U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Report No.:	50-302/85-09
Docket No.:	50-302
License No.:	DPR-72
Licensee:	Florida Power Corporation Post Office Box 14012 St. Petersburg, Florida 33733
Facility Name:	Crystal River Unit 3
Inspection At:	Crystal River, Florida
Inspection Conducted:	March 4-8, 1985

Inspector: R C Wilson 5/30/85
R. C. Wilson, Equipment Qualification & Test Engineer Date

Also participating in the inspection and contributing to the report were:

U. Potapovs, Chief, Equipment Qualification Inspection Section, I&E
H. C. Garg, Engineer, NRR
R. O. Karsch, Reactor Engineer, NRR
L. D. Bustard, Member of Technical Staff, Sandia National Laboratories
M. W. Yost, Consultant Engineer, Idaho National Engineering Laboratory
L. E. Foster, Reactor Inspector, RII
N. Merriweather, Reactor Inspector, RII

Approved by: Gary G. Zech 6/3/85
Gary G. Zech, Chief, Vendor Program Branch, I&E Date

INSPECTION SUMMARY:

Inspection on March 4-8, 1985 (Inspection Report No. 50-302/85-09)

Areas Inspected: Special, announced inspection to review the licensee's implementation of a program per the requirements of 10 CFR 50.49 for establishing and maintaining the qualification of equipment within the scope of 10 CFR 50.49. The inspection also included evaluations of the implementation of equipment qualification (EQ) corrective action commitments made as a result of deficiencies identified in the January 11, 1983, Safety Evaluation Report (SER) and the October 1, 1982, Franklin Research Center (FRC) Technical Evaluation Report (TER). The inspection involved 227 inspector hours onsite.

Results: The licensee stated that he plans to complete implementation of his program for meeting the requirements of 10 CFR 50.49 by the end of the refueling outage that began March 9, 1985. Since the outage is only the second since March 31, 1982, the licensee's implementation schedule is acceptable under paragraph (g) of 10 CFR 50.49. The inspection determined that considerable progress has been made toward completing that plan, but a substantial amount of work must be performed before restart. The Qualification Documentation Files generally were deficient because they lacked some necessary information, although much of that information was provided during the inspection in response to questions. Qualification of several components has not yet been established pending resolution of additional concerns detailed in paragraph 4.D of this report, but no equipment was found to be not qualified. The Qualification Maintenance Program Manual was found to be generally satisfactory, but only one of the implementing procedures was in effect. The Master List was found to be adequate. Eight Open Items were identified that must be completed before restart. No deficiencies were found in the licensee's implementation of corrective action commitments as a result of SER/TER identified deficiencies.

The eight Open Items identified by the inspectors are as follows:

	Name	Report Paragraph	Item Number
1.	Correction of Qualification Documentation Files	4.A.(1)	50-302/85-09-01
2.	Qualification Maintenance Program Manual Review	4.A.(2).(a)	50-302/85-09-02
3.	Revision of Plant Procedures	4.A.(2).(c)	50-302/85-09-03
4.	Implementation of EQ Procedures During Refuel V	4.A.(2).(c)	50-302/85-09-04
5.	Training Implementation	4.A.(2).(c)	50-302/85-09-05
6.	EQ Maintenance Procedures	4.A.(4)	50-302/85-09-06

	Name	Report Paragraph	Item Number
7.	Required Operating Time	4.D.(11)	50-302/85-09-07
8.	INs/Bulletins	4.E	50-302/85-09-08

Details

1. PERSONS CONTACTED:

1.1 Florida Power Corporation (FPC):

*W. S. Wilgus, Vice President, Nuclear Operations
*W. S. Rossfeld, Nuclear Compliance Manager
*E. C. Simpson, Director Nuclear Ops. Engrg. and Licensing
*G. W. Castleberry, Manager Nuclear Engineering Projects
*L. B. Tiscione, Supervisor, Procurement, Site Nuclear Engrg.
*J. E. Colby, Manager, Site Nuclear Engineering
*J. A. Frijouf, Site Nuclear Compliance Specialist
*G. R. Westafer, Manager, Licensing and Fuels
*A. E. Friend, Nuclear Staff Engineer
*K. R. Wilson, Supervisor, Site Nuclear Licensing
*D. H. Orban, EQ Specialist, Procurement
*B. L. Serrano, EQ Engineer, Procurement
*D. C. Nusbickel, Electrical Procurement Engineer
*K. Lancaster, Site Nuclear Quality Assurance Manager
*T. Telford, Director, Quality Program Department
*G. L. Boldt, Plant Operations Manager
*P. F. McKee, Plant Manager
*V. Roppel, Manager, Plant Engineering and Technical Services
*H. Koon, Assistant Maintenance Superintendent
W. M. Johnson, EQ Modification Specialist
D. H. Smith, Maintenance Superintendent
D. J. Adler, EQ Specialist
W. A. Clemons, Compliance Specialist
A. H. Gelston, Nuc. Elect./I&C Engineering Supervisor
B. E. Crane, Plant Engineering Superintendent

1.2 FPC Contractors

*L. A. Gilbert, Manager, Information Systems, NUS Corporation
R. J. Steinberg, Engineer, NUS Corporation

1.3 Nuclear Regulatory Commission

*R. H. Vollmer, Deputy Director, Office of Inspection and Enforcement
*B. K. Grimes, Director, Division of Quality Assurance, Vendor, and Technical Training Center Programs
*A. R. Herdt, Chief, Engineering Branch, Region II
*T. F. Stetka, Senior Resident Inspector
*J. E. Tedrow, Resident Inspector

*Denotes those present at the exit interview at Crystal River on March 8, 1985.

2. PURPOSE:

The purpose of this inspection was to review the licensee's implementation of the requirements of 10 CFR 50.49 and the implementation of committed corrective actions for SER/TER identified deficiencies.

3. BACKGROUND

On December 15, 1983, the NRC held a meeting with FPC officials to discuss FPC proposed methods to resolve the EQ deficiencies identified in the January 11, 1983, SER and October 1, 1982, FRC TER. Discussions also included FPC's general methodology for compliance with 10 CFR 50.49 and justification for continued operation for those equipment items for which environmental qualification was not completed. The minutes of the meeting and proposed method of resolution for each of the EQ deficiencies were documented in January 31 and May 31, 1984, submittals from the licensee. The TER and January 31 and May 31 submittals were reviewed by the inspection team members and were used to establish a status baseline for the inspection.

4. FINDINGS

A. EQ Program Compliance with 10 CFR 50.49

The NRC inspectors examined the licensee's program for establishing the qualification of equipment within the scope of 10 CFR 50.49. The program was evaluated by examination of the licensee's qualification documentation files, review of procedures for controlling the licensee's EQ efforts, verification of the adequacy and accuracy of the licensee's 10 CFR 50.49 equipment list, and examination of the licensee's program for maintaining the qualified status of the covered electrical equipment.

On March 9, 1985, Crystal River Unit 3 (CR-3) was scheduled to shut down for an extended (20 week) period. The licensee stated his intention to have in place a program fully conforming to 10 CFR 50.49 at the completion of the outage, which will be about September 1985. This inspection report documents Open Items which will be addressed in a future inspection by the NRC staff to verify the licensee's program implementation.

(1) Qualification Files, General

The NRC inspectors determined that FPC has established a Computerized Data Base (CDB) containing records for plant equipment that must be qualified to 10 CFR 50.49. The CDB is a generalized data base; that is, all information contained in it can be retrieved and arranged in any desired pre-selected or custom format. The following information is included for each component on the 10 CFR 50.49 Master List:

- Specifications (zone environmental and operating time)
- Equipment qualification levels
- Documentation of equipment qualification
- Equipment identification information
- Equipment repair/maintenance histories and requirements
- Equipment qualified spare part listings
- Records removed from active status ("Archived Records")

The CDB is administratively controlled under procedures defined in the FPC Crystal River Unit 3 Qualification Maintenance Program Manual (QMP Manual).

Supporting documentation for the CDB records is contained primarily in Document Vendor Files, arranged by vendor. These files include test reports, analyses, catalogs, certificates of conformance, vendor correspondence, walkdown worksheets, and maintenance/surveillance requirements and histories for qualified equipment. Definition of applicable plant environmental conditions is contained in document SP-5059, "CR-3 Environmental and Seismic Qualification Guide Specification and Data."

The NRC inspectors reviewed and evaluated EQ documentation for 13 types of equipment. Each equipment type corresponded to one of the "items" in the FRC TER. The types were selected in advance by the inspection team and identified to the licensee during the entrance meeting. For each equipment type, FPC and NUS personnel printed a System Component Evaluation Worksheet (SCEW sheet) for each included component by plant tag number. The licensee also provided supporting material from the Document Vendor Files.

The Document Vendor Files were found to be sufficient to establish qualification for one of the equipment types selected for review (Gems/DeLaval sump level transmitters) except for two questions to which the licensee has not yet responded, as described in paragraph 4.D.(3). Unlike all of the other files inspected, the sump level transmitter file was based on FPC's new procedure SREP-24, "Qualification Report Review," because these transmitters were replacement equipment rather than original plant equipment.

Deficiencies were found in all of the files reviewed that were not prepared using SREP-24. While none of the deficiencies resulted in determination that equipment was not qualified, in several cases described in paragraph 4.D qualification was not adequately established pending resolution of inspector questions. In addition to the questions still requiring resolution, numerous questions were asked by the inspectors for which the licensee provided responses during the inspection.

These documentation deficiencies included failure to include or adequately reference necessary information in the files provided for review, and discrepant or confusing information. Examples include the following:

(a) The operating time design verification record cited in paragraph 4.D.(11) was never specifically referenced, although it applies to many components.

(b) Gilbert Associates report G150-3AN-007, containing numerous aging analyses, is not referenced in the QMP Manual and is not referenced in at least one affected component file, BIW cable.

(c) Conax test reports that appear to complete the basis for qualifying penetration assemblies were not included in the files originally furnished for inspection.

(d) Purchase order and use histories necessary to identify plant applications of Rockbestos cable were not included or referenced in the EQ files.

(e) The Endevco accelerometer EQ file and the CDB-based Outstanding Item Report conflicted with the non-referenced MAR Status Report concerning the status of the accelerometers in the plant.

(f) As noted in paragraph 4.D.(5), the files appeared to confuse the qualification status of the pigtail terminations with that of the penetration assembly proper.

For each of the examples cited above the licensee did provide during the inspection information sufficient to technically resolve the concern, but the file deficiencies require correction in order to meet 10 CFR 50.49 requirements. The deficiencies appear to be generic to files not prepared using SREP-24, since they were found in virtually every such file reviewed. A future inspection will review the licensee's correction of these deficiencies and his response to the questions in paragraphs 4.D.(1) through (9). This constitutes Open Item 50-302/85-09-01, Correction of Qualification Documentation Files.

(2) EQ Program Procedures

(a) QMP Manual Content

The NRC inspectors reviewed Revision 0 (February 12, 1985) of the QMP Manual, which defines the 10 CFR 50.49 program for the plant. The QMP Manual appears to be a good overall program definition document. It covers definitions, references, a maintenance program data base (the CDB) for qualified equipment, review and other responsibilities, requirements for procedures, specification and procurement document review and approval, spare part evaluations, vendor history files, equipment replacement review, procedure development,

review of vendor documents, and the aging maintenance and surveillance program. The manual also contains lists of Plant Operating and Emergency Procedures (EMs, EPs, and OPs) and Plant Procedures (SREPs, NPSM, PMs, CPs, and SPs) that interface with or otherwise relate to the EQ program.

Although the QMP Manual has not yet been fully implemented, an aspect discussed later in this paragraph, the NRC inspectors noted that the following items were not addressed:

(i) The QMP Manual does not address incorporation of existing NUS comments on procedures.

(ii) The QMP Manual lacks a complete list of applicable procedures; for example, procedure MOP-407 must be revised as described in paragraph 4.D.(8) below, yet MOP-407 is not listed in the QMP Manual, and procedure PM-105 as addressed in paragraph 4.A.(4) below is not listed.

(iii) The licensee did not identify a plan for tracking the preparation, review, and revision of procedures during the March 9, 1985, outage.

(iv) The QMP Manual does not define timeliness criteria for procedure reviews and for updating the CDB and related documents to reflect new adverse information such as IE INs/Bulletins.

(v) The QMP Manual does not require that all Modification Approval Records, not just MARs specifically changing qualified equipment, should be reviewed for EQ impact.

Verification in a future inspection that these items are incorporated into the QMP Manual and procedures constitutes Open Item 50-302/85-09-02, QMP Manual Revision.

(b) Other Procedures

The NRC inspectors reviewed the following FPC procedures, in addition to those discussed elsewhere in this inspection report:

Nuclear Procurement and Storage Manual (NPSM)

Safety Related Engineering Procedure SREP-1, Safety Identification and Design Inputs, draft of Rev. 7.

SREP-24, Qualification Report Review, Rev. 1.

CP-113, Handling and Controlling Work Requests and Work Packages.

PM-100, Preventative Maintenance Program, Rev. 3.

The NRC inspectors also reviewed several completed FPC Procedure Review forms that defined EQ driven changes for the following procedures and the Emergency Procedures listed in paragraph 4.A.(3). The inspectors then discussed the forms and related procedures with licensee personnel in order to assess their role in the overall EQ Program and their current revision status:

SREP-1, Safety Identification and Design Inputs

SREP-2, Design Development

SREP-5, Document Approval and Control

SREP-6, Preparation and Control of a Modification Approval Record (MAR)

SREP-9, Controls of Record Retention

SREP-13, Safety Related Procurement Requisition Preparation, Review and Approval

SREP-24, Qualification Report Review

PM-150, Trending

The NRC inspectors determined that the procedures listed above constitute the plant procedures that must be modified to implement FPC's EQ Program as defined in the QMP Manual. For example, SREP-1 will define the scope of plant equipment changes that can trigger changes to the 10 CFR 50.49 Master List by invoking scope paragraphs (b)(1), (2), and (3) of the rule. SREP-2 will require consideration of the environmental zone descriptions in SP-5095. SREP-5 will invoke SREP-24 for qualification documentation reviews. SREP-6 will add an EQ check list to MARs. And the QMP manual requires periodic review of the cited Emergency Procedures for impact on the 10 CFR 50.49 Master List.

The procedures are presently being revised and reviewed by the licensee. When fully developed and implemented the procedures appear capable of meeting the program requirements of 10 CFR 50.49, provided that they fully address the QMP Manual, the Procedure Review Forms, and the Open Items identified in this report.

(c) Program Implementation

Licensee personnel interviewed by the NRC inspectors stated their intention to implement the EQ program defined in the QMP Manual by the end of the March 9, 1985, outage, which is the plant's second refueling outage after March 31, 1982. It is further noted that the plant was already shut down in that outage on the alternate earlier rule effective date of March 31, 1985, set forth in paragraph (g) of 10 CFR 50.49.

The NRC inspectors advised the licensee that his program is required to be fully in place at the end of the refueling outage, and that substantial work remained to be performed during a period of approximately 20 weeks. None of the required new procedures or revisions to existing procedures was completed except SREP-24 (which is internal to the EQ group itself), and methods for tracking the work appear to be minimal. Verification in a future inspection that the licensee has completed revision and preparation of procedures as required by the QMP Manual constitutes Open Item 50-302/85-09-03, Revision of Plant Procedures.

The NRC inspectors noted that certain activities covered by the procedures under development must actually be performed during the March 9, 1985, outage. This particularly involves maintenance or surveillance activities such as the emergency feedwater pump motor insulation inspection discussed in paragraph 4.A.(4). A future inspection will examine whether the licensee has identified and performed all applicable items called for in the procedures currently being developed, during the March 9, 1985, outage. This comprises Open Item 50-302/85-09-04, Implementation of EQ Procedures During Refuel V.

The licensee's EQ maintenance procedures are separately addressed in paragraph 4.A.(4).

The inspectors were advised that training of affected personnel is scheduled to be completed by November 1985. The level of training is expected to amount to about four hours for each of the maintenance personnel, in addition to training on the revised Nuclear Procurement and Storage Manual. Verification in a future inspection of training comprises Open Item 50-302/85-09-05, Training Implementation.

(3) 10 CFR 50.49 List (EQ Master List)

The licensee is required to maintain a list of the equipment necessary to bring the plant to hot shutdown in case of an accident. The licensee's first EQ Master List is dated May 20, 1983, and was developed from the licensee's response to IE Bulletin 79-01B. The basis for generating this list is described in a letter from Florida Power Corporation to NRC dated May 31, 1984. At present, formal procedures to maintain the accuracy and completeness of the Master List are in the planning stage and draft versions are available. The controlling document for these and other procedures is the QMP Manual (Rev. 0 dated February 12, 1985). This manual has been written to provide an overview of the licensee's program for maintaining the qualified status of the equipment.

Procedures for maintaining the completeness of the Master List could not be reviewed at the time of the audit inspection because they had not yet been written. Paragraph 4.A.(2).(b) discusses SREP-1, which will cover Master List updating.

Sixteen items were used as an audit sample to verify the completeness of the Master List. In order to compile this audit sample, an extensive review was conducted of the following Emergency Plan Implementing Procedures, Operating Procedures, Emergency Procedures, and Piping and Instrumentation Drawings:

Emergency Plan Implementing Procedures

EM-204(a), Rev. 3, October 12, 1984; Release of Off-site Dose Assessment During Radiological Emergencies at CR-3.

Operating Procedures

OP-202, Rev. 58, February 13, 1985, Plant Heatup.
OP-204, Rev. 39, December 4, 1984, Power Operation.
OP-210, Rev. 19, November 8, 1984, Reactor Startup.
OP-401, Rev. 21, July 10, 1984, Core Flooding Systems.
OP-404, Rev. 48, December 19, 1984, Decay Heat Removal System.
OP-412, Rev. 33, December 27, 1984, Waste Gas Disposal System.
OP-501, Rev. 8, May 18, 1984, Reactor Non-Nuclear Instrumentation.
OP-502, Rev. 15, February 13, 1985, Control Rod Drive System.
OP-507, Rev. 1, February 13, 1985, Infrequent Operations of the ES and Reactor Protective Systems.
OP-605, Rev. 30, August 22, 1984, Feedwater System.
Qualification Maintenance Program Manual, Rev. 0, February 12, 1985.

Emergency Procedures

EP-120, Rev. 00, June 10, 1983, Inadequate Shutdown Value.
EP-140, Rev. 00, June 8, 1983, Emergency Reactivity Control.
EP-260, Rev. 00, June 9, 1983, Inadequate Decay Heat Removal.
EP-290, Rev. 03, September 20, 1984, Inadequate Core Cooling.
EP-390, Rev. 01, October 25, 1983, Steam Generator Tube Rupture.

P&IDs

302-001, Main and Reheat Steam Systems.
302-082, Emergency Feedwater Systems.
302-702, Core Flood Systems.
302-641, Decay Heat.

P&IDd (continued)

302-672, Decay Heat Liquid Sampling.
302-693, Containment Monitors.
302-711, 302-712, R.C. Spray.
302-142, Seal and Spray System.
302-661, Makeup System.

The audit sample items were selected to verify that those items required to be on the list were in fact on the list. Additionally, a check was made to determine that R.G. 1.97 items which may be required in the future and are not on the list now, are earmarked for future consideration. All sample items required to be on the EQ Master List were determined to be on the list. The R.G. 1.97 sample item, the high range radiation monitor, was not on the list, and its future addition will be monitored in our ongoing review of your R.G. 1.97 implementation. The list in its present form is considered satisfactory.

(4) EQ Maintenance Program

The NRC inspectors reviewed the licensee's program for preserving the qualified status of equipment through maintenance and surveillance. As outlined in the QMP Manual and described by licensee personnel, the program would appear to be acceptable, but none of the necessary procedure preparations or revisions had been completed yet.

The inspectors determined that existing plant maintenance procedures cover normal non-EQ maintenance activities such as manufacturer's installation manual recommendations. For EQ Master List equipment, EQ-related requirements are loaded into the CDB and are available in the EQ Maintenance Program Surveillance and Maintenance Summary Printout. For example, the Summary Printout states that periodic inspection of the EFW pump motor insulation (for cracking, etc.) is an EQ requirement and identifies procedure PM-105 as the existing plant procedure for performing preventative maintenance on motors. The licensee informed the inspectors that affected procedures such as PM-105 will be revised prior to plant startup.

The inspectors were informed by licensee personnel that the Preventative Maintenance Procedures and revisions for EQ equipment will be prepared by EQ personnel, then processed through the customary PM procedure review cycle and issued by Records Management. This practice will address EQ concerns within the existing PM system.

Verification in a future inspection that EQ maintenance procedures are in place before restart constitutes Open Item 50-302/85-09-06, EQ Maintenance Procedures.

The inspectors found that the normal plant maintenance procedures currently being used did not compromise the environmental qualification of equipment reviewed. The components scheduled for replacement or modification during the March 9 outage, with justifications in place, included much of the equipment that would be subject to EQ-related maintenance/surveillance, such as transmitters and solenoid valves. For this reason the EQ maintenance requirements prior to the March 9, 1985, outage were relatively small.

B. SER/TER Commitments

The NRC inspectors evaluated the implementation of EQ corrective action commitments made as a result of SER/TER-identified deficiencies as stated in licensee submittals dated January 31 and May 31, 1984. These submittals state that all equipment on the 10 CFR 50.49 Master List is qualified except numerous component types for which Justification for Continued Operation were submitted pending equipment replacement. In addition, the licensee stated that any additional equipment required to meet paragraph (b)(3) of 10 CFR 50.49 and R.G. 1.97 would be identified in a separate program, and committed to making any required modifications during Refuel VI (the outage after the March 9, 1985 shutdown). The NRC staff is presently reviewing the report describing the results of that program.

Based on review of files and of the 10 CFR 50.49 Master List, the NRC inspectors identified no deficiencies in the implementation of SER/TER commitments to date. Review of selected instruments shown on the May 20, 1983 Master List and performing post-accident monitoring functions showed that none has been subsequently removed from the list. However, ongoing review of R.G. 1.97 implementation may result in additional equipment being added to the Master List.

C. Plant Physical Inspection

The NRC inspectors, with component accessibility input from licensee personnel, established a list of seven components for physical inspection. Six of these components were of the same types for which file reviews were performed (the SCEW sheet for the seventh was reviewed), and all were accessible at the time of inspection, during plant operation. The inspectors examined characteristics such as mounting configuration, orientation, interfaces, model number, ambient environment, and physical condition. No concerns were identified during the physical inspection.

D. Detailed Review of Qualification Files

The NRC inspectors examined SCEW sheets and files for 13 selected equipment types to verify the qualified status of equipment within the scope of 10 CFR 50.49. In addition to comparing plant service

conditions with qualification test conditions and verifying the bases for these conditions, the inspectors reviewed areas such as required post-accident operating time compared to the duration of time the equipment has been demonstrated to be qualified, similarity of tested equipment to that installed in the plant (e.g., insulation class, materials of components of the equipment, tested configuration compared to installed configuration, and documentation of both), evaluation of adequacy of test conditions, aging calculations for qualified life and replacement interval determination, effects of decreases in insulation resistance on equipment performance, adequacy of demonstrated accuracy, evaluation of test anomalies, and applicability of EQ problems reported in IE INs/Bulletins and their resolution.

As indicated in paragraph 4.A.(1) above, most files did not provide clear evidence of equipment qualification. The inspection team had to ask numerous questions. In response the licensee provided additional supporting information, so that the qualification of the equipment selected for file inspection was eventually established subject to correcting the documentation deficiencies and resolution of the remaining inspection concerns identified below. Verification that the concerns cited in paragraphs 4.D.(1) through (9) have been resolved is included in the Open Item defined in paragraph 4.A.(1)(50-302/85-09-01).

(1) Limitorque valve operators, TER Item 4, Tag Nos. WDV-60 and WDV-94. Although FPC considers these operators qualified to the DOR Guidelines and no justifications for Continued Operation were submitted, the inspection disclosed that they will be upgraded to IEEE 323-1974 criteria during the March 9 outage by replacing their motors. An inspection to verify the presence of T-drains and other details is also planned for the outage.

(2) Rosemount model 1153HB6 transmitters, TER Item 41. - Test reports 108025 and 108026 were used for the qualification review of these transmitters, but transmitter design changes and further testing were necessary to complete qualification and these changes were not addressed in the file. The calculation supporting the claimed 10 year qualified life in CR-3 is not provided, and installation interface provisions (such as cable entrance seal) are not addressed.

(3) Gems/DeLaval sump level transmitters, TER Item 50. - These transmitters are replacement equipment installed in 1983 and reviewed under FPC procedure SREP-24. The inspector identified only two questions concerning this file. Three installation data sheets specify model XM-54853 instead of XM-54852 (an apparent error), and variations between specified and actual test voltage and frequency limits.were not addressed.

(4) States terminal blocks TER Item 68. - Qualification was based only on a letter (Reference No. G080-3VC-001). The file contained no test report or evidence that FPC reviewed a test report. Similarity between installed type NT blocks and tested ZWM blocks was not established, so that the material list for aging analysis cannot be verified. A statement in the file that radiation-caused failure of polypropylene will not affect the class 1E function was not justified. FPC initiated efforts to obtain additional documentation from Multiamp Co. to address these concerns.

(5) Conax electrical penetration assemblies, TER Item 76. - The CDB, files, and submittals to the NRC contained conflicting information concerning the qualification status of these assemblies. For example, the May 20, 1983 submittal to the NRC states that they are qualified, yet the SCEW sheets showed operating time, containment spray, radiation, and aging as outstanding items. The inspector determined that the discrepancy relates to the termination of the penetration pigtails. The licensee plans to replace the terminal blocks presently used with qualified Raychem splices for class 1E leads during the March 9 outage; JCOs covering these terminations have been submitted. The inspector and licensee determined that the files appeared to contain sufficient information to qualify the assemblies excluding the terminations. FPC intends to perform a complete SREP 24 review of the penetration assemblies during the March 9, 1985, outage.

(6) Rockbestos silicone insulated cable, TER Item 78. - In response to NRC White Book (NUREG-0040) findings, FPC temporarily suspended Rockbestos as an approved vendor on May 18, 1984. Vendor approval was discontinued on August 1, 1984 based on IE IN 84-44 and other factors. However, the SCEW sheet continues to show the cable as qualified to the DOR Guidelines, and a Master List printed from the CDB on March 7 still shows Rockbestos cable. In response to questioning, FPC surveyed its purchase order files and stores records. This search showed that no Rockbestos cable is used in safety-related circuits. No evidence was found that stores cable has been labeled as unqualified. The EQ files have not been updated with revised analyses.

(7) BIW type EPR/Bostrad 7 cable, TER Item 80. - FPC Nuclear Procurement and Stores Manual Procedure No. 7.2 requires that review of supplier quality information shall consider records from the NRC White Book. Although the White Book published April 1984 contains adverse information impacting the cable qualification, an FPC review dated July 16, 1984, granted continued supplier approval without mention of the White Book. BIW Systems remained an approved vendor at the time of the inspection.

Several additional concerns were identified for the BIW cable. The EQ files do not address the White Book findings. SCEW sheet references are not complete (e.g., report G150-3AN-007 is not referenced). The file did not support the SCEW sheet statement of sequential test as the basis for a 40 year life (followed by a LOCA), yet aging-related maintenance and surveillance activity was not recommended.

(8) Kerite tape-type terminals, TER Item 81. - Kerite type 39-69 wire terminals are available with two types of tape. The inspector verified that Kerite documentation in the file establishes that one type has been tested to 200 MRad, exceeding the service condition of 190 MRad. The documentation cautions against the use of Bishop Bi-Seal 3 tape, which has less than 1 MRad endurance. The inspector determined that FPC Nuclear Modifications and Outage Procedure MOP-407 calls for the unacceptable Bishop Bi-Seal 3 tape with Kerite tape terminals 39-69. The licensee had not determined where the procedure has been used or corrected any improper terminations. Two other discrepancies remain for the Kerite terminals. First, aging analysis is not provided to demonstrate the claimed 40 year life, which the SCEW sheet states is based on testing. Second, the file does not address the failure of one of the two test specimens.

(9) Rosemount 177HW resistance temperature detectors, TER Item 96. - The files establish qualification only if EP O-rings and Conax seals are used at the cable entrances; qualification without them is not addressed. Modification Approval Record MAR-82-05-24-01 covers installation of the O-rings and seals, but the work has not yet been performed, nor has a Justification For Continued Operation been prepared. Additional documentation discrepancies found by the inspector include failure to address thermal aging and the absence of both the detailed test report 67615 and evidence that the licensee has reviewed it.

(10) Other files. - The inspectors also reviewed files for the following equipment:

(a) Limitorque valve operators, TER Item 2

(b) Endevco accelerometers, TER Item 54

(c) Electric Machinery Co. motor, TER Item 58

(d) Electrical contactors, TER Item 91

For these components no technical concerns remain open, but the Open Item described in paragraph 4.A.(1) applies to the above deficiencies.

Although specific followup items are not cited for these components, the inspection team's review of these files contributed to the determination (see paragraph 4.A.(1)) that the licensee should re-review all files.

(11) Operating Time. - The CDB shows two sources for required operating times, Tech Specs and "Operation/Eng. Evaluation." Roughly two-thirds of the values are obtained from the latter source. In response to questioning, the licensee obtained from Gilbert Associates a copy of a Design Verification Record dated November 20, 1980, W.O. 04-4762-18. This document contains analyses backing up the "Operation/Eng. Evaluation" values on the SCEW sheets. The inspectors reviewed the rationale for several components and found it acceptable, although the licensee noted that in at least one case the required operating time for a valve operator exceeded the time specified for the transmitter used to control it. Since the document was not obtained until near the end of the inspection it was not thoroughly reviewed. For example, the inspectors did not determine that monitoring instruments needed to guide operator control actions were properly addressed. Based on these specific concerns and their generic implications, the basis for specified operating times will be reviewed during a subsequent inspection. This item constitutes Open Item 50-302/85-09-07, Required Operating Time.

E. IE Information Notices and Bulletins

The NRC inspectors reviewed and evaluated FPC's activities related to the review of EQ-related IE INs/Bulletins. The inspector's review included examination of FPC's procedures and EQ documentation packages relative to 12 INs and one Bulletin. Only one of these INs (84-44) applied to the files reviewed; the others applied to equipment either not included on the plant's 10 CFR 50.49 Master list or not required to be qualified because of planned replacement with interim operation justified.

Paragraph 4.D.(6) of this inspection report shows that under the licensee's existing procedures, IN 84-44 was effectively considered with respect to procurement but not for other aspects of equipment qualification. The licensee stated that the QMP Manual will require addressing INs/Bulletins and that they will be listed on SCEW sheets. It will also be necessary to modify existing FPC procedures to ensure that INs/Bulletins receive timely EQ review as part of the licensee's normal procedure. These changes are part of the licensee's program to be in place at the end of the March 9, 1985 outage, and this will be verified in a future inspection. This constitutes Open Item 50-302/85-09-08, INs/Bulletins.