



LOUISIANA
POWER & LIGHT

142 DELARONDE STREET
P O BOX 8008 • NEW ORLEANS, LOUISIANA 70174 • (504) 366-2345

September 27, 1982

L. V. MAURIN
Vice President
Nuclear Operations

W3P82-2639
3-A1.01.04
3-A20.18

Mr. T. H. Novak
Assistant Director for Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: Waterford 3 SES
Docket No. 50-382
Informal Record of SQRT Audit

Dear Mr. Novak:

Please find enclosed a record of the Seismic Qualification Review Team audit for Waterford 3 SES.

A quick review of the record will reveal no open items left from the audit; however there are several confirmatory items for which we will, depending on the item, send you a schedule or the necessary information by October 3, 1982.

We understand that the issues identified on the sheets titled "Generic Concerns for All Plants" and "Generic Concerns Related to SQRT Audit", pages 6 and 7 into the report, will not be included in the formal report on the audit issued by EG&G, but will only be mentioned in the memo which T. Y. Chang will write concerning the audit.

If you have any questions or comments concerning this record or this memo, please advise.

Yours very truly,

L. V. Maurin

LVM/MGW/pc0

Attachment

cc (with attachment): Suzie Black, T. Y. Chang, Jack Singh (EG&G - Idaho),
E. Blake, M. Stevenson

3001

8209300240 820927
PDR ADOCK 05000382
A PDR

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

OPEN ITEMS FROM 1ST AUDIT

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Generic</p> <p>Reviewer: T. Chang (NRC) E. Siegel (CE) K. Gala (LPL)</p>	<p>It was noticed that during the review of NSSS-PE-10 (Deborating Ion Exchanger), NSSS-PE-15 (Purification Filter) and NSSS-PE- 33 (Hold up Tank), nozzle loads were neglected in the stress analysis. This seems to be a generic pattern.</p>	<p>A C-E letter will be submitted by October 1, 1982, which describes the manner in which nozzle loads have been simulated in the original analyses for all Section VIII Tanks and heat exchangers. In addition, this letter will describe a follow-on effort where nozzle loads were directly evaluated for each specific component. This item is confirmatory.</p>
<p>BOP Item E-68 Control Components</p> <p>Reviewer: R. Macek (EG&G) J. Tompeck (Ebasco) A. DeVito (Ebasco) K. K. Gala (LP&L)</p>	<p>C. Confirm that other components that malfunctioned in the qualification test are not in Waterford safety systems or the anomalies do not constituted malfunction.</p> <p>D. Justify neglecting OBE testing.</p>	<p>This is a confirmatory item.</p> <p>Closed. 6 SSE tests performed.</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET

AUGUST 30, 1982-SEPTEMBER 3, 1982

Concerns from 1st Audit

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
NSSF-ICE-6		Closed
ICE-5F (rack)		Closed
ICE-5F (channel)		Closed
ICE-2E		Closed
ICE-16		To be reviewed by INEL System people
CE-4		Closed
ICE-1A		Closed
PE-31		(a) Closed
		(b), (c) to be reviewed by INEL system people.
PE-34		Closed
ICE-11-4		Closed
PE-7		Closed
PE-10		Closed
PE-15		Closed
PE-33		Closed
ICE-1		Closed
BOP SQ-IC-32		Closed (See Attachment)
E-5		Closed (See Attachment)
E-34		Closed
SQ-MN-80		Closed
SQ-MN-97		Closed
SQ-IC-1B		Closed

Additional Information Provided to E-5, Battery Cells B.

Insert the following statement after first Paragraph, Pg. 2 of Attachment H.

The above stress calculations on the connecting bar is based on the assumption that the 30 connecting battery cells will be in a rigid response range, i.e., a fundamental frequency is at least equal to $5H_z$.

The battery cell (weight = 436 lbs) is connected in series by a copper bar of $1\frac{1}{4}$ inch x $\frac{1}{4}$ inch, due to the installed configuration, the primary vibration mode of the connected battery cell is a stretching mode.

The frequency of the single cell is:

$$f = \frac{1}{2\pi} \left(\frac{k}{m} \right)^{1/2} = \frac{1}{2\pi} \left(\frac{AE}{\rho m} \right)^{1/2}$$
$$= \frac{1}{2\pi} \left(\frac{1.25 \times 0.25 \times 17 \times 10^6}{0.5 \times 436 / 386.4} \right)^{1/2} = 488 \text{ Hz}$$

The system frequency of the 30 battery cells can be conservatively calculated by assuming that all 30 battery cells will be resisted by one connecting bar, i.e., $f = 488 / \sqrt{30} = 89 \text{ Hz}$ which is greater than 5 Hz . This assumption of rigid battery cell system used in analysis is therefore demonstrated to be valid.

Attachment G (Continued)

4. SIAS Manual Initiation
Pushbutton (CH. C)
5. CSAS Manual Initiation
Pushbutton (CH. C)
6. MSIS Manual Initiation
Pushbutton (CH. D)
7. CIAS Manual Initiation
Pushbutton (CH. D)
8. CCAS Manual Initiation
Pushbutton (CH. D)
9. SIAS Manual Initiation
Pushbutton (CH. D)
10. CSAS Manual Initiation
Pushbutton (CH. D)

The safety factors of 1.95 and 14.5 are found for horizontal and vertical directions respectively.

In summary, the eighteen(18) devices mounted on panel CP-7, which are provided by Ebasco are all seismically qualified by sine-beat test method. The test input acceleration level exceeds the required seismic "g" value with a safety factor ranging from 1.5 to 14.5.* Therefore, the subject mounted devices are seismically qualified to meet project seismic requirements. Since the mounted devices are qualified by actual shake table test, the degree of rigidity of the devices will not affect the selection of the seismic input criteria, although it will affect the dynamic response of the devices. The maximum seismic response values at device mounting location, which are obtained by the dynamic analysis performed on the panel itself, are the seismic input requirements and also are the only requirements which should be met for sine-beat test.

Four (4) mounted devices of Containment Pressure (narrow range) will be seismically qualified in the near future, and the required seismic input "g" value for sine-beat test shall meet the Waterford-3 project seismic requirements.

References:

1. Seismic qualification test report for indicating control instrument, submitted by International Instruments, No. SBI-3, dated Feb 10, 1976

* The panel CP7 lowest frequency is 20.30 Hz and the panel response is rigid for the floor response spectra which has the ZPA frequency equal to 5.0 Hz.

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
E-60 E-51 SQ-HV-38 SQ-MN-197B SQ-MN-215 E-13 SQ-MN-201		Closed Closed Closed Closed Closed Closed Closed

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

Generic Concerns Related to SQRT Audit

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
	<ol style="list-style-type: none">1. Status of equipment not yet seismically qualified and their qualification schedule should be provided to NRC. This status should be submitted monthly until completion of qualification of all safety-related equipment. 2. Waterford III is committed to the requirement of IEEE-344-1971. However, Standard Review Plan Section 3.10 (NUREG-75/087), which is applicable to Waterford III, mentioned that for plants which CP application docket date is before 10/27/72, the NRC reviewer should look for evidence which demonstrates, that all equipment has adequate margin to perform their intended design functions during seismic events when considering the effects of possible multi-mode response and simultaneous vertical and horizontal excitations on equipment operability. Justification should be provided by the applicant if evidence is not demonstrated. 3. Walkdown of this audit revealed that there are still air lines and heater cables not connected (because of on-going testing), and loose cables (not yet tied down) are noted in several of the electrical cabinets. In addition, there are items from the first audit that modifications should be made, such as the change of design of the hold up tank. This generic concern will be followed up upon by the NRC resident inspectors.	<p>First status report will be issued to NRC by 9/2/82.</p> <p>Draft justification will given to NRC by 9/2/82.</p> <p>Follow up by NRC resident inspectors.</p>

LOUISIANA POWER & LIGHT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

Generic Concerns for all plants

EQUIPMENT DESCRIPTION	ISSUES DISCUSSED	RESOLUTION
	<ol style="list-style-type: none"><li data-bbox="442 409 1247 740">1. The effect of aging on the seismic capacity of equipment located in the mild environment should be addressed by the applicant. An acceptable method is to age the equipment before subject it to seismic testing. An alternate acceptable method is to establish a surveillance and periodic testing program in lieu of actually age the equipment. If second method is used, the program should be submitted to NRC for review.<li data-bbox="442 778 1247 1174">2. Seismic qualification of equipment by analysis method alone is valid only when (1) the equipment is not complex such that the response from seismic analysis can adequately assure the operability of the equipment, (2) structural integrity of the equipment under seismic loading implies operability. Additional nominal test will be required when equipment qualified by analysis alone does not meet the two requirements described above. Further clarification will be provided by NRC.	<p data-bbox="1310 409 2066 645">Inservice Testing and Inservice Inspection program of pumps and valves will be submitted to NRC for review by Oct. 1, 1982. Normal maintenance program for electrical equipment is in the process of preparation. Samples of this program may be required to be submitted to NRC for review when completed.</p> <p data-bbox="1310 822 1774 852">No LP&L Action at this time.</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET

AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No.: <u>BOP-10</u> SOR# No. <u>SQ-IC-1</u> 1151 Indicators Specific Item: <u>EI GN 4613</u> Reviewer: J. Singh, EG&G Ebasco: S. Nath R. Alexandru LP&L: M. Williams</p>	<p>In a recent test of the indicator (see NSSS-7) was submitted to a more severe test and showed reading variations larger than the manufacturer's tolerance. This report/test is less severe and does not show this large variation on the reading, however, the explanation of NSSS-7 is required to be recorded under this item also.</p>	<p>CLOSED</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 7</u></p> <p>SQRT No. <u>NSSS-ICE-8-1</u></p> <p>1151 Indicator</p> <p>Specific Item: <u>PI-101B</u></p> <p>Reviewer: J. Singh, EG&G CE T. MacNair Ebasco R. Alexandru LP&L M. Williams</p>	<p>The test on the indicator shows a 5% variation between the reading before and after test. The spec. required 1.5% variation. Why was the indicator operability variation accepted?</p> <p>Provide a spectra at the location of the instrument in the panel.</p>	<p>Confirmatory - See Attached Response to R. Prados dated 9/1/82</p> <p>Closed - See Ebasco Ltr. LW3-1131-82 dated 8/31/82.</p>

September 1, 1982

Mr. R. W. Prados
Licensing Engineering Supervisor
Louisiana Power & Light Company
142 Delaronde Street
New Orleans, Louisiana 70174

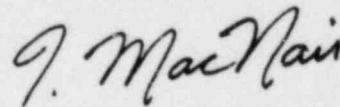
Subject: Item No. NSSS 7
SQRT No. NSSS-ICE-8-1
SIGMA 1151 ACCURACY DURING SEISMIC TEST

Gentlemen:

The purchase specification for this instrument requires an accuracy of $\pm 1.5\%$. This is a type requirement and applies to all applications of the Sigma 1151. Its intended compliance is the manufacturers published accuracy specification - commonly a "bench spec" for normal conditions not intended to address accuracy during seismic response.

An Uncertainty Analysis is performed to establish plant operating parameters. This analysis includes the uncertainties (inaccuracies) which occur during qualification testing. The Waterford III Instrument Uncertainty Analysis is scheduled for completion. The $\pm 5\%$ deviation of the Sigma Meters will be included in this analysis.

Very truly yours,



T. MacNair
Combustion Engineering, Inc.
EQ. Engineering
1000 Prospect Hill Road
Windsor, Connecticut 06095

TM/11

cc:

P. O. Box 70
Killona, Louisiana 70066-0070

August 31, 1982
LW3-1131-82
File: 15P6

Combustion Engineering Incorporated
1000 Prospect Hill Road
Windsor, Connecticut 06095

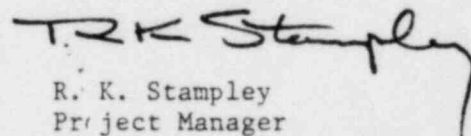
Attention: Mr. J. W. Veirs

LOUISIANA POWER & LIGHT COMPANY
WATERFORD STEAM ELECTRIC STATION
1983 - 1165 MW INSTALLATION - UNIT NO. 3
CONTROL ROOM RESPONSE SPECTRA AND CONTROL PANELS
FREQUENCY INFORMATION

Gentlemen:

Please find attached the OBF and SSE response spectra for Reactor Auxiliary Building elevation 46.00 (Control Room) for 0.5, 1 and 2 percent damping. Also, attached we listed the lowest frequency information for each panel. The lowest frequency of all panels is 13.86H identified for the control panel 18. With respect to Waterford Spectra these panels do not amplify the floor response spectra provided, and therefore these curves apply to all devices mounted on these panels.

Very truly yours,


R. K. Stampley
Project Manager

JT/km

cc: J. Czyrko, C. J. Decareaux, P. G. Harrington, D. Lindsey, J. Gutierrez,
M. Kennedy, J. Leonard, F. J. Drummond, L. V. Maurin, D. B. Lester,
F. J. McQuiston, R. Alexandru, J. DeBruin

ATTACHMENT II

CONTROL PANEL NO.

LOWEST FREQUENCY (H₂)

CP 1	18.65
CP 2	21.38
CP 3	21.38
CP 4	18.65
CP 6	21.38
CP 7	20.30
CP 8	20.30
CP 18	13.86
CP 35	13.86

FL SPECTRA N-S OBE

AUX. BLDG EL 46

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

ACCELERATION (G)

DESIGN ENVELOPE

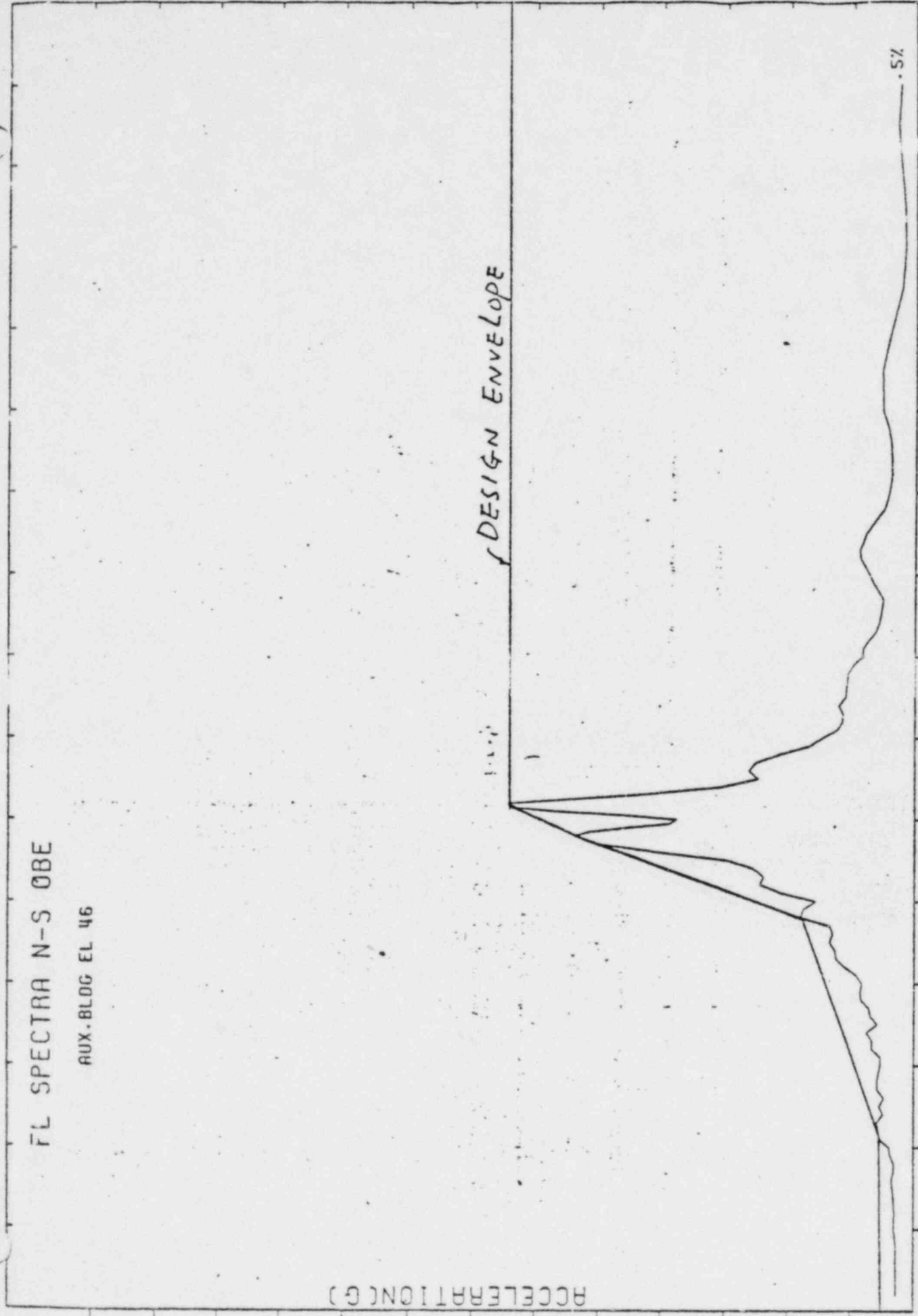
PERIOD (SECOND)

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50

.5%

d

10



FL SPECTRA N-S OBE

MAX. BLDG EL 46

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

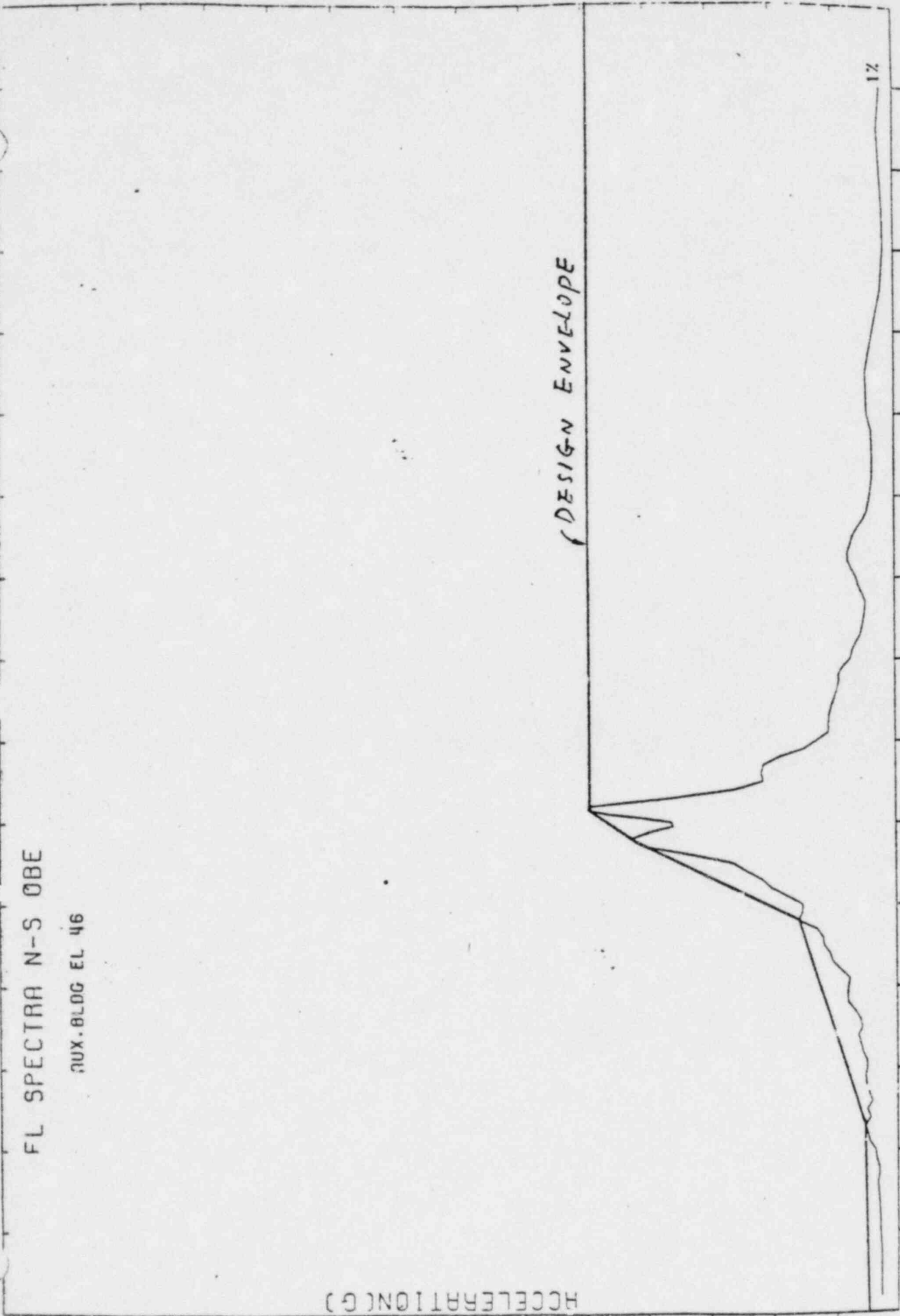
ACCELERATION (G)

DESIGN ENVELOPE

1%

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50

PERIOD (SECOND)



FL SPECTRA N-S 08E

AUX. BLDG EL 46

6.50

6.00

5.50

5.00

4.50

4.00

3.50

3.00

2.50

2.00

1.50

1.00

0.50

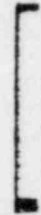
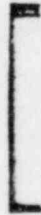
ACCELERATION (G)

DESIGN ENVELOPE

2%

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50

PERIOD (SECOND)



FL SPECTRA E-W OBE

AUX. BLOG EL 46

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

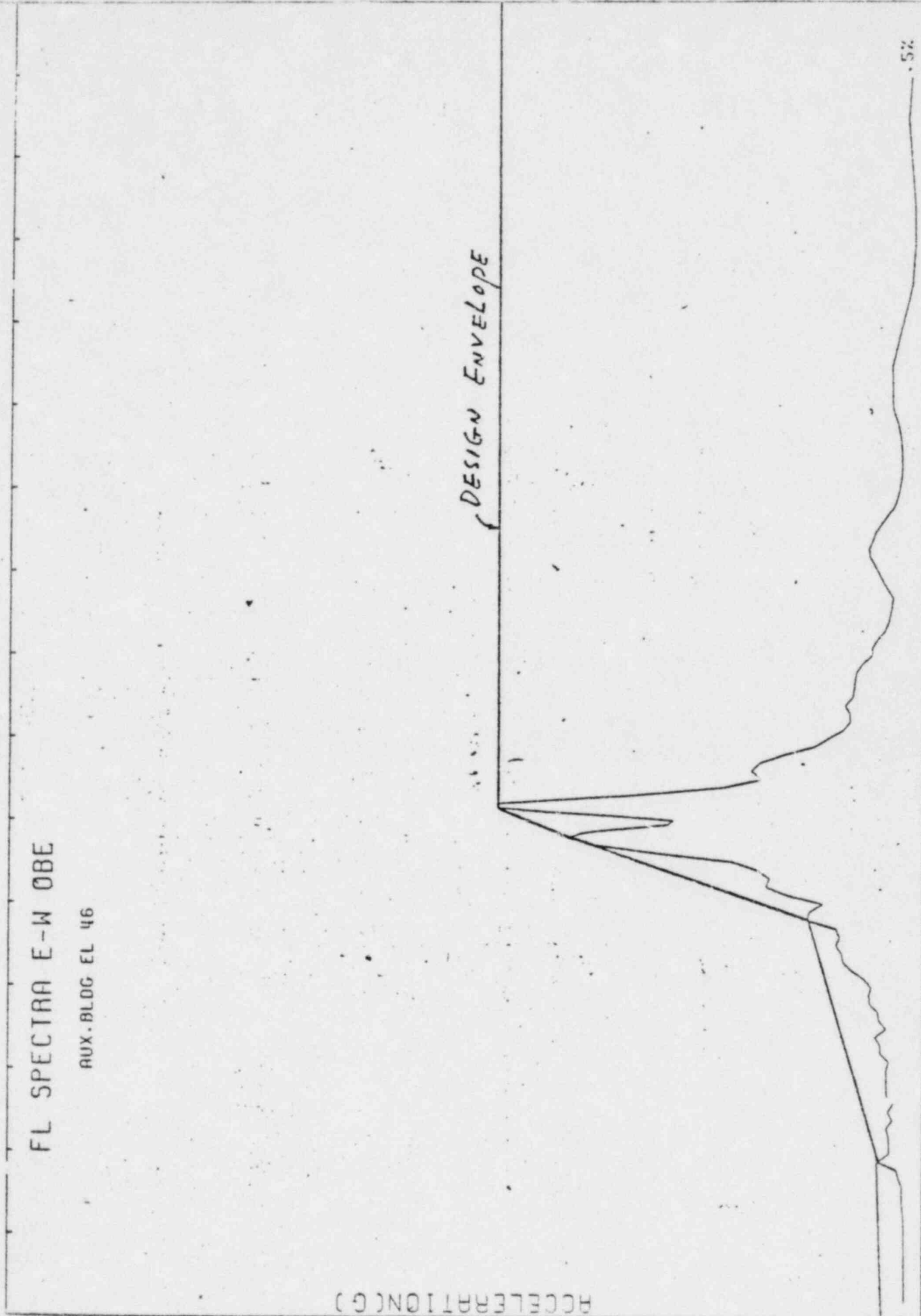
ACCELERATION (G)

DESIGN ENVELOPE

PERIOD (SECOND)

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50

.5%



FL SPECTRA E-W OBE

AUX. BLOG EL 46

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

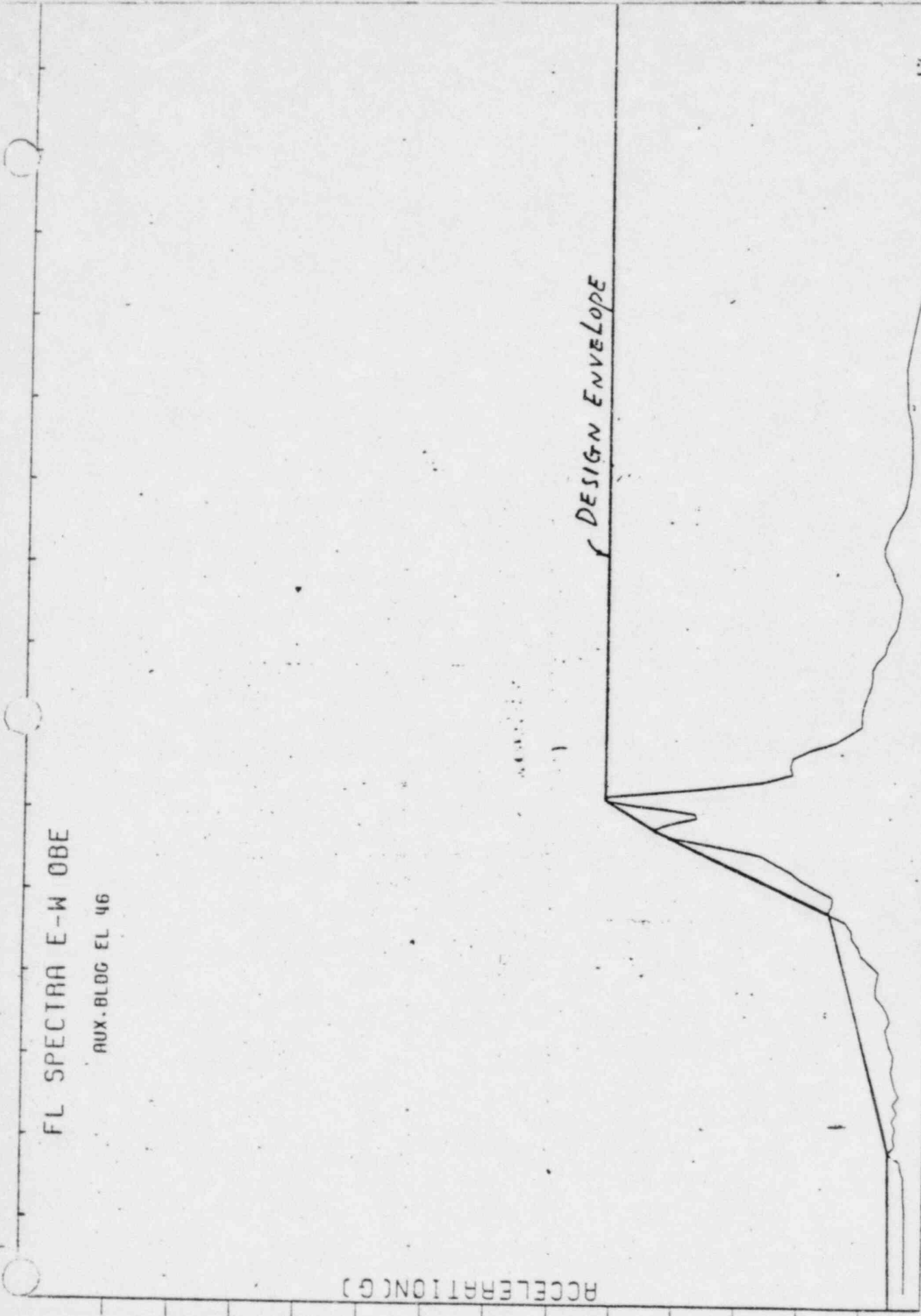
ACCELERATION (G)

DESIGN ENVELOPE

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50

PERIOD (SECOND)

1%



FL SPECTRA E-W OBE

AUX. BLDG EL 46

6.50

6.00

5.50

5.00

4.50

4.00

3.50

3.00

2.50

2.00

1.50

1.00

0.50

ACCELERATION (G)

DESIGN ENVELOPE

0.10

0.20

0.30

0.40

0.50

0.60

0.70

0.80

0.90

1.00

1.10

1.20

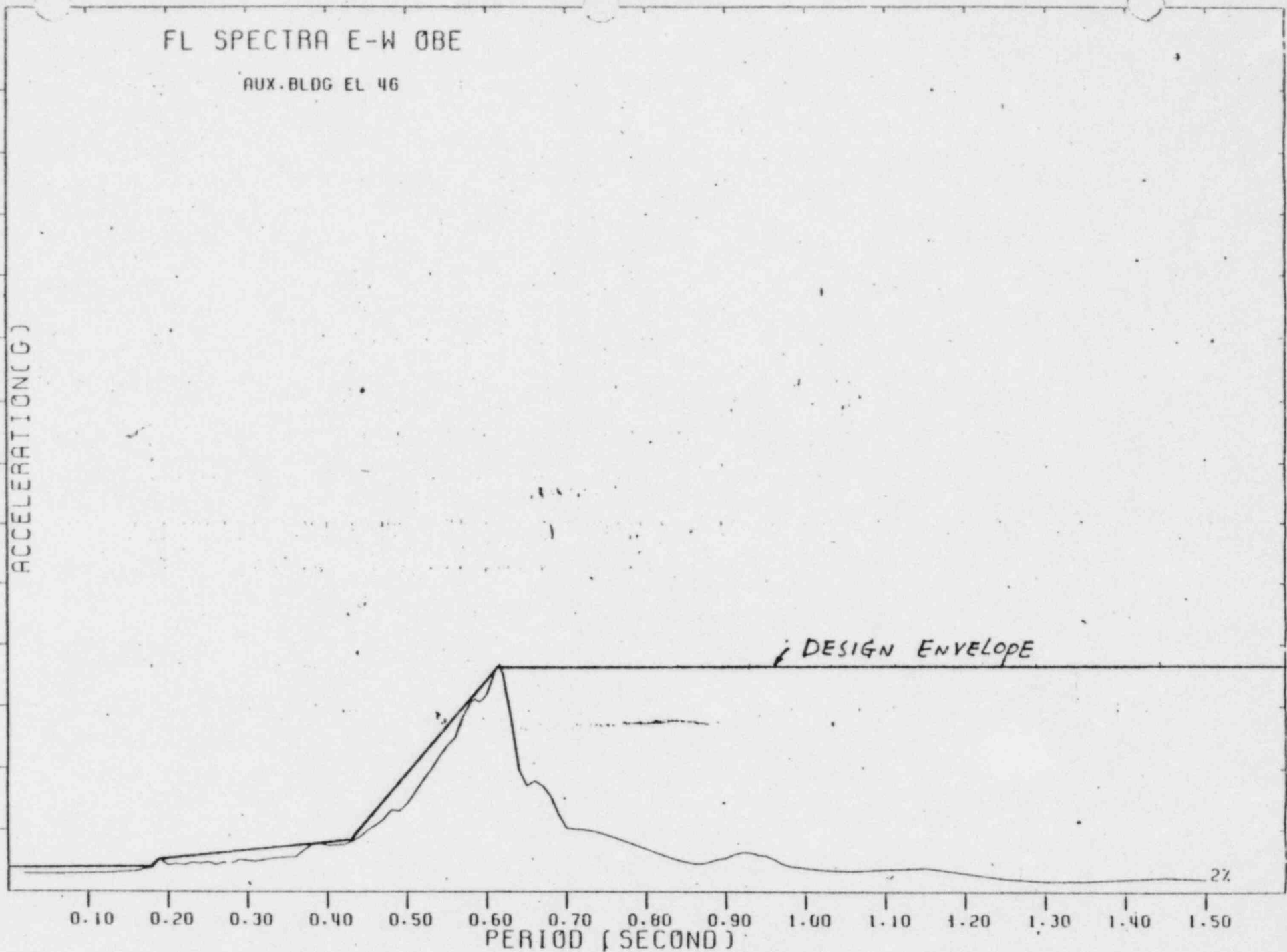
1.30

1.40

1.50

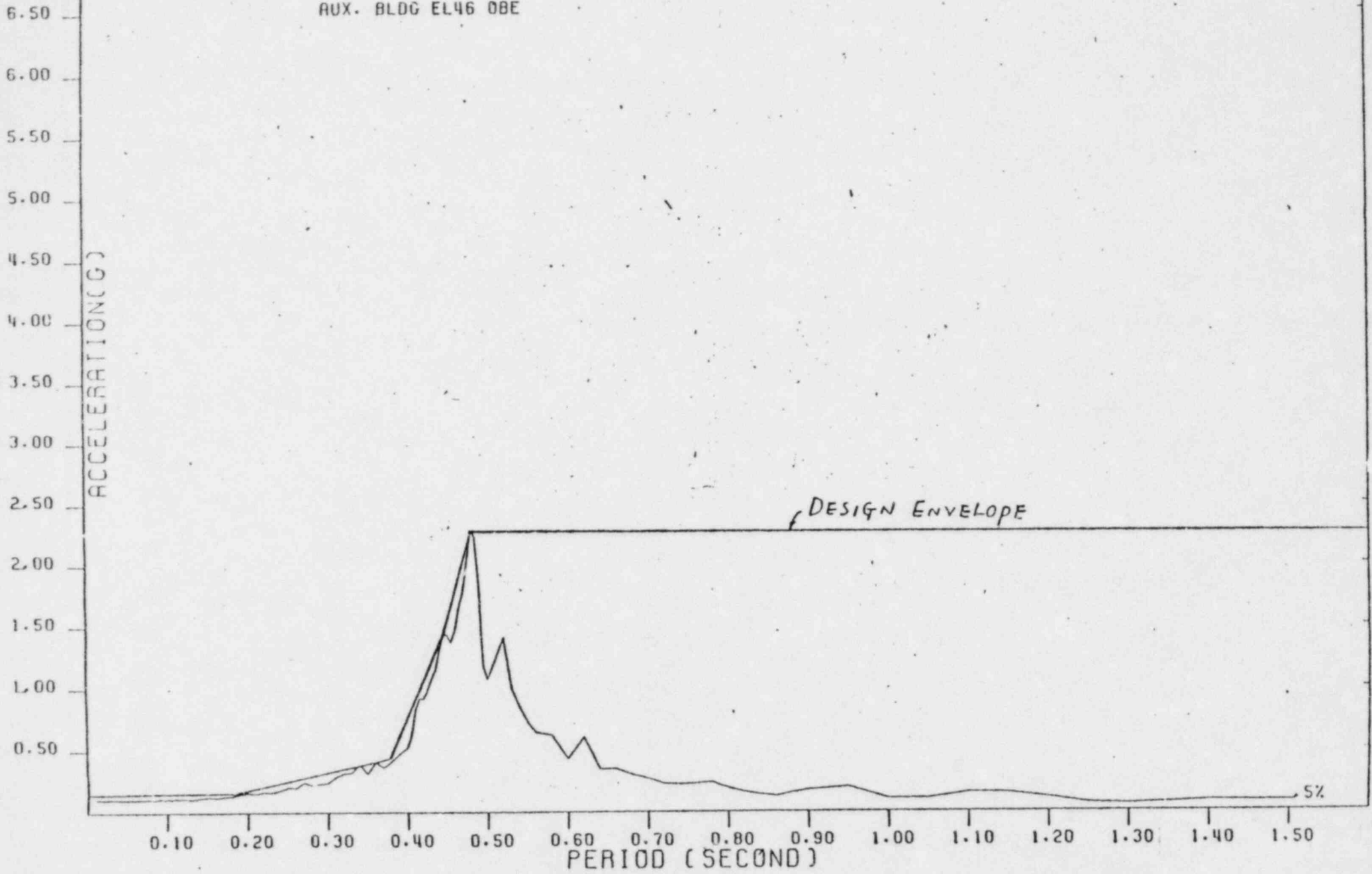
PERIOD (SECOND)

2%



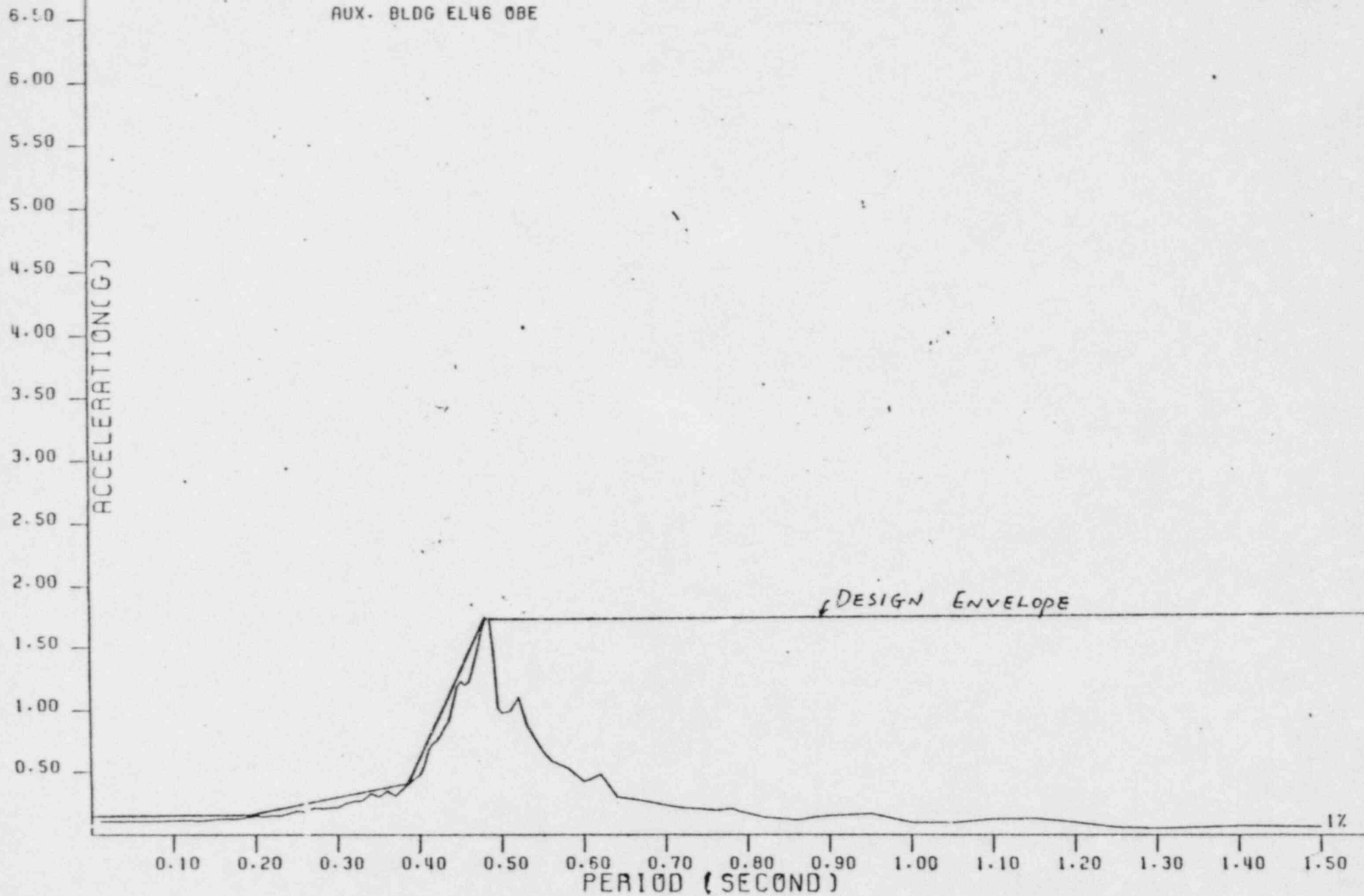
FL. SPECTRA (VERT)

AUX. BLDG EL46 OBE



FL. SPECTRA (VERT)

AUX. BLDG EL46 OBE



FL. SPECTRA (VERJ)

AUX. BLDG FL46 OBE

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

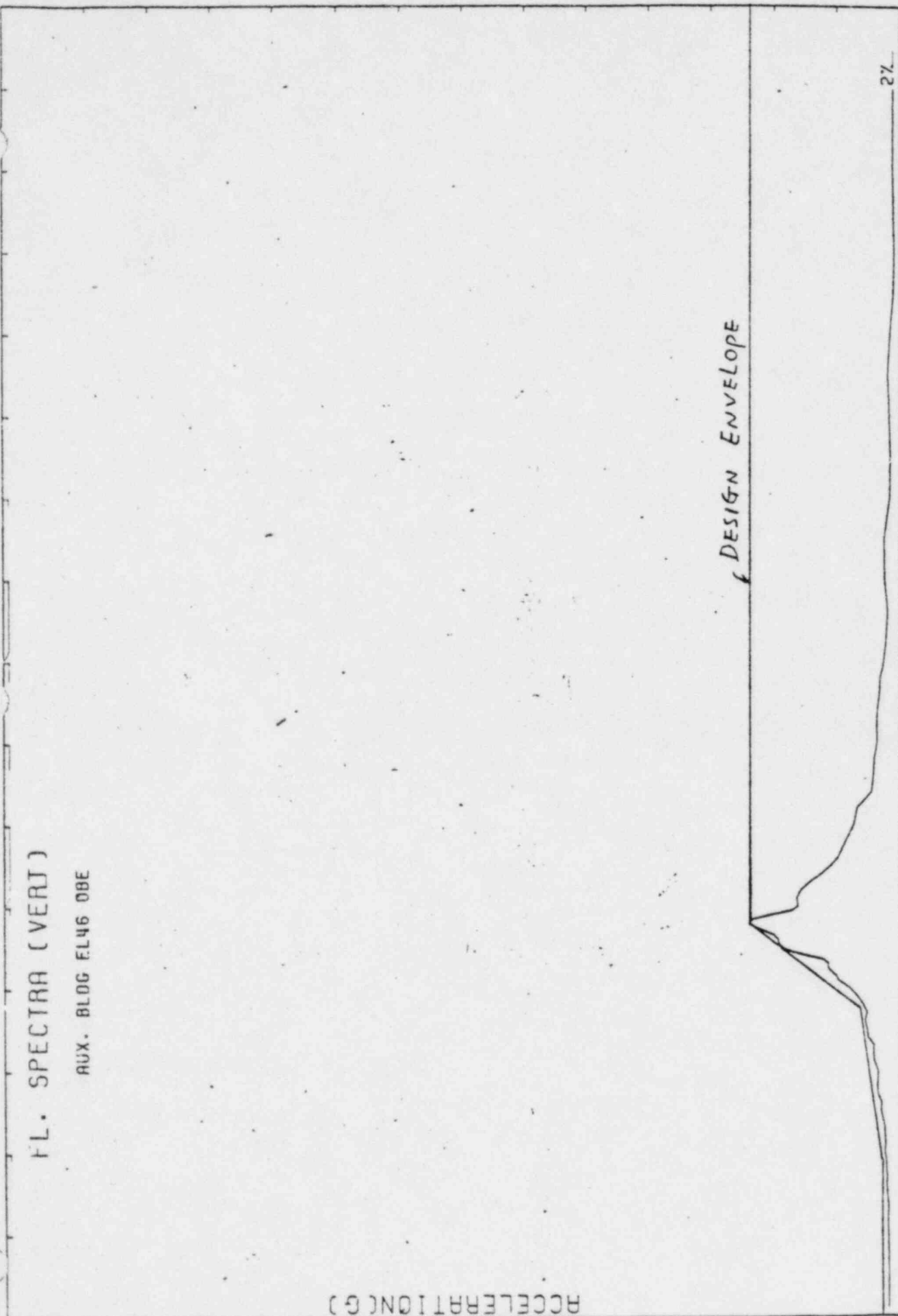
ACCELERATION (G)

DESIGN ENVELOPE

PERIOD (SECOND)

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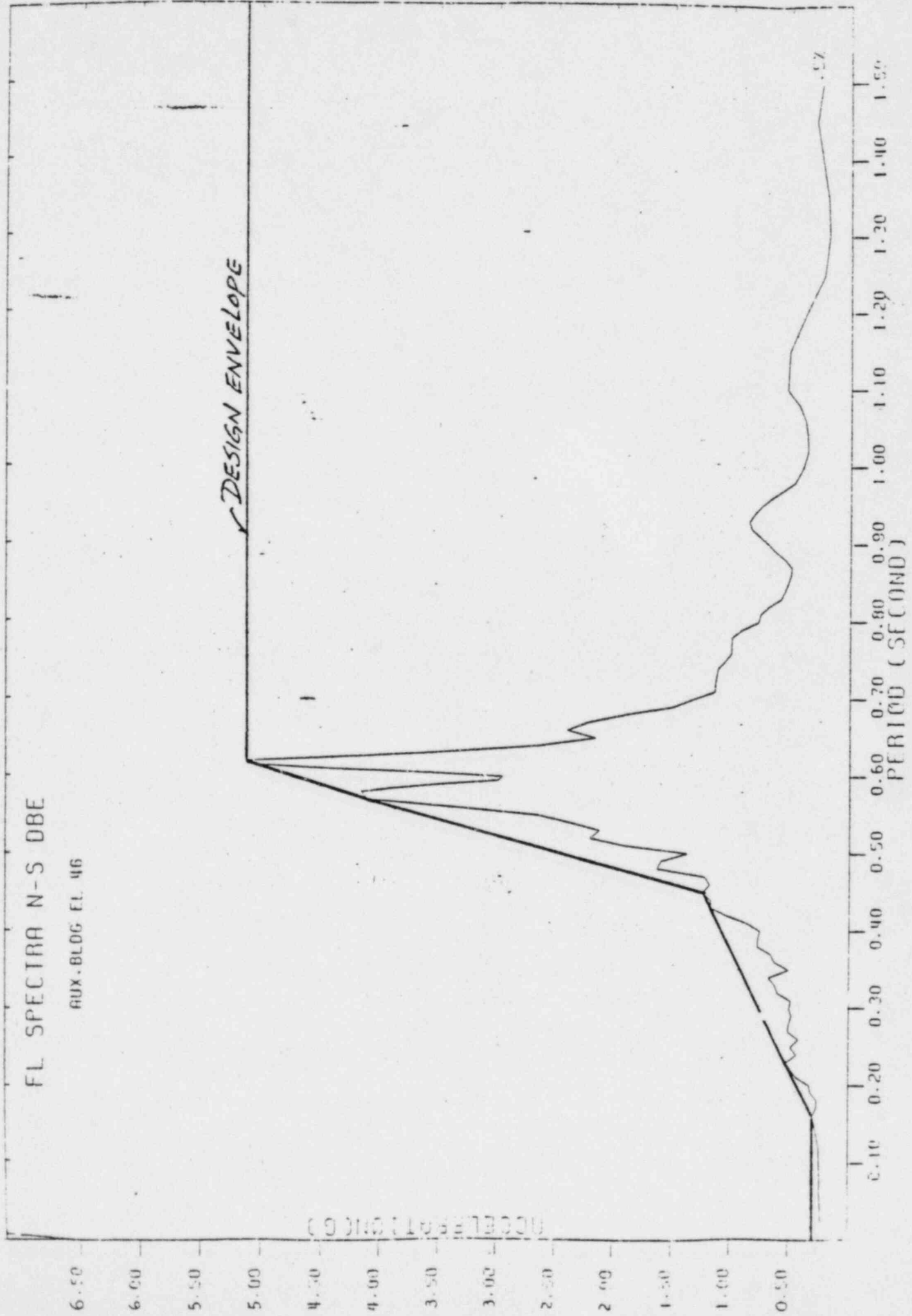
2%



FL SPECTRA N-S DBE

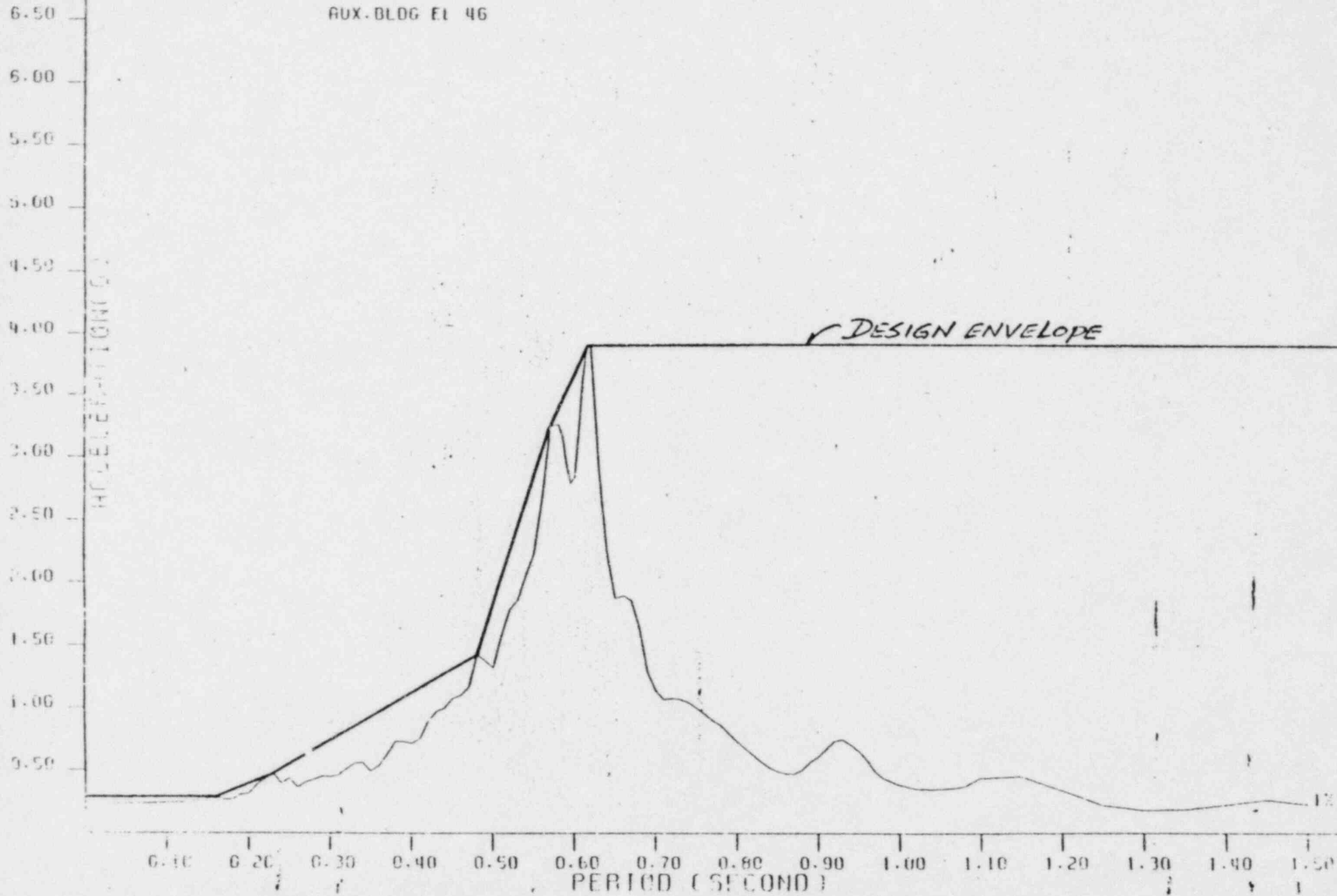
AUX. BLDG. EL. 416

DESIGN ENVELOPE



FL SPECTRA N-S DBE

AUX. BLDG E1 46



FL SPECTRA N-S DBE

AUX. BLDG EL. 46

ACCELERATION (G)

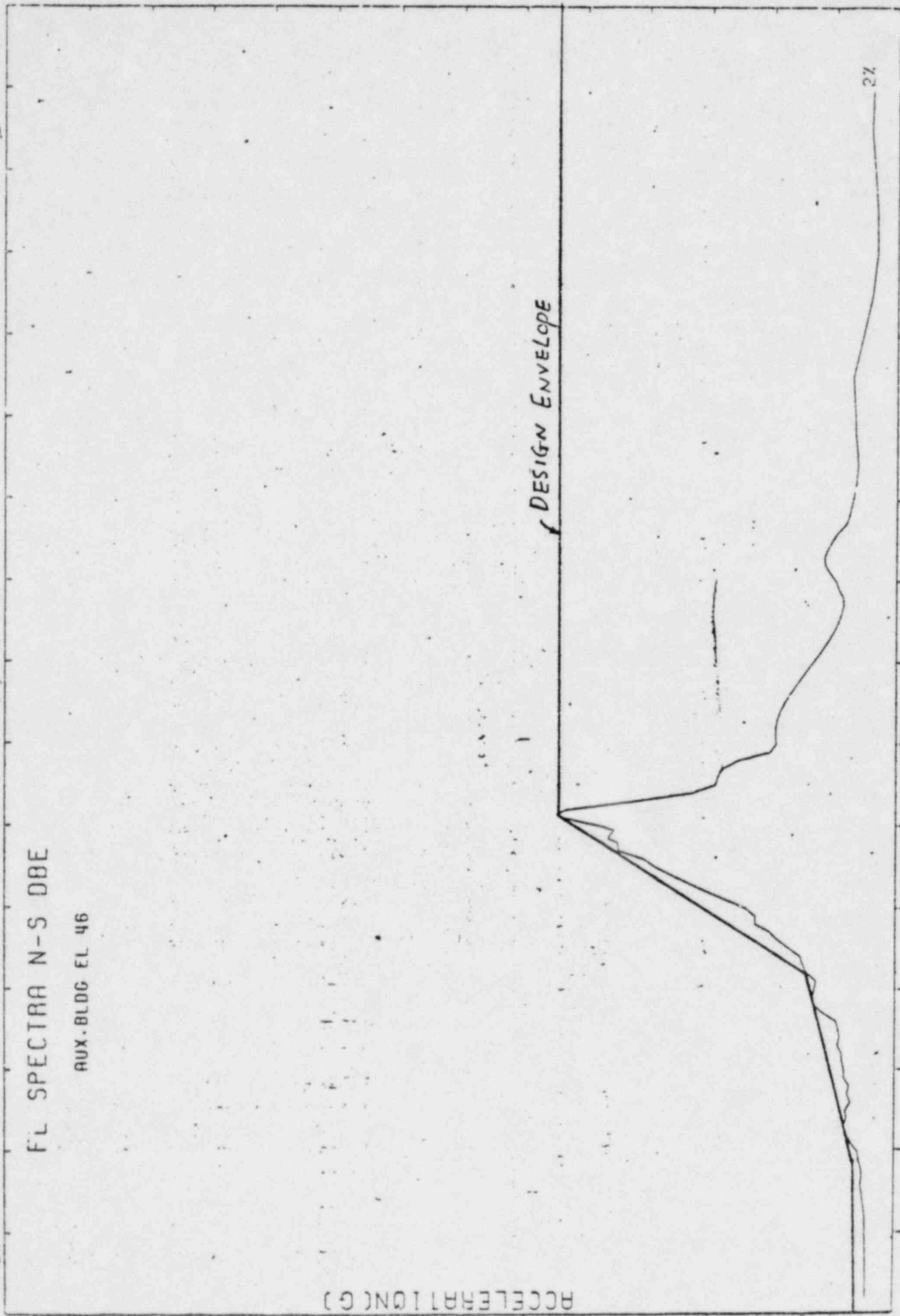
DESIGN ENVELOPE

2%

PERIOD (SECOND)

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50



FL SPECTRA. E-W DBE

AUX. BLDG EL 46

DESIGN ENVELOPE

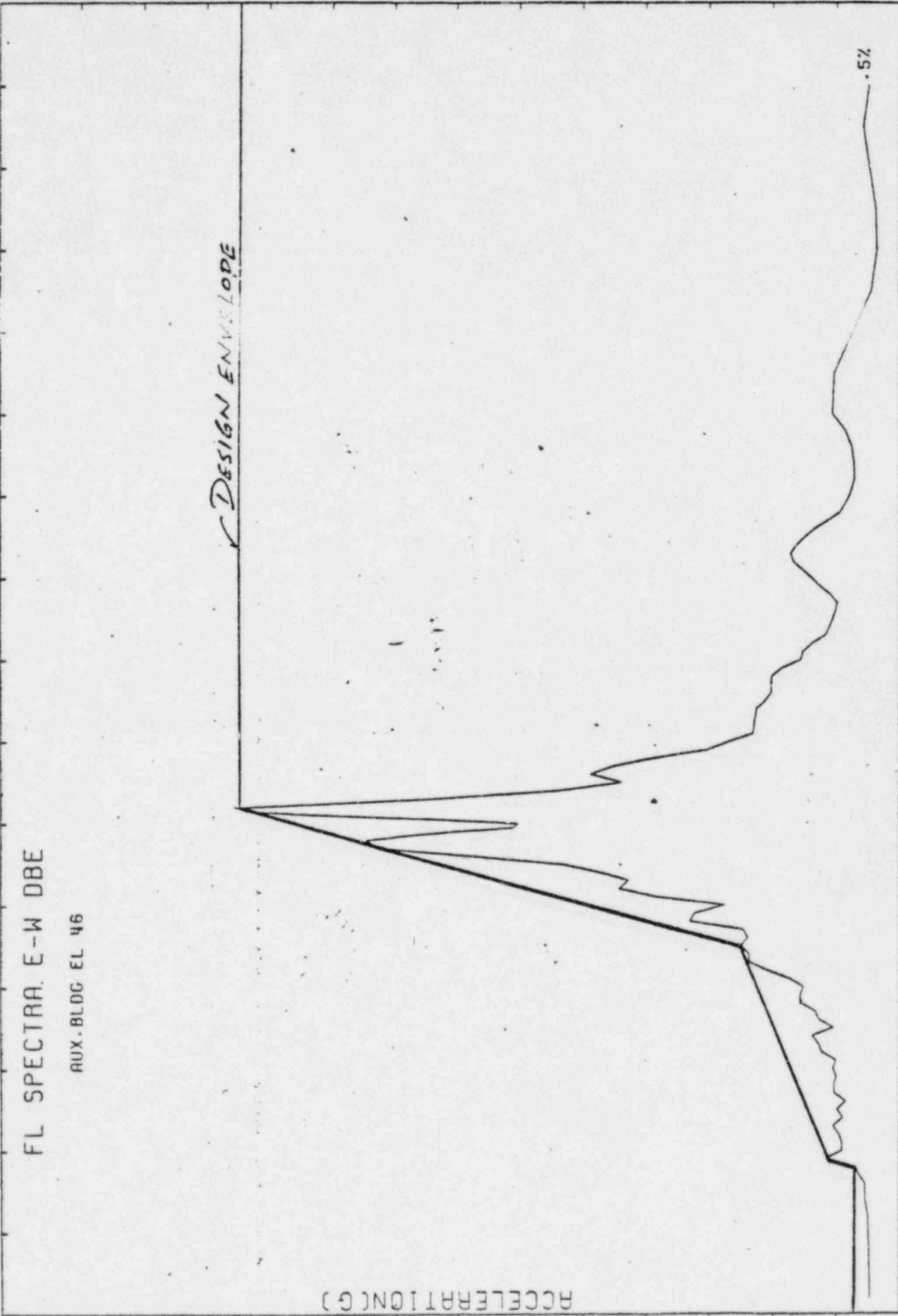
ACCELERATION (G)

PERIOD (SECOND)

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

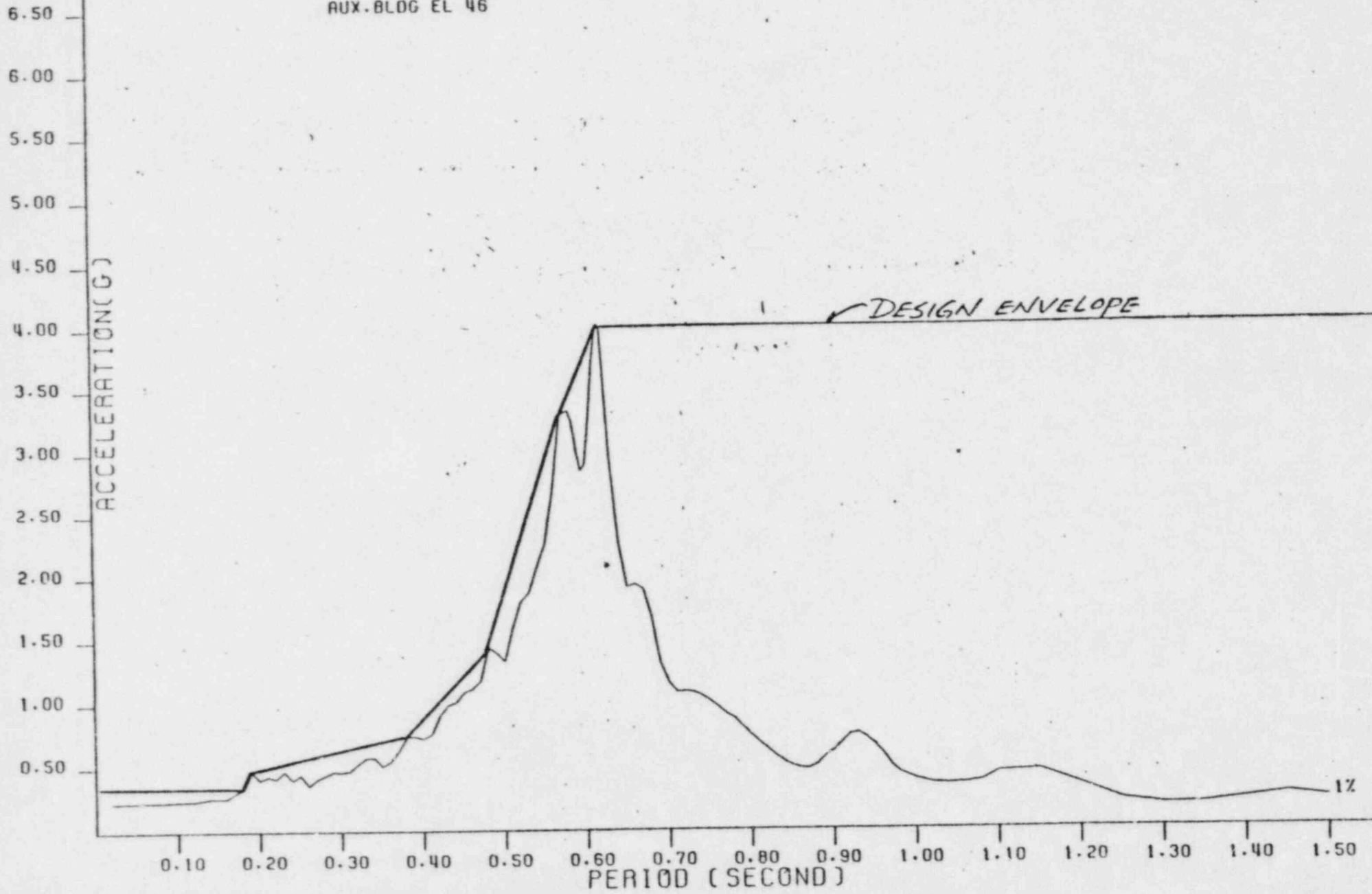
0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50

.5%



FL SPECTRA E-W DBE

AUX. BLDG EL 46



FL SPECTRA E-W DBE

AUX. BLOC EL 46

6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

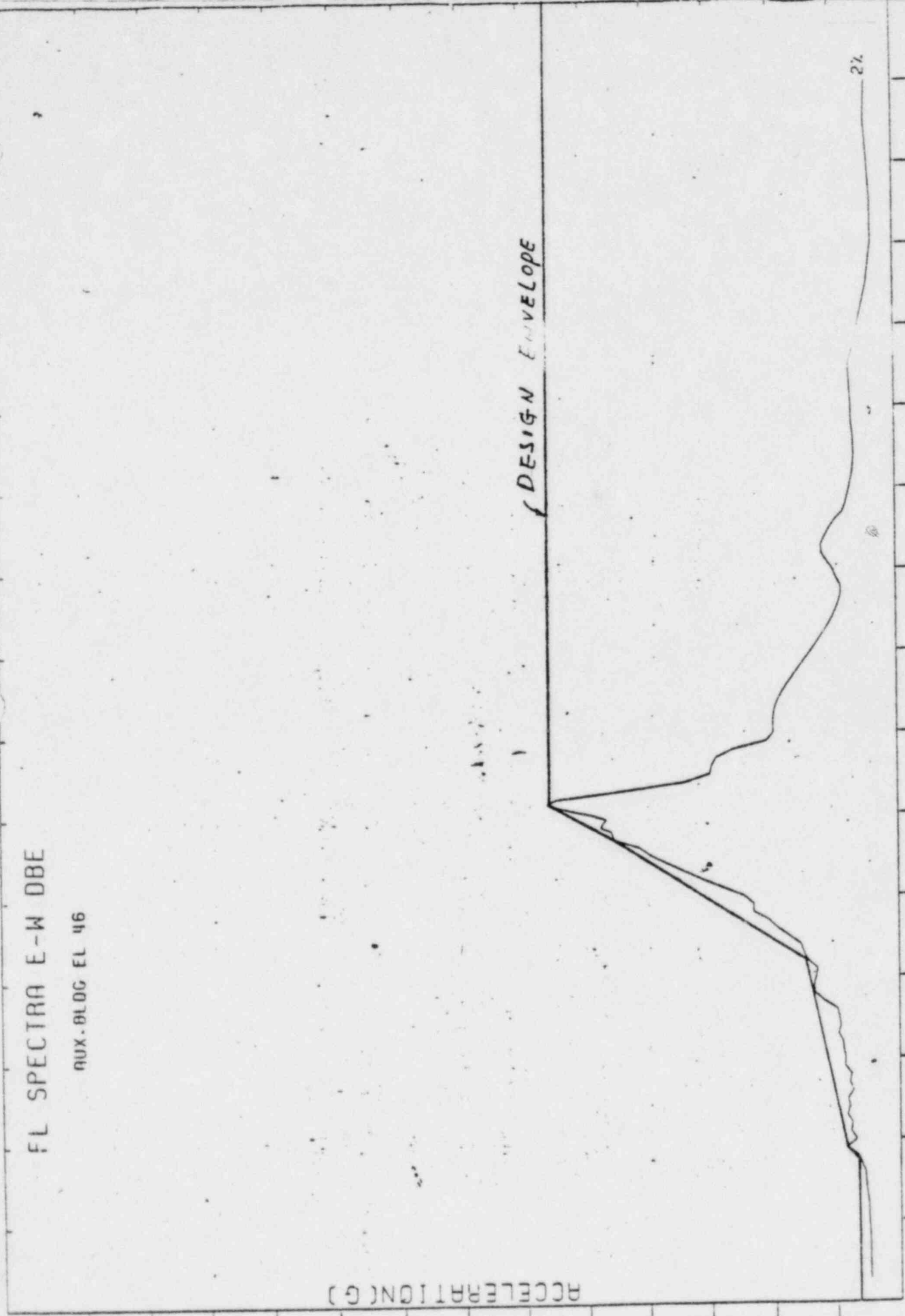
ACCELERATION (G)

DESIGN ENVELOPE

2%

PERIOD (SECOND)

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50



FL. SPECTRA (VERT)

AUX. BLDG EL46 DBE

ACCELERATION (G)

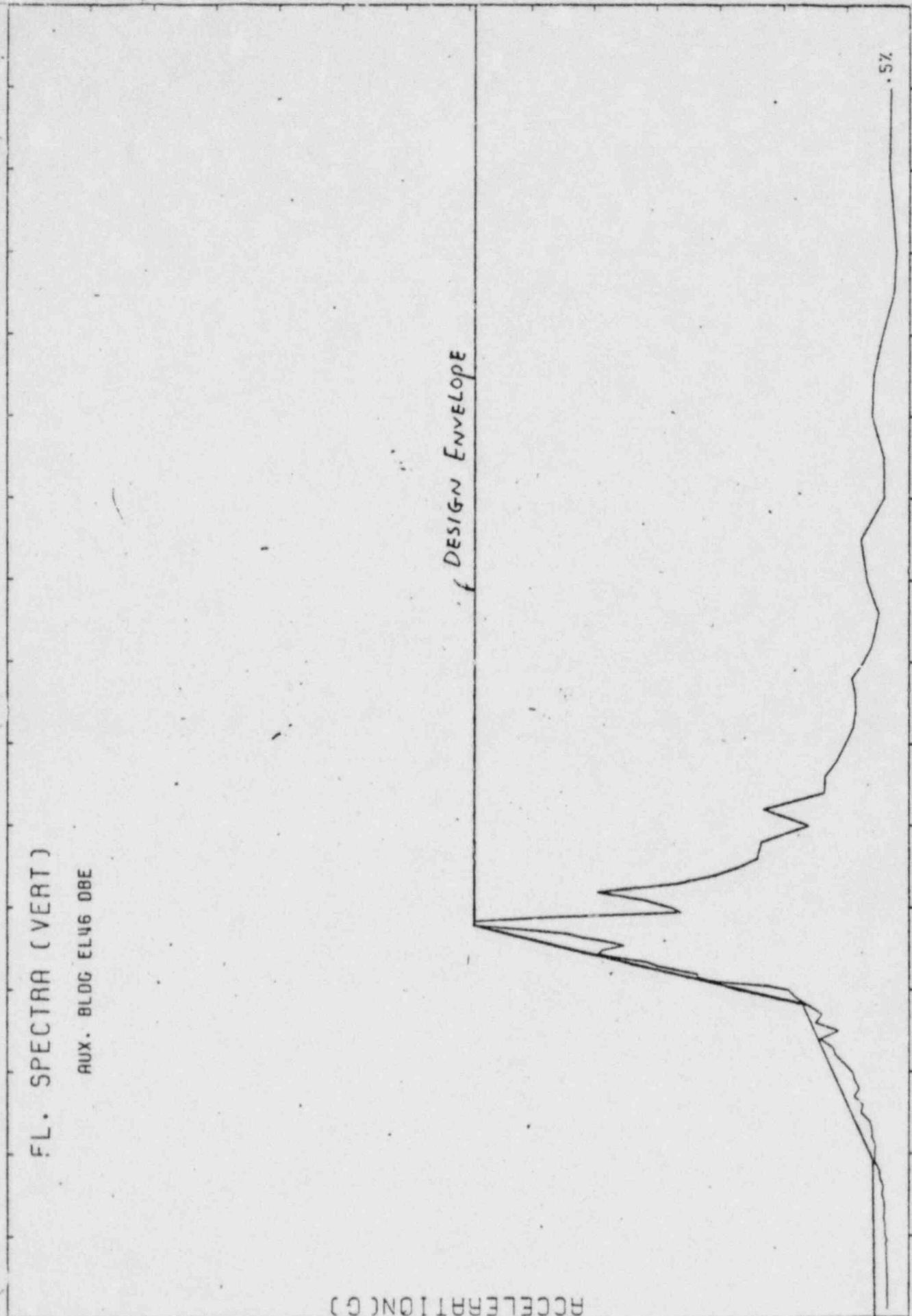
6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

DESIGN ENVELOPE

PERIOD (SECOND)

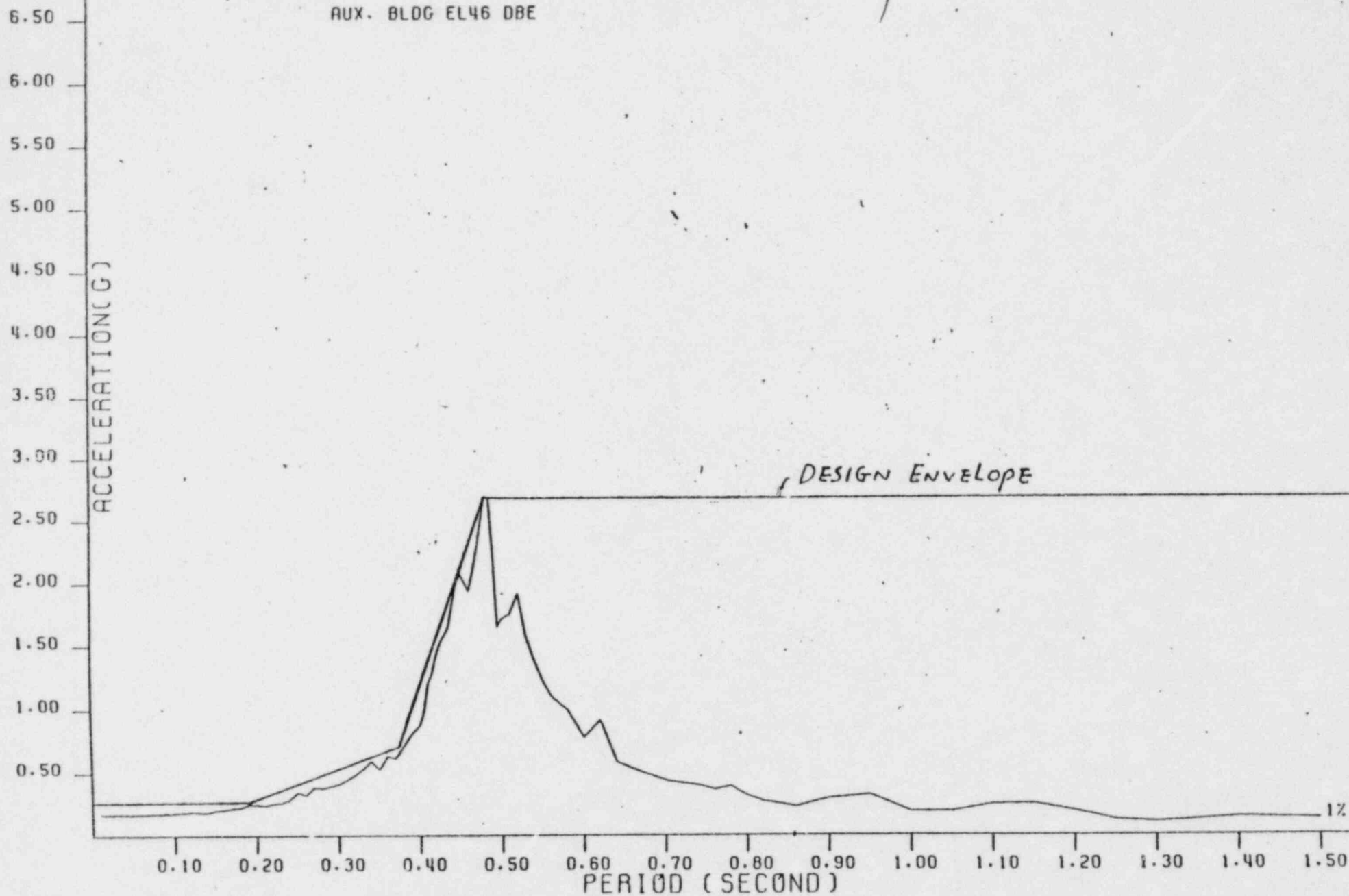
.5%

0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50



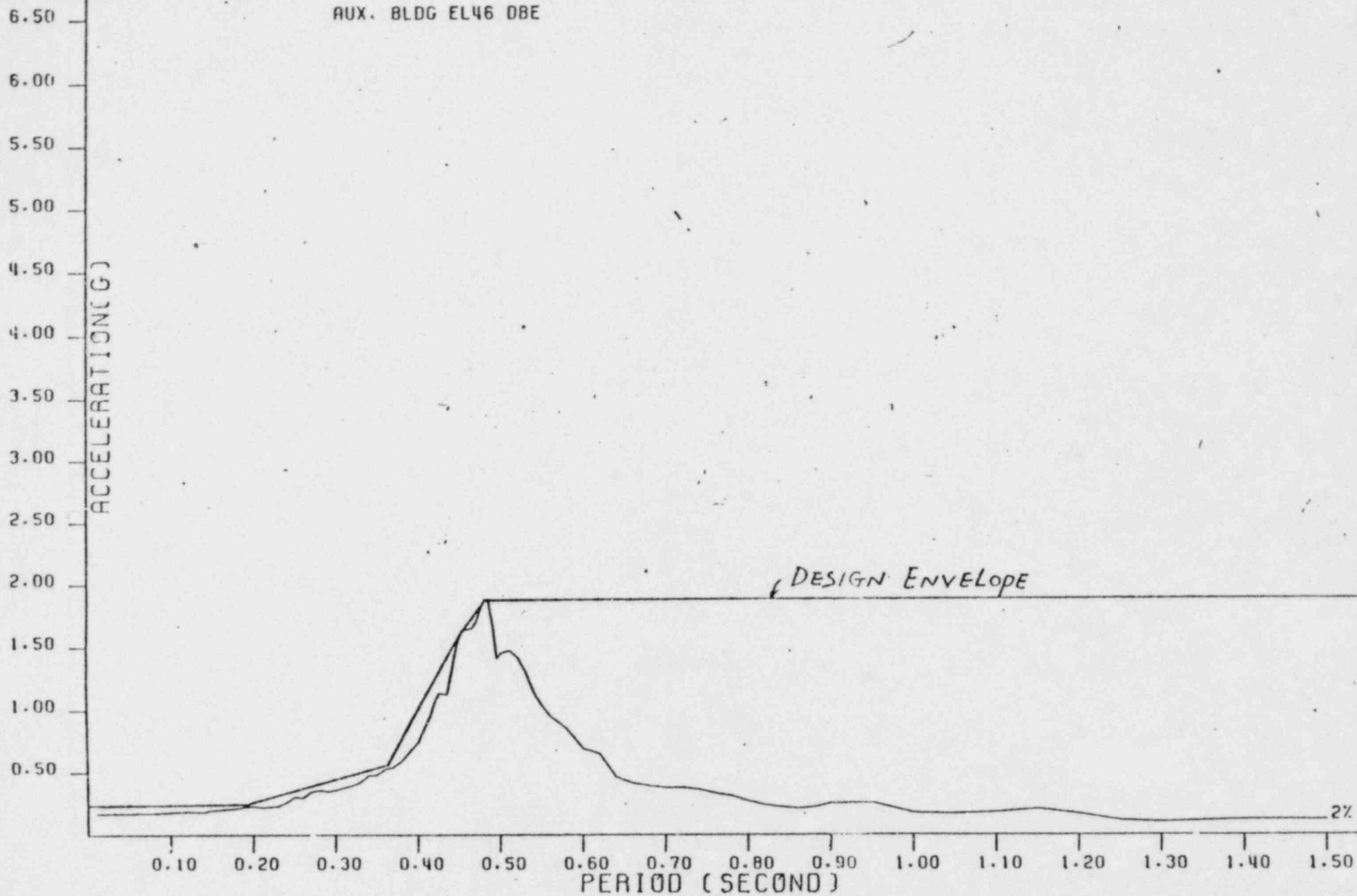
FL. SPECTRA (VERT)

AUX. BLDG EL46 DBE



FL. SPECTRA (VERT)

AUX. BLDG EL46 DBE



LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 11</u> SQRT No. <u>SQ-IC-60</u> Electric Relay Specific Item: CX-610 Reviewer: J. Singh, EG&G Ebasco S. Nath R. Alexandru LP&L M. Williams</p>		<p>CLOSED</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
Item No. <u>NSSS 1</u> SQRT No. <u>NSSS-PE-14</u> BA Makeup Pump Specific Item: <u>Pump B</u> Reviewer: R. Macek, EG&G Ed Siegel, CE K. Gala, LP&L	<ol style="list-style-type: none"> 1. Explain basis for load cases 4 & 5 and show that they are conservative. 2. Explain load combinations used for computing bolting stress and show that they are conservative. 3. Installation of motor/pump coupling is not complete. Provide completion date. 	<p>For Items 1 & 2 - C.E. Will contact vendor for confirmation of conservatism. Anticipate resolution by 109/3/82. Items 1 & 2 are considered confirmatory. X</p> <p>Closed - See LP&L Otr. W3S82-1262 dated 8/31/82</p>



LOUISIANA
POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

August 31, 1982

W3S82-1262

TO: R. Prados

FROM: T.K. Armington *AK*

SUBJECT: (1) Startup System 53B - Boric Acid Makeup Pumps A & B
Final Alignment and Coupling

(2) Termination Of Permanent Space Heater Cable To
MOV 3CH-V-112A Space Heater

This is to advise you that based on the present Ebasco construction release date of 9/24/82 for the subject startup system, we anticipate that final coupling and alignment for the Boric Acid Makeup Pumps A & B will be complete no later than 10/24/82. In addition termination of permanent cable to the motor operated valve space heater valve tag number 3CH-V-112A shall also be done by 10/24/82. These estimated completion dates are based on conservative estimates for the time duration following release to complete such activities.

If there are any further questions, please notify me.

TKA/RN/nfs

cc: G.B. Rogers, D.B. Lester, P.V. Prasankumar, T. Pastor, W. Williams,
W. Denney, R. Novgrod, Nuclear Records, J. DeBruin

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 2</u> SQRT No. <u>NSSS-PE-25</u> Boric Acid Tank Circ. Vlv. Specific Item: <u>3CH-F171B</u> Reviewer: R. Macek E. Siegel- C.E. K. Gala - LPL</p>	<ol style="list-style-type: none"> 1. Provide certification that the computer calculations based on Engineering Standard ES100 Rev. B dated 4/8/75 have been verified. 2. Confirm that deflections calculated in Seismic Analysis for Order 1-46610 dated April 3, 1976 for tag number CH-511 will not interfere with valve closure. 3. Provide estimated date of completion for Leak-Off line support installation. 	<p>This item is confirmatory. <i>Supply by 10/3/82</i></p> <p>This item is confirmatory. <i>Supply by 10/3/82</i></p> <p>Closed - See Ebasco Letter from Wills to DeBruin dated 9/1/82.</p>

DATE 9/1/82 FILE REF.

TO J. DeBruin OFFICE LOCATION

FROM J. Wills *J. Wills* OFFICE LOCATION

SUBJECT WATERFORD SES UNIT NO. 3
SQRT ITEM NSSS-PE-25; BORIC ACID TANK
CIRC. VALVE 3CH-F-171B

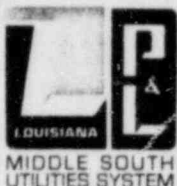
In response to the SQRT confirmatory item regarding the installation status of T-B supports on leak-off piping in the Boric Acid Make-up Pump Room B, the estimated completion date is 9/3/82. If there are any further questions, please advise.

JW/11

cc: W. Yaeger
W. Arden
M. Montgomery
ESSE File P.117

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 3</u> SQRT No. <u>NSSS-PE-24/29/28</u> BA Pump Discharge Valve Specified Item: <u>3CH-V112A</u></p> <p>Reviewer: R. W. Macek, EG&C C-E: Ed Siegel LP&L: K. K. Gala</p>	<ol style="list-style-type: none"> 1. Routing of heat tracing wire through pipe supports. Revise DCN-426 R4 to reflect the proper routing instructions. 2. Installation of heater cable not complete. Provide the completion date. 	<p>CLOSED - See attached DCN 426, R5.</p> <p>CLOSED - See LP&L Letter W3S82-1262 dated 8/31/82</p>



LOUISIANA
POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

August 31, 1982

W3S82-1262

TO: R. Prados

FROM: T.K. Armington *AP*

SUBJECT: (1) Startup System 53B - Boric Acid Makeup Pumps A & B
Final Alignment and Coupling

(2) Termination Of Permanent Space Heater Cable To
MOV 3CH-V-112A Space Heater

This is to advise you that based on the present Ebasco construction release date of 9/24/82 for the subject startup system, we anticipate that final coupling and alignment for the Boric Acid Makeup Pumps A & B will be complete no later than 10/24/82. In addition termination of permanent cable to the motor operated valve space heater valve tag number 3CH-V-112A shall also be done by 10/24/82. These estimated completion dates are based on conservative estimates for the time duration following release to complete such activities.

If there are any further questions, please notify me.

TKA/RN/nfs

cc: G.B. Rogers, D.B. Lester, P.V. Prasankumar, T. Pastor, W. Williams,
W. Denney, R. Novgrod, Nuclear Records, J. DeBruin

RUSH

SYSTEM STATUS SHEET

POD

Date 8/31/82

FCR or DCN No. E426-R5

Start-Up System 13A

1a) System Release Cut-Off has occurred. _____

1b) Complete work before System Release:

Yes / No
(Asst. Supt. Start-Up Initial;
If "NO" Complete Item 3)

1c) Priority No. _____

2) System was released on _____

(Complete Item 2)

3) Post System Release Work Authorization No. _____

(Obtain from LP&L Start-Up)

4) Work Assignment

a) Affected By/Contractor

SOPT / F&M

b) Code _____ Non-Code _____

c) Work Assigned To:

1) Ebasco Force Account...

2) Contractor.....

1) System Release Cut-Off has not occurred

* Below review not required if this block checked.

Review By:

Asst. Supt. Start-Up

[Signature] 8/31/82
Senior Resident Engineer

Project Superintendent

Assistant Construction Superintendent

MATERIAL:	<u>N/A</u>
REQ:	_____
P.O.:	_____
MRR:	_____
RIR:	_____
MISC:	_____

_____ App. R	_____ CCB
_____ Env. Reg.	_____ CIWA
_____ IE Bull.	_____ FJO
_____ Lic. Comm.	_____ N/A
<input checked="" type="checkbox"/> NRC Quest.	_____ TMI

DESIGN CHANGE NOTIFICATION

PROJECT: WATERFORD SES NO. 3 DCS NO. 1564 DESIGN CHANGE NO. DCN- NY-E- 426-R5

To: W. YAEGER (SR) RESIDENT ENGINEER Dept: CONSTRUCTION Location: SITE Date: 8/31/82

Re: Drawing No. SEE ATTACHED SH 2 of 19 Title: _____
 Specification No. _____ Page: _____
 Other _____ ANTICIPATED REVISION DATE OF FORMAL DOCUMENTS: _____

AREA OF CHANGE: Technical Major Minor
 Cost Major (> \$100,000) Minor (< \$100,000)
 Schedule Major (Critical Path) Minor (Noncritical Path)

Engineering "Hold" placed on construction activities in area defined herein pending receipt of formally revised document(s) and/or revised DCN. PE signature not required.
 Released for construction on basis of modification(s) prescribed by this DCN.

Applicable documents will be revised by:

Home Office MAFES' INSTRUCTION MANUAL.
 Ebasco Site Support Engineers (Project Engineer to assign Open Engineering Item No. _____)
 As-built drawing by Resident Engineer's staff Other _____

PROPOSED CHANGE

DESCRIPTION	REASON FOR CHANGE
RS - SEE ATTACHED SH 3 of 19	<input type="checkbox"/> Field Change Request (FCR No. _____) <input checked="" type="checkbox"/> Required modifications to design or specification <input type="checkbox"/> Disposition of nonconforming item <input type="checkbox"/> Changes in regulatory or other requirements <input type="checkbox"/> Operational experience <input checked="" type="checkbox"/> Other NRC S&ET ITEM

EXHIBITS ATTACHED No Yes - If Yes, Check Applicable Box(es)

Copies of marked-up area of drawing(s) Other (Describe) _____
 Field Change Request (FCR No. _____)

COMMENTS: FIELD TO PURCHASE PAYMENT 1014041-52/144 (QUANTITY 225), 101A052/144 (QUANTITY 145) AND 10 ROLLS 5-1119 TAPE. SCHEDULED EFFECTIVE PLACEMENT DATE(S) _____

ORIGINATOR: Peter Rinaldi DATE: 8/31/82

DISTRIBUTION (Check as applicable and fill in name. Indicate with an asterisk (*) personnel who are to perform a QA review)

<input checked="" type="checkbox"/> M-N Engr A. CARLOMAGNO (w/att)	<input checked="" type="checkbox"/> Design V. SOO HOU / T. HOLWELL (w/att)	<input checked="" type="checkbox"/> Project Mgr
<input type="checkbox"/> Civil Engr	<input type="checkbox"/> Design	<input checked="" type="checkbox"/> Project Engr J. PADALINO
<input checked="" type="checkbox"/> Elec Engr R. VIDAL W/ATT	<input checked="" type="checkbox"/> Design J. SZCZOTKA W/ATT	<input checked="" type="checkbox"/> Coordinator R. JOHNSON W/ATT
<input type="checkbox"/> HVAC Engr	<input type="checkbox"/> Design	<input checked="" type="checkbox"/> Orig Disc. Supvr B. SCHUTZBANK
<input type="checkbox"/> Plumbing Engr	<input type="checkbox"/> Design	<input type="checkbox"/> Nuc Safety
<input checked="" type="checkbox"/> I&C Engr N. NALLADI W/ATT	<input checked="" type="checkbox"/> Design A. YEREM	<input type="checkbox"/> PQAE
<input type="checkbox"/> WT Engr	<input type="checkbox"/> Design	<input checked="" type="checkbox"/> Project Supt
<input checked="" type="checkbox"/> IPO&B - Site	<input type="checkbox"/> RW Engr	<input type="checkbox"/> Appl Phys
<input type="checkbox"/> PO&B - HO	<input type="checkbox"/> ADDRESS Design	<input type="checkbox"/> Vendor QA
<input checked="" type="checkbox"/> Project File	<input checked="" type="checkbox"/> ESSE ELEC. J. D'AGOSTARO W/A	<input checked="" type="checkbox"/> ESSE PE J. DeBRUIN
<input checked="" type="checkbox"/> Site Manager	<input checked="" type="checkbox"/> Constr Ctrl Supt	<input checked="" type="checkbox"/> Proj Cost/Sched Engr

NOTE: Personnel indicated with an asterisk (*) are to perform a QA review and inform Originator of any comments, or approve and sign, as applicable, by N/A (date).

LEAD DISCIPLINE ENGR OR ESSE DESIGNEE (Sign.) J. D'Agostaro	DATE 8/31/82	PROJ ENGR OR ESSE PROJ ENGR APPROVAL John DeBruin	DATE 8/31/82
QA REVIEWER (If indicated above) <input type="checkbox"/> COMMENTS (Attached) <input type="checkbox"/> NO COMMENTS		SUPVR ENGR OR ESSE DESIGNEE (After acceptance of all reviews) BMSchutzbank / J. DeBruin	DATE 8/31/82
SIGNATURE	DATE	SIGNATURE	DATE

FIELD EVALUATION

Implement Recommended Disposition Generic Impact - For feedback consideration. Copy to Mgr - Reliability Engineering (PO&B - NYO)
 Defer Recommended Disposition

DES W. Yaeger for W. Yaeger 8/31/82

EBASCO SERVICES INCORPORATED

BY PRINALDI DATE 8/5/82

SHEET 2 OF 10

CHKD. BY [initials] DATE 8/6/82

OFS NO. _____ DEPT. NO. _____

CLIENT LPEL

PROJECT WATERFORD #3

SUBJECT DRAWING No. 5

B288 SH42(R0) INSTALLATION DETAILS
SH42A (NEW SHEET)

- 1564-9810(R1)
- 9829(R1)
- 9830(R2)
- 9831(R2)
- 5817-490(R1)
- 491(R1)
- 492(R1)
- 493(R1)
- 494(R1)
- 495(R1)
- 3322(R2)
- 3323(R0)

5817-3685(R0)

BY PRIVALDI DATE 8/5/82SHEET 3 OF 19CHKD. BY MS DATE 4/6/82

OFS NO. _____ DEPT. NO. _____

CLIENT LP&LPROJECT WATERFORD #3SUBJECT DESCRIPTION

R0: ADD TYPICAL DETAILS FOR HEAT TRACING SYSTEM.

R1: REVISE "NOT RELEASED" DETAIL FOR TYPICAL CONNECTION OF HEAT TRACE CABLE TO PIPE.

R2: 1) MODIFY INSTRUCTION MANUAL TO PROVIDE INSTALLATION DETAILS FOR ADDITIONAL REQUIRED HEAT TRACE CABLE FOR VALVES, FLANGES, AND PIPE SUPPORTS. ALSO MODIFY ^{INST. MANUAL} INSTALLATION DETAILS ^{RE} G-3 TO ALLOW INSTALLATION OF HEAT TRACE CABLE ON PIPE ELBOWS.

2) PROVIDE TERMINATION DETAIL TO ALLOW TERMINATION OF HEAT TRACE CABLE TO INCOMING FEEDER IN "AUTOMATRIX POWER CONNECTION BOX".

R3: PROVIDE A MORE PRACTICAL METHOD OF TERMINATING HEAT TRACE CABLE TO INCOMING FEEDER IN "AUTOMATRIX POWER CONNECTION" BOX.

R4: DUE TO THE LENGTHY AMOUNT OF TIME REQUIRED TO ORDER AND RECEIVE UNINSULATED AND ASSOCIATED CRIMPING TOOL, INSULATED LUGS SHALL BE ^{LUGS} INSTALLED IN LIEU OF UNINSULATED LUGS. SEE SKETCH ¹³ ONLY FOR REVISION. SPLICE #4 AWG FEEDER TO A #8 AWG TO FACILITATE MINIMUM BEND RADIUS.

R5: THE NRC RAISED THE QUESTION OF HEAT TRACE CABLE POSSIBLY ~~BEING~~ BEING DAMAGED AT A BOX TYPE SUPPORT DURING A SEISMIC EVENT. IT WAS HYPOTHESIZED THAT IF THE HEAT TRACE CABLE WAS INSTALLED IN A TWISTED OR WRAPPED MANNER THROUGH SUPPORT IT COULD POSSIBLY BE SEVERED. SEE SKETCH 10 FOR RESOLUTION TO THIS POTENTIAL PROBLEM.

REF DWG: B-288 NEW SHEET 42

SK-DUN-NY-E-426-1-R4

BY: P. RINALDI 4-30-81

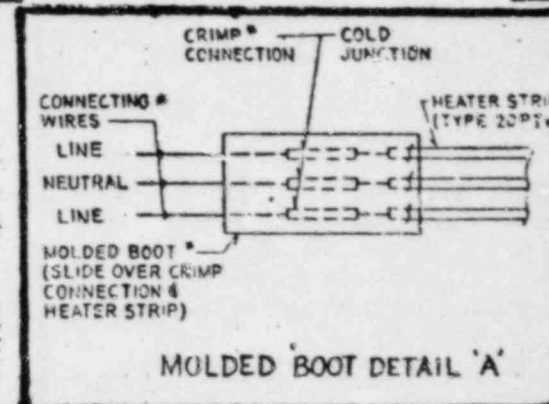
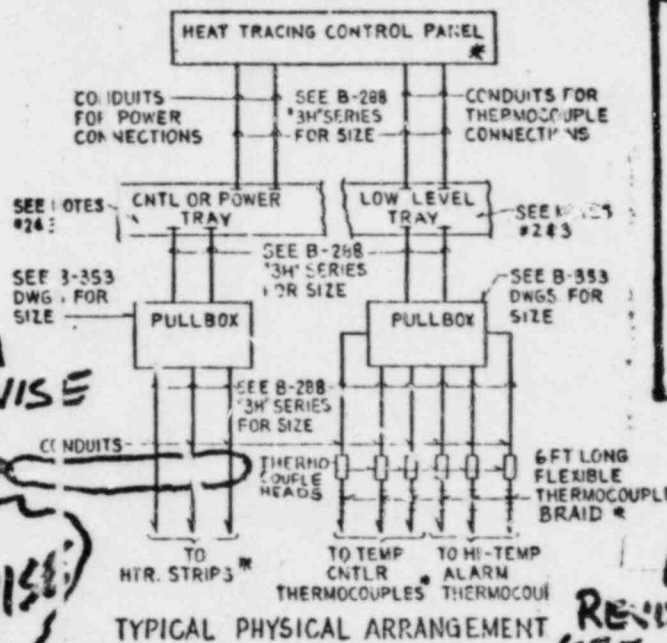
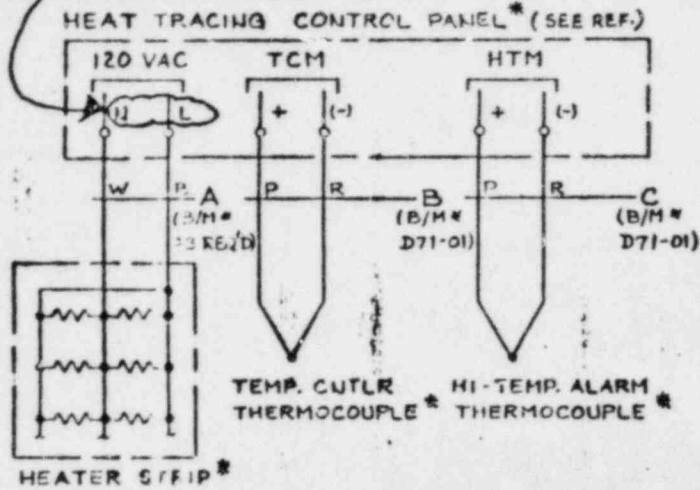
CK: J. D'Agostino 4-30-81

R2 BY: PR 8/13/82

CK: J. 8/13/82

R1 ck: 8/13/81

REVISE R2 LN



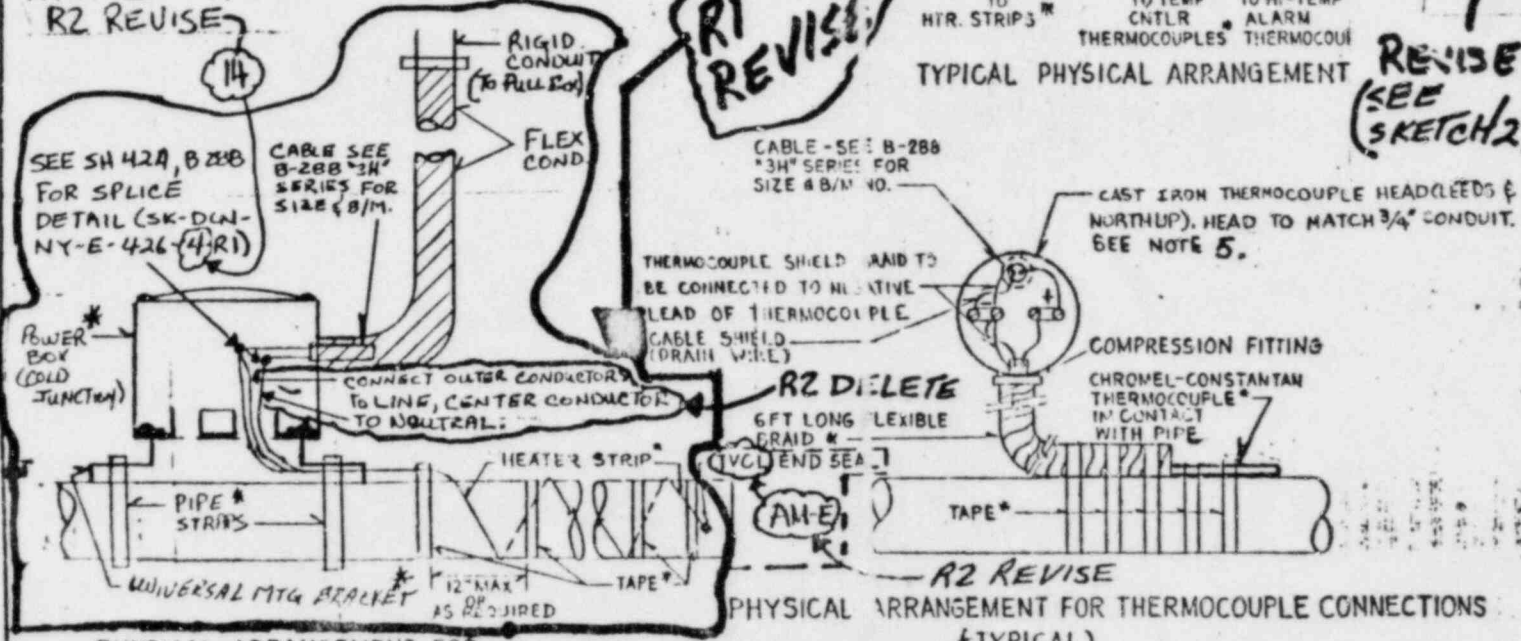
R2 REVISE

R1 REVISE

R1 REVISE

REVISE (SEE SKETCH 2)

R1 DELETE



- NOTES:
- REDUCING FITTINGS TO BE USED AS REQUIRED IF CONDULET SIZE EXCEEDS 1/2 INCH.
 - BORON & WASTE MANAGEMENT SYSTEM CABS ARE TO BE ROUTED IN NA OR NB RACEWAYS.
 - CHEMICAL & VOLUME CONTROL SYSTEM CABS ARE TO BE ROUTED IN SA OR SB RACEWAYS.
 - FOR INSTALLATION DETAILS SEE VENDOR'S INSTRUCTIONS.
 - CONDUIT TO BE SUPPORTED IN ACCORDANCE WITH SAFETY CLASS DESIGNATION (IE SA).

- LEGEND:
- * FURNISHED BY VENDOR
 - TCM - TEMPERATURE CONTROL MODULE
 - HTM - HIGH ALARM CUT-OUT MODULE

- REFERENCE:
- SEE VENDOR DRAWINGS, EBASCO NO. 50 P.O. NY-403552.
 - SEE VENDOR INSTRUCTION MANUAL EBASCO NO. 5A17-3685.

PHYSICAL ARRANGEMENT FOR HEATER POWER CONNECTIONS (TYPICAL)

8		EBASCO SERVICES INCORPORATED
7		BY ELEC. DR. S.Z.
6		APPROVED
5		
4		
3		
2		
1		

BY P. Rinaldi DATE 3/15/81

CHKD. BY _____ DATE _____

OFS NO. _____

CLIENT LPE'L

PROJECT WATERFORD #3

SUBJECT SK-DCN-NY-E-426-2-R4

NOTES:

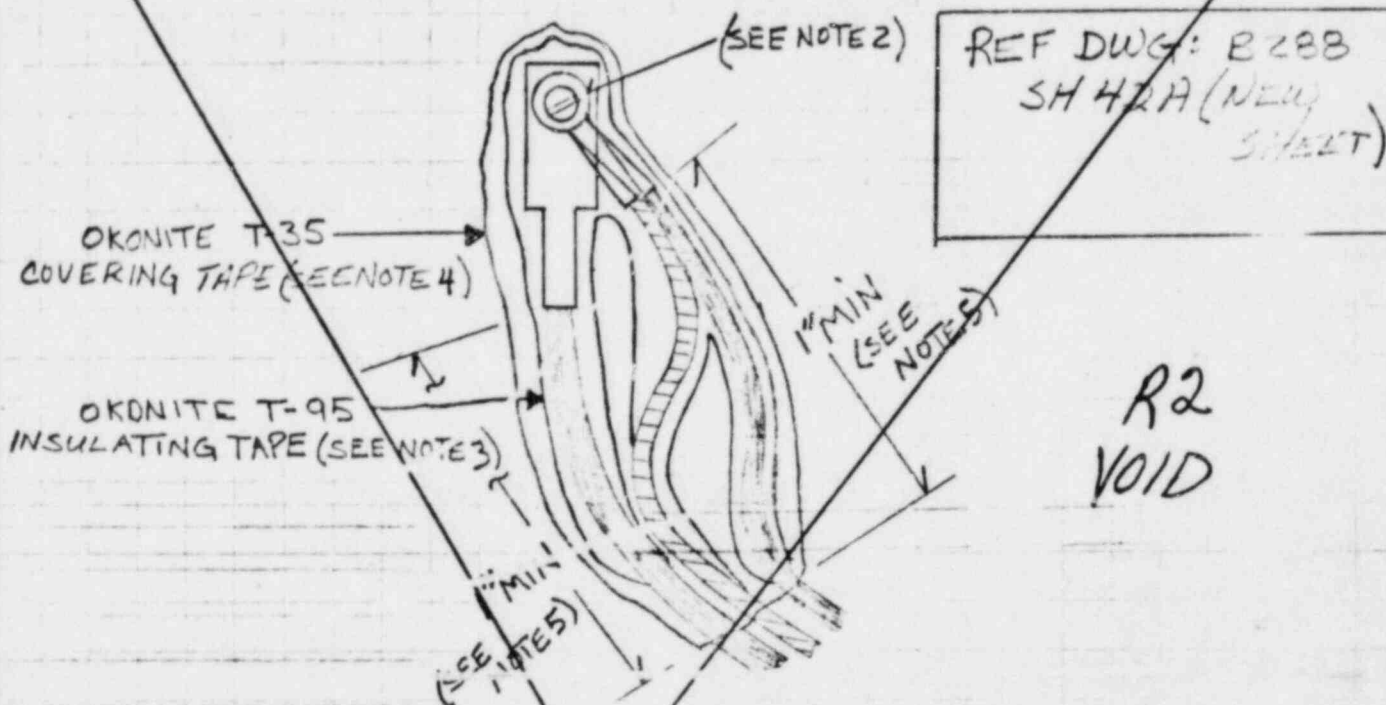
- SEE INSTRUCTION MANUAL SB17-3685(R1) & FOLLOWING TABLE FOR ADDITIONAL FOOTAGE OF AUTO-TRACE NEEDED AT EACH PIPE SUPPORT.

<u>PIPE SIZE (INCHES)</u>	<u>ADDITIONAL FOOTAGE</u>
1/2	1.5
3/4	1.5
1	2.0
1 1/2	3.0
2	3.5
3	6.5
4	6.5

REF DWG: B 288 SH 42 (R0)

R1
REVISE
(FROM SKETCH 1)

SPLICE DETAIL FOR HEAT TRACE PWR CONNECTION

R2
VOID

NOTES: 1) THIS DETAIL SHALL ONLY BE USED FOR SAFETY AND NONSAFETY RELATED HEAT TRACE.

2) LUGS ON HEAT TRACE CABLE WILL BE BOLTED OR SCREWED WITH ONE LUG TO THE BACK OF THE INCOMING FEEDER LUG AND THE OTHER ON THE FACE.

3) APPLY TWO HALF-LAPPED CONTINUOUS LAYERS OF INSULATING TAPE, OKONITE T-95. WHEN APPLIED, EACH CONDUCTOR SHALL BE INDIVIDUALLY WRAPPED, AND THE INSULATING TAPE SHOULD BE STRETCHED TO JUST SHORT OF ITS BREAKING POINT (NOT LESS THAN 3/4 OF ITS ORIGINAL WIDTH) AND WRAPPED TIGHTLY TO PREVENT AIR VOIDS.

4) OKONITE T-35 COVERING TAPE WILL BE INSTALLED OVER INSULATING TAPE IN TWO HALF LAPPED LAYERS. WHEN APPLIED, EACH CONDUCTOR NEED NOT BE WRAPPED. HOWEVER, TAPE WILL BE TIGHTLY WRAPPED AND SOMEWHAT STRETCHED SO THAT IT WILL CONFORM WELL.

5) A MINIMUM OF 1 INCH OF INSULATING AND COVERING TAPE FROM BARREL ENDING IS REQUIRED.

R2 BY: PE 8/5/82 CK:

EBASCO SERVICES INCORPORATED

BY PRINALDI DATE 10/1/81

NEW YORK

SHEET _____ OF _____

CHKD. BY [initials] DATE 10/13/81

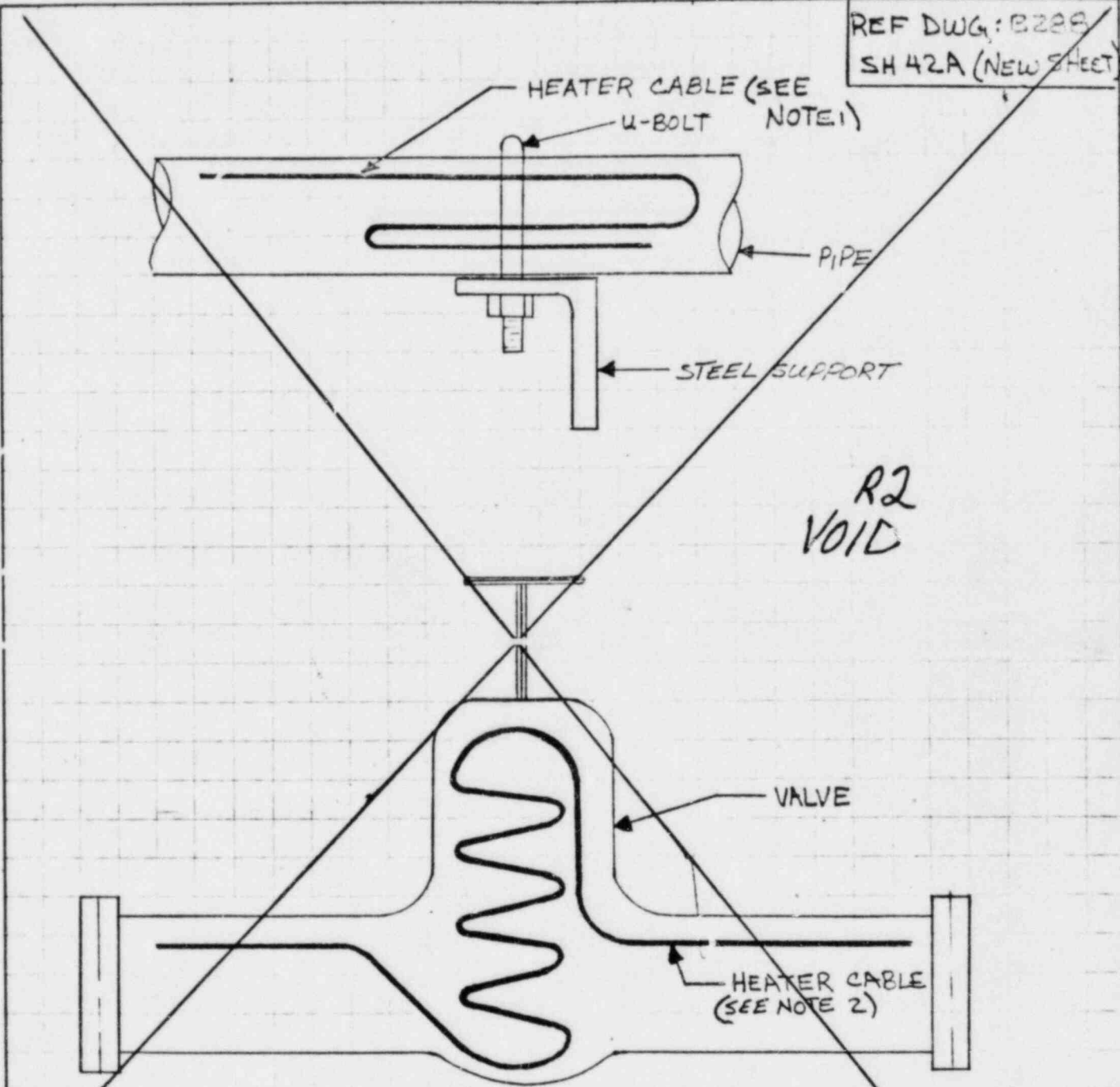
OFS NO. _____ DEPT. NO. _____

CLIENT LPEL

PROJECT WATERFORD #3

SUBJECT SK-DCN-NY-E-426-5-R4

REF DWG: B228
SH 42A (NEW SHEET)



R2
VOID

NOTES: 1) THE PIPE SUPPORT AND U-BOLT SHOWS ONE HEATER CABLE COILED TO ALLOW FOR HEAT SINK. THE REDUNDANT HEATER CABLE SHALL BE INSTALLED IN THE SAME MANNER ON THE REVERSE SIDE.

2) THE VALVE SHOWS ONE HEATER CABLE COILED TO HEAT TRACE THE VALVE. THE REDUNDANT HEATER CABLE SHALL BE INSTALLED IN THE SAME MANNER ONE THE REVERSE SIDE.

(CONTINUED ON SK-DCN-NY-E-426-6-R1)

EBASCO SERVICES INCORPORATED

NEW YORK

BY F. RINALDI DATE 10/13/21

SHEET _____ OF _____

CHKD. BY RP DATE 12/15/21

OFS NO. _____ DEPT. NO. _____

CLIENT LP&L

PROJECT WATERFORD #3

SUBJECT SK-DCN-NY-E-426-6-R4

(NOTES CONTINUED FROM SK-DCN-NY-E-426-5-R1)

3) HEATER CABLES AND TEMPERATURE SENSORS SHALL BE INSTALLED IN SUCH A MANNER TO MAINTAIN ONE INCH SEPARATION BETWEEN SAFETY RELATED TRAYS.

R2
VOID

SK-DCN-NY-E-426-7-R24

BY: PR 8/5/82

CK: JP 8/6/82

REF DWG: 5817-3685 (R6)

TAPE OR CABLE TIES
(TYPICAL)

STEEL PIPE

AUTO-TRACE™
SELF-LIMITING
HEATER

R2 ADD

NORMAL PITCH TO
COMMENT: ONCE AGAIN
(TYP)
SEE NOTE 1

IMPORTANT NOTE:
THERMAL INSULATION CEMENT
AT ELBOWS AND OTHER FITTINGS
MUST BE ALLOWED TO DRY
THOROUGHLY BEFORE WEATHER-
PROOFING IS APPLIED.
IT IS ESSENTIAL THAT ALL
INSULATION BE KEPT DRY.

R2
DELETE

HEATER STRIP
IS APPLIED TO
OUTSIDE (LONG)
RADIUS OF ELBOW.

NOTES:

R2 ADD

1) THE INSTALLATION OF HEAT TRACE CABLE ON PIPE ELBOWS APPLIES TO BOTH PITCHED AND STRAIGHT RUNS OF CABLE. THE HEAT TRACE CABLE SHALL BE INSTALLED MIDWAY ($\pm 1/2$) BETWEEN LONG AND SHORT RADIUS OF ELBOW. NORMAL PITCH WILL BEGIN ONCE AGAIN AT END OF ELBOW.

CHEMELEX

Chemex Division
Raychem Corporation
2201 Bay Road
Redwood City, CA 94063

TYPICAL HEAT TRACING INSTALLATION

GENERAL ARRANGEMENT
HEATER POSITION ON ELBOWS

DETAIL G-3

REV. 1

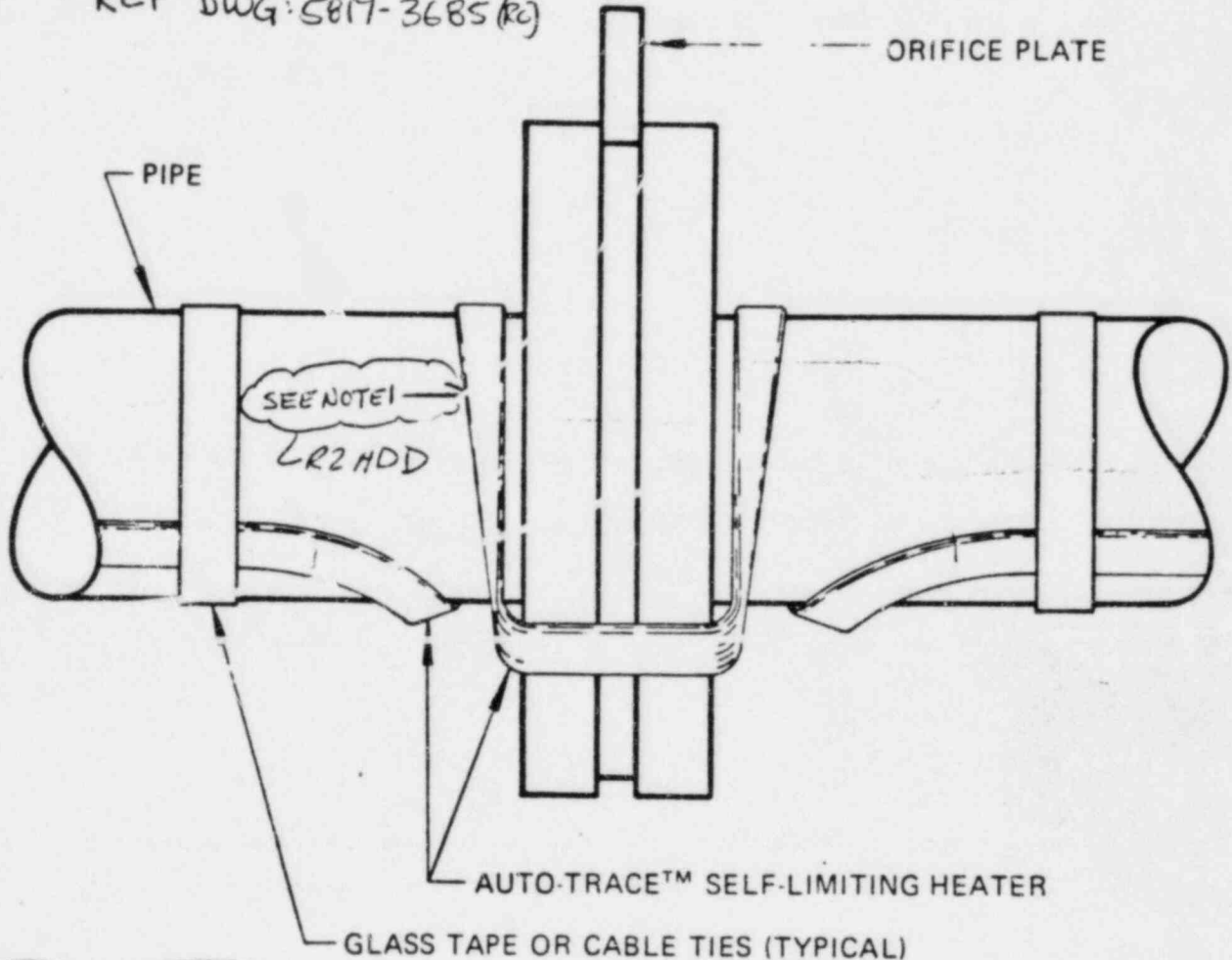
NOTE: INSULATE OVER TRACING WITH A REMOVABLE
"CLAM SHELL" OF THERMAL INSULATION.

SK-DCN-NY-E-426-8-R2

BY: PR 8/5K2

CK: 8/6/12

REF DWG: 5817-3685 (R2)



NOTES:

1) THE MANNER IN WHICH THE ADDITIONAL HEAT TRACE CABLE MAY BE INSTALLED ON A FLANGE CAN BE ALTERED SUCH THAT CABLE BE LOOPED AND/OR COILED AROUND PIPE, A MAX. OF SIX (6) INCHES BEFORE, ON, AND/OR A MAXIMUM OF SIX (6) INCHES AFTER FLANGE. THE PITCH REQUIREMENTS FOR SIX INCH SECTION PRECEDING AND AFTER FLANGE NEED NOT BE MAINTAINED. ADDITIONAL HEAT TRACE CABLE REQUIRED WILL BE TWO (2) TIMES PIPE DIAMETER.

CHEMELEX

CHEMELEX Division
Raychem Corporation
2201 Bay Road
Redwood City, CA 94063

TYPICAL HEAT TRACING INSTALLATION

ORIFICE FLANGE

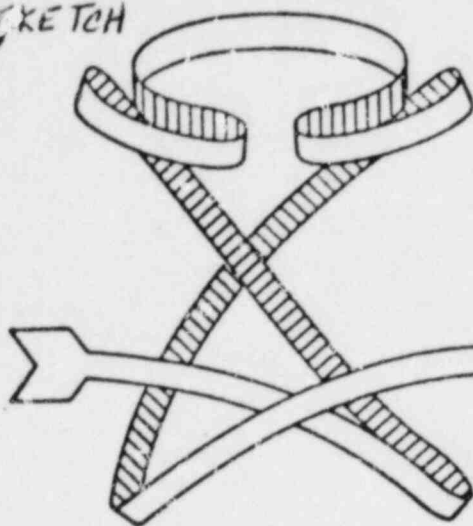
DETAIL P-2

REV. 1

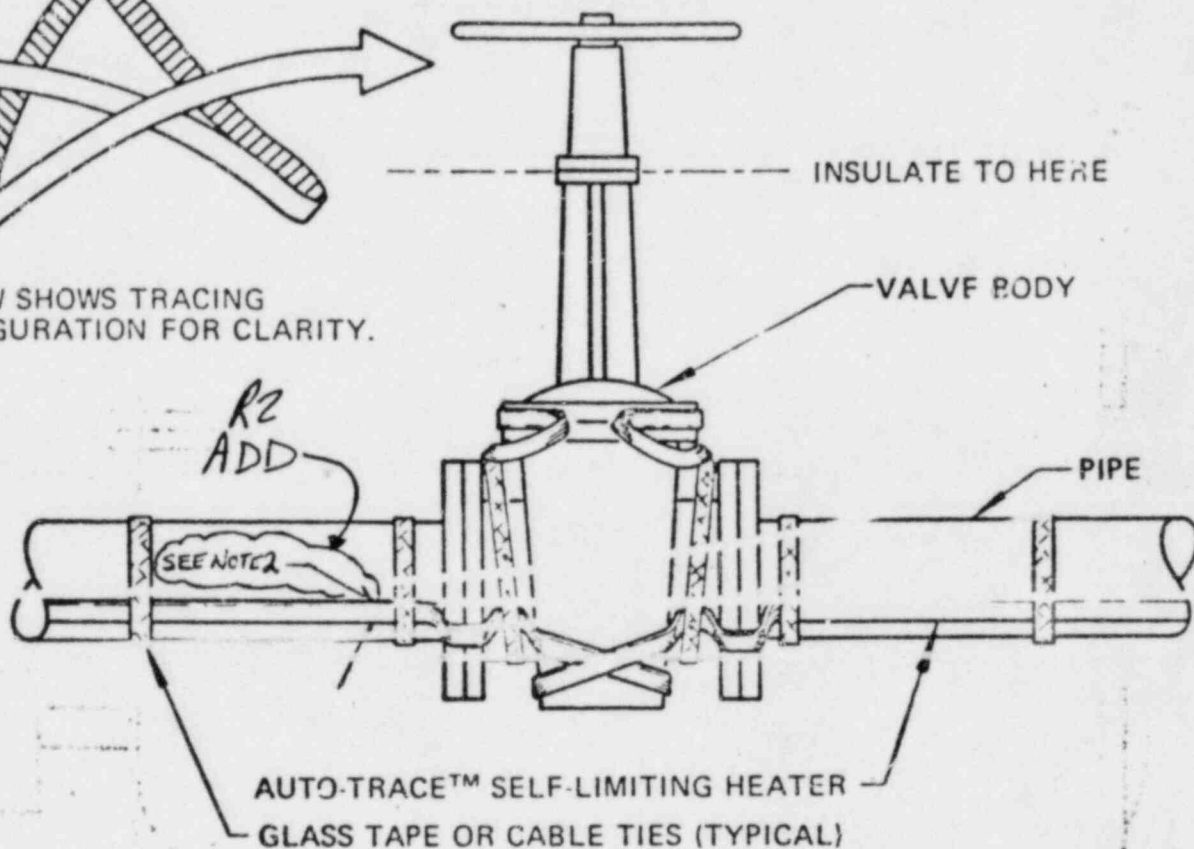
R2 REVISE PER
NOTE ON BOTTOM OF
SKETCH

NOTES:

1. EXACT CONFIGURATION MAY VARY PER VALVE TYPE.
2. FOR REMOVABLE VALVE BODIES LEAVE A LOOP OF TRACING OF THE PROPER LENGTH WHEN TRACING THE PIPE, THEN TRACE THE VALVE SO IT CAN BE UNTRACED FOR SERVICING WITHOUT CUTTING THE HEATER.
3. SEE INSTALLATION ISOMETRICS FOR CORRECT AMOUNT OF TRACING PER VALVE SIZE.
4. TAKE CARE TO KEEP THE FLAT SIDE OF THE HEATER IN AS GOOD PHYSICAL CONTACT WITH THE VALVE BODY AS POSSIBLE.
5. FULLY INSULATE AND WEATHERSEAL (IF OUTDOORS)



ARROW SHOWS TRACING
CONFIGURATION FOR CLARITY.



SK-DCN-NY-E-4269-R2
BY: PR 8/5/82
CK: S/6/KV
REF. DWG: SB17-3685 (R0)

R2
ADD

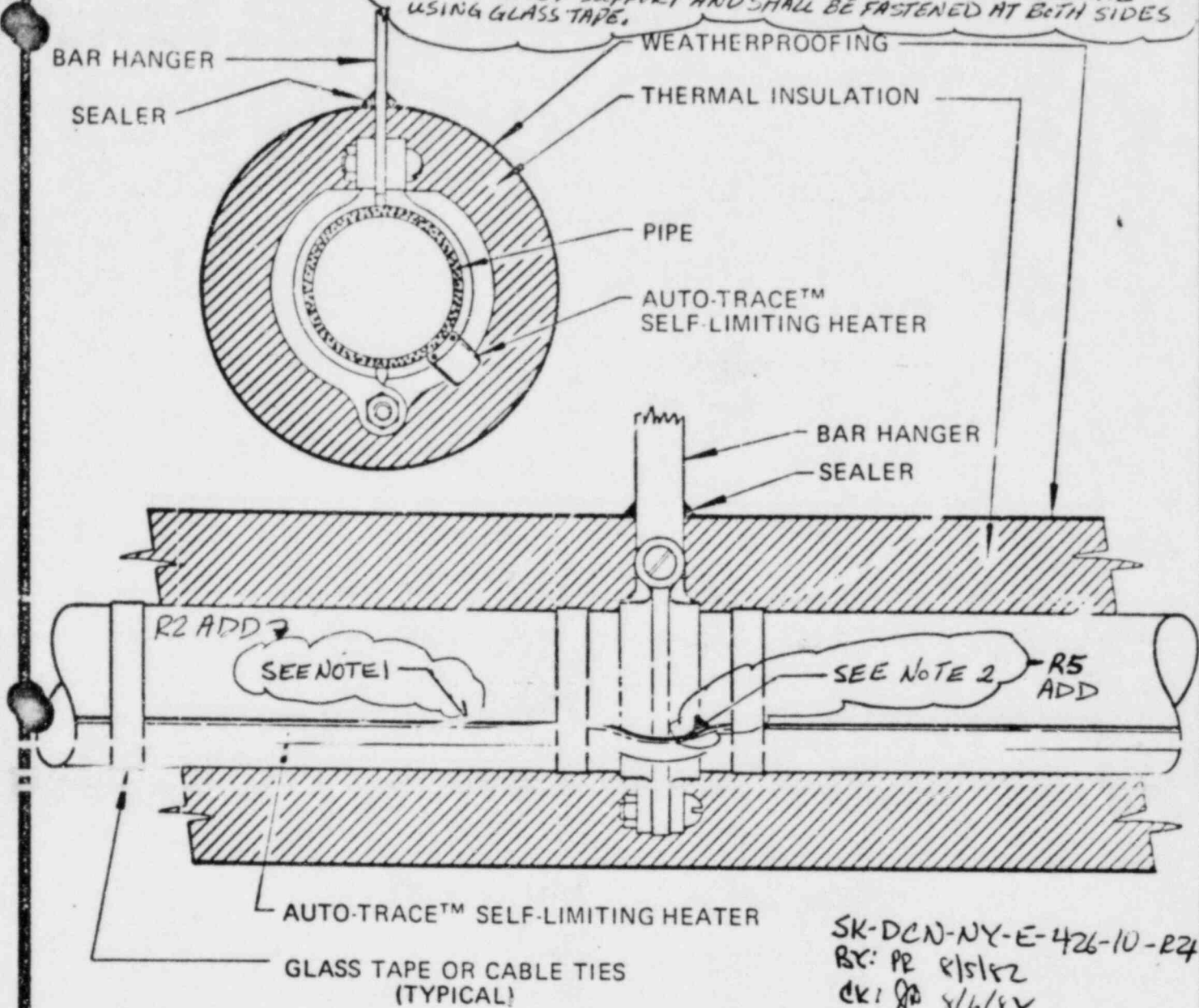
NOTES:

② THE MANNER IN WHICH THE ADDITIONAL HEAT TRACE CABLE MAY BE INSTALLED ON VALVE CAN BE ALTERED SUCH THAT CABLE BE LOOPED AND/OR COILED AROUND PIPE, A MAX. OF TWO (2) FEET BEFORE, ON, AND/OR A MAX. OF TWO (2) FEET AFTER VALVE. THE PITCH REQUIREMENTS FOR TWO (2) FOOT SECTION PRECEDING AND AFTER VALVE NEED NOT BE MAINTAINED. A PORTION OF THE ADDITIONAL REQUIRED HEAT TRACE CABLE SHOULD BE INSTALLED ON VALVE TO ALLOW REMOVAL OF VALVE FOR MAINTENANCE PURPOSES.

CHEMELEX		Chemelex Division Raychem Corporation 2201 Bay Road Redwood City, CA 94063
TYPICAL HEAT TRACING INSTALLATION		
VALVE BODY		
DETAIL	P-3	REV. 1

NOTES: (2) HEAT TRACE CABLE PASSING THROUGH "BOX TYPE" SUPPORTS SHALL BE INSTALLED FLAT ON PIPE AND PASS STRAIGHT THROUGH SUPPORT WITH NO TWISTING OR WRAPPING. CABLE SHALL BE KEPT AWAY FROM STRUCTURAL MEMBERS OF SUPPORT AND SHALL BE FASTENED AT BOTH SIDES USING GLASS TAPE.

R5 ADD



SK-DCN-NY-E-426-10-R2
 BY: PR 8/15/82
 CK: GP 8/16/82
 REF DWG: 5817-3685(R)
 RS BY: PR 8/31/82
 CK: GP 8/31/82

R2 ADD

NOTES:
 (1) THE MANNER IN WHICH THE ADDITIONAL HEAT TRACE CABLE MAY BE INSTALLED ON PIPE HANGERS CAN BE ALTERED SUCH THAT CABLE BE LOOPED AND/OR COILED AROUND PIPE, A MAXIMUM OF TWO (2) FEET BEFORE, ON, AND/OR A MAXIMUM OF TWO (2) FEET AFTER PIPE SUPPORT. THE PITCH REQUIREMENTS FOR TWO (2) FOOT SECTION PRECEDING AND AFTER PIPE HANGER NEED NOT BE MAINTAINED.

CHEMELEX

Chemex Division
 Raychem Corporation
 2201 Bay Road
 Redwood City, CA 94063

TYPICAL HEAT TRACING INSTALLATION

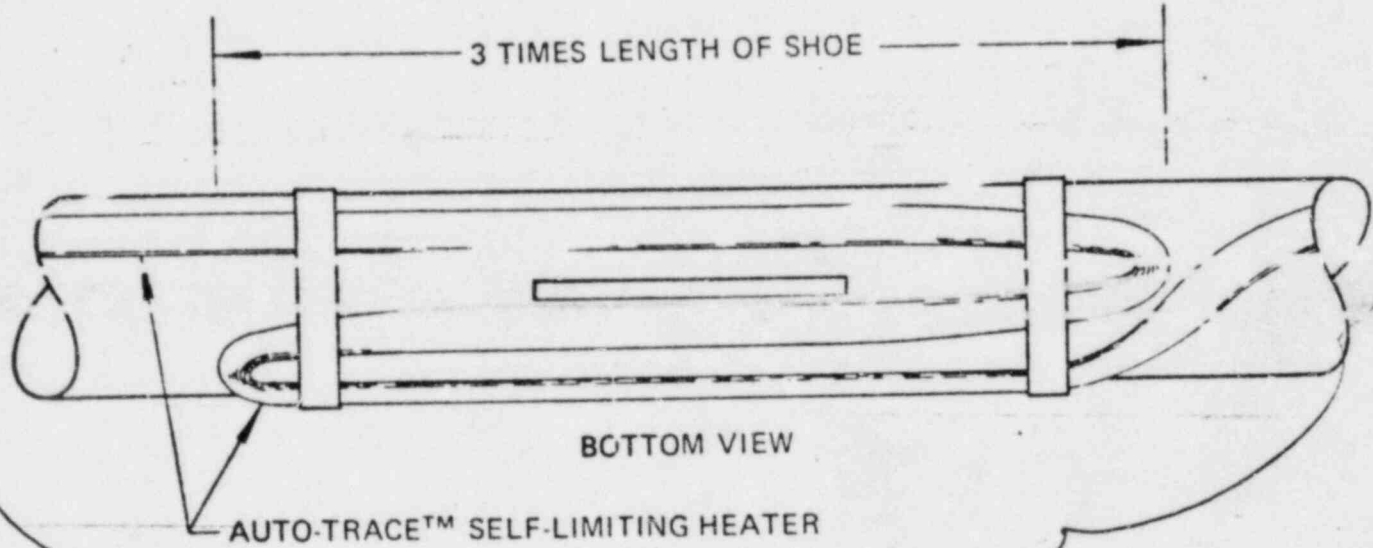
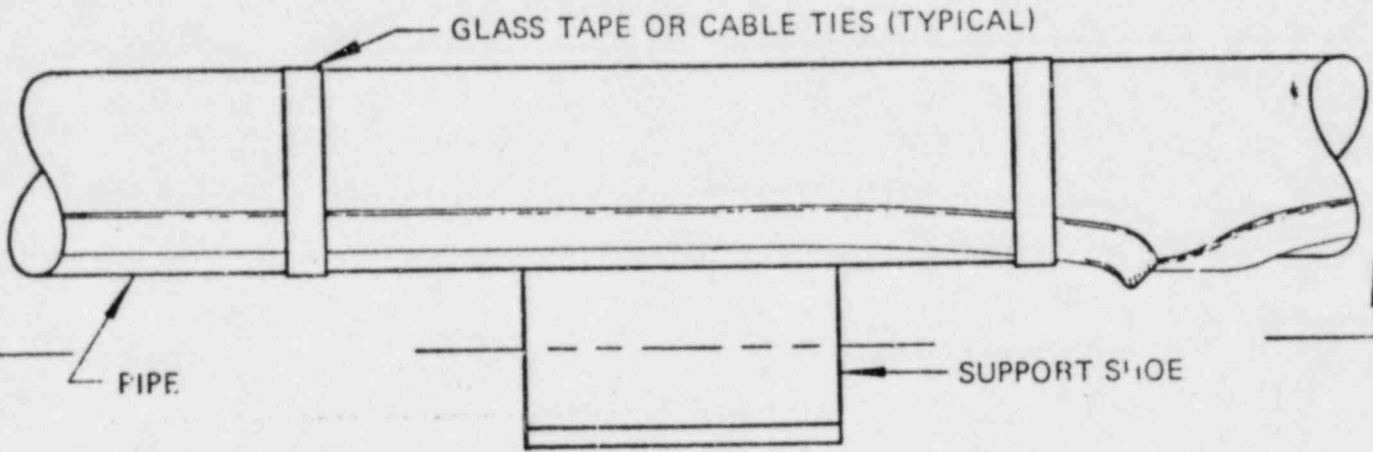
TRACING OVER PIPE HANGERS

DETAIL S-1

REV. 1

BILL 8160514

NOTE: INSULATE AS MUCH OF SHOE SUPPORT AS POSSIBLE AND WEATHERSEAL ALL OPENINGS.



R2
DELETE

SK-DCN-NY-E-426-11-R2
BY: PR 8/5/82
CK: 8/6/82
REF DWG: 5817-3685 (R0)

CHEMELEX

Chemex Division
Raychem Corporation
2201 Bay Road
Redwood City, CA 94063

TYPICAL HEAT TRACING INSTALLATION

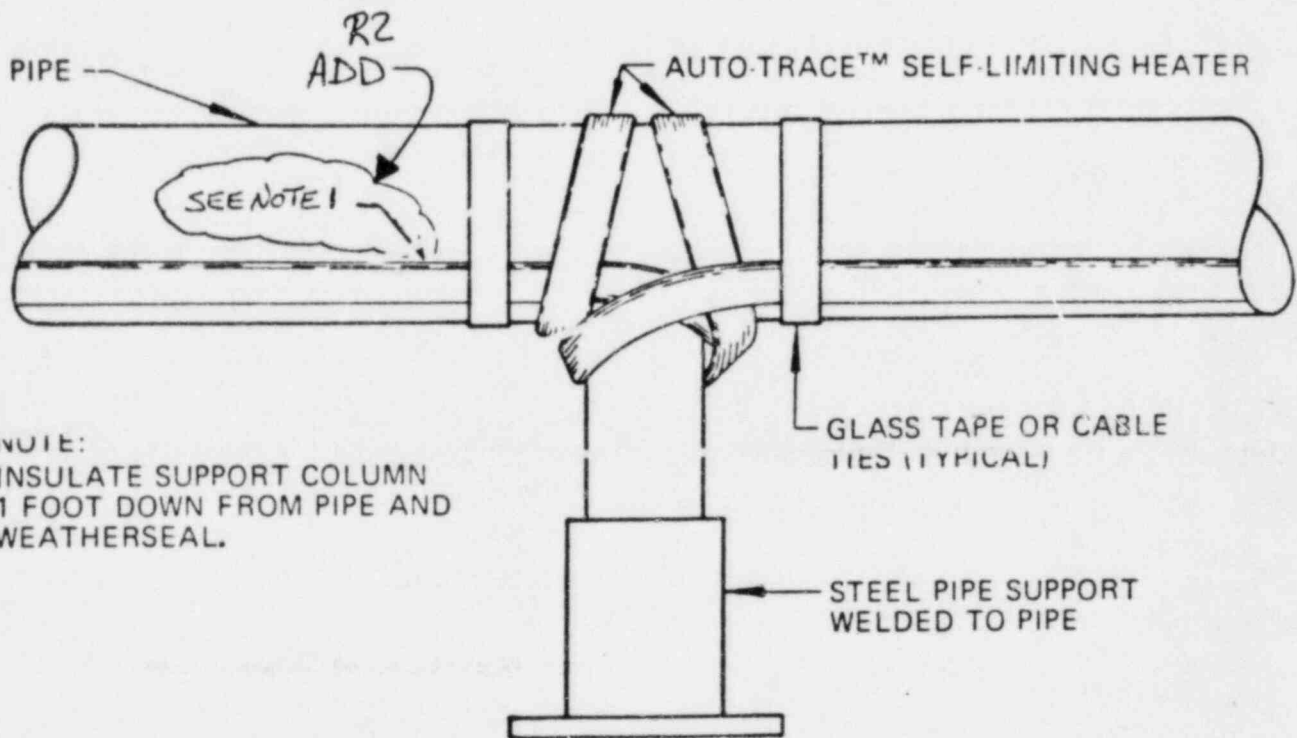
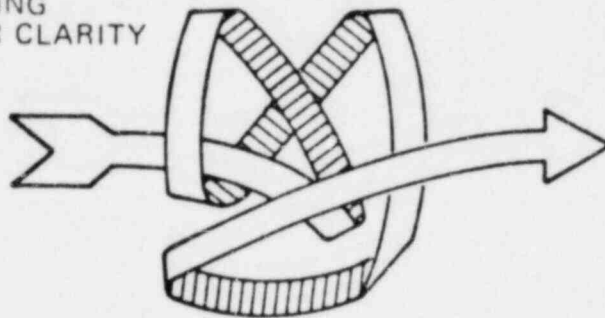
PIPE SUPPORT SHOE

DETAIL S-2

REV. 1

SK-DCN-NY-E-426-12-R4
 BY: PE 8/1/82
 CK: GP 8/6/82
 REF DWG: 5817-3685(R)

ARROW SHOWS TRACING
 CONFIGURATION FOR CLARITY



NOTE:
 INSULATE SUPPORT COLUMN
 1 FOOT DOWN FROM PIPE AND
 WEATHERSEAL.

NOTES:
 1) THE MANNER IN WHICH THE ADDITIONAL
 HEAT TRACE CABLE MAY BE INSTALLED ON
 PIPE SUPPORTS CAN BE ALTERED SUCH THAT
 CABLE BE LOOPED AND/OR COILED AROUND
 PIPE, A MAXIMUM OF TWO (2) FEET BEFORE,
 ON, AND/OR A MAXIMUM OF TWO (2) FEET
 AFTER PIPE SUPPORT. THE PITCH REQUIRE-
 MENTS FOR TWO (2) FOOT SECTION PRECEDING
 AND AFTER PIPE SUPPORT NEED NOT BE
 MAINTAINED.

R2 ADD

CHEMELEX

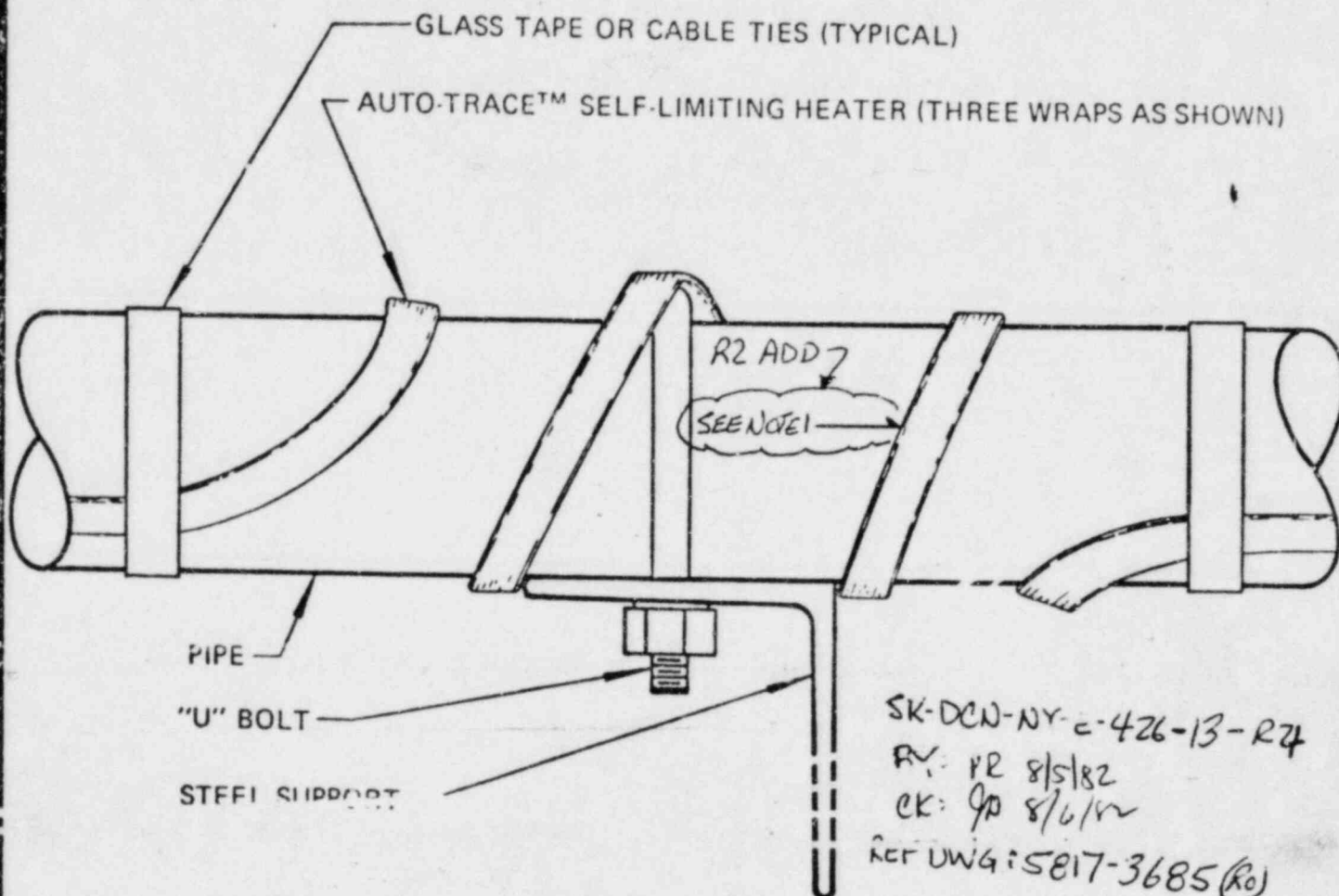
Chemelex Division
 Raychem Corporation
 2201 Bay Road
 Redwood City, CA 94063

TYPICAL HEAT TRACING INSTALLATION

WELDED SUPPORT COLUMN

DETAIL S 3

REV. 1



NOTE: FULLY INSULATE AND WEATHERSEAL PIPE SUPPORT IF OUTDOORS.

NOTES:

1) THE MANNER IN WHICH THE ADDITIONAL HEAT TRACE CABLE MAY BE INSTALLED ON PIPE SUPPORT CAN BE ALTERED SUCH THAT CABLE BE LOOPED AND/OR COILED AROUND PIPE SUPPORT, A MAXIMUM OF TWO (2) FEET BEFORE, ON, AND/OR A MAX. OF TWO (2) FEET AFTER PIPE SUPPORT. THE PITCH REQUIREMENTS FOR TWO (2) FOOT SECTION PRECEDING AND AFTER PIPE SUPPORT NEED NOT BE MAINTAINED.

R2 ADD

CHEMELEX

CHEMELEX Division
 Raychem Corporation
 2201 Bay Road
 Redwood City, CA 94063

TYPICAL HEAT TRACING INSTALLATION

"U" BOLT SUPPORT

DETAIL S-4

REV. 1

450318/3

BY P. RINALDI DATE 8/6/12

CHKD. BY [Signature] DATE 8/6/12

CLIENT LPEL

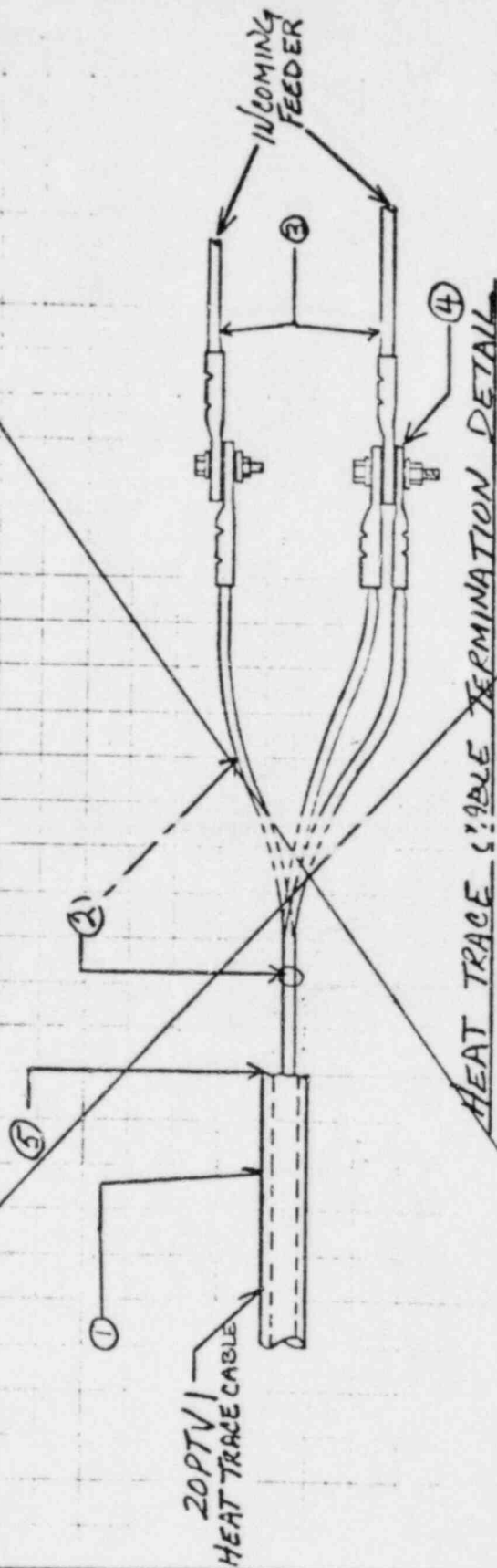
PROJECT WATERFORD #3

SUBJECT SK-DGM-NY-E-426-14-R24

SHEET OF _____
DEPT. _____
OFS NO. _____

REF DWG: B288 SH42A (NEW SHEET)

R3
VOID



HEAT TRACE CABLE TERMINATION DETAIL

NOTES: 1) REMOVE JACKET AND POLYMER PER CYGMELEX INSTRUCTION MANUAL.

EACH

2) INSULATE BARE CONDUCTOR USING RAYCHEM WLS-200 HEAT SHRINKABLE TUBING. HEAT SHRINKABLE SLEEVES SHALL BE BUTTED AGAINST POLYMER. THE SAME SLEEVE SHALL BE USED TO INSULATE BOLTED SPLICE.

3) HEAT SHRINKABLE TUBE SHALL EXTEND A MINIMUM OF 3/4" BEYOND FEEDER CABLE LUG BARREL.

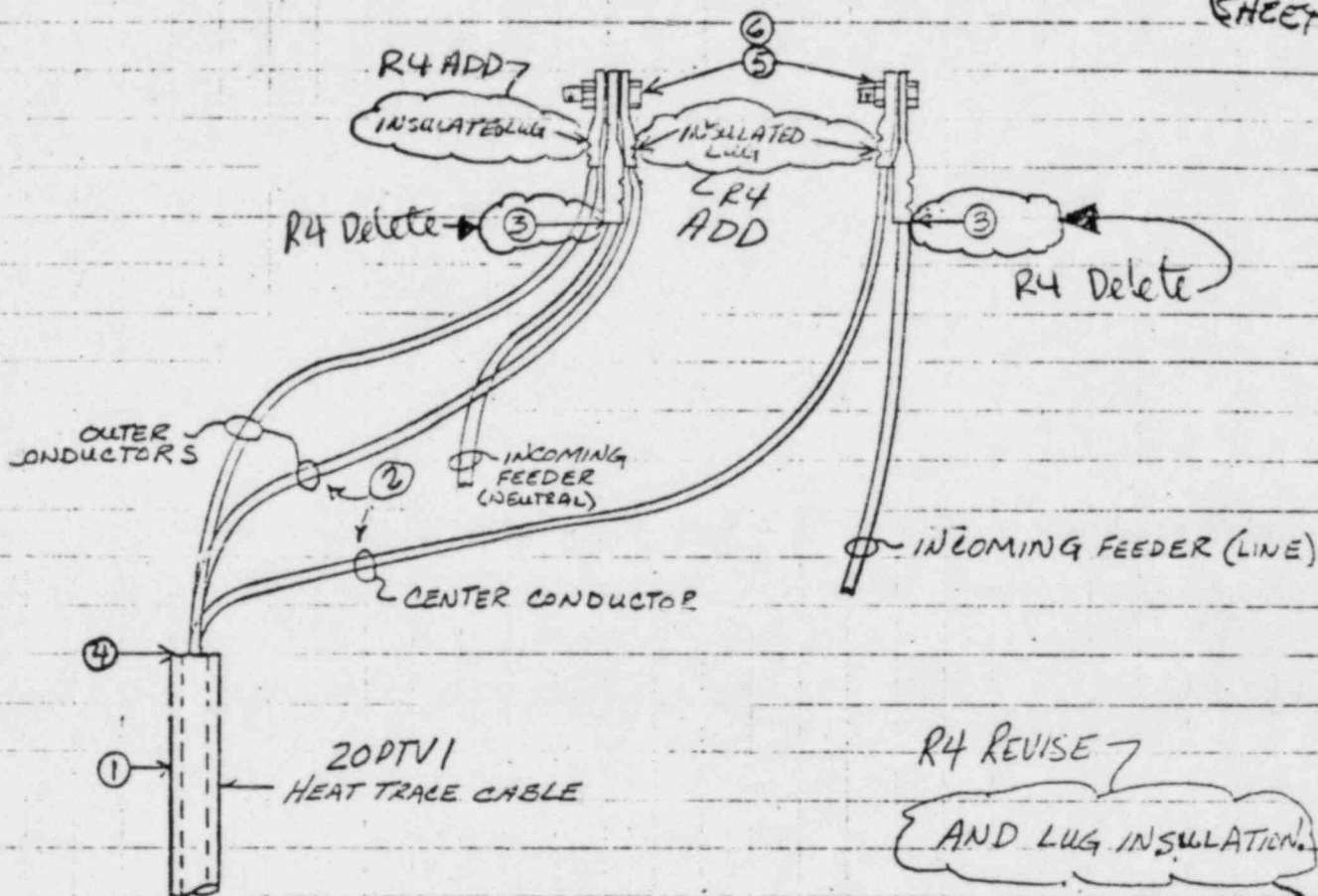
4) INSULATE LUG "SANDWICH" USING RAYCHEM BLEAKOUT.

5) INSULATE OVER END OF HEAT TRACE CABLE: AND WLSF-N-050 (1/2" OVER EACH PORTION) USING WLSF-N-200 (ONE INCH LONG)

EBASCO SERVICES INCORPORATED

BY PRINALD DATE 8/10/82 R78Y: PE 8/10/82 SHEET _____ OF _____
 CHKD. BY JN DATE 8/12/82 UK: JP 8/12/82 DEPT. NO. _____
 CLIENT LPEL
 PROJECT WATERFORD #3
 SUBJECT SK-DCN-NY-E-426-15-R4

REF DWG: B288 SH42A (NEW SHEET)



HEAT TRACE CABLE TERMINATION DETAIL

- NOTES: 1) REMOVE JACKET & POLYMER AS REQUIRED, DAMAGE TO CONDUCTOR STRANDS SHALL BE AVOIDED.
- 2) INSULATE EACH CONDUCTOR USING RAYCHEM WCSF-070-N HEAT SHRINKABLE TUBING. HEAT SHRINKABLE SLEEVE SHALL BE BUTTED AGAINST POLYMER.
- 3) RAYCHEM WCSF-200-N HEAT SHRINKABLE TUBING SHALL BE USED TO INSULATE BARREL OF LUG OF INCOMING FEEDER AND A MINIMUM OF 3/4 INCH BEYOND END OF BARREL. THIS SHALL ONLY BE USED ON #4 AWG.
- 4) INSULATE OVER END OF HEAT TRACE CABLE AND WCSF-N-070 (USED IN NOTE 2) USING AN 1" INCH PIECE OF RAYCHEM WCSF-N-200.
- 5) CAP MAY BE CUT AS REQUIRED PROVIDED IT COVERS 3/4 INCH MIN BEYOND END OF BARREL OF HEATER CABLE LUG (FOR #4 INCOMING) AND 3/4 INCH BEYOND BARREL OF INCOMING FEEDERS (#8-#14). (CONT SK-16)

EBASCO SERVICES INCORPORATED

BY PRINALDI DATE 8/12/82
CHKD. BY [Signature] DATE 8/12/82
CLIENT VLPE'L
PROJECT WATERFORD #3
SUBJECT SK-DCW-NY-E-426-16-R4

SHEET _____ OF _____

OFS NO. _____ DEPT. NO. _____

CONT SK-15

5) RAYCHEM 101A052-52/144' CAP SHALL BE USED TO INSULATE 2 3 LUG CONNECTIONS USING #4 AND HEATER CABLE; 3 LUG CONNECTION USING #8 AND HEATER CABLE.

RAYCHEM 101A041-52/144' CAP SHALL BE USED TO INSULATE 2 LUG CONNECTIONS USING #8, #10 OR #14 AND HEATER CABLE; 3 LUG CONNECTIONS USING #10 OR #14 AND HEATER CABLE.

R4 Delete

RAYCHEM S-1119 ADHESIVE TAPE SHALL BE USED TO MAKE ONE WRAP OF CENTER CONDUCTOR OF 3 LUG CONNECTIONS AND BARREL, PRIOR TO INSTALLATION OF CAP AND BOLTING.

6) MACHINE SCREW SHALL NOT BE LARGER THAN #10. ALL LUGS SHALL BE OF THE NON INSULATED TYPE.

R4 DELETE

7) FIELD TO CORRECT HANGING BARREL IN CONDUIT, TO #8 PER B288 SH 39.

R4 ADD

REF DWG B288 SH 42A (NEW SHEET)

R4 BY: PR 8/18/82
CK: [Signature] 8/18/82

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 2</u> SORT No. <u>SQ-E-74/76</u> EDG Specified Item: <u>Diesel B</u></p>	<p>Diesel Generator Piping The 39 dynamic degrees of freedom used to define the seismic model cannot be considered adequate without further justification.</p> <p>The piping model does not include three runs of pipe attached to it.</p>	<p>The piping will be qualified instead by use of C.1 of Regulatory Guide 1.100. Structural integrity is an adequate criterion for the piping and piping systems are well represented by beam models. One g static solutions are presented on Pages A-80 to A-194 of the qualification document. Stresses in each direction are multiplied by the product of the pertinent peak spectral value and 1.5. The maximum of the SRSS combination of these stresses in all three directions is 14 KSI. This is less than the allowable of 27 KSI. Closed</p> <p>All omitted piping consists of short runs to nearby supports. The primary effect of adding the missing piping to the model would be to increase the seismic inertia force on the piping system. However, the maximum seismic induced stress on the existing piping system model, which was obtained by a conservative approach, is less than allowable limit, and the margin of safety is two (2), therefore, the seismic analysis of the piping system is acceptable due to the ample conservatism associated with the analysis approach. This item is closed.</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 5</u></p> <p>SQRT No. <u>SQ-HV-13</u></p> <p>HVAC Water Pump</p> <p>Selected Item: <u>P.1 (3B-SB)</u></p> <p>Reviewer: M. Russel Ebasco Dr. Z.T, Shi H. Parikh</p>	<p>HVAC Pump</p> <p>Issue -</p> <p>The directional uncertainty of seismic events has not been explicitly considered in the application of nozzle loads.</p> <p>Although the variation of direction of nozzle loads has not been explicitly discussed, it has been considered in the individual calculations.</p>	<p>CLOSED</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 6</u> SQRT No. <u>NSSS-ICE-5a</u> Resistor Input Card Specified Item: - Reviewer: R. W. Macek EG&G Westinghouse: W. J. Ritter Wied J. Parello <u>W</u> NTD LP&L: M. Williams</p>	<ol style="list-style-type: none"> 1. Verify by means of test data that operability of resistor input card was demonstrated during the test. 2. Determine if loose cables in cabinet will be tied down at a later date (supply date). Indicate procedures to secure cables in cabinet. 	<p>Confirmatory. <i>Buy 10/5/82</i></p> <p>Closed - See Fischbach & Moore Procedure CP-307, P. 5 of 23. Also Ebasco Ltr. from Wills to DeBruin dated 9/2/82.</p>

224300

Interoffice Correspondence

DATE 9/2/82 FILE REF
TO J. DeBruin OFFICE LOCATION W3 Site - ESSE
FROM *C. Higgins FOR*
J. Willis OFFICE LOCATION
SUBJECT WATERFORD SES UNIT NO. 3
CONSTRUCTION FOLLOWUP ON SQRIT ITEMS

References: (1) SQRIT No. NSSS-ICE-5a
(2) SQRIT No. NSSS-TCE-2f
(3) SQRIT No. NSSS-ICE-9-1
(4) Procedure CP-307 (Cable Termination & Splices)

The wire bundles identified in References 1, 2 and 3 will be supported in accordance with the requirements for Reference 4.

The supporting of the wire bundles associated with References 1 and 3 will be completed by 9/10/82. The supporting of the wire bundles associated with Reference 2 will be completed by 10/30/82.

RJE/11

cc: W. Yaeger
R. McFadden
M. Strawbridge
R. Esnes
ESSE File P.117

ERASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

This Document Is
 Reviewed Without Comments
 Reviewed With Comments as Shown Incorporate Comments and Resubmit Printed Order
 Rejected Revised and Resubmit

NOTE:
 Review of this document will be without comments. In general conformance with the applicable specifications and in so doing releases the manufacturer or contractor from full responsibility for delivery of all material, equipment, services and installation in strict accordance with Purchase Order.

By: *[Signature]*
 Date: *5/11/79*

FISCHBACH AND MOORE, INCORPORATED

CONSTRUCTION PROCEDURE

FOR

CABLE TERMINATIONS AND SPLICES

WATERFORD STEAM ELECTRIC STATION

UNIT NO. 3

CONTRACT NUMBER W3-NY-12

FISCHBACH AND MOORE

CONTROLLED COPY No. 01



REVISIONS :

NO.	DATE	PARAGRAPH(S)	PAGE(S)	REVIEWED & APPROVED BY	DATE
1	5/2/79	6.1.1 6.2.1 thru 6.2.4.1 6.2.7	4 6 & 7 8 & 9	<i>[Signature]</i> <i>[Signature]</i>	5/2/79
2	8/2/79	5.2 5.3-6.1.1 6.1.6 6.1.1 6.2.2-6.2.4 6.2.4.1-6.2.4.2 Pg.7 6.2.4.3 thru 6.2.4.8	3 4 5 6 7 8 & 9	<i>[Signature]</i> 8/3/79 <i>[Signature]</i> 8/3/79	
		7.0	11		

REVIEWED BY

Emmett A. Taylor 6/8/78
 Chief Engineer Date

Abrie E. Paisant 6/8/78
 Project Superintendent Date

APPROVED BY :

W. Johnson 6/8/78
 O.C. Project Manager Date

Leo Meerman 6/9/78
 Project Manager Date

REVISIONS:

NO.	DATE	PARAGRAPH(S)	PAGES	REVIEWED & APPROVED BY	DATE
3	12/28/79	6.2.4.2 6.2.7 Exhibit 7.1 Exhibit 7.2	7 10 & 11	RRH SAC EAC JCM.	12/28/79
4	4/30/80	6.2.1.3 6.3 through & Including 6.3.3.7 7.4 7.5	6 11 thru 16 16 16	RRH EAC JCM.	4/30/80
5	1/7/81	3.0 6.1.1 6.1.9-6.2-6.2.1 3) 6.2.4.9 6.3.1.1 6.3.1.8 6.3.2.1 6.3.2.1i 6.4 thru 6.4.8.4) 6.5 thru 6.5.8.4 7.6 & 7.7 6.2.7.1	3 4 6 9-10 11 12 13 14 16 thru 18 18 and 19 20 21	RRH EAC JCM.	1/7/81
6	7/3/81	6.2.4.7 6.2.4.10 6.3 6.3.1.10 6.6 6.7	9 10-11 13 14 22 23 & 23	RRH EAC JCM.	7/3/81

- 6.1.3 Conductor connections shall be made according to wiring diagrams, using identifications codes established by the Control Wiring Diagram List LOU-1564-B-424.
- 6.1.4 Splices are not acceptable unless approved by the Engineer.
- 6.1.5 Where outlet box, cabinet cubicle, switchgear or terminal devices for cable are equipped with cable or wiring trays, troughs or gutters, sufficient length of each cable shall be pulled to permit a neat arrangement of all cables in said trays, troughs or gutters.
- 6.1.6 Jacketed cable extending to termination points or connections shall be neatly trained and bundled at approximately six (6) inch intervals between cable entry point and terminals when all terminations are completed or prior to turnover. Cable shall be supported so that no load is applied to connectors and terminations.
- 6.1.7 Control conductors are to be fanned out and laced together with ty-rap at terminal devices.

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. NSSS 9 SQRT No. <u>NSSS-ICE-2f</u> RCP Signal Processor Specified Item: - Reviewer: R. W. Macek - EG&G T. McNair - CE M. Williams - LF&L</p>	<ol style="list-style-type: none">1. Verify that anomaly #2 during environmental testing is inconsequential. 2. After multifrequency random testing a cracked connector was found. Verify that these do not affect the equipment's qualification. 3. Determine if loose cables in cabinet will be tied down at a later date (supply-date). Indicate procedures to secure cables in cabinet.	<p>CLOSED</p> <p>The RCPSSSS Processor was subjected to two seismic test series; each of which greatly exceed the requirements of Waterford III. An inspection held after the first series but before the second series revealed a <u>small</u> crack in an electrical connector. This crack was noted and pictured in the test report but was judged not significant to operation and testing continued. The second series was successfully completed with the cracked connector with no impact on the equipments operation. THIS ITEM IS CLOSED.</p> <p>CLOSED. See Fischbach and Moore Procedure CP-307 P. 5 of 23 also Ebasco letter from Wills to DeBruin dated 9/2/82.</p>

TRUSCO

Interoffice Correspondence

DATE 9/2/82 FILE REF
TO J. DeBruin OFFICE LOCATION W3 Site - ESSE
FROM *Chuggs FOR*
J. Wills OFFICE LOCATION
SUBJECT WATERFORD SES UNIT NO. 3
CONSTRUCTION FOLLOWUP ON SQRT ITEMS

References: (1) SQRT No. NSSS-ICE-5a
(2) SQRT No. NSSS-ICE-2f
(3) SQRT No. NSSS-ICE-9-1
(4) Procedure CP-307 (Cable Termination & Splices)

The wire bundles identified in References 1, 2 and 3 will be supported in accordance with the requirements for Reference 4.

The supporting of the wire bundles associated with References 1 and 3 will be completed by 9/10/82. The supporting of the wire bundles associated with Reference 2 will be completed by 10/30/82.

RJE/11

cc: W. Yaeger
R. McFadden
M. Strawbridge
R. Esnes
ESSE File P.117

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 11</u> SORT No. <u>NSSS-ICE-9-1</u> Recorder Specified Item: <u>TR-102HA</u></p> <p>R. W. Macek EG&G E. J. Miller, Jr. <u>W</u> CCD W. J. Ritter <u>W</u> IED M. Williams - LP&L</p>	<ol style="list-style-type: none"> 1. Vertical position is apparently maintained by a friction connection, i.e. bolt in a slotted hole. What are the installation procedures for specifying the bolt preload (and therefore the friction)? 2. Determine if loose cables in cabinet will be tied down at a later date (supply date). Indicate procedures to secure cables in cabinet. 3. Can cable tie down mounted with glue maintain their adhesion for the life of the plant? 	<p>Closed - This is an isolated case due to installation requirements. See attached DCN NY-IC-303 R2 for modified design.</p> <p>Closed - See Fischbach & Moore Procedure CP-307 Page 5 of 23 and Ebasco Ltr. from Wills' to DeBruin dated 9/2/82.</p> <p>Closed - See Attached FCRE-1900</p>

EBASCO SERVICES INCORPORATED
DESIGN CHANGE NOTIFICATION

PROJECT Waterford SES Unit No. 3 DCS NO. _____ DESIGN CHANGE NO. DCN- NY-IC-303/R2

To W. Yaeger Dept Construction Location jobsite Date 9-2-82

Re: Drawing No. SEE SHEET 1A Title RTG BOARD
 Specification No. _____ Page _____
 Other PO NY403583 ANTICIPATED REVISION DATE OF FORMAL DOCUMENTS 12/82

AREA OF CHANGE:

Technical Major Minor
Cost Major (> \$100,000) Minor (< \$100,000)
Schedule Major (Critical Path) Minor (Noncritical Path)

Engineering "Hold" placed on construction activities in area defined herein pending receipt of formally revised document(s) and/or revised DCN. PE signature not required.
 Released for construction on basis of modification(s) prescribed by this DCN.

Applicable documents will be revised by:

Home Office
 Ebasco Site Support Engineers (Project Engineer to assign Open Engineering Item No. _____)
 As-built drawing by Resident Engineer's staff Other _____

PROPOSED CHANGE	DESCRIPTION	REASON FOR CHANGE
	<u>SEE SHEET 1A FOR REV OF 1</u>	<input type="checkbox"/> Field Change Request (FCR No. _____) <input type="checkbox"/> Required modifications to design or specification <input type="checkbox"/> Disposition of nonconforming item <input type="checkbox"/> Changes in regulatory or other requirements <input type="checkbox"/> SEE SHEET 1A <input checked="" type="checkbox"/> Other <u>SQRT Item # N555-ICE-9-1</u> R2
	<u>REV 2. FIELD TO REMOVE TWO(2) EXISTING REAR ANGLE SUPPORTS FOR RECORDERS TR-102 HA, LR-110X, LR-110 F PR-100 AND INSTALL HEX HEAD BOLTS & SPACERS AS SHOWN ON SHEET 2.</u>	

EXHIBITS ATTACHED No Yes - If Yes, Check Applicable Box(es)

Copies of marked-up area of drawing(s) Other (Describe) _____
 Field Change Request (FCR No. _____)

COMMENTS SEE SHEET 1A FOR REV OF 1

PLUG UNUSED HOLES USING SCREW & NUTS (4-TOTAL) R2

SCHEDULED ERECTED, PLACEMENT DATE(S) _____

ORIGINATOR J. Kealy DATE 9-2-82

DISTRIBUTION (Check as applicable and fill in name. Indicate with an asterisk (*) personnel who are to perform a QA review)

<input type="checkbox"/> M-N Engr	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> Project Mgr	_____
<input type="checkbox"/> Civil Engr	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> Project Engr <u>J. Padalino</u>	_____
<input type="checkbox"/> Elec Engr	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> Coordinator <u>R. Johnson</u> (W/)	_____
<input type="checkbox"/> HVAC Engr	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> Orig Disc. Supvr <u>S. STATZ</u>	_____
<input type="checkbox"/> Plumbing Engr	<input type="checkbox"/> _____	<input type="checkbox"/> Nuc Safety	_____
<input checked="" type="checkbox"/> I & C Engr <u>V. Boyrowsky</u>	<input checked="" type="checkbox"/> Design <u>W. Majerovsky</u> (W/Att)	<input type="checkbox"/> PQAE	_____
<input type="checkbox"/> WT Engr	<input checked="" type="checkbox"/> Design <u>A. Verem</u>	<input checked="" type="checkbox"/> Project Supt	_____
<input checked="" type="checkbox"/> IPO&B - Site	<input checked="" type="checkbox"/> Engr <u>M. Malladi</u> (W/Att)	<input type="checkbox"/> Appl Phys	_____
<input type="checkbox"/> PO&B - HO	<input type="checkbox"/> ADDRESS Design	<input type="checkbox"/> Vendor QA	_____
<input checked="" type="checkbox"/> Project File	<input checked="" type="checkbox"/> <u>D. Starr</u> (W/ATT)	<input checked="" type="checkbox"/> ESSE PE <u>J. DeBruin</u>	_____
<input checked="" type="checkbox"/> Site Manager	<input checked="" type="checkbox"/> Constr Ctrl Supt	<input checked="" type="checkbox"/> Proj Cost Sched Engr	_____

NOTE: Personnel indicated with an asterisk (*) are to perform a QA review and inform Originator of any comments, or approve and sign, as applicable, by NA (date).

LEAD DISCIPLINE ENGR OR ESSE DESIGNER (Signature) <u>Mike Murphy</u>	DATE <u>9/2/82</u>	PROJ ENGR OR ESSE PROJ ENGR APPROVAL <u>John DeBruin</u>	DATE <u>9/2/82</u>
QA REVIEWER (if indicated above) <input type="checkbox"/> COMMENTS (Attached) <input type="checkbox"/> NO COMMENTS	SIGNATURE <u>Mike Murphy</u>		
SIGNATURE	DATE	SIGNATURE	DATE <u>9/2/82</u>

FIELD EVALUATION 9/2/82

Implement Recommended Disposition Generic Impact - For feedback consideration. Copy to Mgr - Reliability Engineering (PO&B-NY)
 Defer Recommended Disposition

(SR) RESIDENT ENGINEER (SIGNATURE) _____ DATE _____

EBASCO

Interoffice Correspondence

DATE 9/2/82 FILE REF.
TO J. DeBruin OFFICE LOCATION W3 Site - ESSE
FROM *Chugga FOR*
J. Willb OFFICE LOCATION
SUBJECT WATERFORD SES UNIT NO. 3
CONSTRUCTION FOLLOWUP ON SQRT ITEMS

- References: (1) SQRT No. NSSS-ICE-5a
(2) SQRT No. NSSS-ICE-2f
(3) SQRT No. NSSS-ICE-9-1
(4) Procedure CP-307 (Cable Termination & Splices)

The wire bundles identified in References 1, 2 and 3 will be supported in accordance with the requirements for Reference 4.

The supporting of the wire bundles associated with References 1 and 3 will be completed by 9/10/82. The supporting of the wire bundles associated with Reference 2 will be completed by 10/30/82.

RJE/11

cc: W. Yaeger
R. McFadden
M. Strawbridge
R. Esnes
ESSE File P.117

EBASCO SERVICES INCORPORATED
FIELD CHANGE REQUEST

SH 1 OF 2

Section 1 thru 5 to be filled out by Cont. Section. Section 6 to be filled out by Engineering.

PROJECT:

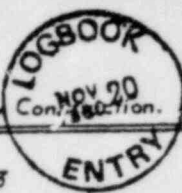
WATERFORD #3

OFFS NO.

NOV 20 1980

FIELD CHANGE NO.

FCR-E-1900



To J. DEBRUIN Dept ESSE Location SITE Date 11-20-80

Re: Drawing No. 1564-B288 ^{C.T.} ^(R3) Title CABLE & CONDUIT INSTALLATION NOTES.

Spec No. _____ Title _____

Other _____

1. DESCRIPTION (Items involved, submit sketch if applicable)

ADHESIVE CABLE TYRUP MOUNTS HAVE BEEN INSTALL ON BOTH SAFETY AND NON-SAFETY PANELS. HOWEVER ~~THESE~~ ^{C.T.} SOME OF THESE ADHERIVE MOUNT HAVE COME OFF FROM THE PANELS DUE TO EXCESS CABLE WEIGHT AND STRESS.

2. AREA OF CHANGE

Technical
Cost
Schedule

Major
 Major (> \$100,000)
 Major (Critical Path)

Minor
 Minor (< \$100,000)
 Minor (Noncrit Path)

3. REASONS FOR CHANGE (If from disposition of nonconformance report, list report number)

DRILL HOLES ON PANELS FOR SCREENS, SO THAT ADHESIVE MOUNTS CAN BE SUPPORTED. REF- RFI- 3048.

4. RECOMMENDED DISPOSITION (Submit sketch if applicable)

Minor Change

Major Change

ADD NOTES ON B288 (CABLE & CONDUIT INSTALLATION NOTES) TO ALLOW TO DRILL SCREENS ON PANELS AND SWITCHGEARS.

(1). SEE ATTACHED SH 3 OF 3.

RECEIVED

NOV 23 1980

8:40

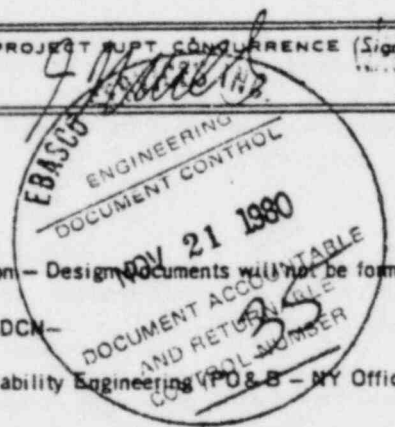
ENGINEERING

Sr Resident Engineer (Signature) [Signature] DATE 11/20/80

PROJECT Supt CONFORMANCE (Signature) [Signature] DATE 11/20/80

6. DISPOSITION

- Not Approved (give reason)
- Considered Minor Change - Approved per Recommended Disposition - Design documents will not be formally revised; field to maintain as-built records.
- Considered Major Change - Action will be taken as prescribed on DCN-
- Generic Impact - For feedback consideration. Copy to Mgr - Reliability Engineering (PO & B - NY Office).



Lead Discipline or ESSE Designee (Signature) [Signature] DATE 11/20/80

Supervising Engr or ESSE Designee (Signature) [Signature] DATE 11/20/80

Supervising Engineer signs and returns to LDE for transmittal to Sr Resident Engineer with copies to:

- Project Engineer ESSE PE
- Project Manager Coordinator
- Project Supt Proj Cost/Sched Engr

Others as Required

RUIDAZ
JMcCABE
J SZCZOTKA

EBASCO SERVICES INCORPORATED

NEW YORK

BY C.T. DATE 11/24/80SHEET 2 OF 2CHKD. BY L.D. DATE 11/26/80.

OFS NO. _____

DEPT.
NO. _____CLIENT LP&LPROJECT WATERFORD #3SUBJECT FCR - E - 1900NOTE :

DRILL HOLES AS REQUIRED INTO

BOTH SAFETY & NON-SAFETY RELATED
EQUIPMENT TO SECURE CABLE TY-MOUNTS.ZINC PLATED STEEL SCREWS,
LOCK WASHERS & NUTS SHALL BE USED
AS ^{FASTENERS} ~~FASTENERS~~. ALL HOLES

WHICH ARE DRILLED FOR THE ABOVE

PURPOSE AND NOT USED SHALL BE

PLUGGED WITH ZINC PLATED STEEL

SCREWS, LOCK WASHERS & NUTS.

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 8</u> SQRT No. <u>SQ-MN-148</u> Relief Valve Specified Item: <u>ISI-2502B</u> Reviewer: M. Russel Ebasco: I. Sydoriak LP&L: K. K. Gala</p>	<p>1. The analysis did not address operability of the valve during a seismic event. Operability during a seismic event is assured by a feature of the valve design. The valve stem connects to the seat via a ball/cup contact area. This prevents transmission of binding loads between the upper and lower bearing surface and accommodates relative displacements/rotations between bearing surfaces.</p> <p>2. The analysis did not include consideration of nozzle loads due to connecting piping. This is acceptable, provided that the connecting piping has itself been seismically qualified, based on the argument that the valve body is much stronger than the connecting piping. The connecting piping has been seismically qualified, as documented in Stress Analysis Calculation number 1020, (4/17/81).</p>	<p>1) Closed</p> <p>2) Closed</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 9</u> SQRT No. <u>SQ-MN-255</u> Globe Valve Specified Item: <u>2HV-V621</u> Reviewer: M. Russel Ebasco: I. Sydoriak LP&L: K. Gala</p>	<p>1. There is a possibility of contact between the valve and an adjacent flange during seismic excitation (1/8" gap). Hand calculations showed rigid response ($f=90.7\text{Hz}$) and a maximum predicted deflection of <u>0.001 "</u>.</p>	<p>Closed</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 5</u> SORT No. <u>NSSS-PE-52</u> FW Control <u>VALVE</u> Specified Item: <u>5FW-FM834</u> Reviewer: M. Russel CE: E. Siegel E. Fitzsimmons</p>	<ol style="list-style-type: none"> 1) Verification of computer program ES 100, Rev. B (4/8/75) is being performed for Item NSSS-PE-25. Results will also be applicable here. 2) The sister valve to this valve (5FW-FM834) had a cable attachment which could be tensioned if thermal motion is in correct direction. A check of the thermal solution for the associated piping showed thermal motion would not tension the cable. 3) Air lines to the valve did not have clearly adequate seismic support. Additional supports will be installed by 9/8/82. Refer to Field Change Request No. FCR-IC-P-451. 4) Air lines were not attached to the valve. This resulted from testing of the valve. What assurance is there that such testing will not compromise valve qualification? 	<p>This is a Confirmatory Item. <i>Supply by 10/3/82</i></p> <p>CLOSED - See Attached Diagram and Deflection Summary.</p> <p>CLOSED ITEM</p> <p>Closed - See LP&L Ltr. W382-1270 dated 9/2/82.</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
Item No. <u>NSSS 5</u> SQRT No. <u>NSSS-PE-52</u> FW Control Specified Item: <u>5FW-FM834</u>	5) The positioner apparently is not included in the seismic analytic model. What is the safety implication if this positioner malfunctions during or after earthquake?	The FW control valves are upstream of the FW isolation valves and actually is not classified as safety related. It is designed to "fail as is". The piping that this valve is connected to is classified as B31.1, namely, not a nuclear piping. In case this valve fails to function, there are two more feedwater control valves in parallel with this one that can take over. CLOSED



LOUISIANA
POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

September 2, 1982

W3S82-1270

TO: R.W. Prados

FROM: T.K. Armington *AK*

SUBJECT: SQRT Audit

- (1) NSSS Item 5 System 72A Feedwater Control Valve 5FW-FM834
- (2) BOP Item 4 System 46H E28 3A-5A Axial Fan

This is to advise you that the instrument air lines which connect to 5FW-FM834, Feedwater Control Valve, were disconnected and plugged to perform a pneumatic system integrity test in accordance with Mercury procedure M123-72A. It is anticipated that this test will be completed by September 3, 1982 at which time the instrument air lines will be reconnected.

In addition, the motor run in on E28 3A-5A Axial Fan will be performed by December 1, 1982.

TKA/RN/st

cc: G.B. Rogers, D.B. Lester, P.V. Prasankumar, A. Pastor, M. Williams,
W. Edwards, R. Novgrod, J. DeBruin, J.C. Hashagen, J.L. Chapdelaine,
Nuclear Records

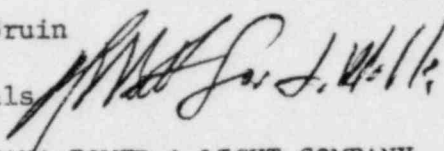
EBASCO SERVICES, INC. PIPING STRESS ANALYSIS
 CALCULATION NUMBER 1047 CODE SECTION III CLASS 2 VI
 WATERFORD UNIT #3 FEEDWATER PIPING 190 FW-176-3-6-7-R-9-10-11-15-16-20-21-22
 COMBIN. CASE NO. II MAX THERMAL OF ALL MODES OUTPUT THERMAL EXPANSION

POINT	DISPLACEMENTS IN INCHES			ROTATIONS IN RADIAN		
	D(X)	D(Y)	D(Z)	R(X)	R(Y)	R(Z)
334	2.030	-0.013	2.592	0.00284	0.006627	-0.00006
335	2.250	-0.001	3.102	0.00250	-0.00631	-0.00029
336	2.289	-0.005	3.197	0.00251	-0.00631	-0.00034
337	2.328	-0.011	3.292	0.00253	-0.00632	-0.00030
338	2.381	-0.019	3.419	0.00257	-0.00634	-0.00045
338S	2.439	-0.029	3.560	0.00257	-0.00634	-0.00045
339	2.497	-0.039	3.700	0.00262	-0.00633	-0.00047
340	2.529	-0.045	3.776	0.00265	-0.00632	-0.00049
341	2.556	-0.050	3.843	0.00281	-0.00619	-0.00045
342	2.611	0.000	4.059	0.00284	-0.00613	-0.00042
343	2.635	0.025	4.096	0.00285	-0.00608	-0.00039
344	2.695	0.071	4.143	0.00285	-0.00608	-0.00039
345	2.698	0.070	4.269	0.00286	-0.00599	-0.00035
346	2.747	0.061	4.384	0.00288	-0.00577	-0.00024
347	2.778	0.057	4.457	0.00289	-0.00549	-0.00011
348	2.823	0.050	4.560	0.00290	-0.00541	-0.00008
349	2.887	0.043	4.684	0.00292	-0.00530	-0.00007
350	2.970	0.036	4.785	0.00294	-0.00519	-0.00006
351	3.106	0.015	5.203	0.00296	-0.00508	-0.00004
352	3.276	0.003	5.568	0.00263	-0.00390	0.00023
353	3.315	0.002	5.650	0.00261	-0.00297	0.00018
354	3.354	0.001	5.730	0.00247	-0.00198	-0.00012
354I	3.388	-0.000	5.798	0.00161	-0.00053	-0.00134
355	3.422	-0.001	5.866	0.00141	-0.00001	-0.00159
356	3.496	0.079	6.082	0.00093	0.00141	-0.00192
357	3.479	0.263	6.286	0.00048	0.00301	-0.00193
358	3.474	0.501	6.499	0.00011	0.00698	-0.00170
359	3.569	0.552	6.600	0.00001	0.01026	-0.00137
360	3.702	0.477	6.613	-0.00002	0.00870	-0.00121
361	4.016	0.263	6.532	-0.00004	0.00901	-0.00105
362	4.315	0.040	6.282	0.00001	0.00923	-0.00073
363	4.239	-0.007	6.077	0.00001	0.00893	-0.00040
364	3.920	0.000	5.952	-0.00002	0.00810	-0.00008
366	2.999	0.007	5.638	-0.00009	0.00693	0.00013
367	1.956	0.006	5.481	-0.00028	0.00551	0.00037
368	0.855	0.004	5.324	-0.00056	0.00392	0.00051
369	-0.292	0.001	5.010	-0.00094	0.00217	0.00055
370	-1.270	0.002	4.381	-0.00120	0.00053	0.00072
371	-1.730	0.009	3.961	-0.00114	-0.00071	0.00121
372	-2.023	0.008	3.221	-0.00078	-0.00157	0.00209
373	-2.185	0.013	2.572	-0.00043	-0.00230	0.00285
374	-2.209	-0.001	2.688	-0.00025	-0.00235	0.00330
375	-2.049	-0.010	1.758	-0.00075	-0.00231	0.00330
376	-1.651	-0.056	1.553	-0.00091	-0.00229	0.00330
377	-1.523	0.001	1.441	-0.00078	-0.00157	0.00209
378	-1.144	0.170	1.368	-0.00043	-0.00230	0.00285
379	-0.730	0.409	1.369	-0.00025	-0.00235	0.00330
380	-2.309	3.657	1.359	-0.00075	-0.00231	0.00330
381	-1.146	0.725	1.355	-0.00091	-0.00229	0.00330

344 is valve center

MEMORANDUM

September 1, 1982.
JLW-82-180

To: J. DeBruin
From: J. Wills 
Subject: LOUISIANA POWER & LIGHT COMPANY
WATERFORD STEAM ELECTRIC STATION
1983 - 1165 MW INSTALLATION - UNIT NO. 3
SQRT Item NSSS-5 (5FW-FM834)
FCR-IC-P-451

In regards to the tubing supports for the air supply for the referenced valve, the installation of these supports will have an estimated completion date of September 8, 1982. It will be in accordance with reference 2.

JLW/kd

cc: R. Maes
M. Strawbridge
W. Yaeger
M. Williams ✓

RUSH SYSTEM STATUS SHEET

DATE 7-14-82

FCR ~~or~~ No. FCR-IC-P-451

Start-Up System 72A PD

1a) System Release Cut-Off has occurred _____

1) System Release Cut-Off has not occurred _____

1b) Complete work before System Release:

* Below review not required if this block checked.

Yes 1 NO AMB
(Assn. Supr. Start-Up Initial; If "NO" Complete Item 3)

Reviewed By: AMB 7/15/82

2) System was released on 12/24/81 ALL
(Complete Item 3)

Asst. Supr. Start-Up J. Spilman 7-14-82
Senior Resident Engineer

3) Post System Release Work Authorization No. WA-72A-15-28A
(Obtain from LPIL Start-Up)

Project Superintendent Joy 7/15/82

4) Work Assignment

Assistant Construction Superintendent Clayton Dwyer

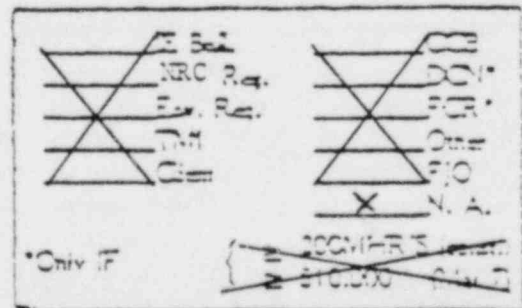
a) Affected By/Contractor REI-1557 / MERCURY

b) Code X Non-code _____

c) Work Assigned To:

- 1) Ebasco Force Account...
- 2) Contractor...

W3-NY-15



FIELD CHANGE REQUEST



Section 1 thru 5 to be filled out by Construction. Section 6 to be filled out by Engineering.

PROJECT: WATERFORD III SES OPS NO. FIELD CHANGE NO. FCR-IC-P-451

To: J. DE BRUIN Dept: ESSE Location: WSES III Date: 7-14-82

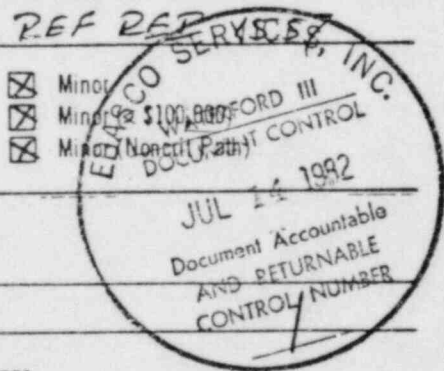
- Re: Drawing No. B430-X23-J38A Title TUBE TRACK SUPPORT (FOR INFO ONLY)
DWC # B430-X23-J25B Title TUBE TRACK SUPPORT (FOR INFO ONLY)
DWC # 1564-G-825A RAB RESTRAINT STEEL

1. DESCRIPTION (Items involved, submit sketch if applicable)
TUBE TRACK SUPPORTS FOR INSTRUMENT AIR INSTALLATION TO CONTROL VALVES SFV-FM-833 AND SFW-FM-834, SUS 72A.

2. AREA OF CHANGE
Technical: [] Major, [] Major (> \$100,000), [] Major (Critical Path)
Cost: []
Schedule: []
Minor: [x] Minor (< \$100,000), [x] Minor (Noncrit Path)

3. REASONS FOR CHANGE (If from disposition of nonconformance report, list report number)
TO PROVIDE CONTRACTOR SUPPORT ATTACHMENTS

4. RECOMMENDED DISPOSITION (Submit sketch if applicable) [x] Minor Change [] Major Change
ATTACH TUBE TRACK SUPPORT X23-J38A AND X23-J25B TO PIPING RESTRAINT #43 DI NODE # NODE 414-W14X176. ATTACH TUBE TRACK SUPPORT X23-J38A TO PIPING RESTRAINT #80 DI NODE 447 W-14X370. ATTACH TUBE TRACK SUPPORT X23-J27B TO PIPING RESTRAINT # 64 D3 NODE 342. TOTAL OF 4 SUPPORTS - SEE ATTACHED SKETCHES



ORIGINATOR: VICTOR FREGNESE

Sr Resident Engineer (Signature) VF 7-14-82 DATE 7-14-82 PROJECT Supt. CONCURRENCE (Signature) Watt/Poy DATE 7/15/82

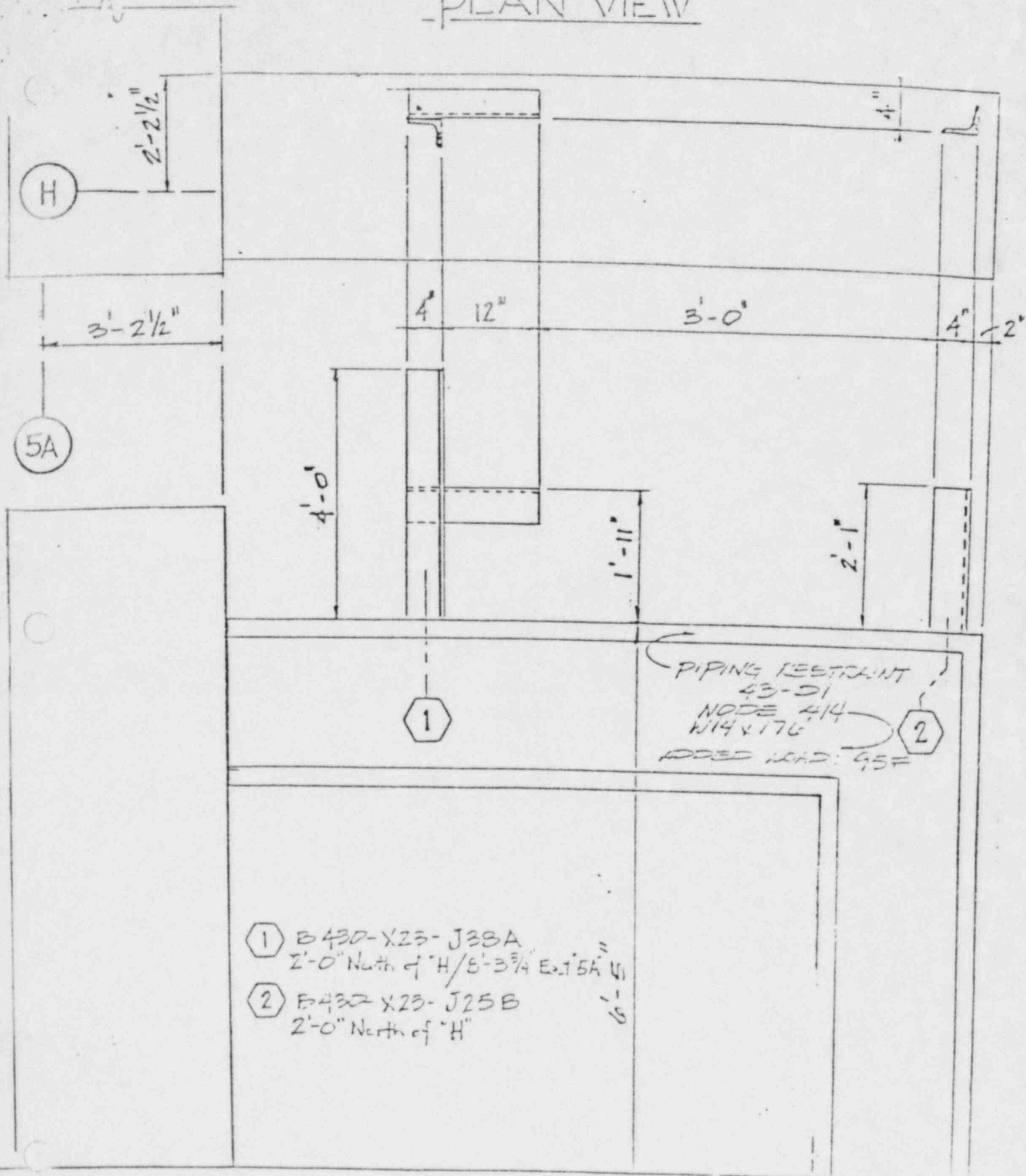
6. DISPOSITION
[] Not Approved (give reason)
[x] Considered Minor Change - Approved per Recommended Disposition - Design Documents will not be formally revised.
[] Considered Major Change - Action will be taken as prescribed on DCN-
[] Generic Impact - For feedback consideration. Copy to Mgr of Feedback Program (Engrg) - NY Office.

EBASCO SERVICES, INC. RECEIVED JUL 15 1982 ENGINEERING DOCUMENT DEPT. WATERFORD 3 FIELD

Supervising Engineer (Signature) DATE 7/14/82 SUPERVISING ENGR OR ESSE DESIGNEE (Signature) DATE 7/15/82

Supervising Engineer signs and returns to LDE for transmittal to Sr Resident Engineer with copies to: Project Engineer, Project Manager, Project Supt, P&S B (NO), ESSE PE, Coordinator, Proj. Cost/Sched. Engr, Constr. Cont. Supt, Others as Required, S. STABE, L. BILLER, T. DETORRES, E. DOMENECH

PLAN VIEW



- ① B430-X23-J38A
2'-0" North of "H" / 3 3/4" E. of "5A"
- ② B432-X23-J25B
2'-0" North of "H"

PIPING RESTRAINT
43-01
NODE 414
W/14 x 176
ADDED LOAD: 95F

FCR-IC-P-451

SHEET 2 OF 3

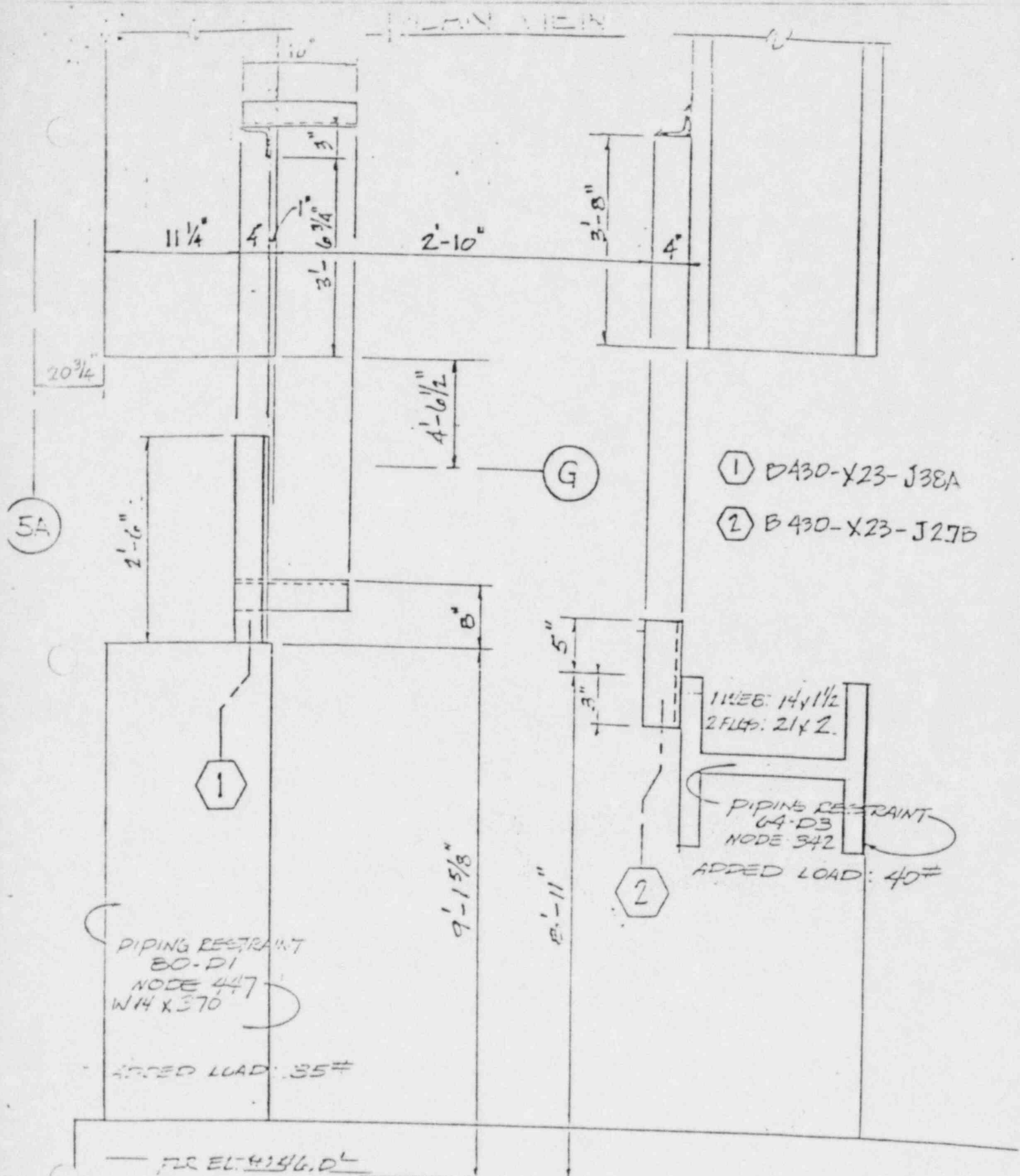
BY: V. FREQUENSE

CK: *[Signature]*

DATE: 7-14-82

FLL. EL. (H) 46.0'

ELEVATION



FCR-70-P-451
 SHEET 3 OF 3
 BY: V. FREGONESE
 CK: JF
 DATE: 7-14 E2

ELEVATION

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 1</u> SQRT No. <u>SQ-E-10</u> 20KVA Inverter Specified Item: <u>3MB-S</u> Reviewer: J. Singh Ebasco: A. DeVito Z. T. Shi</p>	<p>1) Missing screws on "top hat" section of SUPS. 2) Bolting of SUPS cabinets together.</p>	<p>"Top hat" will have remaining screws installed after completion of cable pulling. To be installed 9/2/82 - CLOSED Cabinets to be bolted as per DCN NY-E-842 issued 3/26/82, however, due to unavailability of materials the bolts are not in place yet; they will be installed by 9/15/82 - CLOSED</p>

EBASCO SERVICES INC. INCORPORATED
DESIGN CHANGE NOTIFICATION

61311-12

PROJECT WATERFORD SES UNIT NO. 3
DESIGN CHANGE NO. DCN-NY-E-842

To: W. YAEGER (SR) RESIDENT ENGINEER Dept: CONSTRUCTION Location: SITE Date: 3-26-82

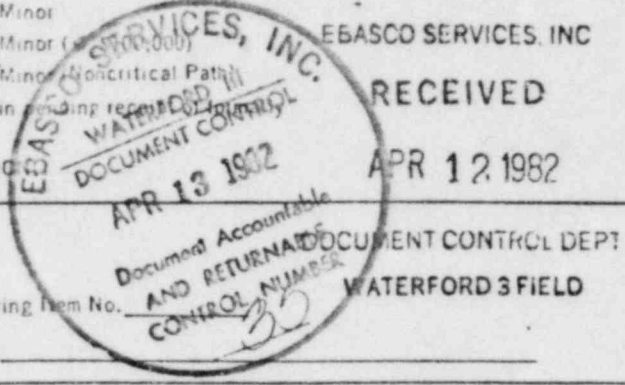
Re: Drawing No. 1564-1829(R4), 1564-1514(R4) Title: Inverter Outline
 Specification No. Page:
 Other

ANTICIPATED REVISION DATE OF FORMAL DOCUMENTS

AREA OF CHANGE: Technical Major Minor
Cost Major (>\$100,000) Minor (<\$100,000)
Schedule Major (Critical Path) Minor (Noncritical Path)

Engineering "Hold" placed on construction activities in area defined herein pending receipt of revised document(s) and/or revised DCN. PE signature not required.
 Released for construction on basis of modification(s) prescribed by this DCN

Applicable documents will be revised by:
 Home Office
 Ebasco Site Support Engineers (Project Engineer to assign Open Engineering Item No.)
 As-built drawing by Resident Engineer's staff Other



PROPOSED CHANGE DESCRIPTION REASON FOR CHANGE

Bolting details for clamping of sections of SUPS 3MA-S, 3MB-S, 3MC-S, 3MD-S, 3AB.

Field Change Request (FCR No. _____)
 Required modifications to design or specification
 Disposition of nonconforming item
 Changes in regulatory or other requirements
 Operational experience
 Other To upgrade seismic capability of SUPS panels

EXHIBITS ATTACHED No Yes - If Yes, Check Applicable Box(es)
 Copies of marked-up area of drawing(s) Other (Describe) _____
 Field Change Request (FCR No. _____)

COMMENTS SCHEDULED ERECTED/PLACEMENT DATE(S)

ORIGINATOR Bruce Murray DATE 3-26-82

DISTRIBUTION (Check as applicable and fill in name. Indicate with an asterisk (*) personnel who are to perform a QA review)

M-N Engr
 Civil Engr R.T. Shi W/ATT
 Elec Engr R. VIDAL W/ATT
 HVAC Engr
 Plumbing Engr
 I & C Engr M. MALLADI W/ATT
 WT Engr
 IPOS-B - Site
 POS-B - HO
 Project File
 Site Manager
 Design
 Design
 Design J. SZCZOTKA W/ATT
 Design
 Design A. YEREM
 Design
 RW Engr
 ADDRESS Design
 ESSE-ELEC. J. D'AGOSTARO
 Constr Ctrl Supt
 Project Mgr
 Project Engr J. PADALINO
 Coordinator R. KRETSCHMER W/ATT
 Orig Disc. Supvr B.M. SCHUTZBAK
 Nuc Safety
 PQAE
 Project Supt
 Appl Phys
 Vendor QA
 ESSE PE J. DeBRUIN
 Proj Cost/Sched Engr

NOTE: Personnel indicated with an asterisk (*) are to perform a QA review and inform Originator of any comments, or approve and sign, as applicable, by 3-30-82 (date). Comments received and incorporated 3-30-82 Bruce Murray

LEAD DISCIPLINE ENGR OR ESSE DESIGNEE (Sign.) DATE 3-31-82
REVIEWER (if indicated above) DATE 4/2/82
 COMMENTS (Attached) NO COMMENTS
SIGNATURE DATE
BMSchutzbak/RJdancs 4/2/82
SIGNATURE DATE

FIELD EVALUATION Implement Recommended Disposition Generic Impact - For feedback consideration Copy to Mgr - Reliability Engineering (POS-B-NYO)

EBASCO SERVICES INCORPORATED

BY BEM DATE 3-26-82

SHEET 2 OF 3

CHKD. BY RL DATE 3-26-82

OFFS NO. _____ DEPT. NO. _____

CLIENT LP&L

PROJECT Waterford #3

SUBJECT SUPS Panel Seismic Bolting

Bolt SUPS units together as shown
on SK-DCN-NY-E-842-52

Notes:

1. Bolts are to be 5/16 x 24 grade 8, (ASTM) (SAE) R2
al.kc
2. Steel spacers are to be 3/4" schedule 160 steel pipe.
3. Hole locations are ± 2"
4. Spacer length to be as required to maintain 1 3/4" cabinet spacing.

Data obtained from SUPS Seismic Report
from Batelle Labs dated 11/27/77

SK-DCN-NY-E-842-51

REF: 1564-1829 (R4)
1564-1514 (R4)

EBASCO SERVICES INCORPORATED

BY BEM DATE 3-26-82

SHEET 3 OF 3

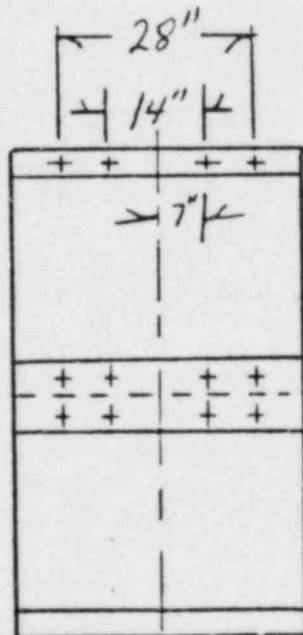
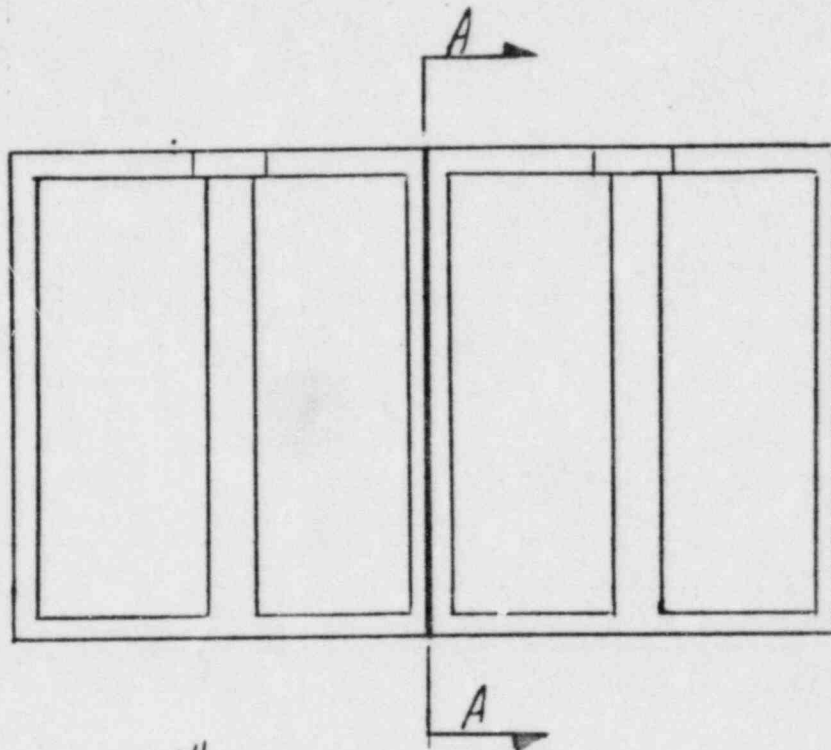
CHKD. BY RJC DATE 3/26/82

OFS NO. _____ DEPT. NO. _____

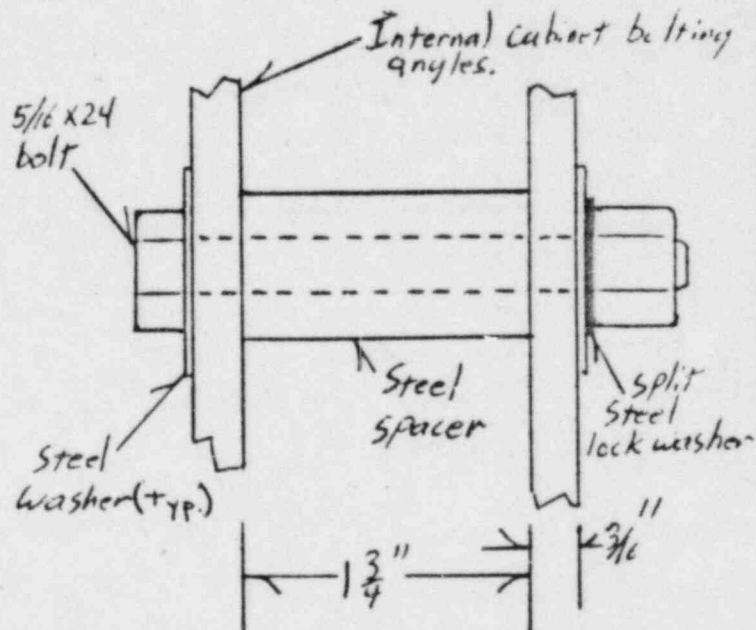
CLIENT LP&L

PROJECT Waterford # 3

SUBJECT SUPS Panel Seismic Bolting



Section A A
(+ denotes bolt locations)



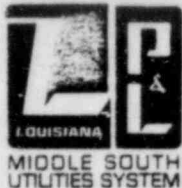
SK-DEN-N/E-842-52
REF: 1514-1829(R4), 1514-1514(R4)

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

9/1/82

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 4</u> SQR No. <u>SO-HV-11</u> Axial Fan Specified Item: <u>E28</u> Reviewer: J. Singh Ebasco: H. Parikh R. Alexandru</p>	<p>The axial fan is installed but the balancing on the system in the field is yet to be performed. Provide the schedule for balancing.</p> <p>The source of critical stresses and deflections is not available. Provide a comparison of stresses to allowables and a critical deflection comparison.</p>	<p>Closed - See LP&L Ltr. W3S82-1270 dated 9/2/82.</p> <p>Closed</p>



LOUISIANA
POWER & LIGHT / INTER-OFFICE CORRESPONDENCE

September 2, 1982

W3S82-1270

TO: R.W. Prados

FROM: T.K. Armington *AK*

SUBJECT: SQRT Audit

- (1) NSSS Item 5 System 72A Feedwater Control Valve 5FW-FM834
- (2) BOP Item 4 System 46H E28 3A-5A Axial Fan

This is to advise you that the instrument air lines which connect to 5FW-FM834, Feedwater Control Valve, were disconnected and plugged to perform a pneumatic system integrity test in accordance with Mercury procedure M123-72A. It is anticipated that this test will be completed by September 3, 1982 at which time the instrument air lines will be reconnected.

In addition, the motor run in on E28 3A-5A Axial Fan will be performed by December 1, 1982.

TKA/RN/st

cc: G.B. Rogers, D.B. Lester, P.V. Prasankumar, A. Pastor, M. Williams,
W. Edwards, R. Novgrod, J. DeBruin, J.C. Hashagen, J.L. Chapdelaine,
Nuclear Records

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 8</u></p> <p>SQRT No. <u>NSSS-ICE-10-1</u></p> <p>RTD</p> <p>Specified Item: <u>TE-RC-112HC</u></p> <p>Reviewer: M. Russell CE: T. MacNair</p>	<p>1. The testing did not allow consideration of multimodal response despite the fact that the RTD has natural frequencies at 20, 25 and 33 Hz. However, a review of spectrum for the plant showed no significant dynamic excitation above 5 Hz. Therefore, there is no location in the plant, including line mounting locations, which will excite the modes of the RTD, therefore, the single frequency testing performed is adequate.</p>	<p>Closed</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 10</u> SQRT No. <u>NSSS-ICE-3</u> Reactor Trip Switchgear Cabinet Specified Item: Reviewer: M. Russell CE: T. MacNair</p>	<p>1. The test installation used high strength bolting. This raised a concern since the field bolting was not clearly high strength bolting. The concern was addressed by noting that the testing was performed at levels sufficiently above those required to insure that any reasonable bolting material would be adequate for the field installation. The ratio of applied vs. required acceleration level at the natural frequency (S-S and F-B) of the cabinet is 25. Applying this to the yield strength of the bolting material gives a field bolting required yield strength of 6.6 Ksi.</p> <p>2. The TRS does not envelope the RRS under 2.4 Hx. No natural frequency information concerning the circuit breakers can be obtained from the test data. This raises the concern that the breakers may not operate due to a seismic event with the prelisted peak acceleration content under 2.4 Hz. However, since the breaker mechanism is designed to operate very rapidly to prevent damage, the individual component parts are very compact, very strong and therefore, have individual natural frequencies well above 2.4 Hx. In addition, the breaker mechanism is loaded by a strong spring in the normal position, which would prevent motion resulting from clearances in the mechanism, therefore the mechanism should also have a natural frequency above the 2.4 Hz range. Therefore,</p>	<p>Closed</p> <p>Closed</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 12</u> SQRT No. <u>NSSS-ICE-15</u> CEDM Reed Switch Position Transmitter Specified Item: Reviewer: M. Russell CE: T. MacNair</p>	<p>The CEDM, which houses the transmitter, was tested biaxially, but only in one horizontal axis. This was based on the assumption that the CEDM is symmetrical about the vertical axis. While this may be true for the CEDM, it is not true for the transmitter, and there is no assurance of seismic qualification.</p> <p>An investigation revealed that this oversight was caught and transmitter qualification for subsequent nuclear projects included testing in two orthogonal horizontal axis. These subsequent tests were performed at levels substantially higher than those required for Waterford III. The reed switch design was the same as Waterford III. This strongly suggests an adequate seismic design for the Waterford III transmitter. Receipt of a test report confirming the above will close this issue.</p>	<p>This is a confirmatory item.</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>NSSS 4</u></p> <p>SQRT No. <u>NSSS-PE-33</u></p> <p>Holdup Tank C</p> <p>Specified Item: <u>Tank C</u></p> <p>Reviewer:</p> <p>R. W. Macek (EG&G)</p> <p>E.A. Siegel (CE)</p> <p>K. K. Gala (LPL)</p> <p>J. Tompeck (Ebasco)</p>		<p>All items from previous audit have been Closed. <i>Modification of tank seismic supports by 11/15/82</i></p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

RESOLUTION

OUTSTANDING ISSUES

EQUIPMENT DESCRIPTION

Item No. BOP 7

SQRT No. SQ-MN-57

Diaphragm Valve

Specified Item: 7FS-V130

Reviewer: J. Singh (EG&G)
I. Sydoriak (Ebasco)
K. K. Gala (LP&L)

Closed

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No.: <u>NSSS</u></p> <p>SQRT No:</p> <p>Rosemount Pressure Transmitters</p> <p>Specific Item: PT-101D</p> <p>Reviewer: J. Singh EG&C C.E.: T. MacNair</p>		<p>Closed.</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 3</u> SQRT No. <u>SQ-E-84</u> Level Switch Specific Item: <u>Diesel "A"</u> Reviewer: R. W. Macek (EG&G) Z. T. Shi (Ebasco) A. DeVito (Ebasco) K. K. Gala (LP&L)</p>	<ol style="list-style-type: none"> 1. Table 1 pg. 205 indicates chattering of switch. Is the chattering allowable? 2. During field inspection it was noted that unit was free to rotate 1/4 turn. Is this as designed? If not it should be corrected. 3. A 5' length of power lead cable was unsupported. This should be corrected in the field or shown to not induce significant loads on the electrical connections. 	<p>Closed. Vendor is contacted and it is confirmed that no functional requirement during the seismic event. Closed.</p> <p>Unit has been secured 9/2/82 - Closed</p> <p>Closed</p>

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT
SUMMARY SHEET
AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP 6</u></p> <p>SQRT No. <u>SQ-HV-39</u></p> <p>Gravity Damper</p> <p>Specific Item: <u>GD-14</u></p> <p>Reviewer:</p> <p>R. Macek (EG&G)</p> <p>H. Parikh (Ebasco)</p> <p>Z. T. Shi (Ebasco)</p> <p>K. K. Gale (LPL)</p>	<ol style="list-style-type: none"> 1. Sect. VII of SQRT form is incorrect; revise in audit package. 2. What standards used for computing allowable stresses? 3. No allowables are given for bearings. Verify that the computed loads are less than the allowables. 	<p>Closed (See Attached)</p> <p>Closed - The allowable stresses are 0.9 minimum yeild. Minimum yield is 26,000 psi. This is based upon American Warming & Ventilating's experience on material test. The allowable load for the ball bearing is 1810. This is shown on Page 29 of the seismic report.</p> <p>Closed</p>

VII. If Qualification by Analysis, then complete:

1. Method of Analysis:

Static Analysis Equivalent Static Analysis *

Dynamic Analysis: Time-History Response Spectrum

2. Natural Frequencies in Each Direction (Side/Side, Front/Back, Vertical):

S/S = 349.9 Hz F/B = V =

3. Model Type: 3D

2D

1D

Finite Element Beam

Closed Form Solution

4. Computer Codes:

In House Program

Frequency Range and No. of modes considered: Rigid

Hand Calculations

5. Method of Combining Dynamic Responses:

Absolute Sum SRSS

Other:

(specify)

6. Damping OEE

SSE

Basis for the damping used:

7. Support Considerations in the model:

Blades were considered

8. Critical Structural Elements:

Simply supported.

A. Identification	Location	Governing Load or Response Combination	Seismic	Total	Stress
			Stress	Stress	Allowable

Blade

GD-14(SB)

SSEAP4DL

2717 PSI

23,400 PSI

[REF. PAGE 12, AWW SEISMIC CALC.]

B. Max. Critical
Deflection

0.103 INCH

Location

BLADE

Maximum Allowable Deflection
to Assure Functional Opera-
bility

0.103 INCH

[REF. PAGE 12
AWW SEISMIC CALC.]

* 1.g was used in the analysis in both horizontal and vertical directions.

12/80

BY: KG

6/2/81

LOUISIANA POWER & LIGHT
SEISMIC QUALIFICATION AUDIT

SUMMARY SHEET

AUGUST 30, 1982-SEPTEMBER 3, 1982

EQUIPMENT DESCRIPTION	OUTSTANDING ISSUES	RESOLUTION
<p>Item No. <u>BOP-</u></p> <p>SQRT No.: <u>SQ-MN-106</u></p> <p>4"-300# Gate Valve Anchor Darling</p> <p>Specific Item: <u>3CD-V400A/B</u></p> <p>Reviewer: J. Singh Ebasco: I. Sydoriak</p>		CLOSED