOLDOWN	REV. 2 09-07-90	CS 1
02-OHP 4023.ES-0.3	NATURAL CIRCULATION COOLDOWN W/STEAM VOID IN VESSEL (W/RVLIS)	REV. 1 05-19-89	CS 1 - 2
02-OHP 4023.ES-0.4	NATURAL CIRCULATION COOLDOWN W/STEAM VOID IN VESSEL (W/O RVLIS)	REV. 1 05-19-89	CS 1
02-OHP 4023.ECA-0.0	LOSS OF ALL AC POWER	REV. 6 05-22-92	
02-OHP 4023.ECA-0.1	LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED	REV. 4 05-22-92	
02-OHP 4023.ECA-0.2	LOSS OF ALL AC POWER RECOVERY W/SI REQUIRED	REV. 3 05-22-92	
02-OHP 4023.E-1	LOSS OF REACTOR OR SECONDARY COOLANT	REV. 5 10-30-91	CS 1
02-OHP 4023.ES-1.1	SI TERMINATION	REV. 3 05-05-92	
02-OHP 4023.ES-1.2	POST LOCA COOLDOWN AND DEPRESSURIZATION	REV. 3 09-07-90	CS 1 - 2
02-OHP 4023.ES-1.3	TRANSFER TO COLD LEG RECIRCULATION	REV. 1 05-19-89	CS 1 - 3
02-OHP 4023.ES-1.4	TRANSFER TO HOT LEG RECIRCULATION	REV. 1 05-19-89	

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

EMERGENCY OPERATING PROCEDURE (WOG ERG) INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
02-OHP 4023.ECA-1.1	LOSS OF EMERGENCY COOLANT RECIRCULATION	REV. 3 10-30-91	
02-OHP 4023.ECA-1.2	LOCA OUTSIDE CONTAINMENT	REV. 1 05-19-89	
02-OHP 4023.E-2	FAULTED STEAM GENERATOR ISOLATION	REV. 1 05-19-89	
02-OHP 4023.ECA-2.1	UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS	REV. 4 01-31-91	CS 1
02-OHP 4023.E-3	STEAM GENERATOR TUBE RUPTURE	REV. 3 01-17-91	CS 1
02-OHP 4023.ES-3.1	POST-SGTR COOLDOWN USING BACKFILL	REV. 5 05-05-92	
02-OHP 4023.ES-3.2	POST-SGTR COOLDOWN USING BLOWDOWN	REV. 3 09-07-90	
02-OHP 4023.ES-3.3	POST-SGTR COOLDOWN USING STEAMDUMP	REV. 4 09-07-90	
02-OHP 4023.ECA-3.1	SGTR W/LOSS OF REACTOR COOLANT - SUBCOOLED RECOVERY DESIRED	REV. 2 08-31-90	CS 1 - 2
02-OHP 4023.ECA-3.2	SGTR W/LOSS OF REACTOR COOLANT - SATURATED RECOVERY DESIRED	REV. 2 09-07-90	CS 1
02-OHP 4023.ECA-3.3	SGTR W/O PRESSURIZER PRESSURE CONTROL	REV. 2 09-07-90	CS 1 - 2
02-OHP 4023.F-0.1	SUBCRITICALITY	REV. 1 06-23-89	
02-OHP 4023.F-0.2	CORE COOLING	REV. 2 08-31-90	
02-OHP 4023.F-0.3	HEAT SINK	REV. 1 06-23-89	CS 1

OPERATIONS DEPT.

MAY 22 1992

CONTROLLED COPY

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

EMERGENCY OPERATING PROCEDURE (WOG ERG) INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
02-OHP 4023.F-0.4	INTEGRITY	REV. 1 09-25-89.	CS 1
02-OHP 4023.F-0.5	CONTAINMENT	REV. 1 02-01-90	
02-OHP 4023.F-0.6	INVENTORY	REV. 0 05-30-86	
02-OHP 4023.FR-S.1	RESPONSE TO NUCLEAR POWER GENERATION/ATWS	REV. 5 05-20-92	
02-OHP 4023.FR-S.2	RESPONSE TO LOSS OF CORE SHUTDOWN	REV. 2 06-11-91	
02-OHP 4023.FR-C.1	RESPONSE TO INADEQUATE CORE COOLING	REV. 3 09-07-90	
02-OHP 4023.FR-C.2	RESPONSE TO DEGRADE CORE COOLING	REV. 2 09-13-90	
02-OHP 4023.FR-C.3	RESPONSE TO SATURATED CORE COOLING	REV. 1 05-19-89	
02-OHP 4023.FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	REV. 5 06-28-91	CS 1 - 4
02-OHP 4023.FR-H.2	RESPONSE TO STEAM GENERATOR OVERPRESSURIZATION	REV. 2 08-31-90	
02-OHP 4023.FR-H.3	RESPONSE TO STEAM GENERATOR HIGH LEVEL	REV. 2 08-31-90	
02-OHP 4023.FR-H.4	RESPONSE TO LOSS OF NORMAL STEAM RELEASE CAPABILITIES	REV. 2 08-31-90	
02-OHP 4023.FR-H.5	RESPONSE TO STEAM GENERATOR LOW LEVEL	REV. 2 01-09-91	
02-OHP 4023.FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	REV. 3 10-30-91	CS 1

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

EMERGENCY OPERATING PROCEDURE (WOG ERG) INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
02-OHP 4023.FR-P.2	RESPONSE TO ANITICPATED PRESSURIZED THERMAL SHOCK CONDITON	REV. 2 08-31-90	
02-OHP 4023.FR-Z.1	RESPONSE TO HIGH - HIGH CONTAINMENT PRESSURE	REV. 2 02-28-92	CS 1 - 3
02-OHP 4023.FR-Z.2	RESPONSE TO CONTAINMENT FLOODING	REV. 1 05-19-89	
02-OHP 4023.FR-Z.3	RESPONSE TO CONTAINMENT RADIATION LEVEL	REV. 1 05-19-89	CS 1
02-OHP 4023.FR-I.1	RESPONSE TO HIGH PRESSURIZER LEVEL	REV. 2 01-09-91	CS 1 - 2
02-OHP 4023.FR-I.2	RESPONSE TO LOW PRESSURIZER LEVEL	REV. 1 05-19-89	CS 1
02-OHP 4023.FR-I.3	RESPONSE TO VOIDS IN REACTOR VESSEL	REV. 3 11-14-90	CS 1
02-OHP 4023.SUPPS	SUPPLEMENT	REV. 1 11-07-91	
02-OHP 4023.FOLDOUT	FOLDOUT PAGES	REV. 2 02-21-92	CS 1

APPENDIX E

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

ANNUNCIATOR RESPONSE PROCEDURE INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
12-OHP 4024.127	ANNUNCIATOR #127 RESPONSE: LIQUID AND MISCELLANEOUS WASTE	REV. 3 03-13-89	CS 1 - 4
12-OHP 4024.129	PLANT HEATING BOILER ANNUNCIATOR	REV. 3 12-14-89	
12-OHP 4024.134	ANNUNCIATOR #134 RESPONSE: SPENT FUEL PIT	REV. 2 11-12-87	CS 1 - 2
12-OHP 4024.135	ANNUNCIATOR #135 RESPONSE: ICE CONDENSER REFRIGERATION SUBPANEL ELECTRO-LARM	REV. 3 02-01-90	CS 1 - 3
12-OHP 4024.139	ANNUNCIATOR #139 RESPONSE: EBERLINE RADIATION MONITORING SYSTEM	REV. 2 06-05-89	CS 1 - 5
12-OHP 4024.140	ANNUNCIATOR #140 RESPONSE: SEWAGE TREATMENT	REV. 0 06-20-91	
12-OHP 4024.141	ANNUNCIATOR #141 RESPONSE: TSC-UPS	REV. 2 06-26-89	
02-OHP 4024.201	ANNUNCIATOR #201 RESPONSE: PLANT FIRE SYSTEM	REV. 5 05-13-92	
02-OHP 4024.202	ANNUNCIATOR #202 RESPONSE: MISCELLANEOUS AREAS FIRE SYSTEM	REV. 2 03-27-89	CS 1 - 5
02-OHP 4024.203	ANNUNCIATOR #203 RESPONSE: VENTILATION	REV. 3 02-15-89	CS 1 - 7
02-OHP 4024.204	ANNUNCIATOR #204 RESPONSE: ESSENTIAL SERVICE WATER AND COMPONENT COOLING	REV. 2 02-15-89	CS 1 - 12
02-OHP 4024.205	ANNUNCIATOR #205 RESPONSE: CONTAINMENT SPRAY	REV. 4 01-09-89	CS 1 - 7
02-OHP 4024.206	ANNUNCIATOR #206 RESPONSE: RESIDUAL HEAT REMOVAL	REV. 4 04-26-90	CS 1 - 5

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

ANNUNCIATOR RESPONSE PROCEDURE INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
02-OHP 4024.207	ANNUNCIATOR #207 RESPONSE: REACTOR COOLANT	REV. 3 02-15-89	CS 1 - 12
02-OHP 4024.208	ANNUNCIATOR #208 RESPONSE: PRESSURIZER	REV. 3 02-06-89	CS 1 - 3
02-OHP 4024.209	ANNUNCIATOR #209 RESPONSE: BORIC ACID	REV. 3 02-06-89	CS 1 - 4
02-OHP 4024.210	ANNUNCIATOR #210 RESPONSE: FLUX ROD	REV. 4 12-13-90	CS 1 - 8
02-OHP 4024.211	ANNUNCIATOR #211 RESPONSE: DELTA T	REV. 4 02-15-89	CS 1 - 9
02-OHP 4024.212	ANNUNCIATOR #212 RESPONSE: UNIT	REV. 3 02-13-89	CS 1 - 7
02-OHP 4024.213	ANNUNCIATOR #213 RESPONSE: STEAM GENERATOR 1 AND 2	REV. 4 01-16-89	CS 1 - 3
02-OHP 4024.214	ANNUNCIATOR #214 RESPONSE: STEAM GENERATOR 3 AND 4	REV. 3 01-09-89	CS 1 - 2
02-OHP 4024.215	ANNUNCIATOR #215 RESPONSE: FEEDWATER	REV. 3 02-13-89	CS 1 - 10
02-OHP 4024.216	ANNUNCIATOR #216 RESPONSE: CONDENSATE	REV. 2 02-15-89	CS 1 - 10
02-OHP 4024.217	ANNUNCIATOR #217 RESPONSE: TURBINE	REV. 3 01-09-89	CS 1 - 5
02-OHP 4024.218	ANNUNCIATOR #218 RESPONSE: MAIN AND FPT	REV. 3 02-13-89	CS 1 - 12
02-OHP 4024.219	ANNUNCIATOR #219 RESPONSE: STATION AUXILIARY AB	REV. 4 02-15-89	CS 1 - 16
02-OHP 4024.220	ANNUNCIATOR #220 RESPONSE: STATION AUXILIARY "CD"	REV. 4 02-15-89	CS 1 - 18
02-OHP 4024.221	ANNUNCIATOR #221 RESPONSE: GENERATOR	REV. 3 02-15-89	CS 1 - 12

INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

ANNUNCIATOR RESPONSE PROCEDURE INDEX

PROCEDURE NUMBER	TITLE	REV. NO. EFF DATE	COMMENTS
02-OHP 4024.222	ANNUNCIATOR #222 RESPONSE: PLANT SERVICE	REV. 3 02-15-89	CS 1 - 14
02-OHP 4024.223	ANNUNCIATOR #223 RESPONSE: CIRCULATING WATER	REV. 3 02-15-89	CS 1 - 3
02-OHP 4024.224	ANNUNCIATOR #224 RESPONSE: CONTAINMENT	REV. 2 02-15-89	CS 1 - 2
02-OHP 4024.226	ANNUNCIATOR #226 SOUTH RADIOACTIVE WASTE EVAPORATOR	REV. 2 11-09-90	
02-OHP 4024.238	ANNUNCIATOR #238 RESPONSE: RADIATION MONITORING SYSTEM	REV. 2 03-22-91	CS 1 - 3

Foxboro Unit 2 Drawing List

DRAWING NO	REV NO	SHEET NO	STATUS
92F12687-AD-0001	00	1	Unreviewed
92F12687-AD-0001	00	2	Unreviewed
92F12687-AD-0001	00	3	Unreviewed
92F12687-MD-0001	01	1	A
92F12687-MD-0002	01	1	AN
92F12687-MD-2101	01	1	A
92F12687-MD-2102	01	1	A
92F12687-MD-2103	01	1	A
92F12687-MD-2104	01	1	A
92F12687-SA-0001	01	1	A
92F12687-CD-2101	01	1	A
92F12687-CD-2101	01	2	A
92F12687-CD-2101	01	3	A
92F12687-CD-2101	01	4	A
92F12687-CD-2101	01	5	A
92F12687-CD-2101	01	6	A
92F12687-CD-2101	01	7	A
92F12687-CD-2101	01	8	A
92F12687-CD-2101	01	9	A
92F12687-PW-2101	01	1	A
92F12687-PW-2101	01	2	AN
92F12687-PW-2101	00	3	A
92F12687-PWR-2101	01	1	AN
92F12687-PWR-2101	00	2	AN
92F12687-CD-2102	01	1	A
92F12687-CD-2102	01	2	A
92F12687-CD-2102	01	3	A
92F12687-CD-2102	01	4	A
92F12687-CD-2102	01	5	A
92F12687-CD-2102	01	6	A
92F12687-CD-2102	01	7	A
92F12687-CD-2102	01	8	A
92F12687-CD-2102	01	9	A

Foxboro Unit 2 Drawing List - (cont'd)

DRAWING NO	REV NO	SHEET NO	STATUS
92F12687-PW-2102	01	1	A
92F12687-PW-2102	01	2	AN
92F12687-PW-2102	00	3	A
92F12687-PWR-2102	01	1	AN
92F12687-PWR-2102	00	2	AN
92F12687-CD-2103	01	1	A
92F12687-CD-2103	01	2	A
92F12687-CD-2103	01	3	A
92F12687-CD-2103	01	4	A
92F12687-CD-2103	01	5	A
92F12687-CD-2103	01	6	A
92F12687-CD-2103	01	7	A
92F12687-CD-2103	01	8	A
92F12687-CD-2103	01	9	A
92F12687-PW-2103	01	1	A
92F12687-PW-2103	01	2	AN
92F12687-PW-2103	01	3	A
92F12687-PWR-2103	01	1	AN
92F12687-PWR-2103	00	2	AN
92F12687-CD-2104	01	1	A
92F12687-CD-2104	01	2	A
92F12687-CD-2104	01	3	A
92F12687-CD-2104	01	4	A
92F12687-CD-2104	01	5	A
92F12687-CD-2104	01	6	A
92F12687-CD-2104	01	7	A
92F12687-CD-2104	01	8	A
92F12687-CD-2104	01	9	A
92F12687-PW-2104	01	1	A
92F12687-PW-2104	01	2	AN
92F12687-PW-2104	00	3	A
92F12687-PWR-2104	01	1	AN

Foxboro Unit 2 Drawing List

DRAWING NO	REV NO	SHEET NO	STATUS
92F12687-RL-2101	02	1	A
92F12687-RL-2101	00	2	A
92F12687-RL-2102	02	1	A
92F12687-RL-2102	00	2	A
92F12687-RL-2103	02	1	A
92F12687-RL-2103	00	2	A
92F12687-RL-2104	02	1	A
92F12687-FD-2101	02	1	A
92F12687-FD-2101	02	2	A
92F12687-FD-2101	02	3	A
92F12687-FD-2101	02	4	A
92F12687-FD-2101	02	5	A
92F12687-FD-2101	03	6	A
92F12687-FD-2102	02	1	A
92F12687-FD-2102	03	2	A
92F12687-FD-2102	02	3	A
92F12687-FD-2102	03	4	A
92F12687-FD-2103	03	1	A
92F12687-FD-2103	02	2	A
92F12687-FD-2103	02	3	A
92F12687-FD-2103	03	4	A
92F12687-FD-2104	03	1	A
92F12687-FD-2104	03	2	A
92F12687-FD-2104	02	3	A
92F12687-FD-2104	03	4	A

Dwg. 12-1201-16; Installation of Station Grounding Grid.

Dwg. 1-1446T-4; Plan of Elect. Equipment & Cable Troughs Aux. Bldg. Below Elevation 650'- 0".

Dwg. 1-1453A-1; Control Room Cable Vault and Grounding EL. 633'- 0" & Below.

Dwg. 2-1446-114; Plan of Elect. Equip, Conduits, & Cable Troughs Aux. Bldg. Below EL. 650'- 0".

Dwg. 2-1446B-40; Plan of Elect. Equip, Conduits, & Cable Troughs Aux. Bldg. Below EL. 650'- 0".

Dwg. 2-1452-12; Plan of Control Room Equipment-Designation and Location of Cable Plate openings EL. 633'- 0".

Dwg. 2-1453-1; Control Room Cable Vault-Trough Hanger Locations & Grounding.

Dwg. 1-1454-4; Control-Room Cable Vault BOP Cable Routing Diagram and Access Paths.

Dwg. 2-1454-1; Control Room Cable Vault BOP Cable Routing Diagram and Access Paths.

Dwg. 1-2-1202-4; Containment Building Lightning Protection.

Dwg. 2-1453A-0; Control Room Cable Vault and Grounding Elevation 633'- 0" & Below.

Dwg. 12-1453-00; Grounding Details for Control Room Cabinets.

Dwg. E-42373-1001-20; Topographical Location Plan.