Private Fuel Storage, L.L.C.

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John L. Donnell, P.E., Project Director

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

June 2, 2000

COMMITMENT RESOLUTION LETTER #34
DOCKET NO. 72-22 / TAC NO. L22462
PRIVATE FUEL STORAGE FACILITY
PRIVATE FUEL STORAGE L.L.C.

A meeting was held on May 25, 2000 in San Antonio, Texas between Private Fuel Storage (PFS), Stone and Webster (S&W), and the NRC/CNWRA to discuss several open issues remaining with the Private Fuel Storage Facility (PFSF) Safety Analysis Report (SAR). The topics discussed and the PFS actions necessary to resolve these issues are outlined below.

GEOTECHNICAL

Several issues were discussed relating to bearing capacity and sliding stability analyses of the cask storage pads and the Canister Transfer Building.

1. The NRC indicated that PFS has not demonstrated that the total stress strength parameters were determined for ranges of stresses applicable to the final stresses that are expected under the pads and the Canister Transfer Building due to the design basis ground motion. The NRC indicated that there were three approaches that they would consider acceptable to resolve this concern. PFS could remove the bearing capacity analyses that were based on the total-stress parameters. Alternatively, PFS could test additional samples at stresses that are high enough to demonstrate that the total-stress strength parameters being used in the analyses do not overshoot the undrained strength that is applicable for these partially saturated soils when they are loaded to stresses high enough to result in complete saturation. Finally, PFS could perform additional tests on saturated specimens of these soils to determine their effective-stress strength and use that strength in the analyses.

NMSS01 Public

PFS Response

PFS agreed to remove the portions of the static bearing capacity analyses that were based on the total-stress strengths.

2. The analyses of the sliding stability of the cask storage pads indicate that sufficient sliding resistance will be provided by the soil cement that will be constructed above the base of the pads if the soil cement has an unconfined compressive strength that exceeds 250 psi. The NRC requested that this compressive strength of 250 psi and QA testing during construction to verify the strength of the soil cement must be made part of the licensing commitments for the facility.

PFS Response

PFS concurred with the requirement that the soil cement beneath and surrounding the cask storage pads will be designed and constructed to have a minimum unconfined compressive strength of 250 psi and that QA testing will be performed during construction to demonstrate that this minimum strength is achieved. This commitment will be clarified in SAR Chapter 2, Section 2.6.4.11, which currently discusses "Soil-Cement Mix and Procedure Development".

3. The NRC suggested that PFS revise the dynamic bearing capacity analyses of the Canister Transfer Building to use only the undrained strength of the clayey soils, rather than using the total-stress strength. They indicated that it is reasonable to use an average value of the strength for the soils within a depth equal to the width of the foundation. They suggested that PFS justify using an increase in the value of the undrained strength that was measured in the laboratory tests on specimens from the weakest zones within the profile based on the relative increase in the undrained strength of the underlying soils that was observed in the cone penetration test results.

PFS Response

PFS agreed to remove the portions of the dynamic bearing capacity analyses that were based on the total-stress strengths. PFS will reanalyze the dynamic bearing capacity using an average undrained strength that is applicable for a depth equal to the width of the foundation, basing this strength on the relative difference between the strength measured in the laboratory tests performed on samples obtained from the weakest portion of the profile and the undrained strengths measured in the CPT tests.

4. The NRC indicated that PFS must construct an engineered mechanism (i.e., a shear key) in order to rely on the cohesive strength of the in situ clayey soils to resist sliding of the Canister Transfer Building. In addition, PFS cannot rely on published results of dynamic tests performed on similar clays to justify using an increase in static strength of the clay to resist sliding due to the dynamic loads due to the design basis ground motion. In order to justify such an increase, PFSF must perform dynamic laboratory tests on soils obtained from the site near the base of the building. Alternatively, they suggested that PFS include the passive resistance acting on the edge of the mat to demonstrate that there is sufficient resistance to sliding without relying on the 50% increase in static strength of the clay to resist the dynamic horizontal load due to the design basis ground motion.

   PFS Response:

   PFS will add a one-foot deep key to the perimeter of the Canister Transfer Building mat to address concerns the NRC expressed about using the cohesive strength of the clayey soils to resist sliding. This key will force any potential sliding failure to pass within the clayey soils, guaranteeing that the resistance to sliding will be provided by the cohesive portion of the strength of the soils enclosed within the box defined by the perimeter key. PFS will revise the sliding stability analyses to use the shear strength measured in the direct shear tests for the stress levels existing under the Canister Transfer Building. PFS will also add the passive resistance acting on the Canister Transfer Building mat to the sliding stability analysis. Preliminary analyses indicate that these changes will result in acceptable factors of safety for all loading cases without relying on the increase in the static strength that is applicable for rates of strain associated with dynamic loadings due to the design basis ground motion.

The calculation package addressing bearing capacity and sliding stability analyses of the cask storage pads and the Canister Transfer Building will be revised as discussed above and submitted to the NRC by June 16, 2000. The PFSF license application will be updated as required and submitted to the NRC by June 23, 2000.

CANISTER TRANSFER BUILDING CRANES AND SEISMIC SUPPORT STRUTS

NRC Questions/Comments

1. The seismic ground accelerations in the new probabilistic design basis are lower, however the dynamic soil properties resulted in increased accelerations at the crane rail elevations in the building. PFS needs to provide additional information on the

evaluations that were performed to demonstrate that stresses are within allowable limits and design safety factors are appropriate.

PFS Response

The PFSF overhead and semi-gantry cranes have been seismically analyzed in accordance with ASME NOG-1 to ensure they will remain in place and support the load during and after a seismic event. The analyses were performed for both cranes by the crane vendor, Ederer Incorporated, to qualify the crane designs for the PFSF deterministic design earthquake (0.67g horizontal, 0.69g vertical). The cranes were subsequently reviewed by Ederer for their seismic stability based on the current PFSF probabilistic design basis ground motion of 0.53g horizontal and 0.53g vertical and resulting response spectra curves. The Ederer evaluation is summarized in SAR Chapter 4, Section 4.7.2.5.3. A copy of the Ederer evaluation (SAR Reference 63) is included as Attachment 1 and should provide the additional information requested.

2. The load cases and supporting discussion presented in the SAR for the design of the Canister Transfer Building are adequate for the overall building evaluation. PFS has stated that during the detailed design phase, all load cases as described in SAR Chapter 3 and all areas will be addressed in detail. The NRC needs additional information (drawings referenced in calculation SC-10) on the design of the seismic support struts used in the canister transfer cells.

PFS Response

The drawings included in the reference section of S&W calculation 0599602-SC-10, Revision 0, "Seismic Restraints for Spent Fuel Handling Casks" are included as Attachment 2. Please note that drawing 0599601-EM-4-B is not included. This is a general arrangement drawing of the Intermodal Transfer Point and should not have been referenced in calculation 0599602-SC-10.

CASK TRANSPORTER/ONSITE EXPLOSIONS/ONSITE FIRE HAZARDS

NRC Questions/Comments

1. PFS should assess the affect of a seismic event and the impact from a tornado driven missile on a storage cask that is being transported to the storage pad using the cask transporter.

PFS Response

PFS will assess the affect of a seismic event as well as the affect of the impact from a tornado driven missile on a storage cask that is being transported to the storage pad using the cask transporter.

The results of this assessment will be provided to the NRC by June 16, 2000. The PFSF license application will be updated as required and submitted to the NRC by June 23, 2000.

2. The current evaluation for onsite explosions in SAR Chapter 8 considers the rupture of the entire contents of the propane storage tank (20,000 gallons), mixing with air before ignition, and a subsequent explosion equivalent to a detonation of TNT. The explosion is assumed to occur at a distance of 1,384-ft from the Canister Transfer Building and the nearest storage cask and it demonstrates that the resulting overpressure will not exceed 1.0 psi. PFS should evaluate possible movement of the propane vapor cloud combined with delayed ignition and determine the resulting overpressure on the Canister Transfer Building and the nearest storage cask. The potential for buildup of propane vapor and possible ignition in the Canister Transfer Building should also be evaluated.

PFS Response

PFS will assess the scenarios of delayed ignition with vapor cloud dispersion for both an instantaneous tank failure (release of 20,000 gal) and a break of the largest pipe attachment to the tank. The wind speeds and atmospheric stability conditions used will be the worst realistic case based on the meteorological data for the site. Software programs U.S. EPA SCREEN3 and TSCREEN will be used for these calculations. The results will be used to evaluate the impact on the Canister Transfer Building (including possible propane concentration at or around the building) and the storage casks.

The evaluation as discussed above will be submitted to the NRC by June 16, 2000. The PFSF license application will be updated as required and submitted to the NRC by June 23, 2000.

3. Do the fire scenarios evaluated and presented in SAR Chapter 8 for the Canister Transfer Building consider the effects of flame height on SSCs important to safety?

PFS Response

Yes. The calculations made for the fire scenarios presented in the SAR calculated a flame height of 3.74 m from the tire fire. Based on the work of Blinov and

Khudiakov, as reported in Figure 3-11.2 of the SFPE Handbook of Fire Protection Engineering, Second Edition (p3-199), the flame height for the diesel fuel spill would be 5.1 m. The low bay ceiling is 9.1 m. With this ceiling height, the estimated flame heights and the worst-case plume temperatures calculated, it is unlikely that there would be any flame impingement on the ceiling, even directly above the pool fire. The crane is more than 16.7 m above the floor and at least 5 m horizontally from the worst case fire scenario. Therefore, no flame or plume impingement should effect the structural integrity of the crane or its supports.

The PFSF license application will be updated as required and submitted to the NRC by June 23, 2000.

AIRCRAFT AND ORDINANCE CRASH HAZARD ASSESSMENT

PFS provided a summary update of new information obtained from the U.S. Air Force with regard to the following issues:

- Hazards posed by aircraft flights into and out of Michael Army Air Field
- Hazards posed by aircraft flying to and from Hill Air Force Base and over the UTTR
- Hazards posed by the firing of air delivered munitions on the UTTR
- Cumulative impact of aircraft accident potential

The "Aircraft Crash Impact Hazard at the Private Fuel Storage Facility" dated February 2, 2000 will be revised to include this new information and submitted to the NRC by June 2, 2000.

If you have any questions regarding this response, please contact me at 303-741-7009.

Sincerely

JL Cooper for

John L. Donnell
Project Director
Private Fuel Storage L.L.C.

Enclosure

Copy to:

Mark Delligatti-1/1
John Parkyn-1/0
Jay Silberg-1/1
Sherwin Turk-1/0
Asadul Chowdhury-1/1
Murray Wade-1/0
Scott Northard-1/0
Denise Chancellor-1/1
Richard E. Condit-1/0
John Paul Kennedy-1/0
Joro Walker-1/0

ATTACHMENT 1

EDERER Evaluation

(25 pages)

EDERER INCORPORATED ISO 9001 Certified	FAX
Sent: September 1, 1999 (12:36PM)	Pages {including this page}: (26 pages)
From: SCOTT ANDERSON	Project: F-2621/22
To: JERRY COOPER / STAN MACIE, STONE & WEBSTER 303 741 7806	
Subject: SKULL VALLEY: HIGHER SEISMIC ACCELERATIONS	

Dear Mr. Cooper,

Here is our engineering dept. preliminary review of the estimated effects which the new seismic response spectra will have on the 2 cranes for the Skull Valley Project. I hope that this work is timely and to your satisfaction, and please let me know immediately if you require anything additional.

For tracking purpose we have about 8 hours of engineering time into this investigation. In the future at a convenient time both Ederer and SWEC will have to discuss any possible cost price increases which there may or may not be.

Sincerely,

Scott Anderson
Project Manager

cc: Randy James, Anatech. 619 455 1094

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The Phase I, Initial Detailed Engineering for Ederer Job Nos. F2621 (200T Bridge Crane) and F2622 (150T Semi Gantry Crane) was carried out using the response spectra curves per the original specification attachment 9, and are included in Appendix A. Revised curves are dated 8/30/99 and are also included in Appendix A, Table 1 gives a comparison between the original and revised curves on the basis of peak acceleration, frequency and percent increase (or decrease) in peak acceleration. Tables 2 and 3 list the maximum percentages of allowable stress for the various components analyzed in the seismic analysis that was originally done on these cranes. Since the peak accelerations occur at relatively low frequencies (≅ 3-4hz horizontal, and ≅ 6-7 hz vertical) and, these frequencies are close to typical crane structural natural frequencies, a dynamic analysis would have to be done to really define how the structural loading might vary. This would be especially true if a particular mode were close to either the increasing or decreasing side of the response curve. Comparison of the static peak accelerations will however, give an indication of the results of a dynamic analysis.

For the 200T bridge crane, the vertical peak change is + 14%. The N-S lateral forces are governed by wheel slip and will remain constant. Since the bridge girders, trolley trucks, trolley girder and equalizing sill are at approximately 90% or more of the allowable stress and this margin should be maintained, the section moduli would have to increase approximately 14%. The bridge trucks will be also affected by the large E-W horizontal peak change (+100%). They are however at a lower % allowable stress of ≅72%. The section modulus for the trucks would then have to increase approximately 10%. See Appendix A for a sample calculation.Our conclusion is that the bridge crane will still fit in the same envelope as shown on PA-2189, Rev. B but will be somewhat heavier.

For the 150T gantry crane the vertical peak change is +14% on the west end and +8% on the east end. The N-S lateral forces are governed by wheel slip and will remain constant. The E-W lateral peak change is +100% on the west end and −17% on the east end. The equalizing sill, end tie, and gantry trusses are at low enough % allowable stress that they should remain unchanged. The bridge girder, trolley tuck and trolley girder section moduli would increase by approximately 12%. The gantry leg section modulus would increase approximately 50% at the top end and remain the same at the bottom. The joints at the girder/leg interface and the girder/truck interface would have to increase in strength to handle the increased E-W lateral loading. The bridge trucks will be affected by the vertical peak change and the large E-W horizontal peak change at elevation 170 ft. They are however at a % allowable stress of ≅75%, similar to the bridge crane. The section modulus for the trucks would then have to increase approximately 10%. See Appendix A for a similar sample calculation. In conclusion, we expect that the semi gantry crane will still fit in the same envelope as shown on PA-2190, Rev. C but will be somewhat heavier.

This analysis deals with technical issues, commercial issues will be dealt with in separate correspondence.

Fred Langford, C.E. Mechanical

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By FEC Date 8/31/99 Sheet No. ___ of ___
Chkd. ______ Date ______ Job No. F2621/82

Subject: Table 1

		Attach 9 Peak	f	8/30/99 Peak	f	Δ %
Vertical peak	170'	2.9	6 hz	3.3	7 hz	14
N-S	170'	3.95	3 hz	4.6	4 hz	16
E-W	170'	6.8	3 hz	13.6	4 hz	100
Vertical peak	100'	2.7	6 hz	2.92	7 hz	8
N-S	100'	3.6	3 hz	3.9	4 hz	8
E-W	100'	4.1	3 hz	3.4	3 hz	-17

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Rev.	Description	Date	By	Chkd.

By FEC Date 8/31/99 Sheet No. ___ of ___

Chkd. ______ Date ______ Job No. FX-21/22

Subject: Table 2 150T Semi Gantry

Report Page	Member	Trolley	Load/hook	Max % Allow.
4-18	Bridge girder	midspan	150T/HL	86.2
4-13	Equalizing sill	midspan	150T/HL	39.7
4-3	Trolley truck	1/4 span	150T/HL	96.3
4-3	Trolley girder	1/4 span	150T/HL	98.8
4-13	Bridge truck	1/4 span	150T/HL	75.3
4-13	End tie	1/4 span	150T/HL	55.9
4-13	Gantry leg	1/4 span	150T/HL	96.3
4-12	Gantry truss	1/4 span	No load	54.9

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Rev.	Description	Date	By	Chkd.

By FEL Date 8/31/99 Sheet No. ___ of ___
Chkd. ______ Date ______ Job No. F9621/22

Subject: Table 3

Report Page	Member	Trolley	Load/hook	Max % Allow
4-17	Bridge girder	midspan	200T/HL	96.2
4-17	Equalizing STH	midspan	200T/HL	89.1
4-7	Trolley truck	W end	200T/HL	98.8
4-7	Trolley girder	W end	200T/HL	98.7
4-7	Bridge truck	W end	200T/HL	71.9

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Rev.	Description	Date	By	Chkd.

By ______ Date ______ Sheet No. ___ of ___

Chkd. ______ Date ______ Job No. ______

Subject: ______

APPENDIX

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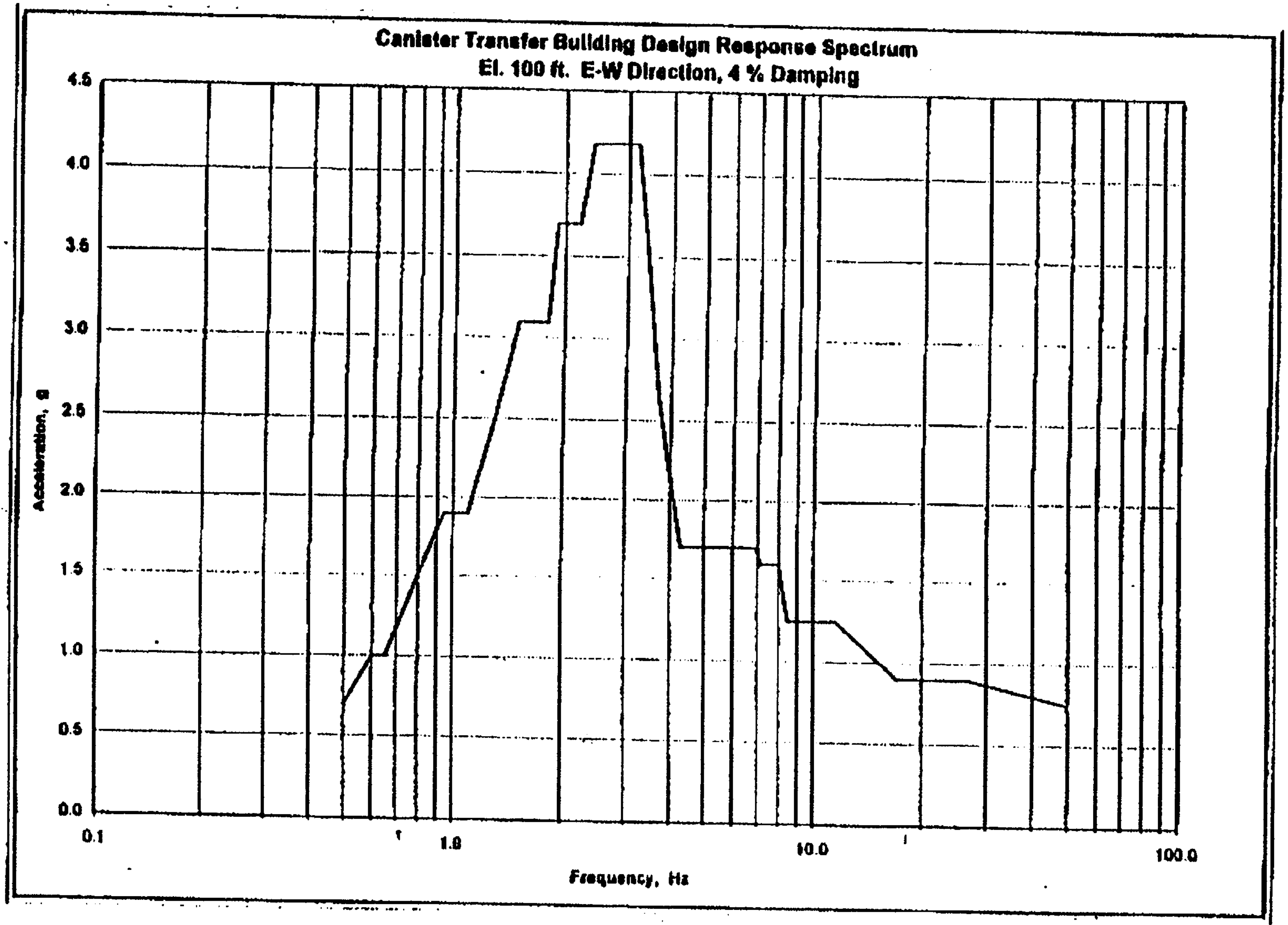
Rev.	Description	Date	By	Chkd.

ATTACHMENT 9

DESIGN RESPONSE SPECTRA

ATTACHMENT 9



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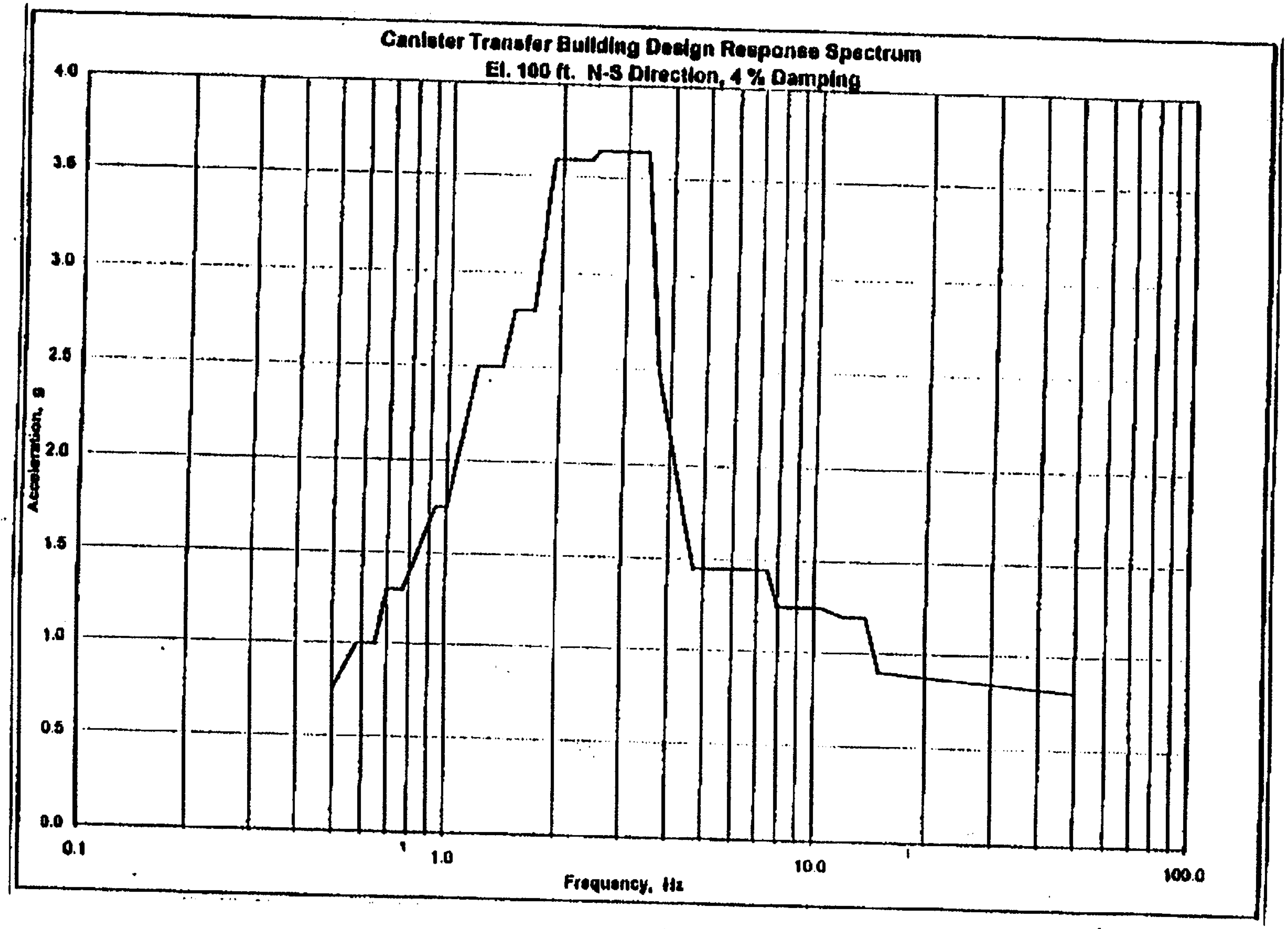

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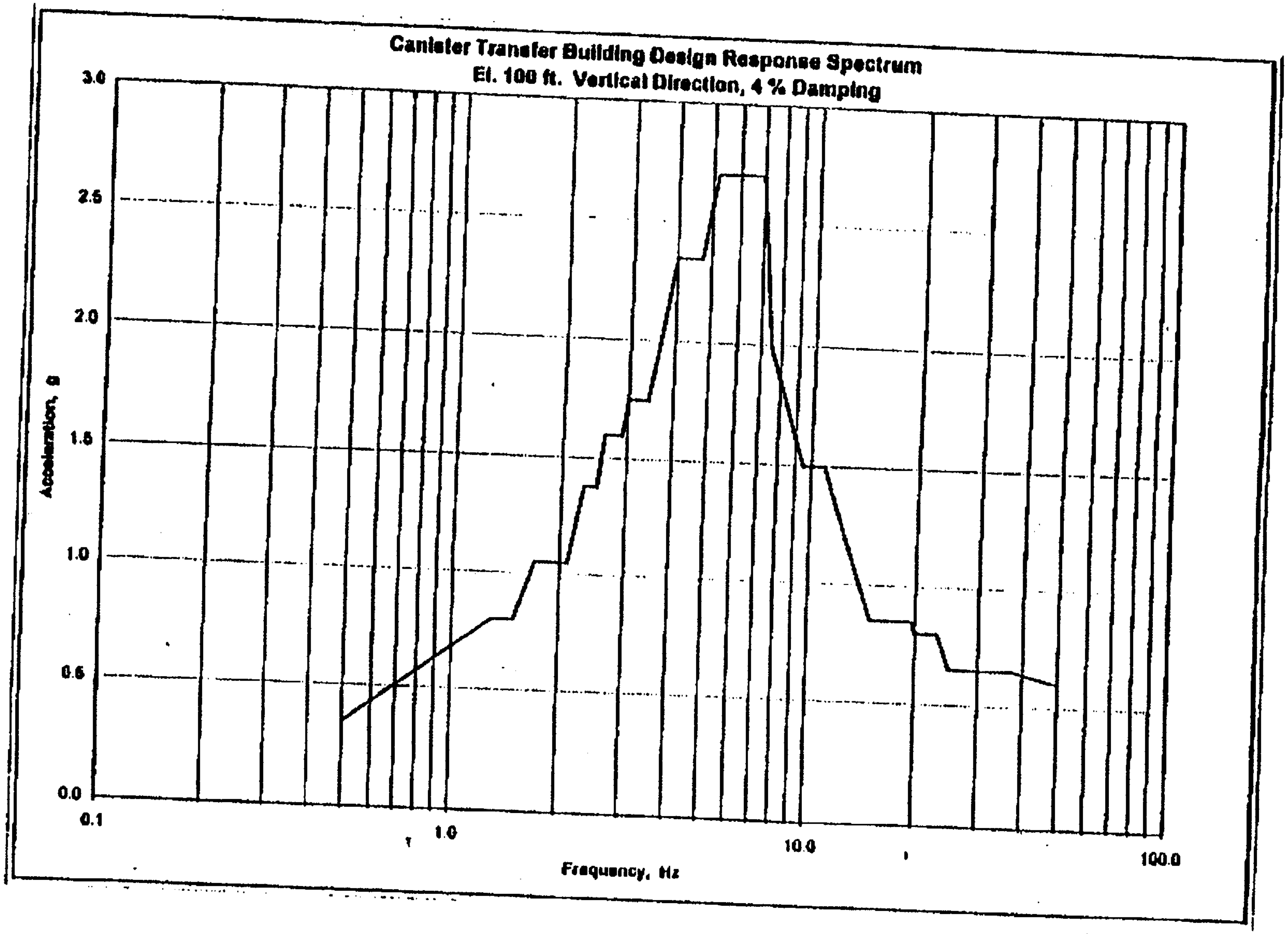

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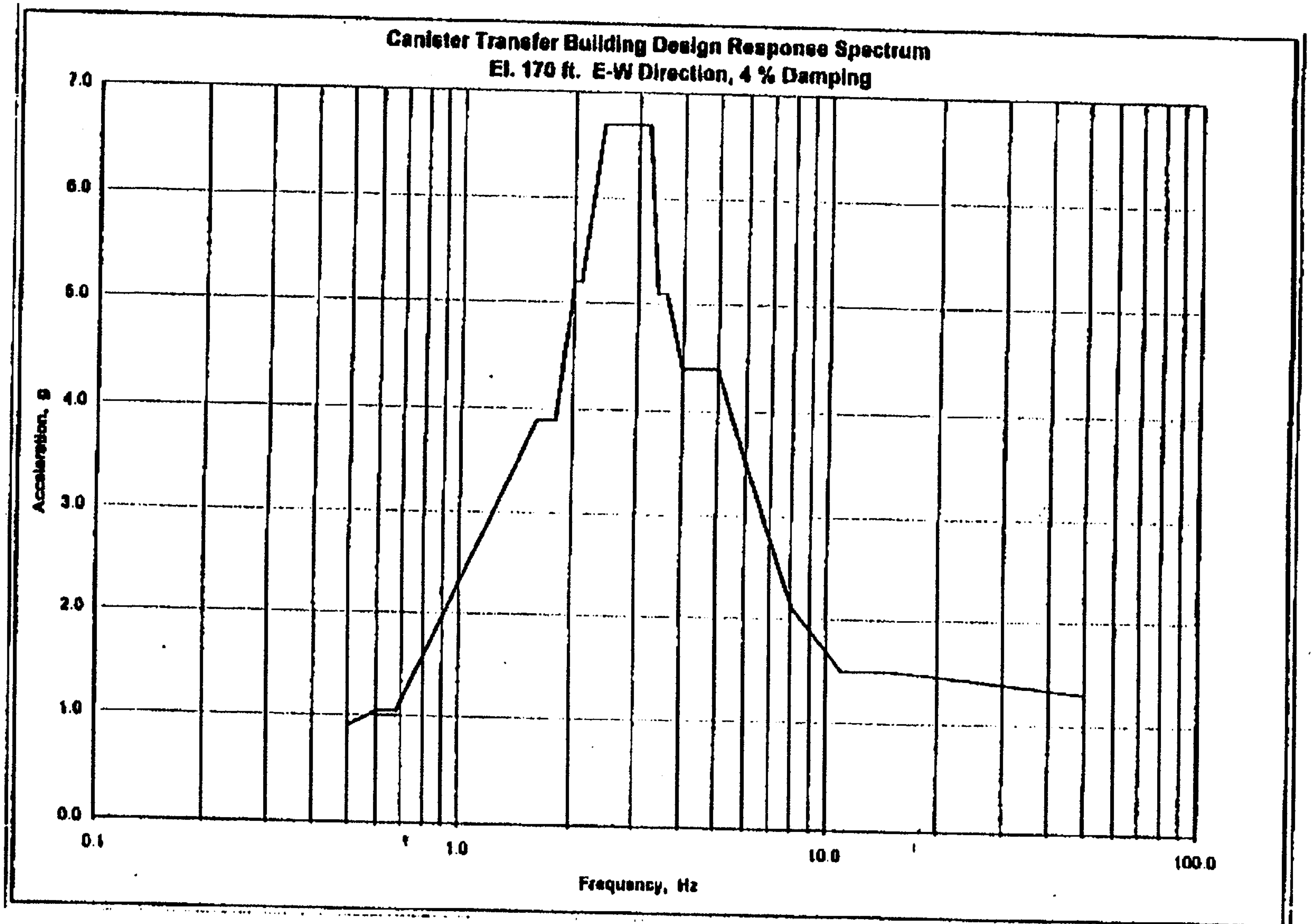

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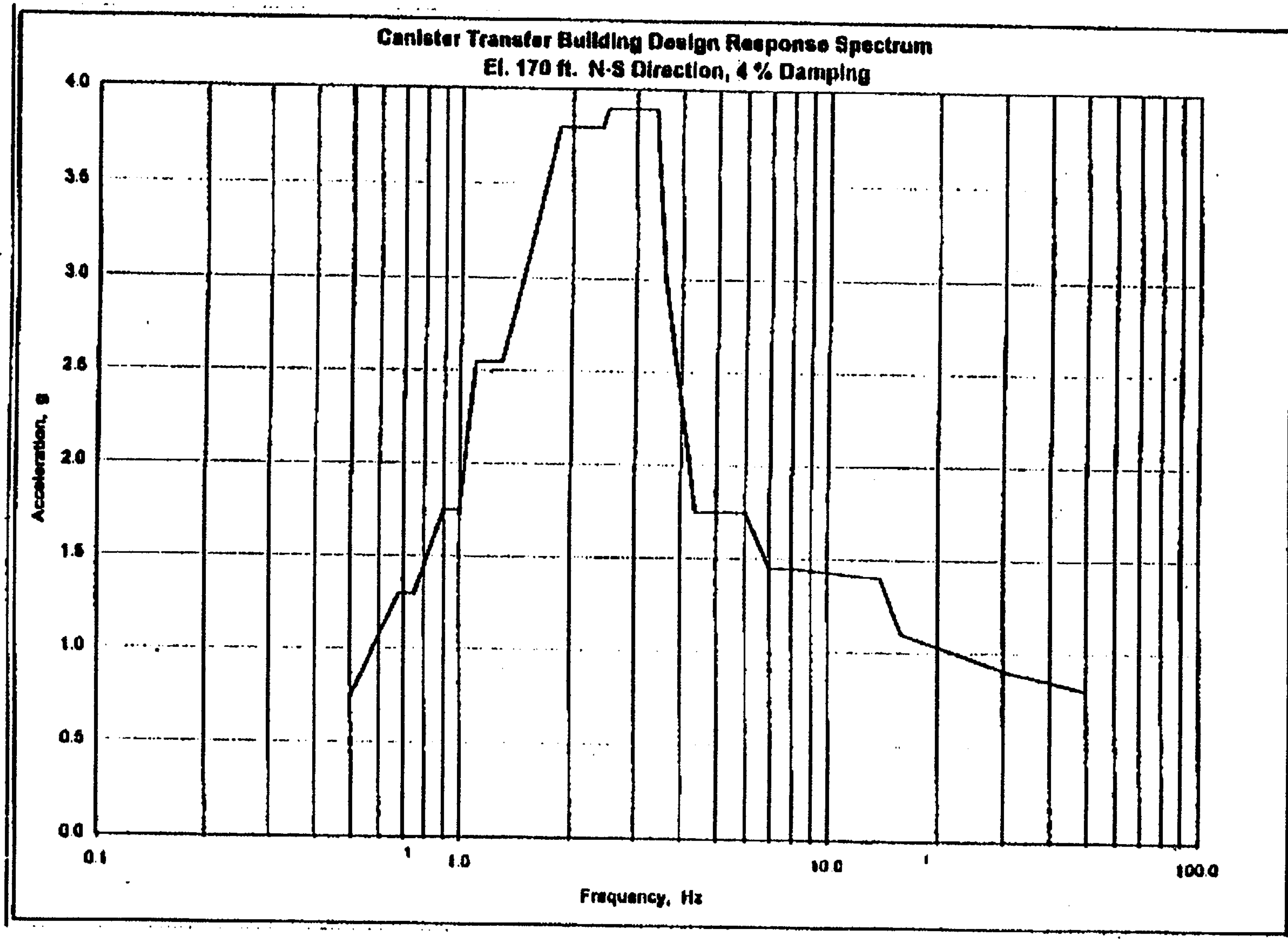

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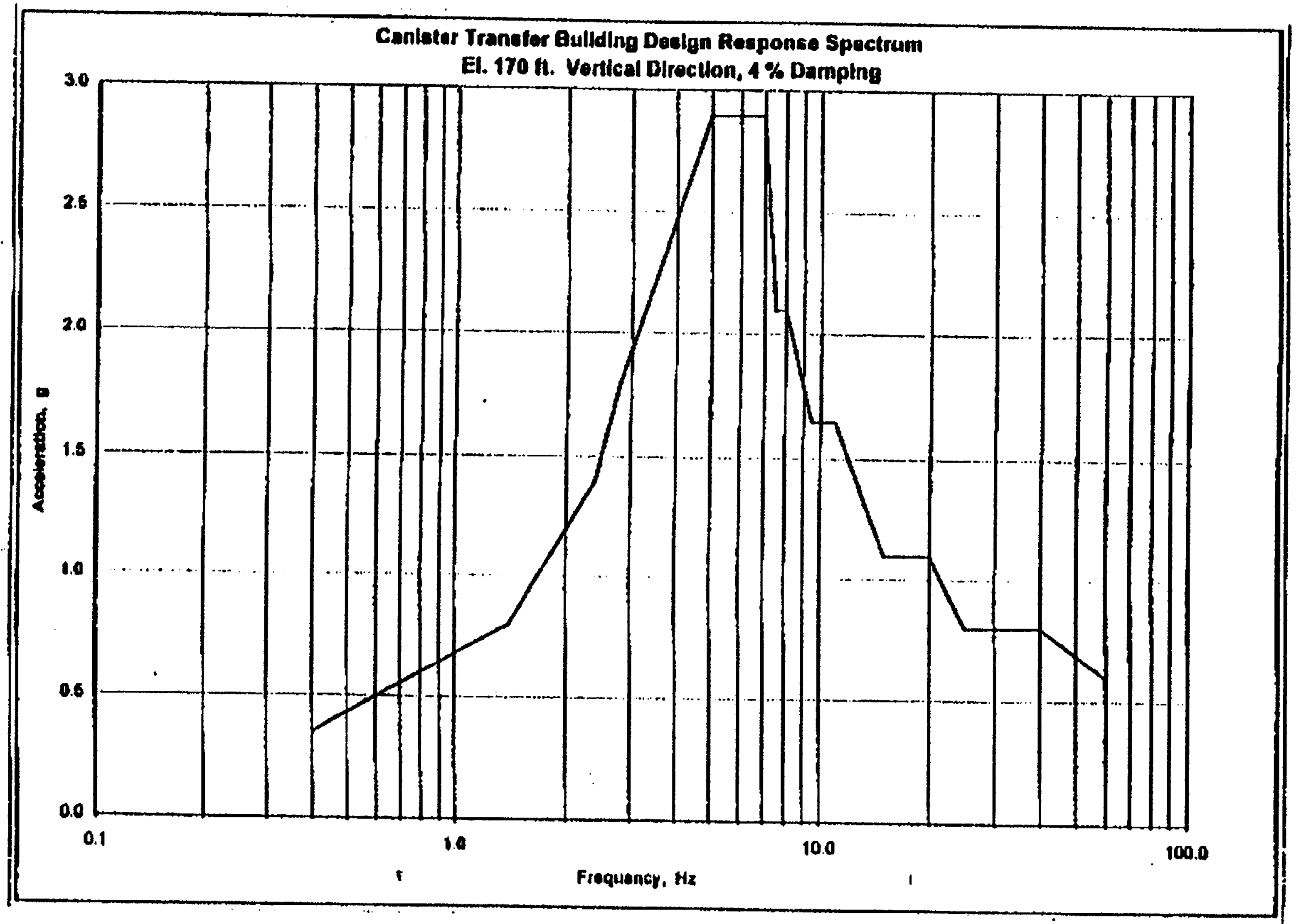

By ____________ Date ______ Sheet No. ___ of ___

Chkd. ____________ Date ______ Job No. ________

Subject: ____________

NEW SPECTRA

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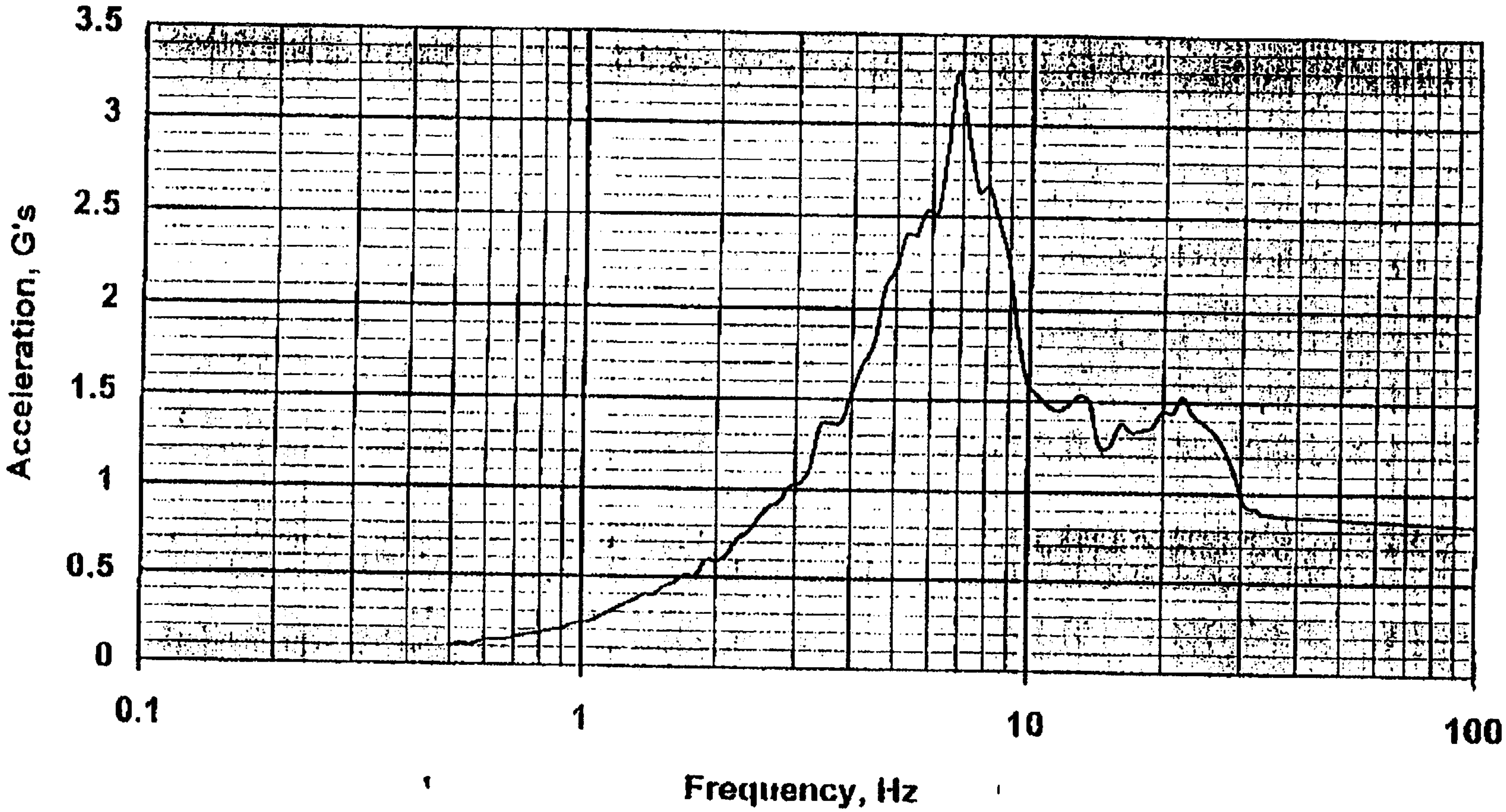
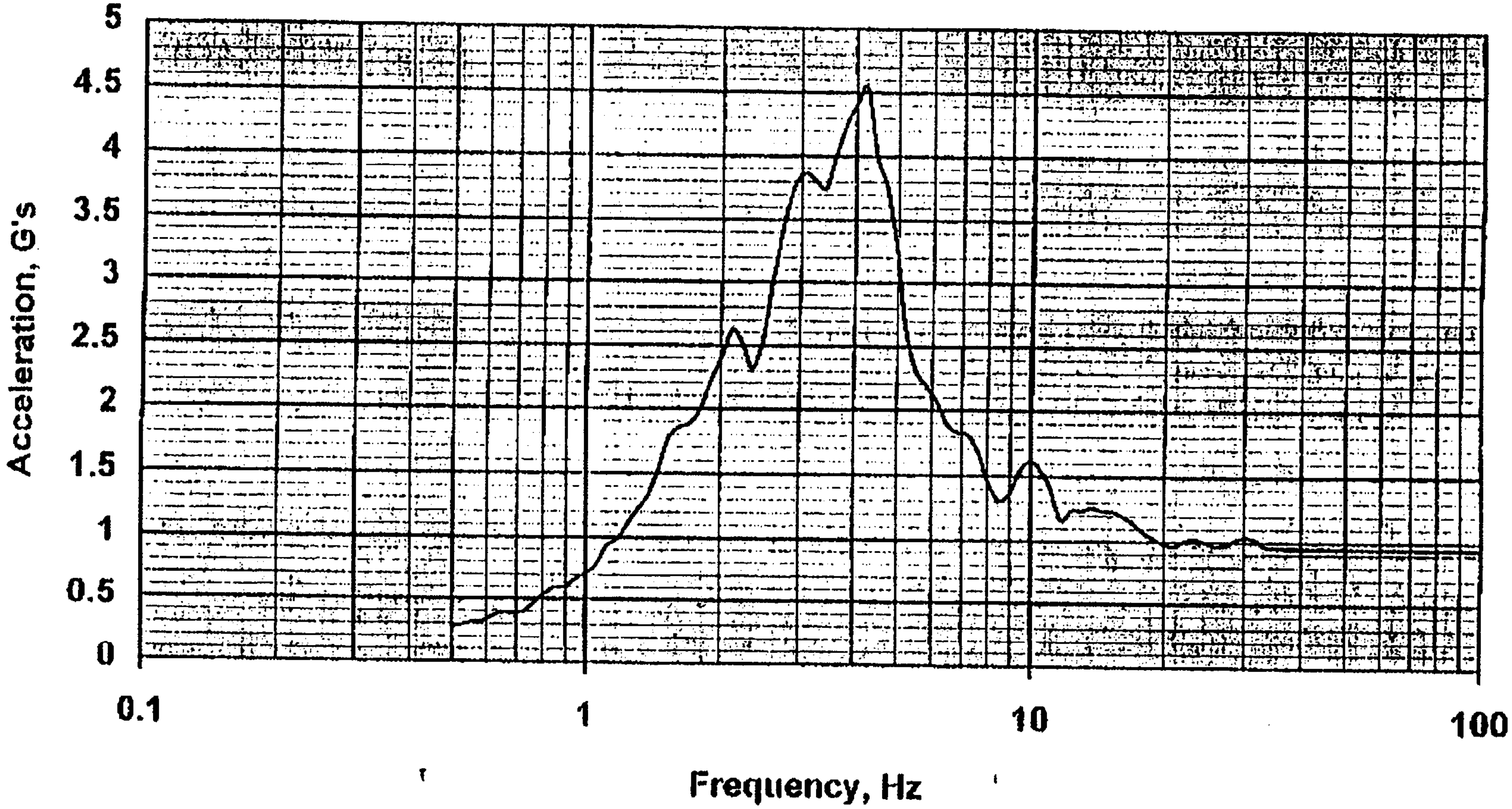
Rev.	Description	Date	By	Chkd.

Skull Valley - Max Vert. ARS, (Elev. 170), 4% Damping



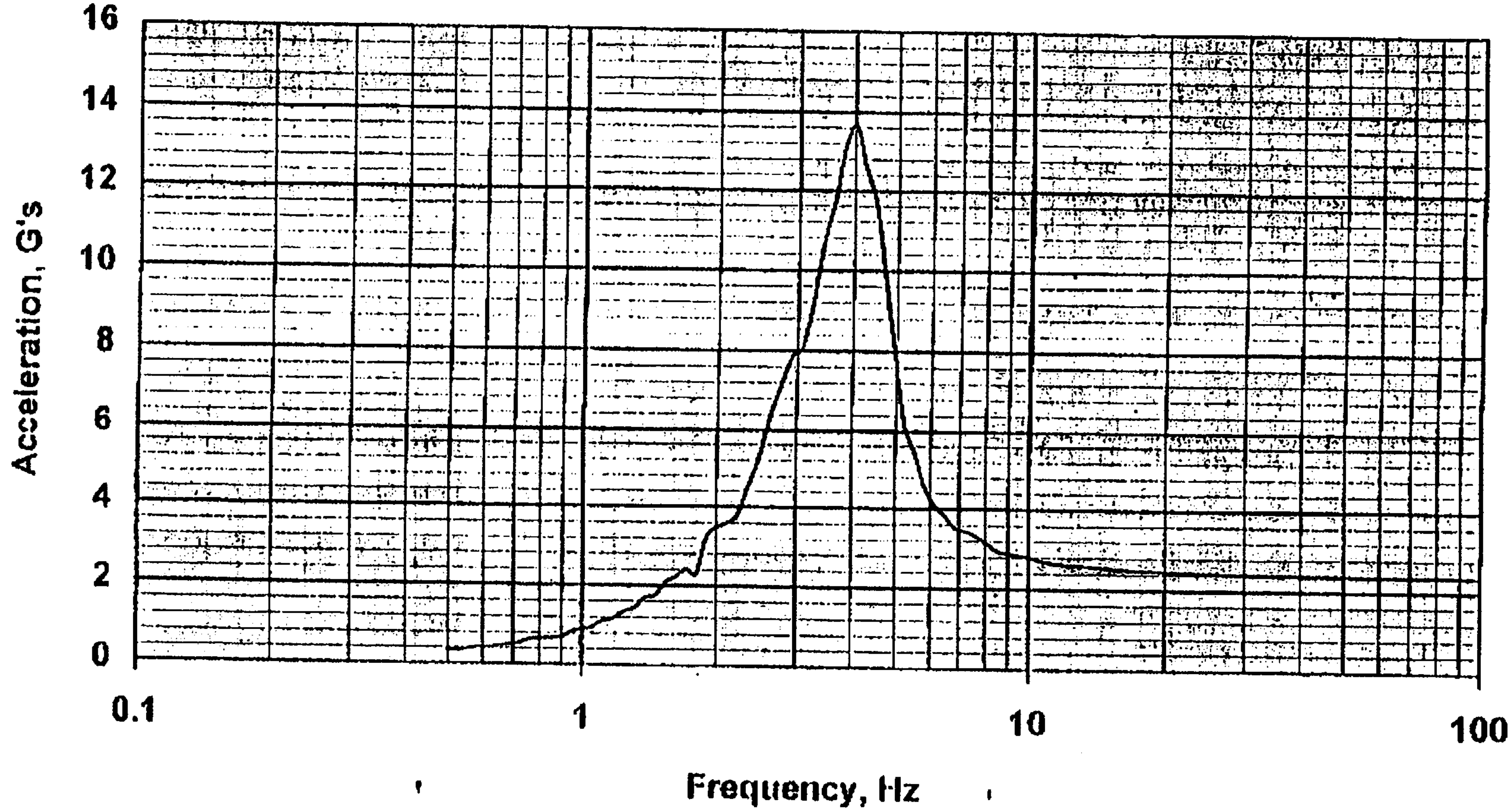
8/30/99

Skull Valley - Max (N-S) ARS, (El. 170), 4% Damping



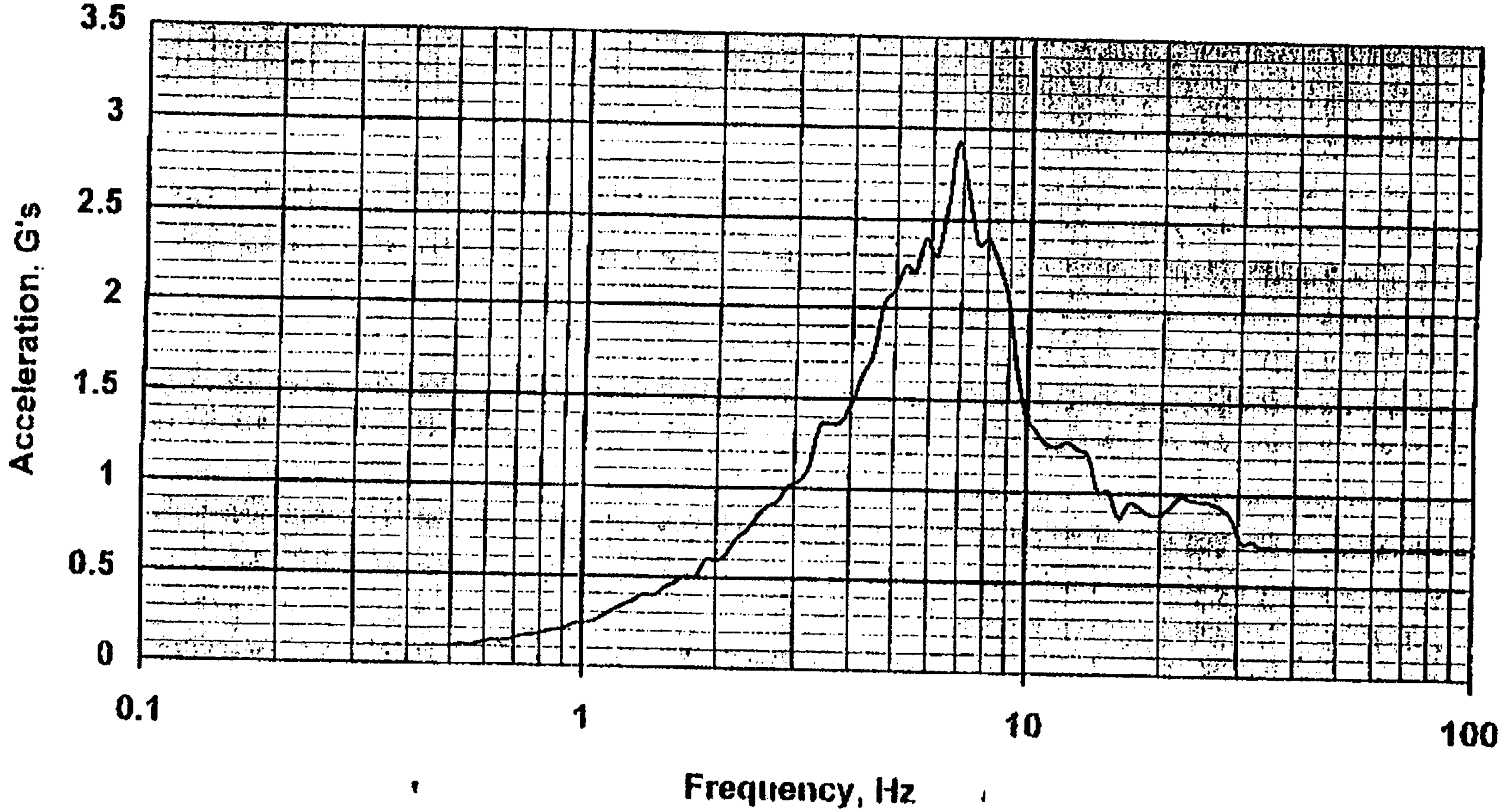
8/30/99

Skull Valley - Max E-W ARS, (Elev. 170), 4% Damping



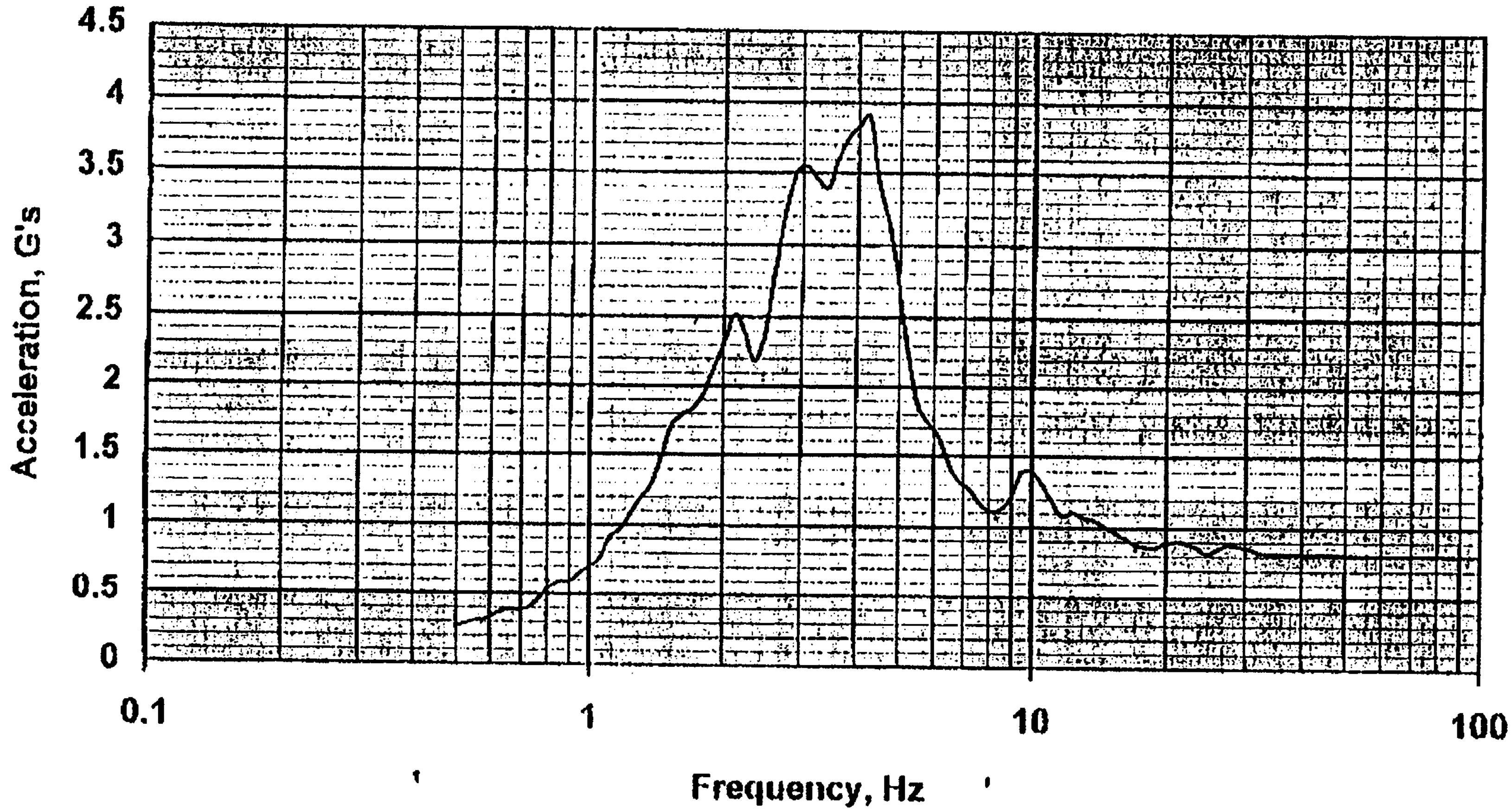
8/30/99

Skull Valley - Max Vert. ARS, (Elev. 100), 4% Damping

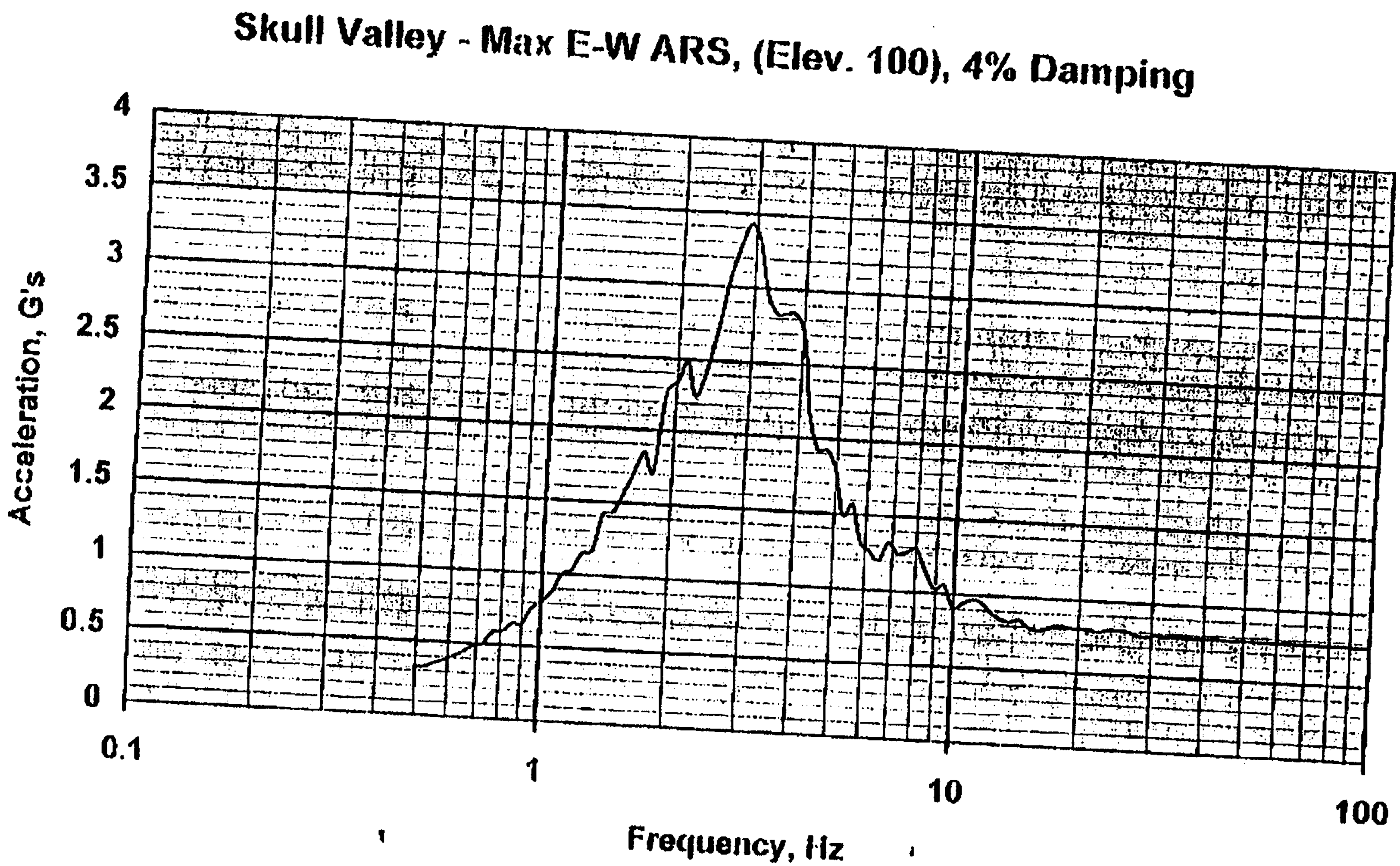


8/30/99

Skull Valley - Max (N-S) ARS, (El. 100), 4% Damping



8/30/99


Skull Valley - Max E-W ARS, (Elev. 100), 4% Damping
Acceleration, G's
4
3.5
3
2.5
2
1.5
1
0.5
0
0.1
1
10
100
Frequency, Hz

8/30/99

By FEL Date 8/31/99 Sheet No. ___ of ___

Chkd. ___ Date ___ Job No. F2621/22

Subject: Appendix A

F2621 Truck section

Reference - Seismic analysis, 200T bridge crane page 4-7, table 4-2

Normal Stress
Static = 5988
Dynamic = 16599
Wheelslip = 8462

Estimate that the dynamic stress is equally divided between vertical and horizontal loading

increase in vertical peak = 14%
increase in E-W horizontal peak = 100%
increase in dead load = 10%
allowable stress = 34.2 ksi
90% allowable = 30.8 ksi

use 10% increase in section modulus

$$\Sigma\sigma = \frac{5988(1.1)}{1.1} + \left[\left(\frac{8250(1.14)}{1.1} + \frac{8250(2)}{1.1}\right)^2 + \left(\frac{8462}{1.1}\right)^2\right]^{\frac{1}{2}}$$

$\Sigma\sigma$ = 30.8 ksi $\leq$ 30.8 est allow.

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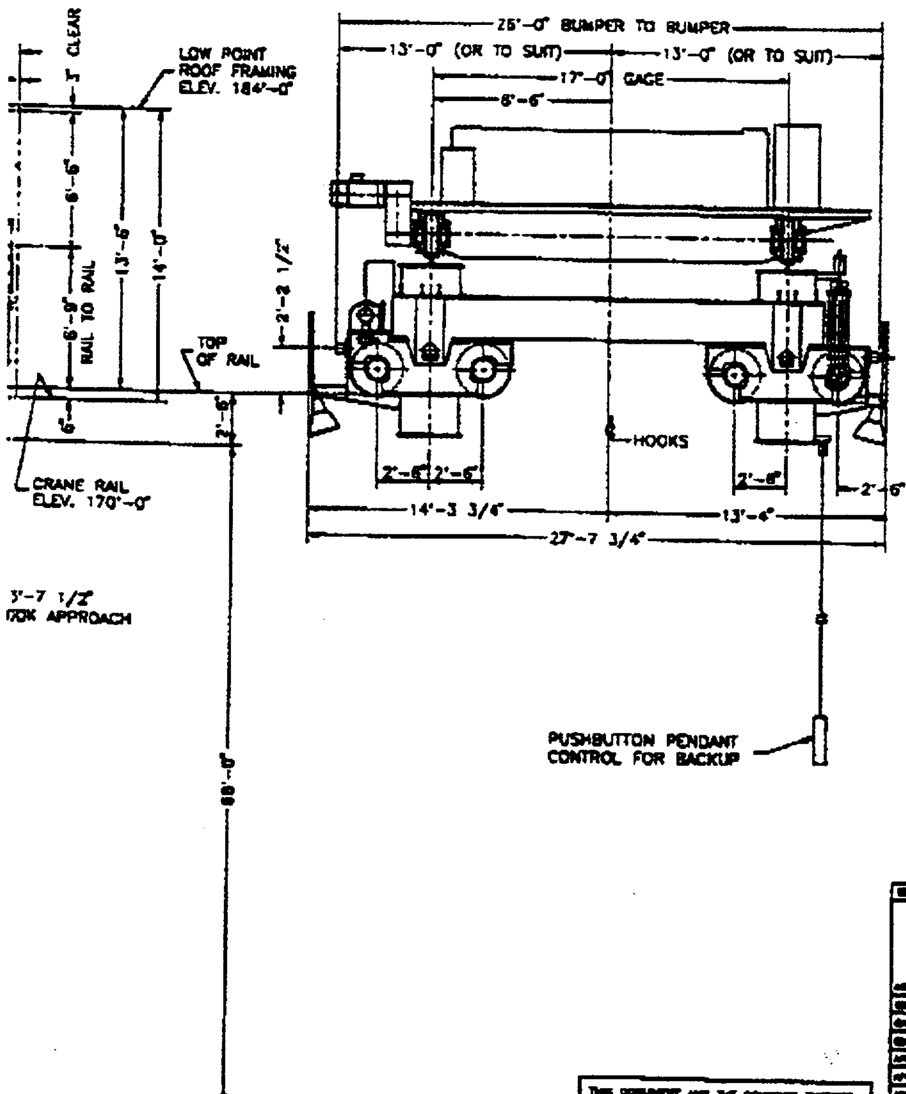
Rev.	Description	Date	By	Chkd.

REVISIONS				
A	GENERAL REVISION	8-17-98	OHD	
B	GENERAL REVISION	9-16-98	JLF	JLF

CRANE DATA:

POWER:	480-3-60
BRIDGE WHEEL:	(8) 30" DIA.
MAXIMUM STATIC WHEEL LOAD:	147,000 LBS.
RUNWAY RAIL:	171 LBS./YARD
SERVICE:	INDOOR
DUTY:	NOG 1 TYPE 1
CONTROL:	RADIO REMOTE & PENDANT BACKUP



WEIGHTS

GIRDER W/ CONTROL PANELS & W'WAY	68 K
GIRDER W FESTOONS & W'WAY	58 K
TROLLEY	111.5 K
MAIN HOIST LOWER BLOCK	15 K
AUX HOIST LOWER BLOCK	3.5 K
EQUALIZING SILLS	(EACH) 6 K
END TRUCKS, DRIVER	(EACH) 8 K
END TRUCKS, IDLER	(EACH) 6.7 K
TOTAL CRANE WEIGHT	310 K

SPEEDS (+/- 10%) fpm	NO LOAD	RATED LOAD
BRIDGE	-	40
TROLLEY	-	25
MAIN HOIST	5.7	3.8
AUX HOIST	21	14

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LIST OF MATERIALS

SCALE 1/4" = 1 FT

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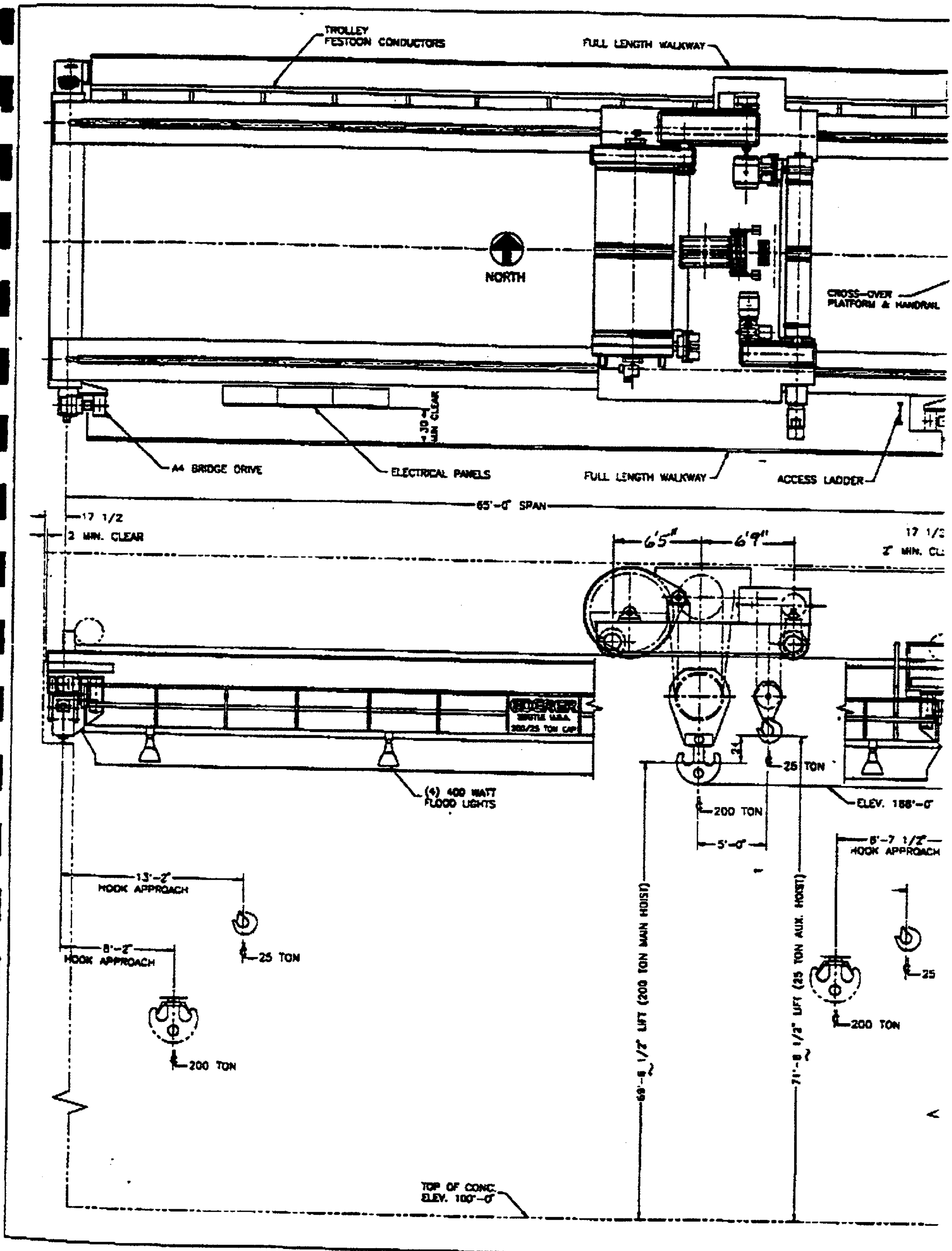
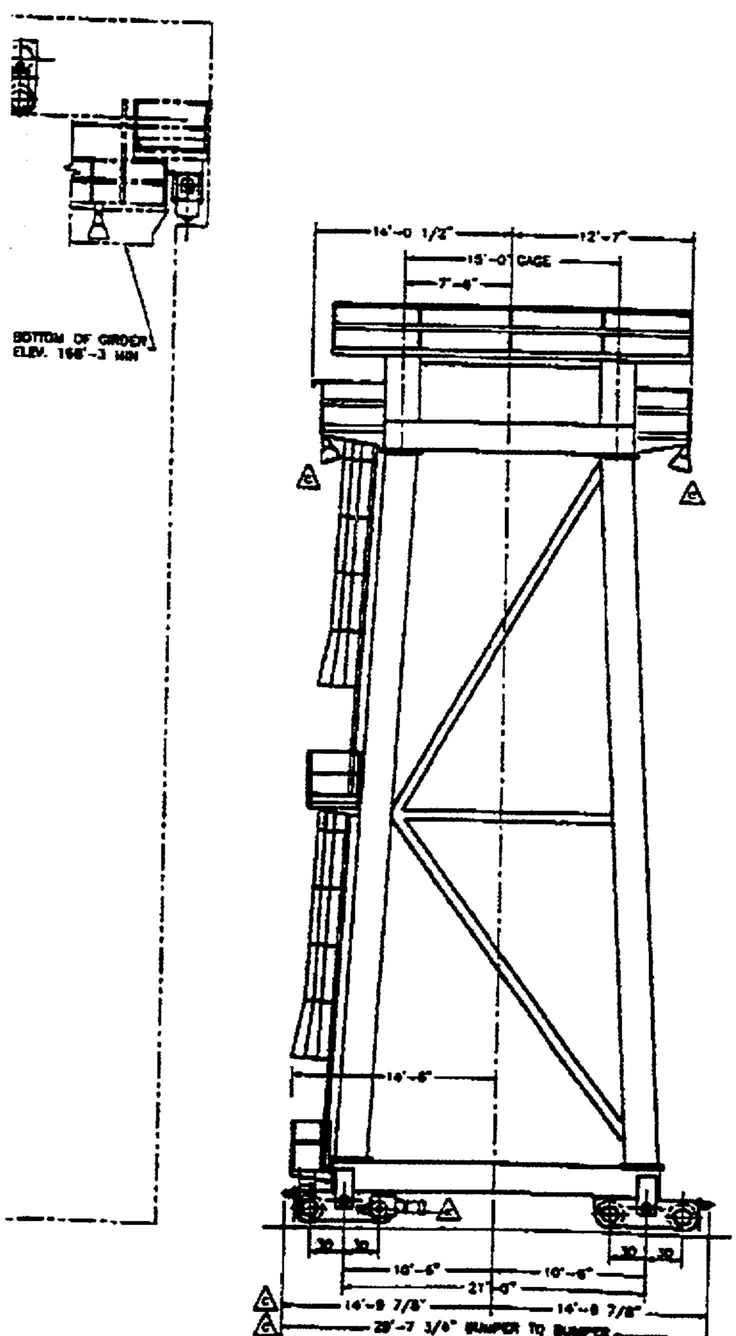
CLEARANCE DRAWING
200/25 TON CAPACITY BRIDGE CRANE
PRIVATE FUEL STORAGE FACILITY
SKULL VALLEY, UTAH

PA-2189 REV B


TROLLEY
FESTOON CONDUCTORS
FULL LENGTH WALKWAY
NORTH
CROSS-OVER
PLATFORM & HANDRAIL
A4 BRIDGE DRIVE
ELECTRICAL PANELS
FULL LENGTH WALKWAY
ACCESS LADDER
65'-0" SPAN
17 1/2
2 MIN. CLEAR
6'5"
6'9"
(4) 400 WATT
FLOOD LIGHTS
25 TON
200 TON
ELEV. 158'-0"
5'-0"
13'-2"
HOOK APPROACH
8'-2"
HOOK APPROACH
8'-7 1/2"
HOOK APPROACH
LIFT (200 TON MAIN HOIST)
LIFT (25 TON AUX. HOIST)
TOP OF CONC.
ELEV. 100'-0"

REVISIONS

A	GENERAL REVISION	8-17-98	DWD			
B	GENERAL REVISION	9-17-98	AJF	FEL	AJF	LA
C	GEN REV. PER CUSTOMER COMMENT	11-20-98	SRB			



CRANE DATA:

POWER:	480-3-60
BRIDGE WHEEL:	(8) 24" DIA.
MAXIMUM STATIC WHEEL LOAD:	116,000 LBS.
RUNWAY RAIL:	171 LBS./YARD
SERVICE:	INDOOR
DUTY:	NOG 1 TYPE 1
CONTROL:	RADIO REMOTE WITH PENDANT

WEIGHTS		
GIRDER W/ CONTROL PANELS & W'WAY		31 K
GIRDER W FESTOONS & W'WAY		28 K
TROLLEY		86 K
MAIN HOIST LOWER BLOCK		11.5 K
AUX HOIST LOWER BLOCK		3.5 K
EQUALIZING SILL, UPPER		3.5 K
EQUALIZING SILL, LOWER		10.6 K
END TRUCKS, DRIVER	(EACH)	5.5 K
END TRUCKS, IDLER	(EACH)	4.5 K
END TIE		1.3 K
LEGS		25.9 K
TOTAL CRANE WEIGHT		222 K

SPEEDS (+/- 10%) fpm	NO LOAD	RATED LOAD
BRIDGE	-	50
TROLLEY	-	30
MAIN HOIST	7.5	5
AUX HOIST	21	14

150/25 TON SEMI-GANTRY CRANE
PRIVATE FUEL STORAGE FACILITY
PRIVATE FUEL STORAGE, LLC
PO # 0599602-023

LIST OF MATERIALS

SCALE 1/70

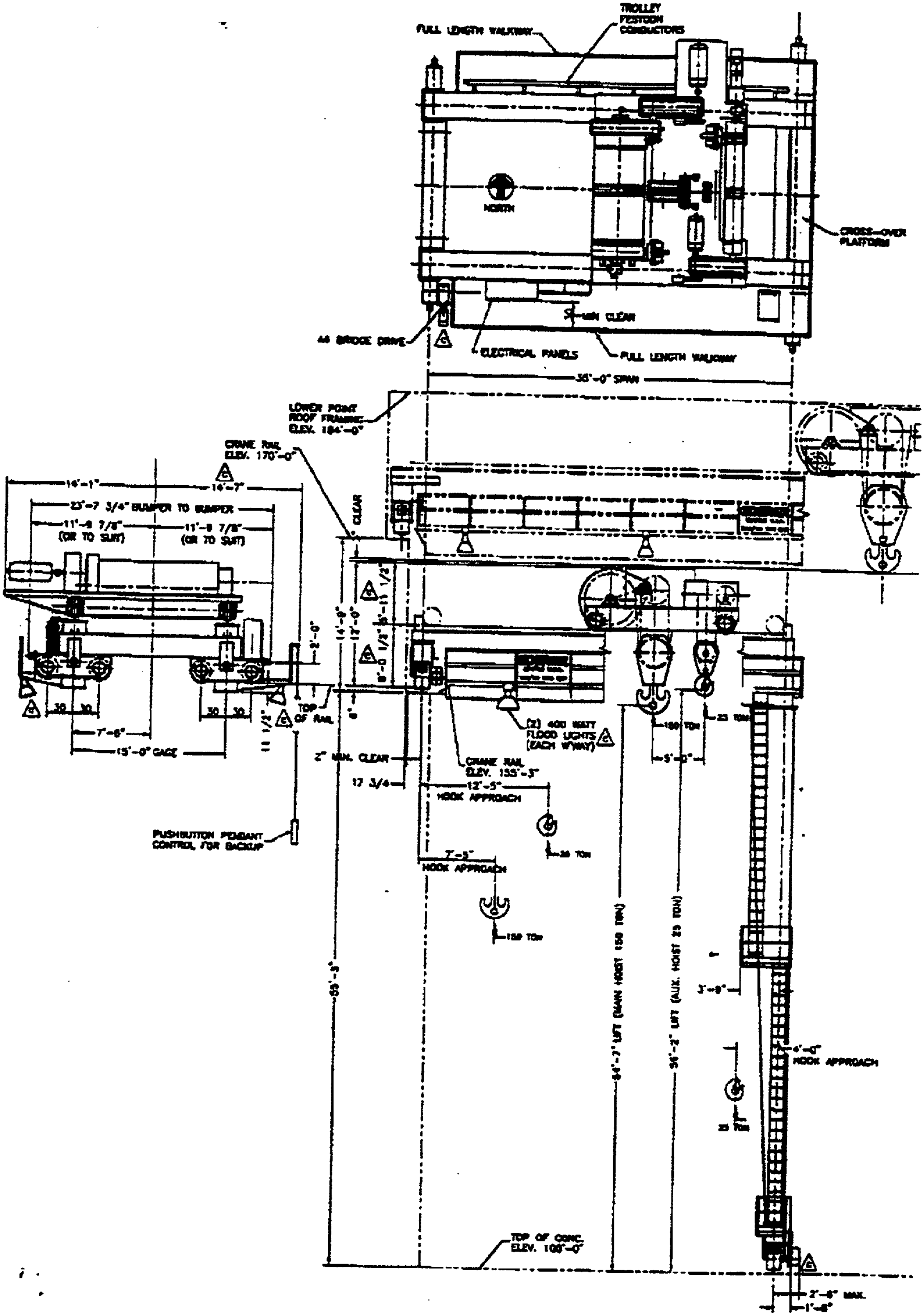
DRAWN	DWD	7-27-98
	AJF	9-17-98
	AJF	9-17-98
APPR.	FEL	10/21/98
APPR.	L.L. ANDERSON	10-21-98

EDERER INCORPORATED

CLEARANCE DRAWING
150/25 TON CAPACITY SEMI-GANTRY CRANE
PRIVATE FUEL STORAGE FACILITY
SKULL VALLEY, UTAH

F-2622

PA-2190 - C


TROLLEY FESTOON CONDUCTORS
FULL LENGTH WALKWAY
NORTH
CROSS-OVER PLATFORM
MIN CLEAR
A4 BRIDGE DRIVE
ELECTRICAL PANELS
FULL LENGTH WALKWAY
36'-0" SPAN
LOWER POINT ROOF FRAMING ELEV. 184'-0"
CRANE RAIL ELEV. 170'-0"
14'-1"
14'-7"
23'-7 3/4" BUMPER TO BUMPER
11'-9 7/8" (OR TO SUIT)
11'-9 7/8" (OR TO SUIT)
CLEAR
30 30
30 30
7'-6"
15'-0" GAGE
TOP OF RAIL
2" MIN. CLEAR
17 3/4
(2) 400 WATT FLOOD LIGHTS (EACH W'WAY)
CRANE RAIL ELEV. 133'-3"
12'-5" HOOK APPROACH
25 TON
7'-5" HOOK APPROACH
150 TON
PUSHBUTTON PENDANT CONTROL FOR BACKUP
150 TON
5'-0"
25 TON
54'-7" LIFT (MAIN HOIST 150 TON)
56'-2" LIFT (AUX. HOIST 25 TON)
3'-9"
4'-0" HOOK APPROACH
25 TON
TOP OF CONC. ELEV. 100'-0"
2'-6" MAX.
1'-6"

ATTACHMENT 2

DRAWINGS REFERENCED IN CALCULATION 0599602-SC-10, REVISION 0

0599601-EA-8-D
0599601-EA-9-D
0599601-EA-12-C
0599601-EM-1-D
0599601-EM-2-D
0599601-EM-3-D
0599602-EC-2-A
0599602-EC-3-A
0599602-EC-4-A
0599602-EC-5-A
0599602-EC-6-A
0599602-EC-7-A

Vendor Catalog Information on Struts and Brackets (11 pages)

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599601-EA-8-D, REV D: CANISTER TRANSFER BUILDING FLOOR PLAN

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599601-EA-8-D, REV D

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-1

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599601-EA-9-D, REV D: CANISTER TRANSFER BUILDING ELEVATIONS - SH 1

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599601-EA-9-D, REV D

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-2

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599601-EA-12-C, REV C: CANISTER TRANSFER BUILDING ELEVATIONS - SH 2

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599601-EA-12-C, REV C

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-3

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599601-EM-1-D, REV D: CANISTER TRANSFER BUILDING GENERAL ARRANGEMENT - SH 1

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599601-EM-1-D, REV D

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-4

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599601-EM-2-D, REV D: CANISTER TRANSFER BUILDING GENERAL ARRANGEMENT - SH 2

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599601-EM-2-D, REV D

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-5

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599601-EM-3-D, REV D: CANISTER TRANSFER BUILDING GENERAL ARRANGEMENT - SH 3

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599601-EM-3-D, REV D

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-6

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599602-EC-2-A, REV A: CANISTER TRANSFER BUILDING MAT FOUNDATION PLAN

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599602-EC-2-A, REV A

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-7

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599602-EC-3-A, REV A: CANISTER TRANSFER BUILDING ROOF PLAN EL. 130 ft. - 0 in.

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599602-EC-3-A, REV A

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-8

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599602-EC-4-A, REV A: CANISTER TRANSFER BUILDING ROOF PLAN EL. 190 ft. - 0 in.

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599602-EC-4-A, REV A

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-9

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599602-EC-5-A, REV A: CANISTER TRANSFER BUILDING ELEVATIONS - SH 1

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599602-EC-5-A, REV A

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-10

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599602-EC-6-A, REV A: CANISTER TRANSFER BUILDING ELEVATIONS - SH 2

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599602-EC-6-A, REV A

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-11

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: 0599602-EC-7-A, REV A: CANISTER TRANSFER BUILDING ELEVATIONS - SH 3

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: 0599602-EC-7-A, REV A

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-12

VENDOR CATALOG INFORMATION ON STRUTS AND BRACKETS

FAX

Dated 5-31-2000

To W. Dunleavy
Bergen Power Pipe Support
Phone No. 781-935-9550
Fax No. 781-935-7664

From A.Cokonis/B.Ebbeson
SWEC
Cherry Hill, NJ
Phone No. 856-482-3136, 856-482-4654
Fax No. 856-482-3283, 856-482-3171

Bill, based on your prior conversation with Ozzie Bilgin (8-13-99), regarding the load capacity of struts to be used on Skull Valley Spent Fuel Casks, I am requesting that you fax the load capacity data that are specific to the size of the strut used in this application. The two Nuclear Service struts are:

Strut No. 1. Part 2252-Size 130, Pin to pin = 114.5" = 9'-6.5". Both ends with bracket (no clamp). MAX LOAD 240,077* STRUT
238,000 BRACKET ← MAX. FAULTED

Strut No. 2. Part 2100-Size 200, Pin to pin = 90.7" = 7'-6.75". Both ends with bracket (no clamp). MAX LOAD 351,000 STRUT ← MAX. FAULTED
376,000 BRACKET

Based on your conversation with Ozzie you mentioned that the Level D capacity for Strut No. 1 was 238 Kips and for Strut No. 2 was greater than 324 kips. These capacities must be met, otherwise please suggest alternate strut components.

Your prompt response will be appreciated.

Alex Cokonis/B. Ebbeson

REPLY:

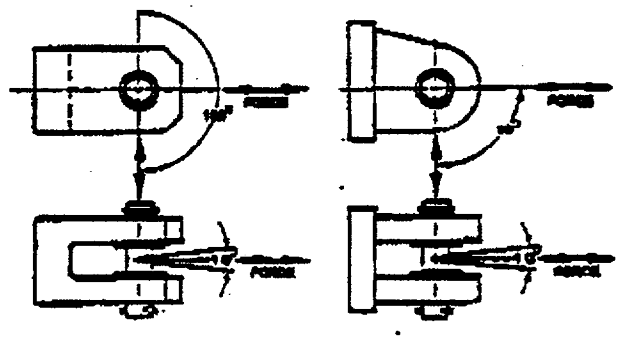
STRUT LOADS HAVE BEEN ADJUSTED TO SUIT PIN TO PIN DIMENSIONS.

LCDS FOR PART 2252, 1000 AND 2100, 2003 ARE ATTACHED

Wm. B. Dunleavy
BERGEN-POWER PIPE SUPPORT

LOAD CAPACITY DATA SHEET
for
NUCLEAR POWER PLANT COMPONENT STANDARD SUPPORTS

RESTRAINT END CONNECTION (mates w/ NH8)



DESIGNED BY: Load Rating & Analysis

LOAD RATING (lbs.)
Cl. 1, 2, 3, & MC

TEMPERATURE 350 °F

SIZE	DESIGN CONDITION	OPERATING CONDITIONS LEVEL A & B NORMAL & UPSET	LEVEL C EMERGENCY	LEVEL D FAULTED
0.7	700	700	930	1200
1 1.5	1500	1500	2000	3000
4	4000	4000	5300	7300
1 7	7000	7000	9300	14000
12	12000	12000	15000	19000
25	25000	25000	33300	40400
35	35000	35000	46600	54000
60	60000	60000	80000	98200
1 80	80000	80000	96000	122700
1 130	130000	130000	172900	238000

REV.	
2	Material 4-1-07
1	Added sizes 1.5, 7, 80 & 130 6/1/82

ORIG. ISSUE 1-21-81

SEAL: THE STATE OF NEW HAMPSHIRE · HAROLD ACHESON JR. No. 726 · REGISTERED PROFESSIONAL ENGINEER

Materials:
2 Plate SA36 A108 Gr.1018 *
Pin SA564Ty630
Retainers & Spacers Exempt
(NF-2121).

*(Code Case N-71)

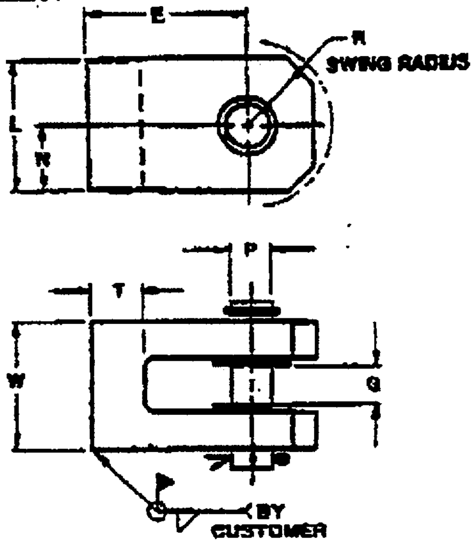
Stress calculations or test data for this product were performed in accordance with: A.S.M.E. SECTION III - SUBSECTION NF COMPONENT SUPPORTS (date of issue 7-1-77) and are on file at:

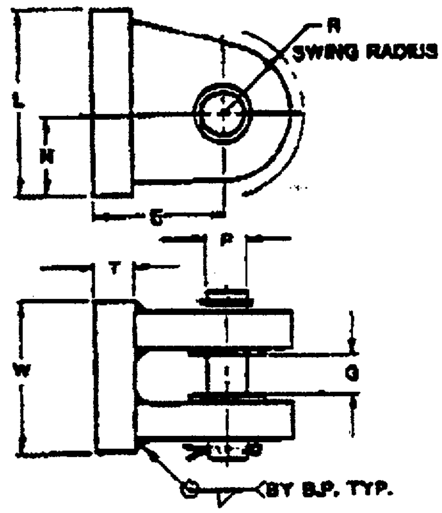
BERGEN-PATERSON

CONTROL REF. NO. 1000

BERGEN-PATERSON PIPESUPPORT CORP.
LOAD CAPACITY DATA SHEET

SHEET 1 OF 1 | REV. 2 | PART NO. 1000





SIZE .7 TO 4 SIZE 7 TO 130

KIP SIZE	E	G	L	N	P	R	T	W	K*
.7	$1\frac{7}{8}$	$\frac{1}{2}$	$1\frac{1}{8}$	$\frac{9}{16}$	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$1\frac{1}{2}$	1.0
1.5	$2\frac{1}{4}$	$\frac{5}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{8}$	$\frac{1}{2}$	$1\frac{3}{4}$	2.5
4	$2\frac{1}{4}$	$\frac{5}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{8}$	$\frac{1}{2}$	$1\frac{3}{4}$	2.5
7	$2\frac{7}{8}$	$\frac{7}{8}$	$3\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	$3\frac{1}{4}$	3.0
12	$2\frac{7}{8}$	$\frac{7}{8}$	$3\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	$3\frac{1}{4}$	3.0
25	$3\frac{7}{8}$	$1\frac{3}{8}$	5	$2\frac{1}{8}$	1	$1\frac{5}{8}$	1	$4\frac{1}{4}$	3.0
35	$4\frac{1}{4}$	$1\frac{1}{2}$	$5\frac{3}{4}$	$2\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{7}{8}$	$1\frac{1}{4}$	5	3.0
60	$5\frac{5}{8}$	$1\frac{11}{16}$	$7\frac{1}{4}$	3	$1\frac{1}{2}$	$2\frac{3}{8}$	$1\frac{1}{2}$	6	6.6
80	$6\frac{1}{4}$	$1\frac{13}{16}$	$9\frac{1}{4}$	$3\frac{5}{8}$	$1\frac{3}{4}$	$2\frac{5}{8}$	$1\frac{3}{4}$	$7\frac{3}{4}$	7.2
130	$8\frac{1}{2}$	$2\frac{1}{16}$	$11\frac{5}{8}$	$4\frac{5}{8}$	$2\frac{1}{2}$	$3\frac{3}{8}$	$1\frac{3}{4}$	$8\frac{7}{8}$	8.0

*x10^3 lb/in

NOTES:
1. All dimensions are in inches.
2. Dimensions are provided for user application only.
3. Spring rate (K) is for load applied perpendicular to the base plate.
4. This assembly to be used with B-P Parts 2015, 2250, 2252, 2525, 2530, 2420, 2421, 2440

ORDERING INSTRUCTIONS:
Specify Part No.; Load Capacity Data Sheet Revision No., and Size Designation

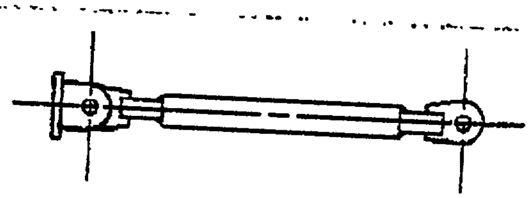
EXAMPLE: 1000 - R/2 - 60

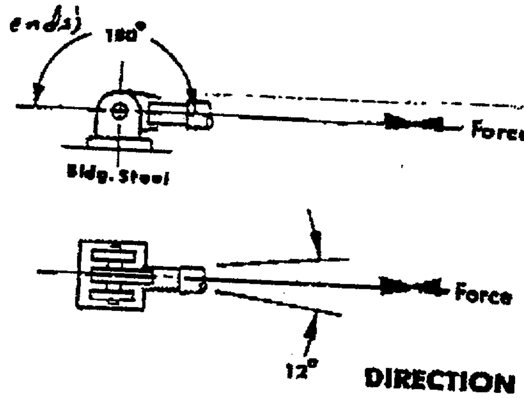
BERGEN-PATERSON PIPE SUPPORT CORP.

PART	1000
DATE	4-1-87

LOAD CAPACITY DATA SHEET
for
NUCLEAR POWER PLANT COMPONENT STANDARD SUPPORTS

RIGID TELESCOPING STRUT
(Torrington both ends)





DIRECTION OF LOADING

DESIGNED BY: Linear Analysis

LOAD RATING (lbs.)
Cl. 1, 2, 3, & MC

TEMPERATURE 350 °F

SIZE	STRUT LENGTH *	OPERATING CONDITIONS LEVEL A & B NORMAL & UPSET	LEVEL C EMERGENCY	LEVEL D FAULTED
2.5	8'-3"	2500	3300	4225
7	5'-6"	7000	9300	9940
12	7'-0"	12000	16000	17760
28	5'-0"	28000	35280	35280
38	6'-0"	38000	47880	47880
50	12'-0"	50000	66600	74500
70	14'-9"	70000	93300	106400
130	15'-9"	130000	173300	191100
200	20'-6"	200000	266600	302000

⚠7
I certify this LCDS complies with the requirements of the applicable Code.
Lena Bandyopadhyay 11-5-91

* Maximum strut length for rated loads shown. For greater lengths, see Load Chart Sheet 2.

Materials:
Plate SA-36
⚠4 Rod SA-36
⚠3 Pipe SA-106 Gr B or SA-53 Gr B
⚠3⚠4 Pin SA-564 TY 630 or SA-193 Gr B7
Cotters & Retainers (Exempt NF-2121)

Stress calculations or test data for this product were performed in accordance with: A.S.M.E. SECTION III - SUBSECTION NF COMPONENT SUPPORTS (date of Issue 7-1-77) and are on file at:

BERGEN-PATERSON PIPESUPPORT CORPORATION
Hackensack, NJ 07601 USA

Control Ref. No. 2100

THE STATE OF NEW HAMPSHIRE · HAROLD NORLEN JR No. 736 · REGISTERED PROFESSIONAL ENGINEER

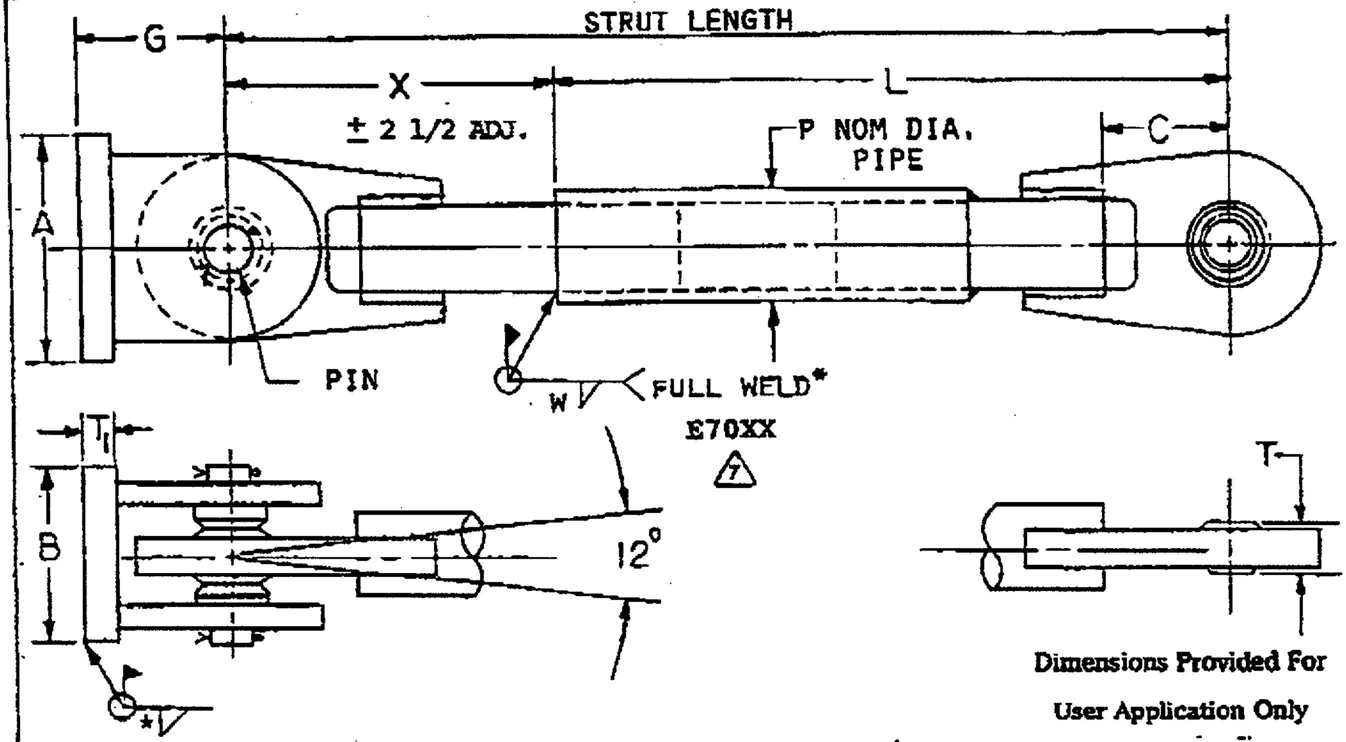
SEAL 3/26/76 SIGNED

BERGEN-PATERSON PIPESUPPORT CORP.
LOAD CAPACITY DATA SHEET

SHEET	REV.	PART NO.
1 OF 2	7	2100

ORIG. ISSUE 3-26-76

REV		
6	Discontinued	7-5-83
5	Typing Error	12/3/81
4	Mat'l. Address	5-12-83
3	CRN, Mat'l, Lev C&D Lds.	5-12-78
2	Add Faulted Conditions	9-2-76
1	Reinstated, rev'd mat'l, added fld weld strength	11-5-91



Dimensions Provided For User Application Only

W = PIPE WALL + GAP
*BY CUSTOMER

PART NO & SIZE	A	B	C	G	X	L MIN.	P	PIN DIA.	T	T_1
2100-2.5	$3\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$5\frac{3}{4}$	$9\frac{3}{4}$	$1\frac{1}{4}$ s/80	$\frac{1}{2}$	$\frac{7}{16}$	$\frac{3}{8}$
-7	$4\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{3}{8}$	$6\frac{1}{4}$	$10\frac{1}{4}$	$1\frac{1}{2}$ s/40	$\frac{3}{4}$	$\frac{21}{32}$	$\frac{1}{2}$
-12	$5\frac{5}{8}$	$3\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{4}$	$7\frac{1}{4}$	$11\frac{1}{4}$	2 s/80	1	$\frac{7}{8}$	$\frac{3}{4}$
-28	$7\frac{1}{8}$	$4\frac{1}{2}$	$3\frac{1}{4}$	$4\frac{1}{2}$	8	12	$2\frac{1}{2}$ s/80	$1\frac{1}{2}$	$1\frac{5}{16}$	1
-38	$7\frac{5}{8}$	5	$3\frac{3}{4}$	$5\frac{1}{4}$	$8\frac{3}{4}$	$12\frac{3}{4}$	3 s/80	$1\frac{3}{4}$	$1\frac{17}{32}$	$1\frac{1}{4}$
-50	$9\frac{3}{4}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{3}{4}$	$10\frac{1}{2}$	15	4 s/120	2	$1\frac{3}{4}$	$1\frac{1}{4}$
-70	$11\frac{1}{4}$	$7\frac{1}{2}$	$4\frac{3}{4}$	7	12	$16\frac{1}{2}$	5 s/120	$2\frac{1}{2}$	$2\frac{3}{16}$	$1\frac{1}{2}$
-130	$14\frac{1}{4}$	$9\frac{1}{2}$	$6\frac{3}{4}$	9	15	$19\frac{1}{2}$	6 s/160	$3\frac{1}{4}$	$2\frac{27}{32}$	$1\frac{3}{4}$
-200	19	$12\frac{3}{4}$	$7\frac{1}{2}$	11	$16\frac{3}{4}$	$21\frac{1}{4}$	8 s/xx	4	$3\frac{1}{2}$	$2\frac{1}{4}$

DESCRIPTION OF CHANGE	DATE
Changed field weld 'W'	2/2/82

ORDERING INSTRUCTIONS:

Specify Part No., Load Capacity Data Sheet Revision No., Size designation, and Strut Length (pin to pin).

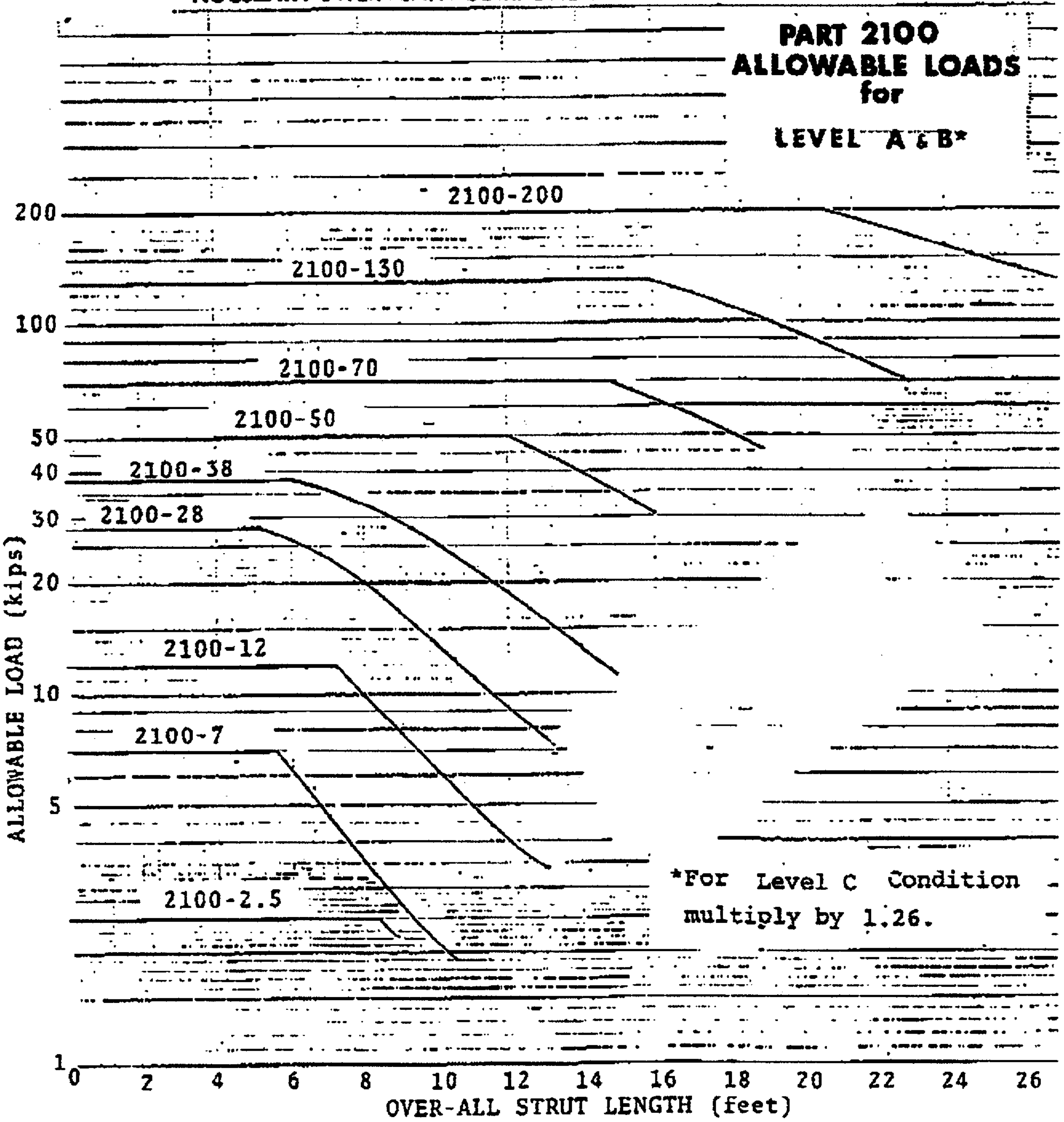
Example: Part 2100 - R/4 -7-2'-10 5/8"

BERGEN-PATERSON PIPE SUPPORT CORP.

PART 2100

DATE 7-5-83

LOAD CAPACITY DATA SHEET for NUCLEAR POWER PLANT COMPONENT STANDARD SUPPORTS



*For Level D Condition for Strut lengths greater than those shown on page 1, consult with your Bergen-Paterson Project Engineer.

See Pg 1

SEAL SIGNED

Materials:

Stress calculations or test data for this product were performed in accordance with: A.S.M.E. SECTION III - SUBSECTION NF COMPONENT SUPPORTS (date of Issue 7-1-77) and are on file at:

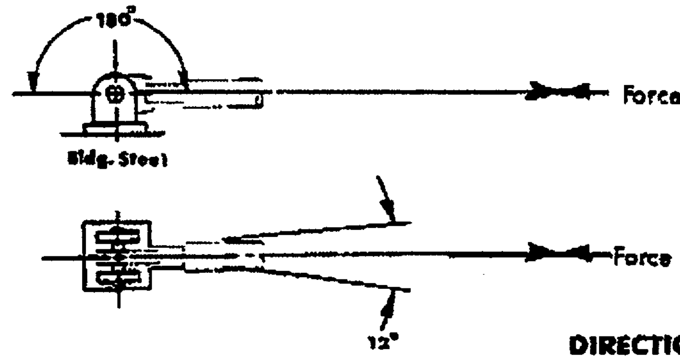
BERGEN-PATERSON PIPESUPPORT CORPORATION
Hackensack, NJ 07601 USA

Control Ref. No. 2100

BERGEN-PATERSON PIPESUPPORT CORP. LOAD CAPACITY DATA SHEET	SHEET	REV.	PART NO.
	2 OF 2	1	2100

LOAD CAPACITY DATA SHEET for NUCLEAR POWER PLANT COMPONENT STANDARD SUPPORTS

END ATTACHMENT



DIRECTION OF LOADING

DESIGNED BY: Linear Analysis

LOAD RATING (lbs.) Cl. 1, 2, 3, & MC

TEMPERATURE 350 °F

SIZE	DESIGN CONDITION	OPERATING CONDITIONS LEVEL A & B NORMAL & UPSET	LEVEL C EMERGENCY	LEVEL D FAULTED
.65	650	650	850	1220
1.5	2500	2500	3300	4400
3	7000	7000	9300	12700
10	12000	12000	16000	22100
20	28000	28000	37300	52640
30	38000	38000	50600	71440
50	50000	50000	66600	94000
70	70000	70000	93300	131600
130	130000	130000	173300	244400
200	200000	200000	266600	376000

4 I certify this LCDS complies with the requirements of the applicable Code.

Lena Dausgopoathyay 11-18-91

NOTE: This end attachment may be used with part(s): 2000, 2100, 2200, 2010 and 2540 as a second end attachment up to design condition above.

REV.		
4	Reinstated, rev'd mat'l & address, added cert statement	11-18-91
3	DISCONTINUED	7-5-83
2	Mat'L, Note, Address	6-19-81
1	CRN, Lev D loads	5-12-78

ORIG. ISSUE 12-10-76

SEAL: THE STATE OF NEW HAMPSHIRE · HAROLD I. GREEN JR. No. 736 · REGISTERED PROFESSIONAL ENGINEER

12/10/76 SIGNED

Materials:
Plate SA-36
2 Pin SA-564 TY 630 or SA-193 Gr B7
2 Washers, Cotters, Retainers (Exempt NF-2121)

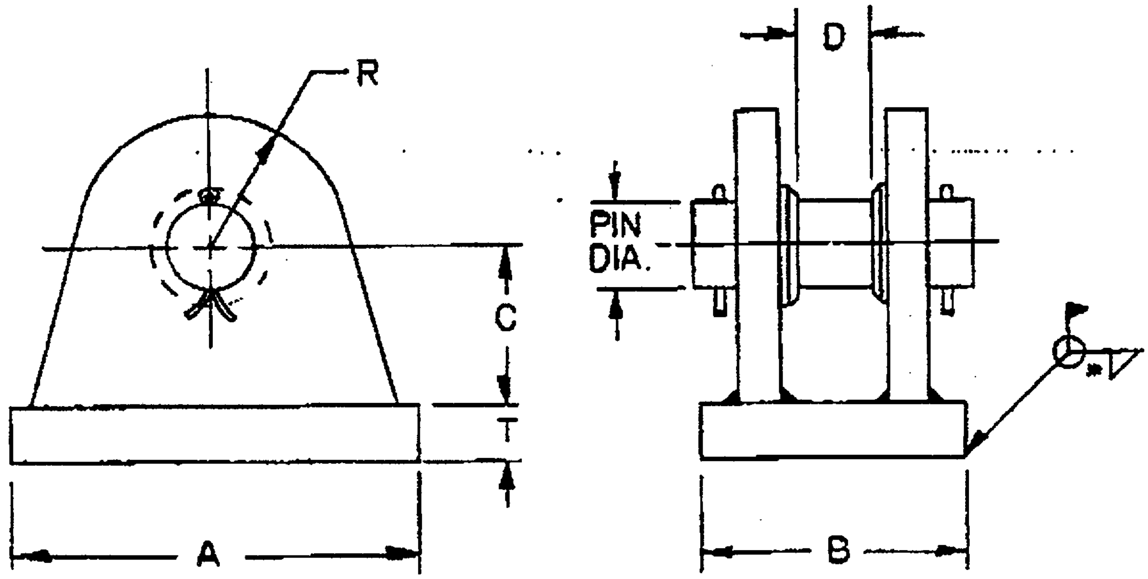
Stress calculations or test data for this product were performed in accordance with: A.S.M.E. SECTION III - SUBSECTION NF COMPONENT SUPPORTS (date of issue 7-1-77) and are on file at:

BERGEN-PATERSON PIPESUPPORT CORPORATION
Hackensack, NJ 07601 USA

Control Ref. No. 2003

BERGEN-PATERSON PIPESUPPORT CORP. LOAD CAPACITY DATA SHEET | SHEET 1 of 1 | REV. 4 | PART NO. 2003

Dimensions Provided For User Application Only



PART NO. & SIZE	A	B	C	D	PIN DIA.	R	T
2003-.65	2	2	$1\frac{1}{8}$	$\frac{13}{32}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{1}{4}$
-1.5	$3\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{3}{8}$
-3	$4\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{7}{8}$	$\frac{21}{32}$	$\frac{3}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$
-10	$5\frac{5}{8}$	$3\frac{1}{2}$	$2\frac{1}{2}$	$\frac{7}{8}$	1	$1\frac{1}{2}$	$\frac{3}{4}$
-20	$7\frac{1}{8}$	$4\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{5}{16}$	$1\frac{1}{2}$	$2\frac{1}{2}$	1
-30	$7\frac{5}{8}$	5	4	$1\frac{17}{32}$	$1\frac{3}{4}$	3	$1\frac{1}{4}$
-50	$9\frac{3}{4}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{3}{4}$	2	3	$1\frac{1}{4}$
-70	$11\frac{1}{4}$	$7\frac{1}{2}$	$5\frac{1}{2}$	$2\frac{3}{16}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{1}{2}$
-130	$14\frac{1}{4}$	$9\frac{1}{2}$	$7\frac{1}{4}$	$2\frac{27}{32}$	$3\frac{1}{4}$	$4\frac{1}{2}$	$1\frac{3}{4}$
-200	19	$12\frac{3}{4}$	$8\frac{3}{4}$	$3\frac{1}{2}$	4	$5\frac{1}{2}$	$2\frac{1}{4}$

*By Customer

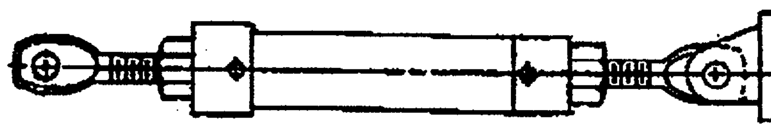
ORDERING INSTRUCTIONS:

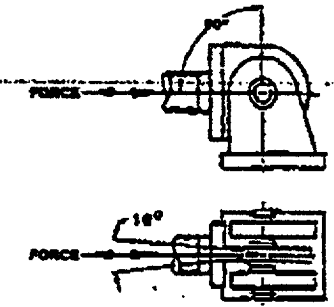
Specify Part No., Load Capacity Data Sheet Revision No. and Size Designation.
Example: Part 2003 - R/4-10

BERGEN-PATERSON PIPE SUPPORT CORP.	PART 2003
	DATE 7-5-83

LOAD CAPACITY DATA SHEET
for
NUCLEAR POWER PLANT COMPONENT STANDARD SUPPORTS

FIELD ADJUSTABLE RIGID STRUT





CONTROLLED COPY

DIRECTION OF LOADING

DESIGNED BY: Linear Analysis and Load Rating

LOAD RATING (lbs.) Cl. 1, 2, 3, & MC

TEMPERATURE 350 °F

KIP SIZE	STRUT LENGTH*	OPERATING CONDITIONS LEVEL A & B NORMAL & UPSET	LEVEL C EMERGENCY	LEVEL D FAULTED
0.7	9' - 2"	700	930	1200
1.5	9' - 2"	1500	2000	3000
4.0	9' - 10"	4000	5300	7300
△1 7	9' - 10"	7000	9300	14000
12	9' - 10"	12000	16000	19000
25	9' - 10"	25000	33300	37000
35	9' - 10"	35000	46600	52300
60	9' - 10"	60000	80000	83700
80	9' - 10"	80000	96000	112000
130	9' - 10"	130000	172900	238000

*Maximum strut length with adjustment for rated loads shown.

Code Case N-55 applies.
△ CODE CASE N-71

THE STATE OF NEW HAMPSHIRE
EUGENE R. CLOUTIER
NO. 4524
REGISTERED PROFESSIONAL ENGINEER

Eugene R. Cloutier

SEAL SIGNED

Materials:
Plate: SA-36, SA-515 Gr. 70
△4 Rod: SA-36, A108 GR 1018 ** △2
△4 Pipe: SA-106 Gr B or SA-53 Gr B
Pin: SA-564 TY 630
Bearings, Retainers, Cotters
Washers Exempt (NF-2121)
△4 Nuts SA-563 GR A

Stress calculations or test data for this product were performed in accordance with: A.S.M.E. SECTION III - SUBSECTION NF COMPONENT SUPPORTS (date of issue 7-1-77) and are on file at:

BERGEN-PATERSON
PRODUCT ENGINEERING DEPARTMENT △4

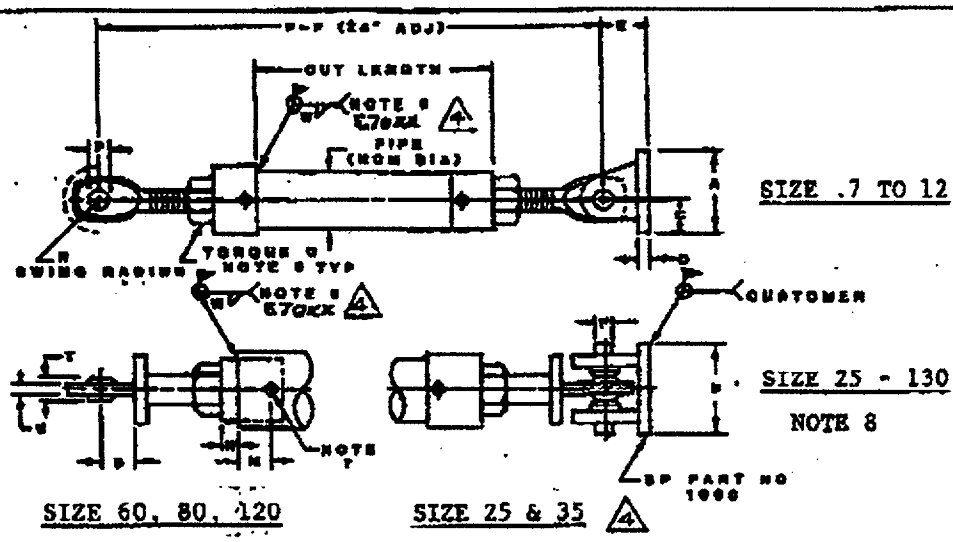
CONTROL REF. NO. 2252

BERGEN-PATERSON PIPESUPPORT CORP.
LOAD CAPACITY DATA SHEET

SHEET 1 OF 1 | REV. △4 | PART NO. 2252

REV.	
△4	REV. WELDS, MAT'L, ADDRESS, DIM. ADD NOTE 8-3-16-93
△3	Pipe Material 11-19-87
△2	Material, Pictorial 4-1-87
△1	Added Size 7 10/5/82

ORIG. ISSUE 6/18/82



KIP SIZE	A	B	C	D	E	F	P-P (MIN)	PIPE	Q/Q1 FT-LBS	R	S	T	U	W	X	N	M
.7	$1\frac{1}{8}$	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$1\frac{7}{8}$	$\frac{3}{8}$	22	$1\frac{1}{2}$" s/40	15 / 15	1	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{7}{16}$	$\frac{1}{8}$	$10\frac{7}{8}$	–	–
1.5	$1\frac{1}{2}$	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$2\frac{1}{4}$	$\frac{1}{2}$	22	$1\frac{1}{2}$" s/40	25 / 25	$1\frac{1}{8}$	$1\frac{3}{8}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	$10\frac{7}{8}$	–	–
4	$1\frac{1}{2}$	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$2\frac{1}{4}$	$\frac{1}{2}$	28	2" s/80	50 / 80	$1\frac{1}{4}$	$1\frac{9}{16}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{3}{16}$	$12\frac{1}{4}$	–	–
7	$3\frac{1}{2}$	$3\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$	$2\frac{7}{8}$	$\frac{3}{4}$	28	$2\frac{1}{2}$" s/80	100/350	2	$2\frac{3}{16}$	$\frac{7}{8}$	$\frac{5}{8}$	$\frac{1}{4}$	15	–	–
12	$3\frac{1}{2}$	$3\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$	$2\frac{7}{8}$	$\frac{3}{4}$	28	$2\frac{1}{2}$" s/80	100/350	2	$2\frac{3}{16}$	$\frac{7}{8}$	$\frac{5}{8}$	$\frac{1}{4}$	15	–	–
25	5	$4\frac{1}{4}$	$2\frac{1}{8}$	1	$3\frac{7}{8}$	1	30	3" s/80	100/600	$2\frac{5}{8}$	3	$1\frac{3}{8}$	1	$\frac{1}{4}$	18	–	–
35	$5\frac{3}{4}$	5	$2\frac{3}{8}$	$1\frac{1}{4}$	$4\frac{1}{4}$	$1\frac{1}{4}$	34	$3\frac{1}{2}$" s/80	100/1000	$2\frac{5}{8}$	$3\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$\frac{5}{16}$	20	–	–
60	$7\frac{1}{4}$	6	3	$1\frac{1}{2}$	$5\frac{5}{8}$	$1\frac{1}{2}$	36	5" s/80	100/500	$3\frac{5}{8}$	$3\frac{1}{2}$	$1\frac{11}{16}$	$1\frac{1}{4}$	$\frac{3}{8}$	$14\frac{9}{16}$	$\frac{5}{8}$	$2\frac{3}{4}$
80	$9\frac{1}{4}$	$7\frac{3}{4}$	$3\frac{5}{8}$	$1\frac{3}{4}$	$6\frac{1}{4}$	$1\frac{3}{4}$	40	6" s/80	100/500	$4\frac{1}{8}$	4	$1\frac{13}{16}$	$1\frac{1}{2}$	$\frac{3}{8}$	$15\frac{11}{16}$	$\frac{5}{8}$	$3\frac{1}{2}$
130	$11\frac{5}{8}$	$8\frac{7}{8}$	$4\frac{5}{8}$	$1\frac{3}{4}$	$8\frac{1}{2}$	$2\frac{1}{2}$	46	8" s/80	100	6	$5\frac{1}{4}$	$2\frac{1}{16}$	$1\frac{1}{2}$	$\frac{1}{2}$	$19\frac{11}{16}$	$\frac{3}{4}$	$4\frac{1}{8}$

Notes:
1. All dimensions are in inches.
2. Dimensions are provided for user application only.
3. Cut Length = Desired "P-P"- X. All struts are supplied at max. P-P as shown on LCDS.
4. This assembly is compatible with B-P Parts 6175, 6202, 6252, 6280, 6410, 6520, 6521, 6525, 6526.
5. Set adjustment at desired P-P and tighten nuts to nominal torque value (Q) for locking. To achieve published spring rates, tighten nuts to higher torque value (Q1). (Refer to table above.)
6. Weld 'W' performed by others following pipe cut.
7. Drill 3/8" dia. sight hole, one side only, sizes 60 thru 130.
8. Configuration for Sizes 25 thru 130 is the same both ends. 4

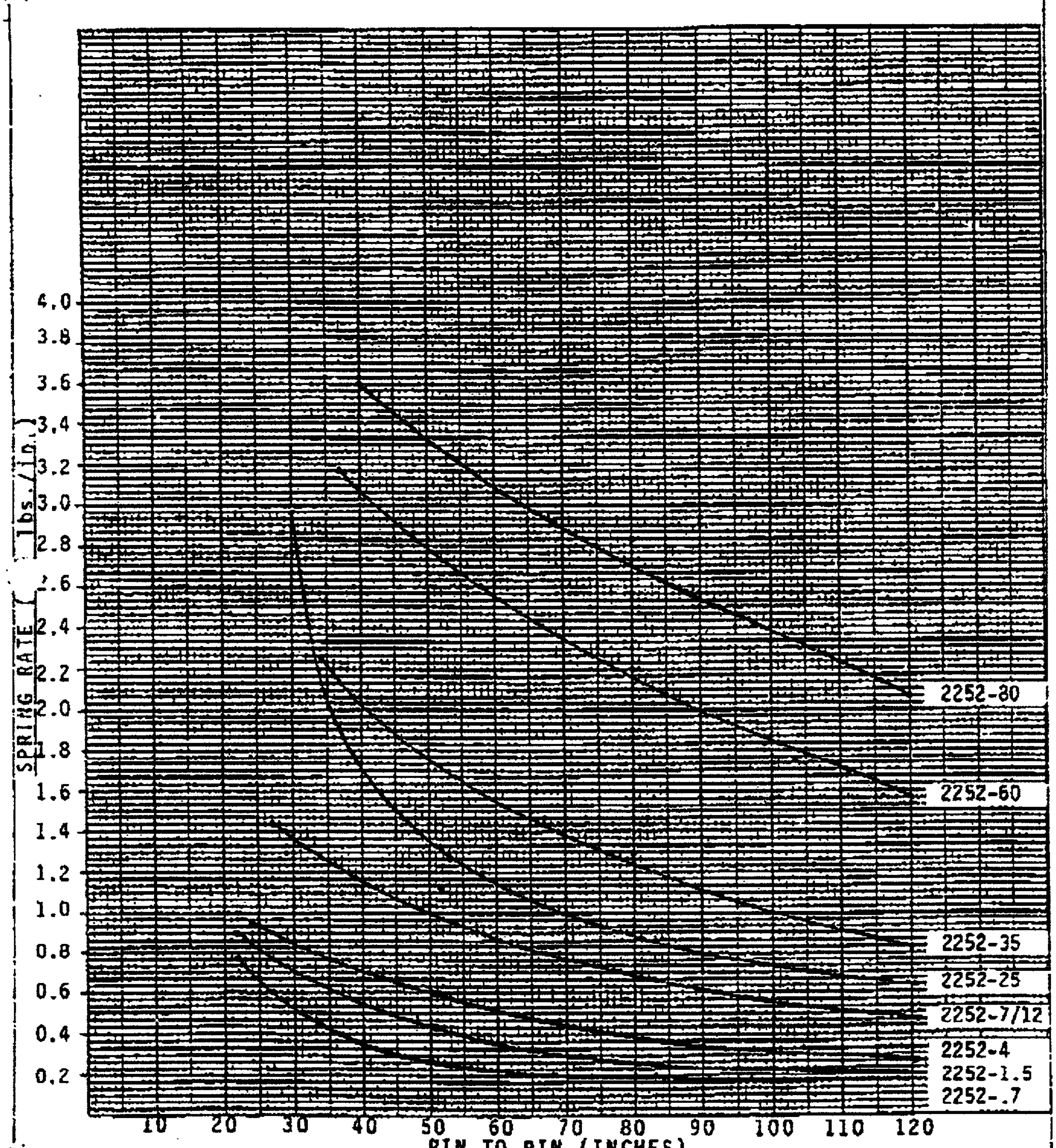
ORDERING INSTRUCTIONS: Specify Part No; LCDS Rev No., and Size Designation.
Example: 2252-R/4-60

BERGEN-PATERSON PIPE SUPPORT CORP.	PART	2252
	DATE	3-16-93

CONTROLLED COPY

PART 2252

SPRING RATE IN TENSION



Note: Spring rate values given are for pin to pin lengths. For spring rate of structural bracket see part 1000. To achieve spring rates above, nuts must be tightened to torque value Q_1. (Refer to dimensional table)

BERGEN-PATERSON PIPE SUPPORT CORP.	PART	2252
	DATE	10/26/90