



Duquesne Light

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October 24, 1978

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attention: A. Schweitzer, Chief
Branch No. 1
Division of Operating Reactors
Washington, D. C. 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334
Supplemental Information on Adequacy of ECCS NPSH Modifications
Revisions to Proposed Technical Specifications

Gentlemen:

Enclosed are three (3) signed originals and thirty-seven (37) copies of the information requested by telephone concerning a tabulation of the mass and energy release data provided by the Westinghouse Electric Corporation as applicable to Beaver Valley No. 1 Unit.


We are also providing revisions to the proposed Technical Specifications which were originally submitted with our November, 1977 report on this subject. These revisions include the following changes.

- 1) An increase of 100 gallons to the minimum water level of the RWST.
- 2) A reduction of 9 1/2 inches to the level at which the automatic transfer to recirculation is initiated.
- 3) The volume and concentration of sodium hydroxide contained in the chemical addition tank.

Since these proposed Technical Specifications were originally submitted prior to the adoption of 10CFR 170.22 which specifies fee submittal for license amendments, we believe that no fee is required for these revisions.

We believe that this additional information provides all that is required for your review of these proposed modifications.

Very truly yours,


C. N. Dunn
Vice President, Operations

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Attachments

TABLE I

Westinghouse Mass and Energy Release Data
 Hot Leg Double-Ended Rupture
 Worst Case for Recirculation Pump NPSH and
 Containment Integrity (First Peak)

<u>Time After Accident (Sec)</u>	<u>Mass Rate (Lb/Sec)</u>	<u>Energy Rate (Btu/Sec)</u>
2.50 E-2	7.15 E-4	4.53 E-7
1.75 E-1	7.44 E-4	4.72 E-7
4.50 E-1	6.38 E-4	3.99 E-7
7.25 E-1	5.82 E-4	3.61 E-7
1.075 E-0	5.33 E-4	3.32 E-7
1.60 E-0	4.73 E-4	2.97 E-7
2.20 E-0	4.16 E-4	2.64 E-7
2.85 E-0	3.70 E-4	2.34 E-7
3.50 E-0	3.89 E-4	2.13 E-7
4.15 E-0	3.19 E-4	2.00 E-7
4.85 E-0	3.09 E-4	1.91 E-7
5.45 E-0	2.85 E-4	1.79 E-7
6.10 E-0	2.60 E-4	1.67 E-7
6.90 E-0	2.46 E-4	1.57 E-7
7.75 E-0	2.31 E-4	1.47 E-7
8.70 E-0	2.12 E-4	1.35 E-7
9.75 E-0	1.90 E-4	1.21 E-7
1.07 E-1	1.68 E-4	1.09 E-7
1.13 E-1	1.48 E-4	9.73 E-6
1.19 E-1	1.33 E-4	8.54 E-6
1.26 E-1	1.17 E-4	7.37 E-6
1.33 E-1	9.42 E-3	6.10 E-6
1.39 E-1	7.01 E-3	4.51 E-6
1.45 E-1	6.38 E-3	3.34 E-6
1.52 E-1	5.75 E-3	2.77 E-6
1.58 E-1	5.82 E-3	2.61 E-6
1.64 E-1	5.96 E-3	2.50 E-6
1.66 E-1	0.0	0.0
1.85 E-1	1.32 E-3	6.22 E-5
1.90 E-1	5.04 E-2	5.54 E-5
2.00 E-1	7.26 E-2	5.86 E-5
2.30 E-1	1.49 E-3	7.34 E-5
2.40 E-1	1.54 E-3	7.42 E-5
2.70 E-1	1.51 E-3	7.26 E-5
3.20 E-1	1.45 E-3	6.97 E-5
4.30 E-1	1.32 E-3	6.50 E-5
5.00 E-1	1.19 E-3	6.14 E-5
5.001 E-1	1.19 E-3	6.11 E-5
5.80 E-1	1.09 E-3	5.86 E-5
6.80 E-1	1.01 E-3	5.63 E-5
7.80 E-1	9.67 E-3	5.49 E-5
8.46 E-1	9.04 E-2	5.34 E-5
8.4601 E-1	1.44 E-2	1.72 E-5
1.00 E-2	1.40 E-2	1.67 E-5

<u>Time After Accident</u> <u>(Sec)</u>	<u>Mass Rate</u> <u>(Lb/Sec)</u>	<u>Energy Rate</u> <u>(Btu/Sec)</u>
2.00 E-2	1.14 E-2	1.36 E-5
5.00 E-2	8.20 E-1	9.77 E-4
1.00 E-3	6.15 E-1	7.32 E-4
1.50 E-3	5.24 E-1	6.24 E-4
2.00 E-3	5.63 E-1	6.71 E-4
5.00 E-3	4.19 E-1	4.94 E-4
1.00 E-4	3.33 E-1	3.96 E-4

NOTE: Entrainment ends at 84.6 seconds

TABLE II

Westinghouse Mass and Energy Release Data
 Pump Suction Double-Ended Rupture
 Worst Case for LHSI Pump NPSH, Integrity (Second Peak) and
 Depressurization (Third Peak)

<u>Time After Accident</u> (Sec)		<u>Mass Rate</u> (Lb/Sec)		<u>Energy Rate</u> (Btu/Sec)
2.50	E-2	6.63	E-4	3.59 E-7
2.00	E-1	7.74	E-4	4.21 E-7
5.00	E-1	7.13	E-4	3.97 E-7
8.00	E-1	6.45	E-4	3.68 E-7
1.325	E-0	5.77	E-4	3.37 E-7
2.05	E-0	4.45	E-4	2.67 E-7
2.75	E-0	3.37	E-4	2.07 E-7
3.50	E-0	2.91	E-4	1.81 E-7
4.25	E-0	2.65	E-4	1.67 E-7
5.00	E-0	2.46	E-4	1.54 E-7
5.80	E-0	2.33	E-4	1.43 E-7
6.55	E-0	2.28	E-4	1.42 E-7
7.35	E-0	2.06	E-4	1.31 E-7
8.35	E-0	1.94	E-4	1.22 E-7
9.50	E-0	1.78	E-4	1.11 E-7
1.07	E-1	1.58	E-4	1.00 E-7
1.18	E-1	1.40	E-4	9.00 E-6
1.275	E-1	1.32	E-4	8.35 E-6
1.365	E-1	1.322	E-4	7.80 E-6
1.445	E-1	1.27	E-4	7.11 E-6
1.515	E-1	1.20	E-4	6.45 E-6
1.59	E-1	1.16	E-4	5.83 E-6
1.67	E-1	9.77	E-3	4.71 E-6
1.75	E-1	7.02	E-3	3.48 E-6
1.825	E-1	4.19	E-3	2.16 E-6
1.90	E-1	1.68	E-3	6.30 E-5
1.965	E-1	3.83	E-3	1.10 E-6
1.99	E-1	0.0		0.0
2.00	E-1	6.91	E-2	8.87 E-5
2.05	E-1	3.85	E-2	4.95 E-5
2.15	E-1	3.62	E-2	4.65 E-5
2.45	E-1	5.69	E-2	7.30 E-5
2.55	E-1	5.88	E-2	7.55 E-5
2.95	E-1	5.78	E-2	7.41 E-5
3.95	E-1	5.58	E-2	7.13 E-5
4.65	E-1	5.45	E-2	6.95 E-5
5.00	E-1	5.38	E-2	6.75 E-5
5.95	E-1	4.90	E-2	6.23 E-5
7.95	E-1	4.26	E-2	5.38 E-5
9.95	E-1	3.86	E-2	4.85 E-5
1.00	E-2	3.85	E-2	4.84 E-5
1.20	E-2	3.60	E-2	4.52 E-5
1.43	E-2	3.40	E-2	4.25 E-5
1.924	E-2	3.19	E-2	3.95 E-5

NOTE: Entrainment ends at 192.4 seconds

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1A. SAFETY INJECTION-TRANSFER FROM INJECTION TO THE RECIRCULATION MODE		
A. Manual Initiation	Not Applicable	Not Applicable
B. Automation Actuation Coincident with Safety Injection Signal	Not Applicable	Not Applicable
C. Refueling Water Storage Tank	19'-2 1/2" <u>±</u> 6"	19'-2 1/2" <u>±</u> 1'
D. Refueling Water Storage Tank Level - Auto QS Flow Reduction	11'-0" <u>±</u> 3"	11'-0" <u>±</u> 6"

EMERGENCY CORE COOLING SYSTEMS

REFUELING WATER STORAGE TANK

LIMITING CONDITION FOR OPERATION

3.5.5 The refueling water storage tank shall be OPERABLE with:

- a. A minimum contained volume of 441,100 gallons of borated water.
- b. A minimum boron concentration of 2,000 ppm, and
- c. A minimum water temperature of 43°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the refueling water storage tank inoperable, restore the tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.5.5 The RWST shall be demonstrated OPERABLE:

- a. At least once per 7 days by:
 - 1. Verifying the water level in the tank, and
 - 2. Verifying the boron concentration of the water.
- b. At least once per 24 hours by verifying the RWST temperature when the RWST ambient air temperature is < 43°F.

CONTAINMENT SYSTEMS

CHEMICAL ADDITION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.3 The chemical addition system shall be OPERABLE with:

- *a. A chemical addition tank containing 4875 ± 125 gallons with a concentration of 20.0 ± 1.0 weight percent of NaOH solution.
- b. A chemical addition flow path, capable of adding NaOH solution from the chemical addition tank to both containment quench spray system pump flows.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the chemical addition system inoperable, restore the system to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours; restore the chemical addition system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 36 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.3 The chemical additional system shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 - 1. Testing each power operated or automatic valve in the flow path in accordance with the requirements of proposed Section 4.0.5.
 - 2. Verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.
- b. At least once per 6 months by:
 - 1. Verifying the solution level in the tank, and
 - 2. Verifying the concentration of the NaOH solution by chemical analysis.