



CPN PIPELINE COMPANY

60 RIVER ROAD

RIO VISTA, CA 94571

NYSE CPN

VIA FEDEX

SENT TO COMPLIANCE REGISTRY

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June 6, 2012

Mr. Chris Hoidal
Director, Western Region
Pipeline and Hazardous Materials Safety Administration
12300 W. Dakota Ave., Suite 110
Lakewood, CO 80228

RE: CPF 5-2012-0011W
Response to April 10, 2012 Warning Letter

Dear Mr. Hoidal:

In response to the above-referenced Warning Letter regarding the inspection of our Otay Mesa pipeline, CPN Pipeline appreciates PHMSA bringing this potential safety concern to our attention, and we have investigated the issue referenced in the alleged probable violation. The Warning Letter alleges that the 24-inch valves located at our remote pig launching facility and San Diego Gas & Electric tie-in are not adequately supported.

In response to the Warning Letter, CPN Pipeline engaged the original facility engineer, SPEC Services to conduct a pipe stress analysis of the aboveground facilities to ensure the piping complies with appropriate engineering codes and support requirements per 49 CFR 192.161. SPEC Services completed the analysis on 5/2/12 which demonstrates the pipe stresses at both the pig launching and receiving facilities pass the ASME B31.8 code stress requirements. A copy of the Analysis is attached for your review.

CPN Pipeline considers this issue resolved and intends to take no further action. If you have questions or need any additional information please contact me at 707-374-1505.

Respectfully,

Scott Vickers
Compliance Manager

Cc: Lyle Fedje
Kurt Seel
Hossein Monfared, PHMSA, 3401 Centre Lake Drive, Suite 550B, Ontario, CA 91761

Attachment: SPEC Services Pipe Stress Analysis



CALPINE

OTAY MESA GAS SUPPLY PIPELINE – PIG LAUNCHER AND RECEIVER

PIPE STRESS ANALYSIS

REV.	DESCRIPTION	BY	DATE	REVIEWED	DATE	APPROVED	DATE
0	ISSUED FOR REVIEW	JQ	5/02/12	OE	05/02/12		
				JOB NO.: 3974			
				DRAWING / CALCULATION NO.:		REV. 0	



PROJECT:	Otay Mesa Gas Supply Pipeline – Pig Launcher/Receiver	PROJ. NO.:	3974
CLIENT:	Calpine	SHEET:	2 of 2
SUBJECT:	Pipe Stress Analysis	DATE:	05/02/12
		BY:	JQ
		CHKD:	OE

Purpose:

SPEC Services was asked to analyze the existing scraper trap installations for the Otay Mesa Gas Supply Pipeline Project. This stress analysis report summarizes the properties and assumptions used to complete a static load analysis of the pipeline pig launcher and receiver stations.

Basis:

The pipelines were modeled in Caesar II based on the construction drawings. The model was limited to aboveground pipe. The pipe was modeled up to belowground points, and then treated as anchor points.

The following are the applicable code and design criteria used:

Piping Code	ASME B31.8
Piping Size	Varies
Material	Varies
Operating Pressure	900 PSIG
Operating Temperature	70° F (ambient)
Fluid Density	Empty (gas)

ASME B31.8 Stress Code:

The Gas Transmission and Distribution Piping Systems is one of several sections of the ASME Code for Pressure Piping (B31). This code (B31.8) covers the design, fabrication, installation, inspection, and testing of pipeline facilities used for the transportation of gas. This Code also covers safety aspects of the operation and maintenance of those facilities.

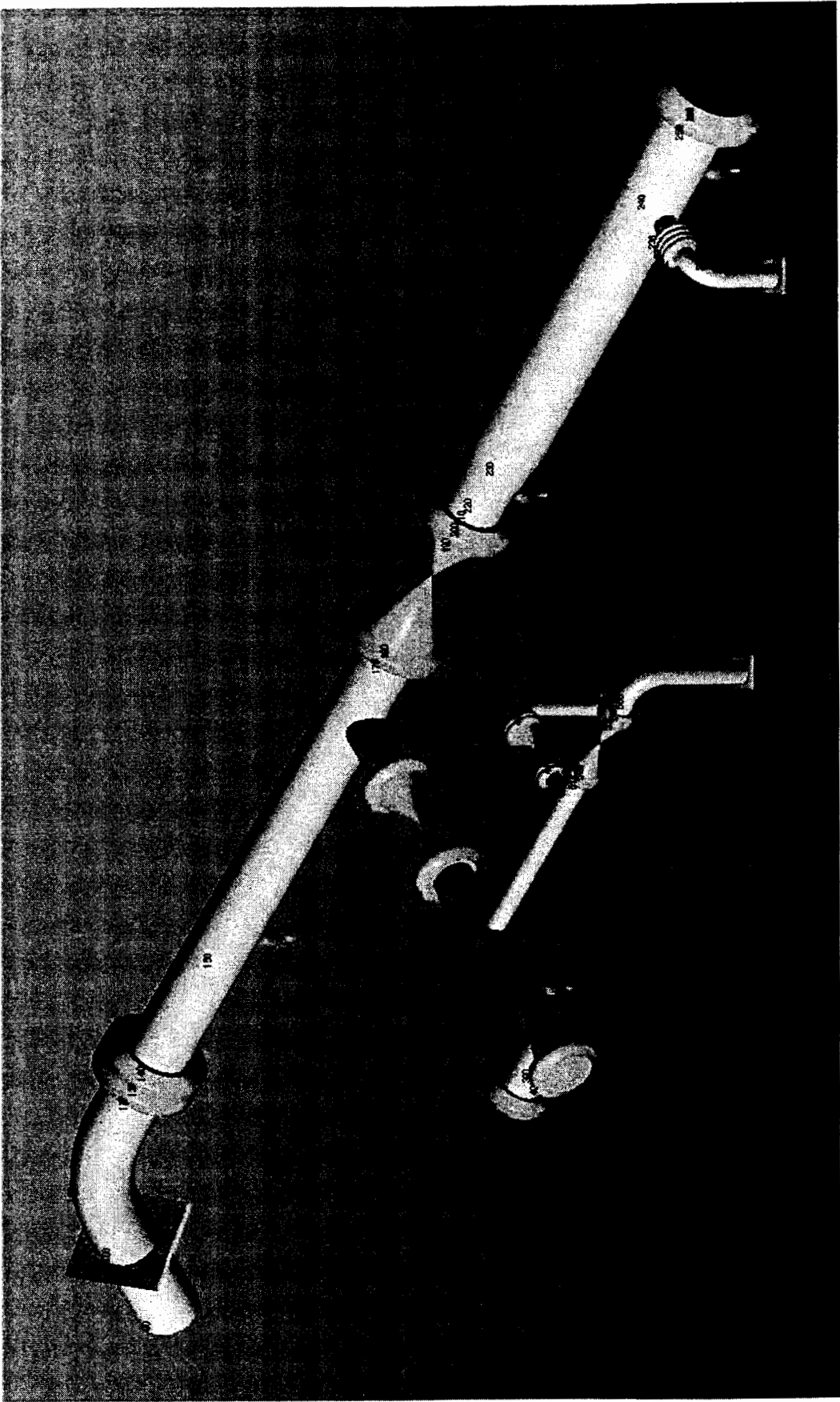
This report will analyze the sustained load (weight + pressure) by comparing the code stress to the allowable stress per ASME B31.8

Conclusion & Recommendations:

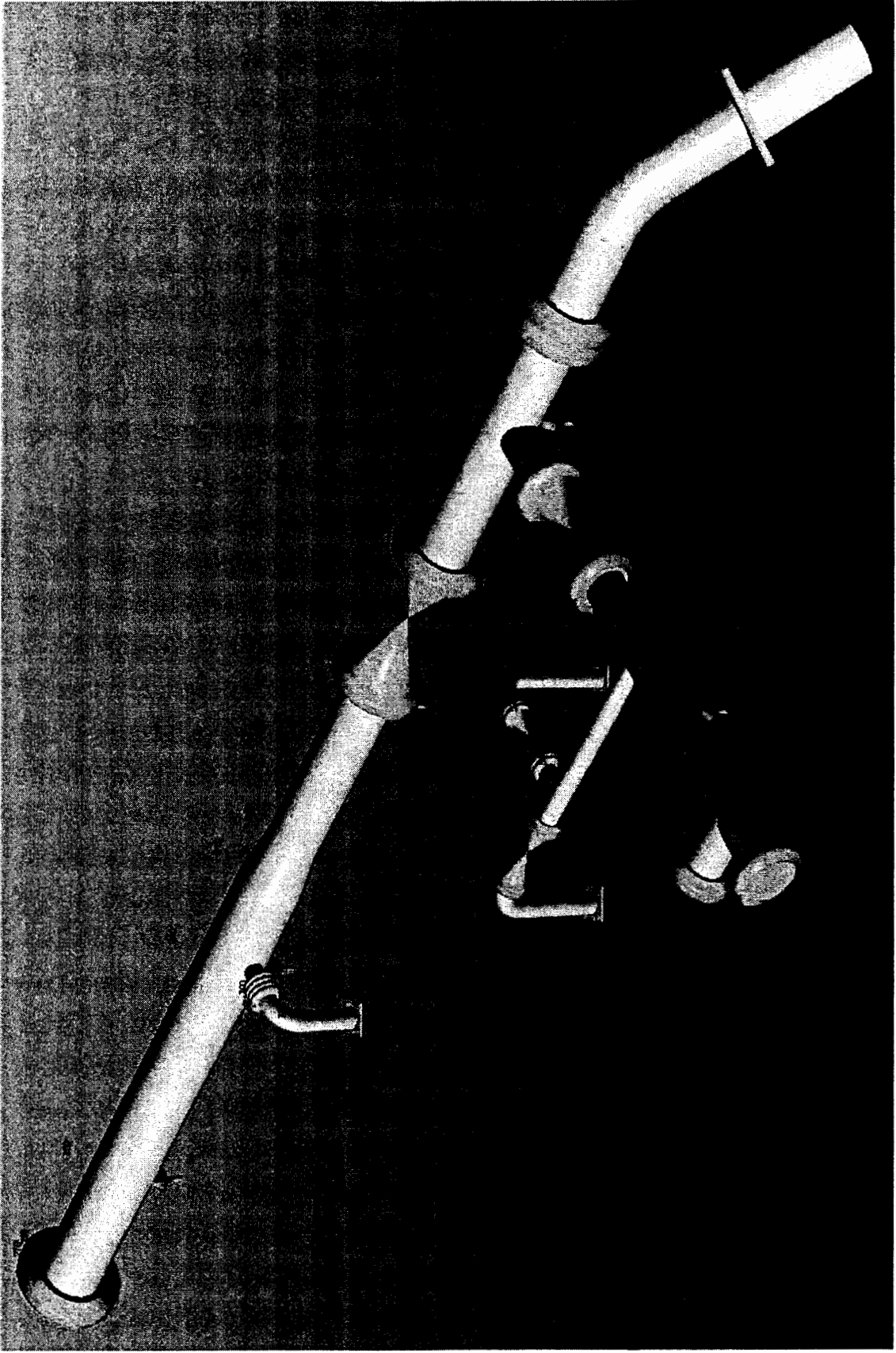
Based on the stress analysis results, the pipeline at both the launcher and receiver pass the B31.8 code stress requirements. The maximum ratio of code stress to allowable stress was 47.4%. For the launcher, this occurred at node 100 with a code stress of 25,606 psi and an allowable stress of 54,000 psi. For the receiver, this occurred at node 100 with a code stress of 25,606 psi and an allowable stress of 54,000 psi. Based on these results, the pipeline design is adequate and no further action is needed.

Attachments:

- A. Reference drawings (P_201, P_202, P_205, P_206, S_755, S_756)
- B. CAESAR models with node numbers
- C. Stress Reports



Pig Launcher



Pig Receiver

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date: MAY 2, 2012 Time: 11:15
Job: S:\JQUINTANA\CALPINE OTAY MESA\3974 SCRAPER TRAP LAUNCHER
Licensed To: SPEC SERVICES -- ID #12541

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (SUS) W+P1

OTAY MESA LAUNCHER STRESS RESULTS

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date: MAY 2, 2012 Time: 11:15
 Job: S:\QUINTANA\CALPINE OTAY MESA\3974 SCRAPER TRAP LAUNCHER
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STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

Piping Code: B31.8 = B31.8 -2007, November 30, 2007

CODE STRESS CHECK PASSED : LOADCASE 1 (SUS) W+P1

Highest Stresses: (lb./sq.in.)
 CodeStress Ratio (%): 47.4 @Node 100
 Code Stress: 25605.8 Allowable: 54000.0
 Axial Stress: 14400.9 @Node 170
 Bending Stress: 3882.8 @Node 160
 Torsion Stress: 0.0 @Node 100
 Hoop Stress: 28800.0 @Node 100
 3D Max Intensity: 29257.1 @Node 100

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code
90	0.0	0.0	1.000	1.000	25598.0	54000.0	47.4	B31.8
100	44.6	0.0	1.000	1.000	25605.8	54000.0	47.4	B31.8
100	18.5	0.0	1.000	1.000	14407.0	45000.0	32.0	B31.8
108	13.6	0.0	1.000	1.000	14406.2	45000.0	32.0	B31.8
108	13.6	0.0	1.000	1.000	14406.2	45000.0	32.0	B31.8
109	23.5	0.0	1.000	1.000	14421.6	45000.0	32.0	B31.8
109	23.5	0.0	1.000	1.000	14421.6	45000.0	32.0	B31.8
110	5.1	0.0	1.000	1.000	14403.4	45000.0	32.0	B31.8
110	5.1	0.0	1.000	1.000	14403.4	45000.0	32.0	B31.8
120	26.5	0.0	1.000	1.000	14424.7	45000.0	32.1	B31.8
120	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
130	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
130	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
140	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
140	157.5	0.0	1.000	1.000	14555.7	45000.0	32.3	B31.8
150	1098.6	0.0	1.000	1.000	15496.8	45000.0	34.4	B31.8
150	1098.6	0.0	1.000	1.000	15496.8	45000.0	34.4	B31.8
160	3879.6	0.0	2.757	3.343	18277.8	45000.0	40.6	B31.8
160	276.0	0.0	2.757	3.343	9877.7	31500.0	31.4	B31.8
300	1215.4	0.0	1.000	1.000	10817.1	31500.0	34.3	B31.8
300	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8

OTAY MESA LAUNCHER STRESS RESULTS

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STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code	
310	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
310	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
320	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
320	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
330	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
330	1339.5	0.0	1.000	1.000	10941.1	31500.0	34.7	B31.8	
340	724.7	0.0	2.153	2.538	10326.4	31500.0	32.8	B31.8	
340	1735.5	0.0	2.153	2.538	7753.6	26250.0	29.5	B31.8	
500	1400.1	0.0	1.632	1.843	7418.2	26250.0	28.3	B31.8	
500	1399.7	0.0	1.632	1.843	6709.2	26250.0	25.6	B31.8	
410	1113.0	0.0	1.000	1.000	6422.5	26250.0	24.5	B31.8	
410	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
420	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
420	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
430	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
430	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
440	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
440	294.3	0.0	2.086	1.739	5603.8	26250.0	21.3	B31.8	
449	376.1	0.0	2.086	1.739	5612.5	26250.0	21.4	B31.8	
449	376.1	0.0	2.086	1.739	5612.5	26250.0	21.4	B31.8	
450	582.9	0.0	2.086	1.739	5795.4	26250.0	22.1	B31.8	
450	372.6	0.0	1.000	1.000	5585.1	26250.0	21.3	B31.8	
460	371.8	0.0	1.000	1.000	5584.3	26250.0	21.3	B31.8	
460	371.8	0.0	1.000	1.000	5584.3	26250.0	21.3	B31.8	
470	190.7	0.0	1.000	1.000	5393.0	26250.0	20.5	B31.8	
500	1348.3	0.0	1.632	1.843	7362.3	26250.0	28.0	B31.8	
515	1155.7	0.0	1.000	1.000	7169.7	26250.0	27.3	B31.8	
515	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
520	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
520	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
530	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	

OTAY MESA LAUNCHER STRESS RESULTS

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 Licensed To: SPEC SERVICES -- ID #12541

STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code
530	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
540	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
540	510.3	0.0	1.000	1.000	6524.2	26250.0	24.9	B31.8
550	217.4	0.0	1.000	1.000	6231.3	26250.0	23.7	B31.8
550	360.6	0.0	2.177	1.814	6374.5	26250.0	24.3	B31.8
559	316.2	0.0	2.177	1.814	6262.4	26250.0	23.9	B31.8
559	316.2	0.0	2.177	1.814	6262.4	26250.0	23.9	B31.8
560	525.5	0.0	2.177	1.814	6448.4	26250.0	24.6	B31.8
560	326.8	0.0	1.000	1.000	6249.8	26250.0	23.8	B31.8
570	326.2	0.0	1.000	1.000	6249.1	26250.0	23.8	B31.8
570	326.2	0.0	1.000	1.000	6249.1	26250.0	23.8	B31.8
580	221.2	0.0	1.000	1.000	6133.9	26250.0	23.4	B31.8
340	947.0	0.0	2.153	2.538	10547.0	31500.0	33.5	B31.8
350	580.2	0.0	1.000	1.000	10180.2	31500.0	32.3	B31.8
350	580.2	0.0	1.000	1.000	10180.2	31500.0	32.3	B31.8
360	298.2	0.0	2.153	2.538	9898.2	31500.0	31.4	B31.8
360	212.1	0.0	2.153	2.538	9812.1	31500.0	31.1	B31.8
390	24.0	0.0	1.000	1.000	9624.0	31500.0	30.6	B31.8
390	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
400	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
360	399.0	0.0	2.153	2.538	9999.0	31500.0	31.7	B31.8
370	24.0	0.0	1.000	1.000	9624.0	31500.0	30.6	B31.8
370	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
380	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
160	3882.8	0.0	2.757	3.343	18283.7	45000.0	40.6	B31.8
170	1642.1	0.0	1.000	1.000	16043.0	45000.0	35.7	B31.8
170	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
180	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
180	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
190	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
190	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8
200	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8

OTAY MESA LAUNCHER STRESS RESULTS

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 CASE 1 (SUS) W+P1

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code	
200	1263.1	0.0	1.000	1.000	15663.9	45000.0	34.8	B31.8	
210	1758.1	0.0	1.000	1.000	16159.0	45000.0	35.9	B31.8	
210	1758.1	0.0	1.000	1.000	16159.0	45000.0	35.9	B31.8	
220	1670.9	0.0	1.000	1.000	16071.8	45000.0	35.7	B31.8	
220	1806.5	0.0	1.441	1.441	16207.3	45000.0	36.0	B31.8	
230	698.9	0.0	1.441	1.441	14199.4	45000.0	31.6	B31.8	
230	646.5	0.0	1.000	1.000	14147.0	45000.0	31.4	B31.8	
235	511.1	0.0	3.877	3.877	14011.6	45000.0	31.1	B31.8	
235	323.7	0.0	3.877	3.877	7250.2	45000.0	16.1	B31.8	
236	85.9	0.0	1.000	1.000	7012.4	45000.0	15.6	B31.8	
236	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
237	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
237	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
238	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
238	135.2	0.0	2.177	1.814	6158.3	26250.0	23.5	B31.8	
241	71.6	0.0	2.177	1.814	6083.1	26250.0	23.2	B31.8	
241	71.6	0.0	2.177	1.814	6083.1	26250.0	23.2	B31.8	
239	76.4	0.0	2.177	1.814	6082.6	26250.0	23.2	B31.8	
239	49.8	0.0	1.000	1.000	6056.0	26250.0	23.1	B31.8	
2395	38.0	0.0	1.000	1.000	6037.5	26250.0	23.0	B31.8	
235	520.6	0.0	3.877	3.877	14020.6	45000.0	31.2	B31.8	
240	172.4	0.0	1.000	1.000	13672.4	45000.0	30.4	B31.8	
240	172.4	0.0	1.000	1.000	13672.4	45000.0	30.4	B31.8	
250	17.5	0.0	1.000	1.000	13517.5	45000.0	30.0	B31.8	
250	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
260	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	

OTAY MESA LAUNCHER STRESS RESULTS

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date: MAY 2, 2012 Time: 11:18
Job: S:\JQUINTANA\CALPINE OTAY MESA\3974 SCRAPER TRAP RECEIVER
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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (SUS) W+P1

OTAY MESA RECEIVER STRESS RESULTS

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STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

Piping Code: B31.8 = B31.8 -2007, November 30, 2007

CODE STRESS CHECK PASSED : LOADCASE 1 (SUS) W+P1

Highest Stresses: (lb./sq.in.)

CodeStress Ratio (%): 47.4 @Node 100
 Code Stress: 25605.8 Allowable: 54000.0
 Axial Stress: 14399.0 @Node 160
 Bending Stress: 1724.6 @Node 150
 Torsion Stress: 0.0 @Node 100
 Hoop Stress: 28800.0 @Node 100
 3D Max Intensity: 29257.1 @Node 100

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code	
90	0.0	0.0	1.000	1.000	25598.0	54000.0	47.4	B31.8	
100	44.6	0.0	1.000	1.000	25605.8	54000.0	47.4	B31.8	
100	85.4	0.0	1.000	1.000	14466.7	45000.0	32.1	B31.8	
108	63.7	0.0	1.000	1.000	14452.2	45000.0	32.1	B31.8	
108	118.5	0.0	1.976	1.647	14507.0	45000.0	32.2	B31.8	
109	111.8	0.0	1.976	1.647	14504.8	45000.0	32.2	B31.8	
109	111.8	0.0	1.976	1.647	14504.8	45000.0	32.2	B31.8	
110	113.7	0.0	1.976	1.647	14509.4	45000.0	32.2	B31.8	
110	23.2	0.0	1.000	1.000	14419.0	45000.0	32.0	B31.8	
120	16.7	0.0	1.000	1.000	14412.4	45000.0	32.0	B31.8	
120	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
130	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
130	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
140	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
140	97.4	0.0	1.000	1.000	14493.1	45000.0	32.2	B31.8	
150	1724.6	0.0	2.757	3.343	16120.4	45000.0	35.8	B31.8	
150	922.5	0.0	2.757	3.343	10523.3	31500.0	33.4	B31.8	
300	860.8	0.0	1.000	1.000	10461.7	31500.0	33.2	B31.8	
300	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
310	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
310	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	

OTAY MESA RECEIVER STRESS RESULTS

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STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code	
320	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
320	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
330	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
330	970.3	0.0	1.000	1.000	10571.1	31500.0	33.6	B31.8	
340	329.0	0.0	2.153	2.538	9929.8	31500.0	31.5	B31.8	
340	975.0	0.0	2.153	2.538	6990.8	26250.0	26.6	B31.8	
500	1706.0	0.0	1.632	1.843	7721.8	26250.0	29.4	B31.8	
500	1713.6	0.0	1.632	1.843	7726.2	26250.0	29.4	B31.8	
600	1291.4	0.0	1.000	1.000	7304.0	26250.0	27.8	B31.8	
600	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
610	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
500	853.7	0.0	1.632	1.843	6166.6	26250.0	23.5	B31.8	
510	913.5	0.0	1.000	1.000	6226.4	26250.0	23.7	B31.8	
510	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
520	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
610	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
620	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
620	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
630	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
630	471.1	0.0	2.183	1.819	6521.3	26250.0	24.8	B31.8	
639	336.2	0.0	2.183	1.819	6305.6	26250.0	24.0	B31.8	
639	336.2	0.0	2.183	1.819	6305.6	26250.0	24.0	B31.8	
640	589.1	0.0	2.183	1.819	6530.7	26250.0	24.9	B31.8	
640	364.9	0.0	1.000	1.000	6306.5	26250.0	24.0	B31.8	
650	226.3	0.0	1.000	1.000	6157.7	26250.0	23.5	B31.8	
520	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
530	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
530	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
540	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
540	446.0	0.0	1.000	1.000	5758.9	26250.0	21.9	B31.8	
548	120.1	0.0	1.000	1.000	5433.0	26250.0	20.7	B31.8	

OTAY MESA RECEIVER STRESS RESULTS

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date: MAY 2, 2012 Time: 11:18
 Job: S:\JQUINTANA\CALPINE OTAY MESA\3974 SCRAPER TRAP RECEIVER
 Licensed To: SPEC SERVICES -- ID #12541

STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code	
548	188.6	0.0	2.086	1.739	5501.5	26250.0	21.0	B31.8	
549	337.0	0.0	2.086	1.739	5592.7	26250.0	21.3	B31.8	
549	337.0	0.0	2.086	1.739	5592.7	26250.0	21.3	B31.8	
550	501.9	0.0	2.086	1.739	5738.1	26250.0	21.9	B31.8	
550	321.4	0.0	1.000	1.000	5557.7	26250.0	21.2	B31.8	
560	179.8	0.0	1.000	1.000	5404.2	26250.0	20.6	B31.8	
340	237.4	0.0	2.153	2.538	9837.4	31500.0	31.2	B31.8	
350	1123.1	0.0	1.000	1.000	10723.1	31500.0	34.0	B31.8	
350	1123.1	0.0	1.000	1.000	10723.1	31500.0	34.0	B31.8	
360	450.7	0.0	2.153	2.538	10050.7	31500.0	31.9	B31.8	
360	399.0	0.0	2.153	2.538	9999.0	31500.0	31.7	B31.8	
370	24.0	0.0	1.000	1.000	9624.0	31500.0	30.6	B31.8	
370	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
380	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
360	399.0	0.0	2.153	2.538	9999.0	31500.0	31.7	B31.8	
390	24.0	0.0	1.000	1.000	9624.0	31500.0	30.6	B31.8	
390	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
400	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
150	1370.4	0.0	2.757	3.343	15769.5	45000.0	35.0	B31.8	
160	1293.1	0.0	1.000	1.000	15692.2	45000.0	34.9	B31.8	
160	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
170	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
170	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
180	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
180	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
190	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
190	228.2	0.0	1.000	1.000	14627.2	45000.0	32.5	B31.8	
200	460.8	0.0	1.000	1.000	14859.8	45000.0	33.0	B31.8	
200	460.8	0.0	1.000	1.000	14859.8	45000.0	33.0	B31.8	
210	18.8	0.0	1.000	1.000	14417.9	45000.0	32.0	B31.8	
210	36.1	0.0	1.441	1.441	14435.2	45000.0	32.1	B31.8	
220	33.1	0.0	1.441	1.441	13532.6	45000.0	30.1	B31.8	

OTAY MESA RECEIVER STRESS RESULTS

CAESAR II 2011 Ver.5.30.0, (Build 101122) Date: MAY 2, 2012 Time: 11:18
 Job: S:\JQUINTANA\CALPINE OTAY MESA\3974 SCRAPER TRAP RECEIVER
 Licensed To: SPEC SERVICES -- ID #12541

STRESSES REPORT: Stresses on Elements
 CASE 1 (SUS) W+P1

NODE	Bending Stress lb./sq.in.	Torsion Stress lb./sq.in.	SIF In Plane	SIF Out Plane	Code Stress lb./sq.in.	Allowable Stress lb./sq.in.	Ratio %	Piping Code	
220	27.6	0.0	1.000	1.000	13527.0	45000.0	30.1	B31.8	
230	120.9	0.0	3.877	3.877	13620.3	45000.0	30.3	B31.8	
230	854.4	0.0	3.877	3.877	6876.3	26250.0	26.2	B31.8	
700	247.2	0.0	1.000	1.000	6269.1	26250.0	23.9	B31.8	
700	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
710	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
710	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
720	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
720	219.9	0.0	2.177	1.814	6241.9	26250.0	23.8	B31.8	
241	23.1	0.0	2.177	1.814	6019.4	26250.0	22.9	B31.8	
241	23.1	0.0	2.177	1.814	6019.4	26250.0	22.9	B31.8	
730	100.6	0.0	2.177	1.814	6086.5	26250.0	23.2	B31.8	
730	61.6	0.0	1.000	1.000	6047.5	26250.0	23.0	B31.8	
740	49.6	0.0	1.000	1.000	6027.9	26250.0	23.0	B31.8	
230	121.5	0.0	3.877	3.877	13621.5	45000.0	30.3	B31.8	
240	30.1	0.0	1.000	1.000	13530.1	45000.0	30.1	B31.8	
240	30.1	0.0	1.000	1.000	13530.1	45000.0	30.1	B31.8	
250	303.7	0.0	1.000	1.000	13803.7	45000.0	30.7	B31.8	
250	303.7	0.0	1.000	1.000	13803.7	45000.0	30.7	B31.8	
260	17.5	0.0	1.000	1.000	13517.5	45000.0	30.0	B31.8	
260	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	
270	0.0	0.0	0.000	0.000	0.0	0.0	0.0	B31.8	

OTAY MESA RECEIVER STRESS RESULTS