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August 30, 1979

FILE: NG-3514(B)

SERIAL: GD-79-2162

Office of Nuclear Reactor Regulation
Attention: Mr. T. A. Ippolito, Chief
Operating Reactors Branch No. 3
United States Nuclear Regulatory Commission
Washington, D.C. 20555

BRUNSWICK STEAM ELECTRIC PLANT
LICENSE NOS. DPR-71 and DPR-62
DOCKET NOS. 50-325 AND 50-324
SEISMIC ANALYSIS OF SAFETY RELATED PIPING

Dear Mr. Ippolito:

During the week of August 13, CP&L and United Engineers & Constructors, our architect-engineer for our Brunswick Steam Electric Plant (BSEP), discussed with your staff a problem with the computer program, UE&C-ADLPIPE-2, used to perform seismic pipe stress calculations on safety-related piping. Two types of problems were discussed: if the piping configuration was input incorrectly for pipe elbows (Problem 1) or for large radius bends (Problem 2), the computer program would make internal adjustments to the configuration and would continue to calculate pipe stress, rather than aborting the run with an error message that configuration input was incorrect. If input data was correct, the correct stress was calculated.

As committed to you in our telephone conversations and documented in our letter to you on August 17, 1979, we have reviewed the configuration input for all 195 isometrics for safety-related piping. When an error was detected in an isometric's input, the seismic stress analysis was rerun and the supports were reevaluated. The remainder of this letter describes the review, reanalysis and results for those isometrics where an input error was found.

Problem 1 - Pipe Elbows

The 195 isometrics contain 1515 elbows. Of these, only 12 elbows had the incorrect configuration input into the computer model. This involved the eight isometrics identified in Table 1. The correct configuration has been input into the computer program for reanalysis and the results are tabulated on Table 1. All stresses are within FSAR allowable. There were 81 pipe supports evaluated on these eight isometrics and during reanalyses the loads went up on only three supports. The loads on these three supports were significantly less than support capacities.

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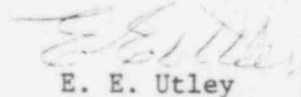
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Problem 2 - Large Radius Bends

In our letter of August 17, we listed 12 isometrics where the problem with large radius bends was identified. Upon closer review it was found that three isometrics (No. 5 - RHR, No. 201 - Instrument Air, No. 202 - Instrument Air) were input correctly. The remaining nine isometrics have been reanalyzed, and the results are shown on Table 2. All pipe stresses are within FSAR allowable. Of the total 157 pipe supports evaluated, the load increased on 52. Two supports on the feedwater line and one on an SRV discharge line were identified as requiring a long term fix (load greater than allowable but less than structural integrity). On this feedwater line, two supports which were previously identified for a long term fix had the loads decreased below allowable such that no fix is now required. Of the remaining 49 supports, all newly calculated loads were less than allowable.

A copy of the revised input configuration and the output from the latest run from the UE&C-ADLPIPE-2 program for the run provided to you previously at a meeting on May 16, 1979, (main steam with four SRV lines) will be submitted to you within two weeks for your further evaluation and comparison. If you have any further questions concerning this issue, please contact our staff.

Yours very truly,



E. E. Utley
Executive Vice President
Power Supply & Customer Services

EEU/jcb

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BRUNSWICK STEAM ELECTRIC PLANT
SEISMIC PIPE STRESS REANALYSIS
TABLE 2
PROBLEM 2 - LARGE RADIUS BENDS

<u>Isometric Number</u>	<u>System</u>	<u>Line Size</u>	<u>Total⁽¹⁾ Stress 7/23/79</u>	<u>Total Stress 8/27/79</u>	<u>Remarks *</u>
14	Main Steam	24"	12321	9861	19 Supports (including 1 SRVDL) 1-LTF
14A	Main Steam	24"	9810	7286	10 Supports (including 1 SRVDL) All Okay
15B	Main Steam	24"	9096	7287	32 Supports (including 3 SRVDL.)
15C	Main Steam	24"	8897	7028	30 Supports (including 3 SRVDL) All Okay
124	S.R.V.D.	10"	19433	19563	9 Supports All Okay
125	S.R.V.D.	10"	24413	15386	7 Supports All Okay
16	Feedwater	18", 12"	14710	12386	15 Supports, 2-LTF
32	Head Vent	2"	9376	15958	26 Supports All Okay
119	S.R.V.D.	10"	12583	21133	9 Supports All Okay

(1) Total Stress from reanalysis completed with 7/23/79 letter.

*LTF is a long-term fix

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BRUNSWICK STEAM ELECTRIC PLANT
SEISMIC PIPE STRESS REANALYSIS

TABLE 1
PROBLEM 1 - PIPE ELBOWS

<u>Isometric Number</u>	<u>System</u>	<u>Number of Elbows With Problems</u>	<u>Line Size</u>	<u>Total⁽¹⁾ Stress 7/23/79</u>	<u>Total Stress 8/27/79</u>	<u>Remarks</u>
8	Reactor Head Vent	3	2", 1", 1/2"	35181	35181	24 Supports All Okay ⁽²⁾
27	CRD	2	3"	8307	6123	11 Supports All Okay
44	RHR Torus Spray	1	6"	5068	6630	No Supports
121	SRV Discharge	2	10"	21910	17073	7 Supports All Okay
187	SRV Discharge	1	10"	20771	18938	8 Supports All Okay
178	Inst. Air	1	1"	3141	3141	14 Supports All Okay
606	Service Water	1	6"	13178	6969	12 Supports All Okay
662	Service Water	1	6"	2353	2428	5 Supports All Okay

(1) Total Stress from reanalysis concluded with 7/23/79 letter.

(2) Long-term fix for valve eccentricity previously reported

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