GENERAL ELECTRIC

NUCLEAR POWER

SYSTEMS DIVISION

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MFN 056-83
JNF 017-83

March 17, 1983

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555

Attention: Mr. D.G. Eisenhut, Director
Division of Licensing

Gentlemen:

SUBJECT: IN THE MATTER OF 238 NUCLEAR ISLAND
GENERAL ELECTRIC STANDARD SAFETY ANALYSIS REPORT (GESSAR II)
DOCKET NO. STN 50-447

REVISED DRAFT RESPONSES AND RESPONSES TO DISCUSSION ITEMS

Attached please find revised final draft responses to selected questions of the Commission's October 5, 1982 information request. Only modifications (new or revised) to the responses of the referenced letter are provided. Also attached are draft responses to discussion items. Responses are provided in the attachments as indicated below:

Attachment Number	
1	Draft Responses Quality Assurance Branch Questions
2	Draft Responses to Mechanical Engineering Branch Comments on Sections 3.2 and 5.2
3	Draft Responses to Instrumentation and Control Systems Branch Questions Discussion Items
4	Draft Responses to Structural and Geotechnical Engineering Branch Audit Action Items

Sincerely,

J.M.

Glenn G. Sherwood, Manager
Nuclear Safety & Licensing Operation

E003

cc: F.J. Miraglia (w/o attachments)
D.C. Scaletti
C.O. Thomas (w/o attachments)
L.S. Gifford (w/o attachments)

ATTACHMENT NO. 1

DRAFT RESPONSES TO QUALITY ASSURANCE BRANCH QUESTIONS

260.3 Section 17.1.2.2 of the standard format (Regulatory Guide 1.70) requires the identification of safety-related structures, systems, and components controlled by the QA program. You are requested to supplement and clarify the GESSAR II application for FDA in accordance with the following:

A. The following items do not appear in Table 3.2-1. Add the appropriate items and provide a commitment that the remaining items are subject to the pertinent requirements of GE's QA program and Appendix B to 10 CFR Part 50 or justify not doing so.

(1) Control rod grapple
(2) All containment isolation valves, piping within containment isolation valves, and piping forming isolation barriers (Ref. Table 6.2-25)
(3) Drywell
(4) Drywell head region
(5) Drywell-to-suppression pool vents
(6) Reactor pressure vessel biological shield annulus
(7) Containment steam tunnel
(8) RWCU Rooms:
    a. Filter/Demineralizers Room
    b. Demineralizer Valve NEst and Holding Pump Room
    c. Precoat Room
    d. Demineralizer Drain Valve Room
    e. Backwash Receiving Tank Room
    f. Heat Exchanger Room
(9) Weir wall
(10) RHR containment spray piping
(11) RHR containment spray nozzles
(12) RHR strainers
(13) Drywell vacuum relief
(14) Containment isolation leakage detection system
(15) Personnel air locks
(16) Equipment hatch
(17) 6900 volt switchgear
(18) 480 volt load centers
(19) 480 volt motor control centers
(20) 120 VAC safety-related distribution equipment including inverters and voltage regulators
(21) Control and power cables (including underground cable system, cable splices, connectors and terminal blocks)

(22) Conduit and cable trays and their supports (Raceways containing Class IE cables and those whose failure could damage other safety-related items)
(23) Containment Electrical penetration assemblies
(24) Transformers
(25) Motors
(26) Load sequencers
(27) Protective relays and control panels
(28) 125 volt batteries, battery rocks, battery chargers, and distribution equipment
(29) Roof drainage systems (including drains and parapets) of safety-related buildings
(30) Scram discharge volume header

B. The following items are in Table 3.2-1 with indication that 10 CFR 50 Appendix B does not apply. Provide a commitment that the pertinent requirements of GE's QA program and Appendix B to 10 CFR Part 50 will apply or justify not doing so.

(1) Reactor internal structure - other (I.6)
(2) Pipe restrainings - main steam (II.6)

C. Add the following items under XLVI, "Diesel Generator System" in Table 3.2-1 or justify not doing so.

(1) Lube oil system
(2) Combustion air intake and exhaust systems
(3) Fuel oil system (all components)
(4) Diesel service water system (all components)
(5) Starting air system (all components)

D. Provide a commitment that the safety-related instrumentation and controls (I&C) described in Sections 7.1 through 7.6 of the FDA application plus safety-related I&C for safety-related fluid systems will be subject to the pertinent requirements of General Electric's QA program and Appendix B to 10 CFR Part 50. This can be done by a footnote to Table 3.2-1.

E. Enclosure 2 of NUREG-0737, "Clarification of TMI Action Plan Requirements" (November 1980) identified numerous items that are safety-related and therefore should be in Table 3.2-1. These items are listed below. Add the appropriate items to Table 3.2-1 and provide a commitment that the remaining items are subject to the pertinent requirements of General Electric's QA program and Appendix B to 10 CFR Part 50 or justify not doing so.

		NUREG-0737 (Enclosure 2) Clarification Item
(1)	Plant-safety-parameter display console.	I.D.2
(2)	Reactor coolant system vents.	II.B.1
(3)	Plant shielding.	II.B.2
(4)	Post accident sampling capability.	II.B.3
(5)	Valve position indication.	II.D.3
(6)	Dedicated hydrogen penetrations.	II.E.4.1
(7)	Containment isolation dependability.	II.E.4.2
(8)	Accident monitoring instrumentation.	II.F.1
(9)	Instrumentation for detection of inadequate core-cooling.	II.F.2
(10)	HPCI & RCIC initiation levels.	II.K.3(13)
(11)	Isolation of HPCI & RCIC.	II.K.3(15)
(12)	Challenges to and failure of relief valves.	II.K.3(16)
(13)	ADS actuation.	II.K.3(18)
(14)	Restart of core spray and LPCI.	II.K.3(21)
(15)	RCIC suction.	II.K.3(22)
(16)	Space cooling for HPCI & RCIC.	II.K.3(24)
(17)	Power on pump seals.	II.K.3(25)
(18)	Common reference level.	II.K.3(27)
(19)	ADS valve, accumulators, and associated equipment and instrumentation.	II.K.3(28)
(20)	Equipment and other items associated with the emergency support facilities.	III.A.1.2
(21)	Inplant I_2 radiation monitoring.	III.D.3.3
(22)	Control-room habitability.	III.D.3.4

Response

As indicated in Subsections 1C.2.12 and 17.1.2.2, the Applicant has the responsibility for the identification of safety-related structures, systems and components controlled by the QA program. This will added to Section 1.9 as an interface requirement.

1C.2.12 Safety-Related Structures, Systems and Components Q-List) Controlled by the QA Program

GUIDANCE (12)

Staff requests for additional information regarding this issue have been sent to a number of OL applicants. A recent request regarding Diablo Canyon is provided as Enclosure 11.

RESPONSE (12)

As indicated under Subsection 17.1.2.2, the Applicant has the responsibility for the identification of safety-related structures, systems, and components (Q-list) controlled by the QA program. The Applicant will supplement and clarify its Q-list based on Table 3.2-1 in accordance with the staff's request on Diablo Canyon or a similar request on another docket (e.g., Grand Gulf, Clinton).

17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

17.1.1 Organization

See Section 1 of Reference 1.

17.1.2 Quality Assurance Program

The identification of safety-related structures, systems, and components (Q-list) to be controlled by the quality assurance program is the responsibility of the Applicant. The Applicant's Q-list will be based on the quality assurance requirements given in Table 3.2-1.

The remainder of this subsection is covered in Section 2 of Reference 1.

17.1.3 Design Control

See Section 3 of Reference 1.

17.1.4 Procurement Document Control

See Section 4 of Reference 1.

17.1.5 Instructions, Procedures, and Drawings

See Section 5 of Reference 1.

17.1.6 Document Control

See Section 6 of Reference 1.

17.1.7 Control of Purchased Material, Equipment, and Services

See Section 7 of Reference 1.

260.4 Item XLVIII.1 of Table 3.2-1 shows "R" under the Quality Assurance Requirement column. It appears this may be a misprint. Clarify. Similarly, item LIII.10 of Table 3.2-1 shows "-" in the same column. The meaning of this is not clear, and this also should be clarified.

Response

Table 3.2-1 will be revised as indicated on pages 3.2-40 and 3.2-42.

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XLVII (Continued)						
7. Cables	2	D	B	B	I	
8. Containment/Drywell Atmosphere Monitoring System	2	D,C	N/A	B	I	
XLVIII Fire Protection System						
1. Isolation valves and piping within outmost isolation valves	2	C	~~X~~ B	~~X~~ B	I	(t)
2. Other piping and valves	Other	A,R,C,X,S	D	B	I	(t)
3. Pumps	Other	O	D	B	I	(t)
4. Pump motors	Other	O	D	B	I	(t)
5. Electrical modules	Other	A,R,C,X,S	D	B	I	(t)
6. CO_2 actuation modules	3	S	N/A	B	I	(t)
7. Cables	Other	A,R,C,X,S	D	N/A	I	
8. Sprinkles	Other	A,R,C,X,S	D	N/A	N/A	
XLIX Miscellaneous Components						
1. Containment polar crane	3	C	N/A	B		(x)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
LIII Civil Structures						
1. Containment	2			B	I	
2. Shield Building	2			B	I	
3. Auxiliary Building	2			B	I	
4. Fuel Building	2			B	I	
5. Control Building	3			B	I	
6. Diesel Generator Building	3			B	I	(p)
7. Radwaste substructure below grade	3			B	I	(p)
8. Cooling water intake structure	3			B	I	
9. Diesel fuel storage facilities	3			B	I	
10. Turbine Building	Other			N/A	N/A	

260.5 Note "t" in Table 3.2-1 speaks of a "United Quality Assurance Program" for the fire protection system. Clarify what is meant by a "United Quality Assurance Program."

Response

Note "t" will be revised as indicated on page 3.2-52. Also, "t" will be removed from item XLVIII.1 as indicated on page 3.2-40 (see response to question 260.4).

Table 3.2-1
EQUIPMENT CLASSIFICATION (Continued)

NOTES (Continued)

r. To comply with Regulatory Guides 1.26 and 1.29, the Emergency Cooling System is interconnected to the fuel pool, thereby providing a redundant Seismic Category I source of coolant to the fuel pool. Additionally, systems for maintaining water quality and quantity are designed so that any malfunction or a failure in such systems will not cause significant loss of inventory.

s. The gaseous radwaste system piping, pumps, and valves containing gaseous radwaste shall be constructed in accordance with the applicable codes of Code Group D.

t. There is a ~~United~~ limited Quality Assurance Program for ~~the~~ these items of the Fire Protection System.

u. The classification of the main steam and feedwater lines are shown in Figure 3.2-2.

v. The following qualifications shall be met with respect to the certification requirements.

1. The manufacturer of the turbine stop valves, turbine control valves, turbine bypass valves, and mainstream leads from turbine control valve to turbine casting shall utilize quality control procedures equivalent to those defined in General Electric Publication GEZ-4982A, General Electric Large Steam Turbine Generator Quality Control Program.

ATTACHMENT NO. 2

DRAFT RESPONSES TO MECHANICAL ENGINEERING BRANCH COMMENTS ON SECTION 3.2 AND 5.2

3.2.3 System Safety Classifications (Continued)

design requirements, the sections that summarize the requirements to be implemented in the design are indicated.

3.2.3.1 Safety Class 1

Safety Class 1 (SC-1) applies to components of the reactor coolant pressure boundary as defined in 10CFR50.2(v) or core support structure which failure could cause a loss of reactor coolant at a rate in excess of the normal makeup system.

3.2.3.2 Safety Class 2

Safety Class 2 (SC-2) applies to those structures, systems, and components, other than service water systems, that are not Safety Class 1 but are necessary to accomplish the safety functions of:

(1) inserting negative reactivity to shut down the reactor;

(2) preventing rapid insertion of positive reactivity;

(3) maintaining core geometry appropriate to all plant process conditions;

(4) providing emergency core cooling;

(5) providing and maintaining containment;

(6) removing residual heat from the reactor and reactor core; and

(7) storing spent fuel.

(Note: GE objects to referencing footnote 2 of 10CFR50.55a because this infers that components exempt by footnote 2 must still be safety class 1, and GE has classified them as safety class 2 in accordance with this footnote)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
I Reactor System						
1. Reactor vessel	1	D	A	B	I	
2. Reactor vessel support skirt	1	D	N/A *	B	I	
3. Reactor vessel appurtenances - pressure retaining portions	1	D	A	B	I	
4. CRD housing supports	2	D	N/A *	B	I	
5. Reactor internal structures - engineered safety features	2	D	N/A	B	I	
6. Reactor internal structures - other	Other	D	N/A	N/A	N/A	
7. Control rods	2	D	N/A	B	I	
8. Control rod drives	2	D	N/A	B	I	
9. Core support structure	2	D	N/A	B	I	
10. Power range detector hardware	2	D	B	B	I	(g)
11. Fuel assemblies	2	D	N/A	B	I	

(CRD velocity limiter, LPCI coupling, jet pumps and core spray components inside the RPV)

(steam dryer, shroud head and separator assembly, in-core guide tubes, core ΔP and liquid control line inside RPV, fuel orifices, in-core guide tube stabilizers and feedwater sparger)

* Since these are not pressure retaining components, their quality group classification is N/A

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
II Nuclear Boiler System						
1. Vessels - level instrumentation condensing chambers	1	D	A	B	I	
2. Vessels - air accumulators	3	D	C	B	I	
3. Piping - relief/valve discharge	3	C,D	C	B	I	(h)
4. Piping - main steam and feedwater within outermost isolation valve	1	A,C,D,E	A	B	I	
5. Pipe supports - main steam	1	D	A	B	I	
6. Pipe restraints - main steam	1	D	N/A	~~N/A~~ B	I	
7. Piping - other within outermost isolation valves	~~1~~ 1	~~C,D~~ D	~~A/B~~ A	~~B~~ B	~~I~~ I	~~(g)~~ (g)
8. Piping - other beyond outermost isolation valves a. RPV head vent b. Main steam drains	~~1~~ 1	~~D~~ D,E,A	~~A~~ A	~~B~~ B	~~I~~ I	~~(g)~~ (g)
	~~3~~ 3	~~D~~ D	~~C~~ C	~~B~~ B	~~I~~ I	
	2	A	B	B	I	
9. Piping - instrumentation beyond outermost isolation valves a. RPV head vent b. Main steam drains	2/Other	D	B/D	B/N/A	I/N/A	(g)
10. Safety/relief valves	1	D	A	B	I	
11. Valves - main steam and feedwater isolation valves	1	C,D	A	B	I	

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
II (Continued)						
12. Valves, other - isolation valves and within outermost isolation valves	~~1/2~~	~~C,D~~	~~A/B~~	~~B~~	~~I~~	~~(a)~~
13. Valves - instrumentation beyond outermost isolation valves	2/Other	A	B/D	B/N/A	I/N/A	(a)
14. Mechanical modules - instrumentation with safety function	2	C	N/A	B	I	
15. Electrical modules with safety function	2	C	N/A	B	I	(i)
16. Cable with safety function	2	C,D,A,X	N/A	B	I	
III Reactor Recirculation System						
1. Piping	1	D	A/B	B	I	(g)
2. Pipe suspension - recirculation line	1	D	A	B	I	
3. Pipe restraints - recirculation line	2	D	N/A	B	I	
4. Pumps	1	D	A	B	I	
a. RPV head vent valves	1	D	A	B	I	(a)
b. Main steam drain valve	1	D,A	A	B	I	(a)
c. Main steam - 1st valve downstream of isolation valves	2	A	A	B	I	(a)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

	Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
III	(Continued)						
	5. Valves	1	D	A/B	B	I	(g)
	6. Motor - pump	2	D	N/A	B	I	
	7. Cable with safety function	2	X,C,A,X	N/A	B	I	
	8. LFMG Set	Other	T	N/A	N/A	N/A	
IV	CRD Hydraulic System						
	1. Valves - scram discharge volume lines	2	C	B	B	I	(g)
	2. Valves insert and withdraw lines	2	C	B	B	I	(j)
	3. Valves - other (Flow control valve and pressure control valve)	Other	A,C	D	N/A	N/A	(g)
	4. Piping - scram discharge volume lines	2	C	B	B	I	
	5. Piping - insert and withdraw lines	2	C,~~D~~	B	B	I	
	6. Piping - other (pump suction, pump discharge, drive header, and exhaust header)	Other	C,E	D	N/A	N/A	(g)
	7. Hydraulic control unit	2	C	Special	B	I	(k)
	8. Scram discharge volume	2	C	B	B	I	

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
X Process Radiation Monitor System						
1. Electrical modules - main steamline and reactor building ventilation monitors	2	C,T	N/A	B	I	
2. Cable - main steamline and containment ventilation monitors	2	A,C,T,X	N/A	B	1	
XI RHR System						
1. Heat exchangers - primary side	2	A	B	B	I	
2. Heat exchangers - secondary side	3	A	C	B	I	
3. Piping within outermost isolation valves	1,2	C	A/B	B	I	(g)
4. Piping beyond outermost isolation valves	2	A	B	B	I	(g)
5. Pumps	2	A	B	B	I	
6. Pump motors	2	A	N/A	B	I	
7. Valves - isolation, LPCI line	1	D,A	A/B	B	I	(g)
8. Valves - isolation, other (pool suction valves, pool test return valves and steam to RHR Hx isolation valves)	2	D,A	B	B	I	(g)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XI (Continued)						
9. Valves beyond isolation valves	2	A	B	B	I	(g)
10. Mechanical modules	2	A	B	B	I	
11. Electrical modules with safety function	2	A	N/A	B	I	
12. Cable with safety function	2	A,X	N/A	B	I	
XII Low Pressure Core Spray						
1. Piping within outermost isolation valves	1,2	D,C,E,A	A/B	B	I	(g)
2. Piping beyond outermost isolation valves	2	A	B	B	I	(g)
3. Pumps	2	A	B	B	I	
4. Pump motors	2	A	N/A	B	I	
5. Valves - outer isolation and within	1,2	C	A/B	B	I	(g)
6. Valves beyond outermost isolation valves	2	A	B	B	I	(g)
7. Electrical modules with safety function	2	A	N/A	B	I	

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XII (Continued)						
8. Cable with safety function	2	A,X	N/A	B	I	
XIII High Pressure Core Spray						
1. Piping within outermost isolation valve	1,2	C	A/B	B	I	(g)
2. Piping - return test line to condensate storage tank beyond second isolation valve	Other	O	D	N/A	N/A	
3. Piping beyond outermost isolation valve - other*	2	A	B	B	I	(g)
4. Pump	2	A	B	B	I	
5. Pump motor	2	A	N/A	B	I	
6. Valves - outer isolation and within	1/2	A,C	A/B	B	I	(g)
XIV Leak Detection System						
1. Temperature sensors	2	A	N/A	B	I	(1)
2. Temperature switches	2	X	N/A	B	I	(1)

* Pool suction piping, suction piping from condensate storage tank, test line to pool, pump discharge piping and return line to condensate storage tank.

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

	Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XIV	(Continued)						
	3. Pressure transmitters	2	C	N/A	B	I	(1)
	4. Pressure switches	2	X	N/A	B	I	(1)
	5. Differential pressure transmitters (flow)	2	A,C	N/A	B	I	(1)
	6. Differential pressure switches	2	X	N/A	B	I	(1)
	7. Square root converters	2	X	N/A	B	I	(1)
	8. Differential flow summers	2	X	N/A	B	I	(1)
	9. Differential flow switches	2	X	N/A	B	I	(1)
	10. Timer switches	2	X	N/A	B	I	(1)
	11. Power supplies	2	X	N/A	B	I	(1)
	12. Radiation monitor	Other	C	N/A	N/A	I	(1)
	13. Instrument lines	2	C,A,D	B	B	I	(1)
	14. Sample lines*	Other	C,D	C,D	B	I	(1)
	15. Flow transmitters	Other	C	N/A	N/A	N/A	(1)

* These sample lines are totally within containment and radiation monitoring provides no isolation function.

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XV Main Steamline Isolation Valve Positive Leakage Seal System						
1. Piping and valves up to the first isolation valve of the inboard subsystem	1	A	A	B	I	
2. Piping and valves - other (Piping and valves upstream of 1st isolation valve of the inboard subsystem)	2	A	B	B	I	
3. Electrical modules with safety function	2	A	N/A	B	I	
4. Mechanical modules with safety function	2	A	B	B	I	
5. Cables with safety function	2	A	B	B	I	
XVI RCIC System						
1. Piping within outermost isolation valves	1,2	D	A/B	B	I	(g)
2. Piping beyond outermost isolation valves	2	C,A,E	B	B	I	(g)
3. Piping - return test line to condensate storage tank beyond second isolation valve and vacuum pump discharge line from vacuum pump to containment isolation valves	Other	O,A	D	N/A	N/A	(g)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XVI (Continued)						
4. Pumps	2	A	B	B	I	
5. Pump motors	2	A	B	B	I	
6. Valves - outer isolation and within	1,2	D, A	A/B	B	I	(g)
7. Valves - return test line to condensate storage beyond second isolation valve and vacuum pump discharge line to containment isolation valves	Other	O,A	D	N/A	N/A	(g)
8. Valves - other *	2	C,A	B	B	I	(g)
9. Turbine	2	A	N/A	B	I	(m)
10. Electrical modules with safety function	2	A,X	N/A	B	I	
11. Cable with safety function	2	D,A,X	N/A	B	I	
XVII Fuel Servicing Equipment						
1. Fuel preparations machine	Other	C,R	N/A	B	N/A	
2. General purpose grapple	Other	C,R	N/A	B	N/A	

* RCIC turbine steam admission valve, pump suction valve from condensate storage tank, and turbine inlet and exhaust drain valves.

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XVIII Reactor Vessel Servicing Equipment						
1. Steamline plugs	Other	C	N/A	N/A	N/A	
2. Dryer and separator ~~sling~~ strongback and head strongback	2	C	~~B~~ N/A	B	I	
XIX In-Vessel Servicing Equipment						
1. Control rod grapple	3	C,R	~~B~~ N/A	~~N/A~~ B	N/A	
XX Refueling Equipment						
1. Refueling equipment platform assembly	2	C	N/A	B	I	
2. Refueling bellows	Other	D	N/A	N/A	N/A	
3. Fuel transfer system	2/Other	C,R	B,D,N/A	B	N/A	(n)
4. Penetration sleeve	2/Other	C,R	B/D	B	I	(o)
XXI Storage Equipment						
1. Fuel storage racks – new and spent	2	C,R	N/A	B	I	
2. Defective fuel storage container	3	R	N/A	B	I	

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

	Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XXV	Fuel Pool Cooling and Cleanup System						
	1. Vessels - filter/demineralizers	Other	R	C	B	N/A	(r)
	2. Vessels - ~~other~~ Drain tank	3	R	C	B	I	
	3. Heat exchangers	3	R	C	B	I	
	4. Piping	3	R,C	C	B	I/N/A	
	5. Pumps and pump motors	3	R	C	B	I	
	6. Valves and piping - containment isolation	2	C	B	B	I	
	7. Makeup system	3/Other	R,O,C	C	B.N.A	I/N/A	(r)
	8. RHR connections - emergency cooling	3	A,R	C	B	I	
	9. Electrical modules and cables	3	R	C	B	I	
XXVI	Suppression Pool Temperature Monitoring System						
	1. Electrical modules with safety functions	3	C,X	N/A	B	I	
	2. Cable with safety function	3	C,X	N/A	B	I	

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XXXI Standby Gas Treatment System						
1. Filters	2	R	N/A	B	I	
2. Valves - ductwork	2	A,R,C	N/A	B	I	
3. Cable with safety function	2	R,A,C,X	N/A	B	I	
4. Fans and motors	2	R	N/A	B	I	
XXXII NI Chilled Water Systems						
1. Control Building	3	D,C,A	C	B	I	
2. Electrical switch gear	3	A	C	B	I	
3. Other buildings	Other	A,R,W	D	N/A	N/A	
XXXIII HPCS Service Water System						
This system is included under group/MPL XXXIV/P41.						
XXXIV Essential Service Water System						
1. Piping	2,3	O,A,C	B/C	B	I	
2. Pumps	3	P	C	B	I	
3. Pump motors	3	P	N/A	B	I	

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XXXIV (Continued)						
4. Valves - isolation	2	C,A	B	B	I	
5. All Valves ~~- other~~ that are not isolation valves	3	A,C,R,S	C	B	I	
6. Electrical modules with safety function	3	A	N/A	B	I	
7. Cable with safety function	3	A,O,P,X	N/A	B	I	
8. Nonessential portions	Other	A,C,R,W	D	N/A	N/A	
XXXV Closed Cooling Water System						
1. Piping and valves forming part of primary containment boundary	2	A,C,R	B	B	I	
2. All Piping and valves ~~, other~~ not forming part of primary containment boundary.	Other	A,C,D,R,W	D	N/A	N/A	
XXXVI Condensate and Demineralized Water Storage and Transfer						
1. Piping and valves forming part of the containment boundary	2	C	B	B	I	
2. Condensate storage tank	Other	O	D	N/A	N/A	(w)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XLIV Plant Electrical Systems (Applicant to Supply)						
XLV Auxiliary AC Power System						
1. All components with safety function	2/3	A,C,X	N/A	B	I	
XLVI Diesel Generator Systems						
1. ~~Day tanks~~ Fuel oil storage and transfer system	3	S	C	B	I	(3)
2. ~~Piping and valves - fuel oil system~~ Cooling water system	3	S,O	C	B	I	(3)
5 ~~3.~~ ~~Piping and valves - diesel service - water system~~ Lubrication system	3	S	C	B	I	(3)
6 ~~4.~~ ~~Pumps - fuel oil system~~ Combustion air intake and exhaust system	3	S	C	B	I	
~~5. Pumps - diesel service - water system~~	~~3~~	~~S~~	~~C~~	~~B~~	~~I~~	
7 ~~6.~~ Pump motors - fuel oil cooling system and diesel ~~service~~ water system and lube oil system	3	A,O	N/A	B	I	
8 ~~7.~~ Diesel generators	3	S	N/A	B	I	(3)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

Principal Component[a]	Safety Class[b]	Location[c]	Quality Group Classification[d]	Quality Assurance Requirement[e]	Seismic Category[f]	Comments
XLVII (Continued)						
7. Cables	2	D	B	B	I	
8. Containment/Drywell Atmosphere Monitoring System	2	D,C	N/A	B	I	
XLVIII Fire Protection System						
1. Isolation valves and piping within outmost isolation valves	2	C	~~A~~B	~~A~~B	I	(t)
2. Other piping and valves	Other	A,R,C,X,S	D	B	I	(t)
3. Pumps	Other	O	D	B	I	(t)
4. Pump motors	Other	O	D	B	I	(t)
5. Electrical modules	Other	A,R,C,X,S	D	B	I	(t)
6. CO_2 actuation modules	3	S	N/A	B	I	(t)
7. Cables	Other	A,R,C,X,S	D	N/A	I	
8. Sprinkles	Other	A,R,C,X,S	D	N/A	N/A	
XLIX Miscellaneous Components						
1. Containment polar crane	3	C	N/A	B		(x)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

NOTES (Continued)

e. B = the equipment shall meet the quality assurance requirements of 10CFR50 Appendix B in accordance with the quality assurance program described in Chapter 17.

N/A = Quality Assurance Requirements not applicable to this equipment.

f. I = shall be constructed in accordance with the requirements of Seismic Category I structures and equipment as described in Section 3.7, Seismic Design.

N/A = The seismic requirements for the safe shutdown earthquake (SSE) are not applicable to the equipment.

Equipment that provides no safety function but which could damage Seismic Category I equipment if it failed is analytically checked and designed to confirm its integrity against collapse when subjected to seismic loading resulting from the SSE.

g. 1. Lines one inch and smaller which are part of the reactor coolant pressure boundary shall be Code (Safety) Class 2 and Seismic Category I.

2. All instrument lines which are connected to the reactor coolant pressure boundary and are utilized to actuate and monitor safety systems shall be Safety Class 2 from the outer isolation valve or the process shutoff valve (root valve) to the sensing instrumentation.

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

NOTES (Continued)

g. 3. All instrument lines which are connected to the reactor coolant pressure boundary and are not utilized to actuate ~~and~~ or monitor safety systems shall be Code Group D from the outer isolation valve or the process shutoff valve (root valve) to the sensing instrumentation.

4. All other instrument lines -
   - Through the root valve the lines shall be of the same classification as the system to which they are attached.
   - Beyond the root valve, if used to actuate or monitor a safety system, the lines shall be of the same classification as the system to which they are attached.
   - Beyond the root valve, if not used to actuate a safety system, the lines may be Code Group D.

5. All sample lines from the outer isolation valve or the process root valve through the remainder of the sampling system may be Code Group D.

h. Relief valve discharge piping shall be Quality Group C and Seismic Category I.

Safety/relief valve discharge line piping from the safety/relief valve to the suppression pool consists of two parts: the first part is attached at one end to the safety/relief valve and attached at its other end to the structural steel just below the main steam header through a pipe anchor. This portion of the safety/relief valve discharge piping, is analyzed with the main steam piping as a complete system. The second part of the safety/relief valve discharge piping extends from the anchor (located below the mainstream header)

Table 3.2-1

EQUIPMENT CLASSIFICATION (Continued)

NOTES (Continued)

2. A certification shall be obtained from the manufacturer of these valves and steam leads that the quality control program so defined has been accomplished.

w. The condensate storage tank will be designed, fabricated, and tested to meet the intent of API Standard API 650. In addition, the specification for this tank will require: (1) 100% surface examination of the side wall to bottom joint and (2) 100% volumetric examination of the side wall weld joints.

x. The cranes are designed to ~~hold up their loads~~ retain their functional capability under conditions of 1/2 SSE and to maintain their ~~positions~~ structural integrity over the units under conditions of SSE.

y. The hydrogen recombiners are thermal type, utilizing electric resistance heaters which are not under the jurisdiction of ASME section III and therefore, quality group classification is not applicable.

(3) All off-engine components shall be constructed to the extent possible to ASME section III, Class 3.

Table 3.2-2

QUALITY GROUP DESIGNATIONS - CODES AND INDUSTRY STANDARDS FOR MECHANICAL COMPONENTS[a,b]

Quality Group Classification	ASME Section III Code Classes	ASME Section III Code Applicable Subsections: Pressure Vessels and Heat Exchangers	Pumps, Valves, and Piping	Metal Containment Components	Storage Tanks 0-15	Storage Tanks Atmospheric	Supports	Core Support
A	1	NA and NB TEMA C	NA and NB[c]	-	-	-	NF and NA	
B	2	NA and NC TEMA C	NA and NC[c]		NA and NC	NA and NC	NF and NA	NG
	MC			NA and NE				
C	3	NA and ND TEMA C	NA and ND[c]		NA and ND	NA and ND	NF and NA	
D		ASME Section VIII Div 1	Piping and valves B31.1.0	-	API-620 or equivalent[e]	API-650 AWWA-D100 ANSI B96.1 or equivalent[e]		
		TEMA C	Pumps[d]					

Table 3.2-2

QUALITY GROUP DESIGNATIONS - CODES AND INDUSTRY STANDARDS FOR MECHANICAL COMPONENTS[a,b] (Continued)

NOTES

a. With options and additions necessary for service conditions and environmental requirements.

b. In compliance with 10CFR50.55a, application of code and addenda for the reactor coolant pressure boundary equipment (Class 1) ~~is~~ will be provided in Table 3.2-4. All other components shall satisfy codes and addenda in effect at the time of component order.

c. (Deleted)

~~c. For pumps classified, A, B, or C, applicable subsection NB, NC, or ND (respectively) in ASME Section III, Boiler and Pressure Vessel Code, shall be used as guides in calculating the thickness of pressure-retaining portions of the pump and in sizing cover bolting.~~

d. For pumps classified in Group D, Section VIII, Division 1, shall be used as a guide in calculating the wall thickness for pressure-retaining parts and in sizing the cover bolting.

e. Tanks shall be designed to meet the intent of API, AWWA, and/or ANSI 96.1 Standards as applicable.

5.2 INTEGRITY OF REACTOR COOLANT PRESSURE BOUNDARY

This section discusses measures employed to provide and maintain the integrity of the reactor coolant pressure boundary (RCPB) for the plant design lifetime.

5.2.1 Compliance with Codes and Code Cases

5.2.1.1 Compliance with 10CFR50, Section 50.55a

Table 3.2-4 will show compliance with the rules of 10CFR50, Codes and Standards. Code edition, applicable addenda, and component dates ~~are~~ will be in accordance with 10CFR50.55a.

5.2.1.2 Applicable Code Cases

The reactor pressure vessel and appurtenances and the RCPB piping, pumps, and valves will be ~~have been~~ designed, fabricated, and tested in accordance with the applicable edition of the ASME Code, including addenda that were mandatory at the order date for the applicable components. Section 50.55a of 10CFR50 requires code case approval only for Class 1 components. These code cases contain requirements or special rules which may be used for the construction of pressure-retaining components of Quality Group Classification A. The various ASME code cases that ~~were~~ may be applied to components in the RCPB are listed in Table 5.2-1.

Regulatory Guides 1.84 and 1.85 provide a list of ASME Design and Fabrication Code Cases that have been generically approved by the Regulatory Staff. Code Cases on this list may, for design purposes, be used until appropriately annulled. Annulled cases are considered active for equipment that has been contractually committed to fabrication prior to the annulment.

Table 5.2-1

REACTOR COOLANT PRESSURE BOUNDARY COMPONENTS - APPLICABLE CODE CASES

Number	Title	Applicable Equipment	Remarks
1141-1	Foreign produced steel	Reactor pressure vessel	RG 1.85, Rev 8
1332-6	Requirements for steel forgings	Reactor pressure vessel	RG 1.85, Rev 15
1361-2	Socket welds	Control rod drive	RG 1.84, Rev 15
1516-2	Welding of seats or minor internal permanent attachments in valves for Section III application	Globe and check valves (2-1/2 inch and larger)	RG 1.84, Rev 14
1557-2	Steel product refined by secondary remelting	Reactor pressure vessel	RG 1.85, Rev 15
1567	Testing lots of carbon or low-alloy-steel-covered electrodes, Section III	Safety/relief valves globe and check valves (2-1/2-Inch and larger)	RG 1.85, Rev 12
1572	Fracture toughness, Section III, Class 1, components	Reactor pressure vessel	
1578	SB-167 nickel-chromium iron (Alloy 600) pipe or tube, Section III	Control rod drive	RG 1.85, Rev 15
1606-1	Stress Criteria, Section III, Classes 2 and 3 piping subject to upset, emergency, and faulted operating conditions	Piping for HPCS, RCIC, LPCS, NBS, SLC, RHR, RWCS	RG 1.84, Rev 11

Table 5.2-1

REACTOR COOLANT PRESSURE BOUNDARY COMPONENTS - APPLICABLE CODE CASES
(Continued)

Number	Title	Applicable Equipment	Remarks
1614	Hydrostatic testing of piping prior to or following the installation of spray nozzles for Section III, Classes 1, 2, and 3 Piping Systems	Field test of ASME Code III piping	RG 1.84, Rev 15
N-61 ~~1620~~	Stress category for partial penetration welded penetrations, Section III, Class I construction	Reactor pressure vessel	RG 1.84, Rev ~~15~~ 19
1621-1	Internal and external valve items, Section III, Division 1, Class 1, 2, and 3 line valves	Globe and check valves (2-1/2-inch and larger)	RG 1.85, Rev 15 (for 1621-2)
~~1644-7~~ N-71-10 by welding	Additional materials for component supports, ~~and alternate design requirements for bolted joints,~~ fabricated Section III, Div. 1, Subsection NF, Class 1, 2 and 3, and MC component supports	Pipe snubbers and struts Pipe supports NF structural steel NF structural supports	RG 1.85, Rev ~~13~~ 19
1677	Clarification of flange design loads, Section III, Class 1, 2, and 3	Venturi tubes Globe and check valves (2-1/2-Inch and larger) Globe and check valves (2-Inch and smaller)	RG 1.84, Rev 15
1682	Alternate rules for material manufacturers and suppliers	Recirculation pump	RG 1.85, Rev 5

Table 5.2-1

REACTOR COOLANT PRESSURE BOUNDARY COMPONENTS - APPLICABLE CODE CASES
(Continued)

Number	Title	Applicable Equipment	Remarks
1690	Stock materials for construction, Section III, Div. 1	Recirculation pump	RG 1.85, Rev 11
~~1711~~ N-100	Pressure relief valve design rules, Section III, Division 1, Class 1, 2, and 3	Safety/relief valves	RG 1.84, Rev ~~15~~ 19
1745	Stress indices for structural attachments, Section III, Division 1, Class 1	Piping for HPCS, RCIC, LPCS, NBS, SLC, RHR, RWCS, RWR	RG 1.84, Rev 15
1773	Use of other product forms of materials for valves, Section III, Div. 1	Globe and check valves (2-1/2 inch and larger)	RG 1.85, Rev 11
~~1820~~ N-177	Alternative ultrasonic examination technique, Section III, Division 1	Recirculation pump	RG 1.85, Rev ~~15~~ 19
N207-1	Use of modified SA-479 type XM-19, Section III, Div. 1, Class 1, 2, or 3 CS construction	Control rod drives	RG 1.85, Rev ~~15~~ 19

ATTACHMENT NO. 3

DRAFT RESPONSES TO INSTRUMENTATION AND CONTROL SYSTEMS BRANCH QUESTIONS AND DISCUSSION ITEMS

Amended Draft 3-16-83

QUESTION

421.50 (7.4.1) In Section 7.4.1.4 of your FSAR, you provide information on the remote shutdown system (RSS). Attachment 2 provides the Instrumentation and Control Systems Branch guidance for remote shutdown capability (i.e., guidance for meeting the requirements of GDC 19). Indicate the extent to which your proposed design of the RSS conforms to the guidance provided in Attachment 2.

421.50 Response

~~(See Attached)~~

The RSS will be upgraded from the present single-panel system to a redundant safety-grade system as follows:

- A second panel will be added in the Division 2 cable tunnel area and be primarily served by Division 2 power. This panel will house controls and instrumentation ~~or~~ necessary to achieve redundancy to the existing Division 1 panel.
- Both panels and their essential instruments and controls will be safety-grade.

GESSAR II will be amended accordingly, prior to its reference by the first applicant.

Additional conformance details are shown in the attached table.

Amended Draft 3-16-83

ICSB POSITION	GESSAR II PSS DESIGN
-10CFR50 Appendix A, GDC 19 (As interpreted in S.R.P. Section 7.4)	
o Provide redundant safety grade capability for remote shutdown assuming no fire damage or accident has occured	o A safety-grade redundant system will be provided as explained on previous page.
o RSS equipment should be seismically qualified.	o The RSS panel itself and some of the controls are seismically grouped in the present design. Both panels and their controls and display instrumentation will be seismically qualified in the new upgraded design.
o Provide redundant instrumentation (indicators) for verification of safe shutdown conditions.	o Redundant instrumentation to verify safe shutdown condition will be provided in the upgrade design.
o Loss of offsite power should not negate shutdown capability from RSS	o (No change from previous response)
o Transfer of control to RSS should not disable any automatic actuation of ESF functions unless such systems can be manually placed in service from the RSS.	o LPCI in one RHR loop, RCIC and their essential support systems are disabled in transfer to RSS panel. (Rest of paragraph unchanged from previous response)
o RSS access via keys or keylock switches shall be administratively controlled and shall not be precluded by the event necessitating evacuation of the control room.	o See Figure 7A.4-3b. Keylock switches are not used on the RSS panel. Since the division 1 panel is located in a room which ~~is~~ normally has personnel traffic through it, a security enclosure is provided to isolate the remote shutdown panel within the main room. The division 2 panel will be located in the division 2 cable tunnel where there is no personnel traffic. Administrative control of both areas is the responsibility of the applicant.

Amended Draft 3-16-83

ICSB POSITION (continued)

- The design should comply with the requirements of Appendix R to 10CFR50.

GESSAR II RSS DESIGN (continued)

- In the upgrade design, each of the two panels will be placed in separate dimensional rooms. ~~; each having 3 hour fire protective barrier walls~~. Therefore, the design meets the requirements of Appendix R.

The walls, ceilings and floors of the rooms will have a fire barrier rating of 3 hours. The division 2 remote shutdown panel will be located in the division 2 cable tunnel of the auxiliary building.

~~FINAL~~ DRAFT
Amended Draft 3-16-83

421.50 a QUESTION

Provide the following additional information in your discussion using drawings as appropriate:

a. Design Criteria for the remote control station equipment including the transfer switches and separation requirements for redundant functions.

421.50 a RESPONSE

The Remote Shutdown System (RSS) provides remote manual control of normal and nuclear safety-related systems necessary for prompt shutdown and subsequent cooldown of the reactor from outside the control room.

The remote shutdown capability in itself does not perform any safety related function. Those RSS components that interface with safety related systems maintain the integrity and channel separation of those systems.

(also see part d)

On the GESSAR II upgrade design, redundant panels will be provided which interface with systems in Division 1 and 2 respectively. The panels will be qualified as safety-grade and thus will maintain the integrity and channel separation in accordance with IEEE 384 and Regulatory Guide 1.75.

~~FINAL DRAFT~~ Amended Draft 3-16-83

421.50b QUESTION

Discuss the separation arrangement between safety-related and non-safety-related instrumentation and controls on the auxiliary shutdown panel.

421.50b RESPONSE

Inside the remote shutdown panel physical barriers between redundant divisions, and between safety related and non-safety related equipments prevents the propagation of fire or effects of electrical faults from one division to another.

On the upgrade design, each of the two cabinets will maintain this same separation arrangement for any equipment not within its primary division.

~~FINAL~~ Amended Draft 3-16-83

421.50 c QUESTION

Discuss the location of the transfer switches and the remote control stations.

421.50 c RESPONSE

The transfer switches are located at the Remote Shutdown panel.

The RS panel shall be located by the ~~customer~~ utility/applicant so that access to and function of the panel will not be affected by the event causing the control room evacuation. It is suggested that the panel be located near a local RHR system control board where convenient communication can be maintained with the RHR switch gear and where failure of any other equipment will not damage the equipment on the remote shutdown panel. The panel shall be located in a controlled environment similar to that of the control room.

The Division 1 RSS panel is located as shown in Figure 9A-3 (Position H-10). On the upgrade system, the Division 2 panel will be located in the Division 2 cable tunnel (~ position C-12) in the same figure.

~~FINAL DRAFT~~
Amended Draft 3-16-83

421.50 d QUESTION

Provide a description of your isolation, separation and transfer override provisions. This should include the provisions for preventing electrical interaction between the control room and the remote shutdown equipment.

421.50 d RESPONSE

The functions needed for the remote shutdown control are provided with manual transfer switches located at the remote shutdown panel, which defeat the controls from the control room and transfer the controls to the remote shutdown control. Remote shutdown is not possible without actuation of the transfer switches.

On the upgrade design, the same information applies to both panels.

~~FINAL DRAFT~~ Amended Draft 3-16-83

421.50 e QUESTION

Provide a description of the administrative and procedural control features to restrict and to assure access, when necessary, to the displays and controls located outside the control room.

421.50 e RESPONSE

It is the ~~utility's~~ applicant's responsibility to describe administrative and procedural control on access to remote shutdown panel.

Since the division 1 panel is located in a room which normally has personnel traffic through it, a security enclosure is provided to isolate the Remote Shutdown Panel within the main room. The division 2 panel will be located in the division 2 cable tunnel where there is no personnel traffic. administrative control of both areas is the responsibility of the applicant.

~~FINAL DRAFT~~ Amended Draft 3-16-83

421.50 f QUESTION

Provide a description of any communication systems required to coordinate operator actions, including redundancy and separation.

421.50 f RESPONSE

It is the ~~utility's~~ applicant's responsibility to describe communication systems.

The sound-powered communication systems are described in GESSAR II, Section 9.5.2.2.2.3. The connecting jacks for the sound-powered telephone are shown on the Remote Shutdown Panel (Figure 9.5-5, zone F-3).

~~FINAL DRAFT~~
amended Draft 3-16-83

421.50 g QUESTION

Discuss the means for ensuring that cold shutdown can be accomplished.

421.50 g RESPONSE

The RSS design includes a panel and associated controls, indicators, and monitors for interfacing with the RHR, RCIC, Main Steam, and Condensate and Feedwater Systems. In the event the reactor vessel is isolated, the feedwater supply is unavailable, the normal heat sinks (turbine and condenser) are lost, and evacuation of the control room is necessary, remote manual control of normal reactor cold shutdown sytems is taken as follows:

Reactor pressure will be controlled and core decay and sensible heat will be rejected to the suppression pool by releasing steam through the safety relief valves. Reactor water inventory will be maintained by the RCIC system. The suppression pool will be cooled as required by operating the RHR system in the suppression pool cooling mode. This procedure will cool the reactor and reduce its pressure at a controlled rate. The RHR system will than be operated in the shutdown cooling mode to bring and maintain the reactor to the cold shutdown condition.

For the upgrade design, the shutdown process is redundant for the division 2 panel except that RCIC is a division 1 system and therefore has no redundant controls in the division 2 panel. The division 3 HPCS is assumed to maintain RPV water level automatically in this condition.

~~FINAL DRAFT~~ Amended Draft 3-16-83

421.50 h QUESTION

Provide a description of the control room annunciation of the status of remote control or override status of devices under local control.

421.50 h RESPONSE

Operation of any of the transfer switches causes an annunciator alarm in the control room.

(No change from previous response)

~~FINAL DRAFT~~ Amended Draft 3-16-83

421.50 i QUESTION

Discuss your proposed startup test program to demonstrate remote shutdown capability in accordance with the guidance provided in Regulatory Guide 1.68, Revision 2.

421.50 i RESPONSE

The startup test program for the RSS shall be performed after the completion of the preoperational testing of the RSS, and the establishment of remote shutdown operating procedures and test procedures, and the communications between the control room and remote shutdown locations.

The reactor shall be scrammed and the MSIV's closed from outside the control room while the reactor is in a normal steady state condition.

Reactor water level and pressure shall be controlled from outside the main control room.

Data shall be obtained and recorded at locations outside the control room to verify that the plant has achieved hot shutdown conditions and can be maintained at stable hot shutdown for at least 30 minutes.

Manual operation of the safety relief valve (s) and the suppression pool cooling mode of the RHR system from outside the control room shall be demonstrated. From outside the control room, water level shall be controlled in the normal range and reactor pressure shall be lowered at a rate not to exceed the technical specification limits.

The reactor coolant temperature shall be reduced 50°F by controlling the shutdown cooling mode of the RHR and/or the Reactor Core Isolation Cooling Systems from outside the control room at a rate not to exceed technical specification limits.

A test report shall document the results of all tests performed and a summary of any significant deviations from the required system performance.

The demonstration of cold shutdown capability need not be performed immediately following the demonstration of achieving and maintaining safe hot standby from outside the control room. Rather, this cooldown portion of the test may be combined with another startup test requiring the reactor to be cooled down, as long as the procedures and acceptance criteria for the combined test meet all the elements of each individual test.

~~FINAL DRAFT~~
Amended Draft 3-16-83

421.50 j QUESTION

Discuss the testing to be performed during plant operation to verify the capability of maintaining the plant in a safe shutdown condition from outside the control room.

421.50 j RESPONSE

It is the ~~utility's~~ applicant's responsibility to discuss testing performed during plant operation in accordance with their plant technical specifications.

(No change from previous response)

Draft Response 3/17/83

ICSB

Testing of the Backup Scram Valves

Although not associated with the formal ICSB questions, the staff requested additional justification supporting the testability of the design and the frequency for testing the backup scram valves, and their associated solenoids.

Response

The following applicant interface requirement has been added to Table 1.9-19 in GESSAR II, Section 1.9:

> "Revise technical specifications to include functional testing of back-up scram valves each refueling outage. Also, add method for confirming back-up scram valve operation following each scram occurence."

ATTACHMENT NO. 4

DRAFT RESPONSES TO STRUCTURAL AND GEOTECHNICAL ENGINEERING BRANCH AUDIT ACTION ITEMS

Audit Action Items No. 12 and 13

Item No. 12

Investigate the effects of not accounting for torsional interaction between soil and structures. Provide results and conclusions.

Item No. 13

Provide a discussion as to how a potential exceedance in response spectra beyond the envelope spectra included in GESSAR II due to discreet site specific soil parameters is considered.

Response

Responses to audit actions No. 12 and 13 will be provided as part of the results of the additional soil structure interaction analysis (SSI) using the lumped parameter approach with input motion at the foundation level in response to NRC Questions 220.09 and 220.44. Since this SSI analysis is considered confirmatory by the staff, the information submittal for audit action items no. 12 and 13 should also be confirmatory.

ATTACHMENT NO. 4

DRAFT RESPONSES TO STRUCTURAL AND GEOTECHNICAL ENGINEERING BRANCH AUDIT ACTION ITEMS

Audit Action Items No. 12 and 13

Item No. 12

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