May 16, 1985

Docket Nos. 50-317
and 50-318

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Mr. A. E. Lundvall, Jr.
Vice President - Supply
Baltimore Gas & Electric Company
P. O. Box 1475
Baltimore, Maryland 21203

Dear Mr. Lundvall:

The Commission has issued the enclosed Amendment Nos. 103 and 85 to Facility Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications in partial response to your applications dated September 20, 1984 and January 31, 1985.

The amendments change the Unit 1 and Unit 2 Technical Specifications (TS) to reflect: (1) changes to surveillance requirements for safety related hydraulic sway arrestors (snubbers) for Unit 1 only, (2) clarification of the degree of independence associated with the emergency core cooling system (ECCS) and shutdown cooling system, (3) deletion of a reactor vessel pressurization curve that is no longer needed for Unit 2 only, (4) a change to the containment isolation valve identification numbers, (5) incorporation of the containment water level monitor including operability and surveillance requirements and (6) installation of a new meteorological monitoring system.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next monthly Federal Register notice.

Sincerely,

David H. Jaffe, Project Manager
Operating Reactors Branch #3
Division of Licensing

Enclosures:
1. Amendment No. 103 to DPR-53
2. Amendment No. 85 to DPR-69
3. Safety Evaluation

cc w/enclosure:
See next page

AD/CSE
R. Bosnak
5/6/85

Changes made 5/14/85

with addition to power finding

| ORB#3:DL | ORB#3:DL | ORB#3:DL | OELD | AD:OR:DL |
|---|---|---|---|---|
| PMKreutzer | DJaffe:dd | JRMiller | | GCLainas |
| 5/9/85 | 5/2/85 | 5/8/85 | 5/9/85 | 5/14/85 |

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PDR ADOCK 05000317
P PDR

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 103
License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Baltimore Gas & Electric Company (the licensee) dated September 20, 1984 and January 31, 1985, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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P PDR

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-53 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 103, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 16, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 103

FACILTIY OPERATING LICENSE NO. DPR-53

DOCKET NO. 50-317

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are provided to maintain document completeness.

| Remove Pages | Insert Pages |
|---|---|
| 3/4 3-35 | 3/4 3-35 |
| 3/4 3-36 | 3/4 3-36 |
| 3/4 3-41 | 3/4 3-41 |
| 3/4 3-42 | 3/4 3-42 |
| 3/4 6-19 | 3/4 6-19 |
| 3/4 6-20 | 3/4 6-20 |
| 3/4 6-21 | 3/4 6-21 |
| 3/4 6-22 | 3/4 6-22 |
| 3/4 6-23 | 3/4 6-23 |
| 3/4 6-24 | 3/4 6-24 |
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| 3/4 7-26 | 3/4 7-26 |
| 3/4 7-26b | 3/4 7-26b |
| 3/4 7-27 | 3/4 7-27 |
| 3/4 7-29 | 3/4 7-29 |
| 3/4 7-30 | 3/4 7-30 |
| 3/4 7-31 | 3/4 7-31 |
| 3/4 7-37 | 3/4 7-37 |
| 3/4 7-46 | 3/4 7-46 |
| 3/4 7-47 | 3/4 7-47 |
| 3/4 7-51 | 3/4 7-51 |
| 3/4 7-52 | 3/4 7-52 |
| 3/4 7-60 | 3/4 7-60 |
| 3/4 9-8a | 3/4 9-8a |
| B 3/4 3-2 | B 3/4 3-2 |
| B 3/4 5-1 | B 3/4 5-1 |

## TABLE 3.3-8

## METEOROLOGICAL MONITORING INSTRUMENTATION

| INSTRUMENT | LOCATION | MINIMUM CHANNELS OPERABLE |
|---|---|---|
| 1. WIND SPEED | | |
| a. Nominal Elev. 10M | | 1 |
| b. Nominal Elev. 60M | | 1 |
| 2. WIND DIRECTION | | |
| a. Nominal Elev. 10M | | 1 |
| b. Nominal Elev. 60M | | 1 |
| 3. AIR TEMPERATURE - DELTA T (10M-60M) | | 1 |

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. WIND SPEED | | |
| a. Nominal Elev. 10M | D | SA |
| b. Nominal Elev. 60M | D | SA |
| 2. WIND DIRECTION | | |
| a. Nominal Elev. 10M | D | SA |
| b. Nominal Elev. 60M | D | SA |
| 3. AIR TEMPERATURE - DELTA T (10M-60M) | D | SA |

TABLE 3.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION

| INSTRUMENT | MINIMUM CHANNELS OPERABLE |
|---|---|
| 1. Deleted | |
| 2. Containment Pressure | 2 |
| 3. Wide Range Logarithmic Neutron Flux Monitor | 2 |
| 4. Reactor Coolant Outlet Temperature | 2 |
| 5. Deleted | |
| 6. Pressurizer Pressure | 2 |
| 7. Pressurizer Level | 2 |
| 8. Steam Generator Pressure | 2/steam generator |
| 9. Steam Generator Level (Wide Range) | 2/steam generator |
| 10. Feedwater Flow | 2 |
| 11. Auxiliary Feedwater Flow Rate | 2/steam generator |
| 12. RCS Subcooled Margin Monitor | 1 |
| 13. PORV/Safety Valve Acoustic Flow Monitoring | 1/valve |
| 14. PORV Solenoid Power Indication | 1/valve |
| 15. Containment Water Level (Wide Range) | 1 |

TABLE 4.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. Deleted | | |
| 2. Containment Pressure | M | R |
| 3. Wide Range Logarithmic Neutron Flux Monitor | M | N.A. |
| 4. Reactor Coolant Outlet Temperature | M | R |
| 5. Deleted | | |
| 6. Pressurizer Pressure | M | R |
| 7. Pressurizer Level | M | R |
| 8. Steam Generator Pressure | M | R |
| 9. Steam Generator Level (Wide Range) | M | R |
| 10. Feedwater Flow | M | R |
| 11. Auxiliary Feedwater Flow Rate | M | R |
| 12. RCS Subcooled Margin Monitor | M | R |
| 13. PORV/Safety Valve Acoustic Monitor | N.A. | R |
| 14. PORV Solenoid Power Indication | N.A. | N.A. |
| 15. Containment Water Level (Wide Range) | M | R |

TABLE 3.6-1

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 1A | SIAS A | PS-5465-CV | R.C. and Pressurizer Sampling | ≤7 |
| | SIAS A | PS-5466-CV | | ≤7 |
| | SIAS A | PS-5467-CV | | ≤7 |
| | SIAS B | PS-5464-CV | | ≤7 |
| 1B | SIAS A | WGS-2180-CV | Containment Vent Header to Waste Gas | ≤7 |
| | SIAS B | WGS-2181-CV | | ≤7 |
| 1C | SIAS A | CVC-506-CV | RCP Seals Controlled Bleedoff | ≤7 |
| | SIAS B | CVC-505-CV | | ≤7 |
| 1D | NA | PS-6529-SV* | Post Accident Sampling Liquid Return to RC Drain Tank | NA |
| 2A | SIAS A | CVC-515-CV | Letdown Line | ≤13 |
| | SIAS B | CVC-516-CV | | ≤13 |
| | NA | CVC-105 | | NA |
| | NA | CVC-103 | | NA |
| 2B | NA | CVC-517-CV | Charging Line | NA |
| | NA | CVC-518-CV | | NA |
| | NA | CVC-519-CV | | NA |
| | NA | CVC-435-RV | | NA |
| | NA | CVC-184 | | NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNELS | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 7A | NA<br>NA | Blind Flange<br>ILRT-1 | ILRT | NA<br>NA |
| 7B | NA<br>NA | Blind Flange<br>ILRT-2 | ILRT | NA<br>NA |
| 8 | SIAS A<br>SIAS B | EAD-5462-MOV<br>EAD-5463-MOV | Containment Normal Sump | ≤13<br>≤13 |
| 9 | NA<br>NA | SI-340<br>SI-326 | Containment Spray | NA<br>NA |
| 10 | NA<br>NA | SI-330<br>SI-316 | Containment Spray | NA<br>NA |
| 13 | SIAS A, CRS A<br>SIAS B, CRS B | CPA-1410-CV(3)<br>CPA-1411-CV(3) | Purge Air Inlet | ≤7**<br>≤7** |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNELS | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 14 | SIAS A, CRS A | CPA-1412-CV (3) | Purge Air Outlet | ≤7** |
| | SIAS B, CRS B | CPA-1413-CV (3) | | ≤7** |
| 15 | SIAS A | RE-5291-CV | Purge Air Monitor | ≤7 |
| | SIAS B | RE-5292-CV | | ≤7 |
| 16 | CIS A | CC-3832-CV | Component Cooling Water Inlet | ≤18 |
| 18 | CIS B | CC-3833-CV | Component Cooling Water Outlet | ≤18 |
| 19A | NA | IA-337 | Instrument Air | NA |
| | CIS A | IA-2080-MOV | | ≤13 |
| 19B | NA | PA-1040* | Plant Air | NA |
| | NA | PA-1044* | | NA |
| 20A | NA | $N_2$-344 | Nitrogen Supply | NA |
| | NA | $N_2$-612-CV* | | NA |
| | NA | $N_2$-622-CV* | | NA |
| | NA | $N_2$-632-CV* | | NA |
| | NA | $N_2$-642-CV* | | NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 20B | NA<br>NA | $N_2$-384<br>$N_2$-345 | Nitrogen Supply | NA<br>NA |
| 20C | NA<br>NA | $N_2$-346<br>$N_2$-392 | Nitrogen Supply | NA<br>NA |
| 23 | SIAS A | RCW-4260-CV | R.C. Drain Tank Drains | $\leq 7$ |
| 24 | SIAS B | PS-6531-SV | Oxygen Sample Line | $\leq 7$ |
| 37 | NA<br>NA | PSW-1019<br>PSW-1008 | Plant Water | NA<br>NA |
| 38 | NA | DW-5460-CV* | Demineralized Water | NA |
| 39 | NA<br>NA | SI-463<br>SI-455 | Safety Injection Tank Test Line | NA<br>NA |
| 41 | NA<br>NA | SI-652-MOV (2)<br>SI-651-MOV (2) | Shutdown Cooling | NA<br>NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 44 | NA | FP-141-A | Fire Protection | NA |
| | NA | FP-141-B | | NA |
| | NA | FP-6200-MOV* | | NA |
| 47A | NA | PS-6540A-SV* | Hydrogen Sample Outlet | NA |
| | NA | PS-6507A-SV* | | NA |
| 47B | NA | PS-6540E-SV* | Hydrogen Sample Outlet | NA |
| | NA | PS-6507E-SV* | | NA |
| 47C | NA | PS-6540F-SV* | Hydrogen Sample Outlet | NA |
| | NA | PS-6507F-SV* | | NA |
| 47D | NA | PS-6540G-SV* | Hydrogen Sample Return | NA |
| | NA | PS-6507G-SV* | | NA |
| 48A | SIAS-B | HP-6900-MOV | Containment Vent Isolation | <20** |
| | SIAS-A | HP-6901-MOV | | ≤20** |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 48B | NA<br>NA | HP-104<br>HP-6903-MOV | Hydrogen Purge Inlet | NA<br>NA |
| 49A | NA<br>NA | PS-6540B-SV*<br>PS-6507B-SV* | Hydrogen Sample | NA<br>NA |
| 49B | NA<br>NA | PS-6540C-SV*<br>PS-6507C-SV* | Hydrogen Sample | NA<br>NA |
| 49C | NA<br>NA | PS-6540D-SV*<br>PS-6507D-SV* | Hydrogen Sample | NA<br>NA |
| 50 | NA<br>NA | Blind Flange<br>Blind Flange | ILRT | NA<br>NA |
| 59 | NA<br>NA | SFP-170<br>SFP-171 | Refueling Pool Inlet | NA<br>NA |
| 60 | NA<br>NA | ES-144<br>ES-142 | Steam to Reactor Head Laydown | NA<br>NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 61 | NA | SFP-176 | Refueling Pool Outlet | NA |
| | NA | SFP-174 | | NA |
| | NA | SFP-172 | | NA |
| | NA | SFP-189 | | NA |
| 62 | SIAS A | PH-6579-MOV | Containment Heating Outlet | ≤13 |
| 64 | NA | PH-376 | Containment Heating Inlet | NA |

(1) Manual or remote manual valve which is closed during plant operation.

(2) May be opened below 300°F to establish shutdown cooling flow.

(3) Containment purge and containment vent isolation valves will be shut in MODES 1, 2, 3 and 4 per TS 3/4 6.1.7 and TS 3/4 6.1.8, respectively.

* May be open on an intermittent basis under administrative control.

** Containment purge isolation valves isolation times will only apply for MODES 5 and 6 during which time these valves may be opened. Isolation time for containment purge and containment vent isolation valves is NA for MODES 1, 2, 3 and 4 per TS 3/4 6.1.7 and TS 3/4 6.1.8, respectively, during which time these valves must remain closed.

## 3/4.6.5 COMBUSTIBLE GAS CONTROL

### HYDROGEN ANALYZERS

### LIMITING CONDITION FOR OPERATION

3.6.5.1 Two independent containment hydrogen analyzers shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen analyzer inoperable*, restore the inoperable analyzer to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

### SURVEILLANCE REQUIREMENTS

4.6.5.1 Each hydrogen analyzer shall be demonstrated OPERABLE at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases in accordance with manufacturers' recommendations.

*During the period from May 15 to July 15, 1983, one hydrogen analyzer may be made inoperable, at any given time, for the purpose of replacing system solenoid valves with environmentally qualified valves. During this time, Specification 3.0.4 is not applicable to this requirement.

## 3/4.7.8 SNUBBERS

### LIMITING CONDITION FOR OPERATION

3.7.8.1 All snubbers listed in Table 3.7-4 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4. (MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES.)

ACTION: With one or more snubbers inoperable, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status, and perform an engineering evaluation* per Specification 4.7.8.b. and c. on the supported component or declare the supported system inoperable and follow the appropriate ACTION statement for that system.

### SURVEILLANCE REQUIREMENTS

4.7.8.1 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Visual Inspections

Visual inspections shall be performed in accordance with the following schedule:

| No. Inoperable Snubbers per Inspection Period | Subsequent Visual** Inspection Period# |
|---|---|
| 0 | 18 months ± 25% |
| 1 | 12 months ± 25% |
| 2 | 6 months ± 25% |
| 3, 4 | 124 days ± 25% |
| 5, 6, 7 | 62 days ± 25% |
| 8 or more | 31 days ± 25% |

The snubbers may be categorized into two groups: Those accessible and those inaccessible during reactor operation. Each group may be inspected independently in accordance with the above schedule.

---

* A documented, visual inspection shall be sufficient to meet the requirements for an engineering evaluation. Additional analyses, as needed, shall be completed in a reasonable period of time.

** The inspection interval shall not be lengthened more than two steps at a time.

\# The provisions of Specification 4.0.2 are not applicable.

b. Visual Inspection Acceptance Criteria

Visual inspections shall verify (1) that there are no visible indications of damage or impaired OPERABILITY, and (2) that the snubber installation exhibits no visual indications of detachment from foundations or supporting structures. Snubbers which appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and/or (2) the affected snubber is functionally tested in the as found condition and determined OPERABLE per Specification 4.7.8.d, as applicable. When the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined inoperable unless it can be determined OPERABLE via functional testing for the purpose of establishing the next visual inspection interval.

For the snubber(s) found inoperable, an engineering evaluation shall be performed on the component(s) which are supported by the snubber(s). The scope of this engineering evaluation shall be consistent with the licensee's engineering judgment and may be limited to a visual inspection of the supported component(s). The purpose of this engineering evaluation shall be to determine if the component(s) supported by the snubber(s) were adversely affected by the inoperability of the snubber(s) in order to ensure that the supported component remains capable of meeting the designed service.

c. Functional Tests

At least once per 18 months during shutdown, a representative sample of 10% of the snubbers in use in the plant shall be functionally tested either in place or in a bench test.* For each snubber that does not meet the functional test acceptance criteria of Specification 4.7.8.d, an additional 5% of the snubbers shall be functionally tested until no more failures are found or until all snubbers have been functionally tested.

* The Steam Generator snubbers 1-63-13 through 1-63-28 need not be functionally tested until the refueling outage following June 30, 1985.

Snubbers identified in Table 3.7-4 as "Especially Difficult to Remove" or in "High Exposure Zones" shall also be included in the representative sample.*

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another position) and the spare snubber shall be retested during the next test period. Failure of these snubbers shall not entail functional testing of additional snubbers.

If any snubber selected for functional testing either fails to lock up or fails to move, i.e., frozen in place, the cause will be evaluated and if caused by manufacturer or design deficiency all generically susceptible snubbers of the same design subject to the same defect shall be functionally tested. This testing requirement shall be independent of the requirements stated above for snubbers not meeting the functional test acceptance criteria.

For the snubber(s) found inoperable, an engineering evaluation shall be performed on the component(s) which are supported by the snubber(s). The scope of this engineering evaluation shall be consistent with the licensee's engineering judgment and may be limited to a visual inspection of the supported component(s). The purpose of this engineering evaluation shall be to determine if the component(s) supported by the snubber(s) were adversely affected by the inoperability of the snubber(s) in order to ensure that the supported component remains capable of meeting the designed service.

d. Hydraulic Snubbers Functional Test Acceptance Criteria

The hydraulic snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

* Permanent or other exemptions from functional testing for individual snubbers in these categories may be granted by the Commission only if a justifiable basis for exemption is presented and/or snubber life destructive testing was performed to qualify snubber operability for all design conditions at either the completion of their fabrication or at a subsequent date.

e. Snubber Service Life Monitoring*

A record of the service life of each snubber, the date at which the designated service life commences and the installation and maintenance records on which the designated service life is based shall be maintained as required by Specification 6.10.2.m.

At least once per 18 months, the installation and maintenance records for each snubber listed in Table 3.7-4 shall be reviewed to verify that the indicated service life has not been exceeded or will not be exceeded prior to the next scheduled snubber service life review.** If the indicated service life will be exceeded prior to the next scheduled snubber service life review, the snubber service life shall be re-evaluated or the snubber shall be replaced or reconditioned so as to extend its service life beyond the date of the next scheduled service life review. This reevaluation, replacement, or reconditioning shall be indicated in the records.

* The Snubber Service Life Program shall be fully implemented by January 1, 1983.

**The provisions of Specification 4.0.2 are applicable.

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-11-1 | SERVICE WATER PUMP #13 SUCTION 5' | A | No | No |
| 1-11-2 | SERVICE WATER PUMP #13 SUCTION 5' | A | No | No |
| 1-11-4 | SERVICE WATER PUMP #12 SUCTION 5' | A | No | No |
| 1-11-5 | SERVICE WATER PUMP #12 SUCTION 5' | A | No | No |
| 1-11-7 | SERVICE WATER PUMP #11 SUCTION 5' | A | No | No |
| 1-11-8 | SERVICE WATER PUMP #11 SUCTION 5' | A | No | No |
| 1-11-9 | SERVICE WATER PUMP #11 SUCTION 5' | A | No | No |
| 1-11-10 | SERVICE WATER HEADER FROM TURBINE BLDG. 5' | A | No | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-11-11 | SERVICE WATER FROM CONTAINMENT COOLERS 5' | A | No | Yes |
| 1-11-11A | SERVICE WATER PUMP SUCTION HDR 5' | A | No | No |
| 1-11-13 | SERVICE WATER FROM SPENT FUEL POOL COOLERS 5' | A | No | Yes |
| 1-11-14 | SERVICE WATER FROM CONTAINMENT COOLERS 5' | A | No | No |
| 1-11-16 | SERVICE WATER PUMP DISCHARGE HEADER 5' | A | No | No |
| 1-11-18 | SERVICE WATER PUMP DISCHARGE HEADER 5' | A | No | No |
| 1-11-18A | SERVICE WATER PUMP DISCHARGE HEADER 5' | A | No | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-11-21 | SERVICE WATER PUMP #12 SUCTION 5' | A | No | No |
| 1-11-22 | SERVICE WATER PUMP #13 DISCHARGE 5' | A | No | No |
| 1-12-1 | DISCHARGE #12 COMPONENT COOLING HX 15' | A | No | No |
| 1-12-2 | DISCHARGE #12 SERVICE WATER HX 15' | A | No | No |
| 1-12-3 | DISCHARGE #11 SERVICE WATER HX 15' | A | No | No |
| 1-12-4 | INLET #11 COMPONENT COOLING HX 15' | A | No | No |
| 1-12-5 | INLET #12 COMPONENT COOLING HEAT EXCHANGER 15' | A | No | No |
| 1-12-5A | INLET #12 COMPONENT COOLING HEAT EXCHANGER 15' | A | No | No |
| 1-15-1 | SUCTION HEADER COMPONENT COOLING PUMPS 5' | A | No | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-15-2 | SUCTION HEADER COMPONENT COOLING PUMPS 5' | A | No | No |
| 1-15-3 | COMPONENT COOLING PUMP SUCTION FROM COMPONENT COOLING HEAD TANK 5' | A | No | No |
| 1-15-4 | COMPONENT COOLING PUMP DISCHARGE HEADER 5' | A | No | No |
| 1-15-5 | COMPONENT COOLING PUMP #12 DISCHARGE 5' | A | No | No |
| 1-15-6 | COMPONENT COOLING PUMP DISCHARGE HEADER 5' | A | No | No |
| 1-15-6A | COMPONENT COOLING PUMP DISCHARGE HEADER 5' | A | No | No |
| 1-15-8 | COMPONENT COOLING FROM WASTE EVAPS. 45' | A | No | No |
| 1-15-9 | COMPONENT COOLING WATER FROM MISC. -10' | A | No | No |
| 1-15-11 | WASTE PROCESSING SYSEM -10' | A | No | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEMS SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-38-5 | PRESSURIZER SAMPLE LINES 24' | I | Yes | No |
| 1-38-6 | PRESSURIZER SAMPLE LINES 37' | I | Yes | No |
| 1-24-1 | DIESEL GENERATOR #12 EXHAUST 92' | A | No | No |
| 1-24-2 | DIESEL GENERATOR #11 EXHAUST 92' | A | No | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-24-3 | EMERGENCY DIESEL #12 EXHAUST 61' | A | No | No |
| 1-24-3A | EMERGENCY DIESEL #12 EXHAUST 61' | A | No | No |
| 1-24-4 | EMERGENCY DIESEL #11 EXHAUST 61' | A | No | No |
| 1-24-4A | EMERGENCY DIESEL #11 EXHAUST 61' | A | No | No |
| 1-24-5 | DIESEL GENERATOR #21 EXHAUST 92' | A | No | No |
| 1-24-6 | DIESEL GENERATOR #21 EXHAUST 62' | A | No | No |
| 1-24-6A | DIESEL GENERATOR #21 EXHAUST 62' | A | No | No |
| 1-28-1 | UNIT 1 AFW PUMP ROOM 22' | A | No | No |
| 1-28-2 | UNIT 1 AFW PUMP ROOM 22' | A | No | No |
| 1-28-3 | UNIT 1 AFW PUMP ROOM 22' | A | No | No |
| 1-41-1 | SUCTION #13 CHARGING PUMP -10' | A | No | No |
| 1-41-2 | AUX. SPRAY 65' | I | Yes | No |
| 1-41-3 | AUX. SPRAY 65' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-52-24 | SD COOLING UPSTREAM ISOLATION VALVE 25' | I | Yes | No |
| 1-52-25 | SD COOLING UPSTREAM ISOLATION VALVE 20' | I | Yes | No |
| 1-52-25A | SD COOLING UPSTREAM ISOLATION VALVE 20' | I | Yes | No |
| 1-52-25B | SD COOLING UPSTREAM ISOLATION VALVE 20' | I | Yes | No |
| 1-52-26 | SD COOLING UPSTREAM ISOLATION VALVE 31' | I | Yes | No |
| 1-52-26A | SD COOLING UPSTREAM ISOLATION VALVE 31' | I | Yes | No |
| 1-52-27 | SD COOLING UPSTREAM ISOLATION VALVE 31' | I | Yes | No |
| 1-52-28 | SD COOLING UPSTREAM ISOLATION VALVE 31' | I | Yes | No |
| 1-52-28A | SD COOLING UPSTREAM ISOLATION VALVE 31' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-52-29 | SI TANK 11A DISCHARGE 48' | I | Yes | No |
| 1-52-30 | HPSI TO LOOP 11A 46' | I | Yes | No |
| 1-52-31 | SI TO LOOP 11A 48' | I | Yes | No |
| 1-52-32 | SI TO LOOP 11A (UPSTREAM MOV 614) 48' | I | Yes | No |
| 1-52-32A | SI TO LOOP 11A (UPSTREAM MOV 614) 48' | I | Yes | No |
| 1-52-33 | SI TANK 12A DISCHARGE 55' | I | Yes | No |
| 1-52-34 | SI TANK 12A DISCHARGE 56' | I | Yes | No |
| 1-52-34A | SI TANK 12A DISCHARGE 56' | I | Yes | No |
| 1-52-35 | SI TO LOOP 12A (UPSTREAM MOV 634) 48' | I | Yes | No |
| 1-52-36 | SI TO LOOP 12A 48' | I | Yes | No |
| 1-52-37 | SI TO LOOP 12A 48' | I | Yes | No |
| 1-52-37A | SI TO LOOP 12A 48' | I | Yes | No |
| 1-52-38 | SI TO LOOP 12A 48' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-54-12 | ERV-404 DISCHARGE 89' | I | Yes | No |
| 1-54-14 | RECIRC. RELIEF VALVE DISCH. TO QUENCH TANK 28' | I | Yes | No |
| 1-54-15 | RECIRC. RELIEF VALVE DISCH. TO QUENCH TANK 28' | I | Yes | No |
| 1-54-16 | RECIRC. RELIEF VALVE DISCH. TO QUENCH TANK 40' | I | Yes | No |
| 1-54-17 | RECIRC. RELIEF VALVE DISCH. TO QUENCH TANK 49' | I | Yes | No |
| 1-54-18 | ERV-404 RV 201 DISCH. HEADER 89' | I | Yes | No |
| 1-54-19 | RV 201 DISCHARGE 89' | I | Yes | No |
| 1-54-20 | RV 200, RV 201 SEAT DRAIN HEADER 83' | I | Yes | No |
| 1-54-21 | RV 200, RV201 SEAT DRAIN HEADER 77' | I | Yes | No |
| 1-54-23 | PRESSURIZER RELIEF 90' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-60-3 | SERVICE WATER TO CONTAINMENT COOLER #12, 65' | I | Yes | No |
| 1-60-4 | SERVICE WATER TO CONTAINMENT COOLER #14 66' | I | Yes | No |
| 1-60-6 | SERVICE WATER FROM CONTAINMENT COOLER #12, 53' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-60-8 | SERVICE WATER FROM CONTAINMENT COOLER #13 66' | I | Yes | No |
| 1-60-9 | SERVICE WATER TO CONTAINMENT COOLER #11 44' | I | Yes | No |
| 1-60-10 | SERVICE WATER TO CONTAINMNET COOLER #11 44' | I | Yes | No |
| 1-60-10A | SERVICE WATER TO CONTAINMENT COOLER #11 43' | I | Yes | No |
| 1-60-11 | SERVICE WATER FROM CONTAINMENT COOLER #11 43' | I | Yes | No |
| 1-60-11A | SERVICE WATER FROM CONTAINMENT COOLER #11 43' | I | Yes | No |
| 1-60-12 | SERVICE WATER FROM CONTAINMENT COOLER #11 43' | I | Yes | No |
| 1-60-12A | SERVICE WATER FROM CONTAINMENT COOLER #11 43' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-60-18 | SPRAY TO CONTAINMENT CHARCOAL FILTER #11 60' | I | Yes | No |
| 1-60-20 | SPRAY TO CONTAINMENT CHARCOAL FILTER #11 60' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-61-17 | CONTAINMENT SPRAY D/STRM S/D H/X -15' | A | No | No |
| 1-63-9 | S.G. #11 BLOWDOWN ORIFICE LINE 70' | I | Yes | No |
| 1-63-10 | S.G. #11 BLOWDOWN ORIFICE BYPASS 78' | I | Yes | No |
| 1-63-11 | NITROGEN to S.G. #12 74' | I | Yes | No |
| 1-63-12 | NITROGEN to S.G. #12 69' | I | Yes | No |
| 1-63-13 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-14 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-15 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-16 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-17 | STEAM GENERATORS 75' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-63-18 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-19 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-20 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-21 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-22 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-23 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-24 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-25 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-26 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-27 | STEAM GENERATORS 75' | I | Yes | No |
| 1-63-28 | STEAM GENERATORS 75' | I | Yes | No |
| 1-64-1 | LINE TO PRESS. RELIEF MOV-403 81' | I | Yes | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-83-19 | MAIN STEAM LINE 27' PENETRATION TUNNEL | I | No | Yes |
| 1-83-20 | MAIN STEAM LINE 27' PENETRATION TUNNEL | I | No | Yes |
| 1-83-21 | MAIN STEAM LINE 27' PENETRATION TUNNEL | I | No | Yes |
| 1-83-22 | MAIN STEAM LINE 27' PENETRATION TUNNEL | I | No | Yes |
| 1-83-23 | MAIN STEAM LINE 27' PENETRATION TUNNEL | I | No | Yes |
| 1-83-29 | #11 AFPT STEAM SUPPLY HEADER 12' | A | No | No |
| 1-83-30 | MSIV #12 HYDRAULIC SUPPLY 5' | A | No | No |
| 1-83-31 | MSIV #12 HYDRAULIC SUPPLY 5' | A | No | No |
| 1-83-32 | MSIV #12 HYDRAULIC SUPPLY 5' | A | No | No |
| 1-83-33 | MSIV #12 HYDRAULIC SUPPLY 5' | A | No | No |
| 1-83-34 | MSIV #12 HYDRAULIC SUPPLY 27' | A | No | No |
| 1-83-35 | MSIV #12 HYDRAULIC SUPPLY 27' | A | No | No |
| 1-83-36 | MSIV #12 HYDRAULIC SUPPLY 27' | A | No | No |
| 1-83-37 | MSIV #12 HYDRAULIC SUPPLY 27' | A | No | No |

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS*

| SNUBBER NO. | SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION | ACCESSIBLE OR INACCESSIBLE (A or I) | HIGH RADIATION ZONE** (Yes or No) | ESPECIALLY DIFFICULT TO REMOVE (Yes or No) |
|---|---|---|---|---|
| 1-83-38 | MS FROM S.G. #12 TO AUX. FEED PUMP 27' | A | No | No |
| 1-83-40 | MS FROM S.G. #12 TO AUX. FEED PUMP 27' | A | No | No |
| 1-83-40A | MS FROM S.G. #12 TO AUX. FEED PUMP 27' | A | No | No |
| 1-83-44 | STEAM SUPPLY TO AUX. FEED PUMP 27' | A | No | No |
| 1-83-47 | AUX. FEED PUMP ISO. VALVE BYPASS 27' | A | No | No |
| 1-83-48 | AUX. FEED PUMP ISO. VALVE BYPASS 27' | A | No | No |
| 1-83-49 | MAIN STEAM LINE ENCAPSULATION 27' | A | No | Yes |
| 1-83-50 | MAIN STEAM LINE ENCAPSULATION 27' | A | No | Yes |
| 1-83-51 | MAIN STEAM LINE ENCAPSULATION 27' | A | No | Yes |
| 1-83-52 | MAIN STEAM LINE ENCAPSULATION 27' | A | No | Yes |
| 1-83-53 | MAIN STEAM LINE ENCAPSULATION 27' | A | No | Yes |
| 1-83-54 | MAIN STEAM LINE ENCAPSULATION 27' | A | No | No |

## SHUTDOWN COOLING AND COOLANT CIRCULATION

### LIMITING CONDITION FOR OPERATION

3.9.8.2 Two (2) shutdown cooling loops shall be OPERABLE*#.

APPLICABILITY: Mode 6 when the water level above the top of the irradiated fuel assemblies seated within the reactor pressure vessel is less than 23 feet.

ACTION:

a. With less than the required shutdown cooling loops OPERABLE, initiate corrective action to return loops to OPERABLE status within one hour.

b. The provisions of Specification 3.0.3 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.9.8.2 No additional Surveillance Requirements other than those required by Specification 4.0.5.

*Normal or emergency power source may be inoperable for each shutdown cooling loop.

#One shutdown cooling loop may be replaced by one spent fuel pool cooling loop when it is lined up to provide cooling flow to the irradiated fuel in the reactor core and the heat generation rate of the core is below the heat removal capacity of the spent fuel pool cooling loop.

## 3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and bypasses ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monitored by each channel or combination therof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundance and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

## 3/4.3.3 MONITORING INSTRUMENTATION

### 3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served

by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

3/4.3.3.2 INCORE DETECTORS

The OPERABILITY of the incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes", April 1974.

3/4.3.3.4. METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23, Rev. 1 (Proposed) "Meteorological Programs in Support of Nuclear Power Plants," September 1980.

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

## 3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the RCS safety injection tanks ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the safety injection tanks. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on safety injection tank volume, boron concentration and pressure ensure that the assumptions used for safety injection tank injection in the accident analysis are met.

The safety injection tank power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these safety injection tank isolation valves fail to meet single failure criteria, removal of power to the valves is required.

The limits for operation with a safety injection tank inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional safety injection tank which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one safety injection tank is not available and prompt action is required to place the reactor in a mode where this capability is not required.

## 3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long term core cooling capability in the recirculation mode during the accident recovery period.

Portions of the low pressure safety injection (LPSI) system flowpath are common to both subsystems. This includes the low pressure safety injection flow control valve, CV-306, the flow orifice downstream of CV-306, and the four low pressure safety injection loop isolation valves. Although the portions of the flowpath are common, the system design is adequate to ensure reliable ECCS operation due to the short period of LPSI system operation following a design basis Loss of Coolant Incident prior to recirculation. The LPSI system design is consistent with the assumptions in the safety analysis.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basesment is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provides this protection by dissolving in the sump water and causing its final pH to be raised to $\geq$ 7.0.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensures that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses. The requirement to dissolve a representative sample of TSP in a sample of RWT water provides assurance that the stored TSP will dissolve in borated water at the postulated post LOCA temperatures.

## 3/4.5.4 REFUELING WATER TANK (RWT)

The OPERABILITY of the RWT as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWT minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWT and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 85
License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Baltimore Gas & Electric Company (the licensee) dated September 20, 1984 and January 31, 1985 comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2 of Facility Operating License No. DPR-69 is hereby amended to read as follows:

   2. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 85 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 16, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 85

FACILTIY OPERATING LICENSE NO. DPR-69

DOCKET NO. 50-318

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are provided to maintain document completeness.

| Remove Pages | Insert Pages |
|---|---|
| 3/4 3-35 | 3/4 3-35 |
| 3/4 3-36 | 3/4 3-36 |
| 3/4 3-41 | 3/4 3-41 |
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| 3/4 6-24 | 3/4 ~~6-2~~4 |
| 3/4 6-25 | 3/4 6-25 |
| 3/4 9-8a | 3/4 9-8a |
| B 3/4 3-2 | B 3/4 3-2 |
| B 3/4 5-1 | B 3/4 5-1 |

TABLE 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

| INSTRUMENT | LOCATION | MINIMUM CHANNELS OPERABLE |
|---|---|---|
| 1. WIND SPEED | | |
| a. Nominal Elev. 10M | | 1 |
| b. Nominal Elev. 60M | | 1 |
| 2. WIND DIRECTION | | |
| a. Nominal Elev. 10M | | 1 |
| b. Nominal Elev. 60M | | 1 |
| 3. AIR TEMPERATURE - DELTA T (10M-60M) | | 1 |

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. WIND SPEED | | |
| a. Nominal Elev. 10M | D | SA |
| b. Nominal Elev. 60M | D | SA |
| 2. WIND DIRECTION | | |
| a. Nominal Elev. 10M | D | SA |
| b. Nominal Elev. 60M | D | SA |
| 3. AIR TEMPERATURE - DELTA T (10M-60M) | D | SA |

TABLE 3.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION

| INSTRUMENT | | MINIMUM CHANNELS OPERABLE |
|---|---|---|
| 1. | Containment Pressure | 2 |
| 2. | Wide Range Logarithmic Neutron Flux Monitor | 2 |
| 3. | Reactor Coolant Outlet Temperature | 2 |
| 4. | Pressurizer Pressure | 2 |
| 5. | Pressurizer Level | 2 |
| 6. | Steam Generator Pressure | 2/steam generator |
| 7. | Steam Generator Level (Wide Range) | 2/steam generator |
| 8. | Auxiliary Feedwater Flow Rate | 2/steam generator |
| 9. | RCS Subcooled Margin Monitor | 1 |
| 10. | PORV/Safety Valve Acoustic Flow Monitoring | 1/valve |
| 11. | PORV Solenoid Power Indication | 1/valve |
| 12. | Feedwater Flow | 2 |
| 13. | Containment Water Level (Wide Range) | 1 |

TABLE 4.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. Containment Pressure | M | R |
| 2. Wide Range Logarithmic Neutron Flux Monitor | M | N.A. |
| 3. Reactor Coolant Outlet Temperature | M | R |
| 4. Pressurizer Pressure | M | R |
| 5. Pressurizer Level | M | R |
| 6. Steam Generator Pressure | M | R |
| 7. Steam Generator Level (Wide Range) | M | R |
| 8. Auxiliary Feedwater Flow Rate | M | R |
| 9. RCS Subcooled Margin Monitor | M | R |
| 10. PORV/Safety Valve Acoustic Monitor | N.A. | R |
| 11. PORV Solenoid Power Indication | N.A. | N.A. |
| 12. Feedwater Flow | M | R |
| 13. Containment Water Level (Wide Range) | M | R |

DELETED

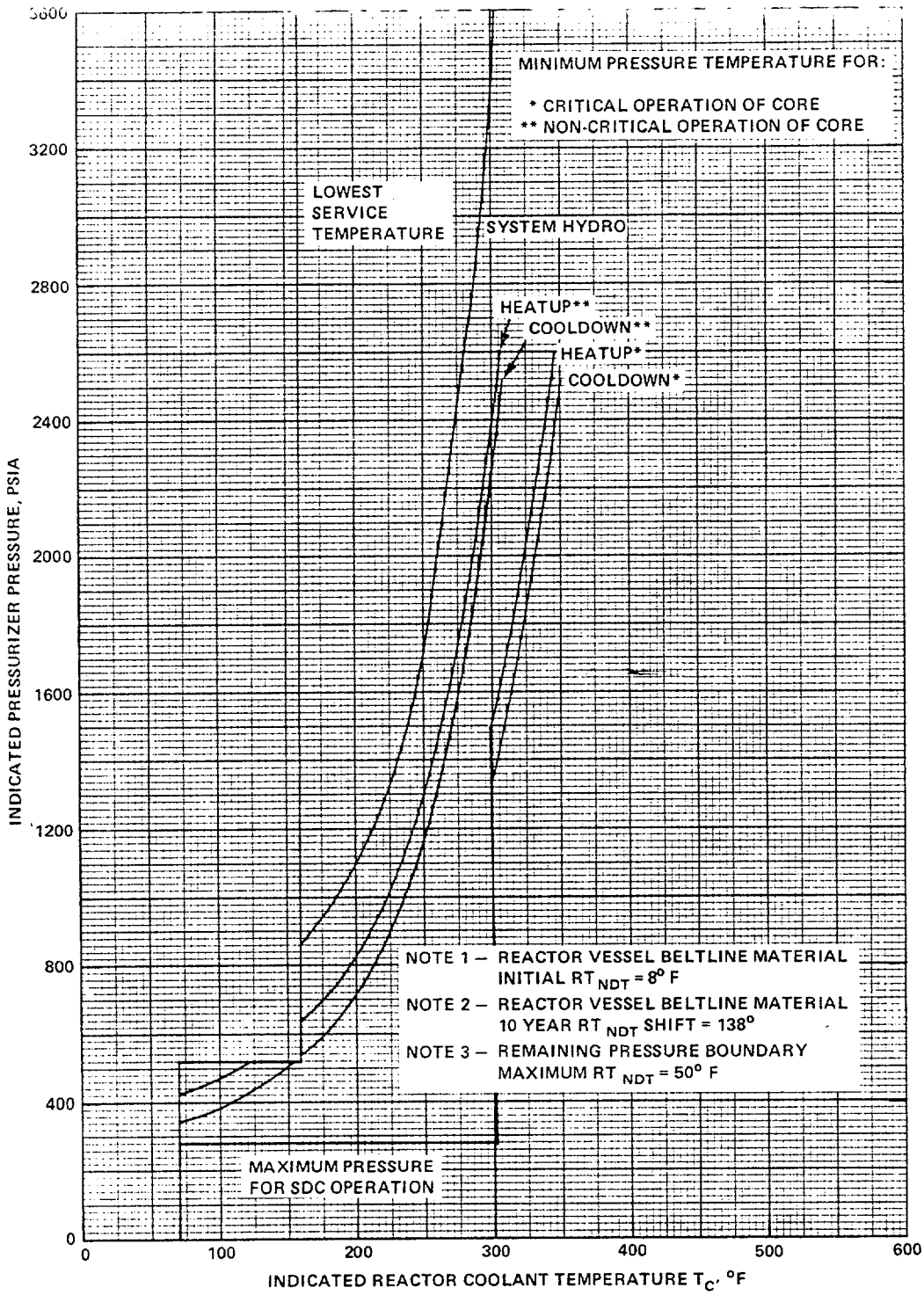


FIGURE 3.4-2b

Reactor Coolant System Pressure Temperature Limitations for 2 to 10 Years of Full Operation

TABLE 3.6-1

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 1A | SIAS A | PS-5465-CV | R.C. and Pressurizer Sampling | ≤7 |
| | SIAS A | PS-5466-CV | | |
| | SIAS A | PS-5467-CV | | |
| | SIAS B | PS-5464-CV | | |
| 1B | SIAS A | WGS-2180-CV | Containment Vent Header to Waste Gas | ≤7 |
| | SIAS B | WGS-2181-CV | | ≤7 |
| 1C | SIAS A | CVC-506-CV | RCP Seals Controlled Bleedoff | ≤7 |
| | SIAS B | CVC-505-CV | | ≤7 |
| 1D | NA | PS-6529SV* | Post Accident Sampling Liquid Return to RC Drain Tank | NA |
| 2A | SIAS A | CVC-515-CV | Letdown Line | ≤13 |
| | SIAS B | CVC-516-CV | | ≤13 |
| | NA | CVC-105 | | NA |
| | NA | CVC-103 | | NA |
| 2B | NA | CVC-517-CV | Charging Line | NA |
| | NA | CVC-518-CV | | NA |
| | NA | CVC-519-CV | | NA |
| | NA | CVC-435-RV | | NA |
| | NA | CVC-184 | | NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNELS | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 7A | NA<br>NA | Blind Flange<br>ILRT-1 | ILRT | NA<br>NA |
| 7B | NA<br>NA | Blind Flange<br>ILRT-2 | ILRT | NA<br>NA |
| 8 | SIAS A<br>SIAS B | EAD-5462-MOV<br>EAD-5463-MOV | Containment Normal Sump | ≤13<br>≤13 |
| 9 | NA<br>NA | SI-340<br>SI-326 | Containment Spray | NA<br>NA |
| 10 | NA<br>NA | SI-330<br>SI-316 | Containment Spray | NA<br>NA |
| 13 | SIAS A, CRS A<br>SIAS B, CRS B | CPA-1410-CV(3)<br>CPA-1411-CV(3) | Purge Air Inlet | ≤7**<br>≤7** |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNELS | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 14 | SIAS A, CRS A<br>SIAS B, CRS B | CPA-1412-CV (3)<br>CPA-1413-CV (3) | Purge Air Outlet | ≤7**<br>≤7** |
| 15 | SIAS A<br>SIAS B | RE-5291-CV<br>RE-5292-CV | Purge Air Monitor | ≤7<br>≤7 |
| 16 | CIS A | CC-3832-CV | Component Cooling Water Inlet | ≤18 |
| 18 | CIS B | CC-3833-CV | Component Cooling Water Outlet | ≤18 |
| 19A | NA<br>CIS A | IA-175<br>IA-2080-MOV | Instrument Air | NA<br>≤13 |
| 19B | NA<br>NA | PA-137*<br>PA-1044* | Plant Air | NA<br>NA |
| 20A | NA<br>NA<br>NA<br>NA<br>NA | $N_2$-347<br>$N_2$-612-CV*<br>$N_2$-622-CV*<br>$N_2$-632-CV*<br>$N_2$-642-CV* | Nitrogen Supply | NA<br>NA<br>NA<br>NA<br>NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 20B | NA<br>NA | $N_2$-348<br>$N_2$-395 | Nitrogen Supply | NA<br>NA |
| 20C | NA<br>NA | $N_2$-349<br>$N_2$-398 | Nitrogen Supply | NA<br>NA |
| 23 | SIAS A | RCW-4260-CV | R.C. Drain Tank Drains | $\leq 7$ |
| 24 | SIAS B | PS-6531-SV | Oxygen Sample Line | $\leq 7$ |
| 37 | NA<br>NA | PSW-1020<br>PSW-1009 | Plant Water | NA<br>NA |
| 38 | NA | DW-5460-CV* | Demineralized Water | NA |
| 39 | NA<br>NA | SI-463<br>SI-455 | Safety Injection Tank Test Line | NA<br>NA |
| 41 | NA<br>NA | SI-652-MOV (2)<br>SI-651-MOV (2) | Shutdown Cooling | NA<br>NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 44 | NA | FP-145-A | Fire Protection | NA |
| | NA | FP-145-B | | NA |
| | NA | FP-6200-MOV* | | NA |
| 47A | NA | PS-6540A-SV* | Hydrogen Sample Outlet | NA |
| | NA | PS-6507A-SV* | | NA |
| 47B | NA | PS-6540E-SV* | Hydrogen Sample Outlet | NA |
| | NA | PS-6507E-SV* | | NA |
| 47C | NA | PS-6540F-SV* | Hydrogen Sample Outlet | NA |
| | NA | PS-6507F-SV* | | NA |
| 47D | NA | PS-6540G-SV* | Hydrogen Sample Return | NA |
| | NA | PS-6507G-SV* | | NA |
| 48A | SIAS A | HP-6900-MOV | Containment Vent Isolation | ≤ 20** |
| | SIAS B | HP-6901-MOV | | ≤ 20** |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 48B | NA<br>NA | HP-104<br>HP-6903-MOV | Hydrogen Purge Inlet | NA<br>NA |
| 49A | NA<br>NA | PS-6540B-SV*<br>PS-6507B-SV* | Hydrogen Sample | NA<br>NA |
| 49B | NA<br>NA | PS-6540C-SV*<br>PS-6507C-SV* | Hydrogen Sample | NA<br>NA |
| 49C | NA<br>NA | PS-6540D-SV*<br>PS-6507D-SV* | Hydrogen Sample | NA<br>NA |
| 50 | NA<br>NA | Blind Flange<br>Blind Flange | ILRT | NA<br>NA |
| 59 | NA<br>NA | SFP-178<br>SFP-179 | Refueling Pool Inlet | NA<br>NA |
| 60 | NA<br>NA | ES-144<br>ES-142 | Steam to Reactor Head Laydown | NA<br>NA |

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

| PENETRATION NO. | ISOLATION CHANNEL | ISOLATION VALVE IDENTIFICATION NO. | FUNCTION | ISOLATION TIME (SECONDS) |
|---|---|---|---|---|
| 61 | NA | SFP-184 | Refueling Pool Outlet | NA |
| | NA | SFP-182 | | NA |
| | NA | SFP-180 | | NA |
| | NA | SFP-186 | | NA |
| 62 | SIAS A | PH-6579-MOV | Containment Heating Outlet | ≤13 |
| 64 | NA | PH-387 | Containment Heating Inlet | NA |

(1) Manual or remote manual valve which is closed during plant operation.

(2) May be opened below 300°F to establish shutdown cooling flow.

(3) Containment purge and containment vent isolation valves will be shut in MODES 1, 2, 3 and 4 per TS 3/4 6.1.7 and TS 3/4 6.1.8, respectively.

* May be open on an intermittent basis under administrative control.

** Containment purge isolation valves isolation times will only apply for MODES 5 and 6 during which time these valves may be opened. Isolation time for containment purge and containment vent isolation valves is NA for MODES 1, 2, 3 and 4 per TS 3/4 6.1.7 and TS 3/4 6.1.8, respectively, during which time these valves must remain closed.

## 3/4.6.5 COMBUSTIBLE GAS CONTROL

### HYDROGEN ANALYZERS

### LIMITING CONDITION FOR OPERATION

3.6.5.1 Two independent containment hydrogen analyzers shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen analyzer inoperable*, restore the inoperable analyzer to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

### SURVEILLANCE REQUIREMENTS

4.6.5.1 Each hydrogen analyzer shall be demonstrated OPERABLE at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases in accordance with manufacturers' recommendations.

*During the period from May 15 to July 15, 1983, one hydrogen analyzer may be made inoperable, at any given time, for the purpose of replacing system solenoid valves with environmentally qualified valves. During this time, Specification 3.0.4 is not applicable to this requirement.

## SHUTDOWN COOLING AND COOLANT CIRCULATION

### LIMITING CONDITION FOR OPERATION

3.9.8.2 Two (2) shutdown cooling loops shall be OPERABLE*#.

APPLICABILITY: MODE 6 when the water level above the top of the irradiated fuel assemblies seated within the reactor pressure vessel is less than 23 feet.

ACTION:

a. With less than the required shutdown cooling loops OPERABLE, initiate corrective action to return loops to OPERABLE status within one hour.

b. The provisions of Specification 3.0.3 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.9.8.2 No additional Surveillance Requirements other than those required by Specification 4.0.5.

*Normal or emergency power source may be inoperable for each shutdown cooling loop.

#One shutdown cooling loop may be replaced by one spent fuel pool cooling loop when it is lined up to provide cooling flow to the irradiated fuel in the reactor core and the heat generation rate of the core is below the heat removal capacity of the spent fuel pool cooling loop.

## 3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and bypasses ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monitored by each channel or combination therof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundance and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

## 3/4.3.3 MONITORING INSTRUMENTATION

### 3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served

by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

3/4.3.3.2 INCORE DETECTORS

The OPERABILITY of the incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes", April 1974.

3/4.3.3.4. METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23, Rev. 1 (Proposed), "Meteorological Programs in Support of Nuclear Power Plants," September 1980.

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

## 3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the RCS safety injection tanks ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the safety injection tanks. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on safety injection tank volume, boron concentration and pressure ensure that the assumptions used for safety injection tank injection in the accident analysis are met.

The safety injection tank power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protection function be removed automatically whenever permissive conditions are not met. In addition, as these safety injection tank isolation valves fail to meet single failure criteria, removal of power to the valves is required.

The limits for oepration with a safety injection tank inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional safety injection tank which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one safety injection tank is not available and prompt action is required to place the reactor in a mode where this capability is not required.

## 3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long term core cooling capability in the recirculation mode during the accident recovery period.

Portions of the low pressure safety injection (LPSI) system flowpath are common to both subsystems. This includes the low pressure safety injection flow control valve, CV-306, the flow orifice downstream of CV-306, and the four low pressure safety injection loop isolation valves. Although the portions of the flowpath are common, the system design is adequate to ensure reliable ECCS operation due to the short period of LPSI system operation following a design basis Loss of Coolant Incident prior to recirculation. The LPSI system design is consistent with the assumptions in the safety analysis.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basesment is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provides this protection by dissolving in the sump water and causing its final pH to be raised to $\geq$ 7.0.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensures that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses. The requirement to dissolve a representative sample of TSP in a sample of RWT water provides assurance that the stored TSP will dissolve in borated water at the postulated post LOCA temperatures.

## 3/4.5.4 REFUELING WATER TANK (RWT)

The OPERABILITY of the RWT as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWT minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWT and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 103 AND 85

TO FACILITY OPERATING LICENSE NOS. DPR-53 AND DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

## Introduction

By applications for license amendments dated September 20, 1984 and January 31, 1985, Baltimore Gas and Electric Company (BG&E) requested changes to the Technical Specifications for Calvert Cliffs Units 1 and 2. The proposed amendments would change the Unit 1 and Unit 2 Technical Specifications (TS) to reflect: (1) changes to surveillance requirements for safety related hydraulic sway arrestors (snubbers) for Unit 1 only, (2) clarification of the degree of independence associated with the emergency core cooling system (ECCS) and shutdown cooling system, (3) deletion of a reactor vessel pressurization curve that is no longer needed for Unit 2 only, (4) a change to the containment isolation valve identification numbers, (5) incorporation of the containment water level monitor including operability and surveillance requirements, and (6) installation of a new meteorological monitoring system.

## Discussion and Evaluation

The first TS change topic relates to the safety related hydraulic sway arrestors (snubbers) addressed in TS 3/4.7.8.1, "Snubbers". On April 19, 1984, the NRC issued Amendments 92 and 73 for Calvert Cliffs Units 1 and 2 which included a change to TS 3/4.7.8.1. This change allowed BG&E to replace snubbers with rigid supports (sway struts). During the Unit 1 Cycle 8 refueling outage, BG&E will replace a number of snubbers with sway struts as permitted by TS 3/4.7.8.1 and has proposed deletion of these snubbers from the TS. In addition, the licensee has requested a change to TS 3/4.7.8.1 to allow removal of three snubbers (1-1-12, 1-60-5, and 1-60-5A) without installing sway struts.

In both cases where the licensee has proposed removal of snubbers (with and without installation of a sway strut) stress calculations have been performed to demonstrate that no appreciable increase in seismic induced stress will occur in associated piping or equipment.

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P PDR

A second change associated with Unit 1 TS 3/4.7.8.1 involves the deletion of common-reservoirs notations from those designated snubbers in Unit 1 TS Table 3.7-4. These sixteen snubbers, associated with the Steam Generators, will be modified such that each snubber will have its own reservoir. The reservoirs, together with all associated fittings, will be designed, manufactured, mounted and maintained to the same seismic standards as the snubbers which they serve. Removal of these common reservoirs and replacement with individual units improves the seismic design in that it eliminates the possibility that a single reservoir failure would result in eight snubbers being inoperable. Since these 16 snubbers are the only snubbers served by common reservoirs, the surveillance requirements for these common reservoirs specified in TS 4.7.8.1f have been proposed for deletion. This proposed TS change was previously approved for the Unit 2 TS in License Amendment No. 73 which was issued on April 19, 1984.

The proposed changes in the snubbers addressed above and their associated TS assure an equivalent degree of seismic resistance. Accordingly, the proposed changes to TS 3/4.7.8.1 are acceptable.

The licensee has proposed changes to TS Basis 3.5.2, "ECCS Subsystems - $T_{avg}$ more than or equal to 300°F" and TS 3.9.8.2, "Shutdown Cooling and Coolant Circulation." Each of these TS requires that two "independent" subsystems (loops) of the respective systems be operable. The licensee has proposed deletion of the term "independent" as it applies to shutdown cooling and ECCS in TS Basis 3.5.2 and TS 3.9.8.2, respectively.

The term "independent", when applied to system design, means that components have been arranged in subsystems which can function without interdependence. While both the ECCS and shutdown cooling systems contain major components which are arranged independently, both systems share common piping within the respective system and thus neither system is truly "independent." Deleting the word "independent" from TS Basis 3.5.2 and TS 3.9.8.2 does not change the requirements of the TS. Both TS would still require that two subsystems (loops), at a minimum, be operable for each system. The term "independent" as used in TS Basis 3.5.2 and TS 3.9.8.2 was used descriptively and, in these cases, incorrectly.

The two proposed changes are simply clarifications of Technical Specifications which more closely reflect actual plant design. The TS are not being altered except to provide this clarification. Accordingly, the proposed changes to TS Basis 3.5.2 and TS 3.9.8.2 are acceptable.

The licensee has proposed deletion of TS Figure 3.4-2a, "Reactor Coolant System Pressure Temperature Limitations for 0 to 2 years of Full Power Operation." At the present time, TS Figure 3.4-2b, "Reactor Coolant System Pressure Temperature Limitations for 2 to 10 Years" provides the applicable limitations. Since Unit 2 has been in commercial operation for approximately 7 years and has surpassed the two "effective full power years" point of reactor embrittlement, TS Figure 3.4-2a is no longer needed.

Deletion of TS Figure 3.4-2a in no way changes the applicable TS, prevents an error by removing information which is no longer applicable, and is thus acceptable.

The licensee has proposed a change to TS Table 3.6-1, "Containment Isolation Valves." This table lists all containment isolation valves which are subject to operability and surveillance requirements. The licensee has proposed a change in the valve numbering system in TS Table 3.6-1 to achieve consistency with the operational piping and instrument diagrams (P&ID) and procedures used to perform the required surveillance on containment isolation valves.

The licensee has been involved in an effort to revise, upgrade, and standardize P&IDs. Associated with this effort they have performed a walkdown of all affected systems to verify the accuracy of affected drawings. TS Table 3.6.1 as presently written lists the valve designations used on construction P&IDs. The proposed change would modify this table to reflect the numbers used on operational P&IDs. This would result in less chance of error while performing critical valve lineups by making Table 3.6.1 consistent with operational procedures and P&IDs. The requested change is an administrative change and in no way changes existing operability or surveillance requirements in the TS and this is acceptable.

The licensee has proposed the addition of containment water level monitor instrumentation to the operability and surveillance requirements of TS 3/4.3.3.6, "Postaccident Instrumentation."

On November 1, 1983, the NRC issued Generic Letter No. 83-37 (GL 83-37) to all pressurized water reactor licensees. This letter contained guidance concerning TS which the NRC believed to be appropriate as addressed in NUREG-0737, "Clarification of TMI Action Plan Requirements". The licensee responded, in part, to GL 83-37 via their applications for license amendments dated January 31, 1985. The licensee has proposed that existing TS Table 3.3-6, "Radiation Monitoring Instrumentation," and TS Table 4.3-3, "Radiation Monitoring Instrumentation Surveillance Requirements" would be modified to include Limiting Conditions for Operation (LCOs) and Surveillance Requirements for the containment water level monitor.

The proposed TS would increase the likelihood that the associated equipment will undergo appropriate surveillance and be available to assist in postaccident assessment and is therefore acceptable.

The licensee has proposed a change to TS 3/4.3.3.4, "Meteorological Instrumentation" to reflect installation of a new meteorological monitoring system at Calvert Cliffs. The new system corrects a number of problems associated with the old system and substantially conforms to NRC guidance for meteorological monitoring systems. The proposed revised TS provide requirements for surveillance and operability that are at least equivalent to those required for the old system. Postaccident monitoring of meteorological conditions can be, therefore, expected to improve as a result of operability of the new system.

In addition, the licensee has proposed to delete the operability and surveillance requirements for the previously required meteorological monitoring system.

The new meteorological system does not impact plant safety systems and the new system is at least equivalent to the previously approved system, therefore, the proposed change to TS 3/4.3.3.4 is acceptable.

ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released off-site, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(9). Pursuant to 10 CFR §51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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