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ACCESSION NBR: 8201200577 DOC. DATE: 82/01/18 NOTARIZED: NO DOCKET #  
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 50-362 San Onofre Nuclear Station, Unit 3, Southern California 05000362  
 AUTH. NAME: AUTHOR AFFILIATION  
 DIETCH, R. Southern California Edison Co.  
 RECIP. NAME: RECIPIENT AFFILIATION  
 DENTON, H. R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards Potential Finding Repts 0008 & 0009 issued to  
 Bechtel by SA Co. Repts not verified for validity & accuracy  
 by original design organization.

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*Southern California Edison Company*



P. O. BOX 800

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ROSEMEAD, CALIFORNIA 91770

ROBERT DIETCH

VICE PRESIDENT

January 18, 1982

TELEPHONE

213-572-4144

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

Attention: Mr. Darrell G. Eisenhut

Dear Mr. Denton:

Subject: Docket Nos. 50-361 and 50-362  
San Onofre Nuclear Generating Station  
Units 2 and 3

Enclosed are seven copies each of Potential Finding Reports Nos. 0008 and 0009 issued to Bechtel Power Corporation by General Atomic Company. These reports reflect the reviewer's initial opinion and have not been verified for validity and accuracy by the original design organization.

If you have any questions regarding this matter, please call me.

Very truly yours,

*Robert Dietch*



cc: NRC Region V  
R. H. Engelken (with enclosure)

Boo!  
s  
1/1

8201200577 820118  
PDR ADDCK 05000361  
A PDR

# POTENTIAL FINDING REPORT SONGS 2&3 SEISMIC DESIGN VERIFICATION

REVISION -

PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Refueling Water Tank S2120JMT006

## REQUIREMENT REFERENCE DOCUMENTS:

- Ref. 1) BPC Design Specification S023-407-13, Addendum No. 7.
- Ref. 2) BPC Calculation No. M1204-002-2A (PSG 82)
- Ref. 3) Design Report for Refueling Water Tank  
BPC Log No. 407-13-110 (Brown-Minneapolis Tank)

## BASIC REQUIREMENT:

The design nozzle loads listed in the design specification Ref. 1) should be consistent with the loads derived in the piping analysis (Ref. 2).

DESCRIPTION OF POTENTIAL FINDING: BPC supplied the initial design specification (Ref. 1) to the vendor (Brown-Minneapolis Tank). The vendor then supplied maximum allowable nozzle loads to BPC (Ref. 2, Attachment 1). These allowables are not traceable to the vendor's analysis (Ref. 3). BPC used these allowables as guidelines in performing the piping analysis (Ref. 2) and calculated actual design nozzle loads (Attachment 2). BPC then supplied the vendor with an addendum to the design specification (Ref. 1, Attachment 3) specifying the design nozzle loads. This design specification and the piping analysis, both BPC documents, are not consistent with one another. (see Attachment 2 and 3)

PREPARED BY: C. F. Bahrns DATE: 1-15-82

REJECTION OF GA TASK LEADER COMMENTS BY: \_\_\_\_\_ DATE: \_\_\_\_\_

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: \_\_\_\_\_ DATE: \_\_\_\_\_

REVIEW BY GA TASK LEADER

COMMENTS

DESIGN VALIDITY AND ACCURACY

☒ AGREE PF IS VALID

BY Figure

DATE 1/15/82

☐ REQUEST RE-REVIEW

BY \_\_\_\_\_

DATE \_\_\_\_\_

☐ DISAGREE

BY \_\_\_\_\_

DATE \_\_\_\_\_

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: \_\_\_\_\_

DATE: \_\_\_\_\_

REVIEW BY ORIGINAL DESIGN ORGANIZATIONCOMMENTS

- ☐ AGREE PF IS VALID  
☐ DISAGREE

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

- DEFINITION ADEQUACY: ☐ ADEQUATE ☐ INADEQUATE  
VALIDITY: ☐ VALID ☐ INVALID  
CLASSIFICATION: ☐ OBSERVATION ☐ FINDING

JUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" \_\_\_\_\_

COMMENT ON "OBSERVATION" CLASSIFICATION \_\_\_\_\_

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

GA PROJECT MANAGER

- ☐ ACCEPT  
☐ REJECT

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

Attachment

# 1

2408-PFR-008

MEMO

FROM - FLOYD G. RIPPETOE III

EXT. 4406

SHEET 840

TO: Rick Ellis

Per John Wirt, BMT, 7/26/78

Max. loads 24" suction  
nozzles on RFW tanks:

W/O radial load, 14,667 FT-LBS  
max. circumferential  $M = 200K$  in. lb.  
" longitudinal  $M = 500K$  in. lb.

W/O moments 41,667 FT-LBS

max. radial load  $\approx 12K$  lb.



NOTE: LEADS GIVEN IN 1964 CONTINUED

NOTES

(1) SIGN OF SEISMIC, SEISMIC MOVEMENTS LOADS AND DYNAMIC LOADS (DUE TO STEAM OR WATER HAMMER) MAY BE EITHER (+) OR (-)

(2) THE SEISMIC AND SEISMIC MOVEMENTS LOADS MAY ACT EITHER IN THE X + Y OR Z + Y DIRECTIONS BUT NEVER SIMULTANEOUSLY

SEE 1-1-100

\* LOADS MEET VENDOR ALLOWABLE

Attachment  
# 3  
2408-PFR-008

48-5

TANK S21204NT006 (UNIT TWO)

		COMBINED DESIGN LOADS (Thermal and Dead Weight ± DSE Seismic)	
NOZZLE	SIZE		
1 (Cross Tie)	24"	Fa= 6531 lbs Fb= 3174 lbs Fc= 4515 lbs	Ma= 1266 ft-lbs Mb= 5722 ft-lbs Mc= 14756 ft-lbs
2 (Safety Inj. Suction)	24"	Fa= 8293 lbs Fb= 4334 lbs Fc= 8555 lbs	Ma= 11702 ft-lbs Mb= 2 ft-lbs Mc= 9946 ft-lbs
5 (Drain)	3"	Fa= 133 lbs Fb= 123 lbs Fc= 36 lbs	Ma= 18 ft-lbs Mb= 30 ft-lbs Mc= 127 ft-lbs
8 (Overflow)	6"	Fa= 263 lbs Fb= 345 lbs Fc= 129 lbs	Ma= 60 ft-lbs Mb= 220 ft-lbs Mc= 368 ft-lbs
16 (SFP Make-Up)	4"	Fa= 417 lbs Fb= 264 lbs Fc= 198 lbs	Ma= 113 ft-lbs Mb= 262 ft-lbs Mc= 311 ft-lbs
17 (CVCS Gravity Feed)	6"	Fa= 500 lbs Fb= 72 lbs Fc= 102 lbs	Ma= 126 ft-lbs Mb= 107 ft-lbs Mc= 29 ft-lbs
3 10 12 through 15	3" 3" 3"	Instrument Connections - loads Are Negligible	

TANK S31204NT006 (UNIT THREE)

Same as Unit Two (above).

Revised and Redrawn		DATE		BY	
REVISIONS		DATE		BY	
SOUTHERN CALIFORNIA EDISON COMPANY ENGINEERS & CONSTRUCTORS LOS ANGELES, CALIF.		J.C. NO.		SAN ONOFRE NUCLEAR GENERATING STATION	
JOB NO.		FILE		TANK NOZZLE LOADS - SHEET 3	
DATE		APPROVED		SOUTHERN CALIFORNIA EDISON COMPANY	
407-13					

POTENTIAL FINDING REPORT  
SONGS 2&3 SEISMIC DESIGN VERIFICATION

PFR NO. 2402-PFR-0009

REVISION \_\_\_\_\_

PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Seismic Class I Cable Tray Supports  
Tray Hanger No. 37183 Ref: Calculations No. C270-01-02  
Sheets 360 - 365

REQUIREMENT REFERENCE DOCUMENTS.

1. Globe Strut  
Catalog G-643/USG/Rev. 12-80; Page 71
2. AISC Manual of Steel Construction 7th Ed. , Sec. 1.5.6

BASIC REQUIREMENT:

Allowable single-point pullout load for CI-3812 Series  
Inserts =  $2474 \text{ Lb} \times 1.33 = 3290 \text{ lb}$ .

DESCRIPTION OF POTENTIAL FINDING:

Axial load on lateral brace was calculated to be 3860 pounds (Sheet 361). Allowable  
pull-out load on brace connection is only 3290 pounds (Sheet 364).  
Therefore, the applied load, as calculated, exceeds the permissible load.  
See Attachment 1.

PREPARED BY: H. Sanchez DATE: 1/15/82  
REJECTION OF GA TASK LEADER COMMENTS BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: \_\_\_\_\_ DATE: \_\_\_\_\_

REVIEW BY GA TASK LEADER COMMENTS

☒ AGREE PFR IS VALID BY F. Lopez Jr. DATE 1/15/82  
☐ REQUEST RE-REVIEW BY \_\_\_\_\_ DATE \_\_\_\_\_  
☐ DISAGREE BY \_\_\_\_\_ DATE \_\_\_\_\_  
☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: \_\_\_\_\_ DATE: \_\_\_\_\_



REVIEW BY ORIGINAL DESIGN ORGANIZATION

## COMMENTS

☐ AGREE PFR IS VALID☐ DISAGREE

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☐ ADEQUATE☐ INADEQUATE

VALIDITY:

☐ VALID☐ INVALID

CLASSIFICATION:

☐ OBSERVATION☐ FINDINGJUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING"

COMMENT ON "OBSERVATION" CLASSIFICATION

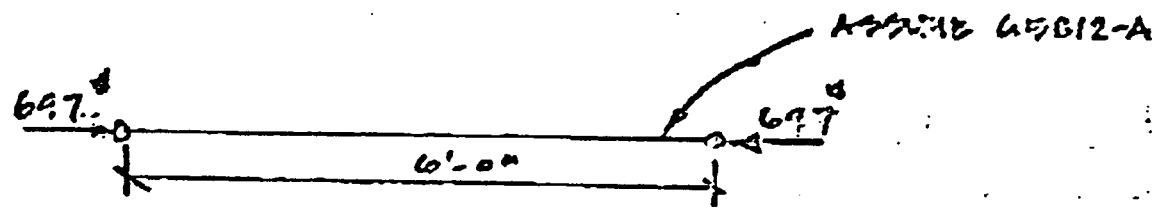
BY: \_\_\_\_\_ DATE: \_\_\_\_\_

E. GA PROJECT MANAGER☐ ACCEPT☐ REJECT

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

NATURE 7.11.71 DATE 8-22-70 CHECKED John DATE 11-2-70  
 SUBJECT BRACE JOB NO. 10074  
 DET BRACE SHEET 5 OF 5

CHECK LOADING TO LONGITUDINAL BRACING.  
 @ PT. B. TWO BRACES EFFECTIVE. MOMENTS  
 COMPRESSION. MAX. LENGTH APPROX. 6'



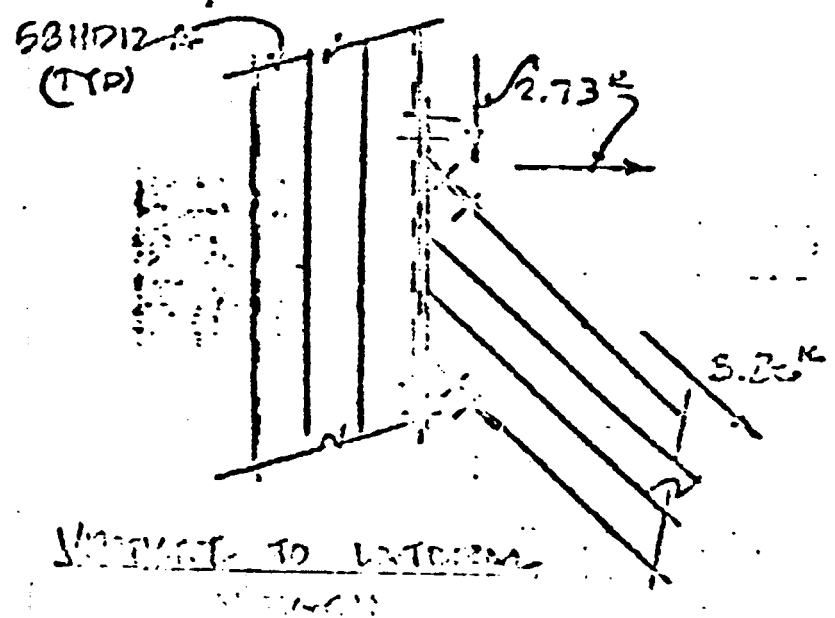
$$\frac{KL}{r_y} = \frac{(1.0)(6')12}{0.514} = 122.0 < 200 \text{ O.K.}$$

$$F_a = 0.522 F_y - \left( \frac{F_y K L / r_y}{1494} \right) \\
= 0.522 \times 33 - \left( \frac{33 \times 122}{1494} \right) \\
= 9.96 \text{ ksi}$$

$$f_a = \frac{697}{1.0412} = 670 \text{ psi} < 9.960 \text{ ksi O.K.}$$

USE C5812-A FOR LONGITUDINAL BRACING

CH22 CONNECTIONS



SLIP RESISTANCE

$$C5812 \text{ W/ } 1/2" \text{ P EMT} = 1121 \text{ lbs/ft} \times \\
= 1491 \text{ lb/ft} \\
\frac{3860}{1491 \text{ lb/ft}} = 2.59 = 3 - \text{G} \\
\text{BY INSPECTION VERTICAL IN} \\
\text{HORIZ. LOAD OK FOR} \\
\text{CONNECTION.} \\
\text{FLOOR CONNECTION C5812} \\
\text{PULL-OUT C5812 = 3190} \\
\text{IN ANY 12" LENGTH. 3} \\
\text{3190" > } \dots \text{ O.K.}$$