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 50-362 San Onofre Nuclear Station, Unit 3, Southern Californ 05000362
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 DIETCH,R. Southern California Edison Co.
 RECIP.NAME RECIPIENT AFFILIATION
 EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards ten potential findings repts processed & classified
 by GA Co.

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NOTES:L Chandler:all FSAR & ER amends.1 cy:J Hanchett(Region V). 05000361
 D Scaletti:1 cy all envir info.
 L Chandler:all FSAR & ER amends.1 cy:J Hanchett(Region V). 05000362
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ROBERT DIETCH

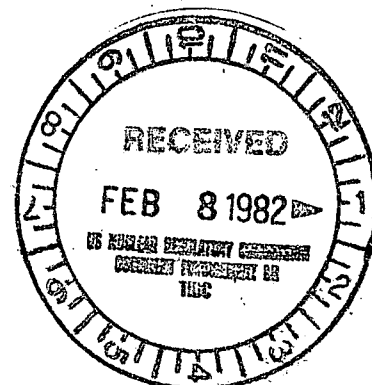
VICE PRESIDENT

February 5, 1982

TELEPHONE

213-572-4144

Director, Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555



Gentlemen:

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

Enclosed are sixty-three (63) copies of the Potential Finding Reports (PFR) which have been processed and classified by General Atomic as follows:

PFR-0007	Observation	PFR-0030	Invalid
0011	Observation	0035	Observation
0016	Invalid	0038	Finding
0024	Observation	0042	Observation
0028	Invalid	0052	Finding

We will transmit additional processed and classified PFRs to you as soon as they are completed.

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

Very truly yours,

Robert Dietch

cc: NRC Region V, R. H. Engelken (w encl)
ETECH, H. R. Fleck (w encl)
H. Rood (w encl - 10 copies)

8202090230 820205
PDR ADOCK 05000361
PDR

Boo1
5/11

POTENTIAL FINDING REPORT
SONGS 223 SEISMIC DESIGN VERIFICATION

2403-PIR-0007

PERIOD

REVISION

REPARATION BY GA INITIATOR

SELECTED ITEMS: Safety Injection Line to Reactor Coolant Loop 1A
Piping Stress Analysis Package PSG-78

REQUIREMENT REFERENCE DOCUMENTS:

Piping Stress Analysis Package PSG-78

BASIC REQUIREMENT:

The seismic response spectra used in the analysis be for the location to be analyzed.

DESCRIPTION OF POTENTIAL FINDING: Sheet 7 of Package PSG-78 refers to response spectra for nozzle (1A) from C. E. transmittal 900-B-52-0. The response spectra used in the analysis is S 023-900-B-55-0 which is for nozzle (2B), Sheets 33 through 35. There is no statement to the effect that the response spectra is the same for both nozzles.

PREPARED BY: H. Marsh

DATE: 1-11-82

REJECTION OF GA TASK LEADER COMMENTS BY:

DATE:

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: Neville Marsh

DATE: 1/22/82

REVIEW BY GA TASK LEADER

COMMENTS

☒ IF PF IS VALID

BY

DATE

☐ REQUEST RE-REVIEW

BY

DATE

☐ DISAGREE

BY

DATE

REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: C. Cherman

DATE: 1-27-82

VIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS.

Page 7 of 91 of PSG-73 establishes that "the seismic spectra used in the dynamic analysis envelope of C/S and C-E supplied curves". Since the C-E spectra for the four injection nozzles 1A, 1B, 2A and 2B are almost identical, an envelope spectra of the four was developed and used for all four lines. Therefore, the correct spectra was used for the location analyzed. Refer to design specification DS-1204 for spectra of the four nozzles.

☐ AGREE PF IS VALID☒ DISAGREEBY: J. M. F. S. / D. L. R.DATE: 1-15-82

RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☒ ADEQUATE☐ INADEQUATE

VALIDITY:

☒ VALID☐ INVALID~~10 CFR 21:~~~~☐ NOT APPLICABLE~~~~☐ APPLICABLE~~ SLK 1/22/82~~10 CFR 50.55(e):~~~~☐ NOT APPLICABLE~~~~☐ APPLICABLE~~

CLASSIFICATION:

☒ OBSERVATION☐ FINDING

CLASSIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION

Documentation error but no effect on designBY: S. L. KoutzDATE: 1/21/82

TIT PROJECT MANAGER

☒ ACCEPT☐ REJECTBY: S. L. WermanDATE: 1/24/82

IMPACT ASSESSMENT

2408-PFR-0007
PFR NO. _____

Safety Injection Line to Reactor Coolant Loop 1A
AFFECTED ITEM: Piping Stress Analysis Package PSG-78

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET? No
2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE? NO
3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD? No
4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD? No
5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

Other reference deviations may exist.

6. OTHER COMMENTS: It is felt that the response spectra referenced in the package as the one used in the analysis, should be the one contained in the package, instead of one that is not referenced. Otherwise, I agree with the original design organizations comments.

Neville Marsh

PREPARED BY: N. Marsh

DATE: 1/20/82

COMMENTS: *agree.*

BY: C. Chapman

DATE: 1/20/82

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

2408-PFR-0011
PFR NO. _____
REVISION -

PREPARATION BY GA INITIATOR

AFFECTED ITEMS: LPSI Pump P-016 and Support Structure

REQUIREMENT REFERENCE DOCUMENTS: San Onofre 2 & 3 FSAR, Fig. 3.7A-95, DBE Vertical Acceleration Response Spectra at Elev. -]5'-6" of Safety Equipment Building (Safety Injection Area).

BASIC REQUIREMENT: Building response spectra curves indicate vertical acceleration value of approximately 1.2g at 33 to 40 cps with 5% damping.

DESCRIPTION OF POTENTIAL FINDING: Vertical acceleration specified by C.E. and used in pump vendor (Ingersoll-Rand Co.) static analysis is 1.0g (Ref. C.E. Spec. 1370-PE-410, Rev. 07, and I-R Analysis Report EAS-TR-7625N), which is less than the FSAR criteria.

PREPARED BY: J. D. Stanley DATE: 1/13/82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: J. D. Stanley DATE: 1/23/82

B. REVIEW BY GA TASK LEADER

COMMENTS

☐ AGREE PF IS VALID

BY Boyer

DATE 1/14/82

☐ REQUEST RE-REVIEW

BY _____

DATE _____

☐ DISAGREE

BY _____

DATE _____

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: Boyer

DATE: 2/4/82

FFR 011
SLK 1/24/82

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

Per Bechtel telecon (R. Rogers - BPC to J. M. Westhoven C-E) 4:15 p.m. EST January 21, 1982

The FSAR reproduction of the seismic response curve is difficult to read in the area of concern. The BPC project curve, which is clearer, indicates better that 1.0g is the appropriate value. It is noted that a seismic response curve is a smooth envelope of calculated accelerations vs frequency values and is conservative for this reason.

The C-E project specification for the component was reviewed by BPC project personnel for proper interface and was provided status one (1) designation on 7/26/77. The specification appropriately identified 1.0g as the seismic vertical requirement.

☐ AGREE PF IS VALID

☒ DISAGREE

BY:

V C Hall

DATE:

1/21/82

D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☒ ADEQUATE

☐ INADEQUATE

VALIDITY:

☒ VALID

☐ INVALID

10 CFR 21:

☐ NOT APPLICABLE

☐ APPLICABLE

10 CFR 50.55(e):

☐ NOT APPLICABLE

☐ APPLICABLE

CLASSIFICATION:

☒ OBSERVATION

☐ FINDING

JUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION

Acceleration used in calcs too low but higher accel. does not cause allowable to be exceeded

Reviewed revised calcs - agree its "Observation" SLK 1/27/82

1/25/82 SLK

BY:

S D Koutz

DATE:

1/24/82

E. TPT PROJECT MANAGER

☒ ACCEPT

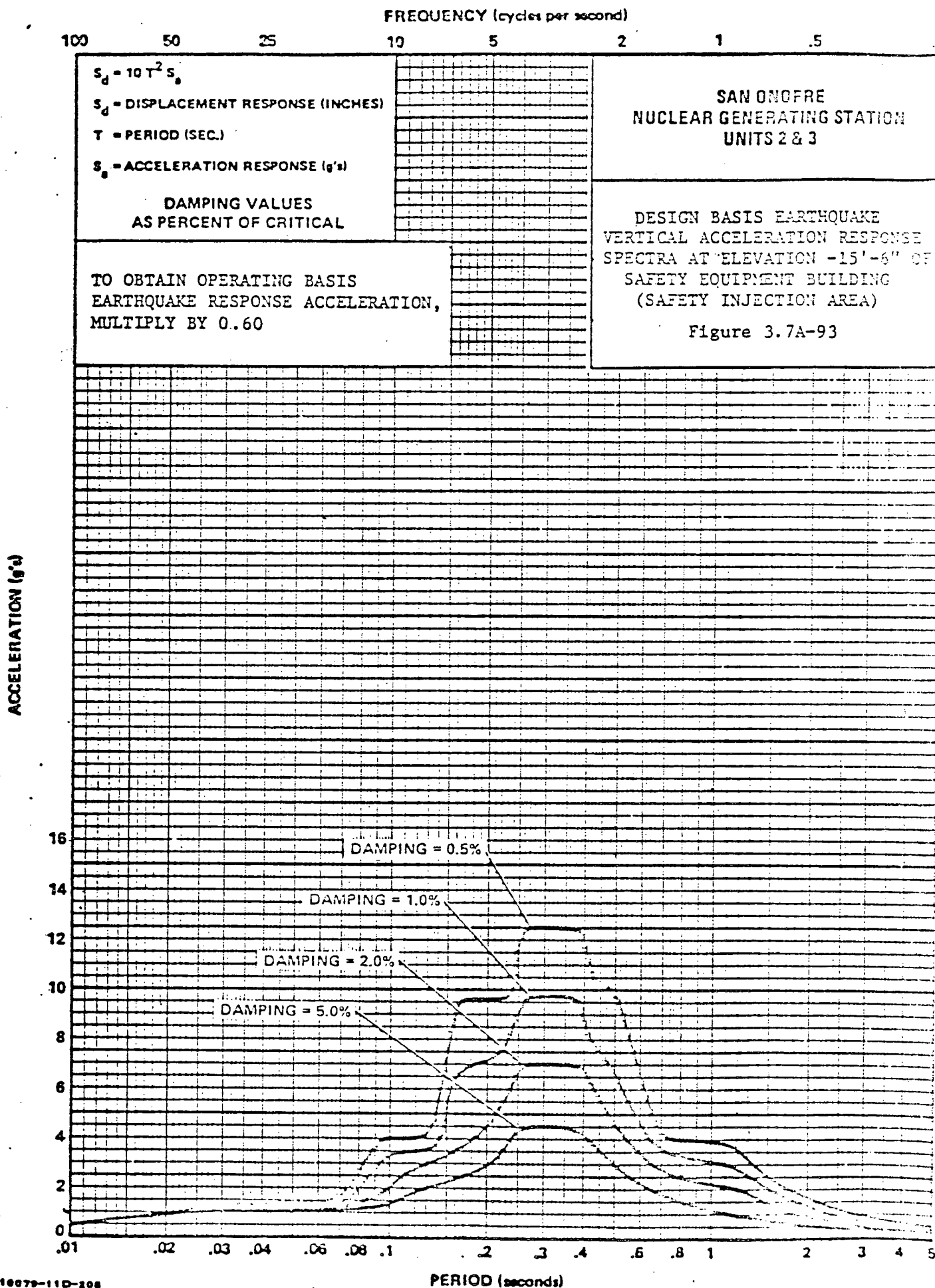
☐ REJECT

BY:

McWannan

DATE:

2/4/82



FREQUENCY (cycles per second)

100 50 25 10 5 2 1 .5 .2

$S_d = 10 T^2 S_a$

S_d - DISPLACEMENT RESPONSE (INCHES)

T - PERIOD (SEC.)

S_a - ACCELERATION RESPONSE (g 's)

DAMPING VALUES
AS PERCENT OF CRITICAL

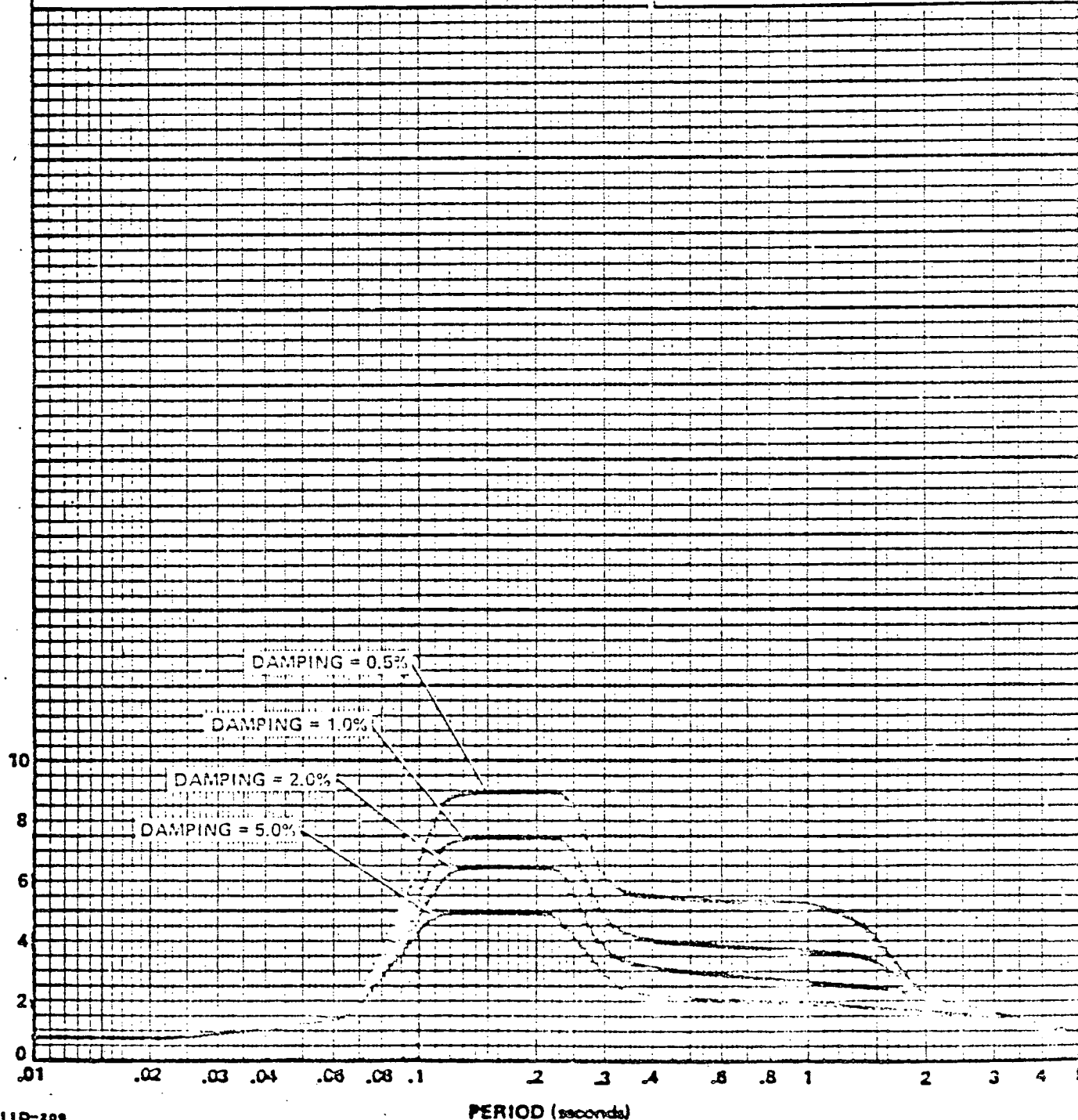
TO OBTAIN OPERATING BASIS
EARTHQUAKE RESPONSE ACCELERATION,
MULTIPLY BY 0.55

SAN ONOFRE
NUCLEAR GENERATING STATION
UNITS 2 & 3

DESIGN BASIS EARTHQUAKE
E-W HORIZONTAL ACCELERATION
RESPONSE SPECTRA AT
ELEVATION -15'-6" OF
SAFETY EQUIPMENT BUILDING
(SAFETY INJECTION AREA)

Figure 3.7A-94

ACCELERATION (g 's)



0011

FREQUENCY (cycles per second)

100

50

25

10

5

2

1

.5

.2

$$S_d = 10 T^2 S_a$$

S_d = DISPLACEMENT RESPONSE (INCHES)

T = PERIOD (SEC.)

S_a = ACCELERATION RESPONSE (g 's)

DAMPING VALUES
AS PERCENT OF CRITICAL

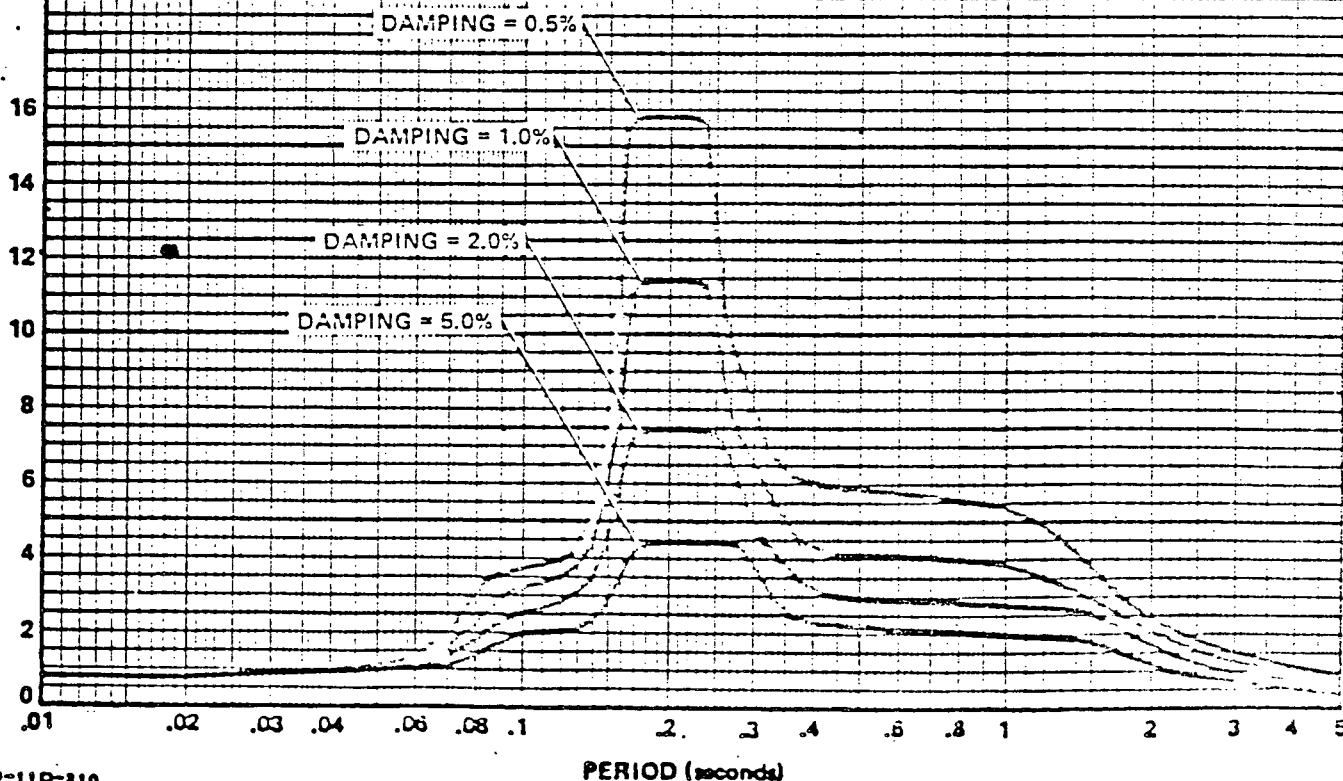
TO OBTAIN OPERATING BASIS
EARTHQUAKE RESPONSE ACCELERATION,
MULTIPLY BY 0.55

SAN ONOFRE
NUCLEAR GENERATING STATION
UNITS 2 & 3

DESIGN BASIS EARTHQUAKE
N-S HORIZONTAL ACCELERATION
RESPONSE SPECTRA AT
ELEVATION -15'-6" OF
SAFETY EQUIPMENT BUILDING
(SAFETY INJECTION AREA)

Figure 3.7A-95

ACCELERATION (g 's)



CALCULATIONS FOR <u>Attachment to 2408-PFR-0011</u>			
EQUIP. NO.	PROJ. NO.	CALC. NO.	PAGE 1 OF 1
PREPARED BY <u>Leslie E. Penzes</u>	DATE <u>1/29/82</u>	REF. DOCUMENTS: <u>LPSI Pump P-016</u>	
REVIEWED BY <u>[Signature]</u>	DATE <u>1/25/82</u>		
APPROVED BY	DATE		

Stress Increment Due to 1.2g Vertical Seismic Excitation.

$$\left. \begin{array}{l} \text{Weight of Pump} = 4400 \text{ lb} \\ \text{Weight of Water} = 250 \text{ lb} \end{array} \right\} \text{Section 4.1}$$

$$\text{Total Weight } W_t = 4650 \text{ lb}$$

$$\text{Radius of Pump Casing: } R = 19.25 \text{ in.} \quad \leftarrow \text{See Fig. 1.1}$$

$$\text{Approximate width of Pump Casing: } H = \frac{14}{15.5} \times 10 = 9 \text{ in.}$$

$$\text{Surface Area } A = 2\pi RH = 2\pi(19.25)(9) = 1088 \text{ in.}^2$$

$$\text{Assumed stress concentration factor } \gamma = 3$$

Equivalent Pressure Load from 1g vertical acceleration is:

$$P_{\text{eqv}, 1g} = \gamma \frac{W_t}{A} = 3 \times \frac{4650}{1088} = 12.8 \text{ psi} \sim \underline{13 \text{ psi}}$$

Equivalent pressure load from 1.2g vertical acceleration is:

CALCULATIONS FOR <i>Attachment to 2708-PFR-0011</i>			
EQUIP. NO.	PROJ. NO.	CALC. NO.	PAGE <i>2</i> OF <i>3</i>
PREPARED BY <i>Leslie E. Penzes</i>	DATE <i>1/29/82</i>	REF. DOCUMENTS: <i>LPSE Pump P-016</i>	
REVIEWED BY <i>JDL</i>	DATE <i>1/25/82</i>		
APPROVED BY	DATE		

$$P_{eqn, 1.2g} = 1.2 \times 13 = 15.6 \text{ psi}$$

The internal pump pressure is 650 psi.
(Section 4.1)

$$\text{Therefore } 13 \text{ psi} \rightarrow \frac{13}{650} \times 100 = 2\%$$

$$15.6 \text{ psi} \rightarrow \frac{15.6}{650} \times 100 = 2.4\%$$

The increment is $\Delta\% = \underline{\underline{0.4\%}}$

Reference

Engineering Analysis Section, Cameron
Pump Div. Ingersoll-Rand Co. "Structural
Integrity & Functional Operability
Analysis of Low Pressure Safety
Injection Pump 8x20 WDF.

EAS-TR-7625N., 17 June 76.

CALCULATIONS FOR <u>Attachment to 2408-PFR-0011</u>			
EQUIP. NO.	PROJ. NO.	CALC. NO.	PAGE <u>3</u> OF <u>3</u>
PREPARED BY <u>Leslie E. Penzes</u>	DATE <u>1/29/82</u>	REF. DOCUMENTS: <u>L PSI Pump P-016.</u>	
REVIEWED BY <u>J.M.</u>	DATE <u>1/25/82</u>		
APPROVED BY	DATE		

Mounting Feet and Bolts

The actual piping loads are significantly lower, than the design loads used in the I.R report (Ref. 1), therefore the design margin related to the pipe loading is significantly lower. Also, the horizontal seismic loading is 50% less from the frequency spectrum, than it was used in the I.R report.

Other Components

Large margin in the allowable stresses exists and would not be significantly effected by the higher g loading.

IMPACT ASSESSMENT

2408-PFR-0011

PFR NO. _____

AFFECTED ITEM: LPSI Pump P-016 and Support Structure

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

~~No, the stresses may be increased by 0.4%~~

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE?

No

See Attached Sheet #1

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD?

~~No~~ Yes

LEP
f80
1/27

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

Not applicable LEP

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

No

OTHER COMMENTS:

None

PREPARED BY: Leslie E Penzes DATE: 1/24/82
Leslie E Penzes

COMMENTS:

Agree with impact assessment.

Note that the PFR initiator is J. Stanley and the Impact Assessment was performed L. Penzes. J. Stanley requested L. Penzes to perform the assessment (see note from J. Stanley attached).

Agree with impact assessment

BY: [Signature]

DATE: 1/24/82

J. R. [Signature]
1/25/82

For pump casing the stresses may be increased by 0.4%, which will reduce the existing design margin from 8% to 7.6%. (See calculation by L E Penzes, attachment #2)

For the mounting foot bolts, the loads may change by 2.5% ^(Attachment #3, page 1), which will result in small reduction of the design margin of 42%. The 42% margin is based on recalculation of actual piping nozzle loads and compared against allowable value. (See attached calculation by J. D. Stanley, attachment #3, page 1 and page 5)

L E Penzes

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

PFR NO. 2400-PFR-0016
REVISION -

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: The engineered safety features system control panel (Panel 2CR57) of the I&C System.

REQUIREMENT REFERENCE DOCUMENTS: The Bechtel Power Corporation Specification for control room and field mounted panels specification number S023-502-5 with Addenda I, II, and III.

BASIC REQUIREMENT: That the acceleration level at device mounting points on the panel not exceed 3 "G" when the panel is exposed to the control room floor (30' elevation) DBE response spectra (Section 4.6.5.4 of Addendum I to the specification).

DESCRIPTION OF POTENTIAL FINDING: The specification fails to require the vendor to consider the anchorage details designed by Bechtel (the embedments) in his analysis or his test of panels. Consideration of such details might result in natural frequencies and mode shapes which would cause the maximum specified "G" level at device mounting locations to be exceeded during seismic excitation.

PREPARED BY: Stan Rodkin *Stan Rodkin* DATE: 1-17-82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: _____ DATE: _____

B. REVIEW BY GA TASK LEADER

COMMENTS

☒ AGREE PFR IS VALID

BY *Stan Rodkin*

DATE 1/18/82

☐ REQUEST RE-REVIEW

BY _____

DATE _____

☐ DISAGREE

BY _____

DATE _____

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: _____ DATE: _____

REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

attached sheet.

☐ AGREE PF IS VALID☒ DISAGREEBY: SRK 5/1/82DATE: 1/21/82D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☒ ADEQUATE☐ INADEQUATE

VALIDITY:

☐ VALID☒ INVALID~~10 CFR 21:~~~~☐ NOT APPLICABLE~~~~☐ APPLICABLE~~~~10 CFR 50.55(b):~~~~☐ NOT APPLICABLE~~~~☐ APPLICABLE~~

CLASSIFICATION:

☐ OBSERVATION☐ FINDINGJUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION

BY: S. L. KoutyDATE: 2/4/82E. TPT PROJECT MANAGER☒ ACCEPT☐ REJECTBY: W. J. WisemanDATE: 2/4/82

Specification S023-502-5 requires the vendor to consider the anchorage details designed by Bechtel. The following paragraphs of the specification and addenda substantiate this statement: 4.6.5.1, 4.6.5.3, 4.9.4.22, 4.9.6.1, 4.9.6.2, 4.9.6.3. Conference notes numbers 1466 and 1475 provide additional clarification of the anchorage requirements.

Vendor compliance with the required anchorage is demonstrated in Wyle Test Procedure No. 3570 (Log No. S023-502-5-12), page 7, article 4.1, and in Wyle Test Report No. 54498 (Log No. S023-502-5-501), page 3, article 3.2.

In conclusion, Wyle Test Report No. 58379 (Log No. S023-502-5-679) documents in-situ testing performed on control panel CR-57 installed at the San Onofre Nuclear Generating Station. The test results show the first mode of CR-57 to be 28 hz.

Page 1 of 2 0016
2/4/82 JRC

ADDENDUM
TO
POTENTIAL FINDINGS REPORT NO. 2408-PFR-0016

Prepared by: D.C.A. Koopman *DCA Koopman* Date: 2/4/82

Concurrence by Initiator: S. Rodkin *S.R.*

The response to the PFR, in conjunction with the additional information supplied by Bechtel is satisfactory. This PFR is declared invalid on the basis of the following considerations:

1. In Specification S023-502-5, Addendum 1, par. 4.6.5.1 of Seismic Design states:

"The structural system for the panels, including the attachment interface of all panel mounted equipment and the base anchorage of the total system to the floor or wall, shall be designed and qualified to meet the requirements of Seismic Class I Equipment as specified herein and in Appendix 4F .

2. Under "Design and Construction Details" par. 4.9.6.2 (Addendum 1) states:

"Means shall be provided in the structural bases so that panels can be welded to the foundations of the panel base".

3. Par. 4.3.6.3 states:

"....the Vendor shall submit for review and approval, drawings showing details of the basic anchoring method".

4. Conference Note 1475 (Ref. 0016-2) states:

"1. The main control room floor has been poured and inbeds installed to meet control panel layout previously provided to Jelco in transmittals of CSE and Electrical floor plan drawings."

"2. The panels will be welded to these inbeds."

5. Section A of Appendix 4F of S023-502-5 states:

"A complete qualification procedure and monitoring technique shall be presented by the Vendor to the Purchaser for review prior to the actual start of qualification work." Wyle Test Procedure No. 3570 (S023-502-5-12-2), is the procedure for testing the subject panels (Ref.0016-1).

2/4/82 JRC

6. Para. 4.1 of this Test Procedure states in part:

"Mount the specimen, on the test machine utilizing a 4 inch square tube interface fixture. Weld the control panel to the fixture in its normal mounting manner. Weld the fixture to the surface of the test machine."

This is to simulate the in-service anchoring method.

References:

0016-1 Test Procedure for Seismic Qualification Testing of Two Control Panels for San Onofre Nuclear Generating Station for JELCO Inc. Rev. B 6/8/76. Wyle Test Procedure No. 3570, Bechtel Log No. S023-502-5-12-2; SCE No. 0376, (TPT No. 1348-9196).

0016-2 "Conference Notes No. 1475." Bechtel, Wyle, JELCO, Feb. 6, 1976. (TPT No. 1348-9127).

IT IS MY UNDERSTANDING THAT REVIEW OF FEATURE 21* WILL BE EXTENDING INTO PHASE 2 OF THIS TASK, AT WHICH TIME, THE ADEQUACY OF SIMULATION OF MOUNTING DETAILS DURING TEST WILL BE FURTHER STUDIED.

John Rodin 2/4/81

* Feature No. 21 - Review of 2 CR 57 Panel

Concur - PF is invalid.
FSM 2/4/82

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

PFR NO. 2408-PFR-0024

REVISION A

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Safety Injection Line to Reactor Coolant Loop 1A,
Piping Stress Analysis Package PSG-78

REQUIREMENT REFERENCE DOCUMENTS:

ASME B&PV Code, 1974 Edition

BASIC REQUIREMENT: Input data for Seismic Anchor Movement (SAM) should be clearly specified in the calculation package.

DESCRIPTION OF POTENTIAL FINDING: The criteria used for determining the seismic anchor movement (SAM) is not adequately documented and the calculation for the SAM at anchor 140 are not adequately explained.

PREPARED BY: A. Chuang *A. Chuang* DATE: 2-2-82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: *A. Chuang* DATE: 2/2/82

B. REVIEW BY GA TASK LEADER

COMMENTS

The above item is one of two concerns originally covered in PFR 24. The reviewer has evaluated BPC's response & has accepted their explanation on one item. The above remains as a valid PF.

☒ AGREE PF IS VALID

BY

B. J. R.

DATE 2/2/82

☐ REQUEST RE-REVIEW

BY

DATE _____

☐ DISAGREE

BY

DATE _____

☒ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: *B. J. R.*

DATE: 2/2/82

REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

☐ AGREE PF IS VALID☐ DISAGREE

BY: _____ DATE: _____

D. 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

Inadequate documentation but calculational approach is reasonable

BY: S. L. KoutzDATE: 2/5/82E. GA PROJECT MANAGER☒ ACCEPT☐ REJECTBY: W. W. W. W. W.DATE: 2/5/82

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

The determination for the seismic anchor movement (SAM) for nodes 5 and 30 (Penetrations 3 and 48) are given on sheet 8 of calc. M-1204-043-2 (PSC-78). As stated on that sheet, the SAM from C/S data was judged to be negligible so a conservative movement of 0.125 in the X, Y and Z directions was used.

The determination for the SAM at the anchor 140 is given on sheets 26, 27 and 28 of calc. M-1204-043-2 (PSC-78). The calculations and data used are adequately documented and traceable.

☐ AGREE PFR IS VALID

☐ DISAGREE
BY: SRF NRC
DR RaynerDATE: 1/21/82

The conservative assumption of SAM for nodes 5 and 30 is acceptable. However, the criteria used for determining the SAM SAM at Anchor 140 are

D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☐ ADEQUATE

☐ INADEQUATE

VALIDITY:

☐ VALID

☐ INVALID

10 CFR 21:

☐ NOT APPLICABLE

☐ APPLICABLE

10 CFR 50.55(a):

☐ NOT APPLICABLE

☐ APPLICABLE

CLASSIFICATION:

☐ OBSERVATION

☐ FINDING
JUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION _____

BY: _____

DATE: _____

E. TPT PROJECT MANAGER
☐ ACCEPT

☐ REJECT

BY: _____

DATE: _____

not adequately explained
*(See telephone communication with Rick Ellis)

Old (Inventory)
2/2/82

The reviewer has examined the SAM data for nodes 5 & 30 per Bickel's response & has concluded that they are acceptable.

The SAM data for anchor 140 have not explained away.

this item of the PFR. Therefore, the PFR is valid (See Rev. A).

FS/PLD
2/2

CALCULATION SHEET

2400-PRC 0024
2/5/72

CALC. NO. 141204-043

SIGNATURE Robert August DATE 10-20-76 CHECKED NYC DATE 5-9-77
 PROJECT S.O.N.G.S. 2+3 JOB NO. 12079-003
 SUBJECT SAFETY INJECTION LINE SHEET 26 OF 91 SHEETS
1204-043-H-FEO SEISMIC ANAL. MONT. ANALYSIS

S.A.M.S for pt. 1765, per C-E LETTER "S.O.N.G.S. 2+3 SEISMIC DATA" MAY 27, 1977

		$\Delta X(\text{in})$	$\Delta Y(\text{in})$	$\Delta Z(\text{in})$	
1	X-RESP. DUE TO X-OBE	-.0612	.00808	-.0153	ROTATIONS ARE NEGLIGIBLE
2	Y-RESP. DUE TO X-OBE	-.00284	-.0168	-.0070	
3	Y-RESP. DUE TO Y-OBE, XY MODEL	.000136	.00146	.00034	
4	Y-RESP. DUE TO Y-OBE, YZ MODEL	.00022	.00198	.00442	
5	Y-RESP. DUE TO Z-OBE	.00254	-.0148	.0156	
6	Z-RESP. DUE TO Z-OBE	-.0159	-.00385	-.0715	

$$\Delta X = \sqrt{(\Delta X_1)^2 + (\Delta X_2)^2 + \dots + (\Delta X_6)^2} = .0634$$

$$\Delta Y = \dots = .0242$$

$$\Delta Z = \dots = .0749$$

S.A.M.'S DUE TO MOVEMENT OF SECONDARY SHIELD

ARE : $\Delta X = .0406"$
 $\Delta Y = .029"$
 $\Delta Z = .0302"$ } SEE NEXT PAGE

COMBINED C.E. & C/S S.A.M.'S ARE

$$\Delta X = \sqrt{\Delta X_{CE}^2 + \Delta X_{BECHTEL}^2} = \sqrt{(.0634)^2 + (.0406)^2} = .0753$$

$$\Delta Y = \dots = \sqrt{(.0242)^2 + (.029)^2} = .0378$$

$$\Delta Z = \dots = \sqrt{(.0749)^2 + (.0302)^2} = .0809$$

.0754

.0796

FOR ANCH 140

CALCULATION SHEET

2408-PFR-0024

M1204-043-20

CALC. NO.

SIGNATURE

W. J. Cairns

DATE

7-22-75

CHECKED

KCH

DATE

10-19-78

JOB NO.

10079-003

SUBJECT

SEISMIC ANCHOR MOVEMENTS

SHEET

27

OF

91

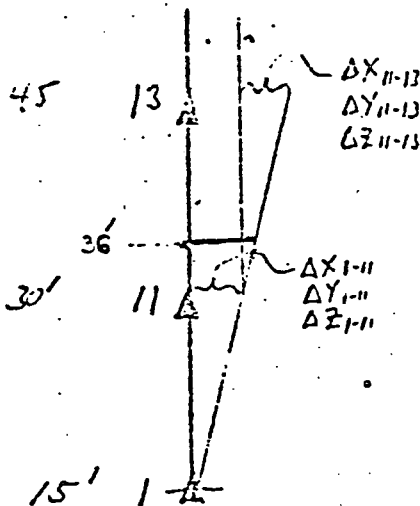
SHEETS

1204-043

DIFFERENTIAL DISPLACEMENTS BETWEEN
SECONDARY SHEILD AT 36' AND BASEMAT(15').

$$\left. \begin{aligned} \Delta X_{30'-45'} &= \Delta X_{11-13} = .029 \\ \Delta Y_{30'-45'} &= \Delta Y_{11-13} = .029 \\ \Delta Z_{30'-45'} &= \Delta Z_{11-13} = .022 \end{aligned} \right\} \text{DISPLACEMENTS BETWEEN ELEV.'S } 30' \text{ \& } 45' \text{ OF THE INTERIOR STACT.}$$

Copy from
chart



$$\frac{\Delta X_{11-13}}{15} = \frac{\Delta X_{15-36}}{21}, \quad \Delta X_{15-36} = 21 \left(\frac{.029}{15} \right) = .0406$$

$$\Delta Y_{15-36} = 0.029 \text{ SINCE IT IS CONSTANT BETWEEN ALL ELEVATIONS.}$$

$$\frac{\Delta Z_{11-13}}{15} = \frac{\Delta Z_{15-36}}{21}, \quad \Delta Z_{15-36} = 21 \left(\frac{0.022}{15} \right) = .0308$$

COMBINED C.E. AND C/S NOZZLE MOVEMENTS
RELATIVE TO BASE OF REACTOR COOLANT COLD LEG
SUPPORT COLUMN. BASE IS AT 15' OBSOLETE

$$\Delta X = \sqrt{\Delta X_{CE}^2 + \Delta X_{15-36}^2} = \sqrt{0.056^2 + 0.0406^2} = .069 \sim .07$$

$$\Delta Y = \sqrt{\Delta Y_{CE}^2 + \Delta Y_{15-36}^2} = \sqrt{0.028^2 + 0.029^2} = .04 \sim .04$$

$$\Delta Z = \sqrt{\Delta Z_{CE}^2 + \Delta Z_{15-36}^2} = \sqrt{0.059^2 + 0.0308^2} = .067 \sim .07$$

CALCULATION SHEET

SIGNATURE

DATE

CHECKED

DATE

PROJECT

JOB NO.

SUBJECT

SHEET

SHEETS

VERTICAL

HORIZONTAL

PARALLEL

PERPENDICULAR

VERTICAL

HORIZONTAL

PARALLEL

PERPENDICULAR

NODES

0.0204

0.0204

0.0204

0.10

0.10

0.10

0.00

0.029

0.031

0.061

0.046

0.024

0.070

0.16

0.022

0.021

0.043

0.026

0.027

0.041

0.15

0.0324

0.0324

0.0324

0.164

0.164

0.164

0.00

0.050

0.053

0.10

0.083

0.039

0.12

0.25

0.037

0.035

0.072

0.040

0.043

0.066

0.24

11-13

13-15

11-15

15-18

11-18

17-18

18-20

UNIT: INCH

NOTE: THE ABOVE ARE DIFFERENTIAL DISPLACEMENTS BETWEEN THE NODES WITH THE EFFECTS OF RIGID BODY MOTION REMOVED

IMPACT ASSESSMENT

2408-PFR-0024

PFR NO. _____

AFFECTED ITEM: Safety Injection Line to Reactor Coolant Loop 1A
Piping Stress Analysis Package PSG-78

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

No

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE?

No

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD?

No, the errors in this package are small values and will not create a safety hazard.

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

No

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST? ~~Probably will, it seems that there is no definite criteria for determining the SAM.~~

Can not make a judgment at this time. A.C. 2/2/82

6. OTHER COMMENTS: The criteria used for determining the seismic anchor movement (SAM) is not adequately documented, nor in the actual calculation of the SAM at node 140 adequately explained. In addition, six copying errors were discovered during the review, one is on sheet 27, and five are on sheet 26 of PSG-78 (see attached sheets). All the magnitude of the SAM values are small, therefore, the error will not affect the design.

PREPARED BY: A. Chuang

DATE: 2-1-82

COMMENTS: *agree with the above*

BY: *[Signature]*

DATE: 2-2-82

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

PFR NO. 2408=PFR-0028

REVISION -

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Engineered Safety Features Actuation System Auxiliary Relay Cabinet (2L-34)

REQUIREMENT REFERENCE DOCUMENTS: General Engineering Specification for Engineered Safety Features Actuation System Auxiliary Relay Cabinet, Specification No. 00000 -ICE -3002, Rev. 04, July 14, 1975, Combustion Engineering, Inc.

BASIC REQUIREMENT: Paragraph 5.11.1 of the specification states in part that the equipment will be considered Class I seismically qualified if certain requirements are met when the equipment has been subjected to ---motions of the floor to which the equipment will be mounted.

DESCRIPTION OF POTENTIAL FINDING: The specification does not give the specific RRS to be used nor does it give any references as to where the specific RRS is to be found, although several sub-paragraphs of paragraph 5.11.2 refer in a general way to RRS and TRS and to the need for the TRS to envelope the RRS

PREPARED BY: S. Rodkin *[Signature]* DATE: 1-18-82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: _____ DATE: _____

B. REVIEW BY GA TASK LEADER

COMMENTS

☐ AGREE PF IS VALID

BY

[Signature]

DATE

[Signature]

☐ REQUEST RE-REVIEW

BY

DATE

☐ DISAGREE

BY

DATE

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: _____ DATE: _____

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

The specific RRS was not transmitted by the specification, as the specification was a generic one, used for a number of plants. Plant specific RRS information was transmitted to the equipment vendor and was incorporated into a generic RRS as documented in the seismic qualification test plan (Wyle Laboratories Qualification Test Plan #541/3385-ZE/ES, 6/20/75). Prior to qualification the test plant was reviewed and approved by C-E.

☐ AGREE PFR IS VALID

☒ DISAGREE
BY: V P HallDATE: 1/22/82

*Invalid, see attached
J. S. Koub 2/4/82*

D. 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

Committee will ask St. Bresnick to follow up on lack of CE approval signature noted at bottom of Addendum to this PFR

BY: J. S. KoubDATE: 2/4/82E. GA PROJECT MANAGER
☒ ACCEPT

☐ REJECT
BY: ShlissmanDATE: 2/4/82

Addendum
to
Potential Findings Report No. 2408-PFR-0028

Prepared by: D. C. A. Koopman *[Signature]* Date : 2/4/82

Concurrence by Initiator: S. Rodkin *[Signature]* 2/4/82

The response to the PFR, in conjunction with additional information supplied by CE is satisfactory. This PFR is declared invalid on the basis of the following considerations:

1. In specification ICE 3002 under Testing par. 5.11.2.1.1 states:

"The required input motion is characterized by the response spectra (DBE, 1% critical damping, in each of three directions - major axes) of the surface to which the cabinet will be mounted for service. These are the Required Response Spectra (RRS)."

2. Par. 5.10 states:

"The Supplier shall perform the tests in accordance with written test procedures which have been submitted to and approved by the Purchaser (at least 60 days before testing)."

Ref. 0028-1 is the Seismic Test Procedure.

3. Ref. 0028-1 Fig. 5 and 6 show the horizontal and vertical RRS for Southern California Edison, which are the floor response spectra at 30' elevation provided by Bechtel.

References:

0028-1 "Seismic Test Plan for an ESFAS Auxiliary Relay Cabinet"
Wyle Test Procedure 541/3385-2/ES Rev. A, 6/16/75, TPT No. 1347-9978.

NOTE: Reference 0028-1 contains no CE approval signatures. This is due to CE procedures. See Telephone Communication Record attached.

*Concur - PF is
invalid.*

[Signature] 2/4/82

FROM: _____ LOCATION: _____ DATE: _____

TO: _____ LOCATION: _____ DATE: _____

2408-PFR-0028

TELEPHONE COMMUNICATION RECORD 2/4/82 JDC

(PLEASE HAND LETTER LEGIBLY IN BLACK OR RED INK)

CALL INITIATED BY: DCA KOOPMAN AT GAC ☒ OTHER: _____CALL RECEIVED BY: J WESTHOVEN AT GAC ☒ OTHER: _____OTHER PARTICIPANTS: BOB JEWELL AT CEDATE: 2-1-82 TIME: 8:00 AM PROGRAM NAME: SONGS SEISMIC DIV. PROGRAM NUMBER: 2408SUBJECT: PFR 27, 28, 30

SUMMARY: ^{Response to} ① The Wyle test plan noted in PFR 28 was requested and obtained, but did not match the document number of the response. C-E stated that the response was in error and the document sent was the correct one. Confirmation will follow.

② Both the Wyle test plan and the Acco Electro-mech test plan (PFR 27) were sent without C-E approval signatures. C-E stated such approval is given via Review and Approval Requests ("RAR"). They would search & send copies of the relevant RAR's.

ACTION ITEMS:

Date
RequiredPerson
Responsible

① Document # correction for Wyle test proc.

C-E (V. HALL)

② RAR's for TEST procedures. (Wyle & ACCO)

J. WESTHOVEN

B. JEWELL

DISTRIBUTION: F.S. Ople, S Rodkin

File No.: _____

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

PFR NO. 2408-PFR-0030

REVISION -

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Engineered Safety Features Actuation System Auxiliary Relay Cabinet (2L-34)

REQUIREMENT REFERENCE DOCUMENTS: General Engineering Specification for Engineered Safety Features Actuation System Auxiliary Relay Cabinet, Specification No. 00000 -ICE -3002, Rev. 04, July 14, 1975, Combustion Engineering, Inc.

BASIC REQUIREMENT: Paragraph 5.11.2.4 of the specification requires that no major structural resonances below 10 HZ. shall occur. The same paragraph requires that construction of the cabinet shall preclude amplification factors that could result in failure of equipment mounted therein.

DESCRIPTION OF POTENTIAL FINDING: The specification does not require the vendor to consider the anchorage details (embedments) supplied by Bechtel in his analysis or in his test. Consideration of those details might result in amplification factors and natural frequencies outside the specified limits.

PREPARED BY: S. Rodkin *S. Rodkin* DATE: 1-18-82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: _____ DATE: _____

B. REVIEW BY GA TASK LEADER

COMMENTS

☒ AGREE PFR IS VALID

BY

DATE

☐ REQUEST RE-REVIEW

BY

DATE

☐ DISAGREE

BY

DATE

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: _____ DATE: _____

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

It is not necessary for General Engineering Specification for Engineered Safety Features Actuation System Auxiliary Relay Cabinet (Specification No. 00000-ICE-3002, Rev. 04, July 14, 1975, Combustion Engineering, Inc.) to require the vendor to consider the anchorage details (embedments) in his analysis. The seismic levels to which the cabinet was tested were agreed upon interfaces between SCE, Bechtel, and C-E. C-E was responsible for specifying the embedment/cabinet interface. It is then the responsibility of the architect/engineer to ensure that the floor response plus embedment response do not exceed the C-E specified embedment/cabinet interface

☐ AGREE PFR IS VALID levels in Specification No. 00000-ICE-3002, Rev. 04.

☒ DISAGREE

BY: UC HallDATE: 1/22/82

Invalid, see attached
2/4/82 DCF/Kap

D. 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

Committee will ask Stu Bresnick to follow up on the lack of CE approval signature noted at bottom of Addendum to this PFR

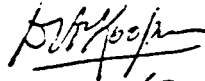
BY: S. L. KoutzDATE: 2/4/82

E. GA PROJECT MANAGER

☒ ACCEPT☐ REJECTBY: Al WeissmanDATE: 2/4/82

Addendum
to
Potential Findings Report No. 2408-PFR-0030

Prepared by: D. C. A. Koopman



Date: 2/4/82

Concurrence by Initiator: S. Rodkin



The response to PFR-0030, in conjunction with additional information supplied by CE and Bechtel is satisfactory. This PFR is declared invalid on the basis of the following considerations:

1. Par. 4.2.7 (ICE 3002) "Cabinet Mounting" states:

Provisions shall be made to securely bolt and/or weld the cabinet base to a floor mounting. The method used shall be designed to meet the seismic requirements of section 4.2.5. and 5.11." Par. 4.2.5 (Seismic Design Requirements) requires no loss of function during or after a seismic disturbance. Par. 5.11 is the seismic qualification procedure.

2. Under "Test Fixture Design", Par. 5.11.2.3.1 states:

"The cabinet shall be oriented (with respect to gravity) and mounted, on the test table, as intended for service." Par 5.11.2.3.2 states "If a test fixture is used to simulate in-service mounting, it must be rigid to seismic excitation".

3. Par 5.10. "Tests Required" states:

...."The Supplier shall perform the tests in accordance with written test procedures which have been submitted and approved by the Purchaser". Ref. 0030-1 is the seismic test procedure.

4. Par. 1.2, "Specimen Tiedown" of this Test Procedure states:

"The mounting hole pattern in the base of the specimen will be transferred to the test fixture The Specimen will be attached using 7/8" bolts The test fixture will be welded to the test table"

5. Bechtel Drawing 25131-4, Sheet 5 and 25132-3, Sheet 6 shows the control room floor construction detail for the Aux Relay Cabinet, including the 7/8" embedded anchor bolts and the bolt pattern.

Therefore, we concur that the specifications and test procedures have taken into account the anchorage details.

2/4/82 JRC

References

- 0030-1 "Seismic Test Plan for an ESFAS Auxiliary Relay Cabinet". Test Procedure 541/3385-2/ES Rev A Wyle Laboratories 6/16/75. (TPT No. 1347-9978.)
- 0030-2 "Aux Bldg Control Area Conc. Sections and Details, Sheet 5, Bechtel Dwg No. 25131-4 (TPT No. 1348-9199).
- 0030-3 "Aux Bldg Control Area Conc. Sections and Details, Sheet 6, Bechtel Dwg. No. 25132-3, (TPT No. 1348-9198).

NOTE: Reference 0030-1 contains no CE approval signatures. This is due to CE procedures. See Telephone Communication Record attached.

Concur - PF
is invalid.

fgjkd
2/4/82

FROM: _____ LOCATION: _____ DATE: _____

TO: _____ LOCATION: _____ DATE: _____

2408-PFR-0030

TELEPHONE COMMUNICATION RECORD 2/4/82 *gac*

(PLEASE HAND LETTER LEGIBLY IN BLACK OR RED INK)

CALL INITIATED BY: DCA KOOPMAN AT GAC ☒ OTHER: _____CALL RECEIVED BY: J WESTHOVEN AT GAC ☒ OTHER: _____OTHER PARTICIPANTS: BOB JEWELL } AT CE.DATE: 2-1-82 TIME: 8:00 AM PROGRAM NAME: SONGS SEISMIC D.V. PROGRAM NUMBER: 2408SUBJECT: PFR 27, 28, 30SUMMARY: ^{Response to} ① The Wyle test plan noted in PFR 28 was requested and obtained, but did not match the document number of the response. C-E stated that the response was in error and the document sent was the correct one. Confirmation will follow.

② Both the Wyle test plan and the Acco Electro-mech test plan (PFR 27) were sent without C-E approval signatures. C-E stated such approval is given via Review and Approval Requests ("RAR"). They would search & send copies of the relevant RAR's.

ACTION ITEMS:	Date Required	Person Responsible
① Document # correction for Wyle test proc.		C-E (V. HALL)
② RAR's for TEST procedures. (Wyle & ACCO)		J. WESTHOVEN
		B. JEWELL

DISTRIBUTION: F.S. Opla, S. ROPKIN

File No.: _____

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

PFR NO. 2408-PFR-0035

REVISION _____

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Low Pressure Safety Injection (LPSI) System from Pump P-016 (System 1204) to System 1206 in Piping Stress Analysis Package PSG-57.

REQUIREMENT REFERENCE DOCUMENTS:

BPC Calculation No. PSG-57, Computer Run Q36L19
Area Drawing -2C2 Dwg. No. 40365-9 (IDCN Dated 12/21/81)

BASIC REQUIREMENT:

A design change notice has been issued concerning a valve in the above referenced piping analysis.

DESCRIPTION OF POTENTIAL FINDING:

The referenced change notice changed the manual operated valve -2TE0351Y (as analyzed) to a motor operated valve. The weight and C.G. location change was not incorporated into the analysis.

PREPARED BY: *L. Pickering* DATE: 1-19-82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: _____ DATE: _____

B. REVIEW BY GA TASK LEADER

COMMENTS

☒ AGREE PF IS VALID

BY *F. S. Pickering*

DATE 1/25/82

☐ REQUEST RE-REVIEW

BY _____

DATE _____

☐ DISAGREE

BY _____

DATE _____

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: _____ DATE: _____

REVIEW BY ORIGINAL DESIGN ORGANIZATIONCOMMENTS

The referenced change notice was reviewed for possible impact on the piping stress analysis and approved by the Piping Stress Group as indicated in the "Approval Signature".

The increase in weight and change in C.G. location were not considered significant enough to impact the current analysis since piping stress levels were very low, less than 1500 psi, in the vicinity of the valve. Also, the analyzed valve/piping configuration results in valve g-loading in the rigid range. The change from manual to motor operated valve would not shift the g-loading from the rigid range.

☒ AGREE PFR IS VALID - However, no impact on design.

☐ DISAGREE

BY: *Jack Marshall*

DATE: 1-26-82

D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☒ ADEQUATE

☐ INADEQUATE

VALIDITY:

☒ VALID

☐ INVALID

~~10 CFR 21:~~

~~☐ NOT APPLICABLE~~

~~☐ APPLICABLE~~

~~10 CFR 50.55(a):~~

~~☐ NOT APPLICABLE~~

~~☐ APPLICABLE~~

CLASSIFICATION:

☒ OBSERVATION

☐ FINDING

JUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION

Change Notice should have been incorporated into stress report. However, there is no effect on design.

BY: *S. L. Kouz*

DATE: 1/28/82

E. TPT PROJECT MANAGER

☒ ACCEPT

☐ REJECT

ShW 2/4/82

IMPACT ASSESSMENT

2408-PFR-0035
PFR NO. _____

AFFECTED ITEM: Piping Stress Package PSG-57

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT
DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

No

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER
ITEMS DURING AN SSE?

NO

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL
SAFETY HAZARD?

No YES JSP

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

No YES JSP

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

Similar deviations are likely to exist but were not found by this reviewer.

6. OTHER COMMENTS:

I agree with BPC assessment that the impact of the weight and C.G. location change due to the motor operated valve should be minimal. The stress report, however, should document any geometry change that has the potential of effecting the stress results.

PREPARED BY: L. Pickering

1-27-82

DATE: _____

COMMENTS:

Agree with impact assessment,

BY: JSP

DATE: 1/28/82

INTERNAL CORRESPONDENCE

GA 1076

0035

IN REPLY
REFER TO

FROM J. L. Pickering
TO Review Finding Committee
SUBJECT PFR 2408-PFR-0035

DATE
January 28, 1982

This memo is an amplification to the description given in the potential finding report (PFR) No. 2408-PFR-0035. This PFR is a result of the review of the Bechtel Power Company seismic piping analysis package of the Low Pressure Safety Injection (LPSI) and containment spray piping system calculation no. PSG-57. The scope of the review included 10" and 12" piping between the LPSI pump 016 in system 1204 out to the flow orifice in system 1206 plus valves 10"-025-C-406 and 12"-039-C-173 (2TE0351Y).

Change notice no. 40365 changed the manual operated valve (2TE0351Y) to a motor operated valve. The PFR was written because the new weight and CG location was not incorporated into the piping analysis.

JLP:sc

cc: F. S. Ople

POTENTIAL FINDING REPORT

SONGS 2&3 SEISMIC DESIGN VERIFICATION

REVISION _____

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Design Process; Interface Control

REQUIREMENT REFERENCE DOCUMENTS:

(a) Attachment 3, PSAR Section I paragraph 4, and (b) Section IV, paragraph 3.

BASIC REQUIREMENT: (a) "The CE Project Managers within the Nuclear Power Systems Division function as the principal line of communication for all project technical matters between CE, the engineer-constructor and the utility customer." (b) "... the project manager will ensure that all approvals as may be required from utility customer have been obtained."

DESCRIPTION OF POTENTIAL FINDING:

Above requirement not reflected in CE working manuals and procedures. See Attached.

PREPARED BY: [Signature]DATE: 1/21/82

REJECTION OF GA TASK LEADER COMMENTS BY: _____

DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: [Signature]DATE: 1/27/82B. REVIEW BY GA TASK LEADER

COMMENTS

☒ AGREE PF IS VALIDBY [Signature]DATE 1/21/82☐ REQUEST RE-REVIEW

BY _____

DATE _____

☐ DISAGREE

BY _____

DATE _____

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: [Signature]DATE: 1/28/82

The QADM does not clearly delineate how to positively control design interfacing information between CE and A&E/utility. QADM section 5.3, paragraph 3.1 discusses Project Manager's responsibility for defining external distribution and review requirements of CE documents. Neither the responsibility nor a methodology for control of incoming design information and its distribution and review requirements are specified in this QADM. QADM Section 5.0, exhibit number 5.0-1 clearly indicates Project Office to be within the mainstream of "mandatory quality steps".

Though the exhibit 5.0-1 of QADM specifies utility customer review/approval requirements for some procurement documents, prior design manuals such as PE-001 and RD-1 do not address such requirements. Additionally, the design control documents for Reactor Design group prior to 1976, RD-1, did not clearly define project office involvement in controlling the design interface.

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

1. Refer to QADP 4.0, Applicability.

Paragraph 4.1 states in part "The requirements of this manual are mandatory for activities, performed by the Engineering and Development Departments, which encompass the design of safety class systems and components". Project Managers, who are in the Commercial Department, perform administrative and coordinating functions rather than safety related design activities. The QA program does

☐ AGREE PFR IS VALID

not require that administrative procedures be included and the QADH does not apply to the Commercial Department. Therefore, the comments regarding lack of controls of Project Office activities in the QADH are not applicable.

☒ DISAGREEBY: V. E. HallDATE: 1/27/82D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☒ ADEQUATE☐ INADEQUATE

VALIDITY:

☒ VALID☐ INVALID

CLASSIFICATION:

☐ OBSERVATION☒ FINDINGJUSTIFICATION:CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" 2

COMMENT ON "OBSERVATION" CLASSIFICATION

BY: S. L. KoutzDATE: 1/30/82E. QA PROJECT MANAGER☒ ACCEPT☐ REJECTBY: Ch. WisemanDATE: 2/4/82

2. The information in item 1 above also applies in general to the lack of controls of Project Office activities in RD-1 and PE-001. The exclusion of Project Office activities in these procedures is even more appropriate since they each describe controls for one particular Department.
3. Exhibit 5.0-1 was reviewed with Torrey Pines QA in Windsor during the January 19-20, 1982 visit. The legend for the heavy line on the flow chart for Quality Assurance of Design and Procurement should be considered as either "Mandatory Steps" or "Mandatory Quality/Administrative" steps. Additionally, QADP 5.0 only provides a description of the overall process; the detailed procedures that follow provide the appropriate controls.
4. Specific references in appropriate procedures that identify Project Office interfaces to the engineering groups that are under the applicability of the QA procedures include the following:
 - a. QADP 5.1, Rev. 0, Design Input - Section 5.1.2, states in part, "Project Manager supplies information regarding any design bases specified in the contract documents, regulatory guides and/or industry standards to be employed in the design."
 - b. QADP 5.3, Rev. 0, Design Interface - Section 3.1, states in part, "All required reviews external to C-E are defined by the Project Manager or his designated representative. The distribution of information to appropriate external organizations and agencies and the compilation of their comments for design group evaluation is the responsibility of the Project Manager or his designated representative."
 - c. RD-1, Appendix H, Section I, states in part, "The cognizant design group supervisor is responsible for the technical adequacy of design interface information supplied by his group for Reactor Design."
 - d. RD-1, Appendix H, Table I, Reactor Design Interfaces - Item 1, Architect-Engineers and Utilities interfaces are controlled by "Reactor Design functional groups interface through PE/CAE (Projector Class Application Engineer) who, in turn, interfaces with the Project Manager."
 - e. PE-001, Rev. 0, Section 6.4.3, Client Interface Control.
 - (1) Section 6.4.3.1 states in part, "Interface design information results from the design process and is forwarded through the Project Manager to the client/AE by one or more of the listed documents."
 - (2) Section 6.4.3.3, "All client or AE comments on design interface documents will be received by the project office and forwarded through the appropriate group supervisor to the cognizant engineer for action."
 -
 - (3) Section 6.4.3.4, "Any client or architect-engineer design interface documents forwarded to C-E for approval, review and comment or for information will be received by the project office and then forwarded through the appropriate Group Supervisor to the Cognizant Engineer for action.".....

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Response to 2408-PFR-0052 (Cont.)

4. The Project Offices perform administrative functions in the Commercial Department. Since the administrative functions that are performed in the Project Offices are not included in the scope of safety related design activities and since the quality assurance of design procedures (RD-1, PE-001, QAD-1) are not applicable to the Commercial Department, Project Office controls are not in these procedures.
5. The monitoring functions that the Project Manager performs as part of his responsibility for the overall coordination of the project are not safety related design activities and are not included in Quality Assurance of Design Procedures. The actual design activities and the independent verifications are safety related activities performed in the appropriate engineering organizations and are included in the QADP's.

VTH

IMPACT ASSESSMENT

PFR NO. -0038

AFFECTED ITEM: Design Process - Interface Control

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

N/A

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE?

N/A

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD?

N/A

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

Yes, because design requirements, inputs and interfaces may not have received proper routing and coordination.

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

N/A

6. OTHER COMMENTS:

This PFR is of a "procedural" nature, that is, the basic requirement was not addressed in CE written procedures. CE may in fact have actually done adequate design control.

PREPARED BY: 

DATE: 1-28-82

COMMENTS:

Agree with above

BY: 

DATE: 1/28/82

Project 2408

PFR-0038

Attachment I

Review of CE Comments (and phone conversation of 1/29/82 - see attached)

CE maintains that the Project Office work does not fall under the QA program, and therefore Project Office activities need not be documented as part of the QA program. However, the Project Manager function is described several times in Appendix A to the PSAR (Attachment 3) which is the CE Quality Program Plan. The PSAR makes commitments for the Project Manager which appear to place the Project Manager in a key interface role which we consider to be a key part of the QA program for design. As such, the Project Manager functions should be described in the QA procedures.

CE correctly points out that some CE Design QA procedures do address the PSAR "basic requirement". However, the procedures in question do not provide the level of detailed instructions which we believe are appropriate for this activity, and which would be consistent with the level of instructions provided for other functions covered by these same procedures.

CE stated in their reply, and confirmed in phone conversations, that the Project Office is not part of the QA program. They also stated in a phone conversation on 1/29/82 that there were no procedures available to describe details of how the Project Manager ensures that design documents are properly routed into and out of CE.

The lack of specific procedures to describe how the Project Office ensures that design interfaces between CE/AE/utility are controlled constitute the basis for this PFR.

S. Burnell
1/29/82

QUALITY ASSURANCE DEPARTMENT

Record of Long Distance Telephone Call

Party: Called ☒
Calling ☒

Date: 1/29/82
Time: Completed 11:45
Started 11:30
On-line :15

Name Dick Bennett, Vin Hall, George Huba
Company Combustion Engineering
Location _____
Telephone No: A/C _____ No. _____

Discussion: Bennett, Hall & Huba returned my call to Huba this morning when I called with Tyson and Chandler to review their response to PFR-0038. Following are the essentials of the discussion:

- 1) I reviewed our PFR process in general, and pointed out that we are now at the point of calling CE to discuss their comments on PFR-0038.
- 2) Hall/Bennett explained again that CE does not consider the Project Office to be part of the QA program. They function in an administrative capacity to process documents in and out of CE and perform no technical or QA role, thus they do not consider them to be part of QA program.

Regarding item (b) of the PFR, CE explained that the required SCE approvals referred to approvals for commercial purposes (P.O. payment, etc.) and so are not part of QA.

- 4) I pointed out that we believe the functions that Project Office carries out in the interface areas are an essential part of the design QA program, to ensure that the proper documents get sent to the proper parties. I said if there were any written procedures (even though not in the QA domain) which describe how the project office carried out their interface function, these may resolve our concern and invalidate the PFR. I asked if any such procedures exist, and if so, could they send them to us? I pointed out that our conclusions can only be made based on documentation; we cannot accept verbal information as input to our decisions.

- 5) CE (Hall/Bennett) said that they cannot give us any Project Office procedures as there are no specific procedures that cover the function we are interested in. There are apparently some internal memos, but there was nothing he could send us to document the Project Office function in interface control.

- 6) CE asked what happens now. I said I give our input to the FRC and they classify the PFR as invalid, Finding or observation. They asked if the "shade is drawn" on them now. I said I'm not sure - our action goes to SCE who gets back to CE, if appropriate.

I asked me to tell Wessman that CE would like to discuss this matter and understand when and how they will hear of the resolution of PFRs.

Record Made by S. Bresnick

S. Bresnick

cc: G. Chandler
D. Tyson
G. Wessman

POTENTIAL FINDING REPORT
SONGS 2&3 SEISMIC DESIGN VERIFICATION

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Piping supports for the suction line between the refueling water task (T-006) and the low pressure safety injection pump (P-016)

REQUIREMENT REFERENCE DOCUMENTS:

PSA Drawings:

S2-SI-033-H-002 S2-SI-031-H-003
S2-SI-004-H-013 S2-SI-002-H-020

BASIC REQUIREMENT:

The PSA Drawings should reflect the field configuration of the supports.

DESCRIPTION OF POTENTIAL FINDING:

See Attachment No. 1 to this PFR for description of Potential Findings.

See Attachment No. 2 to this PFR for review of Original Design Organization's comments.

PREPARED BY: John A. Jee DATE: 1/28/82
REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____
REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: _____ DATE: _____

B. REVIEW BY GA TASK LEADER

COMMENTS

☐ AGREE PF IS VALID BY _____ DATE _____
☐ REQUEST RE-REVIEW BY _____ DATE _____
☐ DISAGREE BY _____ DATE _____

☒ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: Brian S. Hamst DATE: 1/28/82

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

☐ AGREE PF IS VALID☐ DISAGREE

BY: _____ DATE: _____

D. 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

Parts I + II (Attachment II) are Invalid. Part III is Observation because error was made but part is satisfactory. Part IV is Observation because gap is too large but GA calculation shows allowables are not exceeded. Note: GA does not agree with Bechtel statement that increasing gap reduces stresses (see Addendum)

BY: S. D. Koutz DATE: 2/5/82E. GA PROJECT MANAGER☒ ACCEPT☐ REJECTBY: GH WeismanDATE: 2/5/82

PFR No. -0042

ATTACHMENT I

PIPE SUPPORT DRAWING FINDINGS

S2-SI-033-H-002

On DCN 01, Item H, the distance between bolt holes shows 11". On Rev. 0, they show 10" (min). Actual distance is 10-1/4".

S2-SI-004-H-013

Location of W4 x 13 relative to anchor bolts on lower base is not as shown on drawing. Dimensions should be 6" to lower bolts and 9" to upper bolts. Actual dimensions are 10" to both rows of bolts.

S2-SI-031-H-003

Location of item G on existing W6 & W8 are not as shown on DCN #03.

S2-SI-002-H-020

Complete audit was performed on support with the following items noted:

- 1) Item F, base PL, is welded to vertical embedded plate. This weld is not as shown on drawing.
- 2) Clearance between lugs on pipe and stops on support (east side on pipe) are greater than 1/8". (0.105/0.178 measured)

ATTACHMENT II

Review of Original Design Organization's comments

I. S2-SI-033-H-002

The potential finding is invalid. The 11" dimension specified on DCN-01 is not a dimension that must be specified. The original "10" minimum" dimension specified was adequate. The original design organization stated that the dimension should only be specified exactly on the PSA drawing if it deviated below the 10" minimum. Therefore this discrepancy does not affect the seismic integrity of the support.

II. S2-SI-004-H-013

The potential finding is invalid. The written response by the original design organization was inadequate. However, further discussions revealed that Section 5.4.5 of CS-P207 defines that the center of gravity of the member must only be within the allowable load area of base plate. The Original Design Organization defined the center of gravity as the center of gravity of the cross-section at the point of attachment.

III S2-SI-002-H-003

Original Design Organization has provided a calculation verifying that the as-built configuration is acceptable. The initiator agrees that the calculation is adequate (reference: review of calculation by C. Charman 1/27/82).

IV S2-SI-002-H-020

- 1) Original Design Organization has provided adequate justification that the condition described in the PFR is acceptable.
- 2) Original Design Organization has not provided adequate justification that the impact on the design is not significant (reference: conversation with C. Charman 1/27/82).

REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

See attached sheet.

☐ AGREE PF IS VALID

☐ DISAGREE

BY: W. H. Hume for E. R. Rye DATE: 1-23-1992

RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☐ ADEQUATE

☐ INADEQUATE

VALIDITY:

☐ VALID

INVALID

10 CFR 21:

☐ NOT APPLICABLE

☐ APPLICABLE

70 CFR 50.55(e):

☐ NOT APPLICABLE

☐ APPLICABLE

CLASSIFICATION:

□ OBSERVATION

□ FINDING

CLASSIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION

BY: _____ DATE: _____

TPT PROJECT MANAGER

ACCEPT

☐ REJECT

BY: _____ DATE: _____

S2-SI-033-H-002

Construction specification (CS-P207, Section 5.3.3) allows deviations in concrete fastener location from those given on the drawings as long as the minimum center-to-center spacing given in CS-C8 (10 inches in this case) is not violated.

Disagree with potential finding.

S2-SI-004-013

Answer will follow on 1/26/82.

S2-SI-031-H-003

As-built configuration is acceptable. See attached calculation.

Agree with potential finding.

S2-SI-002-H-020 (Item 1)

The load carrying members are items A, F, G and the 'U' insert plate. Grout is not required to transfer load. An additional, but unrequired, weld was made to the vertical insert plate. As-built condition acceptable.

Agree with potential finding.

S2-SI-002-H-020 (Items 2 and 3)

Pipe support installation specification (CS-P207) allows a 1/16 inch undersize weld for 10% of the length weld (Section 5.6.1.2).

Disagree with potential finding.

S2-SI-002-H-020 (Item 4)

A response to this PFR will follow on 1/26/82.

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION**COMMENTS**

See attached sheet.

☐ AGREE PF IS VALID☐ DISAGREE

See attached sheet.

BY: *W. B. Marsh*DATE: 1-26-82**D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE**

DEFINITION ADEQUACY:

☐ ADEQUATE☐ INADEQUATE

VALIDITY:

☐ VALID☐ INVALID

10 CFR 21:

☐ NOT APPLICABLE☐ APPLICABLE

10 CFR 50.55(e):

☐ NOT APPLICABLE☐ APPLICABLE

CLASSIFICATION:

☐ OBSERVATION☐ FINDING

JUSTIFICATION:

CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" _____

COMMENT ON "OBSERVATION" CLASSIFICATION

BY: _____

DATE: _____

E. TPT PROJECT MANAGER☐ ACCEPT☐ REJECT

BY: _____

DATE: _____

S2-SI-004-013

Paragraph H.1.a of "Pipe Support C/S Criteria and Procedure", calculation number P-450-1.10 provides design criteria that allows variability in anchor bolt location. This criteria was developed to allow construction latitude for locating anchor bolts in the event that obstructions, such as rebar, are encountered when fastening the plate to wall. The as-built configuration is within allowable construction latitude.

Disagree with potential finding.

S2-SI-002-H-020 (Item 2)

Clearance between piping and piping supports is maintained to a minimum, typically 1/8" total clearance. For the subject support, total clearance is less than 3/16". The effects of slightly larger gaps between piping and supports are negligible for the following reasons:

1. Increase of the gap size increases flexibility of the piping systems resulting in reduction of thermal and relative seismic motion loads and stresses.
2. Inertial seismic loads are not expected to increase more than calculated values because friction force effects are not considered in the calculations of the seismic inertial loads.

Agree with potential finding. However, impact on design is not significant.



CALCULATION SHEET

Attachment to 2408-PFA-0042
CALC NO. _____

SIGNATURE P. Smith DATE 1/18/82 CHECKED WT DATE 1/18/82
PROJECT SONGS UNITS 2 & 3 JOB NO. 10079-003
SUBJECT PIPE SUPPORTS SHEET 1 OF _____ SHEETS

ADDITIONAL CALC.

DESIGN VERIFICATION

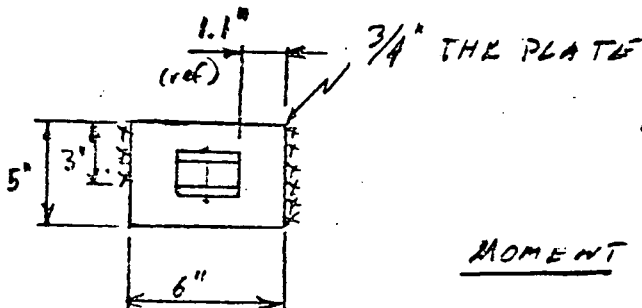
- ☐ DESIGNED BY ENGINEERING JUDGEMENT
☒ DESIGNED BY CALCULATION REF. PREV. CALC & BELOW

TAG NO. S2-SI-031-H-003

SUS 2 BHA
DIN 03
(GA WALKDOWN)

REFERENCE DESIGN DATA

STRESS PROBLEM NO. 3 82 REV. _____ PF. NO. 178
STRESS ISO NO. 1201-050-1 REV. NO. _____



$$P = 13.16 \text{ K}$$

MOMENT DUE TO ECCENTRICITY:

$$\bar{y} = \frac{3 \times 1.5 + 5 \times 2.5}{3 + 5} = 2.125''$$

$$M = 13.16 \times (2.5 - 2.125) = 5 \text{ K-in}$$

$$I_x = 3(2.125 - 1.5)^2 + 5(2.5 - 2.125)^2 + \frac{1}{12}(6^3 + 5^3) = 14.54$$

$$S_x = \frac{14.54}{2.125} = 6.84$$

TENSION ON WELD

ASSUME: 50% TO EACH

$$f_w = \frac{(13.16/2)}{3} + \frac{5}{6.84} = 2.92 \leq \left(\frac{5}{16}\right) 9.57 = 2.99 \therefore \text{OK}$$

PLATE BENDING

$$M_x = \frac{13.16}{2} \times 1.1'' = 7.24 \text{ K-in}$$

$$S_x = \frac{1}{6}(5)(1.75)^2 = .47$$

$$f_b = M/S = 7.24/.47 = 15.4 \text{ KSI} \leq 23.9 \text{ KSI} \therefore \text{OK}$$

		X	Y	Z
DESIGN	M +	—	—	—
	(FT-LBS) -	—	—	—
	P +	⊗	3554	⊗
	(LBS) -	⊗	13156	⊗

IMPACT ASSESSMENT

2408- PFR NO. 0042

AFFECTED ITEM: Piping Support S2-SI-031-H-003

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET ?

Not in this case.

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE ?

Unlikely since a calculation was prepared and the as-built configuration was found acceptable.

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD ?

Unable to assess.

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD ?

Unable to assess.

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST ?

Since Bechtel prepared a calculation to cover this Potential Finding as the result of the GA walkdown, there could be other similar deviations of this nature.

6. OTHER COMMENTS:

PREPARED BY: John G. Iken

DATE: 1/28/82

COMMENTS: No Comments

BY: Brian L. Baer

DATE: 1/28/82

IMPACT ASSESSMENT

2408- PFR NO. 0042

AFFECTED ITEM: Piping Support S2-SI-002-H-020, Item 1

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

Unable to assess based on the walkdown information

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE?

Unable to assess

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD?

Unable to assess

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

Not applicable

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

Twelve supports were checked as a part of the walkdown and this was the only Potential Finding of this type found.

6. OTHER COMMENTS:

The addition of the weld actually improves the structural integrity of the support.

PREPARED BY: John A. Irem DATE: 1/28/82

COMMENTS: No Comments

BY: Bruce Usamoto DATE: 1/28/82

IMPACT ASSESSMENT

2408 PFR NO. 0042

AFFECTED ITEM: Piping Support S2-SI-002-H-020 (Item 2)

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

Unable to assess

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE?

Unable to determine

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD?

Unable to determine

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

Not applicable

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

Unknown - this was the only deviation of this type found on 12 supports.

6. OTHER COMMENTS:

It is my opinion that the original design organization has provided insufficient evidence that the impact on the design is not significant (reference: conversation with C. Charman 1/27/82).

PREPARED BY: John A. Lunn

DATE: 1/28/82

COMMENTS: No Comments

BY: Brian J. Asanaka

DATE: 1/28/82

POTENTIAL FINDING REPORT

SONGS 2&3 SEISMIC DESIGN VERIFICATION

REVISION -

A. PREPARATION BY GA INITIATOR

AFFECTED ITEMS: Project Design Management

REQUIREMENT REFERENCE DOCUMENTS:

Attachment A, PSAR Section III, Paragraph 6.

BASIC REQUIREMENT: "The Project Manager is responsible for the overall coordination of the project, and in this capacity monitors the design and checks conformance with design specifications and licensing requirements and compatibility of the design with the engineer-constructor interfaces. This monitoring consists of an overall check of design adequacy."

DESCRIPTION OF POTENTIAL FINDING:

The CE design control documents PE 001 and RD-1 do not address implementation procedure for above requirement. The current procedure QADM (in effect since 5/3/76) also does not effectively address project management task requirement.

PREPARED BY: [Signature] DATE: 1-22-82

REJECTION OF GA TASK LEADER COMMENTS BY: _____ DATE: _____

REJECTION OF ORIGINAL DESIGN ORG. COMMENTS BY: [Signature] DATE: 1-22-82B. REVIEW BY GA TASK LEADER

COMMENTS

CE did not address the issue of PSAR requirements not being reflected in design procedures.

☒ AGREE PE IS VALID

BY

[Signature]DATE 1-22-82☐ REQUEST RE-REVIEW

BY _____

DATE _____

☐ DISAGREE

BY _____

DATE _____

☐ REVIEW OF ORIGINAL DESIGN ORGS. COMMENTS BY: [Signature]DATE: 1/20/82

C. REVIEW BY ORIGINAL DESIGN ORGANIZATION

COMMENTS

1. PE-001 provides controls for safety related design activities performed by the Plant Engineering Department.
2. RD-1 provides controls for safety related design activities performed by the Reactor Design Department.
3. QADM provides controls for safety related activities performed by the Engineering and Development Departments after May 3, 1976. The applicability of the QADM includes the Plant Engineering and Reactor Design Departments.
- ☐ AGREE PF IS VALID
- ☒ DISAGREE

BY: VC H-10DATE: 1/27/82D. RECOMMENDATION BY FINDINGS REVIEW COMMITTEE

DEFINITION ADEQUACY:

☒ ADEQUATE☐ INADEQUATE

VALIDITY:

☒ VALID☐ INVALID

CLASSIFICATION:

☐ OBSERVATION☒ FINDINGJUSTIFICATION:CLASSIFICATION CRITERION NO. RESULTING IN "FINDING" 2

COMMENT ON "OBSERVATION" CLASSIFICATION

BY: S. L. KoutzDATE: 1/28/82E. QA PROJECT MANAGER☒ ACCEPT☐ REJECTBY: Shl WismannDATE: 2/4/82

Response to 2408-PFR-0052 (Cont.)

4. The Project Offices perform administrative functions in the Commercial Department. Since the administrative functions that are performed in the Project Offices are not included in the scope of safety related design activities and since the quality assurance of design procedures (RD-1, PE-001, QADN) are not applicable to the Commercial Department, Project Office controls are not in these procedures.
5. The monitoring functions that the Project Manager performs as part of his responsibility for the overall coordination of the project are not safety related design activities and are not included in Quality Assurance of Design Procedures. The actual design activities and the independent verifications are safety related activities performed in the appropriate engineering organizations and are included in the QADP's.

U74

IMPACT ASSESSMENT

PFR NO. -0052

AFFECTED ITEM: Project Design Management

1. IS THERE THE POTENTIAL FOR REDUCING DESIGN MARGINS TO THE EXTENT DESIGN ALLOWABLES ARE EXCEEDED OR DESIGN REQUIREMENTS ARE NOT MET?

N/A

2. IS THERE THE POTENTIAL THAT THE ITEM MIGHT FAIL OR ENDANGER OTHER ITEMS DURING AN SSE?

N/A

3. COULD THE FAILURE OF THIS ITEM DURING AN SSE CREATE A SUBSTANTIAL SAFETY HAZARD?

N/A

4. COULD THE PROCEDURAL VIOLATION CREATE A SUBSTANTIAL SAFETY HAZARD?

Yes, because designs may not have had the proper interface controls.

5. ARE OTHER SIMILAR DEVIATIONS LIKELY TO EXIST?

N/A

6. OTHER COMMENTS:

This PFR is of a "procedural" nature, that is, the basic requirement was not addressed in CE written procedures. CE may have in fact actually controlled interfaces and reviews.

PREPARED BY: *[Signature]*

DATE: 1-28-82

COMMENTS:

Agree with above

BY: *J. Burrue*

DATE: 1/28/82