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AUTH.NAME AUTHOR AFFILIATION
CURTIS,N.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards addl info on masonry walls,in response to N Romney 820707 request,Submittal completes util action on issue.

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Pennsylvania Power & Light Company
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Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
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July 8, 1982

Mr. A. Schwencer, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
ADDITIONAL INFORMATION ON MASONRY WALLS — Docket Nos. 50-387, 50-388
ER100450 FILE 841-2 PLA- 1175

Dear Mr. Schwencer:

The attached information was requested by Mr. N. Romney on July 7, 1982. This submittal completes our action on the masonry walls issue.

Very truly yours,

David P. Moyer for

N. W. Curtis
Vice President - Engineering & Construction - Nuclear

DPM

cc: R. L. Perch - NRC

B001

(2)

CALCULATION SHEET

CALC. NO. 24-5-C REV. NO. 0

ORIGINATOR A. Gore DATE 7-7-82 CHECKED BS DATE 7/7/82

PROJECT SSES Reactor Bldg. El. 719'-0" JOB NO. 8856

SUBJECT Block Wall Sect. G DWG C-1202 SHEET NO. C-29-1

Supplement to Cal. No. 24-5-C (Sh. C-20 thru C-29)

Problem: Check masonry and steel stresses in the wall.

Note: The previous calculation was based on assuming 100# attachment load at mid-height of the wall. As-built drawing No. FCI-C-822-2 Rev. 1 ~~(See figure 1)~~ indicates only two attachments - a bench attached at two points and one sign.

Since, the sign, weighing only 5#, is attached directly to the wall, it may be neglected. Similarly, a decision has been made to remove the bench, wall stresses need not be checked for attachment loads. Also, there is no need to perform local analysis.

1. Local Analysis: Not applicable.

2. OBE Global Analysis: See Page C-27. (Horizontal).

$$M_{\text{Wall inertia}} = \frac{83.4 \times 8^2}{8} = 667.2$$

$$M_{\text{Storey drift}} = \frac{25.2 \times 8}{2} = 100.8$$

$$M_{\text{Total}} = 768\ \#'$$

$$R = (83.4)(4) + 25.2 = 358.8\ \#$$

a. Check shear stress:

$$v = \frac{V}{b \cdot j \cdot d} = \frac{358.8}{(12)(.899)(3.81)} = 8.73 \text{ psi.} < 25 \text{ O.K.}$$

(3)

CALCULATION SHEET

CALC. NO. 24-5-C REV. NO. 0

ORIGINATOR A. Gore DATE 7-7-82 CHECKED [illegible] DATE 7/7/82

PROJECT SSES. Reactor Bldg. 719'-0" Elev. JOB NO. 8856

SUBJECT Blockwall- Sect. G. Dwg C-1202 SHEET NO. C-29-2

b. Masonry stress.

$$F = \frac{b \cdot d^2}{12000} = 0.0145$$

$$K = \frac{M}{F} = \frac{0.768}{0.0145} = 52.97$$

$$f_c = \frac{2 \cdot K}{j \cdot k} = \frac{2 \times 52.97}{.899 \times .302}$$

$$= 390.2 \text{ psi.} < 500 \text{ ok.}$$

c. Steel Stress.

$$f_s = \frac{M}{A_s \cdot j \cdot d} = \frac{768 \times 12}{0.15 \times .899 \times 3.81}$$

$$= 17{,}937.7 < 24{,}000 \text{ psi.}$$

ok.

3. SSE Global Analysis: See Page C-27 and C-28 (Horizontal).

$$M_{\text{Wall inertia}} = \frac{(117)(8)^2}{8} = 936$$

$$M_{\text{storey drift}} = \frac{(30)(8)}{2} = 120$$

$$1056 \text{ \#'}$$

$$V = (117)(4) + 30 = 498 \text{ \#}$$

a. Check shear stress.

$$v = \frac{V}{b \cdot j \cdot d} = \frac{498}{(12)(.899)(3.81)}$$

$$= 12.12 < 25 \text{ psi. ok.}$$

CALCULATION SHEET

CALC. NO. 24-5-C REV. NO. 0

ORIGINATOR A. Gore DATE 7-7-82 CHECKED BD DATE 7/7/82

PROJECT SSES Reactor Bldg. Elev. 719'-0" JOB NO. 8856

SUBJECT Blockwall- Sect. G Dwg. C-1202 SHEET NO. C-29-3.

b. Masonry stress

$$F = 0.0145 \qquad K = \frac{1.056}{0.0145} = 72.83$$

$$f_c = \frac{2K}{j \cdot k} = \frac{2 \times 72.83}{0.899 \times .302}$$

$$= 536.50 < 500 \times 1.67 \quad \text{OK.}$$

psi.

c. Steel stress.

$$f_s = \frac{M}{A_s \cdot j \cdot d} = \frac{1056 \times 12}{(.15)(.899)(3.81)}$$

$$= 24664 \text{ psi} < 24{,}000 \times 1.67$$

OK.

Note: For all other calculations not included here, please refer to previous calculations.