

21 APR 1986

MEMORANDUM FOR: Faust Rosa, Chief
 Electrical, Instrumentation and Control Systems Branch
 Division of PWR Licensing-A

FROM: John Thompson, Project Manager
 Vogtle Readiness Review Program
 Division of PWR Licensing-A
 Office of Nuclear Reactor Regulation

SUBJECT: APPENDIX J, EQUIPMENT QUALIFICATION, VOGTLE READINESS
 REVIEW PROGRAM

50-424
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Appendix J of the Vogtle Unit 1 Readiness Review Program is being reviewed in Region II due to their primary review responsibilities. NRR's responsibility is to provide secondary review cognizance by becoming familiar with the Appendix J document and to provide NRR technical review concurrence. Appendix J subject content is in the area of E.I.C.S.B responsibility. Please inform me of selection of a reviewer for Appendix J as soon as possible so that the review schedule is not delayed.

If there are any questions, please contact me at X27396.

John Thompson, Vogtle Readiness Review
 Project Manager
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Enclosure 1

APPENDIX J
EQUIPMENT QUALIFICATION

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List of Effective Pages
March 24, 1986

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Revised Date

All pages unchanged.

APPENDIX J
EQUIPMENT QUALIFICATION PROGRAM

EXECUTIVE SUMMARY

Introduction

This appendix documents a review program conducted to ascertain whether the Vogtle Electric Generating Plant (VEGP) equipment qualification (EQ) program complies with licensing commitments and whether compliance is verifiable using existing project documentation.

The scope of this appendix includes design, procurement, installation, maintenance, and documentation activities associated with the EQ program for safety-related equipment and project-specified post-accident monitoring equipment.

The verification of the EQ program was performed in two parts. Part I consisted of a commitment implementation verification, and Part II consisted of a review of EQ program verifications performed in other modules and in the Independent Design Review (IDR).

The program verification was conducted by a team of four engineers with a combined total of 43 years of design engineering experience, including 20 years of equipment qualification experience.

In implementing this review program, project documents such as design criteria, specifications, procedures, qualification reports, and calculations were reviewed, along with the results of past audits and industry problems. In addition, Readiness Review quality assurance (QA) personnel provided QA surveillance of the review activities. A statement from the QA representatives regarding their involvement and conclusions is provided in section J8.

Following evaluation, findings were subjected to categorization as follows to indicate their relative importance:

- Level I - Violation of licensing commitments, project procedures, or engineering requirements with indication of safety concern.
- Level II - Violation of licensing commitments or engineering requirements with no safety concerns.
- Level III - Violation of project procedures with no safety concerns.

Phase II consisted of a programmatic review of selected documents for compliance with applicable procedures and industry standards [e.g., Institute of Electrical and Electronics Engineers (IEEE) 344-1975] as committed to in the FSAR.

Documents such as qualification reports, calculations, and drawings were included in this review.

The Phase II verification concluded that the documents reviewed had adequately implemented the licensing commitments with the exception of one commitment, which resulted in Finding J-4.

Finding J-4 (Level II) identified 6 out of 17 safety-related equipment specifications which did not incorporate the environmental qualification parameters from the latest revision of the environmental design criteria.

Revisions to the environmental design criteria have been formally reviewed by the Project to determine the potential impact to equipment. Because this review was performed, no potential hardware impact is anticipated. In response to this finding, the Project is evaluating the safety-related equipment specifications for conformance to the environmental design criteria. In cases where the procurement specifications do not contain the latest environmental parameters from the environmental design criteria, the Project will revise the specification and rereview the corresponding equipment qualification for conformance to the revised specification by June 1, 1986.

The corrective action will ensure that the equipment is qualified to appropriate environmental conditions.

Part II - Review of EQ Program Verification in Other Modules and the IDR

Part II of the verification was a review of the EQ program verification in the other modules and in the IDR. Appropriate modules contain programmatic reviews of selected documents for compliance with EQ licensing commitments. The IDR contains a technical review of selected equipment and supporting documents for compliance with EQ licensing commitments. The reviews in the modules and the IDR also covered additional aspects related to the EQ program, such as equipment interface, equipment installation, and equipment maintenance during operations. The relevant modules and the IDR are listed in section J1. Part II assessed the collective significance of the review and evaluation results of the EQ program verification performed in other modules and the IDR.

The results of the Part II evaluation did not identify any items of collective significance to the EQ program. Individual findings identified in other modules and the IDR were treated

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APPENDIX J
EQUIPMENT QUALIFICATION

J1 SCOPE

This appendix describes the organization and evaluation of the procedures, methods, and controls governing the Vogtle Electric Generating Plant (VEGP) equipment qualification (EQ) program. This program covers safety-related equipment and project-specified post-accident monitoring equipment; however, the term "safety-related equipment" will be used throughout this appendix to mean "safety-related equipment and project-specified post-accident monitoring equipment."

The VEGP EQ program addresses seismic and environmental qualification of both balance-of-plant (BOP) and nuclear steam supply system (NSSS) equipment. This appendix covers EQ-related licensing commitments, identifies both the commitments and their implementation, and verifies that appropriate procedures were in use and adhered to.

VEGP equipment qualification was also reviewed in other modules. This appendix summarizes the results of the examination of EQ-related activities during the verification of the modules listed below:

- o Module 4, Mechanical Equipment and Piping.
- o Module 6, Electrical Equipment.
- o Module 7, Plant Operations and Support.
- o Module 8, Structural Steel.
- o Module 12, Electrical Cables and Terminations.
- o Module 16, Nuclear Steam Supply System.
- o Module 17, Raceways.
- o Module 20, Instrumentation and Controls.
- o Independent Design Review (IDR).

The effective date of this appendix is October 1, 1985. That is, changes in the included program, organizations, commitments, etc. occurring after this date are not addressed.

J2 RESPONSIBLE ORGANIZATIONS

Georgia Power Company (GPC) is responsible for the VEGP equipment qualification (EQ) program. Southern Company Services, Inc. (SCS), and Bechtel Power Corporation (BPC) provide assistance to GPC for controlling and implementing the EQ program. In order to provide guidance for the VEGP EQ program, GPC established the Equipment Qualification Task Force (EQTF). A brief description of the EQ-related responsibilities of the EQTF, GPC, SCS, and BPC is presented below. Details of the GPC, SCS, and BPC organizations are provided in the Final Safety Analysis Report, chapter 17, and therefore, are not addressed here. The VEGP EQ program responsibilities and relationships between the various organizations involved in EQ program implementation are shown in Figure J2-1.

J2.1 EQUIPMENT QUALIFICATION TASK FORCE

The EQTF includes personnel from GPC, SCS, BPC, and an outside consultant with expertise in the area of licensing, equipment qualification, and equipment design. The EQTF reports to the project licensing manager and is responsible for:

- o Reviewing the EQ programs and assuring that the programs, as defined by suppliers' qualification plans and procedures, comply with the applicable requirements.
- o Developing guidelines to meet industry qualification standards and VEGP commitments to Nuclear Regulatory Commission (NRC) requirements.
- o Providing technical consultation in the preparation of seismic and environmental appendixes for specifications to reflect an acceptable qualification methodology.
- o Reviewing deviations and developing project positions on the acceptability of alternate methods of qualification.
- o Independently reviewing and accepting the adequacy of the Equipment Qualification Data Packages (EQDPs).

J2.2 SOUTHERN COMPANY SERVICES, INC.

The SCS Nuclear Safety and Fuel Department is responsible for:

- o Identifying and interpreting NRC requirements.
- o Monitoring the Vogtle Project effort in conducting an EQ program.

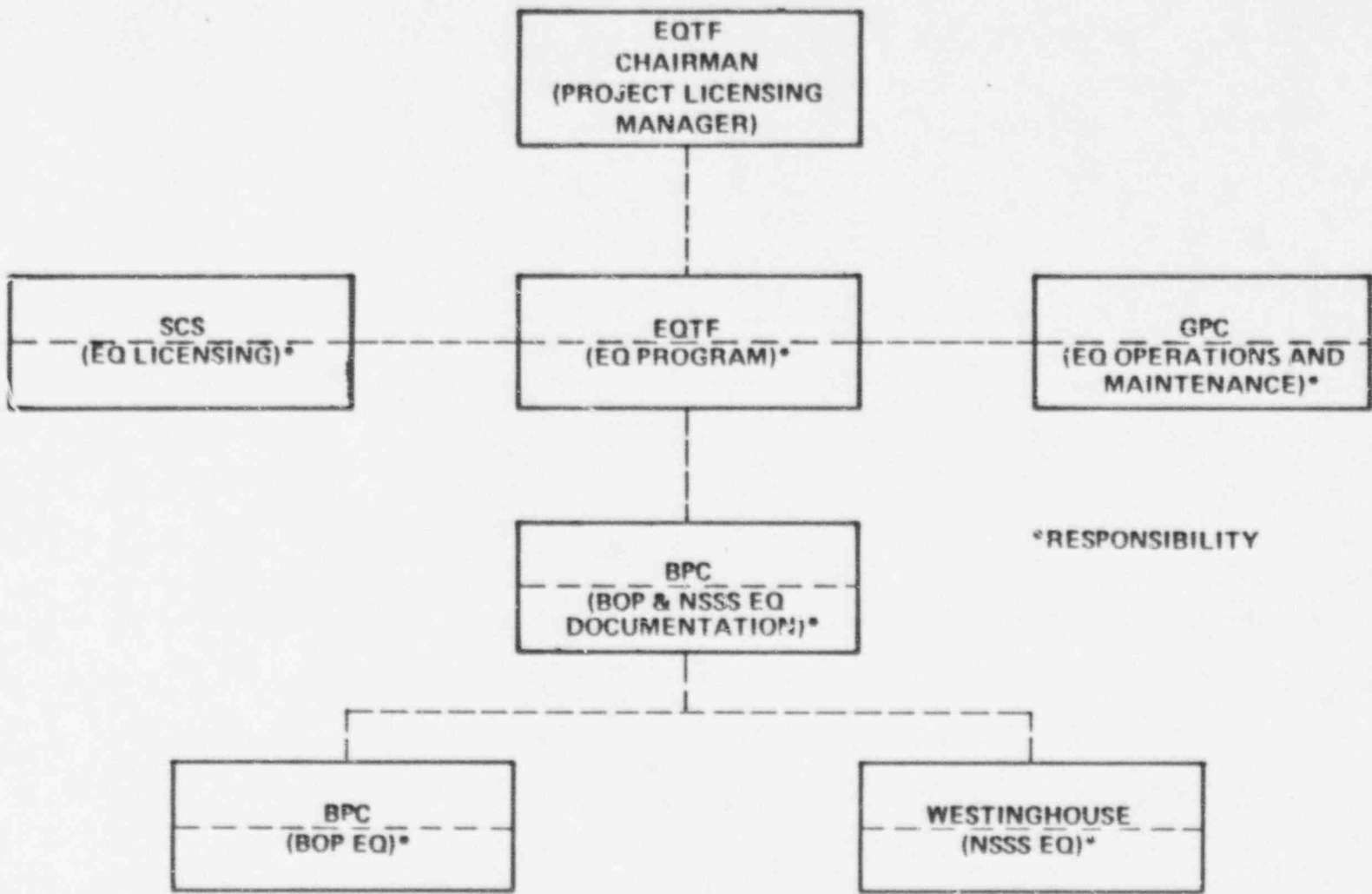


Figure J2-1 Equipment Qualification Program Organization and Responsibilities

J3 COMMITMENTS AND IMPLEMENTATION

J3.1 INTRODUCTION

This section contains, in matrix form, licensing commitments and the corresponding implementing documents. These are presented in two matrixes, the commitment matrix and the implementation matrix. A brief explanation of the development process for each matrix is also included.

In addition to the specific commitments identified in this appendix, applicable quality assurance requirements and commitments or exceptions and alternatives thereto as stated in the Final Safety Analysis Report (FSAR) are applicable to the project activities described in this appendix. The applicable requirements of these types of commitments were considered in assessing the project activities represented in this appendix.

Any differences between the commitments discussed in this section and the VEGP FSAR are unintentional, and the FSAR prevails.

J3.2 DEFINITIONS

A commitment is defined as a project obligation to comply with a Regulatory Guide, an industry standard, a Branch Technical Position, or an owner plan of specific action.

An implementing document is the working level document that identifies project commitments applicable to the specific work activity.

J3.3 SOURCES

Commitments covered by this appendix are identified from the following sources:

- o FSAR, including responses to Nuclear Regulatory Commission questions.
- o Responses to Generic Letters.
- o Responses to Inspection and Enforcement Bulletins.

These sources are reviewed for commitments based upon guidelines developed from the definition in section J3.2.

Commitments identified in the commitment matrix are typically implemented through:

COMMITMENTS

SORTED BY SOURCE AND SECTION

<u>COMMITMENT</u> <u>SOURCE</u>	<u>COMMITMENT</u> <u>SECTION</u>	<u>COMMITMENT</u> <u>SUBJECT</u>	<u>DOCUMENT/</u> <u>FEATURE</u>	<u>RESPONSIBILITY</u> <u>DESIGN</u> <u>CONST</u>	<u>REMARKS</u>	<u>REF. NO.</u>
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EXPLANATION OF FIELDS

- COMMITMENT SOURCE - The document containing the commitment (FSAR, Generic Letter, I.E. Bulletin Response, etc.)
- COMMITMENT SECTION - Identifies the FSAR section, letter number, or question number
- COMMITMENT SUBJECT - The subject of the FSAR section or Generic Letter
- DOCUMENT/FEATURE - The document discussed in the FSAR section or the plant feature described in the FSAR section
- RESPONSIBILITY - An X is placed under the heading for the organization responsible for implementation of the commitment
- REF. NO. - A reference number that corresponds to the appropriate line entry in the implementation matrix

COMMITMENTS

APPENDIX J - SORTED BY SOURCE & SECTION

COMMITMENT SOURCE	COMMITMENT SECTION	COMMITMENT SUBJECT	DOCUMENT/ FEATURE	RESPONSIBILITY DESIGN	CONST	REMARKS	REF NO
FSAR	1. 9. 9	SELECTION, DESIGN AND QUAL. OF DIESEL-GEN. UNITS AS STANDBY POWER	IRRE 323-1 74 AND 387-1977, SECT. 5.4	X		SUBJECT TO REG. GUIDE 1.89	1518
FSAR	1. 9. 9	SELECTION, DESIGN AND QUAL. OF DIESEL-GEN. UNITS AS STANBY POWER	IRRE 387-1977 AND 344-1975	X			1522
FSAR	1. 9. 29	SEISMIC DESIGN CLASSIFICATION	RG 1.29, REV. 3, 9/78	X		REF. TABLE 3.2.2-1	126
FSAR	1. 9. 40	QUALIFICATION TESTS FOR CONT.-DUTY MOTORS INSTALLED INSIDE THE CONTAINMENT OF NUCLEAR POWER PLANTS.	IRRE 334-1974	X		USED AS SUPPLEMENT TO IRRE-323-1974.	129
FSAR	1. 9. 40	QUALIFICATION TESTS FOR CONT.-DUTY MOTORS INSTALLED INSIDE THE CONTAINMENT OF NUCLEAR POWER PLANTS.	RG 1.40, REV. 0, 3/73	X		SEE REG. GUIDE 1.100 COMPARISON AND FSAR 3.11	130
FSAR	1. 9. 48	DESIGN LIMITS & LOADING COMBIN. FOR SEISMIC CAT. I FLUID SYSTEM COMPONENTS	RG 1.48, REV. 0, 5/73	X		REF. 3.9.N.3 & TABLES 3.9.B.3-1 THROUGH 3.9.B.3-10	1544
FSAR	1. 9. 61	DAMPING VALUES FOR SEISMIC DESIGN OF NUCLEAR POWER PLANTS	RG 1.61, REV. 0, 10/73	X		SEE FSAR 3.7.B.1 AND 3.7.N.1 FOR CLARIFICATION	154
FSAR	1. 9. 63	PENETRATION ASSEMBLIES	RG 1.63, REV. 2, 7/78	X		EXCEPTIONS NOTED IN FSAR 1.9.63	157

COMMITMENTS

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COMMITMENT SOURCE	COMMITMENT SECTION	COMMITMENT SUBJECT	DOCUMENT/ FEATURE	RESPONSIBILITY DESIGN	CONST	REMARKS	REF NO
FSAR	3. 7.B. 3. 1.3	SEISMIC ANALYSIS OF CATEGORY 1 SUBSYSTEMS AND COMPONENTS	BC-TOP-4A	X			1011
FSAR	3. 7.B. 3. 3	PROCEDURE USED FOR MODELING SEISMIC CATEGORY 1 PIPING	BP-TOP-1, SECTIONS 2.0 & 3.0	X			1617
FSAR	3. 7.B. 3. 5	SEISMIC SUBSYSTEM ANALYSIS, USE OF EQUIVALENT STATIC LOAD METHOD OF ANALYSIS	SEISMIC ACCELERATION VALUES ... ARE PEAK ACCELERATION VALUES MULTIPLIED BY A FACTOR OF 1.5 UNLESS A LOWER FACTOR IS JUSTIFIED	X			1014
FSAR	3. 7.B. 3. 6	THREE COMPONENTS OF EARTHQUAKE MOTION	IEEE 344-1975 FOR QUALIFICATION BY TESTING.	X		ANALYSIS MEETS RG 1.92	1016
FSAR	3. 7.B. 3. 6	THREE COMPONENTS OF EARTHQUAKE MOTION IN PIPING SYSTEMS	BP-TOP-1, SECTION 5.1	X			1620
FSAR	3. 7.B. 3. 7	COMBINATION OF MODAL RESPONSES IN CATEGORY 1 PIPING SYSTEMS	BP-TOP-1, SECTIONS 5.1 & 5.2	X			1622
FSAR	3. 7.B. 3.11	TORSIONAL EFFECTS OF ECCENTRIC MASSES IN SEISMIC PIPING ANALYSIS	BP-TOP-1, SECTION 3.2	X			1625
FSAR	3. 9. B. 3-5	ASME III CL. 1, 2 & 3 COMPONENT STRESSES	STRESS CRITERIA PUMPS	X			5029
FSAR	3. 9.B. 1. 3.2	SEISMIC CAT. I ITEMS OTHER THAN NSSS & CLASS I BRANCH LINES-STRESSES	ASME III STRESS LIMITS	X		FOR CODE COMPONENTS	1643

COMMITMENTS

APPENDIX J - SORTED BY SOURCE & SECTION

COMMITMENT SOURCE	COMMITMENT SECTION	COMMITMENT SUBJECT	DOCUMENT/ FEATURE	RESPONSIBILITY DESIGN	REMARKS CONST	REF NO
FSAR	3. 9.B. 3. 1.3	UPSET CONDITION DEFINITION	ASME III	X		1659
FSAR	3. 9.B. 3. 2	QUALIFICATION OF PUMP MOTOR AND APPURTENANCES DURING SSE	IEEE-344-1975	X		1677
FSAR	3. 9.B. 3. 2	VALVE MOTOR OPERATORS	IEEE-323-1974	X		1680
FSAR	3. 9.B. 3. 2	MOTOR OPERATORS	IEEE-382-1972	X		1682
FSAR	3. 9.B. 3. 2. 1	DEMONSTRATION OF PUMP OPERABILITY BY ANALYSIS	SHAFT CLEARANCE DURING SEISMIC EVENT	X		4999
FSAR	3. 9.B. 3. 2. 2	VALVE MOTOR OPERATORS	IEEE-344-1975	X		1681
FSAR	3. 9.B. 3. 2. 2	STATIC DEFLECTION TEST FOR ACTIVE VALVES	VALVE INTERNALS WILL NOT BIND DURING SSE	X		5000
FSAR	3. 9.B. 3. 2. 2	DYNAMIC ANALYSIS OF PIPING SYSTEM WITH FLEXIBLE VALVES	DETERMINE EQUIVALENT ACCELERATION FOR STATIC ANALYSIS AND OPERABILITY TEST	X		5001
FSAR	3. 9.B. 3. 2. 2	SEISMIC ANALYSIS OF ACTIVE VALVES	NOZZLE LOADS CONSIDERED IN THE ANALYSIS	X		5002
FSAR	3. 9.B. 3. 2. 2	OPERABILITY OF VALVE ASSEMBLY DURING SSE	VALVE ASSEMBLY QUALIFIED BY TEST OR ANALYSIS	X		5003
FSAR	3. 9.B. 3. 2.2	STRESS ANALYSIS OF VALVES	ASME III		SUBARTICLES NB-3500, NC-3500 & ND-3500	1683
FSAR	3.10.B. 1	SEISMIC QUAL. AND DOCUMENTATION FOR SAFETY RELATED EQUIPMENT AND SUPPORTS	IEEE 344-1975	X		1209

COMMITMENTS

APPENDIX J - SORTED BY SOURCE & SECTION

COMMITMENT SOURCE	COMMITMENT SECTION	COMMITMENT SUBJECT	DOCUMENT/FEATURE	RESPONSIBILITY DESIGN	REMARKS CONST	REF NO
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FSAR	3.10.B. 2. 1	MEANS OF QUALIFICATION	SEISMIC- THE CBRs SHALL CONTAIN A MINIMUM OF 50 CYCLES OF MAXIMUM STRESS	X		1199
FSAR	3.10.B. 2. 1	MEANS OF SEISMIC QUAL. OF MECH. & ELECT. EQUIP.	RG 1.100	X		1205
FSAR	3.10.B. 2. 1	MEANS OF SEISMIC QUALIFICATION OF MECH. & ELECT. EQUIP.	IEEE 344-1975	X		1206
FSAR	3.10.B. 2. 1	MEANS OF QUALIFICATION	FOR COMPONENTS PREVIOUSLY TESTED TO GENERIC CRITERIA MULTI-FREQUENCY INPUTS FROM TEST LAB REVIEWED TO ASSURE CONSERVATISM IN AMPLITUDE AND FREQUENCY CONTENT, THE ENVELOPES ARE OVER CRITERIA FREQUENCY	X		1209
FSAR	3.10.B. 2. 1	MEANS OF QUALIFICATION	SEISMIC-ALL INTERFACES AND THE EFFECTS OF THE AMPLIFICATION WITHIN THE EQUIPMENT DUE TO THE INTERFACES AND SUPPORTING STRUCTURES ARE CONSIDERED IN THE SEISMIC QUALIFICATION.	X		1210
FSAR	3.10.B. 2. 2	METHOD OF SEISMIC QUAL. ANALYSIS W/O TESTING	IEEE 344-1975, SECTION 5	X	SEE SUBSECT. 3.10.B.1	1211
FSAR	3.10.B. 2. 2	SEISMIC METHOD OF QUAL. TESTING BY MULTI-FREQUENCY OR SINGLE-FREQUENCY INPUTS	IEEE 344-1975, SECTION 6	X		1212

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APPENDIX J - SORTED BY SOURCE & SECTION

COMMITMENT SOURCE	COMMITMENT SECTION	COMMITMENT SUBJECT	DOCUMENT/ FEATURE	RESPONSIBILITY DESIGN	REMARKS	CONST	REF NO
FSAR	3.10.B. 4. 1	QUALIFICATION & DOCUMENTATION PROCEDURES	IEEE 344-1975	X			1227
FSAR	3.10.B. 4. 1	QUALIFICATION AND DOCUMENTATION PROCEDURES	RG 1.100	X			1228
FSAR	3.10.B. 4. 2	STANDARD REVIEW PLAN BC-TOP-4A EVALUATION-EQUIP. SEISMIC QUAL. MULTI-MODAL RESPONSES		X	MEETS INTENT OF RG 1.92		1231
FSAR	3.10.N. 1	SEISMIC AND DYNAMIC QUAL. CRITERIA	THE SPECTRA EMPLOYED HAVE BEEN SELECTED TO ENVELOPE PLANT SPECIFIC REQUIRED RESPONSE SPECTRA IN FSAR SECT. 3.7	X			5016
FSAR	3.11. 5. 1	SAFETY RELATED COMPONENTS INSIDE CONTAINMENT	DESIGNED TO PERFORM SAFETY FUNCTIONS IN LONG TERM CONTACT WITH A COMBINED BORIC ACID - SODIUM HYDROXIDE SOLUTION	X			5011
FSAR	3.11.B. 1	REPLACEMENT PROGRAM	QUALIFIED LIFE LESS THAN 41 YEARS	X			5018
FSAR	3.11.B. 1	ENVIRONMENTAL DESIGN OF MECH./ ELECT. EQUIPMENT IDENTIFICATION AND ENVIRONMENTAL CONDITIONS	10CFR50, APP. A, GDC 4	X	SEE TABLE 3.11.B.1-1 AND FIGURE 3.11.B.1-1		2008
FSAR	3.11.B. 1	STANDARD REVIEW PLAN NUREG-0588 EVALUATION		X	ADDRESSES GUIDELINES		2207

COMMITMENTS

APPENDIX J - SORTED BY SOURCE & SECTION

COMMITMENT SOURCE	COMMITMENT SECTION	COMMITMENT SUBJECT	DOCUMENT/FEATURE	RESPONSIBILITY DESIGN	REMARKS CONST	REF NO
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES. TYPE TESTING.	IEEE 323-1974	X		1263
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES	RG 1.100	X		1264
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES	RG 1.40	X		1265
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES	RG 1.63	X	ELECTRICAL PENETRATION ASSEMBLIES IN CONTAINMENT STRS. SEE FSAR SECT. 1.9.63 POSITION C-5	1266
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES. ACCEPT. CRIT. FOR ENV. QUAL. SAFETY REL. EQUIPMENT	IEEE 323-1974	X		1268
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES	NUREG-0588	X		1269
FSAR	3.11.B. 2	QUALIFICATION TESTS AND ANALYSES	RG-1.131	X		1270
FSAR	3.11.N	ENVIRONMENTAL DESIGN OF MECHANICAL AND ELECTRICAL EQUIPMENT	SYSTEMS DESIGNED TO PERFORM SAFETY RELATED FUNCTIONS WHILE EXPOSED TO APPLICABLE ENVIRONMENTAL CONDITIONS	X		5017
IEB CORRES.	C 78/02/28	UNPROTECTED TERMINAL BLOCKS	NO UNPROTECTED TERMINAL BLOCKS WILL BE USED IN SYSTEMS WHICH MUST FUNCTION IN THE POST-ACCIDENT ENVIRONMENT	X	RESPONSE TO IEB 78-02	5021

IMPLEMENTATION

SORTED BY REFERENCE NUMBER

DOCUMENT/FEATURE SECTION DESIGN LAST DESIGN FIRST REMARKS REF NO.

EXPLANATION OF FIELDS

- DOCUMENT/FEATURE - The document discussed in the FSAR section or the plant feature described in the FSAR section. (See Commitment Matrix.)
- SECTION - The section of the document/feature that is being discussed
- DESIGN LAST - "Last" indicates the project document currently containing the information found in the commitment
- DESIGN FIRST - "First" indicates the project document that contained the information found in the commitment when the activities governed by the document first began.
- REF NO. - A reference number that corresponds to the appropriate line entry in the commitment matrix.

IMPLEMENTATION

APPENDIX J - SORTED BY NUMBER

DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO
RG 1.29, REV. 3, 9/78	C	DC-1010, REV. 4, 6/29/83, SEC. 1.0	DC-1010, REV. 0, 6/4/78, SEC. 1.0		126.00
IRRR 334-1974	4.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3	SECTIONS 1 THRU 3 AND 12 ARE NOT APPLICABLE	129.01
IRRR 334-1974	5.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		129.02
IRRR 334-1974	6.0, 7.0 & 10.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		129.03
IRRR 334-1974	8.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 6	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 4		129.04
IRRR 334-1974	9.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		129.05
IRRR 334-1974	11.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3, DC-1007, REV. 4, 4/30/85, SEC. 3	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3, DC-1007, REV. 0, 6/6/79, SEC. 3	ALSO, SEE REF. NO. 1269	129.06
RG 1.40, REV.0, 3/73 C1		SEE REMARKS		SEE REF. NO. 129 CONFORMANCE TO 334-1974 INSTEAD OF 334-1971	130.01
RG 1.40, REV. 0, 3/73	C2	PRM, APPENDIX 'EA', REV. 3, 2/24/85, SEC. 5, DC-1007, REV. 4, 4/30/85, SEC. 3	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3, DC-1007, REV. 0, 6/6/79, SEC. 3		130.02
RG 1.61, REV. 0, 10/73 DAMPING VALUES	C1	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3		154.00
RG 1.63, REV. 2, 7/78		SEE REMARKS		SEE REF. NO. 1265	157.00

IMPLEMENTATION

APPENDIX J - SORTED BY NUMBER

DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO
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RG 1.100, REV. 1, 8/77	C.1	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3 & 6	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3 & 6		175.02
RG 1.100, REV. 1, 8/77	C.2	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2		175.03
RG 1.100, REV. 1, 8/77	C.3	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2	SINE SWEEP TEST USED TO DETERMINE EQUIPMENT FREQUENCIES	175.04
RG 1.100, REV. 1, 8/77	C.4	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 8	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 8		175.05
IRRR 344-1975	3.0	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2 & 3	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2 & 3	SECTIONS 1 AND 2 ARE NOT APPLICABLE, SECTION 4 COVERED IN SECTIONS 5 THRU 8	176.01
IRRR 344-1975	5.0	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3, 6 & 8	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3, 6 & 8		176.02
IRRR 344-1975	6.0	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1 THRU 8	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1 THRU 8		176.03
IRRR 344-1975	7.0	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1 & 3	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1 & 3		176.04
IRRR 344-1975	8.0	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1, 2, 7 & 8, PRM, SECTION C-8, REV. 6, 3/8/85, SEC. 8.4 & 8.5	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1, 2, 7 & 8, PRM, SECTION C-8, REV. 4, 9/10/79, SEC. 8.4 & 8.5		176.05
RG 1.97, REV. 2, 12/80	C1	DC-1010, REV. 4, 6/29/83, TABLE 1, PAGES 143 & 162 (FOOTNOTES, COMMENTS AND SUBSECTION "p")	DC-1010, REV. 2, 7/31/80, TABLE 1, PAGE 126		178.00

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APPENDIX J - SORTED BY NUMBER

DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO
IEEE 344-1975		SEE REMARKS		SEE REF. NO. 176	1206.00
COMPONENTS PREVIOUSLY TESTED TO GENERIC CRITERIA, MULTI-FREQUENCY INPUTS FROM TEST LAB REVIEWED TO ASSURE CONSERVATISM IN AMPLITUDE AND FREQUENCY CONTENT, TRF ENVELOPES RRS OVER CRITERIA FREQUENCY		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 5	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 5		1209.00
SEISMIC - ALL INTERFACES AND EFFECTS OF THE AMPLIFICATION WITHIN THE EQUIPMENT DUE TO THE INTERFACES AND SUPPORTING STRUCTURES ARE CONSIDERED IN THE SEISMIC QUALIFICATION		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1, 2 & 5	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1, 2 & 5		1210.00
IEEE 344-1975, QUALIFICATION BY ANALYSIS W/O TESTING	5	SEE REMARKS		SEE REF. NO. 176.02	1211.00
IEEE 344-1975, QUALIFICATION BY TESTING, MULTI-FREQUENCY OR SINGLE FREQUENCY	6	SEE REMARKS		SEE REF. NO. 176.03	1212.00

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APPENDIX J - SORTED BY NUMBER

DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO

RG 1.109, QUALIFICATION AND DOCUMENTATION PROCEDURES		SEE REMARKS		SEE REF. NO. 175	1228.00
BC-TOP-4A		DC-1005, REV. 1, 4/4/83, SEC. 3	DC-1005, REV. 0, 3/10/80, SEC. 3	RG 1.92 IS USED PER 'QG'	1231.00
IEEE 383-1974 (DAUGHTER STANDARD)	1.3	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3 & 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		1252.00
IEEE 317-1976 (DAUGHTER STANDARD)	6.4	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3 & 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		1253.00
IEEE 323-1974, QUALIFICATION SEQUENCE	6.3	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		1254.00
IEEE 334-1974 (DAUGHTER STANDARD)	5, 6 & 7	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3 & 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		1256.00
IEEE 382-1972 (DAUGHTER STANDARD)	4.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3 & 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		1257.00
RG 1.89		SEE REMARKS		SEE REF. NO. 172	1262.00
IEEE 323-1974, TYPE TESTING	6.3	SEE REMARKS		SEE REF. NO. 173.01	1263.00
RG 1.100		SEE REMARKS		SEE REF. NO. 175	1264.00
RG 1.40		SEE REMARKS		SEE REF. NO. 130	1265.00
RG 1.63	C	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 2		1266.01
RG 1.63	C5	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 5	PRM, APPENDIX 'EA', REV. 2, 10/1/79, SEC. 5		1266.02

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DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO
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NURRG 0588	2.4	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3	PRM, APPENDIX 'EA', REV. 2, 10/1/79, SEC. 3		1269.08
NURRG-0588	3.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3	PRM, APPENDIX 'EA', REV. 2, 10/1/79, SEC. 3		1269.09
NURRG-0588	4.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 1 & 3	PRM, APPENDIX 'EA', REV. 2, 10/1/79, SEC. 1 & 3		1269.10
NURRG-0588	5.0	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 6	PRM, APPENDIX 'EA', REV. 2, 10/1/79, SEC. 6		1269.11
RG 1.131	C	PRM, APPENDIX 'EA', REV. 3, 2/24/84, SEC. 3 & 5	PRM, APPENDIX 'EA', REV. 0, 7/9/76, SEC. 3		1270.00
IEEE 323-1974		SPEC. X4AK01, REV. 7, SEC. 3.3, AND APPENDIX H, I & 1	DELAVAL'S PROPOSAL # 1774 DATED 4/8/76	IEEE 387-1977 REFERS TO IEEE 323-1974	1518.00
IEEE 344-1975		SPEC. X4AK01, REV. 7, SEC. 3.3 AND APPENDIX H, I & 1	DELAVAL'S PROPOSAL # 1774 DATED 4/8/76	IEEE 387-1977 REFERS TO IEEE 344-1975	1522.00
RG 1.4B, REV. 0, 5/73		SEE REMARKS	DC-1017, REV. 0, 1/19/78, SEC. 4.0 AND TABLES 1, 6 THRU 12	SEE SECTION J7, FINDINGS J-1	1544.00
BP-TOP-1	2.0 & 3.0	DC-1017, REV. 4, 8/9/85, SEC. 2	DC-1017, REV. 0, 1/19/78, SEC. 2		1617.00
CP-TOP-1	5.1	DC-1017, REV. 4, 8/9/85, SEC. 2	DC-1017, REV. 0, 1/19/78, SEC. 2		1620.00
BP-TOP-1	5.1 & 5.2	DC-1017, REV. 4, 8/9/85, SEC. 2	DC-1017, REV. 0, 1/19/78, SEC. 2		1622.00
BP-TOP-1	3.2	DC-1017, REV. 4, 8/9/85, SEC. 2	DC-1017, REV. 0, 1/19/78, SEC. 2		1625.00
ASME SEC. III STRESS LIMITS FOR SEISMIC CAT. I ITEMS OTHER THAN NSSS & CLASS 1 BRANCH LINES		SEE REMARKS		SEE REF. NO. 1544	1643.00

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DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO
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IEEE 382-1972, MOTOR OPERATORS		SEE REMARKS		SEE REF. NO. 158	1682.00
ASME III, VALVE STRESS ANALYSIS		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 7	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 7		1683.00
QUALIFICATION METHODS		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1		2006.00
SEISMIC CAT. I MECH. AND ELECT. EQUIP. IS QUALIFIED TO WITHSTAND THE EFFECTS OF SEISMIC LOADS RESULTING FROM ORE AND SSE		SEE REMARKS		SEE REF. NO. 1544 AND 176	2007.00
10CFR50 APPENDIX A	4	DC-1007, REV. 4, 4/30/85, SEC. 1 & 3	DC-1007, REV. 0, 6/6/79, SEC. 1 & 3		2008.00
NORMAL, ABNORMAL AND DBA CONDITIONS FOR EQUIPMENT ENVIRONMENTAL DESIGN		DC-1007, REV. 4, 4/30/85, SEC. 3	DC-1007, REV. 0, 6/6/79, SEC. 3		2010.00
ENVIRONMENTAL QUALIFICATION CONDITIONS		DC-1007, REV. 4, 4/30/85, SEC. 3	DC-1007, REV. 0, 6/6/79, SEC. 3		2011.00
10CFR50 APPENDIX A	GDC 1,2,4	DC-1005, REV. 1, 4/4/83, SEC. 1, 3 & 5, DC-1007, REV. 4, 4/30/85, SEC. 1, 3, 4 & 5, DC-1017, REV. 4, 8/9/85, SEC. 1, 2, 3 & 5	DC-1005, REV. 0, 3/10/80, SEC. 1, 3 & 5, DC-1007, REV. 0, 6/6/79, SEC. 1, 3, 4 & 5, DC-1017, REV. 1, 1/24/83, SEC. 1, 2, 3 & 5		2276.01
10CFR50 APPENDIX A	GDC 14	DC-1017, REV. 4, 8/9/85, SEC. 1, 2, 3 & 5	DC-1017, REV. 1, 1/24/83, SEC. 1, 2, 3 & 5		2276.02

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DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO
SHAFT CLEARANCE DURING SEISMIC EVENT (PUMP OPERABILITY)		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 3		4999.00
VALVE INTERNALS WILL NOT BIND DURING SSE (STATIC DEFLECTION TEST FOR ACTIVE VALVES)		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 4 & 7	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 4 & 7		5000.00
DETERMINE EQUIVALENT ACCELERATION FOR STATIC ANALYSIS AND OPERABILITY TEST (FLEXIBLE VALVES)		SPEC. X4AR17, REV. 7, ATTACHMENT N/A 'QG', SEC. 2, CALC. X4CP-7063, REV. 0, CALC. X4CP-7072C, REV. 1, CALC. X4CP-7072D, REV. 0			5001.00
NOZZLE LOADS CONSIDERED IN THE ANALYSIS (ACTIVE VALVES)		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 7	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 7		5002.00
VALVE ASSEMBLY QUALIFIED BY TEST OR ANALYSIS (VALVE OPERABILITY)		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 7	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 7		5003.00
RG 1.148, POSITION 2.b(3)		DC-1017, REV. 4, 8/9/85, SEC. 3, PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2, 3, 5 & 7	DC-1017, REV. 2, 10/13/83, SEC. 3, PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 2, 3, 5 & 7		5004.00
RG 1.148, POSITION 2.b(4)		PRM, SECTION C-29, REV. 4, 8/8/84, SEC. 29.4	PRM, SECTION C-29, REV. 0, 6/1/78, SEC. 29.3		5005.00
SEISMIC QUAL. PLANS/PROCEDURES SUBMITTED BY VENDORS FOR REVIEW BEFORE TESTING/ANALYSIS		PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1	PRM, APPENDIX 'QG', REV. 0, 11/9/79, SEC. 1		5006.00

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DOCUMENT/FEATURE	SECTION	DESIGN LAST	DESIGN FIRST	REMARKS	REF NO

EQUIPMENT QUALIFICATION DATA PACKAGES		PRM, SECTION C-37, REV. 2, 4/18/85, SEC. 37.4	PRM, SECTION C-37, REV. 0, 2/1/84, SEC. 37.4		5015.00
THE SPECTRA EMPLOYED HAVE BEEN SELECTED TO ENVELOPE PLANT SPECIFIC REQUIRED RESPONSE SPECTRA IN FSAR SEC. 3.7		PRM, SECTION C-37, REV. 2, 4/18/85, SEC. 37.4	SEE REMARKS	NESS SEISMIC REVIEW ADDED IN REV. 2 OF PRM, C-37	5016.00
SYSTEMS DESIGNED TO PERFORM SAFETY-RELATED FUNCTIONS WHILE EXPOSED TO APPLICABLE ENVIRONMENTAL CONDITIONS		PRM, SECTION C-37, REV. 2, 4/18/85, SEC. 37.4	PRM, SECTION C-37, REV. 1, 5/31/84, SEC. 37.4		5017.00
REPLACEMENT PROGRAM - QUALIFIED LIFE LESS THAN 41 YEARS		EQUIPMENT QUALIFICATION DOCUMENT N/A PACKAGE, SEC. G			5018.00
NO UNPROTECTED TERMINAL BLOCKS WILL BE USED IN SYSTEMS WHICH MUST FUNCTION IN THE POST-ACCIDENT ENVIRONMENT	NRC BULLETIN 79-02	ELECTRICAL CONSTRUCTION SPEC. E3AR01, REV. 13, 8/30/85, SEC. E9.6	ELECTRICAL CONSTRUCTION SPEC. E3AR01, REV. 5, 8/26/83, SEC. E9.6		5021.00
STRESS CRITERIA, PUMPS		SEE REMARKS		SEE REF. NO. 1544	5029.00

J4 PROGRAM DESCRIPTION

J4.1 INTRODUCTION

The VEGP equipment qualification (EQ) program was developed to ensure compliance with the environmental and seismic qualification requirements for safety-related equipment in accordance with the applicable licensing commitments. This section describes the EQ program including interfaces between various Vogtle Project organizations responsible for implementing and coordinating the EQ program. The development of the qualification criteria, suppliers' EQ documentation review, and acceptance of equipment qualification by the Equipment Qualification Task Force (EQTF) are addressed in this section.

J4.2 DESIGN CRITERIA

Requirements for the design of safety-related systems and components are provided in various design criteria which are covered in other modules. This appendix addresses the design criteria which are relevant to equipment qualification. The following is a list of EQ-related design criteria:

- DC-1005, Seismic-Interdiscipline.
- DC-1007, Environment-Interdiscipline.
- DC-1010, Project Classification List-Interdiscipline.
- DC-1017, Stress Analysis Criteria.

These design criteria are discussed in the following subsections.

J4.2.1 DC-1005, Seismic-Interdiscipline

DC-1005 provides the criteria and required response spectra (RRS) for seismic qualification of systems and components. The RRS are provided for each floor of every Seismic Category I building. These floor RRS were developed from the seismic analysis of the Category I structures utilizing the appropriate ground motion. The methodology used for seismic analyses of Category I structures is described in section 3.7 of the Final Safety Analysis Report and section 4 of Module 1.

Pertinent RRS taken from DC-1005 are included in procurement specifications with instructions to suppliers that their seismic qualification must envelop the RRS.

Included in these criteria are the guidelines for modeling safety-related valves in the piping analysis. Further, DC-1017 provides the valve acceleration limits of the piping analysis to validate the valve qualification.

J4.3 SPECIFICATIONS AND APPENDIXES

J4.3.1 Procurement Specifications

Safety-related equipment/material specifications are prepared in accordance with the Project Reference Manual (PRM), part C, section 8. These procurement specifications conform to the project design criteria and provide functional operability requirements which must be used in the EQ process. Standard appendixes are used to define and incorporate environmental and seismic qualification requirements in the procurement specification. These standard appendixes are discussed in the following section.

J4.3.2 Equipment Qualification Appendixes

The Project, under the direction of the EQTF, developed environmental Appendix EA and seismic Appendix QG to provide the specific information required for equipment qualification. These appendixes implement requirements of codes and standards identified in the commitment matrix (section J3.4) which do not provide detailed qualification requirements and are not plant specific. The appendixes, together with their attachments, form the basis for the qualification acceptance criteria for most VEGP safety-related equipment.

Approximately 80 percent of the safety-related equipment specifications use Appendix EA and Appendix QG for equipment qualification. The remaining safety-related equipment specifications either use other project appendixes for equipment qualification or have the acceptance criteria for equipment qualification identified in the specification itself. These specifications have been reviewed by the Project Engineering EQ group to ensure conformance to the EQ-related licensing commitments.

J4.3.2.1 Appendix EA and Attachment EA

Appendix EA was developed to provide suppliers with environmental information such as detailed criteria, documentation requirements, and specific Institute of Electrical and Electronic Engineers (IEEE) standards which must be used for the qualification of various types of equipment. Appendix EA provides guidance for environmental qualification which is in accordance with the project licensing commitments to IEEE

responsible project functional disciplines. The procedure used for BOP environmental and seismic qualification documentation review, comment resolution, and document transmittal is in accordance with the Project Reference Manual, part C, section 37, Equipment Qualification.

J4.4.2 Westinghouse Nuclear Steam Supply System Equipment Qualification

Westinghouse is responsible for the qualification and associated documentation for equipment in its scope of supply. Test methodology and equipment qualification data packages (EQDPs) for nuclear steam supply system (NSSS) electrical equipment are provided in Westinghouse qualification documents and WCAP 8587. Corresponding test reports are provided in WCAP 8687. These qualification documents have been approved by the NRC for generic applications with the condition that the qualification parameters in these reports must be reviewed for applicability to plant-specific requirements. NSSS mechanical equipment qualification is documented in WCAP 10856 and shop order GAE/GBE-305.

Westinghouse and the BPC Project Engineering EQ group are responsible for the review of the above Westinghouse documentation to ensure that VEGP-specific requirements are enveloped by the Westinghouse generic EQ program. This review is accomplished through completion of system component evaluation worksheets (SCEWs) for environmental qualification and the master list for seismic qualification. This review is documented in the NSSS EQDP.

J4.5 EQUIPMENT QUALIFICATION DATA PACKAGES

The EQDP is the final document which summarizes the qualification of safety-related equipment. BOP and NSSS EQDPs are discussed in the following sections and listed in Table J4-1.

J4.5.1 Balance-of-Plant Equipment Qualification Data Packages

Pertinent equipment qualification documentation is assembled during the preparation of EQDPs and reviewed for adequacy by BPC Engineering with assistance from the outside consultant. EQDPs are finally reviewed and accepted by the EQTF.

The EQDP is organized to ensure that documentation necessary to demonstrate qualification of safety-related equipment purchased under the corresponding equipment specification is available for audit. The EQDPs are assembled for individual components or a series of components procured under a given specification and include information necessary to document the compliance with

describes the procedures and controls used for disposition of EQDP open items. Additional open items, which may develop after issuance of EQDPs, are dispositioned using the program for completion of work (PCW) action item list. The PCW and PCW action item list are addressed in the PRM, part C, section 38.

J4.6 CONSTRUCTION

J4.6.1 Construction Specifications

Construction specifications were prepared by BPC Engineering in accordance with the PRM, part C, section 26, and are classified under the project classification system which identifies safety-related and nonsafety-related specifications.

Safety-related construction specifications are used for the installation of equipment within the scope of the EQ program. These specifications contain provisions to ensure that equipment qualification is maintained by utilizing appropriate supplier drawings and installation manuals. These specifications are prepared by BPC Project Engineering to ensure that equipment installation is in compliance with EQ requirements.

J4.6.2 Field Change Requests and Deviation Reports

Field Change Requests (FCRs) pertaining to EQ are processed in accordance with PRM part C, section 17. Similarly, PRM part C, section 18, establishes the processing of Deviation Reports (DRs) and Operational Deficiency Reports (ODRs). In addition, PRM appendix 2, Engineering Field Procedures, section 16, Project Field Engineering Equipment Qualification/Hazards Interface, provides the guidelines for determining possible impact of field modifications on equipment qualification and the methods to ensure that an FCR or a DR does not invalidate the seismic or environmental qualification of the equipment.

J4.7 CHANGES TO SUPPLIERS' EQUIPMENT AT JOBSITE

PRM, part C, section 24, provides instructions for preparing and controlling requested changes originated by Engineering to suppliers' equipment after it has been delivered to the jobsite or to equipment still at the supplier's facilities but at a point of manufacturing that precludes further changes by the suppliers.

TABLE J4-1 (Sheet 1 of 3)

LISTING OF EQDPs

<u>EQDP No.</u>	<u>Equipment Description</u>
X2AG07	Containment Locks and Hatches
X3AA04	Regulated Transformer
X3AB03	Penetrations
X3AB05	4.16 kV Cable Bus
X3AC01	13.8 kV and 4.16 kV Switchgear
X3AC02	480 V Switchgear and Substation
X3AC03	480 V Motor Control Center
X3AD01	Batteries and Battery Chargers
X3AD02	125 Vdc Motor Control Center
X3AD03	125 Vdc Switchgear
X3AE01	Electrical Auxiliary Boards
X3AE03	SF Sequencer Boards
X3AE06	Isolation Device Panels
X3AE08	Auxiliary Relay Panels
X3AF01	Distribution Panels
X3AH05	Junction Boxes
X3AJ01A	5 kV and 15 kV Power Cable
X3AJ01B	5 kV and 15 kV Power Cable
X3AJ02	600 V Power and Control Cable
X3AJ04A	Instrument and Speciality Cables
X3AJ04B	Instrument and Speciality Cables
X3AJ06	Cable and Wire Connectors
X3AJ11B	Cable Terminal Material

TABLE J4-1 (Sheet 2 of 3)

<u>EQDP No.</u>	<u>Equipment Description</u>
X3AQ03	Inverters
X4AD02	Nuclear Service Cooling Water Tower
X4AE01	Component Cooling Water Heat Exchanger
X4AF01	Component and Auxiliary Component Cooling Water Pumps
X4AF02	Nuclear Service Cooling Water and Transfer Pumps
X4AF03	Auxiliary Feedwater Pumps
X4AF04	Diesel Fuel Oil Transfer Pumps
X4AF26	Positive Displacement Pump Suction Damper
X4AH03	field Erected Tanks
X4AH04	Shop Fabricated Tanks
X4AJ01	HVAC Duct Fabrication and Installation
X4AJ02	ESF Fans
X4AJ04	ESF Chillers
X4AJ05	ESF Chilled Water Pumps
X4AJ06	ESF HVAC Units
X4AJ07	ESF Air Cleaning Units
X4AJ16	Containment Cooling Unit
X4AJ20	HVAC Damper and Actuators
X4AJ32	Tornado Dampers
X4AJ34	ESF HVAC Fans
X4AK01	Diesel Generator and Auxiliaries
X4AN06	Backflushable Filters
X4AR00	Nuclear Valves, 2-inch and Smaller
X4AR01	Nuclear Valves, 2 1/2-inch and Larger

TABLE J4-1 (Sheet 3 of 3)

<u>EQDP No.</u>	<u>Equipment Description</u>
X4AR04 & X4AR04B	Nuclear Diaphragm Valves
X4AR17	Main Steam Isolation Valves
X4AR19	Main Feedwater Isolation Valves
X4AR21	Nuclear Spring Check Valves
X4AR23	Nuclear Service Valves
X4AR27	Seatless Check Valves
X5AA04	HVAC Gas Analysis
X5AA05	Containment Hydrogen Monitoring
X5AB01	Miscellaneous Control Panels
X5AC01	Nuclear Service Control Valves
X5AC03	Small Butterfly Valves
X5AC05	Safety and Relief Valves
X5AC07	Nuclear Solenoid Valves
X5AC13	Atmospheric Steam Dump Valves
X5AD04	Pressure Transmitters
X5AD07	Level and Pressure Transmitters
X5AE06	Resistance Temperature Detector Thermowells
X5AF02	Level Float Switches
X5AF05	Level Detection Switches
X5AG08	Instrument Valves and Manifold
X5AG14	Pitot Flow Sensors
X6AA15	Westinghouse Equipment

J5 AUDITS AND SPECIAL INVESTIGATIONS

During the design and construction phase of the VEGP, the equipment qualification (EQ) program was reviewed and audited by Georgia Power Company (GPC) Quality Assurance (QA), Southern Company Services, Inc. (SCS) QA, Bechtel Power Corporation (BPC) QA, Institute of Nuclear Power Operations (INPO), and the Nuclear Regulatory Commission (NRC) to ascertain whether safety-related equipment is being procured, qualified, and installed in accordance with the applicable licensing commitments and project procedures.

During the preparation of this appendix, audit reports pertaining to the equipment qualification program were reviewed. In most cases, the audits covered several aspects of the project; however, only those related to EQ are addressed in this appendix. Summaries of the more significant audit findings are provided below. An audit finding matrix is provided at the end of this section. Each of the audit findings was reported to project management and received an evaluation that included an assessment of its impact on the quality of safety-related equipment, corrective action taken, and action to preclude recurrence. The Readiness Review Team used the results of the various audits, evaluations, inspections, and records of past problems as an aid in developing the assessment program described in section J7.1.

J5.1 GPC QA AUDITS

The GPC QA Department conducts regularly scheduled audits to verify VEGP compliance with licensing commitments and applicable project documents. There was one GPC audit dedicated to the assessment of balance-of-plant (BOP) equipment qualification which resulted in four Audit Finding Reports (AFRs). In addition, there were 16 EQ-related AFRs issued during GPC QA audits of other activities.

Summary descriptions of the findings are presented in the findings matrix at the end of this section. Two of the findings are programmatic and address the interface between design and maintenance concerning safety-related equipment. These findings are discussed below.

J5.1.1 Audit Finding Report 831

Audit SP01-85/63 identified problems in the area of GPC maintenance of safety-related equipment. Specifically, established guidelines and/or requirements lacked sufficient details for Maintenance Department EQ personnel to control the EQ-related equipment maintenance or replacement requirements for equipment qualified to a shorter plant life.

April 18, 1985, to provide guidelines for NSSS EQ review and documentation.

J5.3.2 Audit Finding Report 84-16

The auditors could not determine whether a maintenance/surveillance program to address age-related degradation of safety-related equipment to its end-of-life condition had been established.

Corrective action was taken by GPC Nuclear Operations. A maintenance/surveillance program was implemented and is controlled by procedure 20015-C, Planned Maintenance. Special qualification maintenance/surveillance information is incorporated into the planned maintenance program; this input will be administratively controlled by procedure 55002-C, Environmental and Seismic Equipment Qualification Program. Subsequent to this finding, procedure 20009-C, Equipment Qualification Implementation, was developed to provide additional administrative controls as described in section J5.1.1.

J5.3.3 Audit Finding Report 84-21

The auditors identified a problem area concerning equipment installation compliance with seismic qualification requirements.

BPC responded by revising PRM, part C, section 37, on April 18, 1985, to include the requirement that equipment mounting condition data sheets (EMCDS) be reviewed and incorporated into each EQDP to document equipment installation conformance to seismic qualification requirements.

J5.4 INPO AND SIE EVALUATIONS

The Vogtle Project participated in two INPO project evaluations, one in 1982 and one in 1984. The 1982 evaluation, also referred to as the Self-Initiated Evaluation (SIE), was conducted by a GPC-assembled team of GPC, SCS, and BPC off-project personnel using the INPO evaluation methods and criteria. Four findings were written against the EQ program in the 1982 SIE and one in the 1984 INPO evaluation. These findings are listed in the findings matrix at the end of this section. The more significant findings are addressed below.

J5.4.1 Self-Initiated Evaluation Finding DC.1-9

The audit group reported that plant-specific analyses were not available to verify some environmental parameters supplied to

J5.6 INDUSTRY CONCERNS

Inspection and Enforcement (IE) Bulletins 79-01, 79-01A, and 79-01B expressed an NRC concern relative to environmental qualification deficiencies reported by operating nuclear plants. Licensees were requested to provide written evidence of the qualification of electrical equipment required to function under postulated accident conditions. Particular attention was given to specific equipment that did not meet the regulatory requirements. In IE Bulletin 79-01B, including Supplements 1, 2 and 3, guidelines were provided to evaluate the existing EQ program, and the licensees were required to report the results of their evaluation to the NRC.

VEGP was not required to respond to these NRC bulletins as they addressed operating plants. However, VEGP held several meetings on the project to discuss the IE Bulletins, which resulted in the NRC guidelines being incorporated into the EQ program.

FINDINGS

APPENDIX J - SORTED BY INIT. ORG. & FINDING NUMBER

INIT ORG	AUDIT NUMBER	FINDING NUMBER	LEVEL	DATE	SUBJECT	REMARKS	NUMBER
BPC		VH-85/079-03		06-17-85	THE STANDARDS SHOWN ABOVE ARE NOT INCLUDED IN SECTION 2.0 OF SPEC. X4AJ16 REV. 7. TECHNICAL PROVISION FOR CONTAINMENT COOLING UNITS.		2255
GPC-QA	MD03-81/73	253		09-09-81	PUMPS - DESIGN, FAB. & INSTALLATION. CONFLICTS BETWEEN SPECS. & PROCEDURES.	10CFR50, APP. B, CRITERIA V. (CLOSED 02-15-82)	810
GPC-QA	MD03-82/85	320		07-20-82	PUMPS - MATERIALS - EQUIPMENT QUAL. & LOAD TESTS TO BE SUBMITTED WITH SHIPMENT.	SPEC. X4AF03, REV. 4, PARA. 15.0 (CLOSED 11-04-82)	877
GPC-QA	MD03-83/28	419	III	04-10-83	PUMPS - FAB. & INST. LOCKING OF FASTENERS INCOMPLETE/UNVERIFIED.	10CFR50, APP. B, CRITERION V. (CLOSED 09-14-83)	976
GPC-QA	MD03-83/28	420	III	04-14-83	PUMPS - DESIGN - FAB. - SHIM PLACEMENT NOT PROPER.	10CFR50, APP. B., CRITERION V. (CLOSED 08-04-83)	977
GPC-QA	ED03-83/46	438	II	05-23-83	LOCA ENVIRONMENTAL QUALIFICATION OF TEFLON CABLE TIES	SPEC. X3AH08, R/3, PAR. 3.0.A. (CLOSED 08-31-83)	995
GPC-QA	ED03-83/79	497	II	08-19-83	ELECTRICAL - ENVIRONMENTAL QUALIFICATION OF CABLES	APP. EA, ENV. QUAL. (CLOSED 03-08-84)	1054
GPC-QA	ED04-83/111	541	III	11-21-83	ENVIRONMENTAL QUALIFICATION	10CFR50, APP. B., CRITERIA VI (CLOSED 03-20-84)	1098
GPC-QA	ED04-83/111	542	III	11-21-83	EQUIPMENT QUALIFICATION - CABLE DESIGN LIFE	10CFR50, APP. B., CRITERIA III (CLOSED 05-16-84)	1099
GPC-QA	ED04-83/111	543	I	11-21-83	ELECTRICAL - CABLE ENVIRONMENTAL QUALIFICATION	10CFR50, APP. B., CRITERIA VI (CLOSED 02-07-84)	1100
GPC-QA	ED04-83/111	544	II	11-21-83	CABLE AND WIRE CONNECTORS - ENVIRONMENTAL QUALIFICATION CABLE TERMINATIONS	BECHTEL SPEC. X3AJ06, REV. 3, SECT. 5.3 (CLOSED 09-10-84)	1101

FINDINGS

APPENDIX J - SORTED BY INIT. ORG. & FINDING NUMBER

INIT ORG	AUDIT NUMBER	FINDING NUMBER	LEVEL	DATE	SUBJECT	REMARKS	NUMBER
INPO		DC.3-1		1984	PREPARATION AND VERIFICATION OF CALCULATIONS		1426
NRC-INS	80-12	80-12-01	LIC. I.	09-09-80	HOLDDOWN BOLTING MATERIAL DEF.	CLOSED 08-06-81 (NRC AUDIT 81-08)	1547
NRC-INS	80-15	80-15-02	LIC. I.	09-29-80	HYDROGEN RECOMBINER POWER TRANSFORMER DEF.	CLOSED 05-11-82 (NRC AUDIT 82-08)	1558
NRC-INS	81-02	81-02-04	LIC. I.	01-06-81	THREE INCH GATE VALVE CLOSURE PROBLEM DEF.	CLOSED 02-14-83 (NRC AUDIT 83-02)	1568
SCS-QA		84-12	III	11-15-84	WESTINGHOUSE NSSS EQUIPMENT QUALIFICATION - BECHTEL REVIEW/ACTION.		2191
SCS-QA		84-13	III	11-15-84	EQUIPMENT QUALIFICATION OF NON-SAFETY RELATED EQUIPMENT WHICH MAY AFFECT SAFETY-RELATED ITEMS.	10CFR50.49, PAR. (b)(2) I.F. NOTICE 79-22 SER PARA 7.7.22, CLOSED 05-17-85.	2192
SCS-QA		84-14	III	11-15-84	ADMINISTRATIVE PROCEDURES TO SUPPORT NRC SITE AUDIT OF EQUIP. QUAL.	FWR FSAR SECT. 3.11 (CLOSED 08-16-85)	2193
SCS-QA		84-15	III	11-15-84	CENTRAL FILING OF EQDPS AT SITE TO SUPPORT NCR AUDIT.	SER SECT. 3.10, 10CFR50, APP. B (CLOSED 08-16-85)	2194
SCS-QA		84-16	III	11-15-84	MAINTENANCE/SURVEILLANCE PROGRAM FOR SAFETY/RELATED EQUIPMENT	SER SECT. 3.10, CLOSED 05-17-85	2195
SCS-QA		84-17	II	11-15-84	EQDPS ADDRESS OF EXCEPTIONS TO SPECIFICATIONS AND JUSTIFICATION. INADEQUACIES IN TEST RESULTS.	FSAR-TABLE 3.11.B.1-2, EQDP X3AJ01A, X3AJ01B, NUREG 0588	2196
SCS-QA		84-18	II	11-15-84	EQDP - MINIMUM TORQUE REQUIREMENTS MISSING	APPENDIX QG- SECT. 2.1.1 EQDP-X3AH05, CLOSED 05-17-85	2197
SCS-QA		84-19	II	11-15-84	SPECIFICATION VIOLATION - JUSTIFICATION OF STATIC ANALYSIS.	APP. QG - SECT. 3.5 EQDP X4AJ01, CLOSED 05-17-85	2198

J6.0 PROGRAM CHANGES

Prior to March 1979, various appendixes were used in the procurement specification to qualify safety-related equipment. These appendixes were sufficient to meet the VEGP licensing commitments. However, due to uncertainties in the industry regarding equipment qualification (EQ) requirements which would be imposed on nuclear plants, Georgia Power Company and Southern Company Services, Inc., requested the Equipment Qualification Task Force to evaluate the industry concerns and prepare seismic qualification Appendix QG and environmental qualification Appendix EA. These two appendixes would establish the EQ requirements for VEGP safety-related equipment.

Appendix QG provides specific guidelines and acceptance criteria for seismic analysis and testing including the excitation wave form, operability procedures, and instrumentation to be used during testing. This appendix also covers several areas of seismic qualification over and above the VEGP licensing commitments; specifically, three-dimensional testing, input wave form, etc. Similarly, Appendix EA provides qualification guidelines and acceptance criteria for environmental qualification of VEGP equipment.

Appendixes QG and EA were transmitted to VEGP suppliers as an addendum to the procurement specification.

J7 EQUIPMENT QUALIFICATION PROGRAM VERIFICATION

This section describes the verification activities performed to ascertain whether the equipment qualification (EQ) program has implemented the VEGP licensing commitments. This verification has been divided into two parts. Part I (section J7.1) addresses the commitment implementation verification performed as a part of this appendix and Part II (section J7.2) summarizes the results of EQ verifications performed in other modules and in the Independent Design Review (IDR).

J7.1 PART I - COMMITMENT IMPLEMENTATION VERIFICATION PERFORMED IN APPENDIX J

This section describes the EQ program verification, resultant findings, and corrective actions for Appendix J. Approximately 500 man-hours were expended by the Readiness Review Team during the verification. The four members of the team have a cumulative professional experience of 43 years in power plant design, including 20 years of equipment qualification experience.

This EQ program verification addressed the programmatic aspects of equipment qualification. Programmatic verification is a review of design documents to ascertain whether the EQ program was conducted in conformance to licensing commitments and program procedures.

This verification took place in two phases. In Phase 1, commitments identified within the scope of this appendix were reviewed for implementation in project design criteria and procedures. In Phase 2, selected commitments were further reviewed for implementation in second level documents such as specifications, equipment qualification data packages (EQDPs), supplier qualification reports, drawings, etc.

J7.1.1 Scope and Verification Plan

The scope of the Part I EQ program verification and the plan implemented during the performance of this verification are presented below.

J7.1.1.1 Scope

The scope of the EQ program verification includes seismic and environmental qualification of safety-related balance-of-plant (BOP) and nuclear steam supply system (NSSS) equipment. The term "safety-related equipment" is used throughout this section to mean safety-related equipment and project-specified post-accident monitoring equipment. The BOP EQ verification included the programmatic aspects of the BOP EQ program. However, since EQ methodology and qualification reports for NSSS

program. The documents reviewed included representative samples of EQDPs and their backup data; i.e., supplier qualification reports, drawings, etc. These EQDPs are listed in Table J7-1.

The commitments for the detailed review were selected on the basis that they provide a cross-section of the requirements pertaining to seismic and environmental qualification of safety-related equipment.

Section J7.1.2 provides a discussion of the results of the EQ program verification. Section J7.1.3 addresses the verification findings, including project responses and Readiness Review conclusions.

J7.1.2 Results and Discussions

This section describes the results of Phases 1 and 2 of the EQ verification program. Included in this presentation are the types of documents reviewed and a description of the findings.

J7.1.2.1 Phase 1 Verification Results

The first phase of the EQ program verification was the development of the implementation matrix, as discussed in section J7.1.1. EQ-related licensing commitments were checked to ascertain whether they were incorporated into the applicable section or appendix of the PRM, DC or other project document. Included in this effort was a review of the documents (i.e., Regulatory Guides, Institute of Electrical and Electronic Engineers (IEEE) standards, design codes, Bechtel Topical Reports, etc.) to ensure that the required features were correctly interpreted and implemented in the project documents. Table J7-2 provides a list of the project documents reviewed.

Phase 1 of the verification determined that 64 out of 65 unique commitments were appropriately implemented. One out of 65 commitments resulted in Finding J-1 (Level II). The remaining 33 commitments duplicate one of the unique 65 commitments.

J7.1.2.2 Phase 2 Verification Results

In Phase 2, 19 of the 65 unique commitments were selected from the commitment matrix (section J3.4) for a review to ascertain whether they have been consistently and correctly implemented during the qualification process. These commitments were selected based on the broadness of their application. Of the 19 commitments, 11 related to seismic qualification and the remaining 8 related to environmental qualification. Also included in the second level verification were commitments pertaining to NSSS EQ and post-accident monitoring equipment.

specifications reviewed. This resulted in Finding J-4 which is discussed further in section J7.1.3.

J7.1.2.5 Procurement Specifications and Qualification Appendixes

Qualification appendixes are controlled project documents and are included in Appendix 1 of the PRM. As discussed in section J4.3, the majority of the BOP safety-related specifications cite standard Appendix QG or EA to specify the seismic or environmental requirements, respectively. Therefore, as the implementation matrix was developed in Phase 1 of the verification, the control document referenced for first level implementation was the applicable appendix, QG or EA.

As a part of this verification, a review of the safety-related equipment specifications was performed to determine whether Appendixes QG or EA were included in the specification. This review determined that wherever these standard appendixes were not being used, Bechtel Power Corporation (BPC) Project Engineering had provided qualification criteria that was in compliance with VEGP licensing commitments either by use of other appendixes that are equipment-specific or by addressing the qualification criteria in the specification itself.

J7.1.2.6 Nuclear Calculations

As discussed in section J4.2.2, the environmental parameters in DC-1007 are developed using guidelines presented in applicable regulatory guidelines including NUREG-0588. The verification of project conformance to VEGP licensing commitments with regard to NUREG-0588 was accomplished through the review of VEGP nuclear calculations.

NUREG-0588, positions 1.1 and 1.2, address the generation of EQ temperature and pressure profiles that envelop the adverse environmental conditions of either a loss-of-coolant accident (LOCA) or a main steam line break (MSLB). A review of the VEGP LOCA and MSLB calculations was performed to verify that the computer code COPATTA was used and that the input to the code was based on the VEGP-specific design. In addition, the results of these calculations were compared to the EQ pressure and temperature profiles maintained in VEGP design criteria document DC-1007 to verify that the EQ profiles envelop the potential LOCA and MSLB conditions.

Position 1.4 addresses the determination of radiation conditions, inside and outside containment, to which equipment must be qualified. A review of VEGP radiation source and shielding calculations was performed to determine whether the assumptions, outlined in Position 1.4, were included in the calculations. The review addressed the incorporation of the following in the calculations:

Project Response: Specifications X4AF03 and X4AF04 will be revised to incorporate the appropriate stress limits from the FSAR table. The corresponding qualification reports have been rereviewed for conformance to the revised specifications. The Project has concluded that qualification reports for pumps procured under specification X4AF04 incorporate the stress limits specified in the FSAR, Table 3.9.B.3-5. For the pumps procured under specification X4AF03, Project has performed additional analysis to confirm the the pumps meet the stress criteria specified in the FSAR.

Procurement specifications for active pumps and valves will be reviewed and revised, if required, for conformance to stress limits, and the corresponding qualification reports will be reviewed for conformance to revised specifications. Stress limits and loading combinations for active and inactive equipment will be reinstated in applicable design criteria. The above corrective actions will be completed by May 1, 1986.

Readiness Review Conclusion: The response is acceptable. The Project corrective action will ensure implementation of licensing commitments for stress limits on active pumps.

o Finding J-4 (Level II)

Finding: In accordance with FSAR Section 3.11.B, safety-related equipment is qualified to perform its design function under normal, abnormal, and design basis accident (DBA) plant-specified conditions. These conditions are specified in design criteria document DC-1007 and provided to the suppliers in Attachment EA of the safety-related equipment specification. The Readiness Review Team performed a review of 17 equipment specifications to determine whether Attachment EA in the specifications has been updated to reflect Revision 4 of DC-1007, dated April 30, 1985. Six specifications were found not to be updated.

Project Response: Revisions to DC-1007 are formally reviewed by the project to determine the potential impact to equipment. Because of the review, no potential hardware changes are anticipated. The safety-related specifications that use data from DC-1007 will be reviewed for conformance to the latest revision of DC-1007. In cases where the data in the specifications do not conform to the latest revision of DC-1007, the specifications will be revised and the corresponding equipment qualification reports will be reviewed by June 1, 1986, for conformance to the revised specifications. Future revisions to DC-1007 will be reviewed for impact on safety-related equipment

B. The Readiness Review Team performed a preliminary review of two "in progress" EQDPs, since there were no completed EQDPs for mechanical equipment at the time of the verification review. It was concluded that for the stage of development of the qualification packages, they were in compliance with project procedures. These EQDPs are listed in Table J7-3.

There were no EQ-related findings issued as a result of the above review. More detailed information about these activities can be found in section 6.1.3 of Module 4.

J7.2.2 Module 6, Electrical Equipment

EQ-related activities evaluated by the Readiness Review Team in the design program verification of Module 6 included a review of eight specifications and the corresponding EQDPs using checklists. The Readiness Review Team also performed a walkdown of representative equipment procured under each specification to verify that licensing commitments and design requirements were correctly implemented in the installation process. The selected equipment and EQDPs are listed in Table J7-3.

There were no significant findings issued as a result of the specification or EQDP review related to EQ. The Readiness Review Team concluded that VEGP licensing commitments and project procedures had been properly implemented.

The equipment walkdown resulted in two findings related to deficiencies in defining and implementing seismic clearances around safety-related electrical equipment. The Project has performed a walkdown of the safety-related floor- and wall-mounted electrical equipment in Unit 1 and has either confirmed or taken corrective action to ensure that separation requirements are met.

More detailed information on the EQ-related activities performed in Module 6 can be found in sections 6.1.3 and 6.1.4 of the module.

J7.2.3 Module 7, Plant Operations and Support

EQ-related activities to be performed during plant operation were covered in Module 7. The Readiness Review team reviewed EQ-related licensing commitments during plant operations to ensure that Georgia Power Company (GPC) Nuclear Operations Department had approved procedures for implementation of these commitments or that the procedures were in draft. There were no findings issued as a result of this review.

lack of inclusion of vendor mounting details for transmitters on installation drawings. This resulted in Finding 16-13. The project committed to reinstalling the affected transmitters and revising affected drawings to conform to vendor's qualification requirements.

The program for comparison of environmental qualification levels was reviewed. The NSSS equipment evaluated in this review is listed in Table J7-3. The Readiness Review Team concluded that, although work was still in progress in this area, a complete program exists to provide a comparison of environmental qualification conditions with location-specific environmental requirements for applicable equipment. There were no findings issued as a result of this review.

More detailed information on the EQ-related activities performed in Module 16 can be found in sections 6.1.3 and 6.1.4 of the module.

J7.2.7 Module 17, Raceways

EQ-related activities evaluated by the Readiness Review Team in the design program verification of Module 17 included the following:

- A. The EQDP for junction boxes was reviewed, using the applicable checklist, to ensure compliance with project procedures and industry standards. There were no findings written as a result of this review. This EQDP is listed in Table J7-3.
- B. A review was performed on construction specification X3AR01. During the review, the Readiness Review Team identified that the guidelines provided in the specification for rigidly attaching cable trays to junction boxes, switchboards, and other enclosures could invalidate seismic qualification of safety-related equipment. This resulted in Finding 17-13. In response to this finding, the Project reviewed Unit 1 cable tray installation and verified that none had been attached to safety-related equipment using these guidelines. The cable trays were installed in accordance with drawing CX3DF001, which prohibits rigid attachment of cable trays to safety-related electrical equipment. Construction specification change notice 363 was written on July 16, 1985, to revise specification X3AR01, section E8, to conform to drawing CX3DF001.

More detailed information on the EQ-related activities performed in Module 17 can be found in sections 6.1.3 and 6.1.4 of the module.

TABLE J7-1 (SHEET 1 OF 10)

COMMITMENTS VERIFICATION MATRIX

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
154	Were the damping values per NRC Regulatory Guide 1.61, Rev. 07	Auxiliary Feed-water Motor-Driven Pump, 1-1302-P4-002	4, IDR	X4AF03(1)	X4AF03-222-4	Appendix A, Section A.4	24	Pump is shown rigid by test and analysis; static analysis with 1g SSE was used. Damping doesn't apply in rigid range.
		Control Room Air Handling Unit, 1-1531-N7-002	N/A	X4AJ07(1)	X4AJ07-571-2, Vol. 1	Section III	16	Vol. 1 contains design criteria and methodology.
174	Were the modal responses and spatial components combined in the seismic analysis in accordance with NRC Regulatory Guide 1.92, Rev. 17	Auxiliary Feed-water Motor-Driven Pump, 1-1302-P4-002	4, IDR	X4AF03(1)	X4AF03-222-4	Appendix A, Section A.4	24	Spatial components addressed. Pump is rigid, hence modal responses are irrelevant.
		Control Room Air Handling Unit, 1-1531-N7-002	N/A	X4AJ07(1)	X4AJ07-571-2, Vol. 1	1.3	11	Vol. 1 contains design criteria and methodology

TABLE J7-1 (SHEET 2 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
17B	Was the equipment qualified in accordance with IEEE 323-1974 and 344-1975 to comply with NRC Regulatory Guide 1.97, Rev. 2?	Post-Accident Monitoring (PAMS) Condensate Storage Tank Level Indicator, 1-L1-5111A	N/A	X6AA15(1)	X6AA10-123-25 ESE-14	2.9, 2.10 Figure 2, and Table 1	9 to 12 16, and 18	
		Post-Accident Containment Hydrogen Monitor, 1-1513-P5-HMA	N/A	X5AA05, Rev. 0	X5AA05-40-1 X5AA05-44-3	1.0, 1.1, 1.2 1.0	8 to 11 1, 3, 88, 89	Equipment qualified to IEEE 344-1975. Panel by analysis, system by testing.
					X5AA05-33-6	N/A	213, 214, 216, 221	Equipment qualified to IEEE 323-1974.
1016	Were the three components of earthquake motion addressed during seismic testing using the guidelines presented in IEEE 344-1975?	Motor Control Center (MCC), 1-1805-S3-ABC	6, IDR	X3AC03, Rev. 1	X3AC03-2400-3	5.5, 5.6	12	Tests performed on 4-bay MCC.
		4.16 kV Metal Clad Switchgear, 1-1804-S3-A02	IDR	X3AC01, Rev. 1	X3AC01-5157-1	Appendix 11, Section 6.1	6	

TABLE J7-1 (SHEET 3 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
4999	Was the shaft clearance verified in the seismic analysis?	Auxiliary Feed-water Motor-Driven Pump, I-1302-P4-002	4, IDR	X4AF03(1)	X4AF03-222-4	3.3.1, and Appendix E, Section E.2	16, 102	
		Component Cooling Water Pump, I-1203-P4-001	IDR	X4AF01, Rev. 1	X4AF01-105-6	Appendix E, Appendix F	N/A, 6a	
5000	Did the valve internals bind during the static deflection tests for active valves?	4"-900# Gate Valve with Limitorque Operator, I-HV-3009	IDR	X4AR01, Rev. 0	X4AR01-534-5	6.0, Table 1	2, 3, 4	
		4"-900# Globe Valve with Limitorque Operator, I-HV-5125	IDR	X5AC01, Rev. 0	X5AC01-262-3	Attachment 5	133	

TABLE J7-1 (SHEET 4 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
5002	Were nozzle loads considered in the seismic analysis of the active valve?	4"-900# Gate Valve with Limitorque Operator, I-HV-3009	IDR	X4AR01, Rev. 0	X4AR01-574-1	V	19	Piping end reactions per NC-3521(a).
		4"-900# Globe Valve with Limitorque Operator, I-HV-5125	IDR	X5AC01, Rev. 0	X5AC01-262-3	2.5, Attachment 1	7, 48	Piping end reactions per NC-3521(a).
1682	Were the valve motor operators qualified to the requirements of Section 4 of IEEE 382-1972?	Gate Valve with Limitorque SMB-000-15 Operator, I-HV-3009	IDR	X4AR01, Rev. 1	X4AR01-434-4	Report B0058, Sec. 5.0	33, 34	Both valve operators have dc Limitorques.
						Report B0009, Sec. 1-5	240 - 252	
		Globe Valve with Limitorque SB-00-15 Operator, I-HV-5125	IDR	X5AC01, Rev. 1	Same as above	Same as above	Same as above	Same as above.

TABLE J7-1 (SHEET 5 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
500B	Was single frequency testing done for line-mounted valve?	4"-900# Gate Valve with Limitorque Operator, I-HV-3009	IDR	XAR01, Rev. 0	X4AR01-434-4	9.0	74B	Valve body demonstrated to be rigid ($f_n > 33$ Hz) by analysis and resonance testing (X4AR01-574-1 and X4AR01-511-3). Limitorque operator tested per generic report X4AR01-434-4. Namco limit switch tested per generic report X4AJ20-146-7.
					X4AJ20-146-7	7.3 to 7.5, 7.12	43 to 47, 48D	
		4"-900# Globe Valve with Limitorque Operator, I-HV-5125	IDR	X5AC01, Rev. 0	X4AR01-434-4	9.0	74B	valve body demonstrated to be rigid ($f_n > 33$ Hz) by analysis and resonance testing (X5AC01-262-3). Limitorque operator tested per generic report X4AR01-434-4.

TABLE J7-1 (SHEET 6 OF 10)

Commit- ment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
5007	Did the equipment perform its safety-related functions before, during, and after five OBEs and one SSE?	Motor Control Centers (MCC), 1-1805-S3-ABC	6, IDR	X3AC03, Rev. 1	X3AC03- 2400-3	Appendix G, Section G2, G4, G6 to G8	N/A	Tests performed on 4-bay MCC.
		4.16 kV Metal Clad Switch-gear, 1-1804-S3-A02	IDR	X3AC01, Rev. 1	X3AC01- 5157-1	Appendix 11, Sections 5.8, 6.7, and 6.8	5, 9	
5016	Did the required response spectra (RRS) used for qualification envelop the plant specific RRS provided in FSAR Section 3.7 (MSSS)?	Solid State Protection System (SSPS) Cabinet, 1-1605-Q5-SPA	16	X6AA15(1)	X6AA10- 123-25	ESE-16	30	Enveloped RRS curves in DC-1005, p. 131 and 132.
		Nuclear Instrument System (NIS) Console, 1-1602-Q5-NIR	N/A	X6AA15(1)	X6AA10- 123-25	ESE-10	21	Enveloped RRS curves in DC-1005, p. 131 through 134.

TABLE J7-1 (SHEET 7 OF 10)

Commit- ment Number	Requirement	Equipment Description and Tag No.	Module		Verification			Comments
			Ref.	EQOP	Report No.	Section No.	Page No.	
5011	Was this equip- ment designed to perform its safety-related function while in long term contact with a combined boric acid-sodium hy- droxide solution?	600 V Power and Control Cable	12	X3AJ02, Rev. 2	X3AJ02- 7-2	1.4.1	5,6,33, 49	
		Containment Low Voltage Large Conductor Electric Pene- tration Assembly, 1-1818-H3-P70	IDR	X3AB03, Rev. 1	X3AB03- 110-7	5.14.9, Figure 5.14.5	076, 077	
5018	Was the qualified life of less than 41 years stated? If so, was a re- placement require- ment identified?	Containment Medium Voltage Electrical Penetration Assembly, 1-1818-H3-P08	6, IDR	X3AB03, Rev. 1	X3AB03- 110-7	N/A	005, 006	No replacement program required, as equipment qualified for 41 years.
		125 Vdc Battery and Charger, 1-1806-B3-BYD 1-1806-B3-CAA	6	X3AD01, Rev. 1	X3AD01- 179-1 X3AD01- 118-2	8.0 11.	054 056	Replacement program was verified in EQOP X3AD01, Section G.

TABLE J7-1 (SHEET 8 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
5017	Was the NSSS equipment designed and qualified to perform its safety-related function while exposed to the applicable environmental conditions?	Differential Pressure Transmitter (PDT), Barton Model No. 764	N/A	X6AA15(1)	X6AA10-124-27, WCAP B687, E03A	2-5,7	2, 3, 4, 5, 8, 12, 14, 14a, and 20	
					X6AA10-123-25, WCAP B587, ESE-3A	2.10, 2.12	12, 13	
					X6AA10-124-27, WCAP B687, H03A/H06A	4, 7	8, 9, 20, 21, 23, 35, 49, and 60	
		Externally Mounted Limit Switch, NAMCO EA18012303	N/A	X6AA15(1)	X6AA10-123-25, WCAP B587, HE-3/HE-6	2.10	12	
2010	Were the normal, abnormal, and DBA conditions used for the equipment environmental design and qualification?	Containment Medium Voltage Electrical Penetration Assembly, I-1818-H3-P08	6, IDR	X3AB03, Rev. 1	X3AB03-110-7	3, 4, 5	5-12, 22-25, 31, 52-58, 66-75	

TABLE J7-1 (SHEET 9 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQDP	Verification			Comments
					Report No.	Section No.	Page No.	
		Rosemount Differential Pressure Transmitter, 1-FT-5151	IDR	X5AD04, Rev. 1	X5AD04- 61-5	7,9	26, 27 43	
1254	Was the qualifi- cation test sequence in accordance with IEEE 323-1974?	Containment Medium Voltage Electrical Penetration Assembly, 1-1818-H3-POB	IDR	X3AB03, Rev. 1	X3:303- 110-7	1, 2, 4	005, 008, 009, 014- 020	
		Rosemount Differential Pressure Transmitter, 1-FT-5151	6, IDR	X5AD04, Rev. 1	X5AD04- 61-5	4.1	18	
1263	Was the equip- ment qualified by type testing per IEEE 323-1974?	Rosemount Differential Pressure Transmitter, 1-FT-5151	6, IDR	X5AD04, Rev. 1	X5AD04- 61-5	4.1, 7.1.3 to 7.1.11, 9.1 and 9.3	018, 025-028, 043 and 044	
		Motor Control Centers, 1-1805-53-ABA/ ABC	6, IDR	X3AC03, Rev. 1	X3AC03- -1215-2	1.0	005	

TABLE J7-1 (SHEET 10 OF 10)

Commitment Number	Requirement	Equipment Description and Tag No.	Module Ref.	EQOP	Verification			Comments
					Report No.	Section No.	Page No.	
176 (IEEE 344-1975, section 6)	Did the test response spectra envelop the required response spectra for similar damping values?	Motor Control Center (MCC), I-1805-S3-ABC	6, IDR	X3AC03, Rev. 1	X3AC03-2400-3	6.0, Figures 6.2 to 6.5, Appendix D	20, 23 to 26	
		4.16 kV Metal Clad Switch-gear, I-1804-S3-A02	IDR	X3AC01, Rev. 1	X3AC01-5157-1	N/A	18 to 21	
176 (IEEE 344-1975, sections 5 and 6)	Do installation requirements (vendor installation drawings) comply with anchorage details per the qualification report?	4.16 kV Metal Clad Switch-gear, I-1804-S3-AC2	IDR	X3AC01, Rev. 1	X3AC01-5157-1	Appendix 11, Section 6.1	6	Vendor installation drawing 51903-D0260 also used in qualification test report.
		Auxiliary Feed-water Motor-Driven Pump, I-1302-P4-002	4, IDR	X4AF03(1)	X4AF03-222-4	Appendix D, Section D.4	89 to 95	Bechtel installation drawings IX2D59G0G1 and IX2D59A001 agree with vendor analysis.

Notes: 1. EQOP is in progress, however, supplier qualification reports were reviewed and accepted by BPC Project Engineering.

TABLE J7-2

PHASE 1 VERIFICATION DOCUMENTS REVIEWED

Design Manual

DC-1000-C	General Design Criteria (Civil/Structural)
DC-1005	Seismic - Interdiscipline
DC-1007	Environment - Interdiscipline
DC-1010	Project Classification List - Interdiscipline
DC-1017	Pipe Stress and Pipe Supports Analysis Criteria
DC-2167	HVAC and Duct Supports

Project Reference Manual

Part C, Section 8	Specification and Procurement
Part C, Section 29	ASME Section III Design Specifications, Stress/Design Reports, and Load Capacity Data Sheets
Part C, Section 37	Equipment Qualification
Appendix EA	Qualification Requirements for Safety-Related Equipment, Devices and Instrumentation
Appendix QG	Seismic Qualification Requirements for Safety-Related Seismic Category I Equipment, Devices and Instrumentation

TABLE J7-3 (SHEET 1 OF 4)

EQUIPMENT QUALIFICATION REVIEW PERFORMED IN OTHER MODULES AND THE IDR

<u>Equipment Description</u>	<u>Tag No.</u>	<u>EQDP</u>	<u>Qualification</u>		<u>Equipment Walkdown</u>	<u>Comments</u>
			<u>Seismic</u>	<u>Environmental</u>		
<u>Module 4:</u>						
1. Auxiliary Feedwater Pumps	(1)	X4AF03	Yes ⁽²⁾	N/A ⁽³⁾	N/A	Preliminary review - EQDP in progress. See notes on Sheet 4.
2. Nuclear and Non-nuclear Solenoid Valves	(1)	X5AC07	Yes	N/A	N/A	Preliminary review - EQDP in progress.
<u>Module 6:</u>						
1. 480V Switchgear	1-1805-S3-B05	X3AC02	Yes	Yes	Yes	
2. Motor Control Center	1-1805-S3-ABA	X3AC03	Yes	Yes	Yes	
3. 125V dc Battery, Rack, and Charger	1-1806-B3-BYD	X3AD01	Yes	Yes	Yes	
	1-1806-B3-RYD		Yes	Yes	Yes	
	1-1806-B3-CBB		Yes	Yes	Yes	
4. 120V ac Distribution Panel	1-1807-Q3-V'1	X3AF01	Yes	Yes	Yes	
5. 480/120V Regulating Transformer	1-1807-Y3-04	X3AA04	Yes	Yes	Yes	
6. 120V Inverter	1-1807-Y3-1B2	X3AQ03	Yes	Yes	Yes	
7. Insulation Device Panel	1-1816-V3-009	X3AE06	Yes	Yes	Yes	

TABLE J7-3 (SHEET 2 OF 4)

<u>Equipment Description</u>	<u>Tag No.</u>	<u>EQDP</u>	<u>Qualification</u>		<u>Equipment Walkdown</u>	<u>Comments</u>
			<u>Seismic</u>	<u>Environmental</u>		
B. Containment Electrical Penetration Assembly	1-1818-H3-POB	X3AB03	Yes	Yes	1-1818-H3-P11	
<u>Module 12:</u>						
1. 600V Power and Control Cable	(1)	X3AJ02	N/A	Yes	N/A	
2. Cable Termination Material	(1)	X3AJ11	N/A	Yes	N/A	
<u>Module 16:</u>						
1. Modulating Valve	1-HCV-190	X6AA15	N/A	Yes	N/A	Seismic verification was not performed in Module 16 since program was still under development.
2. Motor Operated Valve	1-HV-8802A	X6AA15	N/A	Yes	N/A	
3. Solid State Protection System Cabinet	1-1605-Q5-SPA	X6AA15	N/A	Yes	N/A	
4. Transmitters	1-FT-918 1-FT-444 1-PT-418 1-PT-455	X6AA15	N/A	Yes	N/A	
5. Safety Injection Pumps	(1)	X6AA15	N/A	Yes	N/A	
<u>Module 17:</u>						
1. Junction Boxes	(1)	X3AH05	Yes	Yes	N/A	

TABLE J7-3 (SHEET 3 OF 4)

Equipment Description	Tag No.	EQOP	Qualification		Equipment Walkdown	Comments
			Seismic	Environmental		
<u>IDR:</u>						
1. Motor-Operated Valve, Outside Containment	1-IV-3009	X4AR01	Yes	Yes	N/A	
2. Motor-Operated Valve, Inside Containment	1-IV-8702B	X6AA10	Yes	Yes	N/A	
3. Medium Voltage Containment Electrical Penetration Assembly	(1)	X3ABC3	Yes	Yes	1-1B1B-H3-P08	
4. Motor Control Center	(1)	X3AC03	Yes	Yes	-1B05-S3-ABC	
5. Auxiliary Feedwater Pump	1-1502-P4-002	X4AF03	Yes	N/A	N/A	
6. Auxiliary Feedwater Pump Motor	1-1502-P4-002 -M01	X4AF03	Yes	Yes	N/A	
7. Differential Pressure Transmitter	1-FT-5151	X5AD04	Yes	Yes	N/A	
8. Power and Instrument Cable	N/A	X3AJ01, X3AJ04	N/A	Yes	N/A	
9. 4.16 kV Metal Clad Switchgear	(1)	X3AC01	Yes	N/A	N/A	

TABLE J7-3 (SHEET 4 OF 4)

<u>Equipment Description</u>	<u>Tag No.</u>	<u>EQID</u>	<u>Qualification</u>		<u>Equipment Walkdown</u>	<u>Comments</u>
			<u>Seismic</u>	<u>Environmental</u>		
10. 125 Vdc Batteries, Racks and Chargers	(1)	X3AD01	Yes	N/A	1-1806-B3-BYD 1-1806-B3-RYD 1-1806-B3-CBB	
11. Component Cooling Water (CCW) Pumps	(1)	X4AF01	Yes	N/A	Yes	
12. CCW Heat Exchanger	(1)	X4AE01	Yes	N/A	Yes	
13. CCW Butterfly Valves (Fisher)	(1)	X5AC03	Yes	N/A	1-HV-11800	
14. CCW Surge Tank	(1)	X4AH04	Yes	N/A	Yes	
15. Active Valve	1-1204-U4-263	X4AR01	Yes	N/A	N/A	

NOTES:

1. Reviewed qualification report, no specific tag number identified. (Typ)
2. Yes - Covered during equipment qualification review. (Typ)
3. N/A - Not covered during equipment qualification review. (Typ)

TABLE J7-4 (SHEET 1 OF 3)

PART II - EQ RELATED READINESS REVIEW FINDING SUMMARY

<u>Finding Number</u>	<u>Finding</u>	<u>Level</u>	<u>Resolution/Project Response</u>	<u>Conclusion/Assessment</u>
6-32	Tray support clearance over electrical equipment less than required by construction specification.	II	A walkdown of all Class IE electrical equipment identified additional discrepancies which were corrected. Field procedures revised to implement the construction specification requirement.	Response acceptable
6-37	Allowable seismic gaps between components inadequately defined in the construction specification.	II	Requirement for gaps between equipment clarified in the construction specification. A walkdown of all Class IE electrical equipment identified six instances where dripshields infringed on the required gap. The dripshields will be trimmed.	Response is acceptable based on committed corrective action.
6-90	The battery qualification temperature of 75°F is less severe than the 80°F specified.	III	The 75°F qualification temperature is correct as determined by the HVAC parameters stated in DC-1000-M. This data was incorrectly transferred into DC-1007. DC-1007 and the specification (Attachment EA) have been corrected.	Response acceptable
16-12	Lack of documentation for comparisons made of valve acceleration levels.	III	Documentation will be included per existing (1982) calculation format during "as-built" reconciliation.	Response acceptable

TABLE J7-4 (SHEET 2 OF 3)

<u>Finding Number</u>	<u>Finding</u>	<u>Level</u>	<u>Resolution/Project Response</u>	<u>Conclusion/Assessment</u>
16-13	Inaccurate qualified process transmitter seismic mounting bolt details.	I	Drawings are revised and affected transmitters will be reinstalled. Training of designers will be done to incorporate vendor qualification details on Instrument Installation Drawings.	Response acceptable
16-15	Lack of defined complete program to verify NSSS equipment seismic qualification.	II	Existing program to be included as part of the PRM.	Response acceptable
17-13	The construction specification X3AR01 requires that tray runs terminating at a wall mounted junction box, switchboard or other enclosure be terminated with a rigid bolted connection. No analysis is available to justify requirement.	III	Drawing No. CX30F001 prohibits this connection. A field walkdown verified that the tray was installed per the drawing. A CSCN was written to correct X3AR01.	Response acceptable.
22-F15	Instrument Cable qualification documents used different data points for Arrhenius plot on aging from industry standard.	II	Second test report submitted by vendor included a lower data point which fell on curve plotted with the higher data point. Vendor projection of life for instrument cable is acceptable.	Later test data has been included in the vendor qualification package and response is acceptable.

TABLE J7-4 (SHEET 3 OF 3)

<u>Finding Number</u>	<u>Finding</u>	<u>Level</u>	<u>Resolution/Project Response</u>	<u>Conclusion/Assessment</u>
22-F19	Acceptance of seismic qualification of valves for X4AHC was based on lower "g" values than required by Design Criteria DC-1017 (2.1/2.1/2.1g).	II	Anchor Darling valves with Hiller operator were qualified to 1.95/1.95/1.95g. The value is based on certain derating factors which have increased the value to 3.09/3.09/3.09g. DC-1017 will be revised.	Justification for use of derating factors must be reviewed.
22-F21	Qualification report for the auxillary feedwater pump motor does not specifically address this motor supplied to Plant Vogtle. Prototype report WCAP B754 is enclosed.	II	Total operation time for motor has been compared to the thermal endurance plot in the qualification report. Specific qualification life analysis will be added to the EQOP. Work was in progress.	IDR review of total time of operation and comparison to the thermal endurance plot conforms the motor meets the qualified life objective.
22-F25	Qualification test for cable did not meet regulatory guide position for subjected aged cables to a flame test.	II	Flame testing is addressed in another supplier document which describes aged and unaged cables.	Project submittal of test data and results meet the requirements of this project position to the regulatory guide. Test data is now included in the qualification document.

J8 ASSESSMENTS/CONCLUSIONS

J8.1 SUMMARY OF OPEN CORRECTIVE ACTIONS

o Finding J-1

Action: Revise procurement specifications X4AF03 and X4AF04 to incorporate appropriate stress limits from Final Safety Analysis Report Table 3.9.B.3-5. Review and revise, if required, procurement specifications for remaining active pumps and valves for conformance to committed stress limits. Review corresponding qualification reports for conformance to revised specifications. Incorporate stress limits and loading combinations for active and inactive equipment in applicable design criteria.

Responsible Organization: BPC Project Engineering.

Completion Date: May 1, 1986.

o Finding J-4

Action: Review and revise, if required, safety-related specifications that use data from design criteria document DC-1007 for conformance to its latest revision. Review qualification reports for conformance to revised specifications.

Responsible Organization: BPC Project Engineering.

Completion Date: June 1, 1986.

J8.3 RESUMES

The resumes which follow present a brief professional history of these personnel involved in the development of Appendix J:

DININIO, BETH A., Engineer, Team Member

Ms. Dininio has been employed by Stone & Webster Engineering Corporation since 1980 and is currently an engineer in the Engineering Mechanics Division. She is a support engineer assigned to the Millstone 3 Project Team responsible for mechanical and electrical equipment seismic qualification.

Education:

University of Massachusetts
B.S., Mechanical Engineering

E.I.T., State of Massachusetts

DRUCKER, MARK T., Engineer, Team Member

Mr. Drucker began his employment with Bechtel Engineering Corporation in 1983. He has 3 years experience in nuclear power plant engineering.

As licensing engineer assigned to the Arizona Nuclear Power Project, Mr. Drucker's responsibilities include licensing coordination between project disciplines. He also evaluates the impact of changes to the power plant through the performance of 10 CFR 50.59 safety reviews and evaluations. Previously, he participated in a backfit of fire protection equipment where he coordinated and evaluated technical information. He also worked at the Vandellios II Nuclear Power Plant as a lead engineer responsible for the evaluation of the in-containment main steam line break analysis.

Education:

University of California at Los Angeles
B.S., Nuclear Engineering
M.S., Nuclear/Thermal Engineering

KABRE, PRAKASH J., Engineer, Team Leader

Mr. Kabre began his employment with Bechtel Power Corporation since 1979 and has over 12 years experience in nuclear power plant engineering. Currently he is a technical specialist in the Civil/Structural Project Field Engineering Group where his duties include technical and quality-related reviews of the group's work. He has been an engineering group leader in the Equipment Qualification Review Group responsible for review of

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Vogtle Project

Date: March 19, 1986

Re: Plant Vogtle - Units 1 & 2
Readiness Review Module 21, Appendix J
File: X/BDi02 Log: SS-5504

From: O. Batum

To: W. C. Ramsey

Engineering has reviewed Module 21, Appendix J, Equipment Qualification, for general accuracy and completeness. In the best of our knowledge and belief, the module is a complete and accurate representation of the Equipment Qualification, and the engineering process and commitments related thereto.

Ozer Batum
Deputy to Vice President
Project Engineering

xc: Project File



Vogtle Project

DATE: March 20, 1986

LSV-NS-1671
V-B.01.05

RE: Plant Vogtle - Units 1 and 2
Readiness Review Appendix J
File: X3LR01, X7BD102

FROM: J. A. Bailey

TO: W. C. Ramsey

Licensing has reviewed Appendix J concerning Equipment Qualification for general accuracy and completeness. To the best of our knowledge and belief, the appendix is a complete and accurate representation of the Equipment Qualification Program and the processes and commitments related thereto.

J. A. Bailey

JAB/sm

xc: Project File

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