UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 18 1985

Mr. Robert D. Pollard
Ms. Ellyn R. Weiss
Union of Concerned Scientists
1346 Connecticut Avenue, N.W.
S. 1101
Washington, D.C. 20036

50-317

Dear Mr. Pollard and Ms. Weiss:

This is in response to your April 15, 1985, letter to the NRC Commissioners concerning the equipment qualification inspection at Baltimore Gas & Electric Calvert Cliffs Unit 1 Nuclear Power Plant. Our comments on the specific questions contained in your letter are enclosed.

The NRC is concerned, as you are, regarding the numerous document deficiencies identified during the inspection. Although the inspection results suggest a lack of aggressive implementation of a program to fully satisfy 10 CFR 50.49 requirements, they do not invalidate the conclusions contained in the staff's safety evaluation report. To verify that adequate corrective actions have been taken in the areas of the identified deficiencies it is our intent to re-inspect the Calvert Cliffs facility sometime prior to November 30, 1985.

In view of the questions raised in your letter and your apparent assumption that documentation deficiencies automatically invalidate equipment qualification, we consider it appropriate that we also comment on the scope and purpose of our environmental qualification inspection program.

It is the licensee's responsibility to establish qualification of specific pieces of equipment. The main objective of the NRC inspection program is to assess the effectiveness of the licensee's implementation of procedures to qualify and maintain equipment in accordance with 10 CFR 50.49 requirements, using specific equipment items as examples. The inspections are structured to identify insufficient implementation of the rule such as failure to have adequate procedures or failure to have complete and current document files, as well as to identify equipment which is not installed or maintained consistent with the applicable qualification tests and analyses.

The fact that documents in the licensee's files do not adequately demonstrate qualification of a specific piece of equipment is a violation of 10 CFR 50.49 requirements, but does not necessarily mean that the equipment is not qualified.

We expect equipment qualification files to contain sufficient information to demonstrate that the specific equipment, as installed in the plant, is qualified for the anticipated environmental conditions. We also expect this information to be organized in such a way as to be readily understandable and traceable to permit evaluation of inferences or conclusions based on this information.

However, even if the qualification files are deficient, sufficient information may be developed by the licensee during the inspection or be available elsewhere to demonstrate that an item can be qualified for the predicted service conditions. If this were the case, the licensee could be cited for a violation of 10 CFR 50.49, but that violation would be of lesser severity than if the equipment in its installed condition could not be qualified even with supplemental documentation or analyses.

If you have further questions concerning the Calvert Cliffs Unit 1 Report or the scope and purpose of our inspection program please contact us.

Sincerely,

Original Signed By
James M. Taylor

James M. Taylor, Director
Office of Inspection and Enforcement

Enclosure:
Staff Comments

DISTRIBUTION:
DCS/NRC PDR
VPB Reading
DQAVT Reading
JTaylor
RVollmer
BGrimes
UPotapovs
GHubbard
HDenton
MBridgers (EDO-548)
WDircks
JRoe
TRehm
VStello
TMurley
GCunningham
LToms
MKing (85-168)
Seq 85-317

85-168
WITS 548

VPB:DQAVT	SC/VPB:DQAVT	BC/VPB:DQAVT	DIR:DQAVT	D/DIR:OIE	DIR:OIE
GHubbard:sam	UPotapovs	GGZech	BKGrimes	RVollmer	JMTaylor
7/10/85	7/10/85	7/10/85	7/ /85	7/11/85	7/12/85

Cleared w/Comm 7-17-85

7/16/85

NRC STAFF COMMENTS ON UCS LETTER RE CALVERT CLIFFS UNIT 1
EQUIPMENT QUALIFICATION INSPECTION (REPORT NO. 84-27)

Question 1:

What is the factual basis for concluding that Calvert Cliffs is sufficiently safe to operate?

Comment:

The factual basis for concluding that Calvert Cliffs 1 is sufficiently safe to operate is contained in the staff's safety evaluation report dated November 20, 1984. As a part of the safety evaluation process, the staff's consultant evaluated the licensee's qualification documentation in accordance with established criteria to determine which equipment had adequate documentation and which did not. The results of this review were documented in a Technical Evaluation Report (TER) dated October 13, 1982. The licensee was required to respond with commitments to correct specific deficiencies identified in the TER. On March 16, 1984, a meeting was held with BG&E to discuss their proposed method of resolution for each of the environmental qualification deficiencies identified. The licensee provided submittals by letters dated May 14 and July 9, 1984, documenting their corrective actions and the discussions held at the meeting. Based on the discussions during that meeting and review of the licensee's submittals, the staff concluded that BG&E's equipment qualification program was in compliance with the requirements of 10 CFR 50.49, that the proposed resolutions for each of the previously identified environmental qualification deficiencies were acceptable and that continued operation of Calvert Cliffs Unit 1 would not present undue risk to public health and safety.

The results of the October 1984 inspection did not alter the basic conclusions stated in the SER. No "unqualified" equipment was identified, although there were many cases of incomplete documentation to fully support the qualification status of equipment. Several of the identified deficiencies were attributed to improper interpretation by the licensee of what constitutes an auditable file.

Question 2:

Why should enforcement action not be taken considering the documented findings of Inspection Report 50-317/84-27?

Comment:

The 10 CFR 50.49 rule compliance deadline had not passed for Calvert Cliffs Unit 1 at the time of the inspection. The licensee was not required to be in full compliance with the rule until March 31, 1985, therefore, no violation of requirements had occurred.

Moreover, as is explained in the answer to Question 1 above, the NRC's basic conclusion that the facility remains safe to operate is unchanged so that no enforcement action relative to continued operation is necessary.

Question 3:

Have material false statements been made by Baltimore Gas & Electric Company in connection with the environmental qualification program for Calvert Cliffs Unit 1?

Comment:

We assume that this question is based largely on the discussion of TER Item 47, on page 11 of the inspection report. With respect to this item, the BG&E submittal of May 14, 1984, enclosure 2 states "Equipment qualified. Documentation available. Refer to computer submittal." The computer submittal under "outstanding items" notes "Engineering/Qualification data requested from vendor; Delivery 5/84."

Information developed during the inspection showed that the vendor had failed to supply information which was requested and which the inspection team considered necessary to fully demonstrate qualification.

At the time of the inspection BG&E stated that they considered the motor to be qualifiable based on past operating experience.

To date, no determination has been made by the staff as to whether material false statements have been made by BG&E.

Question 4:

Have valid justifications for continued operation been submitted for the components covered by Inspection Report 50-317/84-27? If not, why not?

Comment:

None of the equipment reviewed during the October 1984 inspection was under a justification for continued operation (JCO) at the time of the inspection since the licensee considered this equipment qualified in accordance with 10 CFR 50.49. As noted above, although the NRC inspection did identify deficiencies in documentation supporting qualification, it did not identify any specific equipment to be "unqualified." Absent a finding that the equipment was unqualified, the necessary licensee action would be correction of file documentation. BG&E's actions to resolve the identified documentation deficiencies will be examined during a future inspection.

Question 5:

Considering that none of the 16 files audited demonstrated compliance with NRC's requirements, what does the staff intend to do about the remainder of the safety equipment covered by 10 CFR 50.49? On what timetable? Is it not a reasonable assumption that the qualification of the unaudited equipment is equally problematic, given the generic nature of many of the deficiencies found?

Comment:

BG&E corrective actions regarding the specific deficiencies as well as generic actions to improve the implementation of their 10 CFR 50.49 program will be reviewed by Region I with the support of IE and NRR staff. A specific timetable has not been established.

While it is likely that other document files may also be deficient, it should be noted that the sample of files selected for inspection was intentionally biased towards equipment items where qualification document deficiencies had been identified during previous NRC/consultant reviews of licensee submittals.

Question 6:

Are the Calvert Cliffs inspection results significantly different from the results at the other two plants inspected thus far?

Comment:

Yes. The second pilot inspection which was conducted at the Zion 2 facility verified that the licensee had effectively implemented an EQ program in compliance with 10 CFR 50.49 although several potential violations/unresolved items were identified. Most of the document packages examined during this inspection were auditable and fully supported qualification of the specific components.

The third pilot inspection was at the Crystal River 3 plant which, like Calvert Cliffs, was not required to be in full compliance with 10 CFR 50.49 at the time of the inspection. Qualification file and procedural deficiencies were identified, but no unqualified equipment was found during that inspection.

Copies of the Zion 2 and Crystal River 3 inspection reports are enclosed.

Question 7:

Considering the finding of the Calvert Cliffs inspection, what is being done, if anything, to accelerate the schedule for inspecting all other operating plants?

Comment:

Results from the early pilot inspections do not indicate a need to change our inspection schedule or strategy.

The first phase of pilot inspections to develop a program is expected to be completed in 1985 using approximately the same inspection team composition and approach as in the initial inspections. The inspection methodology will then be reassessed based on the inspection experience.

Question 8:

If no enforcement action is taken against Baltimore Gas & Electric Company, what is the incentive for any other licensee to ensure compliance with 10 CFR 50.49?

Comment:

As noted in the response to Question 2, Calvert Cliffs Unit 1 was not required to be in compliance with the EQ rule at the time of the inspection. Nonetheless, the January 28, 1985, letter to Baltimore Gas and Electric that transmitted the inspection report indicated that the licensee should carefully review the findings and take appropriate corrective action so as to achieve full compliance with 10 CFR 50.49 equipment qualification requirements prior to March 31, 1985, since, absent an extension, noncompliance with the requirements of 10 CFR 50.49 after this date would result in enforcement action.

As to other facilities, appropriate enforcement action will be taken when violations of 10 CFR 50.49 requirements are identified during subsequent inspections, taking into account regulatory compliance dates. Even in the absence of the requirement to comply with the 10 CFR 50.49 deadline, as NRC previously has indicated to all licensees, it has the authority to take enforcement action if environmental qualification deficiencies would make plant operation unsafe. This authority would be exercised at Calvert Cliffs or any other facility if such deficiencies were identified.

NRC STAFF COMMENTS ON UCS LETTER RE CALVERT CLIFFS UNIT 1
EQUIPMENT QUALIFICATION INSPECTION (REPORT NO. 84-27)

Question 1:

What is the factual basis for concluding that Calvert Cliffs is sufficiently safe to operate?

Comment:

The factual basis for concluding that Calvert Cliffs 1 is sufficiently safe to operate is contained in the staff's safety evaluation report dated November 20, 1984. As a part of the safety evaluation process, the staff's consultant evaluated the licensee's qualification documentation in accordance with established criteria to determine which equipment had adequate documentation and which did not. The results of this review were documented in a Technical Evaluation Report (TER) dated October 13, 1982. The licensee was required to respond with commitments to correct specific deficiencies identified in the TER. On March 16, 1984, a meeting was held with BG&E to discuss their proposed method of resolution for each of the environmental qualification deficiencies identified. The licensee provided submittals by letters dated May 14 and July 9, 1984, documenting their corrective actions and the discussions held at the meeting. Based on the discussions during that meeting and review of the licensee's submittals, the staff concluded that BG&E's equipment qualification program was in compliance with the requirements of 10 CFR 50.49, that the proposed resolutions for each of the previously identified environmental qualification deficiencies were acceptable and that continued operation of Calvert Cliffs Unit 1 would not present undue risk to public health and safety.

The results of the October 1984 inspection did not alter the basic conclusions stated in the SER. No "unqualified" equipment was identified, although there were many cases of incomplete documentation to fully support the qualification status of equipment. Several of the identified deficiencies were attributed to improper interpretation by the licensee of what constitutes an auditable file.

Question 2:

Why should enforcement action not be taken considering the documented findings of Inspection Report 50-317/84-27?

Comment:

The 10 CFR 50.49 rule compliance deadline had not passed for Calvert Cliffs Unit 1 at the time of the inspection. The licensee was not required to be in full compliance with the rule until March 31, 1985, therefore, no violation of requirements had occurred.

Moreover, as is explained in the answer to Question 1 above, the NRC's basic conclusion that the facility remains safe to operate is unchanged so that no enforcement action relative to continued operation is necessary.

Question 3:

Have material false statements been made by Baltimore Gas & Electric Company in connection with the environmental qualification program for Calvert Cliffs Unit 1?

Comment:

We assume that this question is based largely on the discussion of TER Item 47, on page 11 of the inspection report. With respect to this item, the BG&E submittal of May 14, 1984, enclosure 2 states "Equipment qualified. Documentation available. Refer to computer submittal." The computer submittal under "outstanding items" notes "Engineering/Qualification data requested from vendor; Delivery 5/84."

Information developed during the inspection showed that the vendor had failed to supply information which was requested and which the inspection team considered necessary to fully demonstrate qualification.

At the time of the inspection BG&E stated that they considered the motor to be qualifiable based on past operating experience.

To date, no determination has been made by the staff as to whether material false statements have been made by BG&E.

Question 4:

Have valid justifications for continued operation been submitted for the components covered by Inspection Report 50-317/84-27? If not, why not?

Comment:

None of the equipment reviewed during the October 1984 inspection was under a justification for continued operation (JCO) at the time of the inspection since the licensee considered this equipment qualified in accordance with 10 CFR 50.49. As noted above, although the NRC inspection did identify deficiencies in documentation supporting qualification, it did not identify any specific equipment to be "unqualified." Absent a finding that the equipment was unqualified, the necessary licensee action would be correction of file documentation. BG&E's actions to resolve the identified documentation deficiencies will be examined during a future inspection.

Question 5:

Considering that none of the 16 files audited demonstrated compliance with NRC's requirements, what does the staff intend to do about the remainder of the safety equipment covered by 10 CFR 50.49? On what timetable? Is it not a reasonable assumption that the qualification of the unaudited equipment is equally problematic, given the generic nature of many of the deficiencies found?

Comment:

BG&E corrective actions regarding the specific deficiencies as well as generic actions to improve the implementation of their 10 CFR 50.49 program will be reviewed by Region I with the support of IE and NRR staff. A specific time-table has not been established.

While it is likely that other document files may also be deficient, it should be noted that the sample of files selected for inspection was intentionally biased towards equipment items where qualification document deficiencies had been identified during previous NRC/consultant reviews of licensee submittals.

Question 6:

Are the Calvert Cliffs inspection results significantly different from the results at the other two plants inspected thus far?

Comment:

Yes. The second pilot inspection which was conducted at the Zion 2 facility verified that the licensee had effectively implemented an EQ program in compliance with 10 CFR 50.49 although several potential violations/unresolved items were identified. Most of the document packages examined during this inspection were auditable and fully supported qualification of the specific components.

The third pilot inspection was at the Crystal River 3 plant which, like Calvert Cliffs, was not required to be in full compliance with 10 CFR 50.49 at the time of the inspection. Qualification file and procedural deficiencies were identifed, but no unqualified equipment was found during that inspection.

Copies of the Zion 2 and Crystal River 3 inspection reports are enclosed.

Question 7:

Considering the finding of the Calvert Cliffs inspection, what is being done, if anything, to accelerate the schedule for inspecting all other operating plants?

Comment:

Results from the early pilot inspections do not indicate a need to change our inspection schedule or strategy.

The first phase of pilot inspections to develop a program is expected to be completed in 1985 using approximately the same inspection team composition and approach as in the initial inspections. The inspection methodology will then be reassessed based on the inspection experience.

Question 8:

If no enforcement action is taken against Baltimore Gas & Electric Company, what is the incentive for any other licensee to ensure compliance with 10 CFR 50.49?

Comment:

As noted in the response to Question 2, Calvert Cliffs Unit 1 was not required to be in compliance with the EQ rule at the time of the inspection. Nonetheless, the January 28, 1985, letter to Baltimore Gas and Electric that transmitted the inspection report indicated that the licensee should carefully review the findings and take appropriate corrective action so as to achieve full compliance with 10 CFR 50.49 equipment qualification requirements prior to March 31, 1985, since, absent an extension, noncompliance with the requirements of 10 CFR 50.49 after this date would result in enforcement action.

As to other facilities, appropriate enforcement action will be taken when violations of 10 CFR 50.49 requirements are identified during subsequent inspections, taking into account regulatory compliance dates. Even in the absence of the requirement to comply with the 10 CFR 50.49 deadline, as NRC previously has indicated to all licensees, it has the authority to take enforcement action if environmental qualification deficiencies would make plant operation unsafe. This authority would be exercised at Calvert Cliffs or any other facility if such deficiencies were identified.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 15 1985

Docket No. 50-304

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Vice President
Post Office Box 767
Chicago, Illinois 60690

Gentlemen:

SUBJECT: INSPECTION NO. 50-304/85-06

Enclosed is the report of the special team inspection conducted by Mr. G. T. Hubbard and other NRC representatives on January 14-18, 1985, at the offices of Commonwealth Edison Company and Sargent & Lundy Company in Chicago, Illinois, and at Zion Station Unit 2, Zion, Illinois, of activities authorized by NRC License No. DPR-48. The team's findings were discussed with you and members of your staff at the conclusion of the inspection. The inspection reviewed your implementation of a program as required by 10 CFR 50.49 for establishing and maintaining the qualification of electric equipment within the scope of 10 CFR 50.49. The inspection also included evaluations of the implementation of equipment qualification corrective action commitments made as a result of the December 14, 1982, Safety Evaluation Report (SER) and the June 18, 1982, Franklin Research Center Technical Evaluation Report (TER). Within this area, the inspection consisted of selected examinations of procedures and representative records, interviews with personnel, and observations by the inspectors.

The inspection determined that you have implemented a program to meet the requirements of 10 CFR 50.49 and your corrective action commitments relative to SER/TER deficiencies; however, some deficiencies in your implementation of this program were identified. Four deficiencies are classified as Potential Enforcement/Unresolved Items and will be referred to the NRC Region III office for further action. Five other identified deficiencies are classified as Open Items and your corrective actions regarding them will be reviewed during a future NRC inspection. Details of the above deficiencies are discussed in the enclosed inspection report.

We will gladly discuss any question you have concerning this inspection.

Sincerely,

for Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance, Vendor,
and Technical Training Programs
Office of Inspection and Enforcement

Enclosure:
1. Appendix A
2. Inspection Report No. 50-304/85-06

8504240558 2pp

APPENDIX A

Potential Enforcement/Unresolved Items

As a result of the special equipment qualification inspection of January 14-18, 1985, the following items have been referred to NRC Region III as Potential Enforcement/Unresolved Items (paragraph references are to the detailed portion of the inspection report).

1. Contrary to paragraph (f) of 10 CFR 50.49, Commonwealth Edison Company (CECo) had installed qualified Limitorque valve operators in Zion 2 in a configuration different from the configuration which was qualified by testing and/or analysis (Paragraph 4.C.(2)).

2. Contrary to paragraph (g) of 10 CFR 50.49 CECo had not adequately demonstrated and/or documented qualification of Marathon Terminal blocks/junction boxes used in electrical control circuits inside containment prior to the end of Zion 2's second refueling outage after March 31, 1982, (Paragraph 4.C.(1)).

3. Contrary to paragraphs (e) and (l) of 10 CFR 50.49, CECo did not consider the most severe environment accident profile (specifically Main Steam Line Break) when establishing the qualification of replacement equipment (Conax seals, Namco limit switches, and Raychem splices) installed inside containment in Zion 2 (Paragraph 4.D.(3)).

4. Contrary to paragraphs (b) and (g) of 10 CFR 50.49, CECo failed to establish qualification of certain post-accident monitoring equipment, identified on their May 1983 submitted list of electric equipment important to safety, prior to the end of Zion 2's second refueling outage date after March 31, 1982 (Paragraph 4.A.(1)).

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

Report No.:	50-304/85-06
Docket No.:	50-304
License No.:	DPR-48
Licensee:	Commonwealth Edison Company Post Office Box 767 Chicago, Illinois 60690
Facility Name:	Zion Station, Unit 2
Inspection At:	Chicago and Zion, Illinois
Inspection Conducted:	January 14-18, 1985

Inspector: G. T. Hubbard 4/15/85
G. T. Hubbard, Equipment Qualification and Test Engineer — Date

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

U. Potapovs, Chief, Equipment Qualification Inspection Section, I&E
R. C. Wilson, Engineer, I&E
H. C. Garg, Engineer, NRR
R. O. Karsch, Reactor Engineer, NRR
R. A. Borgen, Consultant Engineer, Idaho National Engineering Laboratory
A. S. Gautam, Reactor Inspector, RIII
R. J. Smeenge, Reactor Inspector, RIII

Approved by: Uedis Potapovs for 4-15-85
Gary G. Zech, Chief, Vendor Program Branch, I&E — Date

8504240565 15pp

INSPECTION SUMMARY:

Inspection on January 14-18, 1985 (Inspection Report No. 50-304/85-06)

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 electric 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 December 14, 1982, Safety Evaluation Report (SER) and the June 18, 1982, Franklin Research Center (FRC) Technical Evaluation Report (TER). The inspection involved 255 inspector hours onsite.

Results: The inspection determined that the licensee has implemented a program to meet the requirements of 10 CFR 50.49, except for certain deficiencies listed below. No deficiencies were found in the licensee's implementation of corrective action commitments made as a result of SER/TER identified deficiencies.

Four Potential Enforcement/Unresolved Items were identified.

(1) Installation of Limitorque valve operators in a configuration different from the equipment configuration for which qualification was established - paragraph 4.C.(2).

(2) Failure to adequately demonstrate and/or document qualification relative to leakage currents for the installed configuration of Marathon control circuit terminal blocks/junction boxes - paragraph 4.C.(1).

(3) Lack of specific quantitative evaluation of main steam line break (MSLB) environmental profile inside containment for replacement equipment - paragraph 4.D.(3).

(4) Failure to establish qualification of post-accident monitoring [Regulatory Guide (R.G.) 1.97 - 10 CFR 50.49(b)(3)] equipment included on licensee's May 1983 submitted list of electric equipment important to safety within the scope of 10 CFR 50.49 - paragraph 4.A.(1).

Five open items were identified:

(1) Station procurement procedure for replacement equipment - paragraph 4.A.(2)(a)

(2) Verification of training program implementation - paragraph 4.A.(2)(b)

(3) Incomplete maintenance procedures - paragraph 4.A.(4)(a)

(4) Incomplete documentation packages - paragraph 4.D.(1)

(5) Deficiencies in documentation - paragraph 4.D.(2)

Details

1. PERSONS CONTACTED

1.1 Commonwealth Edison Company (CECo)

*C. Reed, Vice President, Engineering
*R. Cascarano, Zion Licensing Administrator
*F. Lentine, Zion Project Engineering, Station Nuclear Engineering Department (SNED)
*G. Pliml, Assistant Superintendent, Zion
*J. Abel, Manager, SNED
*D. Lamken, SNED Electrical and Qualification Group
*G. Wagner, Power Operations Manager
*R. Rybak, Nuclear Licensing
*M. Bailey, Tech Staff Engr/EQ Coordinator, Zion
*G. Alexander, Nuclear Licensing Adminstrator
*S. Zunjic, SNED, Zion, Engineer
L. DelGeorge, Assistant Vice President, Engineering
D. Farrar, Director, Nuclear Licensing
K. Graesser, Station Superintendent, Zion
G. Dix, Electrical Maintenance, Zion
W. Kurth, Instrument Maintenance, Zion
L. Thorsen, Operations, Zion
C. Lawreys, Technical Staff, Zion
*J. Bieronski, SNED, LaSalle
M. Lesnet, Technical Staff, Zion
W. Stone, Technical Staff, Zion

1.2 CECo Contractors

*R. Hameetman, Project Manager, Sargent & Lundy (S&L)
*R. Mazza, Project Director, S&L
*M. Rauckhorst, Mechanical Engineer, S&L
*R. Raheja, Supervisor, Mecahnical Engineer, S&L
B. Gogineni, Engineer, S&L
C. Schwartz, Engineer, S&L
D. Drankham, Engineer, S&L
A. Behera, Engineer, S&L

C. Crane, EQ Consultant, WESTEC Services, Inc.

J. Bassett, Engineer, Westinghouse Electric Corporation
B. Tumblin, Engineer, Westinghouse Electric Corporation

*R. Ho, Consultant, EPM, representing Nuclear Utility Group on Equipment Qualification (Observer)

1.3 Nuclear Regulatory Commission

*G. Zech, Chief, Vendor Program Branch, I&E
*J. Norris, Project Manager, NRR

*Denotes those present at the exit interview in Chicago on January 18, 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 January 25 and 26, 1984, the NRC held a meeting with CECo officials to discuss CECo's proposed methods to resolve the EQ deficiencies identified in the December 14, 1982 SER and June 18, 1982, FRC TER. Discussions also included CECo'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 April 10 and June 20, 1984, submittals from the licensee. The TER and the April 10 and June 20 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 electric equipment within the scope of 10 CFR 50.49. The program was evaluated by examination of the licensee's qualification documentation files, examination of procedures which control the licensee's EQ efforts, verifying 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. Based on the inspection findings, which are discussed in more detail below, the inspection team determined that the licensee has implemented a program to meet the requirements of 10 CFR 50.49, although some deficiencies were identified. The identified deficiencies relate to the implementation of specific aspects of the program.

(1) Qualification Files, General

The licensee's qualification files were arranged in the format of a single binder titled, "Zion Environmental Qualification Report" (EQR), Revision 4, dated January 10, 1985. The EQR was supplemented by individual equipment binders identified as "EQ Documentation Packages." The inspection team reviewed the EQR and determined that it contained the master list of qualified equipment; references to the EQ documentation packages; summaries of plant environmental zone descriptions; lists of action items such as deferred Three Mile Island (TMI) related items; and similar information serving to define and coordinate all of the plant environmental qualification documentation.

The NRC inspectors reviewed and evaluated EQ documentation packages for 13 types of equipment, three of which were identified by CECo as being TMI related items. Since CECo's TMI items have a deferred implementation schedule, these three packages were incomplete and not finalized at the time of the inspection.

Each EQ documentation package included such information as a checklist comparing service and qualification conditions; detailed identification of plant equipment and type test specimens; pertinent type test reports; references to or copies of purchase orders and other relevant supporting documents; copies of applicable IE Information Notices (INs)/ Bulletins with definition of their impact on the equipment and resolution of any concerns; and detailed definition of maintenance and surveillance criteria necessary to maintain qualification of the installed equipment.

Additional documentation such as plant modification packages for installing qualified replacement equipment, supporting seismic calculations, station maintenance/surveillance procedures, and station instrument calibration procedures were also referred to in support of the documentation file reviews.

The inspection team's review and evaluation of the EQR and 13 documentation packages identified several minor deficiencies in the files which are discussed in more detail later in this report and one item classified as a Potential Enforcement/ Unresolved Item. During the team's review of the licensee's EQ documentation it became apparent that for some post-accident monitoring [R.G. 1.97 - 10 CFR 50.49(b)(3)] equipment, establishment of qualification would not be completed until the licensee has completed his R.G. 1.97 review. In the case of Zion Station, CECo is scheduled to submit its final 1.97 review report to the NRC in early 1987. CECo has not requested an extension of the qualification deadline for this equipment.

10 CFR 50.49 requires that each holder of an operating license issued prior to February 22, 1983, identify by May 20, 1983, the equipment important to safety within the scope of the rule and, for such equipment not already qualified, submit a schedule of qualification or replacement. Final qualification of all equipment is required to be established by the end of the second refueling outage after March 31, 1982, or by March 31, 1985, whichever is earlier unless an extension of the deadline has been granted by the Director, NRR.

In their May 19, 1983 submittal to NRC, CECo identified certain equipment items used for post-accident monitoring as falling within the scope of 10 CFR 50.49, for example, Barton Model 763 and 764 pressure transmitters. These, as well as other post-

accident monitoring items listed in the May 19, 1983 submittal have subsequently been deleted from the CECo environmental qualification review pending the completion of their final R.G. 1.97 review.

The failure to establish qualification of this equipment is identified as a Potential Enforcement/Unresolved Item since any extension of qualification schedules for items identified in the May 19, 1983 submittal beyond the 10 CFR 50.49 deadlines must be processed in accordance with the provisions described in the rule. (304/85-06-01)

It is recognized, however, that the qualification schedule of additional items identified as a result of R.G. 1.97 review will depend on the R.G. review schedule and may extend beyond the dates established in 10 CFR 50.49.

(2) EQ Program Procedures

The NRC inspectors reviewed the licensee's EQ program as described in the EQR, which was prepared and is maintained current by S&L for CECo. Additional program procedures reviewed for evaluating the licensee's 10 CFR 50.49 program implementation included:

S&L Instruction PI-ZI-25, Rev. 0, dated January 7, 1985, "Procedure for the Documentation of Updates to the Zion EQR."

S&L Instruction PI-ZI-14, Rev. 2, dated January 7, 1985, "Review of Modifications for Potential Environmental Qualification Interface."

S&L Instruction PI-ZI-23, Rev. 1, dated January 7, 1985, "Procedure for Preparation, Review, Control, Issuance, and Maintenance of Environmental Qualification Documentation Packages."

SNED Procedure Q.6, Rev. 9, dated January 14, 1985, "Modifications Originated by Station Technical Staff."

Station Quality Procedure (SQP) QP-4-51, dated December 12, 1984, "Procurement Document Control for Operations - Processing Purchase Documents."

SQP QP-3-51, dated December 12, 1984, "Design Control for Operations Modification."

SQP QP-3-52, dated November 21, 1984, "Design Control for Operation Plant Maintenance."

The licensee's program was reviewed to verify that adequate procedures and controls had been established by the licensee to implement requirements of 10 CFR 50.49. Areas of the program reviewed included methods and their effectiveness for:

(a) Requiring all equipment that is located in harsh environments and is within the scope of 10 CFR 50.49 to be included on the list of equipment requiring qualification.

(b) Controlling the generation, maintenance, and distribution of the list of equipment requiring qualification.

(c) Defining and differentiating between mild and harsh environments.

(d) Establishing harsh environmental conditions at the location of equipment through engineering analysis and evaluation.

(e) Establishing and maintaining a file of plant conditions.

(f) Establishing, evaluating, and maintaining EQ documentation.

(g) Training personnel in the environmental qualification of equipment.

(h) Controlling plant modifications such as installation of new and replacement equipment, and providing for updating replacement equipment to 10 CFR 50.49 criteria.

As a part of the program review, the licensee's Quality Assurance (QA) program was reviewed as it pertains to equipment qualification. Interviews were conducted with the station supervisors of quality assurance and electrical and mechanical maintenance. These interviews revealed that in-place procedures are providing direction for maintaining environmental qualification of the equipment identified in the EQR. The Work Request cover pages identify when equipment with environmental qualification are involved in maintenance activities. The jackets of Work Request packages were also noted to be stamped with 1¼" letters "EQ." For these Work Requests identified as "EQ," QC is required to observe and signoff on the Work Request verifying that all work is completed and that the activities have been accomplished in accordance with approved procedures. Quality Assurance performs audits and surveillances for site work activities affecting environmentally qualified equipment and uses "HOLD POINTs" to assure witnessing of key activities. See paragraph 4.A(4) for further discussion of activities to preserve the qualified status of installed equipment for the life of the plant.

Purchase orders reviewed were observed to be appropriately identified with EQ requirements. Receipt inspection for EQ equipment and qualification data packages is performed by the site QA/Quality Control (QC) organization. Accepted equipment is stored in a controlled area reserved for safety-related equipment.

The inspector determined that CECo QA audits the activities performed by S&L and vendors, including equipment qualification laboratories. The 1985 audit schedule planned two audits for S&L and four audits for equipment qualification laboratories.

During the 10 CFR 50.49 programmatic review the inspection team noted that CECo's program is actually established, controlled, and implemented through S&L procedures such as PI-ZI-14, 23, and 25, which are not referenced in CECo's SNED QC procedure or the EQR. Discussions were held with CECo personnel concerning the possibility that CECo's 10 CFR 50.49 program could be deficient without the S&L procedures; therefore, some means of correlating the SNED and S&L procedures might be appropriate to avoid possible future program problem areas/deficiencies. The inspection team did determine that the S&L procedures are being followed and no programmatic deficiencies were identified.

Certain documentation discrepancies, typographical errors, and the like were identified during the programmatic review. These deficiencies are discussed in paragraph 4.D(2) below.

Two Open Items resulted from the EQ program review, as follows:

(a) CECo procurement procedures require involvement of the headquarters SNED, which ensures that EQ procedures are followed, unless a simple like-for-like component procurement is involved, in which case the station can procure directly. Paragraph (1) of 10 CFR 50.49 requires that a DOR Guidelines plant such as Zion 2 must upgrade replacement equipment to full rule conformance. Station personnel are aware of this requirement and indicated that they follow it; no evidence to the contrary was observed. Since station procurement procedures do not require upgrading of environmentally qualified replacement equipment, the NRC inspector recommended that the licensee incorporate the requirement into the procedure. Verification of action on this concern is considered to be an open item, pending further review during a subsequent inspection. (304/85-06-02)

(b) During review of the licensee's EQ training activities, it was observed that a 16 hour qualification maintenance training program had been prepared for CECo engineering and station personnel. At the time of this inspection, this training had only been provided to 28 management personnel. Only four site personnel were identified as being trained. Personnel from QA/QC, engineering, purchasing, licensing and Quality and Maintenance at CECo Headquarters and site personnel from engineering, QA/QC, and stores were scheduled to receive this training. NRC interviews with licensee and contractor personnel established a consistent awareness on the part of

personnel that special requirements apply to environmentally qualified equipment within the scope of 10 CFR 50.49. Verification of implementation of the training program is considered to be an open item, pending further review during a subsequent inspection. (304/85-06-03)

(3) 10 CFR 50.49 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 first master list of equipment required for compliance with 10 CFR 50.49 was developed by the licensee in response to IE Bulletin 79-01B. Between 1980 and 1982 the licensee evolved a methodology (as described in the CECo submittal to NRC dated April 10, 1984) by which an initial master list was derived. At this time CECo maintains executive control of the master list and its contractor, S&L, maintains physical control of the list with the aid of a computerized system. No formal procedures have been written to document the development of a master list; however, CECo and S&L procedures are in place for keeping the list current with regard to configuration changes in the plant. These include CECo procedure Q.42, Rev. 2, dated January 14, 1985, "E.Q. Documentation Control and Acceptance," and several of the procedures listed in paragraph 4.A.(2). The reviewed procedures appear to be adequate for maintaining the master list.

Seventeen items were used as the audit sample to verify the completeness of the master list. This sample included two items from Appendix I, "Justification for Removal of Items from the Master List," of the EQR as a test of the rationale for deleting an item from the list. The remaining fifteen items were selected to verify that items required to be on the list are in fact on the list, and that items not required to be on the list are in fact not on the list. Additionally, a check was made to determine that items which may be required in the future as part of the TMI improvement program are not on the list now, but are earmarked for future consideration.

These sample items were selected from examination of piping and instrumentation drawings, a review of the EQR, and from file inspection items. The audit verified that the master list was accurate and complete for every item sampled, except for post-accident monitoring equipment discussed in paragraph 4.A.(1).

(4) EQ Maintenance Program

The NRC inspectors reviewed the licensee's program for preserving the qualified status of equipment through maintenance and surveillance activities. Each completed EQ documentation package contains

a maintenance and surveillance section detailing criteria for maintaining qualification. Schedules, inspection checksheets, and other information pertinent to the specific equipment type are included. Based on these criteria, the station prepares Plant Maintenance/Surveillance Procedures specifying the activities to be performed in the plant. A typical procedure. IMEQ-1 for Rosemount 1153D transmitters, was reviewed by the inspector. A typical plant modification package, M22-2-81-51 for installation of qualified transmitters, and the calibration procedure for the transmitters were also reviewed, and procedural implications were considered during the plant physical inspection.

The NRC inspectors found no deficiencies in the completed maintenance and surveillance procedures. Where EQ procedures were not yet in effect, the inspectors found that the normal plant maintenance procedures currently being used did not compromise the environmental qualification of equipment reviewed. Since some of the EQ procedures are not yet completed, the following open items were identified:

(a) Plant EQ Maintenance/Surveillance procedures have not been completed for all environmentally qualified equipment, such as 4 kv Westinghouse motors, Rosemount 176 KF temperature elements, Conax temperature elements, and D.G. O'Brien electrical penetration assemblies. Procedures are being updated for activities between outages such as lubrication and bearing inspection. Procedures are also not in place to initiate annual review of EQ inspection result trends and resultant scheduling of changes, modifications, and checks. The licensee informed the NRC inspectors that all procedures currently in draft or under revision are expected to be in place by March 31, 1985. Verification of full implementation of the EQ Maintenance procedures at the station is considered to be an open item pending further review during a subsequent inspection. (304/85-06-04)

(b) During the plant physical inspection, the solenoid coil housings on several non-EQ ASCO solenoid valves were found to be loose to the touch. Master List valve 2AOV-BD0001 was inspected, and the coil housing was not loose to the touch. Modification package M22-2-82-36, which covers installation of environmentally qualified ASCO solenoid valves, includes and properly invokes ASCO installation bulletins specifying torque requirements for the solenoid base subassembly. Tightness is essential to qualification, since it compresses two gaskets that prevent postulated accident atmospheres from entering the coil housing. Although no discrepancy was observed for the Master List valve, the loose housings found on several unqualified

valves indicate that Plant Maintenace/Surveillance Procedure E-024-01 should be reviewed by the licensee for adequacy with respect to assuring housing tightness.

B. SER/TER Commitments

The NRC inspectors evaluated the implementation of EQ corrective action commitments made as a result of the SER/TER identified deficiencies as stated in licensee submittals dated April 10 and June 20, 1984. These submittals stated that all equipment on the EQ master list is qualified except (a) three component types for which exemption requests were submitted and (b) certain post-accident monitoring equipment for which a separate, later schedule was negotiated with the NRC.

Based on review of files whose selection specifically included components for which the licensee had committed to replace unqualified equipment, and on review of the EQ master list, the NRC inspectors identified no deficiencies in the licensee's implementation of SER/TER commitments to date.

C. Plant Physical Inspection

The NRC inspectors, with plant accessibility input from licensee personnel, established a list of components for physical inspection that were (1) of the same types for which file reviews were performed and (2) accessible at the time of the inspection, during plant operation. Ten components were selected for examination of such characteristics as mounting configuration, orientation, interfaces, model number, ambient environment, and physical condition. Two concerns were identified during the physical inspection and both are classified as Potential Enforcement/Unresolved Items. Details are as follows.

(1) One concern was identified during the inspection of Marathon series 6000 and 1600 terminal blocks. The NRC inspectors observed that outside containment terminal blocks for control circuits were located in junction boxes which had top conduit entries as opposed to the qualification tested configuration of side or bottom conduit entries. The inspectors determined from discussions with licensee personnel that the licensee was planning to replace all top-entry junction boxes with boxes using side or bottom entries. However, this action had not been completed, raising the question of whether or not the top conduit entry boxes/terminal block configurations are qualified, especially for use on inside containment control circuits. The specific concern with the top conduit entry boxes is whether

the cumulative effect of control circuits with terminal block leakage currents will trip the associated power circuit breaker itself and thus render all circuits from that breaker ineffective. Since the licensee was unable to present any data during the inspection that would demonstrate that this concern regarding the qualification of top entry junction boxes did not exist, this is identified as a Potential Enforcement/Unresolved Item. (304/85-06-05)

(2) Inspection of an outside containment Limitorque valve operator revealed the presence of a plastic protective shipping cap on the valve operator gear case grease relief valve. Although this is probably acceptable for outside containment uses, the question was asked whether shipping caps also were installed on operators inside containment. As a result of this question, CECo sent personnel inside Unit 2 containment on the morning of Friday, January 18, 1985. These personnel found and removed the covers from two operators, plant ID numbers 2-MOV-RC-8000A and B. This action was reported to the NRC during the exit meeting. The presence of shipping caps on valve operator gear case grease relief valves created a situation where the installed equipment configuration was different from the equipment configuration for which qualification had been established. Since the above described difference in equipment configuration raises questions regarding the qualification of the installed equipment prior to the removal of the shipping caps, this deficiency is identified as a Potential Enforcement/ Unresolved Item. (304/85-06-06)

D. Detailed Review of Qualification Files

The NRC inspectors examined selected Zion EQ documentation packages and supporting documents 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 such things 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.

The Zion EQ packages reviewed by the NRC inspectors were generally in conformance to 10 CFR 50.49 except for the following deficiencies.

(1) Incomplete documentation packages - Some of the EQ documentation packages were not complete and issued to the station at the time of inspection. The following concerns were noted:

(a) Package EQ-ZN039 for Rosemount resistance temperature detectors (RTDs) was not fully assembled. Test report WCAP-9157, references identifying plant equipment, maintenance and surveillance requirements, and the like were missing.

(b) "Open Items Lists" at the front of some packages identified missing information. For example, in EQ-ZN035 for Rosemount transmitters, documentation of installed plant equipment and a study demonstrating the acceptability of a reduced operating time were not yet included.

(c) Package EQ-ZN011 was being expanded to include information on Marathon 1600 series terminal blocks, as well as 6000 series, but the expansion was not completed.

Although no technical deficiencies were observed because of this incompleteness, the issuance of the remaining Zion EQ Packages is considered to be an open item pending verification during a subsequent inspection. (304/85-06-07)

(2) Deficiencies in documentation - Several minor errors in the form of discrepancies, omissions, typographical errors, and the like were noted by the NRC inspectors, including the following:

(a) SNED procedure Q6, Rev. 9, Exhibit I, section 4.0(e) defines harsh environment as radiation exceeding 5 x 10E4 rads, with no mention of other parameters. The EQR, section 4.2 pp 26-7, defines harsh environment as exceeding 1 x 10E4 rads, atmospheric pressure and 90% humidity.

(b) Definition of "long, mid, and short term" operating times was not provided in Rev. 4 of the EQR. The licensee indicated that Rev. 3 had contained definitions inadvertantly omitted from Rev. 4.

(c) For charging pump motors the zone description specified 3 psig environment, while the EQ package stated "unknown" plant pressure and 0 psig qualified pressure. The licensee indicated that the discrepancy is simply a documentation error.

(d) The type test documentation for the charging pump motors is not clear in identifying whether the same stator was subjected to all type tests. In response to questions the licensee indicated that the same stator was used throughout testing, and initiated action to obtain documentation from Westinghouse to clarify the files.

(e) In lists and tabulations in the EQR the following deficiencies were identified.

[1] Limit switch AOV-DT 9170 was listed on the qualified status list in Appendix L when in fact it should have been deleted per the list of Appendix I.

[2] Typographical errors in the main steam isolation valve listings of Appendix K were identified.

[3] Remote shutdown panels were identified in Appendix I for Unit 2 when in fact they should have been deleted as were the panels for Unit 1.

(f) The review checklist form in package EQ-ZN011 omitted reference to terminal block orientation, which is necessary to establish qualification.

Verification of correction of these deficiencies in documentation is considered an open item, pending further review during a subsequent inspection. (304/85-06-08)

(3) Lack of specific quantitative treatment of MSLB environmental profile inside containment for replacement equipment - The NRC inspector's review of the EQ documentation packages revealed that replacement equipment was being procurred to the same severe accident environmental criteria used for evaluation of original plant equipment. The CECo evaluation considered only the LOCA profile for in-containment equipment and not the in-containment MSLB profile, which could be more severe. However, for replacement equipment paragraphs (e) and (l) of 10 CFR 50.49 require qualification to be established for the most severe design basis accident during or following which the equipment is required to remain functional.

CECo identified that the following types of replacement equipment have been ordered since the effective date of 10 CFR 50.49, installed in the plant, and considered qualified without addressing a specific in-containment MSLB profile: Conax seals, Namco limit switches, and Raychem splices. CECo stated that, although a specific MSLB profile was not considered in the qualification review of this equipment, actual qualification test conditions would probably exceed the plant conditions. CECo stated that it had not considered MSLB environmental profiles when establishing qualification for replacement parts due to past correspondence with the NRC regarding qualification environmental profiles and its interpretation of the upgrading requirements of 10 CFR 50.49.

CECo was advised that the upgrading requirements of 10 CFR 50.49 do require reevaluation or recalculation of environmental parameters for replacement equipment within the scope of 10 CFR 50.49; therefore, this deficiency is identified as a Potential Enforcement/Unresolved Item. (304/85-06-09)

E. The NRC inspectors reviewed and evaluated CECo's activities relative to the review of EQ related IE INs/Bulletins. The inspectors' review included examination of CECo's procedures and EQ documentation packages relative to 12 INs and one Bulletin. The review determined that CECo does have a system for distributing, reviewing, and evaluating INs/Bulletins relative to qualified safety-related equipment within the scope of 10 CFR 50.49. During the review of individual EQ documentation packages, which include copies of applicable INs/Bulletins with definition of each's impact on equipment and resolution of any concerns, the NRC inspectors evaluated the actions taken by CECo relative to the applicable INs/Bulletins for that package. No concerns were identified during this review of CECo's activities.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 10, 1985

Docket No. 50-302

Florida Power Corporation
ATTN: Mr. Walter S. Wilgus
Vice President
Post Office Box 14042
St. Petersburg, Florida 33733

Gentlemen:

SUBJECT: INSPECTION NO. 50-302/85-09

Enclosed is the report of the special team inspection conducted by Mr. R. C. Wilson and other NRC representatives on March 4-8, 1985, at the Crystal River 3 site of Florida Power Corporation of activities authorized by NRC License No. DPR-72. The team's findings were discussed with you and members of your staff at the conclusion of the inspection. The inspection reviewed your implementation of a program as required by 10 CFR 50.49 for establishing and maintaining the qualification of electric equipment within the scope of 10 CFR 50.49. The inspection also included evaluations of the implementation of equipment qualification corrective action commitments made as a result of the January 11, 1983, Safety Evaluation Report (SER) and the October 1, 1982, Franklin Research Center Technical Evaluation Report (TER). Within this area, the inspection consisted of examinations of selected procedures and records, interviews with personnel, and observations by the inspectors.

You stated that you plan to complete implementation of your program for meeting the requirements of 10 CFR 50.49 by the end of the refueling outage that began March 9, 1985. The inspection determined that you have made considerable progress 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 the Inspection Report, but no equipment was found to be not qualified. Your Qualification Maintenance Program Manual was found to be generally satisfactory, but only one of the implementing procedures was in effect. Your master list was found to be adequate.

8506120225 2pp

The enclosed Inspection Report describes eight Open Items. Your actions concerning these items will be addressed in a future NRC inspection. You should carefully review the inspection findings and take appropriate action so as to achieve full compliance with the requirements of 10 CFR 50.49 prior to restart from your March 9, 1985 outage, since noncompliance with 10 CFR 50.49 requirements after that time will result in enforcement action.

We are available to discuss any questions you have concerning this inspection.

Sincerely,

Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance, Vendor,
and Technical Training Center Programs
Office of Inspection and Enforcement

Enclosure:
Inspection Report No. 50-302/85-09

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, Equipment Qualification & Test Engineer — 5/30/85 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, Chief, Vendor Program Branch, I&E — 6/3/85 Date

8506120233 17pp

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) <u>EQ Program Procedures</u>

(a) <u>QMP Manual Content</u>

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) <u>10 CFR 50.49 List (EQ Master List)</u>

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.