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ACCESSION NBR: 8201200577 DOC. DATE: 82/01/18 NOTARIZED: NO DOCKET #
 FACIL: 50-361 San Onofre Nuclear Station, Unit 2, Southern California 05000361
 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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 D Scaletti: 1 cy all enviro info.
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INTERNAL:	ELD	1 0	IEI	06 3 3			
	IEV/DEP/EPDB 35	1 1	IEV/DEP/EPLB 36	3 3			
	MPA	1 0	NRR/DE/CEB 11	1 1			
	NRR/DE/EGB 13	3 3	NRR/DE/GB 28	2 2			
	NRR/DE/HGB 30	2 2	NRR/DE/MEB 18	1 1			
	NRR/DE/MTB 17	1 1	NRR/DE/QAB 21	1 1			
	NRR/DE/SAB 24	1 1	NRR/DE/SEB 25	1 1			
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	NRR/DHFS/OLB 34	1 1	NRR/DHFS/PTRB 20	1 1			
	NRR/DSI/AEB 26	1 1	NRR/DSI/ASB 27	1 1			
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64 59
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Southern California Edison Company



P. O. BOX 800

2244 WALNUT GROVE AVENUE

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). E. then supplied the vendor with an addendum to the design specification (Ref. 1, Attachment 1) specifying the design nozzle loads. This design specification and the piping analysis (Ref. 2) 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 LEADERCOMMENTS

DESIGN VALIDITY AND ACCURACY

UNDER REVIEW BY ORIGINAL ORGANIZATION FOR

☒ AGREE PFR IS VALIDBY FigureDATE 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.



DESIGNED DATE 1/1/77 CHECKED DATE 1/1/77 CALCULATION SHEET

APPROVED DATE

TITLE NOZZLE ON PIPING FOR LOADING JOB NO. 2408-PR-R-008

SUBJECT NOZZLE ON PIPING FOR LOADING SHEET NO. 82 OF 87

A. EQUIPMENT NAME STEAM GENERATOR

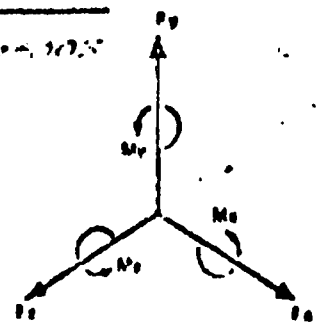
B. NOZZLE OR PENETRATION NUMBER CLAS 201

C. SIZE OF NOZZLE OR PENETRATION 12"

D. REF DIMENSIONAL SKETCH NUMBER 1

E. ANALYSIS PROBLEM NUMBER 1

F. DATA NUMBER 1



PSG 82

M1204-002-28

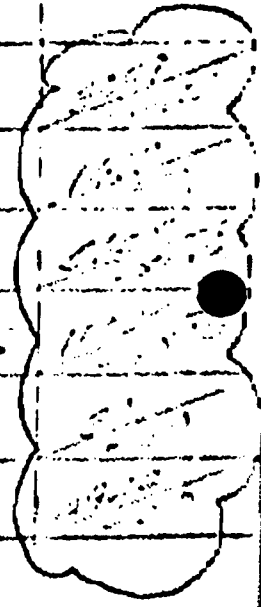
2408-PR-R-008

Attachment #2

NOTE: LOADS GIVEN IN LBS. UNLESS OTHERWISE SPECIFIED

CROSS	LAMP	P.O.	OPERATING		HYDROSTATIC TEST WEIGHT	OPERATING BASIS EARTHQUAKE OBS. (E) /		DESIGN BASIS EARTHQUAKE DRE. (E)		SEISMIC MOVEMENT LOAD DCL	TOTAL SET DESIGN LOADS
			THERMAL EXPANSION	WEIGHT (PIPE, FLUID & INSULATION)							
						STATIC EARTHQUAKE	DYNAMIC EARTHQUAKE	STATIC EARTHQUAKE	DYNAMIC EARTHQUAKE		
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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
 (3) * LOADS MEET VENDOR ALLOWABLES.



Attachment
3
2408-PFR-008

48-5

TANK S21204NT006 (UNIT TWO)

COMBINED DESIGN LOADS
(Thermal and Dead Weight + DDE Seismic)

<u>NOZZLE</u>	<u>SIZE</u>		
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 REVISIONS			DATE 10-15-58	BY J. L. H.	CHECKED J. L. H.
BECHTEL POWER CORPORATION ENGINEERS & CONSTRUCTORS LOS ANGELES, CALIF.			J. L. H.	SAN ONOFRE NUCLEAR GENERATING STATION	
JOB NO.			FILE S023- 407-13	TANK NOZZLE LOADS - SHEET 3	
DATE			SOUTHERN CALIFORNIA EDISON COMPANY		
APPROVED					

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 ☐ FINDING

JUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION _____

BY: _____ DATE: _____

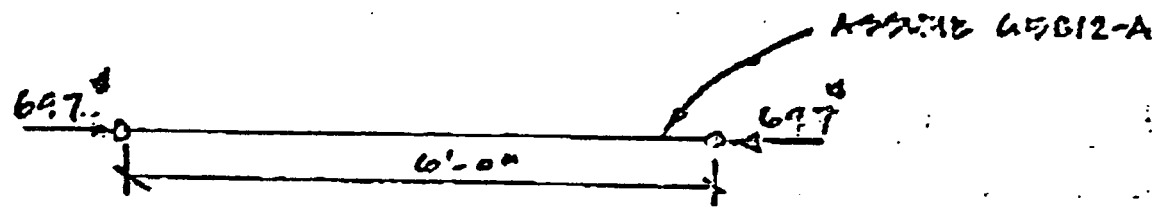
E. GA PROJECT MANAGER

- ☐ ACCEPT
☐ REJECT

BY: _____ DATE: _____

NATURE 7.11.71 DATE 8-22-70 CHECKED J. J. J. DATE 11-2-70
 SUBJECT 5811D12 JOB NO. 100713
 DET 5811D12 SHEET 5811D12 OF 5811D12

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



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

$$F_a = 0.522 F_y - \left(\frac{F_y \times KL/r}{1494} \right)$$

$$= 0.522 \times 33 - \left(\frac{33 \times 122}{1494} \right)$$

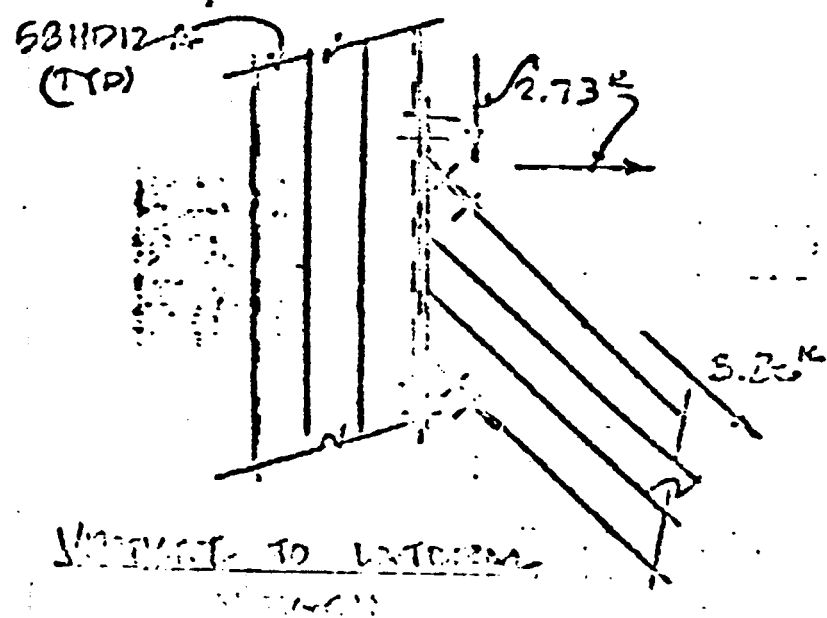
$$= 9.96 \text{ ksi}$$

$$f_a = \frac{697}{1.04 \text{ ksi}} = 670 \text{ psi} < 9.960 \text{ psi O.K.}$$

USE 45B12-A FOR LONGITUDINAL BRACING

CH22 CONNECTIONS

SLIP RESISTANCE



45B12 W/ 1/2" P BOLTS = 1121 7/8" x 1491 1/2"

$$\frac{3850}{1491 1/2} = 2.59 = 3 - 6$$

BY INSPECTION VERTICAL IN
 HORIZ. LOADS OK FOR
 CONNECTION.

FLOOR CONNECTION 5811D12
 PULL-OUT 5811D12
 IN ANY 12" LENGTH. 3
 3790" > 3790" O.K.