

SNUPPS

Standardized Nuclear Unit
Power Plant System

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Rockville, Maryland 20850
(301) 869-8010

Nicholas A. Petrick
Executive Director

September 16, 1981

SLNRC 81-103 FILE: 0278
SUBJ: NRC Request for Information -
Materials Engineering

✓ Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555



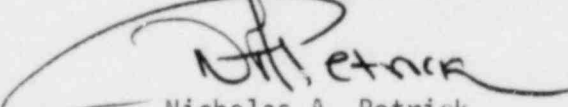
Docket Nos. STN 50-482, STN 50-483, and STN 50-486

Reference: SLNRC 81-71, dated August 17, 1981, same subject

Dear Mr. Denton:

The attached information was requested by Mr. J. Halapatz of the NRC's
Materials Engineering Branch.

Very truly yours,


Nicholas A. Petrick

RLS/jdk

Attachment

| | |
|-----------------|---------|
| cc: J. K. Bryan | UE |
| G. L. Koester | KGE |
| D. T. McPhee | KCPL |
| D. F. Schnell | UE |
| W. A. Hansen | NRC/CAL |
| T. E. Vandel | NRC/WC |

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SNUPPS
GDC-51

| | Penetration Caps | | | Main Steam and Main Feed Flued Head Penetration | | | Main Steam Isolation Valves Main Feed Isolation Valves |
|----------------------------|----------------------------|--|------|--|--|-------------------|--|
| | Pen. | Thickness | LSMT | Pen. | Thickness | LSMT | Valves; |
| 1. NRC proposed LSMT | P-83 & P-86 P-43 | 0.937" (see Item #5 below) 0.937" (see Item #5 below) | | P-1 P-5 | 8.0" 5.5" | 113°F 98°F | MS: AB-HV11 66°F MF: AE-FV42 60°F & various parts @ various thicknesses |
| 2. Normal Operation | (See Item #5 below) | | | A. Flued heads for both main feed and main steam penetration are at normal operating system flued temperature which are well above the proposed LSMT's. | | | A. (See Item #5A below) |
| 3. Maintenance and Testing | (See Item #5 below) | | | Main Steam A. Hot Standby - For these conditions the flued head will be at system fluid temperature which are > LSMT's. B. Cold Shutdown - (see Item #5 below) | Main Feed A. Hot Standby - the small motor driven main feed pump will be used for hot standby conditions. The hot feedwater will keep the flued head well above the LSMT. B. Cold Shutdown- see #5 | | A. (See Item #5A below) |
| 4. Postulated Accidents | (See Item #5 below) | | | A. For DBAs normal operating temperature and pressures are assumed as initial conditions. See 2A above. B. For postulated accident at other initial conditions see 3 above. | A. For DBAs see 4A for main steam. B. For other conditions see 4B for main steam | | A. (See Item #5A below) |

See Next Page for Item #5

| Penetration Caps | Main Steam and Main Feed Flued Head Penetrations | Main Steam Isolation Valves Main Feed Isolation Valves |
|---|--|---|
| <p>A. The design of the penetration caps listed above has been evaluated and the current design shows that they are properly sized to fulfill their function; i.e., the design thickness is more than sufficient to maintain containment function.</p> <p>B. However, it has been calculated that to fulfill the same function, the minimum required wall thickness is $\leq 5/8"$. Under code requirements material of this thickness need not be impact tested. Therefore, caps with a minimum required wall thickness of $5/8"$ will maintain containment function for all temperatures.</p> | <p>A. For the CSD condition, pipe break loads would not be induced on the main steam flued head. Therefore, an analysis was performed to determine the minimum required wall thickness with this load missing. This thickness was found to be $\leq 2.5"$. (See attached)</p> <p>B. Pipebreak loads are the largest loads on the flued heads and are the controlling factor (75%) in establishing the flued head dimension.</p> <p>C. The limiting temperature condition on the flued head occurs during the hydrostatic test of the steam generators. For this test, temperatures are maintained above 70°F.</p> | <p>A. (See Item #5A for main steam)</p> <p>B. (See Item #5B for main Steam)</p> <p>A. MSIV's and MFIV's are not considered part of the containment boundary (see response to GDC-57, in FSAR Section 3.1) and therefore, need not be considered under GDC-51 review.</p> <p>B. However, a similar argument can be offered for the MSIV's and MFIV's as that for the flued heads. (See 5A and 5B under main feed and main steam flued heads)</p> |

SARGENT INDUSTRIES

AIRITE DIVISION

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September 14, 1981

WJB: 81245

Bechtel Power Corp.
15740 Shady Grove
Gaithersburg, MD 20760

Attention: Mr. Nar Goel, SNUPPS Project Manager

Subject: SNUPPS Flued Head Analyses -
Main Steam and Feedwater Penetrations

- Reference:
- 1) Stress Analysis for Flued Head Containment Penetrations for SNUPPS, Main Steam Penetrations P-1, 2, 3 & 4 - R-S-1047011 Ref. B, Sargent Industries/Airite Division, February 8, 1978
 - 2) Stress Analysis for Flued Head Containment Penetrations for SNUPPS, Main Feedwater Penetrations, P-5, 6, 7 & 8 - R-S-1047021 Rev. A, Sargent Industries, Airite Division, February 8, 1978

Gentlemen:

As per your request, we have evaluated the acceptability of the SNUPPS mainsteam and feedwater penetrations assuming that the longitudinal through head thickness were to be changed from the existing configuration to 2.5".

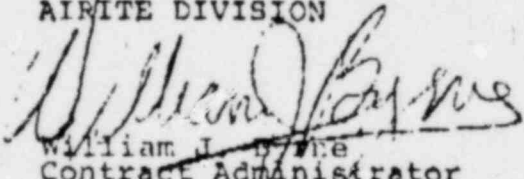
Stress analyses for this geometrical condition indicate that resultant stress intensities are within allowable limits for the normal upset and faulted (excluding pipe break) load conditions.

The longitudinal through head design thickness, excluding pipe break loads, for the mainsteam and feedwater SNUPPS Flued Head penetrations is hereby re-established as 2.5".

If questions arise, please contact the undersigned.

Very truly yours,

SARGENT INDUSTRIES
AIRITE DIVISION


William J. Byrne
Contract Administrator

BB:jh

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Gaithersburg Power Div.
SNUPPS Proj. Job 10466