



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

شماره پیمان:

053-073-9184

STRESS ANALYSIS CALCULATION REPORT

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D01	0002	RT	PI	120	PEDCO	GCS	BK

شماره صفحه: 1 از 5

طرح نگهداشت و افزایش تولید 27 مخزن

STRESS ANALYSIS CALCULATIONS REPORT

نگهداشت و افزایش تولید میدان نفتی بینک

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Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class:3

CLIENT Doc. Number: F0Z-708906

Status:

IDC: Inter-Discipline Check
IFC: Issued For Comment
IFA: Issued For Approval
AFD: Approved For Design
AFC: Approved For Construction
AFP: Approved For Purchase
AFQ: Approved For Quotation
IFI: Issued For Information
AB-R: As-Built for CLIENT Review
AB-A: As-Built –Approved



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D01	0002	RT	PI	120	PEDCO	GCS	BK

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 NISOC	تگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک							
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	BK	GCS	PEDCO	120	PI	RT	0002	D01

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 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
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1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

As a part of the Project, a New Gas Compressor Station (adjacent to existing Binak GCS) shall be constructed to gather of 15 MMSCFD (approx.) associated gases and compress & transfer them to Siahmakan GIS.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields CLIENT (NISOC)
PROJECT:	Binak Oilfield Development – Surface Facilities; New Gas Compressor Station
EPD/EPC CONTRACTOR (GC):	Petro Iran Development Company (PEDCO)
EPC CONTRACTOR:	Joint Venture of : Hirgan Energy – Design & Inspection (D&I) Companies
VENDOR:	The firm or person who will fabricate the equipment or material.
EXECUTOR:	Executor is the party which carries out all or part of construction and/or commissioning for the project.
THIRD PARTY INSPECTOR (TPI):	The firm appointed by EPD/EPC CONTRACTOR (GC) and approved by CLIENT (in writing) for the inspection of goods.
SHALL:	Is used where a provision is mandatory.
SHOULD:	Is used where a provision is advisory only.
WILL:	Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک							
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	BK	GCS	PEDCO	120	PI	RT	0002	
							D01	

2.0 SCOPE

This document covers piping Stress Analysis Calculations Report for BINAK Compressor Gas Station.

3.0 THE PROJECT DOCUMENTS

- BK-GCS-PEDCO-120-PI-SP-0001 Piping Material Specification
- BK-GCS-PEDCO-120-PR-LI-0004 LINE LIST
- BK-GNRAL-PEDCO-000-PI-SP-0012 Specification For Flexibility Analysis

4.0 ATTACHEMENT (stress analysis calculation report)

BNK-GCS-CN- · · 1

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Line no.

Stress sketch

Input echo

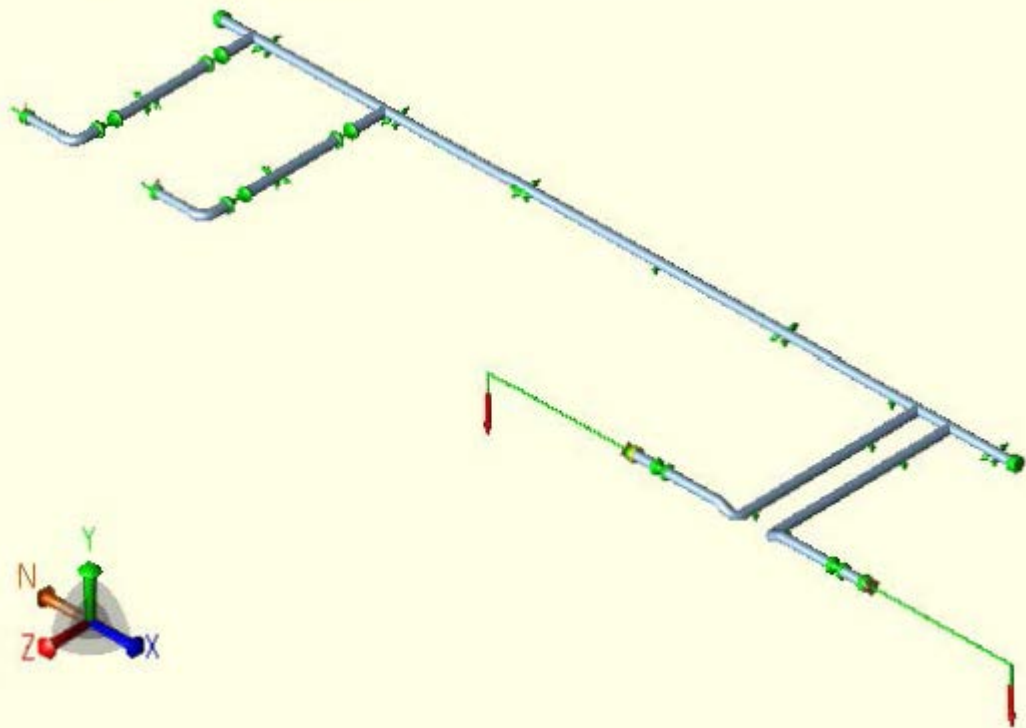
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. FWA-113-0019-AN04-12"-PT
2. FWA-113-0020-AN04-12"-PT
3. FWA-113-0006-AN04-12"-PT
4. FWA-113-0005-AN04-12"-PT
5. FWA-113-0004-AN04-12"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+D1+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+D1+T2+P1+U1
11 (OPE) W+D1+T2+P1-U1
12 (OPE) W+D1+T2+P1+U2
13 (OPE) W+D1+T2+P1+U3
14 (OPE) W+D1+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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PIPE DATA

 From 10 To 20 DX= .117 m.

PIPE

Dia= 32.385 cm. Wall= .635 cm. Cor= .3000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 85 C T2= 50 C T3= 5 C P1= 100.0023 KPa PHyd= 150.0034 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 201,258,288 KPa EH3= 204,228,528 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0009970 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 360.31 N.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 20 To 30 DX= .887 m.

 From 30 To 40 DX= .117 m.

RIGID Weight= 360.31 N.

 From 40 To 50 DX= .365 m.

RIGID Weight= 3,611.96 N.

 From 50 To 60 DX= .117 m.

RIGID Weight= 360.31 N.

 From 60 To 70 DX= 2.366 m.

BEND at "TO" end

Radius= 45.720 cm. (LONG) Bend Angle= 30.001 Angle/Node @1= 15.00 69

Angle/Node @2= .00 68

 From 70 To 80 DX= .672 m. DY= -.388 m.

BEND at "TO" end

Radius= 45.720 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

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INPUT LISTING

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-----
From 80 To 85 DZ= -1.000 m.
RESTRAINTS
  Node 85 +Y
-----
From 85 To 90 DZ= -5.500 m.
RESTRAINTS
  Node 90 +Y Mu = .30
-----
From 90 To 100 DZ= -2.215 m.
SIF's & TEE's
  Node 100 Welding Tee
-----
From 100 To 110 DX= 1.500 m.
SIF's & TEE's
  Node 110 Welding Tee
-----
From 110 To 120 DX= 2.040 m.
RESTRAINTS
  Node 120 +Y Mu = .30
  Node 120 Z Gap= .300 cm.
-----
From 120 To 130 DX= .858 m.
-----
From 130 To 140 DX= .117 m.
RIGID Weight= 360.31 N.
-----
From 140 To 150 DX= .117 m.
RIGID Weight= 360.31 N.
-----
From 100 To 160 DX= -1.250 m.
RESTRAINTS
  Node 160 +Y
-----
From 160 To 170 DX= -5.000 m.
RESTRAINTS
  Node 170 +Y Mu = .30
  Node 170 Z Gap= .300 cm.
-----
From 170 To 180 DX= -6.000 m.
RESTRAINTS
  Node 180 +Y Mu = .30
-----
From 180 To 190 DX= -6.000 m.
RESTRAINTS
  Node 190 +Y Mu = .30
  Node 190 Z Gap= .300 cm.
  Node 190 X Gap= .300 cm. Mu = .30
-----
From 190 To 200 DX= -6.000 m.
RESTRAINTS
  Node 200 +Y Mu = .30
  Node 200 Z Gap= .300 cm. Mu = .30
-----
From 200 To 210 DX= -.464 m.
SIF's & TEE's

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INPUT LISTING

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Node 210 Welding Tee
-----
From 210 To 220 DX= -5.536 m.
RESTRAINTS
Node 220 +Y Mu = .30
Node 220 Z Gap= .300 cm.
-----
From 220 To 230 DX= -.614 m.
SIF's & TEE's
Node 230 Welding Tee
-----
From 230 To 240 DX= -1.348 m.
-----
From 240 To 250 DX= -.117 m.
RIGID Weight= 360.31 N.
-----
From 250 To 260 DX= -.117 m.
RIGID Weight= 360.31 N.
-----
From 210 To 270 DZ= 1.554 m.
GENERAL
P1= 1,540.0350 KPa PHyd= 1,680.0382 KPa
-----
From 270 To 280 DZ= .117 m.
RIGID Weight= 360.31 N.
-----
From 280 To 290 DZ= .591 m.
RIGID Weight= 3,611.96 N.
-----
From 290 To 300 DZ= .117 m.
RIGID Weight= 360.31 N.
-----
From 300 To 310 DZ= 2.767 m.
RESTRAINTS
Node 310 +Y Mu = .30
Node 310 X Gap= .300 cm. Mu = .30
-----
From 310 To 320 DZ= 1.432 m.
-----
From 320 To 330 DZ= .117 m.
RIGID Weight= 360.31 N.
-----
From 330 To 340 DZ= .729 m.
RIGID Weight= 4,915.29 N.
-----
From 340 To 350 DZ= .117 m.
RIGID Weight= 360.31 N.
-----
From 350 To 360 DZ= 1.054 m.
BEND at "TO" end
Radius= 45.720 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 359
Angle/Node @2= .00 358
-----
From 360 To 370 DX= -.457 m.
-----
From 370 To 380 DX= -.203 m. DY= .025 m.

```

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INPUT LISTING

REDUCER

Diam2= 27.305 cm. Wall2= .635 cm.

From 380 To 390 DX= -1.420 m.

PIPE

Dia= 27.305 cm. Wall= .635 cm.

Insul Thk= .000 cm.

From 390 To 400 DX= -.105 m.

RIGID Weight= 235.76 N.

RESTRAINTS

Node 400 ANC Cnode 401

EQUIPMENT LIMITS

Nozzle Node = 400

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 13,344.67 N. FB= 10,675.73 N.

FC= 8,896.44 N. MA= 4,880.94 N.m. MB= 10,033.05 N.m. MC= 7,592.58 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 401 To 410 DX= -.105 m.

RIGID Weight= 235.76 N.

From 410 To 420 DX= -.600 m.

RIGID Weight= .00 N.

RESTRAINTS

Node 420 ANC

From 450 To 460 DX= -.117 m.

PIPE

Dia= 32.385 cm. Wall= .635 cm. Cor= .3000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 85 C T2= 50 C T3= 5 C P1= 100.0023 KPa PHyd= 150.0034 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 201,258,288 KPa EH3= 204,228,528 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0009970 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 360.31 N.

RESTRAINTS

Node 450 ANC Cnode 451

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 460 To 470 DX= -.887 m.

From 470 To 480 DX= -.117 m.

RIGID Weight= 360.31 N.

From 480 To 490 DX= -.365 m.

RIGID Weight= 3,611.96 N.

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INPUT LISTING

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From 490 To 500 DX= -.117 m.
RIGID Weight= 360.31 N.
-----
From 500 To 510 DX= -2.366 m.
BEND at "TO" end
  Radius= 45.720 cm. (LONG)   Bend Angle= 30.001   Angle/Node @1= 15.00 509
  Angle/Node @2= .00 508
-----
From 510 To 520 DX= -.672 m.   DY= -.388 m.
BEND at "TO" end
  Radius= 45.720 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 519
-----
From 520 To 530 DZ= -1.000 m.
RESTRAINTS
  Node 530 +Y
-----
From 530 To 540 DZ= -5.500 m.
RESTRAINTS
  Node 540 +Y   Mu = .30
-----
From 540 To 110 DZ= -2.215 m.
-----
From 610 To 620 DZ= .117 m.
PIPE
  Dia= 32.385 cm.   Wall= .635 cm.   Cor= .3000 cm.
GENERAL
  T1= 85 C   T2= 50 C   T3= 5 C   P1= 1,540.0350 KPa   PHyd= 1,680.0382 KPa
  Mat= (106)A106 Grade B   E= 203,401,232 KPa   EH1= 199,086,608 KPa
  EH2= 201,258,288 KPa   EH3= 204,228,528 KPa   EH4= 203,401,232 KPa
  EH5= 203,401,232 KPa   EH6= 203,401,232 KPa   EH7= 203,401,232 KPa
  EH8= 203,401,232 KPa   EH9= 203,401,232 KPa   v = .292
  Pipe Den= .0078334 kg./cu.cm.   Fluid Den= .0009970 kg./cu.cm.
  Insul Thk= .000 cm.   Insul Den= .0000000 kg./cu.cm.
RIGID Weight= 360.31 N.
ALLOWABLE STRESSES
  B31.3 (2016)   Cycle Max Switch = ---   Sc= 137,895 KPa
  Sh1= 137,895 KPa   Sh2= 137,895 KPa   Sh3= 137,895 KPa   Sh4= 137,895 KPa
  Sh5= 137,895 KPa   Sh6= 137,895 KPa   Sh7= 137,895 KPa   Sh8= 137,895 KPa
  Sh9= 137,895 KPa   Sy= 241,316 KPa
-----
From 620 To 230 DZ= -1.554 m.
SIF's & TEE's
  Node 230   Welding Tee
-----
From 620 To 630 DZ= .591 m.
RIGID Weight= 3,611.96 N.
-----
From 630 To 640 DZ= .117 m.
RIGID Weight= 360.31 N.
-----
From 640 To 650 DZ= 2.767 m.
RESTRAINTS
  Node 650 +Y   Mu = .30
  Node 650 X   Gap= .300 cm.   Mu = .30
-----
From 650 To 660 DZ= 1.432 m.

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INPUT LISTING

From 660 To 670 DZ= .117 m.

RIGID Weight= 360.31 N.

From 670 To 680 DZ= .729 m.

RIGID Weight= 4,915.29 N.

From 680 To 690 DZ= .117 m.

RIGID Weight= 360.31 N.

From 690 To 700 DZ= 1.054 m.

BEND at "TO" end

Radius= 45.720 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 699

Angle/Node @2= .00 698

From 700 To 710 DX= -.457 m.

From 710 To 720 DX= -.203 m. DY= .025 m.

REDUCER

Diam2= 27.305 cm. Wall2= .635 cm.

From 720 To 730 DX= -1.420 m.

PIPE

Dia= 27.305 cm. Wall= .635 cm.

Insul Thk= .000 cm.

From 730 To 740 DX= -.105 m.

RIGID Weight= 235.76 N.

RESTRAINTS

Node 740 ANC Cnode 741

EQUIPMENT LIMITS

Nozzle Node = 740

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 13,344.67 N. FB= 10,675.73 N.

FC= 8,896.44 N. MA= 4,880.94 N.m. MB= 10,033.05 N.m. MC= 7,592.58 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 741 To 750 DX= -.105 m.

RIGID Weight= 235.76 N.

From 750 To 760 DX= -.600 m.

RIGID Weight= .00 N.

RESTRAINTS

Node 760 ANC

From 11 To 770 DX= -.117 m.

PIPE

Dia= 32.385 cm. Wall= .635 cm.

GENERAL

T2= 21 C P1= 100.0023 KPa PHyd= 150.0034 KPa Insul Thk= .000 cm.

RIGID Weight= 360.31 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

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INPUT LISTING

 From 770 To 780 DX= -.132 m.

RESTRAINTS

Node 780 ANC Cnode 781

From 781 To 790 DX= -6.500 m.

PIPE

Dia= 1,300.000 cm. Wall= .635 cm. Cor= .1600 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 790 To 800 DY= -.850 m.

RIGID Weight= .00 N.

DISPLACEMENTS

Node 800 DX1= .000 cm. DY1= -1.500 cm. DZ1= .000 cm. RX1= .000

RY1= .000 RZ1= .000

From 451 To 810 DX= .117 m.

PIPE

Dia= 32.385 cm. Wall= .635 cm.

Insul Thk= .000 cm.

RIGID Weight= 360.31 N.

From 810 To 820 DX= .132 m.

RESTRAINTS

Node 820 ANC Cnode 821

From 821 To 830 DX= 6.500 m.

PIPE

Dia= 1,300.000 cm. Wall= .635 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

From 830 To 840 DY= -.850 m.

RIGID Weight= .00 N.

DISPLACEMENTS

Node 840 DX1= .000 cm. DY1= -1.500 cm. DZ1= .000 cm. RX1= .000

RY1= .000 RZ1= .000

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MATERIAL Changes:

10 20 Mat= (106)A106 Grade B E= 203,401,232 KPa

v = .292 Density= .0078 kg./cu.cm.

450 460 Mat= (106)A106 Grade B E= 203,401,232 KPa

v = .292 Density= .0078 kg./cu.cm.

610 620 Mat= (106)A106 Grade B E= 203,401,232 KPa

v = .292 Density= .0078 kg./cu.cm.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-001\BINAK-GSC-CN-0

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INPUT LISTING

ALLOWABLE STRESS Changes

10	20	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
450	460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
610	620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
11	770	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
781	790	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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BEND ELEMENTS

60	70	Radius= 45.720 cm. (LONG)
		Bend Angle= 30.001 Angle/Node @1= 15.00 69
		Angle/Node @2= .00 68
70	80	Radius= 45.720 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
350	360	Radius= 45.720 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		359 Angle/Node @2= .00 358
500	510	Radius= 45.720 cm. (LONG)
		Bend Angle= 30.001 Angle/Node @1= 15.00
		509 Angle/Node @2= .00 508
510	520	Radius= 45.720 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		519

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INPUT LISTING

690 700 Radius= 45.720 cm. (LONG)
 Bend Angle= 90.000 Angle/Node @1= 45.00
 699 Angle/Node @2= .00 698
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RIGIDS

10	20	RIGID Weight= 360.31 N.
30	40	RIGID Weight= 360.31 N.
40	50	RIGID Weight= 3,611.96 N.
50	60	RIGID Weight= 360.31 N.
130	140	RIGID Weight= 360.31 N.
140	150	RIGID Weight= 360.31 N.
240	250	RIGID Weight= 360.31 N.
250	260	RIGID Weight= 360.31 N.
270	280	RIGID Weight= 360.31 N.
280	290	RIGID Weight= 3,611.96 N.
290	300	RIGID Weight= 360.31 N.
320	330	RIGID Weight= 360.31 N.
330	340	RIGID Weight= 4,915.29 N.
340	350	RIGID Weight= 360.31 N.
390	400	RIGID Weight= 235.76 N.
401	410	RIGID Weight= 235.76 N.
410	420	RIGID Weight= .00 N.
450	460	RIGID Weight= 360.31 N.
470	480	RIGID Weight= 360.31 N.
480	490	RIGID Weight= 3,611.96 N.
490	500	RIGID Weight= 360.31 N.
610	620	RIGID Weight= 360.31 N.
620	630	RIGID Weight= 3,611.96 N.
630	640	RIGID Weight= 360.31 N.
660	670	RIGID Weight= 360.31 N.
670	680	RIGID Weight= 4,915.29 N.
680	690	RIGID Weight= 360.31 N.
730	740	RIGID Weight= 235.76 N.
741	750	RIGID Weight= 235.76 N.
750	760	RIGID Weight= .00 N.
11	770	RIGID Weight= 360.31 N.
781	790	RIGID Weight= .00 N.
790	800	RIGID Weight= .00 N.
451	810	RIGID Weight= 360.31 N.
821	830	RIGID Weight= .00 N.
830	840	RIGID Weight= .00 N.

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SIF'S & TEE'S

90	100	Node 100	Welding Tee
100	110	Node 110	Welding Tee
200	210	Node 210	Welding Tee
220	230	Node 230	Welding Tee
620	230	Node 230	Welding Tee

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INPUT LISTING

REDUCERS

370 380 Diam2= 27.305 cm. Wall2= .635 cm.
 710 720 Diam2= 27.305 cm. Wall2= .635 cm.
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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	11				.000 .000 .000
85	+Y					.000 1.000 .000
90	+Y				.30	.000 1.000 .000
120	+Y				.30	.000 1.000 .000
120	Z			.30		.000 .000 1.000
160	+Y					.000 1.000 .000
170	+Y				.30	.000 1.000 .000
170	Z			.30		.000 .000 1.000
180	+Y				.30	.000 1.000 .000
190	+Y				.30	.000 1.000 .000
190	Z			.30		.000 .000 1.000
190	X			.30	.30	1.000 .000 .000
200	+Y				.30	.000 1.000 .000
200	Z			.30	.30	.000 .000 1.000
220	+Y				.30	.000 1.000 .000
220	Z			.30		.000 .000 1.000
310	+Y				.30	.000 1.000 .000
310	X			.30	.30	1.000 .000 .000
400	ANC	401				.000 .000 .000
420	ANC					.000 .000 .000
450	ANC	451				.000 .000 .000
530	+Y					.000 1.000 .000
540	+Y				.30	.000 1.000 .000
650	+Y				.30	.000 1.000 .000
650	X			.30	.30	1.000 .000 .000
740	ANC	741				.000 .000 .000
760	ANC					.000 .000 .000
780	ANC	781				.000 .000 .000
820	ANC	821				.000 .000 .000

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DISPLACEMENTS

790 800 Node 800 DX1= .000 cm. DY1= -1.500 cm.
 DZ1= .000 cm. RX1= .000 RY1= .000
 RZ1= .000
 830 840 Node 840 DX1= .000 cm. DY1= -1.500 cm.
 DZ1= .000 cm. RX1= .000 RY1= .000
 RZ1= .000

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EQUIPMENT LIMITS

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INPUT LISTING

390 400 Nozzle Node = 400

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 13,344.67 N. FB= 10,675.73 N.
 FC= 8,896.44 N. MA= 4,880.94 N.m. MB= 10,033.05 N.m. MC= 7,592.58 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

730 740 Nozzle Node = 740

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 13,344.67 N. FB= 10,675.73 N.
 FC= 8,896.44 N. MA= 4,880.94 N.m. MB= 10,033.05 N.m. MC= 7,592.58 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10 20

Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= SI NOM/SCH INPUT= ON

LENGTH	inches	x	2.540	=	cm.
FORCE	pounds	x	4.448	=	N.
MASS (dynamics)	pounds	x	0.454	=	Kg.
MOMENTS (INPUT)	inch-pounds	x	0.113	=	N.m.
MOMENTS (OUTPUT)	inch-pounds	x	0.113	=	N.m.
STRESS	lbs./sq.in.	x	6.895	=	KPa
TEMP. SCALE	degrees F.	x	0.556	=	C
PRESSURE	psig	x	6.895	=	KPa
ELASTIC MODULUS	lbs./sq.in.	x	6.895	=	KPa
PIPE DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
INSULATION DENS.	lbs./cu.in.	x	0.028	=	kg./cu.cm.
FLUID DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
TRANSL. STIF	lbs./in.	x	1.751	=	N./cm.
ROTATIONAL STIF	in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD	lb./in.	x	1.751	=	N./cm.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	6.895	=	KPa
ELEVATION	inches	x	0.025	=	m.
COMPOUND LENGTH	inches	x	0.025	=	m.
DIAMETER	inches	x	2.540	=	cm.
WALL THICKNESS	inches	x	2.540	=	cm.

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INPUT LISTING

SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =             5.00000
MAX ALLOWED BEND ANGLE =             95.0000
BEND LENGTH ATTACHMENT PERCENT =     1.00000
MIN ANGLE TO ADJACENT BEND PT =      5.00000
LOOP CLOSURE TOLERANCE =             2.54000      cm.
THERMAL BOWING HORZ TOLERANCE =      0.100000E-03
AUTO NODE NUMBER INCREMENT=         10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =             DEFAULT
ALPHA TOLERANCE =                    0.500000E-01
RESLD-FORCE =                         NO
HGR DEF RESWGT STIF =                 0.175127E+13 N./cm.
DECOMP SNG TOL =                     0.100000E+11
BEND AXIAL SHAPE =                   YES
FRICT STIF =                         0.175127E+07 N./cm.
FRICT NORM FORCE VAR =                0.150000
FRICT ANGLE VAR =                    15.0000
FRICT SLIDE MULT =                   1.00000
ROD TOLERANCE =                      1.00000
ROD INC =                            2.00000
INCORE NUMERICAL CHECK =              NO
OUTCORE NUMERICAL CHECK =             NO
DEFAULT TRANS RESTRAINT STIFF=       0.175127E+13      N./cm.
DEFAULT ROT RESTRAINT STIFF=         0.112985E+12      N.m./deg
IGNORE SPRING HANGER STIFFNESS =     NO
MISSING MASS ZPA =                   EXTRACTED
MIN WALL MILL TOLERANCE =             12.5000
WRC-107 VERSION =                    MAR 79 1B1/2B1
WRC-107 INTERPOLATION =              LAST VALUE
DEFAULT AMBIENT TEMPERATURE=         21.1111      C
BOURDON PRESSURE=                    NONE
COEFFICIENT OF FRICTION (MU) =        0.000000
INCLUDE SPRG STIF IN HGR OPE =        NO
INCLUDE INSULATION IN HYDROTEST =     NO
REDUCED INTERSECTION =               B31.1 (POST1980)
USE WRC329                           NO
NO REDUCED SIF FOR RFT AND WLT        NO
B31.1 REDUCED Z FIX =                 YES
CLASS 1 BRANCH FLEX                   NO
ALL STRESS CASES CORRODED =           NO
ADD TORSION IN SL STRESS =            DEFAULT
ADD F/A IN STRESS =                   DEFAULT
OCCASIONAL LOAD FACTOR =              0.000000
DEFAULT CODE =                        B31.3
B31.3 SUS CASE SIF FACTOR =           0.000000
ALLOW USERS BEND SIF =                NO
USE SCHNEIDER                         NO
YIELD CRITERION STRESS =              MAX 3D SHEAR
USE PD/4T                             NO
BASE HOOP STRESS ON ? =               ID
EN13480 USE IN OUTPLANE SIFS=         NO
LIBERAL EXPANSION ALLOWABLE=          YES
B31.3 SEC 319.2.3C SAXIAL=            Default
  
```

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INPUT LISTING

B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
 PRESSURE VARIATION IN EXP CASE= DEFAULT
 IMPLEMENT B313 APP-P NO
 IMPLEMENT B313 CODE CASE 178 YES
 IGNORE B31.1/B31.3 Wc FACTOR= YES
 USE FRP SIF = YES
 USE FRP FLEX = YES
 BS 7159 Pressure Stiffening= Design Strain
 FRP Property Data File= CAESAR.FRP
 FRP Emod (axial) = 0.220632E+08 KPa
 FRP Ratio Gmod/Emod (axial) = 0.250000
 FRP Ea/Eh*Vh/a = 0.152730
 FRP Laminate Type = THREE
 FRP Alpha = 21.6000 C
 FRP Density = 0.166079E-02 kg./cu.cm.
 EXCLUDE f2 FROM UKOOA BENDING = NO
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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000
 Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 C
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

 Ambient Temperature 20.997 C
 Plastic (FRP) Alpha 21.600
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X
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COORDINATE REPORT

NODE	/----- (cm.) -----/		
	X	Y	Z
10	655.300	-532.935	706.010
20	667.047	-532.935	706.010
30	755.797	-532.935	706.010
40	767.545	-532.935	706.010
50	804.045	-532.935	706.010
60	815.792	-532.935	706.010
70	1052.392	-532.935	706.010
80	1119.592	-571.735	706.010
85	1119.592	-571.735	606.010
90	1119.592	-571.735	56.010
100	1119.592	-571.735	-165.490

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INPUT LISTING

110	1269.592	-571.735	-165.490
120	1473.592	-571.735	-165.490
130	1559.392	-571.735	-165.490
140	1571.140	-571.735	-165.490
150	1582.888	-571.735	-165.490
100	1119.592	-571.735	-165.490
160	994.592	-571.735	-165.490
170	494.592	-571.735	-165.490
180	-105.408	-571.735	-165.490
190	-705.408	-571.735	-165.490
200	-1305.408	-571.735	-165.490
210	-1351.808	-571.735	-165.490
220	-1905.408	-571.735	-165.490
230	-1966.808	-571.735	-165.490
240	-2101.608	-571.735	-165.490
250	-2113.355	-571.735	-165.490
260	-2125.103	-571.735	-165.490
210	-1351.808	-571.735	-165.490
270	-1351.808	-571.735	-10.090
280	-1351.808	-571.735	1.658
290	-1351.808	-571.735	60.713
300	-1351.808	-571.735	72.460
310	-1351.808	-571.735	349.160
320	-1351.808	-571.735	492.360
330	-1351.808	-571.735	504.107
340	-1351.808	-571.735	577.008
350	-1351.808	-571.735	588.755
360	-1351.808	-571.735	694.155
370	-1397.508	-571.735	694.155
380	-1417.808	-569.195	694.155
390	-1559.808	-569.195	694.155
400	-1570.285	-569.195	694.155
410	-1580.763	-569.195	694.155
420	-1640.763	-569.195	694.155
450	1733.885	-532.935	706.010
460	1722.137	-532.935	706.010
470	1633.387	-532.935	706.010
480	1621.640	-532.935	706.010
490	1585.140	-532.935	706.010
500	1573.392	-532.935	706.010
510	1336.792	-532.935	706.010
520	1269.592	-571.735	706.010
530	1269.592	-571.735	606.010
540	1269.592	-571.735	56.010
110	1269.592	-571.735	-165.490
610	-1966.808	-571.735	-21.837
620	-1966.808	-571.735	-10.090
230	-1966.808	-571.735	-165.490
620	-1966.808	-571.735	-10.090
630	-1966.808	-571.735	48.965
640	-1966.808	-571.735	60.713
650	-1966.808	-571.735	337.413
660	-1966.808	-571.735	480.612
670	-1966.808	-571.735	492.360
680	-1966.808	-571.735	565.260
690	-1966.808	-571.735	577.008

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INPUT LISTING

700	-1966.808	-571.735	682.408
710	-2012.508	-571.735	682.408
720	-2032.808	-569.195	682.408
730	-2174.808	-569.195	682.408
740	-2185.285	-569.195	682.408
750	-2195.763	-569.195	682.408
760	-2255.763	-569.195	682.408
10	655.300	-532.935	706.010
770	643.552	-532.935	706.010
780	630.352	-532.935	706.010
790	-19.648	-532.935	706.010
800	-19.648	-617.935	706.010
450	1733.885	-532.935	706.010
810	1745.633	-532.935	706.010
820	1758.833	-532.935	706.010
830	2408.833	-532.935	706.010
840	2408.833	-617.935	706.010

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Restraint Summary : Multiple.....3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+D1+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+D1+T2+P1+U1
11 (OPE) W+D1+T2+P1-U1
12 (OPE) W+D1+T2+P1+U2
13 (OPE) W+D1+T2+P1+U3
14 (OPE) W+D1+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+D1+T1+P1

CASE 4 (OPE) W+D1+T2+P1

CASE 6 (OPE) W+D1+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid ANC;					
	1(HYD)	-17	-7236	37	422	-183	-6029
	2(OPE)	323	2387	-581	3982	704	33363
	4(OPE)	106	2705	-45	3820	-936	34673
	6(OPE)	112	2641	-79	3684	-216	34463
	8(SUS)	-17	-7231	37	422	-183	-6024
	9(SUS)	-9	-5152	22	253	-109	-4115
	MAX	323/L2	-7236/L1	-581/L2	3982/L2	-936/L4	34673/L4
85		TYPE=Rigid +Y;					
	1(HYD)	0	-7349	0	0	0	0
	2(OPE)	0	-18546	0	0	0	0
	4(OPE)	0	-18936	0	0	0	0
	6(OPE)	0	-18895	0	0	0	0
	8(SUS)	0	-7339	0	0	0	0
	9(SUS)	0	-3301	0	0	0	0
	MAX		-18936/L4				
90		TYPE=Rigid +Y;					
	1(HYD)	86	-5956	-38	0	0	0
	2(OPE)	922	-3254	-320	0	0	0
	4(OPE)	865	-3113	-352	0	0	0
	6(OPE)	-878	-3065	272	0	0	0
	8(SUS)	86	-5947	-38	0	0	0
	9(SUS)	48	-2261	-22	0	0	0
	MAX	922/L2	-5956/L1	-352/L4			
120		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	8	-4661	-9	0	0	0
	2(OPE)	1662	-5565	-157	0	0	0
	4(OPE)	1703	-5700	-156	0	0	0
	6(OPE)	-1731	-5774	-67	0	0	0
	8(SUS)	8	-4655	-9	0	0	0
	9(SUS)	4	-2348	-5	0	0	0
	MAX	-1731/L6	-5774/L6	-157/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
160		TYPE=Rigid +Y;					
	1(HYD)	0	-6196	0	0	0	0
	2(OPE)	0	-7509	0	0	0	0
	4(OPE)	0	-7388	0	0	0	0
	6(OPE)	0	-7295	0	0	0	0
	8(SUS)	0	-6186	0	0	0	0
	9(SUS)	0	-2387	0	0	0	0
	MAX		-7509/L2				
170		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-1	-6817	-2	0	0	0
	2(OPE)	2020	-6937	-2402	0	0	0
	4(OPE)	1920	-6959	-819	0	0	0
	6(OPE)	-1993	-6968	631	0	0	0
	8(SUS)	-1	-6806	-2	0	0	0
	9(SUS)	-1	-2717	-1	0	0	0
	MAX	2020/L2	-6968/L6	-2402/L2			
180		TYPE=Rigid +Y;					
	1(HYD)	1	-7531	1	0	0	0
	2(OPE)	2242	-7491	151	0	0	0
	4(OPE)	2244	-7486	81	0	0	0
	6(OPE)	-2241	-7484	-137	0	0	0
	8(SUS)	1	-7519	1	0	0	0
	9(SUS)	0	-2960	1	0	0	0
	MAX	2244/L4	-7531/L1	151/L2			
190		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	2	-7350	-1	0	0	0
	2(OPE)	4045	-7346	-568	0	0	0
	4(OPE)	1484	-7348	-751	0	0	0
	6(OPE)	-32	-7349	394	0	0	0
	8(SUS)	2	-7339	-1	0	0	0
	9(SUS)	2	-2943	-1	0	0	0
	MAX	4045/L2	-7350/L1	-751/L4			
200		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	6	-11164	-5	0	0	0
	2(OPE)	-5832	-11116	-17327	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-2487	-11129	-2228	0	0	0
	6(OPE)	2534	-11141	2180	0	0	0
	8(SUS)	6	-11149	-5	0	0	0
	9(SUS)	4	-5227	-4	0	0	0
	MAX	-5832/L2	-11164/L1	-17327/L2			
220		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	7	-11711	-6	0	0	0
	2(OPE)	-3150	-11693	-19814	0	0	0
	4(OPE)	-3140	-11696	-1566	0	0	0
	6(OPE)	3158	-11695	1528	0	0	0
	8(SUS)	7	-11697	-6	0	0	0
	9(SUS)	5	-6281	-4	0	0	0
	MAX	3158/L6	-11711/L1	-19814/L2			
310		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-23	-12555	16	0	0	0
	2(OPE)	1393	-12641	3527	0	0	0
	4(OPE)	-1245	-12586	-3565	0	0	0
	6(OPE)	578	-12542	919	0	0	0
	8(SUS)	-23	-12544	16	0	0	0
	9(SUS)	-17	-8270	12	0	0	0
	MAX	1393/L2	-12641/L2	-3565/L4			
400		TYPE=Rigid ANC;					
	1(HYD)	14	-5061	-12	-45	12	-7376
	2(OPE)	-2515	-4983	15335	-258	-25918	-7312
	4(OPE)	-299	-5030	5092	-115	-8579	-7336
	6(OPE)	189	-5067	-2899	-5	4887	-7382
	8(SUS)	14	-5056	-12	-45	12	-7371
	9(SUS)	10	-3311	-9	-64	10	-5146
	MAX	-2515/L2	-5067/L6	15335/L2	-258/L2	-25918/L2	-7382/L6
420		TYPE=Rigid ANC;					
	1(HYD)	14	-5351	-12	-45	20	-11133
	2(OPE)	-2515	-5273	15335	-258	-36725	-11013
	4(OPE)	-299	-5320	5092	-115	-12168	-11070
	6(OPE)	189	-5357	-2899	-5	6930	-11142
	8(SUS)	14	-5347	-12	-45	20	-11124
	9(SUS)	10	-3547	-9	-64	17	-7634
	MAX	-2515/L2	-5357/L6	15335/L2	-258/L2	-36725/L2	-11142/L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
450		TYPE=Rigid ANC;					
	1(HYD)	20	-7266	40	416	189	6103
	2(OPE)	1963	2361	3368	1745	9881	-33280
	4(OPE)	480	2658	1416	3026	5049	-34567
	6(OPE)	-248	2635	-844	4075	-2052	-34428
	8(SUS)	20	-7260	40	415	189	6098
	9(SUS)	10	-5159	23	251	111	4132
	MAX	1963/L2	-7266/L1	3368/L2	4075/L6	9881/L2	-34567/L4
530		TYPE=Rigid +Y;					
	1(HYD)	0	-7275	0	0	0	0
	2(OPE)	0	-18650	0	0	0	0
	4(OPE)	0	-18895	0	0	0	0
	6(OPE)	0	-18824	0	0	0	0
	8(SUS)	0	-7265	0	0	0	0
	9(SUS)	0	-3284	0	0	0	0
	MAX		-18895/L4				
540		TYPE=Rigid +Y;					
	1(HYD)	-95	-6201	-29	0	0	0
	2(OPE)	921	-3191	-262	0	0	0
	4(OPE)	941	-3278	-284	0	0	0
	6(OPE)	-1001	-3364	131	0	0	0
	8(SUS)	-94	-6191	-29	0	0	0
	9(SUS)	-50	-2305	-16	0	0	0
	MAX	-1001/L6	-6201/L1	-284/L4			
650		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-22	-12531	21	0	0	0
	2(OPE)	-1776	-12604	3338	0	0	0
	4(OPE)	-2780	-12546	-2537	0	0	0
	6(OPE)	1376	-12508	687	0	0	0
	8(SUS)	-22	-12520	21	0	0	0
	9(SUS)	-16	-8238	16	0	0	0
	MAX	-2780/L4	-12604/L2	3338/L2			
740		TYPE=Rigid ANC;					
	1(HYD)	13	-5083	-14	-160	16	-7159
	2(OPE)	-1272	-5008	16159	-388	-27345	-7071
	4(OPE)	506	-5057	4982	-230	-8532	-7109
	6(OPE)	-276	-5090	-2794	-120	4795	-7176
	8(SUS)	13	-5079	-14	-160	16	-7153
	9(SUS)	10	-3336	-11	-178	13	-4936

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-1272/L2	-5090/L6	16159/L2	-388/L2	-27345/L2	-7176/L6
760		TYPE=Rigid ANC;					
	1(HYD)	13	-5374	-14	-160	25	-10931
	2(OPE)	-1272	-5298	16159	-388	-38733	-10790
	4(OPE)	506	-5348	4982	-230	-12043	-10863
	6(OPE)	-276	-5380	-2794	-120	6764	-10953
	8(SUS)	13	-5369	-14	-160	25	-10922
	9(SUS)	10	-3572	-11	-178	21	-7441
	MAX	-1272/L2	-5380/L6	16159/L2	-388/L2	-38733/L2	-10953/L6
780		TYPE=Rigid ANC;					
	1(HYD)	-17	-7847	37	422	-193	-7931
	2(OPE)	323	1777	-581	3982	849	33862
	4(OPE)	106	2095	-45	3820	-925	35252
	6(OPE)	112	2031	-79	3684	-197	35026
	8(SUS)	-17	-7841	37	422	-192	-7924
	9(SUS)	-9	-5577	22	253	-115	-5473
	MAX	323/L2	-7847/L1	-581/L2	3982/L2	-925/L4	35252/L4
800		TYPE=Displ. Reaction;					
	1(HYD)	-17	-7847	37	454	-434	-58920
	2(OPE)	323	1777	-581	3488	4628	45139
	4(OPE)	106	2095	-45	3782	-632	48779
	6(OPE)	112	2031	-79	3618	315	48131
	8(SUS)	-17	-7841	37	453	-433	-58876
	9(SUS)	-9	-5577	22	272	-256	-41714
	MAX	323/L2	-7847/L1	-581/L2	3782/L4	4628/L2	-58920/L1
820		TYPE=Rigid ANC;					
	1(HYD)	20	-7876	40	416	199	8012
	2(OPE)	1963	1751	3368	1745	10721	-33773
	4(OPE)	480	2048	1416	3026	5402	-35134
	6(OPE)	-248	2025	-844	4075	-2262	-34989
	8(SUS)	20	-7870	40	415	199	8006
	9(SUS)	10	-5584	23	251	117	5492
	MAX	1963/L2	-7876/L1	3368/L2	4075/L6	10721/L2	-35134/L4
840		TYPE=Displ. Reaction;					
	1(HYD)	20	-7876	40	450	462	59191
	2(OPE)	1963	1751	3368	4608	32614	-46825
	4(OPE)	480	2048	1416	4230	14609	-48853
	6(OPE)	-248	2025	-844	3358	-7745	-47939
	8(SUS)	20	-7870	40	449	462	59146

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	9(SUS)	10	-5584	23	271	263	41779
	MAX	1963/L2	-7876/L1	3368/L2	4608/L2	32614/L2	59191/L1

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+D1+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+D1+T2+P1+U1
11 (OPE) W+D1+T2+P1-U1
12 (OPE) W+D1+T2+P1+U2
13 (OPE) W+D1+T2+P1+U3
14 (OPE) W+D1+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 20 (OCC) L20=L15+L8
 CASE 21 (OCC) L21=L16+L8
 CASE 22 (OCC) L22=L17+L8
 CASE 23 (OCC) L23=L18+L8
 CASE 24 (OCC) L24=L19+L8
 CASE 25 (EXP) L25=L2-L8
 CASE 26 (EXP) L26=L4-L8
 CASE 27 (EXP) L27=L2-L4
 CASE 28 (EXP) L28=L6-L8
 CASE 29 (EXP) L29=L2-L6
 CASE 30 (EXP) L30=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (KPa)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	15.2	@Node 390
Code Stress:	36604.5	Allowable Stress: 241316.5
Axial Stress:	20234.7	@Node 710
Bending Stress:	19791.2	@Node 390
Torsion Stress:	1279.1	@Node 230
Hoop Stress:	41160.9	@Node 270
Max Stress Intensity:	43889.9	@Node 650

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (KPa)	LOADCASE 8 (SUS) W+P1	
Ratio (%):	48.2	@Node 390
Code Stress:	66500.2	Allowable Stress: 137895.1
Axial Stress:	36192.0	@Node 710
Bending Stress:	36264.0	@Node 390
Torsion Stress:	2356.3	@Node 230
Hoop Stress:	72898.8	@Node 270
Max Stress Intensity:	75681.7	@Node 650

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (KPa)	LOADCASE 9 (SUS) WNC	
Ratio (%):	18.5	@Node 390
Code Stress:	25457.3	Allowable Stress: 137895.1
Axial Stress:	177.4	@Node 70
Bending Stress:	25451.5	@Node 390
Torsion Stress:	1786.8	@Node 230
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	25457.3	@Node 390

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L8

Highest Stresses: (KPa)	LOADCASE 20 (OCC) L20=L15+L8	
Ratio (%):	44.9 @Node 650	
Code Stress:	82313.3	Allowable Stress: 183400.5
Axial Stress:	36377.2 @Node 359	
Bending Stress:	51196.8 @Node 210	
Torsion Stress:	2357.5 @Node 230	
Hoop Stress:	72898.8 @Node 270	
Max Stress Intensity:	113731.8 @Node 210	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L8

Highest Stresses: (KPa)	LOADCASE 21 (OCC) L21=L16+L8	
Ratio (%):	50.2 @Node 390	
Code Stress:	92019.7	Allowable Stress: 183400.5
Axial Stress:	36724.4 @Node 320	
Bending Stress:	61060.9 @Node 390	
Torsion Stress:	2373.6 @Node 230	
Hoop Stress:	72898.8 @Node 270	
Max Stress Intensity:	92673.2 @Node 390	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L8

Highest Stresses: (KPa)	LOADCASE 22 (OCC) L22=L17+L8	
Ratio (%):	39.4 @Node 390	
Code Stress:	72261.8	Allowable Stress: 183400.5
Axial Stress:	36196.4 @Node 320	
Bending Stress:	42025.2 @Node 390	
Torsion Stress:	2074.7 @Node 230	
Hoop Stress:	72898.8 @Node 270	
Max Stress Intensity:	79205.0 @Node 650	

CODE STRESS CHECK PASSED : LOADCASE 23 (OCC) L23=L18+L8

Highest Stresses: (KPa)	LOADCASE 23 (OCC) L23=L18+L8	
Ratio (%):	49.2 @Node 780	
Code Stress:	90311.4	Allowable Stress: 183400.5
Axial Stress:	36508.3 @Node 650	
Bending Stress:	87811.4 @Node 780	
Torsion Stress:	2354.5 @Node 230	
Hoop Stress:	72898.8 @Node 270	
Max Stress Intensity:	90321.5 @Node 780	

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L19+L8

Highest Stresses: (KPa)	LOADCASE 24 (OCC) L24=L19+L8	
Ratio (%):	59.9 @Node 390	
Code Stress:	109832.0	Allowable Stress: 183400.5
Axial Stress:	37402.0 @Node 358	
Bending Stress:	79523.7 @Node 390	
Torsion Stress:	2375.1 @Node 230	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Hoop Stress:	72898.8	@Node	270
Max Stress Intensity:	110485.5	@Node	390

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L8

Highest Stresses: (KPa)	LOADCASE 25 (EXP) L25=L2-L8	
Ratio (%):	27.3	@Node 820
Code Stress:	87722.5	Allowable Stress: 321685.5
Axial Stress:	3068.4	@Node 230
Bending Stress:	87374.1	@Node 820
Torsion Stress:	5476.4	@Node 80
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	156927.7	@Node 780

CODE STRESS CHECK PASSED : LOADCASE 26 (EXP) L26=L4-L8

Highest Stresses: (KPa)	LOADCASE 26 (EXP) L26=L4-L8	
Ratio (%):	28.1	@Node 780
Code Stress:	87866.1	Allowable Stress: 312714.8
Axial Stress:	1473.3	@Node 200
Bending Stress:	88123.1	@Node 820
Torsion Stress:	5558.2	@Node 80
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	161966.6	@Node 780

CODE STRESS CHECK PASSED : LOADCASE 27 (EXP) L27=L2-L4

Highest Stresses: (KPa)	LOADCASE 27 (EXP) L27=L2-L4	
Ratio (%):	18.3	@Node 730
Code Stress:	51224.9	Allowable Stress: 279397.2
Axial Stress:	2644.1	@Node 270
Bending Stress:	52422.0	@Node 110
Torsion Stress:	2604.3	@Node 510
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	97089.7	@Node 110

CODE STRESS CHECK PASSED : LOADCASE 28 (EXP) L28=L6-L8

Highest Stresses: (KPa)	LOADCASE 28 (EXP) L28=L6-L8	
Ratio (%):	27.9	@Node 780
Code Stress:	87376.3	Allowable Stress: 312714.8
Axial Stress:	1216.2	@Node 200
Bending Stress:	87338.1	@Node 820
Torsion Stress:	5597.0	@Node 520
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	161063.7	@Node 780

CODE STRESS CHECK PASSED : LOADCASE 29 (EXP) L29=L2-L6

Highest Stresses: (KPa)	LOADCASE 29 (EXP) L29=L2-L6	
Ratio (%):	32.9	@Node 230
Code Stress:	101233.5	Allowable Stress: 308099.4
Axial Stress:	3423.1	@Node 200

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

Bending Stress:	95178.9	@Node	110
Torsion Stress:	4475.5	@Node	510
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	177677.6	@Node	110

CODE STRESS CHECK PASSED : LOADCASE 30 (EXP) L30=L4-L6

Highest Stresses: (KPa)	LOADCASE 30 (EXP) L30=L4-L6	
Ratio (%):	18.3	@Node 230
Code Stress:	56501.6	Allowable Stress: 308099.4
Axial Stress:	2689.5	@Node 200
Bending Stress:	53731.8	@Node 230
Torsion Stress:	1871.3	@Node 510
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	100481.9	@Node 230

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+D1+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+D1+T2+P1+U1
11 (OPE) W+D1+T2+P1-U1
12 (OPE) W+D1+T2+P1+U2
13 (OPE) W+D1+T2+P1+U3
14 (OPE) W+D1+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+D1+T2+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
400		Absolute Method								
	Limits	13345	10676	8896		4881	10033	7593		
	4(OPE)	299	-5030	-5092	0.572	115	-8579	7336	0.966	
	8(SUS)	-14	-5056	12	0.474	45	12	7371	0.971	
	9(SUS)	-10	-3311	9	0.310	64	10	5146	0.678	
740		Absolute Method								
	Limits	13345	10676	8896		4881	10033	7593		
	4(OPE)	-506	-5057	-4982	0.560	230	-8532	7109	0.936	
	8(SUS)	-13	-5079	14	0.476	160	16	7153	0.942	
	9(SUS)	-10	-3336	11	0.312	178	13	4936	0.650	

BNK-GCS-CN-004

Table of contents:

Line no.

Stress sketch

Input echo

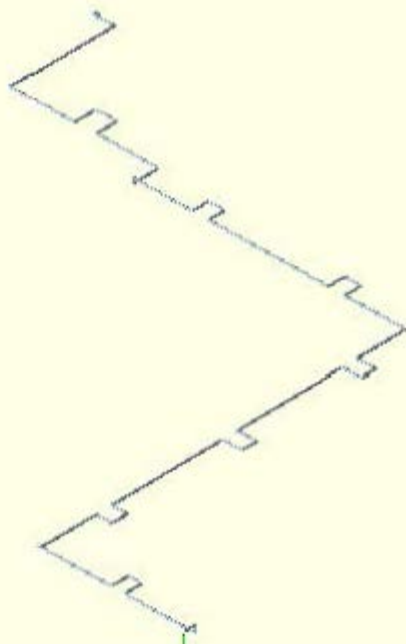
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. FL-112-0004-AN07-12"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L2-L4
27 (EXP) L27=L6-L8
28 (EXP) L28=L2-L6
29 (EXP) L29=L4-L6

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Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 10 To 20 DY= -9.640 mm. DZ= -136.600 mm.

PIPE

Dia= 273.050 mm. Wall= 9.271 mm. Cor= 6.0000 mm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 85 C T2= 30 C T3= 200 C P1= 750.0171 KPa PHyd= 1,125.0256 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 202,660,192 KPa EH3= 191,317,008 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000015 kg./cu.cm.

Insul Thk= .000 mm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 235.76 N.

RESTRAINTS

Node 10 ANC Cnode 1530

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,261 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 20 To 30 DZ= -203.000 mm.

REDUCER

Diam2= 323.850 mm. Wall2= 10.312 mm.

From 30 To 40 DY= -9.220 mm. DZ= -4,610.000 mm.

PIPE

Dia= 323.850 mm. Wall= 10.312 mm.

Insul Thk= .000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 39

Angle/Node @2= .00 38

From 40 To 50 DY= -3,851.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 49

Angle/Node @2= .00 48

From 50 To 60 DX= -2,400.000 mm. DY= -4.806 mm.

RESTRAINTS

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INPUT LISTING

```

Node 60 +Y Mu = .30
Node 60 Z Gap= 3.000 mm. Mu = .30
-----
From 60 To 70 DX= -5,999.988 mm. DY= -12.016 mm.
RESTRAINTS
Node 70 +Y Mu = .30
-----
From 70 To 80 DX= -5,999.988 mm. DY= -12.016 mm.
RESTRAINTS
Node 80 +Y Mu = .30
Node 80 Z Gap= 3.000 mm. Mu = .30
Node 80 X Gap= 3.000 mm.
-----
From 80 To 90 DX= -5,999.988 mm. DY= -12.016 mm.
RESTRAINTS
Node 90 +Y Mu = .30
-----
From 90 To 100 DX= -5,999.988 mm. DY= -12.016 mm.
RESTRAINTS
Node 100 +Y Mu = .30
Node 100 Z Gap= 5.000 mm. Mu = .30
-----
From 100 To 110 DX= -5,999.988 mm. DY= -12.016 mm.
RESTRAINTS
Node 110 +Y Mu = .30
-----
From 110 To 120 DX= -2,649.999 mm. DY= -2.091 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 119
Angle/Node @2= .00 118
-----
From 120 To 130 DZ= -4,250.000 mm.
RESTRAINTS
Node 130 +Y Mu = .30
-----
From 130 To 140 DZ= -4,250.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 139
Angle/Node @2= .00 138
-----
From 140 To 150 DX= -3,349.989 mm. DY= -10.714 mm.
RESTRAINTS
Node 150 +Y Mu = .30
-----
From 150 To 160 DX= -3,349.989 mm. DY= -10.714 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 159
Angle/Node @2= .00 158
-----
From 160 To 170 DZ= 4,250.000 mm.
RESTRAINTS
Node 170 +Y Mu = .30
-----
From 170 To 180 DZ= 4,250.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

```

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INPUT LISTING

Angle/Node @2= .00 178

From 180 To 190 DX= -2,649.999 mm. DY= -2.091 mm.

RESTRAINTS

Node 190 +Y Mu = .30

From 190 To 200 DX= -5,999.988 mm. DY= -12.016 mm.

RESTRAINTS

Node 200 +Y Mu = .30

Node 200 Z Gap= 3.000 mm. Mu = .30

From 200 To 210 DX= -5,999.988 mm. DY= -12.016 mm.

RESTRAINTS

Node 210 +Y Mu = .30

From 210 To 220 DX= -5,999.988 mm. DY= -12.016 mm.

RESTRAINTS

Node 220 +Y Mu = .30

Node 220 Z Gap= 3.000 mm. Mu = .30

From 220 To 230 DX= -5,999.988 mm. DY= -12.016 mm.

RESTRAINTS

Node 230 +Y Mu = .30

From 230 To 240 DX= -5,999.988 mm. DY= -12.016 mm.

RESTRAINTS

Node 240 +Y Mu = .30

Node 240 Z Gap= 3.000 mm. Mu = .30

From 240 To 250 DX= -2,000.154 mm. DY= -4.006 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 249

Angle/Node @2= .00 248

From 250 To 260 DY= -9.000 mm. DZ= -4,499.991 mm.

RESTRAINTS

Node 260 +Y Mu = .30

Node 260 X Gap= 3.000 mm. Mu = .30

From 260 To 270 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 270 +Y Mu = .30

From 270 To 280 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 280 +Y Mu = .30

From 280 To 290 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 290 +Y Mu = .30

Node 290 X Gap= 3.000 mm.

From 290 To 300 DY= -10.200 mm. DZ= -5,099.990 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 299

Angle/Node @2= .00 298

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INPUT LISTING

From 300 To 310 DX= 3,900.000 mm.

RESTRAINTS

Node 310 +Y Mu = .30

From 310 To 320 DX= 3,900.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 319
Angle/Node @2= .00 318

From 320 To 330 DY= -1.800 mm. DZ= -899.998 mm.

From 330 To 340 DY= -6.000 mm. DZ= -2,999.994 mm.

RESTRAINTS

Node 340 +Y Mu = .30

From 340 To 350 DY= -6.000 mm. DZ= -2,999.994 mm.

From 350 To 360 DY= -1.800 mm. DZ= -899.998 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 359
Angle/Node @2= .00 358

From 360 To 370 DX= -3,900.000 mm.

RESTRAINTS

Node 370 +Y Mu = .30

From 370 To 380 DX= -3,900.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 379
Angle/Node @2= .00 378

From 380 To 390 DY= -10.200 mm. DZ= -5,099.990 mm.

RESTRAINTS

Node 390 +Y Mu = .30
Node 390 X Gap= 3.000 mm.

From 390 To 400 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 400 +Y Mu = .30

From 400 To 410 DY= -12.000 mm. DZ= -5,999.987 mm.

RESTRAINTS

Node 410 +Y Mu = .30
Node 410 X Gap= 3.000 mm. Mu = .30

From 410 To 420 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 420 +Y Mu = .30

From 420 To 430 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 430 +Y Mu = .30
Node 430 Z Gap= 3.000 mm.
Node 430 X Gap= 3.000 mm. Mu = .30

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INPUT LISTING

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From 430 To 440 DY= -12.000 mm.  DZ= -5,999.988 mm.
-----
From 440 To 450 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 450 +Y Mu = .30
  Node 450 X Gap= 3.000 mm. Mu = .30
-----
From 450 To 460 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 460 +Y Mu = .30
-----
From 460 To 470 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 470 +Y Mu = .30
  Node 470 X Gap= 3.000 mm. Mu = .30
-----
From 470 To 480 DY= -4.500 mm.  DZ= -2,249.996 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 479
  Angle/Node @2= .00 478
-----
From 480 To 490 DX= 4,750.000 mm.
RESTRAINTS
  Node 490 +Y Mu = .30
-----
From 490 To 500 DX= 4,750.000 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499
  Angle/Node @2= .00 498
-----
From 500 To 510 DY= -7.500 mm.  DZ= -3,749.993 mm.
RESTRAINTS
  Node 510 +Y Mu = .30
-----
From 510 To 520 DY= -7.500 mm.  DZ= -3,749.993 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 519
  Angle/Node @2= .00 518
-----
From 520 To 530 DX= -4,750.000 mm.
RESTRAINTS
  Node 530 +Y Mu = .30
-----
From 530 To 540 DX= -4,750.000 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 539
  Angle/Node @2= .00 538
-----
From 540 To 550 DY= -4.500 mm.  DZ= -2,249.996 mm.
RESTRAINTS
  Node 550 +Y Mu = .30
-----
From 550 To 560 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 560 +Y Mu = .30
  Node 560 X Gap= 3.000 mm. Mu = .30

```

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INPUT LISTING

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-----
From 560 To 570 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 570 +Y Mu = .30
-----
From 570 To 580 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 580 +Y Mu = .30
  Node 580 X Gap= 3.000 mm. Mu = .30
-----
From 580 To 590 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 590 +Y Mu = .30
  Node 590 Z Gap= 3.000 mm. Mu = .30
-----
From 590 To 600 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 600 +Y Mu = .30
  Node 600 X Gap= 3.000 mm. Mu = .30
-----
From 600 To 610 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 610 +Y Mu = .30
-----
From 610 To 620 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 620 +Y Mu = .30
  Node 620 X Gap= 3.000 mm. Mu = .30
-----
From 620 To 630 DY= -12.000 mm.  DZ= -5,999.988 mm.
RESTRAINTS
  Node 630 +Y Mu = .30
-----
From 630 To 640 DY= -4.700 mm.  DZ= -2,349.995 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 639
-----
From 640 To 650 DX= 4,650.000 mm.
RESTRAINTS
  Node 650 +Y Mu = .30
-----
From 650 To 660 DX= 4,650.000 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 659
  Angle/Node @2= .00 658
-----
From 660 To 670 DY= -7.300 mm.  DZ= -3,649.993 mm.
RESTRAINTS
  Node 670 +Y Mu = .30
-----
From 670 To 680 DY= -7.300 mm.  DZ= -3,649.993 mm.
BEND at "TO" end
  Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679
  Angle/Node @2= .00 678
-----
From 680 To 690 DX= -4,650.000 mm.

```

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RESTRAINTS

Node 690 +Y Mu = .30

From 690 To 700 DX= -4,650.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 699

Angle/Node @2= .00 698

From 700 To 710 DY= -4.700 mm. DZ= -2,349.995 mm.

RESTRAINTS

Node 710 +Y Mu = .30

From 710 To 720 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 720 +Y Mu = .30

Node 720 X Gap= 3.000 mm. Mu = .30

From 720 To 730 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 730 +Y Mu = .30

From 730 To 740 DY= -12.000 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 740 +Y Mu = .30

Node 740 X Gap= 3.000 mm. Mu = .30

From 740 To 750 DY= -8.001 mm. DZ= -4,000.410 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 749

Angle/Node @2= .00 748

From 750 To 760 DX= -1,999.996 mm. DY= -4.000 mm.

RESTRAINTS

Node 760 +Y Mu = .30

From 760 To 770 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 770 +Y Mu = .30

Node 770 Z Gap= 3.000 mm. Mu = .30

From 770 To 780 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 780 +Y Mu = .30

From 780 To 790 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 790 +Y Mu = .30

From 790 To 800 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 800 +Y Mu = .30

Node 800 Z Gap= 3.000 mm. Mu = .30

From 800 To 810 DX= -3,950.004 mm. DY= -7.900 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 809

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INPUT LISTING

Angle/Node @2= .00 808

 From 810 To 820 DZ= -4,050.000 mm.

RESTRAINTS

Node 820 +Y Mu = .30

 From 820 To 830 DZ= -4,050.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 829

Angle/Node @2= .00 828

 From 830 To 840 DX= -2,049.996 mm. DY= -4.100 mm.

 From 840 To 850 DX= -1,999.996 mm. DY= -4.000 mm.

RESTRAINTS

Node 850 +Y Mu = .30

 From 850 To 860 DX= -3,000.006 mm. DY= -6.000 mm.

 From 860 To 870 DX= -1,049.998 mm. DY= -2.100 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 869

Angle/Node @2= .00 868

 From 870 To 880 DZ= 4,050.000 mm.

RESTRAINTS

Node 880 +Y Mu = .30

 From 880 To 890 DZ= 4,050.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 889

 From 890 To 900 DX= -5,950.000 mm. DY= -11.900 mm.

RESTRAINTS

Node 900 +Y Mu = .30

Node 900 Z Gap= 3.000 mm.

 From 900 To 910 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 910 +Y Mu = .30

 From 910 To 920 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 920 +Y Mu = .30

Node 920 Z Gap= 3.000 mm. Mu = .30

 From 920 To 930 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 930 +Y Mu = .30

 From 930 To 940 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 940 +Y Mu = .30

Node 940 X Gap= 3.000 mm.

Node 940 Z Gap= 3.000 mm. Mu = .30

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From 940 To 950 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 950 +Y Mu = .30

From 950 To 960 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 960 +Y Mu = .30

Node 960 Z Gap= 3.000 mm. Mu = .30

From 960 To 970 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 970 +Y Mu = .30

From 970 To 980 DX= -6,000.000 mm. DY= -12.000 mm.

RESTRAINTS

Node 980 +Y Mu = .30

Node 980 Z Gap= 3.000 mm. Mu = .30

From 980 To 990 DX= -4,999.990 mm. DY= -10.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 989

Angle/Node @2= .00 988

From 990 To 1000 DZ= -4,000.000 mm.

RESTRAINTS

Node 1000 +Y Mu = .30

From 1000 To 1010 DZ= -4,000.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1009

Angle/Node @2= .00 1008

From 1010 To 1020 DX= -2,000.008 mm. DY= -4.000 mm.

From 1020 To 1030 DX= -2,000.002 mm. DY= -4.000 mm.

RESTRAINTS

Node 1030 +Y Mu = .30

From 1030 To 1040 DX= -1,999.996 mm. DY= -4.000 mm.

From 1040 To 1050 DX= -1,999.996 mm. DY= -4.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1049

Angle/Node @2= .00 1048

From 1050 To 1060 DZ= 4,000.000 mm.

RESTRAINTS

Node 1060 +Y Mu = .30

From 1060 To 1070 DZ= 4,000.000 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1069

Angle/Node @2= .00 1068

From 1070 To 1080 DX= -5,000.002 mm. DY= -10.000 mm.

RESTRAINTS

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INPUT LISTING

```

Node 1080 +Y Mu = .30
Node 1080 Z Gap= 3.000 mm. Mu = .30
-----
From 1080 To 1090 DX= -6,000.000 mm. DY= -12.000 mm.
RESTRAINTS
Node 1090 +Y Mu = .30
-----
From 1090 To 1100 DX= -6,000.000 mm. DY= -12.000 mm.
RESTRAINTS
Node 1100 +Y Mu = .30
Node 1100 Z Gap= 3.000 mm. Mu = .30
-----
From 1100 To 1110 DX= -6,000.000 mm. DY= -12.000 mm.
RESTRAINTS
Node 1110 +Y Mu = .30
Node 1110 Z Gap= 3.000 mm. Mu = .30
-----
From 1110 To 1120 DX= -6,000.000 mm. DY= -12.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 1119
Angle/Node @2= .00 1118
-----
From 1120 To 1130 DY= -2,153.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 1129
Angle/Node @2= .00 1128
-----
From 1130 To 1140 DY= -12.500 mm. DZ= -6,250.000 mm.
RESTRAINTS
Node 1140 +Y Mu = .30
-----
From 1140 To 1150 DY= -12.500 mm. DZ= -6,250.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1149
Angle/Node @2= .00 1148
-----
From 1150 To 1160 DX= -3,999.992 mm. DY= -8.001 mm.
RESTRAINTS
Node 1160 +Y Mu = .30
Node 1160 Z Gap= 3.000 mm. Mu = .30
-----
From 1160 To 1170 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS
Node 1170 +Y Mu = .30
-----
From 1170 To 1180 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS
Node 1180 +Y Mu = .30
Node 1180 Z Gap= 3.000 mm. Mu = .30
-----
From 1180 To 1190 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS
Node 1190 +Y Mu = .30
-----
From 1190 To 1200 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS

```

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INPUT LISTING

```

Node 1200 +Y Mu = .30
Node 1200 Z Gap= 3.000 mm. Mu = .30
-----
From 1200 To 1210 DX= -2,749.994 mm. DY= -5.500 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1209
Angle/Node @2= .00 1208
-----
From 1210 To 1220 DZ= -5,250.000 mm.
RESTRAINTS
Node 1220 +Y Mu = .30
-----
From 1220 To 1230 DZ= -5,250.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1229
Angle/Node @2= .00 1228
-----
From 1230 To 1240 DX= -3,249.994 mm. DY= -6.500 mm.
-----
From 1240 To 1250 DX= -1,999.996 mm. DY= -4.000 mm.
RESTRAINTS
Node 1250 +Y Mu = .30
-----
From 1250 To 1260 DX= -3,999.992 mm. DY= -8.001 mm.
-----
From 1260 To 1270 DX= -1,249.997 mm. DY= -2.500 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1269
Angle/Node @2= .00 1268
-----
From 1270 To 1280 DZ= 5,250.000 mm.
RESTRAINTS
Node 1280 +Y Mu = .30
-----
From 1280 To 1290 DZ= 5,250.000 mm.
BEND at "TO" end
Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1289
Angle/Node @2= .00 1288
-----
From 1290 To 1300 DX= -4,749.991 mm. DY= -9.501 mm.
RESTRAINTS
Node 1300 +Y Mu = .30
Node 1300 Z Gap= 3.000 mm. Mu = .30
-----
From 1300 To 1310 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS
Node 1310 +Y Mu = .30
-----
From 1310 To 1320 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS
Node 1320 +Y Mu = .30
Node 1320 Z Gap= 3.000 mm. Mu = .30
-----
From 1320 To 1330 DX= -5,999.988 mm. DY= -12.001 mm.
RESTRAINTS
Node 1330 +Y Mu = .30

```


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INPUT LISTING

From 1330 To 1340 DX= -5,999.988 mm. DY= -12.001 mm.

RESTRAINTS

Node 1340 +Y Mu = .30

Node 1340 Z Gap= 3.000 mm. Mu = .30

From 1340 To 1350 DX= -2,300.138 mm. DY= -4.601 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1349

Angle/Node @2= .00 1348

From 1350 To 1360 DY= -19.002 mm. DZ= -9,499.981 mm.

RESTRAINTS

Node 1360 +Y Mu = .30

From 1360 To 1370 DY= -16.002 mm. DZ= -7,999.985 mm.

RESTRAINTS

Node 1370 +Y Mu = .30

Node 1370 X Gap= 3.000 mm. Mu = .30

From 1370 To 1380 DY= -12.001 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 1380 +Y Mu = .30

From 1380 To 1390 DY= -12.001 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 1390 +Y Mu = .30

Node 1390 Z Gap= 3.000 mm. Mu = .30

Node 1390 X Gap= 3.000 mm.

From 1390 To 1400 DY= -12.001 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 1400 +Y Mu = .30

From 1400 To 1410 DY= -12.001 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 1410 +Y Mu = .30

Node 1410 X Gap= 3.000 mm.

From 1410 To 1420 DY= -12.001 mm. DZ= -5,999.988 mm.

RESTRAINTS

Node 1420 +Y Mu = .30

From 1420 To 1430 DY= -7.701 mm. DZ= -3,850.094 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1429

Angle/Node @2= .00 1428

From 1430 To 1440 DX= -4,849.991 mm. DY= -9.513 mm.

RESTRAINTS

Node 1440 +Y Mu = .30

From 1440 To 1450 DX= -5,550.009 mm. DY= -10.887 mm.

BEND at "TO" end

Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1449

Angle/Node @2= .00 1448

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INPUT LISTING

```

-----
From 1450 To 1460 DY= -2.120 mm. DZ= -1,060.000 mm.
-----
From 1460 To 1470 DY= -.235 mm. DZ= -117.475 mm.
RIGID Weight= 360.31 N.
-----
From 1470 To 1480 DY= -.235 mm. DZ= -117.475 mm.
RIGID Weight= 360.31 N.
-----
From 1480 To 1490 DY= -1.710 mm. DZ= -856.000 mm.
BEND at "TO" end
      Radius= 457.200 mm. (LONG) Bend Angle= 89.886 Angle/Node @1= 44.94 1489
      Angle/Node @2= .00 1488
-----
From 1490 To 1500 DY= -1,743.000 mm.
-----
From 1500 To 1510 DY= -203.000 mm.
REDUCER
      Diam2= 273.050 mm. Wall2= 9.271 mm.
-----
From 1510 To 1520 DY= -104.775 mm.
PIPE
      Dia= 273.050 mm. Wall= 9.271 mm.
      Insul Thk= .000 mm.
RIGID Weight= 235.76 N.
RESTRAINTS
      Node 1520 ANC Cnode 1600
-----
From 1530 To 1540 DZ= 104.775 mm.
RIGID Weight= 235.76 N.
-----
From 1540 To 1550 DZ= 146.000 mm.
RESTRAINTS
      Node 1550 ANC Cnode 1560
-----
From 1560 To 1570 DZ= 600.000 mm.
PIPE
      Dia= 1,200.000 mm. Wall= 9.271 mm.
      Insul Thk= .000 mm.
RIGID Weight= .00 N.
-----
From 1570 To 1580 DY= -1,550.000 mm.
RIGID Weight= .00 N.
-----
From 1580 To 1590 DY= -5,540.000 mm.
RIGID Weight= .00 N.
RESTRAINTS
      Node 1590 ANC
-----
From 1600 To 1610 DY= -104.775 mm.
PIPE
      Dia= 273.050 mm. Wall= 9.271 mm.
      Insul Thk= .000 mm.
RIGID Weight= 235.76 N.
-----
From 1610 To 1620 DY= -174.000 mm.

```

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INPUT LISTING

RESTRAINTS

Node 1620 ANC Cnode 1630

From 1630 To 1640 DY= -507.000 mm.

PIPE

Dia= 1,014.000 mm. Wall= 9.271 mm.

Insul Thk= .000 mm.

RIGID Weight= .00 N.

From 1640 To 1650 DX= 100.000 mm.

RIGID Weight= .00 N.

From 1650 To 1660 DY= -507.000 mm.

RIGID Weight= .00 N.

RESTRAINTS

Node 1660 +Y

Node 1660 Z Gap= 3.000 mm. Mu = .30

From 1650 To 1670 DX= 2,200.000 mm. DZ= .000 mm.

RIGID Weight= .00 N.

From 1670 To 1680 DY= -507.000 mm.

RIGID Weight= .00 N.

RESTRAINTS

Node 1680 ANC

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MATERIAL Changes:

10 20 Mat= (106)A106 Grade B E= 203,401,232 KPa
 v = .292 Density= .0078 kg./cu.cm.

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ALLOWABLE STRESS Changes

10 20 B31.3 (2016) Cycle Max Switch = ---
 Sc= 137,895 KPa Sh1= 137,895 KPa
 Sh2= 137,895 KPa Sh3= 137,261 KPa
 Sh4= 137,895 KPa Sh5= 137,895 KPa
 Sh6= 137,895 KPa Sh7= 137,895 KPa
 Sh8= 137,895 KPa Sh9= 137,895 KPa
 Sy= 241,316 KPa

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BEND ELEMENTS

30 40 Radius= 457.200 mm. (LONG)
 Bend Angle= 89.885 Angle/Node @1= 44.94 39
 Angle/Node @2= .00 38
 40 50 Radius= 457.200 mm. (LONG)
 Bend Angle= 89.885 Angle/Node @1= 44.94 49
 Angle/Node @2= .00 48
 110 120 Radius= 457.200 mm. (LONG)
 Bend Angle= 90.000 Angle/Node @1= 45.00

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INPUT LISTING

130	140	119 Angle/Node @2= .00 118 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
150	160	139 Angle/Node @2= .00 138 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
170	180	159 Angle/Node @2= .00 158 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
240	250	179 Angle/Node @2= .00 178 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
290	300	249 Angle/Node @2= .00 248 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
310	320	299 Angle/Node @2= .00 298 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
350	360	319 Angle/Node @2= .00 318 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
370	380	359 Angle/Node @2= .00 358 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
470	480	379 Angle/Node @2= .00 378 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
490	500	479 Angle/Node @2= .00 478 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
510	520	499 Angle/Node @2= .00 498 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
530	540	519 Angle/Node @2= .00 518 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
630	640	539 Angle/Node @2= .00 538 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
650	660	639 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
670	680	659 Angle/Node @2= .00 658 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
690	700	679 Angle/Node @2= .00 678 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
740	750	699 Angle/Node @2= .00 698 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
800	810	749 Angle/Node @2= .00 748 Radius= 457.200 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
820	830	809 Angle/Node @2= .00 808 Radius= 457.200 mm. (LONG)

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INPUT LISTING

		Bend Angle= 90.000	Angle/Node @1= 45.00
		829	Angle/Node @2= .00 828
860	870	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		869	Angle/Node @2= .00 868
880	890	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		889	
980	990	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		989	Angle/Node @2= .00 988
1000	1010	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1009	Angle/Node @2= .00 1008
1040	1050	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1049	Angle/Node @2= .00 1048
1060	1070	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1069	Angle/Node @2= .00 1068
1110	1120	Radius= 457.200 mm.	(LONG)
		Bend Angle= 89.885	Angle/Node @1= 44.94
		1119	Angle/Node @2= .00 1118
1120	1130	Radius= 457.200 mm.	(LONG)
		Bend Angle= 89.885	Angle/Node @1= 44.94
		1129	Angle/Node @2= .00 1128
1140	1150	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1149	Angle/Node @2= .00 1148
1200	1210	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1209	Angle/Node @2= .00 1208
1220	1230	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1229	Angle/Node @2= .00 1228
1260	1270	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1269	Angle/Node @2= .00 1268
1280	1290	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1289	Angle/Node @2= .00 1288
1340	1350	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1349	Angle/Node @2= .00 1348
1420	1430	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1429	Angle/Node @2= .00 1428
1440	1450	Radius= 457.200 mm.	(LONG)
		Bend Angle= 90.000	Angle/Node @1= 45.00
		1449	Angle/Node @2= .00 1448
1480	1490	Radius= 457.200 mm.	(LONG)
		Bend Angle= 89.886	Angle/Node @1= 44.94
		1489	Angle/Node @2= .00 1488

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INPUT LISTING

RIGIDS

10	20	RIGID Weight= 235.76 N.
1460	1470	RIGID Weight= 360.31 N.
1470	1480	RIGID Weight= 360.31 N.
1510	1520	RIGID Weight= 235.76 N.
1530	1540	RIGID Weight= 235.76 N.
1560	1570	RIGID Weight= .00 N.
1570	1580	RIGID Weight= .00 N.
1580	1590	RIGID Weight= .00 N.
1600	1610	RIGID Weight= 235.76 N.
1630	1640	RIGID Weight= .00 N.
1640	1650	RIGID Weight= .00 N.
1650	1660	RIGID Weight= .00 N.
1650	1670	RIGID Weight= .00 N.
1670	1680	RIGID Weight= .00 N.

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REDUCERS

20	30	Diam2= 323.850 mm.	Wall2= 10.312 mm.
1500	1510	Diam2= 273.050 mm.	Wall2= 9.271 mm.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	1530				.000 .000 .000
60	+Y				.30	.000 1.000 .000
60	Z			3.00	.30	.000 .000 1.000
70	+Y				.30	.000 1.000 .000
80	+Y				.30	.000 1.000 .000
80	Z			3.00	.30	.000 .000 1.000
80	X			3.00		1.000 .000 .000
90	+Y				.30	.000 1.000 .000
100	+Y				.30	.000 1.000 .000
100	Z			5.00	.30	.000 .000 1.000
110	+Y				.30	.000 1.000 .000
130	+Y				.30	.000 1.000 .000
150	+Y				.30	.000 1.000 .000
170	+Y				.30	.000 1.000 .000
190	+Y				.30	.000 1.000 .000
200	+Y				.30	.000 1.000 .000
200	Z			3.00	.30	.000 .000 1.000
210	+Y				.30	.000 1.000 .000
220	+Y				.30	.000 1.000 .000
220	Z			3.00	.30	.000 .000 1.000
230	+Y				.30	.000 1.000 .000
240	+Y				.30	.000 1.000 .000
240	Z			3.00	.30	.000 .000 1.000
260	+Y				.30	.000 1.000 .000
260	X			3.00	.30	1.000 .000 .000
270	+Y				.30	.000 1.000 .000
280	+Y				.30	.000 1.000 .000

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INPUT LISTING

290	+Y		.30	.000	1.000	.000
290	X	3.00		1.000	.000	.000
310	+Y		.30	.000	1.000	.000
340	+Y		.30	.000	1.000	.000
370	+Y		.30	.000	1.000	.000
390	+Y		.30	.000	1.000	.000
390	X	3.00		1.000	.000	.000
400	+Y		.30	.000	1.000	.000
410	+Y		.30	.000	1.000	.000
410	X	3.00	.30	1.000	.000	.000
420	+Y		.30	.000	1.000	.000
430	+Y		.30	.000	1.000	.000
430	Z	3.00		.000	.000	1.000
430	X	3.00	.30	1.000	.000	.000
450	+Y		.30	.000	1.000	.000
450	X	3.00	.30	1.000	.000	.000
460	+Y		.30	.000	1.000	.000
470	+Y		.30	.000	1.000	.000
470	X	3.00	.30	1.000	.000	.000
490	+Y		.30	.000	1.000	.000
510	+Y		.30	.000	1.000	.000
530	+Y		.30	.000	1.000	.000
550	+Y		.30	.000	1.000	.000
560	+Y		.30	.000	1.000	.000
560	X	3.00	.30	1.000	.000	.000
570	+Y		.30	.000	1.000	.000
580	+Y		.30	.000	1.000	.000
580	X	3.00	.30	1.000	.000	.000
590	+Y		.30	.000	1.000	.000
590	Z	3.00	.30	.000	.000	1.000
600	+Y		.30	.000	1.000	.000
600	X	3.00	.30	1.000	.000	.000
610	+Y		.30	.000	1.000	.000
620	+Y		.30	.000	1.000	.000
620	X	3.00	.30	1.000	.000	.000
630	+Y		.30	.000	1.000	.000
650	+Y		.30	.000	1.000	.000
670	+Y		.30	.000	1.000	.000
690	+Y		.30	.000	1.000	.000
710	+Y		.30	.000	1.000	.000
720	+Y		.30	.000	1.000	.000
720	X	3.00	.30	1.000	.000	.000
730	+Y		.30	.000	1.000	.000
740	+Y		.30	.000	1.000	.000
740	X	3.00	.30	1.000	.000	.000
760	+Y		.30	.000	1.000	.000
770	+Y		.30	.000	1.000	.000
770	Z	3.00	.30	.000	.000	1.000
780	+Y		.30	.000	1.000	.000
790	+Y		.30	.000	1.000	.000
800	+Y		.30	.000	1.000	.000
800	Z	3.00	.30	.000	.000	1.000
820	+Y		.30	.000	1.000	.000
850	+Y		.30	.000	1.000	.000
880	+Y		.30	.000	1.000	.000
900	+Y		.30	.000	1.000	.000

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INPUT LISTING

900	Z	3.00		.000	.000	1.000
910	+Y		.30	.000	1.000	.000
920	+Y		.30	.000	1.000	.000
920	Z	3.00	.30	.000	.000	1.000
930	+Y		.30	.000	1.000	.000
940	+Y		.30	.000	1.000	.000
940	X	3.00		1.000	.000	.000
940	Z	3.00	.30	.000	.000	1.000
950	+Y		.30	.000	1.000	.000
960	+Y		.30	.000	1.000	.000
960	Z	3.00	.30	.000	.000	1.000
970	+Y		.30	.000	1.000	.000
980	+Y		.30	.000	1.000	.000
980	Z	3.00	.30	.000	.000	1.000
1000	+Y		.30	.000	1.000	.000
1030	+Y		.30	.000	1.000	.000
1060	+Y		.30	.000	1.000	.000
1080	+Y		.30	.000	1.000	.000
1080	Z	3.00	.30	.000	.000	1.000
1090	+Y		.30	.000	1.000	.000
1100	+Y		.30	.000	1.000	.000
1100	Z	3.00	.30	.000	.000	1.000
1110	+Y		.30	.000	1.000	.000
1110	Z	3.00	.30	.000	.000	1.000
1140	+Y		.30	.000	1.000	.000
1160	+Y		.30	.000	1.000	.000
1160	Z	3.00	.30	.000	.000	1.000
1170	+Y		.30	.000	1.000	.000
1180	+Y		.30	.000	1.000	.000
1180	Z	3.00	.30	.000	.000	1.000
1190	+Y		.30	.000	1.000	.000
1200	+Y		.30	.000	1.000	.000
1200	Z	3.00	.30	.000	.000	1.000
1220	+Y		.30	.000	1.000	.000
1250	+Y		.30	.000	1.000	.000
1280	+Y		.30	.000	1.000	.000
1300	+Y		.30	.000	1.000	.000
1300	Z	3.00	.30	.000	.000	1.000
1310	+Y		.30	.000	1.000	.000
1320	+Y		.30	.000	1.000	.000
1320	Z	3.00	.30	.000	.000	1.000
1330	+Y		.30	.000	1.000	.000
1340	+Y		.30	.000	1.000	.000
1340	Z	3.00	.30	.000	.000	1.000
1360	+Y		.30	.000	1.000	.000
1370	+Y		.30	.000	1.000	.000
1370	X	3.00	.30	1.000	.000	.000
1380	+Y		.30	.000	1.000	.000
1390	+Y		.30	.000	1.000	.000
1390	Z	3.00	.30	.000	.000	1.000
1390	X	3.00		1.000	.000	.000
1400	+Y		.30	.000	1.000	.000
1410	+Y		.30	.000	1.000	.000
1410	X	3.00		1.000	.000	.000
1420	+Y		.30	.000	1.000	.000
1440	+Y		.30	.000	1.000	.000

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INPUT LISTING

1520	ANC	1600			.000	.000	.000
1550	ANC	1560			.000	.000	.000
1590	ANC				.000	.000	.000
1620	ANC	1630			.000	.000	.000
1660	+Y				.000	1.000	.000
1660	Z		3.00	.30	.000	.000	1.000
1680	ANC				.000	.000	.000

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UNIFORM LOAD Changes

10	20	Vector1 in G-s	
		X1 Dir = .26 g's	Y1 Dir = .00 g's
		Z1 Dir = .00 g's	
		Vector2 in G-s	
		X2 Dir = .00 g's	Y2 Dir = .12 g's
		Z2 Dir = .00 g's	
		Vector3 in G-s	
		X3 Dir = .00 g's	Y3 Dir = .00 g's
		Z3 Dir = .26 g's	

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INPUT UNITS USED...

UNITS= SI (m NOM/SCH INPUT= ON

LENGTH	inches	x	25.400	=	mm.
FORCE	pounds	x	4.448	=	N.
MASS (dynamics)	pounds	x	0.454	=	Kg.
MOMENTS (INPUT)	inch-pounds	x	0.113	=	N.m.
MOMENTS (OUTPUT)	inch-pounds	x	0.113	=	N.m.
STRESS	lbs./sq.in.	x	6.895	=	KPa
TEMP. SCALE	degrees F.	x	0.556	=	C
PRESSURE	psig	x	6.895	=	KPa
ELASTIC MODULUS	lbs./sq.in.	x	6.895	=	KPa
PIPE DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
INSULATION DENS.	lbs./cu.in.	x	0.028	=	kg./cu.cm.
FLUID DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
TRANSL. STIF	lbs./in.	x	1.751	=	N./cm.
ROTATIONAL STIF	in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD	lb./in.	x	1.751	=	N./cm.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	6.895	=	KPa
ELEVATION	inches	x	0.025	=	m.
COMPOUND LENGTH	inches	x	25.400	=	mm.
DIAMETER	inches	x	25.400	=	mm.
WALL THICKNESS	inches	x	25.400	=	mm.

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SETUP FILE PARAMETERS

CONNECT GEOMETRY THRU CNODES = YES
 MIN ALLOWED BEND ANGLE = 5.00000
 MAX ALLOWED BEND ANGLE = 95.0000
 BEND LENGTH ATTACHMENT PERCENT = 1.00000
 MIN ANGLE TO ADJACENT BEND PT = 5.00000

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INPUT LISTING

```

LOOP CLOSURE TOLERANCE =          25.4000      mm.
THERMAL BOWING HORZ TOLERANCE =    0.100000E-03
AUTO NODE NUMBER INCREMENT=        10.0000
Z AXIS UP=                          NO
USE PRESSURE STIFFENING =          DEFAULT
ALPHA TOLERANCE =                  0.500000E-01
RESLD-FORCE =                      NO
HGR DEF RESWGT STIF =              0.175127E+13 N./cm.
DECOMP SNG TOL =                   0.100000E+11
BEND AXIAL SHAPE =                 YES
FRICT STIF =                       0.175127E+07 N./cm.
FRICT NORM FORCE VAR =              0.150000
FRICT ANGLE VAR =                  15.0000
FRICT SLIDE MULT =                 1.00000
ROD TOLERANCE =                    1.00000
ROD INC =                          2.00000
INCORE NUMERICAL CHECK =           NO
OUTCORE NUMERICAL CHECK =          NO
DEFAULT TRANS RESTRAINT STIFF=     0.175127E+13      N./cm.
DEFAULT ROT RESTRAINT STIFF=       0.112985E+12      N.m./deg
IGNORE SPRING HANGER STIFFNESS =   NO
MISSING MASS ZPA =                 EXTRACTED
MIN WALL MILL TOLERANCE =          12.5000
WRC-107 VERSION =                  MAR 79 1B1/2B1
WRC-107 INTERPOLATION =            LAST VALUE
DEFAULT AMBIENT TEMPERATURE=       21.1111      C
BOURDON PRESSURE=                  NONE
COEFFICIENT OF FRICTION (MU) =     0.000000
INCLUDE SPRG STIF IN HGR OPE =     NO
INCLUDE INSULATION IN HYDROTEST =  NO
REDUCED INTERSECTION =             B31.1 (POST1980)
USE WRC329                         NO
NO REDUCED SIF FOR RFT AND WLT     NO
B31.1 REDUCED Z FIX =              YES
CLASS 1 BRANCH FLEX                NO
ALL STRESS CASES CORRODED =        NO
ADD TORSION IN SL STRESS =          DEFAULT
ADD F/A IN STRESS =                DEFAULT
OCCASIONAL LOAD FACTOR =           0.000000
DEFAULT CODE =                     B31.3
B31.3 SUS CASE SIF FACTOR =        0.000000
ALLOW USERS BEND SIF =             NO
USE SCHNEIDER                      NO
YIELD CRITERION STRESS =           MAX 3D SHEAR
USE PD/4T                          NO
BASE HOOP STRESS ON ? =            ID
EN13480 USE IN OUTPLANE SIFS=      NO
LIBERAL EXPANSION ALLOWABLE=       YES
B31.3 SEC 319.2.3C SAXIAL=         Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE=    DEFAULT
IMPLEMENT B313 APP-P               NO
IMPLEMENT B313 CODE CASE 178      YES
IGNORE B31.1/B31.3 Wc FACTOR=     YES
USE FRP SIF =                      YES
USE FRP FLEX =                     YES

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INPUT LISTING

BS 7159 Pressure Stiffening= Design Strain
 FRP Property Data File= CAESAR.FRP
 FRP Emod (axial) = 0.220632E+08 KPa
 FRP Ratio Gmod/Emod (axial) = 0.250000
 FRP Ea/Eh*Vh/a = 0.152730
 FRP Laminate Type = THREE
 FRP Alpha = 21.6000 C
 FRP Density = 0.166079E-02 kg./cu.cm.
 EXCLUDE f2 FROM UKOOA BENDING = NO
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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000
 Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 C
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

 Ambient Temperature 20.997 C
 Plastic (FRP) Alpha 21.600
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X
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COORDINATE REPORT

NODE	/----- (mm.) -----/		
	X	Y	Z
10	6553.000	-5329.350	7060.100
20	6553.000	-5338.990	6923.500
30	6553.000	-5338.990	6720.500
40	6553.000	-5348.210	2110.500
50	6553.000	-9199.211	2110.500
60	4153.000	-9204.018	2110.500
70	-1846.988	-9216.033	2110.500
80	-7846.976	-9228.049	2110.500
90	-13846.964	-9240.064	2110.500
100	-19846.951	-9252.080	2110.500
110	-25846.939	-9264.096	2110.500
120	-28496.939	-9266.187	2110.500
130	-28496.939	-9266.187	-2139.500
140	-28496.939	-9266.187	-6389.500
150	-31846.928	-9276.900	-6389.500
160	-35196.918	-9287.614	-6389.500
170	-35196.918	-9287.614	-2139.500
180	-35196.918	-9287.614	2110.500

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INPUT LISTING

190	-37846.918	-9289.705	2110.500
200	-43846.906	-9301.721	2110.500
210	-49846.895	-9313.736	2110.500
220	-55846.883	-9325.752	2110.500
230	-61846.871	-9337.768	2110.500
240	-67846.859	-9349.783	2110.500
250	-69847.016	-9353.789	2110.500
260	-69847.016	-9362.789	-2389.491
270	-69847.016	-9374.789	-8389.479
280	-69847.016	-9386.789	-14389.467
290	-69847.016	-9398.789	-20389.455
300	-69847.016	-9408.989	-25489.445
310	-65947.016	-9408.989	-25489.445
320	-62047.016	-9408.989	-25489.445
330	-62047.016	-9410.789	-26389.443
340	-62047.016	-9416.789	-29389.437
350	-62047.016	-9422.789	-32389.432
360	-62047.016	-9424.589	-33289.430
370	-65947.016	-9424.589	-33289.430
380	-69847.016	-9424.589	-33289.430
390	-69847.016	-9434.789	-38389.418
400	-69847.016	-9446.789	-44389.406
410	-69847.016	-9458.789	-50389.395
420	-69847.016	-9470.789	-56389.383
430	-69847.016	-9482.789	-62389.371
440	-69847.016	-9494.789	-68389.359
450	-69847.016	-9506.789	-74389.344
460	-69847.016	-9518.789	-80389.328
470	-69847.016	-9530.789	-86389.312
480	-69847.016	-9535.289	-88639.305
490	-65097.016	-9535.289	-88639.305
500	-60347.016	-9535.289	-88639.305
510	-60347.016	-9542.789	-92389.297
520	-60347.016	-9550.289	-96139.289
530	-65097.016	-9550.289	-96139.289
540	-69847.016	-9550.289	-96139.289
550	-69847.016	-9554.789	-98389.281
560	-69847.016	-9566.789	-104389.266
570	-69847.016	-9578.789	-110389.250
580	-69847.016	-9590.789	-116389.234
590	-69847.016	-9602.789	-122389.219
600	-69847.016	-9614.789	-128389.203
610	-69847.016	-9626.789	-134389.187
620	-69847.016	-9638.789	-140389.172
630	-69847.016	-9650.789	-146389.156
640	-69847.016	-9655.489	-148739.156
650	-65197.016	-9655.489	-148739.156
660	-60547.016	-9655.489	-148739.156
670	-60547.016	-9662.789	-152389.156
680	-60547.016	-9670.089	-156039.156
690	-65197.016	-9670.089	-156039.156
700	-69847.016	-9670.089	-156039.156
710	-69847.016	-9674.789	-158389.156
720	-69847.016	-9686.789	-164389.141
730	-69847.016	-9698.789	-170389.125
740	-69847.016	-9710.789	-176389.109

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INPUT LISTING

750	-69847.016	-9718.790	-180389.516
760	-71847.016	-9722.790	-180389.516
770	-77847.016	-9734.790	-180389.516
780	-83847.016	-9746.790	-180389.516
790	-89847.016	-9758.790	-180389.516
800	-95847.016	-9770.790	-180389.516
810	-99797.023	-9778.690	-180389.516
820	-99797.023	-9778.690	-184439.516
830	-99797.023	-9778.690	-188489.516
840	-101847.016	-9782.790	-188489.516
850	-103847.008	-9786.790	-188489.516
860	-106847.016	-9792.790	-188489.516
870	-107897.016	-9794.890	-188489.516
880	-107897.016	-9794.890	-184439.516
890	-107897.016	-9794.890	-180389.516
900	-113847.016	-9806.790	-180389.516
910	-119847.016	-9818.790	-180389.516
920	-125847.016	-9830.790	-180389.516
930	-131847.016	-9842.790	-180389.516
940	-137847.016	-9854.790	-180389.516
950	-143847.016	-9866.790	-180389.516
960	-149847.016	-9878.790	-180389.516
970	-155847.016	-9890.790	-180389.516
980	-161847.016	-9902.790	-180389.516
990	-166847.000	-9912.790	-180389.516
1000	-166847.000	-9912.790	-184389.516
1010	-166847.000	-9912.790	-188389.516
1020	-168847.016	-9916.790	-188389.516
1030	-170847.016	-9920.790	-188389.516
1040	-172847.016	-9924.790	-188389.516
1050	-174847.016	-9928.790	-188389.516
1060	-174847.016	-9928.790	-184389.516
1070	-174847.016	-9928.790	-180389.516
1080	-179847.016	-9938.790	-180389.516
1090	-185847.016	-9950.790	-180389.516
1100	-191847.016	-9962.790	-180389.516
1110	-197847.016	-9974.790	-180389.516
1120	-203847.016	-9986.790	-180389.516
1130	-203847.016	-12139.790	-180389.516
1140	-203847.016	-12152.290	-186639.516
1150	-203847.016	-12164.790	-192889.516
1160	-207847.000	-12172.791	-192889.516
1170	-213846.984	-12184.792	-192889.516
1180	-219846.969	-12196.793	-192889.516
1190	-225846.953	-12208.794	-192889.516
1200	-231846.937	-12220.795	-192889.516
1210	-234596.937	-12226.295	-192889.516
1220	-234596.937	-12226.295	-198139.516
1230	-234596.937	-12226.295	-203389.516
1240	-237846.937	-12232.795	-203389.516
1250	-239846.937	-12236.795	-203389.516
1260	-243846.922	-12244.796	-203389.516
1270	-245096.922	-12247.296	-203389.516
1280	-245096.922	-12247.296	-198139.516
1290	-245096.922	-12247.296	-192889.516
1300	-249846.906	-12256.797	-192889.516

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INPUT LISTING

1310	-255846.891	-12268.798	-192889.516
1320	-261846.875	-12280.799	-192889.516
1330	-267846.875	-12292.800	-192889.516
1340	-273846.875	-12304.801	-192889.516
1350	-276147.000	-12309.401	-192889.516
1360	-276147.000	-12328.403	-202389.500
1370	-276147.000	-12344.405	-210389.484
1380	-276147.000	-12356.406	-216389.469
1390	-276147.000	-12368.407	-222389.453
1400	-276147.000	-12380.408	-228389.437
1410	-276147.000	-12392.409	-234389.422
1420	-276147.000	-12404.410	-240389.406
1430	-276147.000	-12412.111	-244239.500
1440	-280997.000	-12421.625	-244239.500
1450	-286547.000	-12432.512	-244239.500
1460	-286547.000	-12434.632	-245299.500
1470	-286547.000	-12434.867	-245416.969
1480	-286547.000	-12435.103	-245534.437
1490	-286547.000	-12436.813	-246390.437
1500	-286547.000	-14179.813	-246390.437
1510	-286547.000	-14382.813	-246390.437
1520	-286547.000	-14487.588	-246390.437
10	6553.000	-5329.350	7060.100
1540	6553.000	-5329.350	7164.875
1550	6553.000	-5329.350	7310.875
1570	6553.000	-5329.350	7910.875
1580	6553.000	-6879.350	7910.875
1590	6553.000	-12419.350	7910.875
1520	-286547.000	-14487.588	-246390.437
1610	-286547.000	-14592.363	-246390.437
1620	-286547.000	-14766.363	-246390.437
1640	-286547.000	-15273.363	-246390.437
1650	-286447.000	-15273.363	-246390.437
1660	-286447.000	-15780.363	-246390.437
1650	-286447.000	-15273.363	-246390.437
1670	-284247.000	-15273.363	-246390.437
1680	-284247.000	-15780.363	-246390.437

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L2-L4
27 (EXP) L27=L6-L8
28 (EXP) L28=L2-L6
29 (EXP) L29=L4-L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid ANC;					
	1(HYD)	946	-6379	-373	-11491	-4174	-488
	2(OPE)	3285	-3187	604	-7364	-13100	5272
	4(OPE)	890	-3336	-20	-6155	-3749	503
	6(OPE)	8281	-2852	2172	-10617	-32553	15220
	8(SUS)	497	-3426	-196	-6034	-2192	-256
	9(SUS)	496	-3422	-195	-6026	-2190	-256
	MAX	8281/L6	-6379/L1	2172/L6	-11491/L1	-32553/L6	15220/L6
60		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-475	-16444	666	0	0	0
	2(OPE)	2343	-7874	-301	0	0	0
	4(OPE)	2578	-8604	132	0	0	0
	6(OPE)	2354	-6388	-1742	0	0	0
	8(SUS)	-249	-8635	349	0	0	0
	9(SUS)	-249	-8624	349	0	0	0
	MAX	2578/L4	-16444/L1	-1742/L6			
70		TYPE=Rigid +Y;					
	1(HYD)	-238	-6143	-368	0	0	0
	2(OPE)	1314	-4470	-267	0	0	0
	4(OPE)	1006	-3369	-92	0	0	0
	6(OPE)	1987	-6755	-397	0	0	0
	8(SUS)	-125	-3225	-193	0	0	0
	9(SUS)	-125	-3220	-193	0	0	0
	MAX	1987/L6	-6755/L6	-397/L6			
80		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	-119	-9624	93	0	0	0
	2(OPE)	-1417	-4733	-91	0	0	0
	4(OPE)	721	-5015	-55	0	0	0
	6(OPE)	-2613	-4144	69	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	-62	-5053	49	0	0	0
	9(SUS)	-62	-5047	49	0	0	0
	MAX	-2613/L6	-9624/L1	93/L1			
90		TYPE=Rigid +Y;					
	1(HYD)	-61	-8892	-24	0	0	0
	2(OPE)	-1377	-4736	349	0	0	0
	4(OPE)	-1403	-4677	-8	0	0	0
	6(OPE)	-1434	-4854	252	0	0	0
	8(SUS)	-32	-4669	-12	0	0	0
	9(SUS)	-32	-4662	-12	0	0	0
	MAX	-1434/L6	-8892/L1	349/L2			
100		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-33	-8387	6	0	0	0
	2(OPE)	-1268	-4464	431	0	0	0
	4(OPE)	-1316	-4420	159	0	0	0
	6(OPE)	-1719	-4581	1434	0	0	0
	8(SUS)	-18	-4403	3	0	0	0
	9(SUS)	-18	-4397	3	0	0	0
	MAX	-1719/L6	-8387/L1	1434/L6			
110		TYPE=Rigid +Y;					
	1(HYD)	-23	-9916	-3	0	0	0
	2(OPE)	-1445	-5003	404	0	0	0
	4(OPE)	-1482	-5168	456	0	0	0
	6(OPE)	-1377	-4593	48	0	0	0
	8(SUS)	-12	-5206	-2	0	0	0
	9(SUS)	-12	-5199	-2	0	0	0
	MAX	-1482/L4	-9916/L1	456/L4			
130		TYPE=Rigid +Y;					
	1(HYD)	5	-9948	2	0	0	0
	2(OPE)	-1603	-5393	-222	0	0	0
	4(OPE)	-1529	-5259	388	0	0	0
	6(OPE)	-1289	-5723	-1135	0	0	0
	8(SUS)	3	-5223	1	0	0	0
	9(SUS)	3	-5216	1	0	0	0
	MAX	-1603/L2	-9948/L1	-1135/L6			
150		TYPE=Rigid +Y;					
	1(HYD)	-5	-12114	0	0	0	0
	2(OPE)	57	-6351	-1905	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-23	-6359	-1908	0	0	0
	6(OPE)	352	-6332	-1867	0	0	0
	8(SUS)	-3	-6361	0	0	0	0
	9(SUS)	-3	-6352	0	0	0	0
	MAX	352/L6	-12114/L1	-1908/L4			
170		TYPE=Rigid +Y;					
	1(HYD)	5	-9920	-2	0	0	0
	2(OPE)	1548	-5196	-181	0	0	0
	4(OPE)	1531	-5204	306	0	0	0
	6(OPE)	1366	-5179	-740	0	0	0
	8(SUS)	3	-5209	-1	0	0	0
	9(SUS)	3	-5202	-1	0	0	0
	MAX	1548/L2	-9920/L1	-740/L6			
190		TYPE=Rigid +Y;					
	1(HYD)	-1	-9954	1	0	0	0
	2(OPE)	1518	-5224	390	0	0	0
	4(OPE)	1484	-5224	505	0	0	0
	6(OPE)	1567	-5223	12	0	0	0
	8(SUS)	-1	-5227	1	0	0	0
	9(SUS)	-1	-5220	1	0	0	0
	MAX	1567/L6	-9954/L1	505/L4			
200		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-1	-8339	-0	0	0	0
	2(OPE)	1306	-4375	485	0	0	0
	4(OPE)	1305	-4375	136	0	0	0
	6(OPE)	1847	-4374	1879	0	0	0
	8(SUS)	-0	-4378	-0	0	0	0
	9(SUS)	-0	-4372	-0	0	0	0
	MAX	1847/L6	-8339/L1	1879/L6			
210		TYPE=Rigid +Y;					
	1(HYD)	-0	-9038	-0	0	0	0
	2(OPE)	1409	-4743	201	0	0	0
	4(OPE)	343	-4745	-116	0	0	0
	6(OPE)	1422	-4743	35	0	0	0
	8(SUS)	-0	-4745	-0	0	0	0
	9(SUS)	-0	-4739	-0	0	0	0
	MAX	1422/L6	-9038/L1	201/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
220		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-0	-9077	0	0	0	0
	2(OPE)	1411	-4763	-223	0	0	0
	4(OPE)	-1429	-4769	-70	0	0	0
	6(OPE)	1423	-4762	-131	0	0	0
	8(SUS)	-0	-4766	0	0	0	0
	9(SUS)	-0	-4760	0	0	0	0
	MAX	-1429/L4	-9077/L1	-223/L2			
230		TYPE=Rigid +Y;					
	1(HYD)	-1	-8218	-2	0	0	0
	2(OPE)	-1295	-4319	-31	0	0	0
	4(OPE)	-1267	-4317	271	0	0	0
	6(OPE)	1133	-4316	-626	0	0	0
	8(SUS)	-0	-4315	-1	0	0	0
	9(SUS)	-0	-4309	-1	0	0	0
	MAX	-1295/L2	-8218/L1	-626/L6			
240		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-0	-9876	3	0	0	0
	2(OPE)	-3338	-5181	6900	0	0	0
	4(OPE)	-1251	-5186	925	0	0	0
	6(OPE)	-6054	-5172	15680	0	0	0
	8(SUS)	-0	-5185	2	0	0	0
	9(SUS)	-0	-5178	2	0	0	0
	MAX	-6054/L6	-9876/L1	15680/L6			
260		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	2	-9115	-2	0	0	0
	2(OPE)	-4459	-4789	1364	0	0	0
	4(OPE)	-833	-4785	1169	0	0	0
	6(OPE)	-9619	-4804	-3825	0	0	0
	8(SUS)	1	-4786	-1	0	0	0
	9(SUS)	1	-4779	-1	0	0	0
	MAX	-9619/L6	-9115/L1	-3825/L6			
270		TYPE=Rigid +Y;					
	1(HYD)	-1	-9145	-2	0	0	0
	2(OPE)	194	-4805	-1428	0	0	0
	4(OPE)	-33	-4799	1439	0	0	0
	6(OPE)	152	-4805	-1433	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	-0	-4802	-1	0	0	0
	9(SUS)	-0	-4795	-1	0	0	0
	MAX	194/L2	-9145/L1	1439/L4			
280		TYPE=Rigid +Y;					
	1(HYD)	0	-7161	-2	0	0	0
	2(OPE)	-116	-3759	-1122	0	0	0
	4(OPE)	234	-3761	-609	0	0	0
	6(OPE)	-81	-3752	-1123	0	0	0
	8(SUS)	0	-3760	-1	0	0	0
	9(SUS)	0	-3755	-1	0	0	0
	MAX	234/L4	-7161/L1	-1123/L6			
290		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-12193	-3	0	0	0
	2(OPE)	-725	-6411	-1873	0	0	0
	4(OPE)	-489	-6406	-1859	0	0	0
	6(OPE)	-479	-6420	-1922	0	0	0
	8(SUS)	0	-6402	-2	0	0	0
	9(SUS)	0	-6393	-1	0	0	0
	MAX	-725/L2	-12193/L1	-1922/L6			
310		TYPE=Rigid +Y;					
	1(HYD)	-0	-13504	13	0	0	0
	2(OPE)	673	-7093	-2019	0	0	0
	4(OPE)	-174	-7092	-1300	0	0	0
	6(OPE)	1404	-7088	-1597	0	0	0
	8(SUS)	-0	-7090	7	0	0	0
	9(SUS)	-0	-7081	7	0	0	0
	MAX	1404/L6	-13504/L1	-2019/L2			
340		TYPE=Rigid +Y;					
	1(HYD)	-0	-9256	-13	0	0	0
	2(OPE)	1389	-4859	443	0	0	0
	4(OPE)	1451	-4860	-146	0	0	0
	6(OPE)	1448	-4859	164	0	0	0
	8(SUS)	-0	-4860	-7	0	0	0
	9(SUS)	-0	-4853	-7	0	0	0
	MAX	1451/L4	-9256/L1	443/L2			
370		TYPE=Rigid +Y;					
	1(HYD)	0	-13486	13	0	0	0
	2(OPE)	548	-7079	2052	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-282	-7078	2105	0	0	0
	6(OPE)	1221	-7083	1739	0	0	0
	8(SUS)	0	-7081	7	0	0	0
	9(SUS)	0	-7071	7	0	0	0
	MAX	1221/L6	-13486/L1	2105/L4			
390		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-12263	-3	0	0	0
	2(OPE)	-1064	-6430	1904	0	0	0
	4(OPE)	-427	-6434	1882	0	0	0
	6(OPE)	-1293	-6419	1923	0	0	0
	8(SUS)	-0	-6439	-1	0	0	0
	9(SUS)	-0	-6430	-1	0	0	0
	MAX	-1293/L6	-12263/L1	1923/L6			
400		TYPE=Rigid +Y;					
	1(HYD)	0	-6899	-2	0	0	0
	2(OPE)	-176	-3624	1073	0	0	0
	4(OPE)	-80	-3621	1083	0	0	0
	6(OPE)	-154	-3631	1079	0	0	0
	8(SUS)	0	-3622	-1	0	0	0
	9(SUS)	0	-3617	-1	0	0	0
	MAX	-176/L2	-6899/L1	1083/L4			
410		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-10137	-1	0	0	0
	2(OPE)	-158	-5318	1588	0	0	0
	4(OPE)	13	-5319	1596	0	0	0
	6(OPE)	-897	-5316	1802	0	0	0
	8(SUS)	-0	-5322	-0	0	0	0
	9(SUS)	-0	-5315	-0	0	0	0
	MAX	-897/L6	-10137/L1	1802/L6			
420		TYPE=Rigid +Y;					
	1(HYD)	0	-6051	-1	0	0	0
	2(OPE)	-30	-3175	952	0	0	0
	4(OPE)	8	-3175	952	0	0	0
	6(OPE)	-51	-3176	951	0	0	0
	8(SUS)	0	-3177	-1	0	0	0
	9(SUS)	0	-3173	-1	0	0	0
	MAX	-51/L6	-6051/L1	952/L4			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
430		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	-0	-15597	1	0	0	0
	2(OPE)	94	-8190	-418	0	0	0
	4(OPE)	30	-8190	-379	0	0	0
	6(OPE)	210	-8193	-1921	0	0	0
	8(SUS)	-0	-8189	0	0	0	0
	9(SUS)	-0	-8178	0	0	0	0
	MAX	210/L6	-15597/L1	-1921/L6			
450		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-15613	1	0	0	0
	2(OPE)	-340	-8203	-2437	0	0	0
	4(OPE)	-13	-8203	-2461	0	0	0
	6(OPE)	-1324	-8205	-2763	0	0	0
	8(SUS)	0	-8198	0	0	0	0
	9(SUS)	0	-8186	0	0	0	0
	MAX	-1324/L6	-15613/L1	-2763/L6			
460		TYPE=Rigid +Y;					
	1(HYD)	-0	-5987	-1	0	0	0
	2(OPE)	-198	-3144	-922	0	0	0
	4(OPE)	-153	-3145	-931	0	0	0
	6(OPE)	-153	-3140	-930	0	0	0
	8(SUS)	-0	-3143	-1	0	0	0
	9(SUS)	-0	-3139	-1	0	0	0
	MAX	-198/L2	-5987/L1	-931/L4			
470		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	1	-10130	-1	0	0	0
	2(OPE)	-1117	-5326	-1835	0	0	0
	4(OPE)	-442	-5323	-1534	0	0	0
	6(OPE)	-491	-5333	-1719	0	0	0
	8(SUS)	1	-5319	-1	0	0	0
	9(SUS)	1	-5311	-1	0	0	0
	MAX	-1117/L2	-10130/L1	-1835/L2			
490		TYPE=Rigid +Y;					
	1(HYD)	-1	-10471	4	0	0	0
	2(OPE)	455	-5499	-1586	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-372	-5500	-1608	0	0	0
	6(OPE)	838	-5496	-1420	0	0	0
	8(SUS)	-1	-5498	2	0	0	0
	9(SUS)	-1	-5491	2	0	0	0
	MAX	838/L6	-10471/L1	-1608/L4			
510		TYPE=Rigid +Y;					
	1(HYD)	0	-14143	-4	0	0	0
	2(OPE)	2228	-7426	28	0	0	0
	4(OPE)	1868	-7426	-35	0	0	0
	6(OPE)	2226	-7426	82	0	0	0
	8(SUS)	0	-7426	-2	0	0	0
	9(SUS)	0	-7416	-2	0	0	0
	MAX	2228/L2	-14143/L1	82/L6			
530		TYPE=Rigid +Y;					
	1(HYD)	1	-10579	4	0	0	0
	2(OPE)	206	-5553	1653	0	0	0
	4(OPE)	-390	-5552	1619	0	0	0
	6(OPE)	887	-5557	1412	0	0	0
	8(SUS)	1	-5554	2	0	0	0
	9(SUS)	1	-5547	2	0	0	0
	MAX	887/L6	-10579/L1	1653/L2			
550		TYPE=Rigid +Y;					
	1(HYD)	-1	-9547	-1	0	0	0
	2(OPE)	-315	-5006	1468	0	0	0
	4(OPE)	-419	-5009	1443	0	0	0
	6(OPE)	-16	-4998	1499	0	0	0
	8(SUS)	-1	-5013	-1	0	0	0
	9(SUS)	-1	-5006	-1	0	0	0
	MAX	-419/L4	-9547/L1	1499/L6			
560		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-8613	-1	0	0	0
	2(OPE)	-750	-4521	1465	0	0	0
	4(OPE)	-202	-4520	1341	0	0	0
	6(OPE)	-1977	-4523	1917	0	0	0
	8(SUS)	0	-4522	-0	0	0	0
	9(SUS)	0	-4516	-0	0	0	0
	MAX	-1977/L6	-8613/L1	1917/L6			
570		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	1(HYD)	-0	-9013	-0	0	0	0
	2(OPE)	-169	-4729	1409	0	0	0
	4(OPE)	-9	-4729	1419	0	0	0
	6(OPE)	-86	-4728	1416	0	0	0
	8(SUS)	-0	-4732	-0	0	0	0
	9(SUS)	-0	-4726	-0	0	0	0
	MAX	-169/L2	-9013/L1	1419/L4			
580		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-8905	-0	0	0	0
	2(OPE)	-54	-4673	1401	0	0	0
	4(OPE)	29	-4673	1402	0	0	0
	6(OPE)	-49	-4673	1401	0	0	0
	8(SUS)	0	-4676	-0	0	0	0
	9(SUS)	0	-4669	-0	0	0	0
	MAX	-54/L2	-8905/L1	1402/L4			
590		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-0	-8942	-0	0	0	0
	2(OPE)	209	-4693	1392	0	0	0
	4(OPE)	6	-4695	23	0	0	0
	6(OPE)	1	-4697	-1041	0	0	0
	8(SUS)	-0	-4695	-0	0	0	0
	9(SUS)	-0	-4689	-0	0	0	0
	MAX	209/L2	-8942/L1	1392/L2			
600		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-8900	-0	0	0	0
	2(OPE)	-12	-4676	-1403	0	0	0
	4(OPE)	28	-4676	-1402	0	0	0
	6(OPE)	-32	-4675	-1402	0	0	0
	8(SUS)	-0	-4673	-0	0	0	0
	9(SUS)	-0	-4667	-0	0	0	0
	MAX	-32/L6	-8900/L1	-1403/L2			
610		TYPE=Rigid +Y;					
	1(HYD)	0	-9033	-0	0	0	0
	2(OPE)	-140	-4747	-1417	0	0	0
	4(OPE)	-7	-4746	-1424	0	0	0
	6(OPE)	-73	-4747	-1422	0	0	0
	8(SUS)	0	-4743	-0	0	0	0
	9(SUS)	0	-4737	-0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-140/L2	-9033/L1	-1424/L4			
620		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-8534	-1	0	0	0
	2(OPE)	-796	-4482	-1465	0	0	0
	4(OPE)	-195	-4483	-1331	0	0	0
	6(OPE)	-2031	-4479	-1920	0	0	0
	8(SUS)	-0	-4481	-0	0	0	0
	9(SUS)	-0	-4475	-0	0	0	0
	MAX	-2031/L6	-8534/L1	-1920/L6			
630		TYPE=Rigid +Y;					
	1(HYD)	1	-9669	-1	0	0	0
	2(OPE)	-384	-5083	-1476	0	0	0
	4(OPE)	-425	-5080	-1464	0	0	0
	6(OPE)	-43	-5090	-1526	0	0	0
	8(SUS)	0	-5077	-1	0	0	0
	9(SUS)	0	-5070	-1	0	0	0
	MAX	-425/L4	-9669/L1	-1526/L6			
650		TYPE=Rigid +Y;					
	1(HYD)	-1	-10465	5	0	0	0
	2(OPE)	-10	-5496	-1649	0	0	0
	4(OPE)	-408	-5497	-1598	0	0	0
	6(OPE)	754	-5492	-1465	0	0	0
	8(SUS)	-1	-5495	2	0	0	0
	9(SUS)	-1	-5487	2	0	0	0
	MAX	754/L6	-10465/L1	-1649/L2			
670		TYPE=Rigid +Y;					
	1(HYD)	0	-13651	-5	0	0	0
	2(OPE)	2119	-7168	-364	0	0	0
	4(OPE)	2126	-7167	322	0	0	0
	6(OPE)	2119	-7169	-368	0	0	0
	8(SUS)	0	-7168	-2	0	0	0
	9(SUS)	0	-7158	-2	0	0	0
	MAX	2126/L4	-13651/L1	-368/L6			
690		TYPE=Rigid +Y;					
	1(HYD)	1	-10513	5	0	0	0
	2(OPE)	302	-5518	1628	0	0	0
	4(OPE)	-275	-5518	709	0	0	0
	6(OPE)	1292	-5522	1037	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	1	-5520	2	0	0	0
	9(SUS)	1	-5512	2	0	0	0
	MAX	1292/L6	-10513/L1	1628/L2			
710		TYPE=Rigid +Y;					
	1(HYD)	-1	-9609	-1	0	0	0
	2(OPE)	-551	-5040	1408	0	0	0
	4(OPE)	-601	-5042	1388	0	0	0
	6(OPE)	16	-5033	1510	0	0	0
	8(SUS)	-1	-5046	-1	0	0	0
	9(SUS)	-1	-5039	-1	0	0	0
	MAX	-601/L4	-9609/L1	1510/L6			
720		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-8573	-1	0	0	0
	2(OPE)	-831	-4500	1214	0	0	0
	4(OPE)	-181	-4499	1337	0	0	0
	6(OPE)	-3750	-4499	2404	0	0	0
	8(SUS)	0	-4501	-0	0	0	0
	9(SUS)	0	-4495	-0	0	0	0
	MAX	-3750/L6	-8573/L1	2404/L6			
730		TYPE=Rigid +Y;					
	1(HYD)	-1	-8945	-1	0	0	0
	2(OPE)	-1321	-4699	492	0	0	0
	4(OPE)	104	-4700	-1406	0	0	0
	6(OPE)	-830	-4701	1140	0	0	0
	8(SUS)	-0	-4697	-0	0	0	0
	9(SUS)	-0	-4690	-0	0	0	0
	MAX	-1321/L2	-8945/L1	-1406/L4			
740		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	2	-8749	-1	0	0	0
	2(OPE)	6268	-4589	-2735	0	0	0
	4(OPE)	782	-4594	-1135	0	0	0
	6(OPE)	12488	-4579	-4815	0	0	0
	8(SUS)	1	-4594	-0	0	0	0
	9(SUS)	1	-4588	-0	0	0	0
	MAX	12488/L6	-8749/L1	-4815/L6			
760		TYPE=Rigid +Y;					
	1(HYD)	-1	-9114	2	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	2(OPE)	1122	-4782	-894	0	0	0
	4(OPE)	1086	-4785	-939	0	0	0
	6(OPE)	969	-4783	-1058	0	0	0
	8(SUS)	-0	-4785	1	0	0	0
	9(SUS)	-0	-4779	1	0	0	0
	MAX	1122/L2	-9114/L1	-1058/L6			
770		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-1	-8576	-1	0	0	0
	2(OPE)	1309	-4504	-1447	0	0	0
	4(OPE)	1331	-4500	-223	0	0	0
	6(OPE)	-569	-4512	-3062	0	0	0
	8(SUS)	-0	-4503	-1	0	0	0
	9(SUS)	-0	-4497	-1	0	0	0
	MAX	1331/L4	-8576/L1	-3062/L6			
780		TYPE=Rigid +Y;					
	1(HYD)	-1	-9196	0	0	0	0
	2(OPE)	-1445	-4831	108	0	0	0
	4(OPE)	841	-4827	116	0	0	0
	6(OPE)	-1337	-4831	560	0	0	0
	8(SUS)	-0	-4828	0	0	0	0
	9(SUS)	-0	-4822	0	0	0	0
	MAX	-1445/L2	-9196/L1	560/L6			
790		TYPE=Rigid +Y;					
	1(HYD)	-2	-8198	-0	0	0	0
	2(OPE)	-1205	-4304	463	0	0	0
	4(OPE)	-1290	-4307	74	0	0	0
	6(OPE)	-1230	-4298	385	0	0	0
	8(SUS)	-1	-4304	-0	0	0	0
	9(SUS)	-1	-4299	-0	0	0	0
	MAX	-1290/L4	-8198/L1	463/L2			
800		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-3	-10141	-0	0	0	0
	2(OPE)	-1634	-5333	846	0	0	0
	4(OPE)	-1530	-5329	464	0	0	0
	6(OPE)	-2057	-5345	1642	0	0	0
	8(SUS)	-1	-5325	-0	0	0	0
	9(SUS)	-1	-5318	-0	0	0	0
	MAX	-2057/L6	-10141/L1	1642/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
820		TYPE=Rigid +Y;					
	1(HYD)	12	-13344	1	0	0	0
	2(OPE)	-1857	-7007	-986	0	0	0
	4(OPE)	-2097	-7009	150	0	0	0
	6(OPE)	-1344	-7001	-1614	0	0	0
	8(SUS)	6	-7006	0	0	0	0
	9(SUS)	6	-6997	0	0	0	0
	MAX	-2097/L4	-13344/L1	-1614/L6			
850		TYPE=Rigid +Y;					
	1(HYD)	-13	-9843	-0	0	0	0
	2(OPE)	579	-5168	-1438	0	0	0
	4(OPE)	48	-5168	-1550	0	0	0
	6(OPE)	361	-5170	-1508	0	0	0
	8(SUS)	-7	-5168	-0	0	0	0
	9(SUS)	-7	-5161	-0	0	0	0
	MAX	579/L2	-9843/L1	-1550/L4			
880		TYPE=Rigid +Y;					
	1(HYD)	14	-14160	-0	0	0	0
	2(OPE)	2189	-7432	-423	0	0	0
	4(OPE)	2203	-7431	340	0	0	0
	6(OPE)	1891	-7432	-1181	0	0	0
	8(SUS)	7	-7435	-0	0	0	0
	9(SUS)	7	-7425	-0	0	0	0
	MAX	2203/L4	-14160/L1	-1181/L6			
900		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-3	-14053	0	0	0	0
	2(OPE)	2186	-7371	1344	0	0	0
	4(OPE)	2171	-7373	423	0	0	0
	6(OPE)	2207	-7366	1699	0	0	0
	8(SUS)	-1	-7379	0	0	0	0
	9(SUS)	-1	-7369	0	0	0	0
	MAX	2207/L6	-14053/L1	1699/L6			
910		TYPE=Rigid +Y;					
	1(HYD)	-3	-6001	-0	0	0	0
	2(OPE)	939	-3151	111	0	0	0
	4(OPE)	944	-3149	39	0	0	0
	6(OPE)	940	-3156	113	0	0	0
	8(SUS)	-1	-3151	-0	0	0	0
	9(SUS)	-1	-3146	-0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	944/L4	-6001/L1	113/L6			
920		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-1	-9702	0	0	0	0
	2(OPE)	1524	-5091	92	0	0	0
	4(OPE)	1527	-5091	-22	0	0	0
	6(OPE)	1608	-5089	457	0	0	0
	8(SUS)	-1	-5094	0	0	0	0
	9(SUS)	-1	-5087	0	0	0	0
	MAX	1608/L6	-9702/L1	457/L6			
930		TYPE=Rigid +Y;					
	1(HYD)	-1	-8717	-0	0	0	0
	2(OPE)	1372	-4574	14	0	0	0
	4(OPE)	1372	-4574	-14	0	0	0
	6(OPE)	1370	-4575	78	0	0	0
	8(SUS)	-0	-4577	-0	0	0	0
	9(SUS)	-0	-4571	-0	0	0	0
	MAX	1372/L2	-8717/L1	78/L6			
940		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	-0	-9018	0	0	0	0
	2(OPE)	1417	-4733	-84	0	0	0
	4(OPE)	-192	-4735	3	0	0	0
	6(OPE)	1419	-4734	61	0	0	0
	8(SUS)	-0	-4735	0	0	0	0
	9(SUS)	-0	-4729	0	0	0	0
	MAX	1419/L6	-9018/L1	-84/L2			
950		TYPE=Rigid +Y;					
	1(HYD)	-1	-8780	0	0	0	0
	2(OPE)	-1384	-4612	-8	0	0	0
	4(OPE)	-1384	-4612	-18	0	0	0
	6(OPE)	-1379	-4608	100	0	0	0
	8(SUS)	-0	-4610	0	0	0	0
	9(SUS)	-0	-4604	0	0	0	0
	MAX	-1384/L4	-8780/L1	100/L6			
960		TYPE=Rigid +Y; Rigid Z w/gap;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	1(HYD)	-1	-9447	-0	0	0	0
	2(OPE)	-1487	-4967	93	0	0	0
	4(OPE)	-1489	-4964	-14	0	0	0
	6(OPE)	-1529	-4983	321	0	0	0
	8(SUS)	-0	-4960	-0	0	0	0
	9(SUS)	-0	-4954	-0	0	0	0
	MAX	-1529/L6	-9447/L1	321/L6			
970		TYPE=Rigid +Y;					
	1(HYD)	-2	-6972	0	0	0	0
	2(OPE)	-1085	-3649	147	0	0	0
	4(OPE)	-1096	-3661	75	0	0	0
	6(OPE)	-1068	-3590	134	0	0	0
	8(SUS)	-1	-3661	0	0	0	0
	9(SUS)	-1	-3656	0	0	0	0
	MAX	-1096/L4	-6972/L1	147/L2			
980		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-2	-12416	-0	0	0	0
	2(OPE)	-2254	-6547	1409	0	0	0
	4(OPE)	-1911	-6526	425	0	0	0
	6(OPE)	-2591	-6642	2118	0	0	0
	8(SUS)	-1	-6519	-0	0	0	0
	9(SUS)	-1	-6510	-0	0	0	0
	MAX	-2591/L6	-12416/L1	2118/L6			
1000		TYPE=Rigid +Y;					
	1(HYD)	12	-13512	1	0	0	0
	2(OPE)	-2091	-7066	-345	0	0	0
	4(OPE)	-2110	-7094	282	0	0	0
	6(OPE)	-1846	-6917	-949	0	0	0
	8(SUS)	7	-7095	0	0	0	0
	9(SUS)	7	-7085	0	0	0	0
	MAX	-2110/L4	-13512/L1	-949/L6			
1030		TYPE=Rigid +Y;					
	1(HYD)	-16	-9635	-0	0	0	0
	2(OPE)	-498	-5090	-1443	0	0	0
	4(OPE)	214	-5062	-1503	0	0	0
	6(OPE)	-593	-5223	-1450	0	0	0
	8(SUS)	-8	-5059	-0	0	0	0
	9(SUS)	-8	-5052	-0	0	0	0
	MAX	-593/L6	-9635/L1	-1503/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1060		TYPE=Rigid +Y;					
	1(HYD)	29	-13360	-74	0	0	0
	2(OPE)	1900	-7063	-938	0	0	0
	4(OPE)	1172	-7018	184	0	0	0
	6(OPE)	781	-7300	-2046	0	0	0
	8(SUS)	15	-7015	-39	0	0	0
	9(SUS)	15	-7005	-39	0	0	0
	MAX	1900/L2	-13360/L1	-2046/L6			
1080		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-131	-12327	331	0	0	0
	2(OPE)	1745	-6370	778	0	0	0
	4(OPE)	1860	-6457	541	0	0	0
	6(OPE)	1924	-5913	856	0	0	0
	8(SUS)	-69	-6473	174	0	0	0
	9(SUS)	-68	-6464	174	0	0	0
	MAX	1924/L6	-12327/L1	856/L6			
1090		TYPE=Rigid +Y;					
	1(HYD)	-188	-8674	-574	0	0	0
	2(OPE)	278	-4555	267	0	0	0
	4(OPE)	-129	-4554	-440	0	0	0
	6(OPE)	1376	-4598	97	0	0	0
	8(SUS)	-99	-4555	-301	0	0	0
	9(SUS)	-99	-4548	-301	0	0	0
	MAX	1376/L6	-8674/L1	-574/L1			
1100		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-1	-2077	-623	0	0	0
	2(OPE)	-399	-1330	-11	0	0	0
	4(OPE)	-275	-1118	-192	0	0	0
	6(OPE)	-642	-2239	-197	0	0	0
	8(SUS)	-1	-1091	-327	0	0	0
	9(SUS)	-1	-1089	-327	0	0	0
	MAX	-642/L6	-2239/L6	-623/L1			
1110		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-525	-20952	2134	0	0	0
	2(OPE)	-3143	-10414	1547	0	0	0
	4(OPE)	-3073	-10936	1150	0	0	0
	6(OPE)	-4305	-8294	6464	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	-276	-11001	1120	0	0	0
	9(SUS)	-275	-10986	1119	0	0	0
	MAX	-4305/L6	-20952/L1	6464/L6			
1140		TYPE=Rigid +Y;					
	1(HYD)	2050	-19750	-882	0	0	0
	2(OPE)	1438	-10904	1204	0	0	0
	4(OPE)	1130	-10438	-241	0	0	0
	6(OPE)	344	-12498	3733	0	0	0
	8(SUS)	1076	-10370	-463	0	0	0
	9(SUS)	1075	-10356	-462	0	0	0
	MAX	2050/L1	-19750/L1	3733/L6			
1160		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-582	-10149	-350	0	0	0
	2(OPE)	2114	-4954	-2799	0	0	0
	4(OPE)	1505	-5274	-487	0	0	0
	6(OPE)	4205	-4224	-10029	0	0	0
	8(SUS)	-305	-5329	-184	0	0	0
	9(SUS)	-305	-5321	-184	0	0	0
	MAX	4205/L6	-10149/L1	-10029/L6			
1170		TYPE=Rigid +Y;					
	1(HYD)	-291	-8489	66	0	0	0
	2(OPE)	1408	-4743	-206	0	0	0
	4(OPE)	1347	-4494	-50	0	0	0
	6(OPE)	1481	-5362	629	0	0	0
	8(SUS)	-153	-4457	35	0	0	0
	9(SUS)	-153	-4451	34	0	0	0
	MAX	1481/L6	-8489/L1	629/L6			
1180		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-148	-9070	-16	0	0	0
	2(OPE)	309	-4688	287	0	0	0
	4(OPE)	-306	-4753	-3	0	0	0
	6(OPE)	-1562	-4533	1513	0	0	0
	8(SUS)	-78	-4762	-9	0	0	0
	9(SUS)	-78	-4756	-9	0	0	0
	MAX	-1562/L6	-9070/L1	1513/L6			
1190		TYPE=Rigid +Y;					
	1(HYD)	-81	-8798	4	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	2(OPE)	-1349	-4635	336	0	0	0
	4(OPE)	-1383	-4624	112	0	0	0
	6(OPE)	-1368	-4659	284	0	0	0
	8(SUS)	-43	-4619	2	0	0	0
	9(SUS)	-43	-4613	2	0	0	0
	MAX	-1383/L4	-8798/L1	336/L2			
1200		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-55	-9166	-2	0	0	0
	2(OPE)	-1761	-4829	1729	0	0	0
	4(OPE)	-1362	-4817	482	0	0	0
	6(OPE)	-1937	-4863	1738	0	0	0
	8(SUS)	-29	-4813	-1	0	0	0
	9(SUS)	-29	-4806	-1	0	0	0
	MAX	-1937/L6	-9166/L1	1738/L6			
1220		TYPE=Rigid +Y;					
	1(HYD)	9	-14117	2	0	0	0
	2(OPE)	-2044	-7404	-869	0	0	0
	4(OPE)	-721	-7412	-39	0	0	0
	6(OPE)	-1387	-7374	-1723	0	0	0
	8(SUS)	5	-7412	1	0	0	0
	9(SUS)	5	-7402	1	0	0	0
	MAX	-2044/L2	-14117/L1	-1723/L6			
1250		TYPE=Rigid +Y;					
	1(HYD)	-10	-16535	0	0	0	0
	2(OPE)	253	-8682	-2592	0	0	0
	4(OPE)	-71	-8682	-975	0	0	0
	6(OPE)	499	-8684	-2557	0	0	0
	8(SUS)	-5	-8682	0	0	0	0
	9(SUS)	-5	-8670	0	0	0	0
	MAX	499/L6	-16535/L1	-2592/L2			
1280		TYPE=Rigid +Y;					
	1(HYD)	10	-14430	-1	0	0	0
	2(OPE)	2234	-7573	-413	0	0	0
	4(OPE)	875	-7575	63	0	0	0
	6(OPE)	1795	-7577	-1395	0	0	0
	8(SUS)	5	-7576	-0	0	0	0
	9(SUS)	5	-7566	-0	0	0	0
	MAX	2234/L2	-14430/L1	-1395/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1300		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-2	-13792	1	0	0	0
	2(OPE)	2855	-7233	2739	0	0	0
	4(OPE)	2118	-7237	478	0	0	0
	6(OPE)	4053	-7224	6415	0	0	0
	8(SUS)	-1	-7242	0	0	0	0
	9(SUS)	-1	-7232	0	0	0	0
	MAX	4053/L6	-13792/L1	6415/L6			
1310		TYPE=Rigid +Y;					
	1(HYD)	-2	-6060	-0	0	0	0
	2(OPE)	947	-3183	126	0	0	0
	4(OPE)	954	-3180	30	0	0	0
	6(OPE)	917	-3191	274	0	0	0
	8(SUS)	-1	-3182	-0	0	0	0
	9(SUS)	-1	-3178	-0	0	0	0
	MAX	954/L4	-6060/L1	274/L6			
1320		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-1	-10402	1	0	0	0
	2(OPE)	2663	-5450	-4246	0	0	0
	4(OPE)	-1101	-5464	-327	0	0	0
	6(OPE)	7375	-5422	-19374	0	0	0
	8(SUS)	-1	-5462	1	0	0	0
	9(SUS)	-1	-5454	1	0	0	0
	MAX	7375/L6	-10402/L1	-19374/L6			
1330		TYPE=Rigid +Y;					
	1(HYD)	-2	-5811	-5	0	0	0
	2(OPE)	325	-3072	-862	0	0	0
	4(OPE)	-904	-3052	144	0	0	0
	6(OPE)	283	-3141	-899	0	0	0
	8(SUS)	-1	-3050	-3	0	0	0
	9(SUS)	-1	-3046	-3	0	0	0
	MAX	-904/L4	-5811/L1	-899/L6			
1340		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	0	-15620	10	0	0	0
	2(OPE)	-9370	-8144	32732	0	0	0
	4(OPE)	-1381	-8201	2036	0	0	0
	6(OPE)	-10761	-7936	122422	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	0	-8202	5	0	0	0
	9(SUS)	0	-8191	5	0	0	0
	MAX	-10761/L6	-15620/L1	122422/L6			
1360		TYPE=Rigid +Y;					
	1(HYD)	2	-15660	-4	0	0	0
	2(OPE)	-1594	-8225	1884	0	0	0
	4(OPE)	-444	-8219	2425	0	0	0
	6(OPE)	-1700	-8240	1795	0	0	0
	8(SUS)	1	-8222	-2	0	0	0
	9(SUS)	1	-8211	-2	0	0	0
	MAX	-1700/L6	-15660/L1	2425/L4			
1370		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-1	-9209	-5	0	0	0
	2(OPE)	-641	-4830	1299	0	0	0
	4(OPE)	78	-4832	1447	0	0	0
	6(OPE)	-7087	-4820	3506	0	0	0
	8(SUS)	-1	-4835	-3	0	0	0
	9(SUS)	-1	-4829	-3	0	0	0
	MAX	-7087/L6	-9209/L1	3506/L6			
1380		TYPE=Rigid +Y;					
	1(HYD)	0	-8920	-8	0	0	0
	2(OPE)	-572	-4687	1284	0	0	0
	4(OPE)	39	-4681	1404	0	0	0
	6(OPE)	557	-4702	1296	0	0	0
	8(SUS)	0	-4683	-4	0	0	0
	9(SUS)	0	-4677	-4	0	0	0
	MAX	-572/L2	-8920/L1	1404/L4			
1390		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	0	-8829	-14	0	0	0
	2(OPE)	-7869	-4665	-26061	0	0	0
	4(OPE)	-179	-4639	-1380	0	0	0
	6(OPE)	24349	-4764	-103079	0	0	0
	8(SUS)	0	-4637	-8	0	0	0
	9(SUS)	0	-4631	-8	0	0	0
	MAX	24349/L6	-8829/L1	- 103079/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1400		TYPE=Rigid +Y;					
	1(HYD)	-1	-9346	-27	0	0	0
	2(OPE)	0	-4997	-1499	0	0	0
	4(OPE)	-27	-4908	-1472	0	0	0
	6(OPE)	-230	-5204	-1544	0	0	0
	8(SUS)	-1	-4902	-15	0	0	0
	9(SUS)	-1	-4895	-15	0	0	0
	MAX	-230/L6	-9346/L1	-1544/L6			
1410		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	5	-7334	-55	0	0	0
	2(OPE)	563	-3523	-1026	0	0	0
	4(OPE)	88	-3860	-1155	0	0	0
	6(OPE)	3588	-2738	-817	0	0	0
	8(SUS)	3	-3873	-31	0	0	0
	9(SUS)	3	-3868	-31	0	0	0
	MAX	3588/L6	-7334/L1	-1155/L4			
1420		TYPE=Rigid +Y;					
	1(HYD)	-39	-11969	-109	0	0	0
	2(OPE)	791	-7044	-1960	0	0	0
	4(OPE)	473	-6326	-1838	0	0	0
	6(OPE)	972	-8688	-2418	0	0	0
	8(SUS)	-22	-6254	-61	0	0	0
	9(SUS)	-22	-6246	-61	0	0	0
	MAX	972/L6	-11969/L1	-2418/L6			
1440		TYPE=Rigid +Y;					
	1(HYD)	48	-12984	452	0	0	0
	2(OPE)	582	-5606	-1578	0	0	0
	4(OPE)	-40	-6684	-1439	0	0	0
	6(OPE)	373	-3237	-897	0	0	0
	8(SUS)	23	-6849	254	0	0	0
	9(SUS)	23	-6840	253	0	0	0
	MAX	582/L2	-12984/L1	-1578/L2			
1520		TYPE=Rigid ANC;					
	1(HYD)	-12	-7987	-233	3978	331	695
	2(OPE)	-1970	-5256	-554	2309	1032	2820
	4(OPE)	-485	-4627	427	3465	-538	1043
	6(OPE)	-4172	-6608	-3045	-928	5484	4868
	8(SUS)	-3	-4516	-131	2245	193	398
	9(SUS)	-3	-4511	-131	2242	193	397

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-4172/L6	-7987/L1	-3045/L6	3978/L1	5484/L6	4868/L6
1550		TYPE=Rigid ANC;					
	1(HYD)	946	-6826	-373	-13160	-4412	-488
	2(OPE)	3285	-3509	604	-8216	-13924	5272
	4(OPE)	890	-3658	-20	-7044	-3972	503
	6(OPE)	8281	-3174	2172	-11385	-34629	15220
	8(SUS)	497	-3749	-196	-6947	-2317	-256
	9(SUS)	496	-3744	-195	-6937	-2314	-256
	MAX	8281/L6	-6826/L1	2172/L6	-13160/L1	-34629/L6	15220/L6
1590		TYPE=Rigid ANC;					
	1(HYD)	946	-6826	-373	-19898	-4979	-7192
	2(OPE)	3285	-3509	604	-6038	-15895	-18015
	4(OPE)	890	-3658	-20	-9378	-4506	-5810
	6(OPE)	8281	-3174	2172	2111	-39598	-43492
	8(SUS)	497	-3749	-196	-10582	-2615	-3778
	9(SUS)	496	-3744	-195	-10568	-2612	-3772
	MAX	8281/L6	-6826/L1	2172/L6	-19898/L1	-39598/L6	-43492/L6
1620		TYPE=Rigid ANC;					
	1(HYD)	-12	-8464	-233	3913	331	699
	2(OPE)	-1970	-5595	-554	2155	1032	3369
	4(OPE)	-485	-4966	427	3584	-538	1178
	6(OPE)	-4172	-6946	-3045	-1777	5484	6031
	8(SUS)	-3	-4855	-131	2208	193	398
	9(SUS)	-3	-4850	-131	2206	193	398
	MAX	-4172/L6	-8464/L1	-3045/L6	3913/L1	5484/L6	6031/L6
1660		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	0	-9082	0	0	0	0
	2(OPE)	0	-7834	0	0	0	0
	4(OPE)	0	-5802	0	0	0	0
	6(OPE)	0	-11017	0	0	0	0
	8(SUS)	0	-5208	0	0	0	0
	9(SUS)	0	-5202	0	0	0	0
	MAX		-11017/L6				
1680		TYPE=Rigid ANC;					
	1(HYD)	-12	618	-233	3676	-206	197
	2(OPE)	-1970	2239	-554	1592	-243	1000
	4(OPE)	-485	836	427	4017	444	328
	6(OPE)	-4172	4070	-3045	-4865	-1520	2002

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	-3	352	-131	2076	-108	111
	9(SUS)	-3	352	-131	2073	-108	111
	MAX	-4172/L6	4070/L6	-3045/L6	-4865/L6	-1520/L6	2002/L6

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L2-L4
27 (EXP) L27=L6-L8
28 (EXP) L28=L2-L6
29 (EXP) L29=L4-L6

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 Licensed To:: SPLM: Edit company name in <system>\company.txt

STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 20 (OCC) L20=L15+L8
 CASE 21 (OCC) L21=L16+L8
 CASE 22 (OCC) L22=L17+L8
 CASE 23 (OCC) L23=L18+L8
 CASE 24 (OCC) L24=L19+L8
 CASE 25 (EXP) L25=L2-L8
 CASE 26 (EXP) L26=L2-L4
 CASE 27 (EXP) L27=L6-L8
 CASE 28 (EXP) L28=L2-L6
 CASE 29 (EXP) L29=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (KPa)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	21.0	@Node 1110
Code Stress:	50737.6	Allowable Stress: 241316.5
Axial Stress:	8195.6	@Node 1119
Bending Stress:	42634.3	@Node 1110
Torsion Stress:	2154.5	@Node 1130
Hoop Stress:	16540.1	@Node 30
Max Stress Intensity:	50733.6	@Node 1110

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (KPa)	LOADCASE 8 (SUS) W+P1	
Ratio (%):	46.8	@Node 1110
Code Stress:	64266.6	Allowable Stress: 137261.0
Axial Stress:	15162.4	@Node 20
Bending Stress:	50617.5	@Node 1110
Torsion Stress:	2557.9	@Node 1130
Hoop Stress:	30554.2	@Node 20
Max Stress Intensity:	64264.3	@Node 1110

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (KPa)	LOADCASE 9 (SUS) WNC	
Ratio (%):	36.9	@Node 1110
Code Stress:	50680.9	Allowable Stress: 137261.0
Axial Stress:	1749.4	@Node 1620
Bending Stress:	50548.7	@Node 1110
Torsion Stress:	2554.4	@Node 1130
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	50680.9	@Node 1110

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L8

Highest Stresses: (	KPa	)	LOADCASE 20 (OCC) L20=L15+L8	
Ratio (%):	45.0	@Node	1550	
Code Stress:	82098.5	Allowable Stress:		182557.2
Axial Stress:	15142.2	@Node	940	
Bending Stress:	66745.2	@Node	1550	
Torsion Stress:	5783.5	@Node	1510	
Hoop Stress:	30554.2	@Node	20	
Max Stress Intensity:	82100.5	@Node	1550	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L8

Highest Stresses: (	KPa	)	LOADCASE 21 (OCC) L21=L16+L8	
Ratio (%):	42.8	@Node	1140	
Code Stress:	78206.5	Allowable Stress:		182557.2
Axial Stress:	15186.2	@Node	20	
Bending Stress:	64477.9	@Node	1140	
Torsion Stress:	3461.2	@Node	1129	
Hoop Stress:	30554.2	@Node	20	
Max Stress Intensity:	78376.5	@Node	1140	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L8

Highest Stresses: (	KPa	)	LOADCASE 22 (OCC) L22=L17+L8	
Ratio (%):	38.6	@Node	1110	
Code Stress:	70414.2	Allowable Stress:		182557.2
Axial Stress:	15155.3	@Node	20	
Bending Stress:	56690.5	@Node	1110	
Torsion Stress:	2250.4	@Node	1130	
Hoop Stress:	30554.2	@Node	20	
Max Stress Intensity:	70412.0	@Node	1110	

CODE STRESS CHECK PASSED : LOADCASE 23 (OCC) L23=L18+L8

Highest Stresses: (	KPa	)	LOADCASE 23 (OCC) L23=L18+L8	
Ratio (%):	38.6	@Node	1110	
Code Stress:	70540.0	Allowable Stress:		182557.2
Axial Stress:	14897.0	@Node	430	
Bending Stress:	56584.1	@Node	1110	
Torsion Stress:	2838.8	@Node	1148	
Hoop Stress:	30554.2	@Node	20	
Max Stress Intensity:	70537.8	@Node	1110	

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L19+L8

Highest Stresses: (	KPa	)	LOADCASE 24 (OCC) L24=L19+L8	
Ratio (%):	43.2	@Node	1110	
Code Stress:	78824.1	Allowable Stress:		182557.2
Axial Stress:	15735.4	@Node	1550	
Bending Stress:	65027.4	@Node	1110	
Torsion Stress:	2522.4	@Node	1130	
Hoop Stress:	30554.2	@Node	20	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Max Stress Intensity: 78821.9 @Node 1110

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L8

Highest Stresses: (KPa) LOADCASE 25 (EXP) L25=L2-L8
 Ratio (%): 23.3 @Node 1350
 Code Stress: 76283.3 Allowable Stress: 327816.6
 Axial Stress: 3213.6 @Node 1390
 Bending Stress: 73525.0 @Node 1350
 Torsion Stress: 5640.7 @Node 1550
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 172725.1 @Node 1350

CODE STRESS CHECK PASSED : LOADCASE 26 (EXP) L26=L2-L4

Highest Stresses: (KPa) LOADCASE 26 (EXP) L26=L2-L4
 Ratio (%): 21.0 @Node 1350
 Code Stress: 68863.6 Allowable Stress: 327816.6
 Axial Stress: 2577.2 @Node 1350
 Bending Stress: 66286.3 @Node 1350
 Torsion Stress: 4865.8 @Node 1550
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 155932.3 @Node 1350

CODE STRESS CHECK PASSED : LOADCASE 27 (EXP) L27=L6-L8

Highest Stresses: (KPa) LOADCASE 27 (EXP) L27=L6-L8
 Ratio (%): 83.7 @Node 1350
 Code Stress: 273565.3 Allowable Stress: 327024.0
 Axial Stress: 11006.7 @Node 1390
 Bending Stress: 263218.9 @Node 1350
 Torsion Stress: 15791.0 @Node 1550
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 619461.3 @Node 1350

CODE STRESS CHECK PASSED : LOADCASE 28 (EXP) L28=L2-L6

Highest Stresses: (KPa) LOADCASE 28 (EXP) L28=L2-L6
 Ratio (%): 60.3 @Node 1350
 Code Stress: 197282.0 Allowable Stress: 327024.0
 Axial Stress: 7806.8 @Node 1380
 Bending Stress: 189693.9 @Node 1350
 Torsion Stress: 10150.3 @Node 1550
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 446736.1 @Node 1350

CODE STRESS CHECK PASSED : LOADCASE 29 (EXP) L29=L4-L6

Highest Stresses: (KPa) LOADCASE 29 (EXP) L29=L4-L6
 Ratio (%): 81.4 @Node 1350
 Code Stress: 266145.6 Allowable Stress: 327024.0
 Axial Stress: 10323.8 @Node 1380
 Bending Stress: 255980.2 @Node 1350

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Torsion Stress:	15016.2	@Node	1550
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	602668.4	@Node	1350

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Line no.

Stress sketch

Input echo

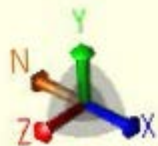
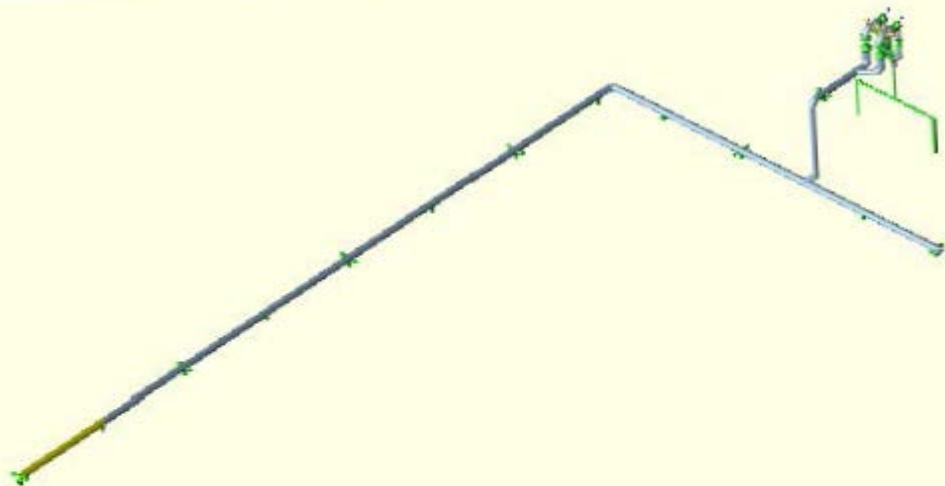
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0014-AN07-8"-PT
2. GAS-111-0013-AN07-8"-PT
3. FL-112-0006-AN07-10"-PT
4. FL-112-0005-AN07-10"-PT
5. FL-112-0007-AN07-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OCC) L16=L10-L4
17 (OCC) L17=L11-L4
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16+L8
23 (OCC) L23=L17+L8
24 (OCC) L24=L18+L8
25 (OCC) L25=L19+L8
26 (OCC) L26=L20+L8
27 (OCC) L27=L21+L8
28 (EXP) L28=L2-L8
29 (EXP) L29=L4-L8
30 (EXP) L30=L2-L4
31 (EXP) L31=L6-L8
32 (EXP) L32=L2-L6
33 (EXP) L33=L4-L6

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 10 To 20 DZ= -19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F T3= 392 F P1= 108.7808 lb./sq.in.
 PHyd= 163.1712 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
 EH2= 29,393,378 lb./sq.in. EH3= 27,748,188 lb./sq.in.
 EH4= 29,500,856 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RESTRAINTS

Node 20 +Y Mu = .30
 Node 10 +Y Mu = .30
 Node 10 X Gap= .118 in. Mu = .30
 Node 10 Z Gap= .118 in. Mu = .30

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

SIF's & TEE's

Node 10 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

From 20 To 420 DZ= -19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 28,875,074 lb./sq.in. EH2= 29,393,378 lb./sq.in.
 EH3= 27,748,188 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000542 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 420 +Y Mu = .30

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INPUT LISTING

Node 420 X

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 420 To 430 DZ= -19.685 ft.

GENERAL

P2= .0000 lb./sq.in.

RESTRAINTS

Node 430 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 430 To 440 DZ= -19.685 ft.

RESTRAINTS

Node 440 +Y Mu = .30

Node 440 X Gap= .118 in.

 From 440 To 450 DZ= -19.685 ft.

RESTRAINTS

Node 450 +Y Mu = .30

 From 450 To 460 DZ= -19.685 ft.

RESTRAINTS

Node 460 +Y Mu = .30

Node 460 X Gap= .118 in.

 From 460 To 470 DZ= -19.685 ft.

RESTRAINTS

Node 470 +Y Mu = .30

 From 470 To 480 DZ= -3.510 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 479
 Angle/Node @2= .00 478

 From 480 To 490 DX= 11.483 ft.

RESTRAINTS

Node 490 +Y

 From 490 To 500 DX= 17.388 ft.

RESTRAINTS

Node 500 +Y Mu = .30

Node 500 Z

 From 500 To 510 DX= 14.108 ft.

 From 510 To 520 DX= .318 ft.

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INPUT LISTING

From 520 To 560 DY= .417 ft.

RIGID Weight= .00 lb.

From 520 To 530 DX= 12.805 ft.

RESTRAINTS

Node 530 +Y Mu = .30

From 530 To 540 DX= 16.404 ft.

RESTRAINTS

Node 540 +Y Mu = .00

Node 540 Z

From 540 To 550 DX= .820 ft.

From 560 To 570 DX= 2.362 ft. DY= 1.946 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 50.525 Angle/Node @1= 25.26 569

Angle/Node @2= .00 568

From 570 To 580 DY= 15.092 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

From 580 To 585 DZ= -3.051 ft.

RESTRAINTS

Node 585 +Y Mu = .30

Node 585 X

From 585 To 590 DZ= -7.356 ft.

From 590 To 600 DZ= -2.953 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 599

Angle/Node @2= .00 598

From 600 To 610 DY= 3.140 ft.

From 610 To 620 DY= .344 ft.

RIGID Weight= 53.00 lb.

From 620 To 630 DY= 1.778 ft.

RIGID Weight= 801.00 lb.

From 630 To 640 DY= .344 ft.

RIGID Weight= 53.00 lb.

From 640 To 650 DY= 1.250 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 649

From 650 To 655 DZ= -1.988 ft.

RESTRAINTS

Node 655 +Y Cnode 656 Mu = .30

Node 655 X Cnode 656 Gap= .118 in.

Node 655 Z Cnode 656 Gap= .118 in.

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INPUT LISTING

From 655 To 660 DZ= -.738 ft.

From 660 To 670 DZ= -.584 ft.

REDUCER

Diam2= 8.625 in. Wall2= .406 in.

From 670 To 680 DZ= -.344 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= 40.00 lb.

From 590 To 690 DX= .417 ft.

PIPE

Dia= 10.750 in. Wall= .365 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 690 Unreinforced Tee

From 590 To 700 DX= 3.166 ft. DZ= -2.953 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 699

Angle/Node @2= .00 698

SIF's & TEE's

Node 590 Unreinforced Tee

From 700 To 710 DY= 3.140 ft.

From 710 To 720 DY= .344 ft.

RIGID Weight= 53.00 lb.

From 720 To 730 DY= 1.778 ft.

RIGID Weight= 801.00 lb.

From 730 To 740 DY= .344 ft.

RIGID Weight= 53.00 lb.

From 740 To 750 DY= 1.250 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 749

From 750 To 755 DZ= -1.988 ft.

RESTRAINTS

Node 755 +Y Cnode 756

Node 755 X Cnode 756 Gap= .118 in.

Node 755 Z Cnode 756 Gap= .118 in.

From 755 To 760 DZ= -.738 ft.

From 760 To 770 DZ= -.584 ft.

REDUCER

Diam2= 8.625 in. Wall2= .406 in.

From 770 To 780 DZ= -.344 ft.

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INPUT LISTING

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= 40.00 lb.

From 780 To 790 DZ= -.344 ft.

GENERAL

T1= 185 F T2= 90 F T3= 90 F P1= 130.5369 lb./sq.in.

PHYd= 195.8054 lb./sq.in. Fluid Den= .0002168 lb./cu.in.

RIGID Weight= 40.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 790 To 800 DZ= -.446 ft.

RIGID Weight= 44.96 lb.

FORCES & MOMENTS

Node 800 FY1= 449.64 lb. FZ1= -674.46 lb.

From 800 To 810 DY= -.486 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RIGID Weight= 44.96 lb.

From 810 To 820 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 820 To 830 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 830 To 840 DY= -.499 ft.

REDUCER

Diam2= 8.625 in. Wall2= .406 in.

From 840 To 850 DY= -.984 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

From 850 To 860 DY= -.344 ft.

RIGID Weight= 40.00 lb.

From 860 To 870 DY= -1.529 ft.

RIGID Weight= 508.00 lb.

From 870 To 880 DY= -.344 ft.

RIGID Weight= 40.00 lb.

From 880 To 890 DY= -1.985 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 889

Angle/Node @2= .00 888

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INPUT LISTING

From 890 To 900 DX= -1.581 ft.

From 680 To 910 DZ= -.344 ft.

PIPE

Dia= 8.625 in. Wall= .406 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 90 F T3= 90 F P1= 130.5369 lb./sq.in.

P2= .0000 lb./sq.in. PHyd= 195.8054 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.

EH2= 29,369,380 lb./sq.in. EH3= 29,369,380 lb./sq.in.

EH4= 29,500,856 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RIGID Weight= 40.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 910 To 920 DZ= -.446 ft.

RIGID Weight= 44.96 lb.

FORCES & MOMENTS

Node 920 FY1= 449.64 lb. FZ1= -674.46 lb.

From 920 To 930 DY= -.486 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RIGID Weight= 44.96 lb.

From 930 To 940 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 940 To 950 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 950 To 960 DY= -.499 ft.

REDUCER

Diam2= 8.625 in. Wall2= .406 in.

From 960 To 970 DY= -.984 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

From 970 To 980 DY= -.344 ft.

RIGID Weight= 40.00 lb.

From 980 To 990 DY= -1.529 ft.

RIGID Weight= 508.00 lb.

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INPUT LISTING

```

From 990 To 1000 DY= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 1000 To 1010 DY= -1.985 ft.
BEND at "TO" end
  Radius= 12.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1009
  Angle/Node @2= .00 1008
-----
From 1010 To 900 DX= 1.581 ft.
-----
From 900 To 1020 DY= -.584 ft.
-----
From 1020 To 1030 DY= -.344 ft.
RIGID Weight= 40.00 lb.
RESTRAINTS
  Node 1030 ANC   Cnode 1031
-----
From 1031 To 1040 DY= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 1040 To 1050 DY= -.663 ft.
RESTRAINTS
  Node 1050 ANC   Cnode 1051
-----
From 1051 To 1060 DY= -6.890 ft.
PIPE
  Dia= 165.354 in.   Wall= .406 in.
  Insul Thk= .000 in.
RIGID Weight= .00 lb.
-----
From 1051 To 656 DX= -1.585 ft.   DY= 8.708 ft.   DZ= 2.457 ft.
RIGID Weight= .00 lb.
-----
From 1051 To 756 DX= 1.581 ft.   DY= 8.708 ft.   DZ= 2.457 ft.
RIGID Weight= .00 lb.
-----
From 1060 To 1070 DX= -8.612 ft.
RIGID Weight= .00 lb.
-----
From 1070 To 1080 DY= -6.890 ft.
RIGID Weight= .00 lb.
RESTRAINTS
  Node 1080 ANC
-----
From 1060 To 1090 DX= 8.612 ft.
RIGID Weight= .00 lb.
-----
From 1090 To 1100 DY= -6.890 ft.
RIGID Weight= .00 lb.
RESTRAINTS
  Node 1100 ANC
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```

MATERIAL Changes:

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INPUT LISTING

10	20	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
20	420	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
680	910	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-005\BNK-GCS-CN-005

ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
20	420	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
420	430	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
780	790	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in.

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INPUT LISTING

		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
680	910	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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BEND ELEMENTS

470	480	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		479 Angle/Node @2= .00 478
560	570	Radius= 15.000 in. (LONG)
		Bend Angle= 50.525 Angle/Node @1= 25.26
		569 Angle/Node @2= .00 568
570	580	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
590	600	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		599 Angle/Node @2= .00 598
640	650	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		649
590	700	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		699 Angle/Node @2= .00 698
740	750	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		749
880	890	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		889 Angle/Node @2= .00 888
1000	1010	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1009 Angle/Node @2= .00 1008

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RIGIDS

520	560	RIGID Weight= .00 lb.
610	620	RIGID Weight= 53.00 lb.

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INPUT LISTING

620	630	RIGID	Weight= 801.00 lb.
630	640	RIGID	Weight= 53.00 lb.
670	680	RIGID	Weight= 40.00 lb.
590	690	RIGID	Weight= .00 lb.
710	720	RIGID	Weight= 53.00 lb.
720	730	RIGID	Weight= 801.00 lb.
730	740	RIGID	Weight= 53.00 lb.
770	780	RIGID	Weight= 40.00 lb.
780	790	RIGID	Weight= 40.00 lb.
790	800	RIGID	Weight= 44.96 lb.
800	810	RIGID	Weight= 44.96 lb.
810	820	RIGID	Weight= 25.00 lb.
820	830	RIGID	Weight= 25.00 lb.
850	860	RIGID	Weight= 40.00 lb.
860	870	RIGID	Weight= 508.00 lb.
870	880	RIGID	Weight= 40.00 lb.
680	910	RIGID	Weight= 40.00 lb.
910	920	RIGID	Weight= 44.96 lb.
920	930	RIGID	Weight= 44.96 lb.
930	940	RIGID	Weight= 25.00 lb.
940	950	RIGID	Weight= 25.00 lb.
970	980	RIGID	Weight= 40.00 lb.
980	990	RIGID	Weight= 508.00 lb.
990	1000	RIGID	Weight= 40.00 lb.
1020	1030	RIGID	Weight= 40.00 lb.
1031	1040	RIGID	Weight= 40.00 lb.
1051	1060	RIGID	Weight= .00 lb.
1051	656	RIGID	Weight= .00 lb.
1051	756	RIGID	Weight= .00 lb.
1060	1070	RIGID	Weight= .00 lb.
1070	1080	RIGID	Weight= .00 lb.
1060	1090	RIGID	Weight= .00 lb.
1090	1100	RIGID	Weight= .00 lb.

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SIF's & TEE's

10	20	Node 10	<No Type Specified>
		SIF(in)= 2.080	SIF(out)= 2.460
590	690	Node 690	Unreinforced Tee
590	700	Node 590	Unreinforced Tee

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REDUCERS

660	670	Diam2= 8.625 in.	Wall2= .406 in.
760	770	Diam2= 8.625 in.	Wall2= .406 in.
830	840	Diam2= 8.625 in.	Wall2= .406 in.
950	960	Diam2= 8.625 in.	Wall2= .406 in.

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RESTRAINTS

				Len	MU	
				GAP	YIELD	Dir
NODE	TYPE	CNODE	STIF1	STIF2	FORCE	Vectors

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INPUT LISTING

20	+Y			.30	.000	1.000	.000
10	+Y			.30	.000	1.000	.000
10	X		.12	.30	1.000	.000	.000
10	Z		.12	.30	.000	.000	1.000
420	+Y			.30	.000	1.000	.000
420	X				1.000	.000	.000
430	+Y			.30	.000	1.000	.000
440	+Y			.30	.000	1.000	.000
440	X		.12		1.000	.000	.000
450	+Y			.30	.000	1.000	.000
460	+Y			.30	.000	1.000	.000
460	X		.12		1.000	.000	.000
470	+Y			.30	.000	1.000	.000
490	+Y				.000	1.000	.000
500	+Y			.30	.000	1.000	.000
500	Z				.000	.000	1.000
530	+Y			.30	.000	1.000	.000
540	+Y			.00	.000	1.000	.000
540	Z				.000	.000	1.000
585	+Y			.30	.000	1.000	.000
585	X				1.000	.000	.000
655	+Y	656		.30	.000	1.000	.000
655	X	656	.12		1.000	.000	.000
655	Z	656	.12		.000	.000	1.000
755	+Y	756			.000	1.000	.000
755	X	756	.12		1.000	.000	.000
755	Z	756	.12		.000	.000	1.000
1030	ANC	1031			.000	.000	.000
1050	ANC	1051			.000	.000	.000
1080	ANC				.000	.000	.000
1100	ANC				.000	.000	.000

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FORCES AND MOMENTS

790	800	Node 800	FY1= 449.64 lb.
			FZ1= -674.46 lb.
910	920	Node 920	FY1= 449.64 lb.
			FZ1= -674.46 lb.

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UNIFORM LOAD Changes

10	20	Vector1 in G-s	
		X1 Dir = .26 g's	Y1 Dir = .00 g's
		Z1 Dir = .00 g's	
		Vector2 in G-s	
		X2 Dir = .00 g's	Y2 Dir = .12 g's
		Z2 Dir = .00 g's	
		Vector3 in G-s	
		X3 Dir = .00 g's	Y3 Dir = .00 g's
		Z3 Dir = .26 g's	

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INPUT LISTING

INPUT UNITS USED...

UNITS=	ENGLISH	NOM/SCH	INPUT=	ON				
LENGTH		inches	x	1.000	=	in.		
FORCE		pounds	x	1.000	=	lb.		
MASS (dynamics)		pounds	x	1.000	=	lbm		
MOMENTS (INPUT)		inch-pounds	x	1.000	=	in.lb.		
MOMENTS (OUTPUT)		inch-pounds	x	0.083	=	ft.lb.		
STRESS		lbs./sq.in.	x	1.000	=	lb./sq.in.		
TEMP. SCALE		degrees F.	x	1.000	=	F		
PRESSURE		psig	x	1.000	=	lb./sq.in.		
ELASTIC MODULUS		lbs./sq.in.	x	1.000	=	lb./sq.in.		
PIPE DENSITY		lbs./cu.in.	x	1.000	=	lb./cu.in.		
INSULATION DENS.		lbs./cu.in.	x	1.000	=	lb./cu.in.		
FLUID DENSITY		lbs./cu.in.	x	1.000	=	lb./cu.in.		
TRANSL. STIF		lbs./in.	x	1.000	=	lb./in.		
ROTATIONAL STIF		in.lb./deg.	x	1.000	=	in.lb./deg		
UNIFORM LOAD		lb./in.	x	1.000	=	lb./in.		
G LOAD		g's	x	1.000	=	g's		
WIND LOAD		lbs./sq.in.	x	144.000	=	lb./sq.ft.		
ELEVATION		inches	x	0.083	=	ft.		
COMPOUND LENGTH		inches	x	0.083	=	ft.		
DIAMETER		inches	x	1.000	=	in.		
WALL THICKNESS		inches	x	1.000	=	in.		

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SETUP FILE PARAMETERS

```

CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =              5.00000
MAX ALLOWED BEND ANGLE =              95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =       5.00000
LOOP CLOSURE TOLERANCE =              1.00000      in.
THERMAL BOWING HORZ TOLERANCE =       0.100000E-03
AUTO NODE NUMBER INCREMENT=          10.0000
Z AXIS UP=                            NO
USE PRESSURE STIFFENING =              DEFAULT
ALPHA TOLERANCE =                     0.500000E-01
RESLD-FORCE =                          NO
HGR DEF RESWGT STIF =                  0.100000E+13 lb./in.
DECOMP SNG TOL =                       0.100000E+11
BEND AXIAL SHAPE =                     YES
FRICT STIF =                           0.100000E+07 lb./in.
FRICT NORM FORCE VAR =                  0.150000
FRICT ANGLE VAR =                       15.0000
FRICT SLIDE MULT =                     1.00000
ROD TOLERANCE =                         1.00000
ROD INC =                               2.00000
INCORE NUMERICAL CHECK =                NO
OUTCORE NUMERICAL CHECK =               NO
DEFAULT TRANS RESTRAINT STIFF=         0.100000E+13      lb./in.
DEFAULT ROT RESTRAINT STIFF=           0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS =       NO
MISSING MASS ZPA =                     EXTRACTED

```

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INPUT LISTING

```

MIN WALL MILL TOLERANCE =          12.5000
WRC-107 VERSION =          MAR 79 1B1/2B1
WRC-107 INTERPOLATION =          LAST VALUE
DEFAULT AMBIENT TEMPERATURE=          70.0000          F
BOURDON PRESSURE=          NONE
COEFFICIENT OF FRICTION (MU) =          0.000000
INCLUDE SPRG STIF IN HGR OPE =          NO
INCLUDE INSULATION IN HYDROTEST =          NO
REDUCED INTERSECTION =          B31.1 (POST1980)
USE WRC329          NO
NO REDUCED SIF FOR RFT AND WLT          NO
B31.1 REDUCED Z FIX =          YES
CLASS 1 BRANCH FLEX          NO
ALL STRESS CASES CORRODED =          NO
ADD TORSION IN SL STRESS =          DEFAULT
ADD F/A IN STRESS =          DEFAULT
OCCASIONAL LOAD FACTOR =          0.000000
DEFAULT CODE =          B31.3
B31.3 SUS CASE SIF FACTOR =          0.000000
ALLOW USERS BEND SIF =          NO
USE SCHNEIDER          NO
YIELD CRITERION STRESS =          MAX 3D SHEAR
USE PD/4T          NO
BASE HOOP STRESS ON ? =          ID
EN13480 USE IN OUTPLANE SIFS=          NO
LIBERAL EXPANSION ALLOWABLE=          YES
B31.3 SEC 319.2.3C SAXIAL=          Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE=          DEFAULT
IMPLEMENT B313 APP-P          NO
IMPLEMENT B313 CODE CASE 178          YES
IGNORE B31.1/B31.3 Wc FACTOR=          YES
USE FRP SIF =          YES
USE FRP FLEX =          YES
BS 7159 Pressure Stiffening=          Design Strain
FRP Property Data File=          CAESAR.FRP
FRP Emod (axial) =          0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) =          0.250000
FRP Ea/Eh*Vh/a =          0.152730
FRP Laminate Type =          THREE
FRP Alpha =          12.0000          F
FRP Density =          0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING =          NO
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```

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 F
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

```


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INPUT LISTING

Ambient Temperature 69.794 F
 Plastic (FRP) Alpha 12.000
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X

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COORDINATE REPORT

/----- (in.) -----/			
NODE	X	Y	Z
10	-618.113	-291.169	288.355
20	-618.113	-291.169	52.135
420	-618.113	-291.169	-184.086
430	-618.113	-291.169	-420.306
440	-618.113	-291.169	-656.527
450	-618.113	-291.169	-892.747
460	-618.113	-291.169	-1128.968
470	-618.113	-291.169	-1365.188
480	-618.113	-291.169	-1407.314
490	-480.318	-291.169	-1407.314
500	-271.657	-291.169	-1407.314
510	-102.365	-291.169	-1407.314
520	-98.546	-291.169	-1407.314
560	-98.546	-286.169	-1407.314
520	-98.546	-291.169	-1407.314
530	55.115	-291.169	-1407.314
540	251.965	-291.169	-1407.314
550	261.808	-291.169	-1407.314
560	-98.546	-286.169	-1407.314
570	-70.200	-262.822	-1407.314
580	-70.200	-81.720	-1407.314
585	-70.200	-81.720	-1443.928
590	-70.200	-81.720	-1532.196
600	-70.200	-81.720	-1567.629
610	-70.200	-44.043	-1567.629
620	-70.200	-39.918	-1567.629
630	-70.200	-18.579	-1567.629
640	-70.200	-14.454	-1567.629
650	-70.200	.546	-1567.629
655	-70.200	.546	-1591.487
660	-70.200	.546	-1600.346
670	-70.200	.546	-1607.354
680	-70.200	.546	-1611.479
590	-70.200	-81.720	-1532.196
690	-65.200	-81.720	-1532.196
590	-70.200	-81.720	-1532.196
700	-32.208	-81.720	-1567.629
710	-32.208	-44.043	-1567.629
720	-32.208	-39.918	-1567.629
730	-32.208	-18.579	-1567.629

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INPUT LISTING

740	-32.208	-14.454	-1567.629
750	-32.208	.546	-1567.629
755	-32.208	.546	-1591.487
760	-32.208	.546	-1600.346
770	-32.208	.546	-1607.354
780	-32.208	.546	-1611.479
790	-32.208	.546	-1615.613
800	-32.208	.546	-1620.967
810	-32.208	-5.281	-1620.967
820	-32.208	-8.906	-1620.967
830	-32.208	-12.531	-1620.967
840	-32.208	-18.515	-1620.967
850	-32.208	-30.326	-1620.967
860	-32.208	-34.451	-1620.967
870	-32.208	-52.798	-1620.967
880	-32.208	-56.923	-1620.967
890	-32.208	-80.741	-1620.967
900	-51.184	-80.741	-1620.967
680	-70.200	.546	-1611.479
910	-70.200	.546	-1615.613
920	-70.200	.546	-1620.967
930	-70.200	-5.281	-1620.967
940	-70.200	-8.906	-1620.967
950	-70.200	-12.531	-1620.967
960	-70.200	-18.515	-1620.967
970	-70.200	-30.326	-1620.967
980	-70.200	-34.451	-1620.967
990	-70.200	-52.798	-1620.967
1000	-70.200	-56.923	-1620.967
1010	-70.200	-80.741	-1620.967
1010	-70.161	-80.741	-1620.967
900	-51.184	-80.741	-1620.967
1020	-51.184	-87.749	-1620.967
1030	-51.184	-91.874	-1620.967
1040	-51.184	-95.999	-1620.967
1050	-51.184	-103.952	-1620.967
1060	-51.184	-186.629	-1620.967
1050	-51.184	-103.952	-1620.967
655	-70.200	.546	-1591.487
1050	-51.184	-103.952	-1620.967
755	-32.208	.546	-1591.487
1060	-51.184	-186.629	-1620.967
1070	-154.531	-186.629	-1620.967
1080	-154.531	-269.306	-1620.967
1060	-51.184	-186.629	-1620.967
1090	52.162	-186.629	-1620.967
1100	52.162	-269.306	-1620.967

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OCC) L16=L10-L4
17 (OCC) L17=L11-L4
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16+L8
23 (OCC) L23=L17+L8
24 (OCC) L24=L18+L8
25 (OCC) L25=L19+L8
26 (OCC) L26=L20+L8
27 (OCC) L27=L21+L8
28 (EXP) L28=L2-L8
29 (EXP) L29=L4-L8
30 (EXP) L30=L2-L4
31 (EXP) L31=L6-L8
32 (EXP) L32=L2-L6
33 (EXP) L33=L4-L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	0	-580	0	0.0	0.0	0.0
	2(OPE)	0	-315	2061	0.0	0.0	0.0
	4(OPE)	0	-315	94	0.0	0.0	0.0
	6(OPE)	-2	-315	2996	0.0	0.0	0.0
	8(SUS)	0	-315	0	0.0	0.0	0.0
	9(SUS)	0	-314	0	0.0	0.0	0.0
	MAX	-2/L6	-580/L1	2996/L6			
20		TYPE=Rigid +Y;					
	1(HYD)	-0	-1664	0	0.0	0.0	0.0
	2(OPE)	-7	-903	-271	0.0	0.0	0.0
	4(OPE)	0	-903	271	0.0	0.0	0.0
	6(OPE)	-2	-903	-271	0.0	0.0	0.0
	8(SUS)	-0	-903	0	0.0	0.0	0.0
	9(SUS)	-0	-902	0	0.0	0.0	0.0
	MAX	-7/L2	-1664/L1	-271/L6			
420		TYPE=Rigid +Y; Rigid X;					
	1(HYD)	0	-1417	0	0.0	0.0	0.0
	2(OPE)	13	-769	-231	0.0	0.0	0.0
	4(OPE)	0	-769	231	0.0	0.0	0.0
	6(OPE)	-11	-769	-231	0.0	0.0	0.0
	8(SUS)	0	-769	0	0.0	0.0	0.0
	9(SUS)	0	-768	0	0.0	0.0	0.0
	MAX	13/L2	-1417/L1	231/L4			
430		TYPE=Rigid +Y;					
	1(HYD)	-0	-1481	0	0.0	0.0	0.0
	2(OPE)	9	-804	-241	0.0	0.0	0.0
	4(OPE)	-1	-804	241	0.0	0.0	0.0
	6(OPE)	5	-805	-241	0.0	0.0	0.0
	8(SUS)	-0	-804	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	9(SUS)	-0	-803	0	0.0	0.0	0.0
	MAX	9/L2	-1481/L1	-241/L6			
440		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1470	0	0.0	0.0	0.0
	2(OPE)	14	-796	-238	0.0	0.0	0.0
	4(OPE)	3	-798	-94	0.0	0.0	0.0
	6(OPE)	198	-795	-238	0.0	0.0	0.0
	8(SUS)	0	-798	0	0.0	0.0	0.0
	9(SUS)	0	-797	0	0.0	0.0	0.0
	MAX	198/L6	-1470/L1	-238/L2			
450		TYPE=Rigid +Y;					
	1(HYD)	-0	-1450	1	0.0	0.0	0.0
	2(OPE)	4	-793	-238	0.0	0.0	0.0
	4(OPE)	9	-788	-236	0.0	0.0	0.0
	6(OPE)	20	-798	-239	0.0	0.0	0.0
	8(SUS)	-0	-787	0	0.0	0.0	0.0
	9(SUS)	-0	-786	0	0.0	0.0	0.0
	MAX	20/L6	-1450/L1	-239/L6			
460		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1542	2	0.0	0.0	0.0
	2(OPE)	-332	-813	-242	0.0	0.0	0.0
	4(OPE)	-34	-832	-247	0.0	0.0	0.0
	6(OPE)	-1317	-795	-238	0.0	0.0	0.0
	8(SUS)	0	-837	1	0.0	0.0	0.0
	9(SUS)	0	-836	1	0.0	0.0	0.0
	MAX	-1317/L6	-1542/L1	-247/L4			
470		TYPE=Rigid +Y;					
	1(HYD)	-11	-1212	3	0.0	0.0	0.0
	2(OPE)	-55	-745	-217	0.0	0.0	0.0
	4(OPE)	-86	-680	-185	0.0	0.0	0.0
	6(OPE)	-55	-819	-240	0.0	0.0	0.0
	8(SUS)	-6	-658	2	0.0	0.0	0.0
	9(SUS)	-6	-657	2	0.0	0.0	0.0
	MAX	-86/L4	-1212/L1	-240/L6			
490		TYPE=Rigid +Y;					
	1(HYD)	0	-1112	0	0.0	0.0	0.0
	2(OPE)	0	-326	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	0	-532	0	0.0	0.0	0.0
	6(OPE)	0	-81	0	0.0	0.0	0.0
	8(SUS)	0	-604	0	0.0	0.0	0.0
	9(SUS)	0	-603	0	0.0	0.0	0.0
	MAX		-1112/L1				
500		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	24	-1519	-37	0.0	0.0	0.0
	2(OPE)	-324	-1588	-708	0.0	0.0	0.0
	4(OPE)	-234	-1016	-87	0.0	0.0	0.0
	6(OPE)	53	-2305	-1752	0.0	0.0	0.0
	8(SUS)	13	-824	-20	0.0	0.0	0.0
	9(SUS)	13	-823	-20	0.0	0.0	0.0
	MAX	-324/L2	-2305/L6	-1752/L6			
530		TYPE=Rigid +Y;					
	1(HYD)	21	-1437	-72	0.0	0.0	0.0
	2(OPE)	443	-1614	196	0.0	0.0	0.0
	4(OPE)	306	-1019	1	0.0	0.0	0.0
	6(OPE)	486	-2048	376	0.0	0.0	0.0
	8(SUS)	11	-779	-39	0.0	0.0	0.0
	9(SUS)	11	-778	-39	0.0	0.0	0.0
	MAX	486/L6	-2048/L6	376/L6			
540		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	0	-520	15	0.0	0.0	0.0
	2(OPE)	0	-99	3	0.0	0.0	0.0
	4(OPE)	0	-232	-3	0.0	0.0	0.0
	6(OPE)	0	0	239	0.0	0.0	0.0
	8(SUS)	0	-283	8	0.0	0.0	0.0
	9(SUS)	0	-282	8	0.0	0.0	0.0
	MAX		-520/L1	239/L6			
585		TYPE=Rigid +Y; Rigid X;					
	1(HYD)	-26	-3016	-91	0.0	0.0	0.0
	2(OPE)	209	0	0	0.0	0.0	0.0
	4(OPE)	21	-1215	-1	0.0	0.0	0.0
	6(OPE)	589	0	0	0.0	0.0	0.0
	8(SUS)	-8	-1639	-111	0.0	0.0	0.0
	9(SUS)	-8	-1637	-111	0.0	0.0	0.0
	MAX	589/L6	-3016/L1	-111/L9			
655		TYPE=Rigid +Y; Rigid X w/gap;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
		Rigid Z w/gap;					
	1(HYD)	-3	-2407	57	0.0	0.0	0.0
	2(OPE)	-9	-3147	130	0.0	0.0	0.0
	4(OPE)	1	-2264	5	0.0	0.0	0.0
	6(OPE)	-186	-926	206	0.0	0.0	0.0
	8(SUS)	-7	-1929	53	0.0	0.0	0.0
	9(SUS)	-7	-1928	53	0.0	0.0	0.0
	MAX	-186/L6	-3147/L2	206/L6			
755		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	0	-2692	0	0.0	0.0	0.0
	2(OPE)	0	-1856	0	0.0	0.0	0.0
	4(OPE)	0	-2133	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(SUS)	0	-2125	0	0.0	0.0	0.0
	9(SUS)	0	-2124	0	0.0	0.0	0.0
	MAX		-2692/L1				
1030		TYPE=Rigid ANC;					
	1(HYD)	-6	-414	121	189.9	-19.3	193.7
	2(OPE)	-3	121	-78	-159.5	29.8	-437.6
	4(OPE)	-8	-151	42	52.7	7.6	-30.4
	6(OPE)	172	-3090	-415	-1469.3	-30.6	-191.5
	8(SUS)	-3	-395	105	159.9	-20.4	137.0
	9(SUS)	-4	-394	105	159.9	-20.5	137.0
	MAX	172/L6	-3090/L6	-415/L6	-1469.3/L6	-30.6/L6	-437.6/L2
1050		TYPE=Rigid ANC;					
	1(HYD)	-6	-498	121	311.5	-19.3	199.9
	2(OPE)	-3	57	-78	-238.5	29.8	-434.2
	4(OPE)	-8	-214	42	95.1	7.6	-22.3
	6(OPE)	172	-3154	-415	-1886.6	-30.6	-364.1
	8(SUS)	-3	-459	105	265.9	-20.4	140.5
	9(SUS)	-4	-457	105	265.7	-20.5	140.6
	MAX	172/L6	-3154/L6	-415/L6	-1886.6/L6	-30.6/L6	-434.2/L2
1080		TYPE=Rigid ANC;					
	1(HYD)	-150	-2795	90	7902.2	-163.8	-5812.5
	2(OPE)	-8825920	-2518	30	6970.1	16.8	46310052.0
	4(OPE)	-1466926	-2311	24	5801.1	-43.0	7692576.0
	6(OPE)	-1466909	-2104	-114	-525.1	181.9	7693796.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	8(SUS)	-122	-2256	80	6438.2	-149.3	-4647.1
	9(SUS)	-122	-2255	80	6436.0	-149.3	-4643.6
	MAX	-	-2795/L1	-114/L6	7902.2/L1	181.9/L6	46310052.0/L2
		8825920/L2					
1100		TYPE=Rigid ANC;					
	1(HYD)	141	-2802	88	7888.3	206.4	5775.7
	2(OPE)	8825907	-2428	22	6924.2	123.9	-46308948.0
	4(OPE)	1466919	-2299	23	5796.9	55.9	-7692406.0
	6(OPE)	1466908	-1976	-109	-492.6	-281.7	-7692285.0
	8(SUS)	112	-2256	78	6428.4	179.6	4696.2
	9(SUS)	112	-2255	78	6426.1	179.6	4692.8
	MAX	-	-2802/L1	-109/L6	7888.3/L1	-281.7/L6	46308948.0/L2
		8825907/L2					

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OCC) L16=L10-L4
17 (OCC) L17=L11-L4
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16+L8
23 (OCC) L23=L17+L8
24 (OCC) L24=L18+L8
25 (OCC) L25=L19+L8
26 (OCC) L26=L20+L8
27 (OCC) L27=L21+L8
28 (EXP) L28=L2-L8
29 (EXP) L29=L4-L8
30 (EXP) L30=L2-L4
31 (EXP) L31=L6-L8
32 (EXP) L32=L2-L6
33 (EXP) L33=L4-L6

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 22 (OCC) L22=L16+L8
 CASE 23 (OCC) L23=L17+L8
 CASE 24 (OCC) L24=L18+L8
 CASE 25 (OCC) L25=L19+L8
 CASE 26 (OCC) L26=L20+L8
 CASE 27 (OCC) L27=L21+L8
 CASE 28 (EXP) L28=L2-L8
 CASE 29 (EXP) L29=L4-L8
 CASE 30 (EXP) L30=L2-L4
 CASE 31 (EXP) L31=L6-L8
 CASE 32 (EXP) L32=L2-L6
 CASE 33 (EXP) L33=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP
 Ratio (%): 8.4 @Node 585
 Code Stress: 2952.3 Allowable Stress: 35000.0
 Axial Stress: 1233.6 @Node 578
 Bending Stress: 1856.8 @Node 585
 Torsion Stress: 43.0 @Node 479
 Hoop Stress: 2239.7 @Node 20
 Max Stress Intensity: 2989.4 @Node 585

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 8 (SUS) W+P1
 Ratio (%): 24.7 @Node 585
 Code Stress: 4909.1 Allowable Stress: 19908.0
 Axial Stress: 2443.1 @Node 740
 Bending Stress: 2683.3 @Node 585
 Torsion Stress: 61.9 @Node 479
 Hoop Stress: 4431.5 @Node 20
 Max Stress Intensity: 4953.6 @Node 585

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 9 (SUS) WNC
 Ratio (%): 13.6 @Node 585
 Code Stress: 2716.8 Allowable Stress: 19908.0
 Axial Stress: 254.2 @Node 740
 Bending Stress: 2680.0 @Node 585
 Torsion Stress: 61.8 @Node 479
 Hoop Stress: 0.0 @Node 20

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Max Stress Intensity: 2716.8 @Node 585

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L16+L8

Highest Stresses: (lb./sq.in.) LOADCASE 22 (OCC) L22=L16+L8
 Ratio (%): 26.8 @Node 569
 Code Stress: 7104.5 Allowable Stress: 26477.7
 Axial Stress: 2445.9 @Node 640
 Bending Stress: 6387.4 @Node 569
 Torsion Stress: 752.5 @Node 580
 Hoop Stress: 4431.5 @Node 20
 Max Stress Intensity: 10519.3 @Node 568

CODE STRESS CHECK PASSED : LOADCASE 23 (OCC) L23=L17+L8

Highest Stresses: (lb./sq.in.) LOADCASE 23 (OCC) L23=L17+L8
 Ratio (%): 26.5 @Node 569
 Code Stress: 7008.0 Allowable Stress: 26477.7
 Axial Stress: 2452.9 @Node 740
 Bending Stress: 6258.9 @Node 569
 Torsion Stress: 739.6 @Node 580
 Hoop Stress: 4431.5 @Node 20
 Max Stress Intensity: 10381.8 @Node 568

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L18+L8

Highest Stresses: (lb./sq.in.) LOADCASE 24 (OCC) L24=L18+L8
 Ratio (%): 19.8 @Node 585
 Code Stress: 5237.1 Allowable Stress: 26477.7
 Axial Stress: 2412.6 @Node 740
 Bending Stress: 3007.0 @Node 585
 Torsion Stress: 54.7 @Node 479
 Hoop Stress: 4431.5 @Node 20
 Max Stress Intensity: 5281.6 @Node 585

CODE STRESS CHECK PASSED : LOADCASE 25 (OCC) L25=L19+L8

Highest Stresses: (lb./sq.in.) LOADCASE 25 (OCC) L25=L19+L8
 Ratio (%): 20.4 @Node 500
 Code Stress: 5391.1 Allowable Stress: 26477.7
 Axial Stress: 2483.2 @Node 640
 Bending Stress: 3503.0 @Node 830
 Torsion Stress: 445.9 @Node 890
 Hoop Stress: 4431.5 @Node 20
 Max Stress Intensity: 6256.1 @Node 500

CODE STRESS CHECK PASSED : LOADCASE 26 (OCC) L26=L20+L8

Highest Stresses: (lb./sq.in.) LOADCASE 26 (OCC) L26=L20+L8
 Ratio (%): 22.0 @Node 500
 Code Stress: 5837.7 Allowable Stress: 26477.7
 Axial Stress: 2477.8 @Node 740
 Bending Stress: 3620.5 @Node 500

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Torsion Stress:	318.9	@Node	890
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	6702.8	@Node	500

CODE STRESS CHECK PASSED : LOADCASE 27 (OCC) L27=L21+L8

Highest Stresses: (lb./sq.in.) LOADCASE 27 (OCC) L27=L21+L8			
Ratio (%):	23.2	@Node	830
Code Stress:	6161.3	Allowable Stress:	26600.0
Axial Stress:	2477.2	@Node	740
Bending Stress:	4776.3	@Node	830
Torsion Stress:	398.9	@Node	890
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	6603.9	@Node	830

CODE STRESS CHECK PASSED : LOADCASE 28 (EXP) L28=L2-L8

Highest Stresses: (lb./sq.in.) LOADCASE 28 (EXP) L28=L2-L8			
Ratio (%):	11.9	@Node	479
Code Stress:	5670.9	Allowable Stress:	47675.9
Axial Stress:	173.1	@Node	20
Bending Stress:	5624.2	@Node	479
Torsion Stress:	221.9	@Node	580
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	15046.1	@Node	479

CODE STRESS CHECK PASSED : LOADCASE 29 (EXP) L29=L4-L8

Highest Stresses: (lb./sq.in.) LOADCASE 29 (EXP) L29=L4-L8			
Ratio (%):	1.6	@Node	520
Code Stress:	664.4	Allowable Stress:	41249.0
Axial Stress:	68.4	@Node	440
Bending Stress:	637.6	@Node	520
Torsion Stress:	27.1	@Node	890
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	1765.3	@Node	520

CODE STRESS CHECK PASSED : LOADCASE 30 (EXP) L30=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 30 (EXP) L30=L2-L4			
Ratio (%):	10.8	@Node	479
Code Stress:	5128.5	Allowable Stress:	47675.9
Axial Stress:	165.8	@Node	20
Bending Stress:	5090.4	@Node	479
Torsion Stress:	195.6	@Node	580
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	13606.6	@Node	479

CODE STRESS CHECK PASSED : LOADCASE 31 (EXP) L31=L6-L8

Highest Stresses: (lb./sq.in.) LOADCASE 31 (EXP) L31=L6-L8			
Ratio (%):	39.3	@Node	479
Code Stress:	18668.3	Allowable Stress:	47560.9

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases**

Axial Stress:	257.1	@Node	1020
Bending Stress:	18520.6	@Node	479
Torsion Stress:	684.8	@Node	580
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	49530.7	@Node	479

CODE STRESS CHECK PASSED : LOADCASE 32 (EXP) L32=L2-L6

Highest Stresses: (lb./sq.in.) LOADCASE 32 (EXP) L32=L2-L6

Ratio (%):	27.3	@Node	479	
Code Stress:	12997.6	Allowable Stress:		47560.9
Axial Stress:	306.3	@Node	1020	
Bending Stress:	12896.5	@Node	479	
Torsion Stress:	540.0	@Node	698	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	34484.9	@Node	479	

CODE STRESS CHECK PASSED : LOADCASE 33 (EXP) L33=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 33 (EXP) L33=L4-L6

Ratio (%):	38.1	@Node	479	
Code Stress:	18125.9	Allowable Stress:		47560.9
Axial Stress:	280.4	@Node	1020	
Bending Stress:	17986.8	@Node	479	
Torsion Stress:	658.5	@Node	580	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	48091.1	@Node	479	

BNK-GCS-CN-۰۰۶

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Line no.

Stress sketch

Input echo

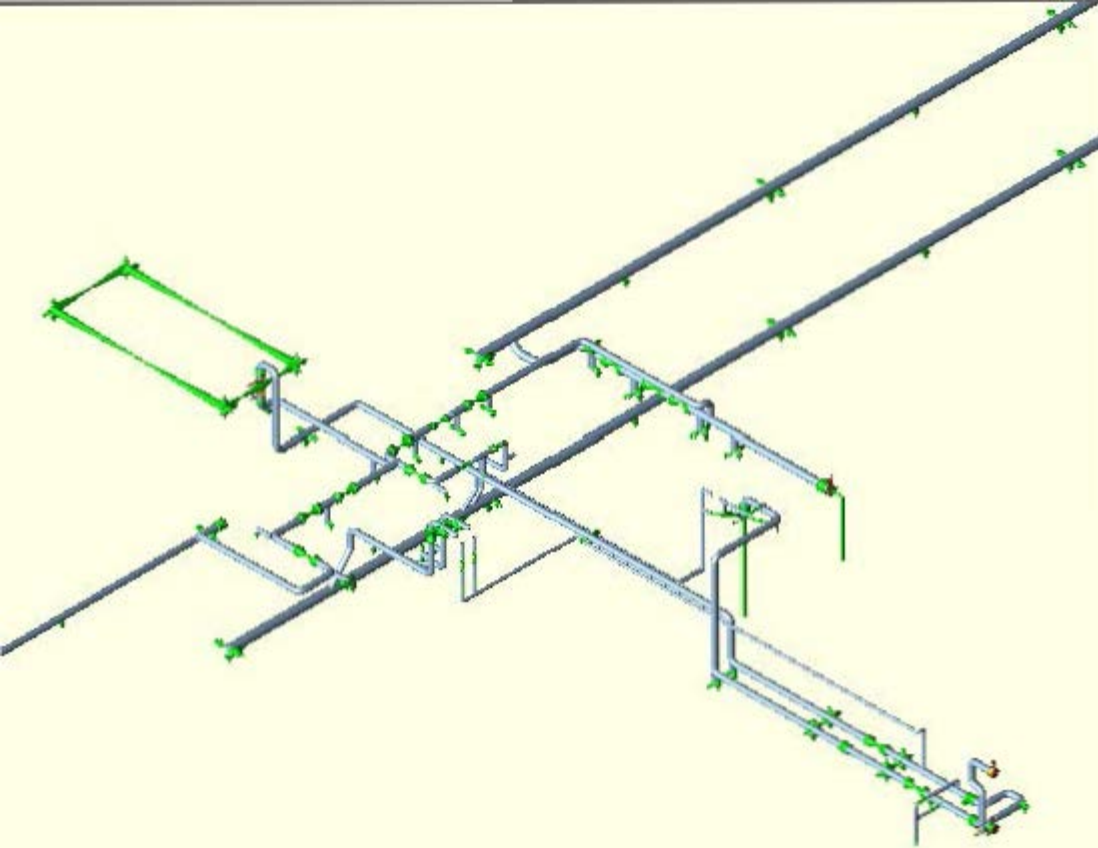
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0044A-CN05-6"-ET
2. GAS-111-0160A-CN05-2"-PT
3. FL-112-0119A-AN07-3"-PT
4. GAS-111-0051A-FN05-6"-IS
5. GAS-111-0058A-FS00-6"-NP
6. GAS-111-0055A-FS00-6"-NP
7. GAS-111-0045A-FS00-6"-NP
8. GAS-111-0046A-AN07-6"-PT
9. GAS-111-0026A-AN07-8"-PT
10. GAS-111-0057A-FS00-4"-NP
11. FL-112-0024A-AN07-4"-PT
12. GAS-111-0047A-FN05-2"-PT
13. GAS-111-0048A-FN05-2"-PT
14. FL-112-0020A-AN07-6"-PT
15. FL-112-0022A-AN07-6"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 20 To 40 DX= -.101 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .3000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 60 C T2= 115 C T3= 21 C T4= 60 C P1= 2,200.0500 KPa

PHyd= 3,300.0752 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa

EH1= 200,644,016 KPa EH2= 197,200,352 KPa EH3= 203,401,232 KPa

EH4= 200,644,016 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa

EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa

v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000181 kg./cu.cm.

Insul Thk= 4.000 cm. Insul Den= .0001362 kg./cu.cm.

RIGID Weight= 191.27 N.

RESTRAINTS

Node 20 ANC

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 20 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 2,160.11 N.

FB= 2,160.11 N. FC= 2,160.11 N. MA= 1,155.05 N.m. MB= 1,155.05 N.m.

MC= 1,155.05 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 40 To 60 DX= -.835 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59

Angle/Node @2= .00 58

 From 60 To 80 DY= -.829 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

Angle/Node @2= .00 78

 From 80 To 100 DX= .460 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99

Angle/Node @2= .00 98

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INPUT LISTING

From 100 To 120 DY= -1.058 m.

From 120 To 140 DY= -.229 m.
RIGID Weight= .00 N.

From 140 To 160 DY= -.200 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

T1= 21 C T2= 21 C T4= 21 C P1= .0000 KPa PHyd= .0000 KPa

Fluid Den= .0000000 kg./cu.cm. Insul Thk= 4.000 cm.

RESTRAINTS

Node 160 -X Mu = .30

Node 160 Z Cnode 121

Node 121 +Y Mu = .10

Node 160 X Cnode 121

HANGERS

Hanger Node = 160 Hanger Connecting Node = 121

Available Space = -100.0000 cm. Allowed Load Variation = 25.0000

No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N.

Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./cm.

Theoretical Cold Load = .00 N.

SIF's & TEE's

Node 140 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 120 To 180 DY= -.229 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 60 C T2= 115 C T4= 60 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000181 kg./cu.cm. Insul Thk= 4.000 cm.

DOUBLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 180 To 200 DX= -.229 m.

From 200 To 220 DX= -.102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

From 220 To 240 DX= -.102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

From 240 To 260 DX= -.900 m.

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INPUT LISTING

 From 260 To 280 DX= -.295 m.

SIF's & TEE's

Node 280 Weldolet

 From 280 To 300 DX= -.500 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .3000 cm.

GENERAL

T1= 60 C T2= 115 C T3= 21 C T4= 60 C P1= 2,200.0500 KPa

PHyd= 3,300.0752 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa

EH1= 200,644,016 KPa EH2= 197,200,352 KPa EH3= 203,401,232 KPa

EH4= 200,644,016 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa

EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa

v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000181 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RESTRAINTS

Node 300 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 300 To 320 DX= -.203 m.

 From 320 To 340 DX= -.102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

 From 340 To 360 DX= -.573 m.

Element Name= GATE_NOFLG_300

RIGID Weight= 1,023.41 N.

 From 360 To 380 DX= -.102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

 From 380 To 400 DX= -.861 m.

RESTRAINTS

Node 400 Y

Node 400 Z

 From 400 To 420 DX= -1.557 m.

 From 420 To 440 DX= -.102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

 From 440 To 460 DX= -.102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

 From 460 To 480 DX= -1.243 m.

RESTRAINTS

Node 480 Y

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INPUT LISTING

Node 480 Z

From 480 To 490 DX= -2.035 m.

From 500 To 6210 DY= -.076 m.

RIGID Weight= .00 N.

From 490 To 500 DX= -2.035 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

From 500 To 580 DY= 4.121 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 115 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 200,644,016 KPa

EH2= 197,200,352 KPa EH3= 203,401,232 KPa EH4= 200,644,016 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000058 kg./cu.cm.

Insul Thk= .000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 580 To 600 DZ= -2.750 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .3000 cm.

GENERAL

T1= 60 C T2= 115 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000181 kg./cu.cm. Insul Thk= 4.000 cm.

Insul Den= .0001500 kg./cu.cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 599

Angle/Node @2= .00 598

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 600 To 610 DX= -.314 m.

From 610 To 620 DX= -.316 m.

GENERAL

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 200,644,016 KPa

EH2= 197,200,352 KPa EH3= 203,401,232 KPa EH4= 200,644,016 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

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INPUT LISTING

Pipe Den= .0078334 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 620 To 5190 DY= .199 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm.

GENERAL

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 200,644,016 KPa
 EH2= 197,200,352 KPa EH3= 203,401,232 KPa EH4= 200,644,016 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Insul Thk= 4.000 cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5189
 Angle/Node @2= .00 5188

SIF's & TEE's

Node 620 Weldolet

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 5190 To 5200 DZ= .226 m.

 From 5200 To 5210 DZ= .073 m.

RIGID Weight= 44.48 N.

 From 5210 To 5220 DZ= .301 m.

RIGID Weight= 93.41 N.

 From 5220 To 5230 DZ= .073 m.

RIGID Weight= 44.48 N.

 From 5230 To 5240 DZ= .077 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5239
 Angle/Node @2= .00 5238

 From 5240 To 5245 DX= -.336 m.

 From 5240 To 6230 DY= -.018 m. DZ= .018 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6230 Unreinforced Tee

 From 5245 To 5250 DX= -.336 m.

 From 5250 To 5260 DX= -.073 m.

RIGID Weight= 44.48 N.

 From 5260 To 5270 DX= -.073 m.

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INPUT LISTING

RIGID Weight= 44.48 N.

From 5270 To 5275 DX= -.150 m.

From 5275 To 6260 DY= -.025 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6260 Unreinforced Tee

From 5275 To 5280 DX= -.150 m.

From 5280 To 5290 DX= -.073 m.

RIGID Weight= 44.48 N.

From 5290 To 5300 DX= -.200 m.

RIGID Weight= 258.00 N.

From 5300 To 5310 DX= -.067 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .6000 cm.

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 550.0125 KPa

PHyd= 825.0188 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa

EH1= 202,660,192 KPa EH2= 199,086,608 KPa EH3= 203,401,232 KPa

EH4= 191,317,008 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa

EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa

v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000015 kg./cu.cm.

Insul Thk= 4.000 cm.

RIGID Weight= 31.14 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 5310 To 5320 DX= -.089 m.

REDUCER

Diam2= 8.890 cm. Wall2= .762 cm.

From 5320 To 5330 DX= -.287 m.

PIPE

Dia= 8.890 cm. Wall= .762 cm.

Insul Thk= 4.000 cm.

BEND at "TO" end

Radius= 11.430 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5329

Angle/Node @2= .00 5328

From 5330 To 5340 DY= -.718 m.

From 5340 To 6280 DX= .038 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6280 Unreinforced Tee

From 5340 To 5350 DY= -2.117 m.

BEND at "TO" end

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INPUT LISTING

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      Radius= 11.430 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 5349
      Angle/Node @2= .00 5348
-----
From 5350 To 5355 DZ= .516 m.
RESTRAINTS
      Node 5355 +Y
-----
From 5355 To 5360 DZ= .516 m.
BEND at "TO" end
      Radius= 11.430 cm. (LONG)    Bend Angle= 90.000
-----
From 5360 To 5370 DX= -3.280 m.
RESTRAINTS
      Node 5370 +Y    Mu = .30
      Node 5370 Z    Gap= .300 cm.
-----
From 5370 To 5375 DX= -4.502 m.
RESTRAINTS
      Node 5375 +Y    Mu = .30
-----
From 5375 To 5380 DX= -.441 m.
BEND at "TO" end
      Radius= 11.430 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 5379
      Angle/Node @2= .00 5378
-----
From 5380 To 5390 DY= -.712 m.
BEND at "TO" end
      Radius= 11.430 cm. (LONG)    Bend Angle= 50.075    Angle/Node @1= 25.04 5389
      Angle/Node @2= .00 5388
-----
From 5390 To 6130 DX= .000 m.    DY= -.585 m.    DZ= .699 m.
-----
From 610 To 640 DY= -.084 m.
PIPE
      Dia= 16.827 cm.    Wall= .711 cm.
GENERAL
      T1= 60 C    T2= 115 C    T4= 60 C    P1= 2,200.0500 KPa    PHyd= 3,300.0752 KPa
      Insul Thk= 4.000 cm.
RIGID Weight= .00 N.
SIF's & TEE's
      Node 640 Unreinforced Tee
ALLOWABLE STRESSES
      B31.3 (2016)    Cycle Max Switch = ---    Sc= 137,895 KPa
      Sh1= 137,895 KPa    Sh2= 137,895 KPa    Sh3= 137,895 KPa    Sh4= 137,895 KPa
      Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
      Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 640 To 660 DY= -.300 m.
PIPE
      Dia= 11.430 cm.    Wall= .602 cm.    Cor= .0000 cm.
GENERAL
      T1= 21 C    T2= 21 C    T3= 21 C    T4= 21 C    P1= .0000 KPa    PHyd= .0000 KPa
      Mat= (102)A53 Grade B    E= 203,401,232 KPa    EH1= 203,401,232 KPa
      EH2= 203,401,232 KPa    EH3= 203,401,232 KPa    EH4= 203,401,232 KPa
      EH5= 203,401,232 KPa    EH6= 203,401,232 KPa    EH7= 203,401,232 KPa
      EH8= 203,401,232 KPa    EH9= 203,401,232 KPa    v = .292

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INPUT LISTING

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000000 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RESTRAINTS

Node 660 +Y Cnode 800

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 620 To 680 DX= -.855 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .3000 cm.

GENERAL

T1= 60 C T2= 115 C T4= 60 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 200,644,016 KPa

EH2= 197,200,352 KPa EH3= 203,401,232 KPa EH4= 200,644,016 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000181 kg./cu.cm.

Insul Thk= 4.000 cm. Insul Den= .0001500 kg./cu.cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679

Angle/Node @2= .00 678

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 680 To 700 DY= -.229 m.

 From 700 To 720 DY= -.126 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 286.91 N.

RESTRAINTS

Node 720 ANC Cnode 721

 From 721 To 760 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 760 To 780 DY= -.199 m.

RESTRAINTS

Node 780 ANC Cnode 820

EQUIPMENT LIMITS

Nozzle Node = 780 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.

FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.

MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 .0000 1.0000

Interact. Mtd= Absolute

 From 780 To 800 DX= 1.171 m. DY= .274 m. DZ= .000 m.

RIGID Weight= .00 N.

 From 780 To 6241 DX= .855 m. DY= .839 m. DZ= 1.068 m.

RIGID Weight= .00 N.

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 From 780 To 6271 DX= -.113 m. DY= .482 m. DZ= .750 m.
 RIGID Weight= .00 N.

From 780 To 6291 DX= -.641 m. DY= .139 m. DZ= .750 m.
 RIGID Weight= .00 N.

From 820 To 840 DY= -3.570 m.
 PIPE

Dia= 91.440 cm. Wall= 1.500 cm.

GENERAL

Mat= (383)A516 70 E= 203,401,232 KPa EH1= 200,644,016 KPa
 EH2= 197,200,352 KPa EH3= 203,401,232 KPa EH4= 200,644,016 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Insul Thk= 4.000 cm.

RIGID Weight= .00 N.

RESTRAINTS

Node 840 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 160,648 KPa
 Sh1= 160,373 KPa Sh2= 157,769 KPa Sh3= 160,648 KPa Sh4= 160,373 KPa
 Sh5= 160,648 KPa Sh6= 160,648 KPa Sh7= 160,648 KPa Sh8= 160,648 KPa
 Sh9= 160,648 KPa Sy= 262,001 KPa

From 280 To 4350 DZ= .122 m.
 PIPE

Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.

GENERAL

T1= 60 C T2= 115 C T3= 21 C T4= 60 C P1= 2,200.0500 KPa
 PHyd= 3,300.0752 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa
 EH1= 200,644,016 KPa EH2= 197,200,352 KPa EH3= 203,401,232 KPa
 EH4= 200,644,016 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa
 EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa
 v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000181 kg./cu.cm.
 Insul Thk= 4.000 cm. Insul Den= .0001500 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

From 4350 To 4360 DZ= .073 m.
 RIGID Weight= 44.48 N.

From 4360 To 4370 DZ= .301 m.
 PIPE

Dia= 6.032 cm. Wall= .874 cm.

GENERAL

T1= 142 C T2= 175 C T4= 142 C P1= 6,200.1411 KPa
 PHyd= 9,300.2119 KPa Fluid Den= .0000430 kg./cu.cm. Insul Thk= 6.000 cm.

RIGID Weight= 311.38 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

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Sh9= 137,895 KPa Sy= 241,316 KPa

 From 4370 To 4380 DZ= .083 m.

GENERAL

T1= 142 C T2= 175 C T4= 142 C

RIGID Weight= 57.83 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 4380 To 4390 DZ= .576 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4389

Angle/Node @2= .00 4388

 From 4390 To 4395 DY= .257 m.

 From 4390 To 6300 DY= -.025 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6300 Unreinforced Tee

 From 4395 To 880 DY= .257 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879

Angle/Node @2= .00 878

 From 880 To 900 DZ= -.077 m.

 From 900 To 920 DZ= -.083 m.

Element Name= BALL_FLG_600

GENERAL

T1= 142 C T2= 175 C P1= 6,200.1411 KPa PHyd= 9,300.2119 KPa

Fluid Den= .0000430 kg./cu.cm.

RIGID Weight= 57.83 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 920 To 940 DZ= -.301 m.

Element Name= CHECK_FLG_150

RIGID Weight= 427.03 N.

 From 940 To 960 DZ= -.083 m.

RIGID Weight= 57.83 N.

 From 960 To 980 DZ= -1.222 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979

Angle/Node @2= .00 978

 From 980 To 1000 DY= -.100 m.

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INPUT LISTING

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-----
From 1000 To 1020 DY= -.298 m.
  Element Name= CHECK_FLG_600
SIF's & TEE's
  Node 1020 Weldolet
-----
From 1020 To 1040 DX= .300 m.
PIPE
  Dia= 16.827 cm. Wall= 1.097 cm. Cor= .3000 cm.
GENERAL
  T1= 142 C T2= 175 C T3= 5 C P1= 6,200.1411 KPa PHyd= 9,300.2119 KPa
  Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 195,531,264 KPa
  EH2= 193,178,448 KPa EH3= 204,228,528 KPa EH4= 195,531,264 KPa
  EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
  EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
  Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000430 kg./cu.cm.
  Insul Thk= 4.000 cm. Insul Den= .0001362 kg./cu.cm.
RESTRAINTS
  Node 1040 +Y Mu = .30
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 1040 To 1060 DX= .168 m.
-----
From 1060 To 1080 DX= .126 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 364.75 N.
-----
From 1080 To 1100 DX= .126 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 364.75 N.
-----
From 1100 To 1120 DX= .330 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1119
  Angle/Node @2= .00 1118
-----
From 1120 To 1140 DZ= -1.000 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1139
  Angle/Node @2= .00 1138
-----
From 1140 To 1160 DX= .466 m.
-----
From 1160 To 1180 DX= .233 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1179
  Angle/Node @2= .00 1178
RESTRAINTS
  Node 1180 -X Mu = .30
  Node 1180 +Y Mu = .30
-----
From 1180 To 1200 DZ= 1.600 m.

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INPUT LISTING

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1199

Angle/Node @2= .00 1198

From 1200 To 1220 DX= .229 m.

From 1220 To 1240 DX= .127 m.

Element Name= FLANGE_FLG_600

RIGID Weight= 364.75 N.

RESTRAINTS

Node 1240 ANC

EQUIPMENT LIMITS

Nozzle Node = 1240

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 2,160.11 N. FB= 2,160.11 N.

FC= 2,160.11 N. MA= 1,155.05 N.m. MB= 1,155.05 N.m. MC= 1,155.05 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 1020 To 1260 DX= -1.400 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm. Cor= .3000 cm.

GENERAL

T1= 142 C T2= 175 C T3= 21 C T4= 142 C P1= 6,200.1411 KPa

PHyd= 9,300.2119 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa

EH1= 195,531,264 KPa EH2= 193,178,448 KPa EH3= 203,401,232 KPa

EH4= 195,531,264 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa

EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa

v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000430 kg./cu.cm.

Insul Thk= 6.000 cm. Insul Den= .0001500 kg./cu.cm.

SIF's & TEE's

Node 1260 Weldolet

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 1260 To 1280 DX= -.850 m.

RESTRAINTS

Node 1280 Y Mu = .30

Node 1280 Z

From 1280 To 1300 DX= -.650 m.

From 1300 To 1320 DX= -.127 m.

Element Name= FLANGE_FLG_600

RIGID Weight= 364.75 N.

From 1320 To 1340 DX= -.568 m.

Element Name= CHECK_NOFLG_600

RIGID Weight= 3,087.07 N.

From 1340 To 1360 DX= -.127 m.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 364.75 N.

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INPUT LISTING

From 1360 To 1380 DX= -1.549 m.

RESTRAINTS

Node 1380 Y Mu = .30

Node 1380 Z Gap= .300 cm.

From 1380 To 1390 DX= -2.035 m.

From 1390 To 1400 DX= -2.035 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399

Angle/Node @2= .00 1398

From 1400 To 1480 DY= 1.584 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

GENERAL

T1= 142 C T2= 175 C P1= 6,200.1411 KPa PHyd= 9,300.2119 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 195,531,264 KPa

EH2= 193,178,448 KPa EH3= 203,401,232 KPa EH4= 195,531,264 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000154 kg./cu.cm.

Insul Thk= 4.000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479

Angle/Node @2= .00 1478

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 1480 To 1500 DX= -5.816 m.

RESTRAINTS

Node 1500 +Y

Node 1500 Z

From 1500 To 1520 DX= -6.000 m.

RESTRAINTS

Node 1520 +Y Mu = .30

From 1520 To 1540 DX= -3.475 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1539

Angle/Node @2= .00 1538

From 1540 To 1560 DZ= 2.129 m.

RESTRAINTS

Node 1560 +Y

Node 1560 X Gap= .300 cm.

From 1560 To 1580 DZ= 1.221 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1579

Angle/Node @2= .00 1578

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INPUT LISTING

From 1580 To 1600 DY= 2.791 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599

Angle/Node @2= .00 1598

From 1600 To 1620 DX= -.657 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619

Angle/Node @2= .00 1618

From 1620 To 1640 DY= -.229 m.

From 1640 To 1660 DY= -.127 m.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 364.75 N.

RESTRAINTS

Node 1660 ANC Cnode 1661

From 1660 To 1680 DY= -.035 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm. Cor= .3000 cm.

Element Name= FLANGE_NOFLG_600

GENERAL

T1= 142 C T2= 175 C T3= 21 C P1= 6,200.1411 KPa PHyd= 9,300.2119 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 195,531,264 KPa

EH2= 193,178,448 KPa EH3= 203,401,232 KPa EH4= 195,531,264 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000430 kg./cu.cm.

Insul Thk= 4.000 cm. Insul Den= .0001362 kg./cu.cm.

RIGID Weight= 111.21 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 1680 To 1700 DY= -.200 m.

RESTRAINTS

Node 1700 ANC Cnode 1720

EQUIPMENT LIMITS

Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.

FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.

Equipment Major Direction Vector= .0000 .0000 1.0000

Interact. Mtd= Absolute

From 1720 To 1740 DY= -.240 m.

RIGID Weight= .00 N.

From 1740 To 1760 DY= -.240 m.

RIGID Weight= .00 N.

From 1780 To 1800 DY= -.200 m.

RESTRAINTS

Node 1780 ANC Cnode 1760

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EQUIPMENT LIMITS

Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 16,200.81 N. FB= 15,090.75 N.

FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.

Equipment Major Direction Vector= .0000 .0000 1.0000

Interact. Mtd= Absolute

From 1800 To 1820 DY= -.035 m.

Element Name= FLANGE_NOFLG_150

RIGID Weight= 111.21 N.

From 1740 To 1840 DZ= 1.500 m.

RIGID Weight= 2,250.11 N.

RESTRAINTS

Node 1840 Y Mu = .10

Node 1840 X Mu = .30

Node 1840 Z Gap= .600 cm.

From 1840 To 1860 DX= -7.035 m.

RIGID Weight=10,500.52 N.

RESTRAINTS

Node 1860 Y Mu = .10

Node 1860 Z Gap= .600 cm. Mu = .30

From 1860 To 1880 DZ= -3.000 m.

RIGID Weight= 4,500.22 N.

RESTRAINTS

Node 1880 Y Mu = .10

Node 1880 Z Gap= .600 cm.

From 1880 To 1900 DX= 7.035 m.

RIGID Weight=10,500.52 N.

RESTRAINTS

Node 1900 Y Mu = .10

Node 1900 X Mu = .30

Node 1900 Z Gap= .600 cm. Mu = .30

From 1900 To 1740 DZ= 1.500 m.

RIGID Weight= 2,250.11 N.

From 1820 To 1920 DY= -.102 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

Element Name= FLANGE_NOFLG_150

GENERAL

T1= 60 C T2= 175 C T3= 21 C T4= 60 C P1= 6,200.1411 KPa

PHyd= 9,300.2119 KPa Mat= (165)A312 TP316L E= 195,127,520 KPa

EH1= 192,370,304 KPa EH2= 184,539,120 KPa EH3= 195,127,520 KPa

EH4= 192,370,304 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa

EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa

v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000596 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 191.27 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

Sh1= 115,142 KPa Sh2= 111,904 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa

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INPUT LISTING

Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 1920 To 1940 DY= -.229 m.

GENERAL

P1= 2,200.0500 KPa Fluid Den= .0000183 kg./cu.cm.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1939

 From 1940 To 1960 DY= .000 m. DZ= -.328 m.

RESTRAINTS

Node 1960 +Y Mu = .30

 From 1960 To 1980 DY= .000 m. DZ= -.328 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1979

Angle/Node @2= .00 1978

 From 1980 To 2000 DX= 3.991 m.

 From 2000 To 6420 DY= -.076 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6420 Unreinforced Tee Pad= .711 cm.

 From 2000 To 6420 DY= -.076 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C T4= 60 C P1= 2,200.0500 KPa

PHyd= 9,300.2119 KPa Mat= (165)A312 TP316L E= 195,127,520 KPa

EH1= 192,370,304 KPa EH2= 184,539,120 KPa EH3= 195,127,520 KPa

EH4= 192,370,304 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa

EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa

v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6420 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

Sh1= 115,142 KPa Sh2= 111,904 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa

Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa

Sh9= 115,142 KPa Sy= 172,369 KPa

 From 2000 To 4100 DX= .695 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C T4= 60 C P1= 6,200.1411 KPa

PHyd= 9,300.2119 KPa Mat= (165)A312 TP316L E= 195,127,520 KPa

EH1= 192,370,304 KPa EH2= 184,539,120 KPa EH3= 195,127,520 KPa

EH4= 192,370,304 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa

EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa

v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000600 kg./cu.cm.

Insul Thk= .000 cm.

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INPUT LISTING

SIF's & TEE's

Node 4100 Welding Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

Sh1= 115,142 KPa Sh2= 111,904 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa

Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa

Sh9= 115,142 KPa Sy= 172,369 KPa

 From 4100 To 4400 DY= -.007 m. DZ= 1.448 m.

 From 4400 To 4410 DY= -.001 m. DZ= .127 m.

RIGID Weight= 364.75 N.

 From 4410 To 4420 DY= -.003 m. DZ= .568 m.

RIGID Weight= 3,087.07 N.

 From 4420 To 4430 DY= -.001 m. DZ= .127 m.

RIGID Weight= 364.75 N.

 From 4430 To 4440 DY= -.002 m. DZ= .333 m.

 From 4440 To 6480 DY= -.076 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6480 Unreinforced Tee Pad= .711 cm.

 From 4440 To 4450 DY= -.002 m. DZ= .333 m.

 From 4450 To 4460 DY= -.001 m. DZ= .127 m.

RIGID Weight= 364.75 N.

 From 4460 To 4470 DY= -.003 m. DZ= .568 m.

RIGID Weight= 733.96 N.

 From 4470 To 4480 DY= -.001 m. DZ= .127 m.

RIGID Weight= 364.75 N.

 From 4480 To 4482 DY= -.003 m. DZ= .565 m.

 From 4485 To 6760 DX= -.054 m. DY= -.054 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6760 Unreinforced Tee Pad= .711 cm.

 From 4482 To 4485 DY= -.003 m. DZ= .565 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4484

Angle/Node @2= .00 4483

 From 4485 To 4490 DX= 1.042 m. DY= .000 m. DZ= .000 m.

 From 4490 To 4500 DX= .127 m. DY= .000 m. DZ= .000 m.

RIGID Weight= 364.75 N.

 From 4500 To 4505 DX= .598 m. DY= .000 m. DZ= .000 m.

RIGID Weight= 1,005.30 N.

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INPUT LISTING

 From 4505 To 6790 DX= .127 m. DY= .000 m. DZ= .000 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C T4= 60 C P1= 6,200.1411 KPa
 PHyd= 9,300.2119 KPa Mat= (165)A312 TP316L E= 195,127,520 KPa
 EH1= 192,370,304 KPa EH2= 184,539,120 KPa EH3= 195,127,520 KPa
 EH4= 192,370,304 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa
 EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa
 v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000600 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 364.75 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 111,904 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6790 To 6780 DX= .324 m.

 From 6795 To 7000 DX= .054 m. DY= -.054 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 7000 Unreinforced Tee Pad= .711 cm.

 From 6780 To 6795 DX= .324 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6794
 Angle/Node @2= .00 6793

 From 6795 To 6800 DY= -.049 m. DZ= 1.406 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6799
 Angle/Node @2= .00 6798

 From 6800 To 6810 DX= -2.068 m. DY= .000 m. DZ= .000 m.

 From 6810 To 6820 DX= -2.000 m. DY= .000 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 6819
 Angle/Node @2= .00 6818

 From 6820 To 6830 DX= -.166 m. DY= -.166 m.

 From 6840 To 6850 DX= .000 m. DZ= .143 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm. Cor= .3000 cm.

GENERAL

T1= 60 C T2= 115 C T3= 21 C T4= 60 C P1= 2,200.0500 KPa
 PHyd= 3,300.0752 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa
 EH1= 200,644,016 KPa EH2= 197,200,352 KPa EH3= 203,401,232 KPa
 EH4= 200,644,016 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa
 EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa
 v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000181 kg./cu.cm.
 Insul Thk= 4.000 cm. Insul Den= .0001362 kg./cu.cm.

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INPUT LISTING

RIGID Weight= 524.89 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6850 To 6860 DZ= .143 m.

PIPE

Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C P1= 6,200.1411 KPa PHyd= 9,300.2119 KPa
 Fluid Den= .0000600 kg./cu.cm.

RIGID Weight= 524.89 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6860 To 6845 DZ= .369 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C P1= 6,200.1411 KPa PHyd= 9,300.2119 KPa
 Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 192,370,304 KPa
 EH2= 184,539,120 KPa EH3= 195,127,520 KPa EH4= 192,370,304 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000596 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0001362 kg./cu.cm.

RESTRAINTS

Node 6845 +Y Mu = .30
 Node 6845 X Gap= 1.500 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 111,904 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6845 To 6830 DZ= .424 m.

SIF's & TEE's

Node 6830 Welding Tee

 From 6830 To 6870 DZ= 5.576 m.

RESTRAINTS

Node 6870 +Y

 From 6870 To 6880 DZ= 2.000 m.

 From 6880 To 6890 DZ= 4.000 m.

RESTRAINTS

Node 6890 +Y
 Node 6890 X

 From 6890 To 6900 DZ= 6.000 m.

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RESTRAINTS

Node 6900 +Y

 From 6900 To 6910 DZ= 6.000 m.

RESTRAINTS

Node 6910 +Y Mu = .30

Node 6910 X Gap= .300 cm. Mu = .30

 From 6910 To 6920 DZ= 6.000 m.

RESTRAINTS

Node 6920 +Y Mu = .30

Node 6920 X Gap= .300 cm.

Node 6920 Z Gap= .300 cm.

 From 4100 To 4560 DZ= -.285 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C T4= 60 C P1= 6,200.1411 KPa

PHyd= 9,300.2119 KPa Mat= (165)A312 TP316L E= 195,127,520 KPa

EH1= 192,364,096 KPa EH2= 184,539,120 KPa EH3= 195,127,520 KPa

EH4= 192,364,096 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa

EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa

v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000600 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

SIF's & TEE's

Node 4560 Welding Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

Sh1= 115,142 KPa Sh2= 111,904 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa

Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa

Sh9= 115,142 KPa Sy= 172,369 KPa

 From 4560 To 4570 DX= .143 m.

 From 4560 To 4580 DX= -.143 m.

 From 4580 To 4590 DX= -.372 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4589

Angle/Node @2= .00 4588

 From 4590 To 4600 DZ= -.229 m.

 From 4600 To 4610 DZ= -.127 m.

RIGID Weight= 364.75 N.

 From 4610 To 4620 DZ= -.568 m.

RIGID Weight= 2,708.97 N.

 From 4620 To 4630 DZ= -.127 m.

RIGID Weight= 364.75 N.

 From 4630 To 4640 DZ= -.200 m.

 From 4640 To 6510 DY= -.076 m.

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INPUT LISTING

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RIGID Weight= .00 N.
SIF's & TEE's
  Node 6510   Unreinforced Tee   Pad= .711 cm.
-----
From 4640 To 4650 DZ= -.533 m.
-----
From 4650 To 4660 DY= -.027 m.  DZ= -.140 m.
REDUCER
  Diam2= 11.430 cm.   Wall2= .602 cm.
-----
From 4660 To 4670 DZ= -.111 m.
PIPE
  Dia= 11.430 cm.   Wall= .602 cm.
  Insul Thk= .000 cm.
RIGID Weight= 191.27 N.
-----
From 4670 To 4680 DZ= -.441 m.
RIGID Weight= 387.00 N.
-----
From 4680 To 4690 DZ= -.111 m.
RIGID Weight= 191.27 N.
-----
From 4690 To 4700 DY= .027 m.  DZ= -.140 m.
REDUCER
  Diam2= 16.827 cm.   Wall2= .711 cm.
-----
From 4700 To 4710 DZ= -.300 m.
PIPE
  Dia= 16.827 cm.   Wall= .711 cm.
  Insul Thk= .000 cm.
-----
From 4710 To 6530 DY= -.076 m.
RIGID Weight= .00 N.
SIF's & TEE's
  Node 6530   Unreinforced Tee   Pad= .711 cm.
-----
From 4710 To 4720 DZ= -.300 m.
-----
From 4720 To 4730 DZ= -.127 m.
RIGID Weight= 364.75 N.
-----
From 4730 To 4740 DZ= -.560 m.
RIGID Weight= 2,708.97 N.
-----
From 4740 To 4750 DZ= -.092 m.
PIPE
  Dia= 16.827 cm.   Wall= 1.097 cm.   Cor= .6000 cm.
GENERAL
  T1= 37 C   T2= 85 C   T4= 37 C   P1= 900.0205 KPa   PHyd= 1,350.0308 KPa
  Mat= (106)A106 Grade B   E= 203,401,232 KPa   EH1= 202,081,088 KPa
  EH2= 199,086,608 KPa   EH3= 203,401,232 KPa   EH4= 202,081,088 KPa
  EH5= 203,401,232 KPa   EH6= 203,401,232 KPa   EH7= 203,401,232 KPa
  EH8= 203,401,232 KPa   EH9= 203,401,232 KPa   v = .292
  Pipe Den= .0078334 kg./cu.cm.   Fluid Den= .0000060 kg./cu.cm.
  Insul Thk= .000 cm.
RIGID Weight= 111.21 N.

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INPUT LISTING

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 4750 To 6550 DZ= -.178 m.

From 6550 To 4140 DZ= -3.792 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4139
 Angle/Node @2= .00 4138

From 4140 To 6560 DX= .429 m.

RESTRAINTS

Node 6560 +Y Mu = .30

Node 6560 Z

From 6560 To 4760 DX= 4.399 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4759
 Angle/Node @2= .00 4758

From 4760 To 4770 DZ= -.457 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4769

From 4770 To 4780 DY= -.658 m.

SIF's & TEE's

Node 4780 Welding Tee

From 4780 To 4160 DX= .993 m.

PIPE

Dia= 21.907 cm. Wall= 1.031 cm. Cor= .6000 cm.

GENERAL

T1= 37 C T2= 85 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Fluid Den= .0000060 kg./cu.cm. Insul Thk= .000 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

From 4160 To 6600 DY= -.102 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6600 Unreinforced Tee

From 4160 To 4180 DX= 3.603 m.

From 4180 To 4200 DX= .105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 4200 To 4220 DX= .020 m.

Element Name= FLANGE_FLG_300

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INPUT LISTING

RIGID Weight= 30.00 N.

RESTRAINTS

Node 4220 ANC Cnode 4221

 From 4220 To 4240 DX= .105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 4240 To 4260 DX= .155 m.

RESTRAINTS

Node 4260 ANC Cnode 4261

EQUIPMENT LIMITS

Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.

FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 4261 To 4280 DX= .460 m.

PIPE

Dia= 92.000 cm. Wall= 1.200 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

 From 4280 To 4300 DY= -1.300 m.

RIGID Weight= .00 N.

 From 4300 To 4310 DY= -1.000 m.

RIGID Weight= .00 N.

 From 4310 To 4320 DY= -.300 m.

GENERAL

T1= 21 C T2= 21 C T4= 21 C

RIGID Weight= .00 N.

RESTRAINTS

Node 4320 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 4780 To 6620 DX= -.394 m.

PIPE

Dia= 21.907 cm. Wall= 1.031 cm.

GENERAL

T1= 37 C T2= 85 C T4= 37 C Insul Thk= .000 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6620 To 6630 DY= -.102 m.

RIGID Weight= .00 N.

SIF's & TEE's

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INPUT LISTING

Node 6630 Unreinforced Tee

From 6620 To 4800 DX= -.394 m.

From 4800 To 4810 DX= -.105 m.

RIGID Weight= 177.93 N.

From 4810 To 4820 DX= -.504 m.

RIGID Weight= 2,090.66 N.

From 4820 To 4830 DX= -.105 m.

RIGID Weight= 177.93 N.

From 4830 To 4840 DX= -.315 m.

From 4840 To 4850 DX= -.105 m.

RIGID Weight= 177.93 N.

From 4850 To 4860 DX= -.606 m.

RIGID Weight= 360.31 N.

From 4860 To 4870 DX= -.105 m.

RIGID Weight= 177.93 N.

From 4870 To 4880 DX= -.200 m.

From 4880 To 6650 DX= -.287 m.

From 6650 To 6660 DY= -.102 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6660 Unreinforced Tee

From 6650 To 4890 DX= -.487 m.

From 4890 To 4900 DX= -.105 m.

RIGID Weight= 177.93 N.

From 4900 To 4910 DX= -.487 m.

RIGID Weight= 2,259.70 N.

From 4910 To 4920 DX= -.105 m.

RIGID Weight= 177.93 N.

From 4920 To 4930 DX= -.542 m.

From 4930 To 6680 DY= -.102 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6680 Unreinforced Tee

From 4930 To 4940 DX= -.605 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4939

Angle/Node @2= .00 4938

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From 4940 To 4950 DZ= 1.500 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4949
Angle/Node @2= .00 4948

From 4950 To 4960 DX= -.872 m. DY= .000 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 4959
Angle/Node @2= .00 4958

From 4960 To 4970 DX= -.337 m. DY= .337 m.

From 4570 To 4980 DX= .295 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 175 C T3= 21 C T4= 60 C P1= 6,200.1411 KPa
PHyd= 9,300.2119 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa
EH1= 200,637,808 KPa EH2= 193,178,448 KPa EH3= 203,401,232 KPa
EH4= 200,637,808 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa
EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa
v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000060 kg./cu.cm.
Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa

From 4980 To 4990 DX= .127 m.

E= 203,401,232 KPa EH1= 200,637,808 KPa EH2= 193,178,448 KPa
EH3= 203,401,232 KPa EH4= 200,637,808 KPa EH5= 203,401,232 KPa
EH6= 203,401,232 KPa EH7= 203,401,232 KPa EH8= 203,401,232 KPa
EH9= 203,401,232 KPa v = .292 Pipe Den= .0078334 kg./cu.cm.

RIGID Weight= 364.75 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa

From 4990 To 5000 DX= .568 m.

RIGID Weight= 2,708.97 N.

From 5000 To 5010 DX= .127 m.

RIGID Weight= 364.75 N.

From 5010 To 5020 DX= .229 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5019

From 5020 To 5025 DZ= -.465 m.

From 5020 To 6700 DX= .054 m. DY= -.054 m.

RIGID Weight= .00 N.

SIF's & TEE's

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Node 6700      Unreinforced Tee      Pad= .711 cm.
-----
From 5025 To 5030 DZ= -.465 m.
-----
From 5030 To 5040 DY= -.040 m.  DZ= -.140 m.
REDUCER
  Diam2= 8.890 cm.  Wall2= .549 cm.
-----
From 5040 To 5060 DZ= -.092 m.
PIPE
  Dia= 8.890 cm.  Wall= .549 cm.
  Insul Thk= .000 cm.
RIGID Weight= 106.76 N.
-----
From 5060 To 5070 DZ= -.360 m.
RIGID Weight= 217.96 N.
-----
From 5070 To 5080 DZ= -.092 m.
RIGID Weight= 106.76 N.
-----
From 5080 To 5090 DY= .013 m.  DZ= -.102 m.
REDUCER
  Diam2= 11.430 cm.  Wall2= .602 cm.
-----
From 5090 To 5095 DZ= -.350 m.
PIPE
  Dia= 11.430 cm.  Wall= .602 cm.
  Insul Thk= .000 cm.
-----
From 5095 To 6720 DY= -.051 m.
RIGID Weight= .00 N.
SIF's & TEE's
  Node 6720      Reinforced Tee      Pad= .602 cm.
-----
From 5095 To 5100 DZ= -.350 m.
-----
From 5100 To 5110 DZ= -.111 m.
RIGID Weight= 191.27 N.
-----
From 5110 To 5120 DZ= -.234 m.
RIGID Weight= 1,116.50 N.
-----
From 5120 To 5130 DZ= -.079 m.
PIPE
  Dia= 11.430 cm.  Wall= .856 cm.  Cor= .6000 cm.
GENERAL
  T1= 30 C  T2= 85 C  T3= 21 C  T4= 200 C  P1= 550.0125 KPa
  PHyd= 825.0188 KPa  Mat= (106)A106 Grade B  E= 203,401,232 KPa
  EH1= 202,660,192 KPa  EH2= 199,086,608 KPa  EH3= 203,401,232 KPa
  EH4= 191,317,008 KPa  EH5= 203,401,232 KPa  EH6= 203,401,232 KPa
  EH7= 203,401,232 KPa  EH8= 203,401,232 KPa  EH9= 203,401,232 KPa
  v = .292  Pipe Den= .0078334 kg./cu.cm.  Fluid Den= .0000015 kg./cu.cm.
  Insul Thk= .000 cm.
RIGID Weight= 71.17 N.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---  Sc= 137,895 KPa

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Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa

From 5130 To 5140 DZ= -.153 m.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5139

From 5140 To 5145 DY= -.624 m.

From 5145 To 6740 DZ= -.051 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6740 Unreinforced Tee

From 5145 To 5150 DY= -.412 m.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5149

Angle/Node @2= .00 5148

From 5150 To 5160 DX= -.986 m.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5159

Angle/Node @2= .00 5158

From 5160 To 5170 DY= -1.073 m.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 44.939 Angle/Node @1= 22.47 5169

Angle/Node @2= .00 5168

From 5170 To 3965 DX= .000 m. DY= -.530 m. DZ= .529 m.

From 2020 To 2030 DZ= -1.000 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm. Cor= .6000 cm.

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 550.0125 KPa

PHyd= 825.0188 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa

EH1= 202,660,192 KPa EH2= 199,086,608 KPa EH3= 203,401,232 KPa

EH4= 191,317,008 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa

EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa

v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000015 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

SIF's & TEE's

Node 2020 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 2030 To 2040 DZ= -1.000 m.

GENERAL

T2= 85 C

From 2020 To 6120 DZ= .993 m.

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GENERAL

T2= 85 C P1= 550.0125 KPa

RESTRAINTS

Node 2020 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6120 To 2060 DZ= 4.107 m.

GENERAL

T1= 30 C T2= 85 C

RESTRAINTS

Node 2060 +Y Mu = .30
 Node 2060 X Gap= .300 cm. Mu = .30
 Node 2060 Z

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 2040 To 6130 DZ= -2.408 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm. Cor= .6000 cm.

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 550.0125 KPa
 Phyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm. Insul Thk= .000 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6130 To 3965 DZ= -.398 m.

 From 3965 To 3960 DZ= -.796 m.

GENERAL

T1= 30 C T2= 85 C P1= 550.0125 KPa

RESTRAINTS

Node 3960 +Y Mu = .30
 Node 3960 X Gap= .300 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 3960 To 5420 DZ= -6.000 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm. Cor= .6000 cm.

GENERAL

T1= 30 C T2= 8 C T3= 21 C T4= 200 C P1= 750.0171 KPa P2= .0000 KPa
 Phyd= 1,125.0256 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa
 EH1= 202,660,192 KPa EH2= 204,073,408 KPa EH3= 203,401,232 KPa

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EH4= 191,317,008 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa
 EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa
 v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000015 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RESTRAINTS

Node 5420 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 5420 To 5430 DZ= -6.000 m.

RESTRAINTS

Node 5430 +Y Mu = .30
 Node 5430 X Gap= .300 cm.

 From 5430 To 5440 DZ= -6.000 m.

RESTRAINTS

Node 5440 +Y Mu = .30

 From 5440 To 5450 DZ= -6.000 m.

RESTRAINTS

Node 5450 +Y Mu = .30
 Node 5450 X Gap= .300 cm.

 From 5450 To 5460 DZ= -6.000 m.

RESTRAINTS

Node 5460 +Y Mu = .30

 From 5460 To 5470 DZ= -1.070 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5469
 Angle/Node @2= .00 5468

 From 5470 To 5480 DX= 3.500 m.

RESTRAINTS

Node 5480 +Y

 From 5480 To 5490 DX= 5.300 m.

RESTRAINTS

Node 5490 +Y Mu = .30
 Node 5490 Z
 Node 5490 X

 From 5490 To 5500 DX= 4.300 m.

 From 5500 To 5510 DX= .097 m.

 From 5510 To 5520 DX= 3.153 m.

 From 5520 To 5530 DY= .127 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 5530 Weldolet Pad= .927 cm.

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From 5520 To 5540 DX= .750 m.

RESTRAINTS

Node 5540 +Y Mu = .30

From 5540 To 5550 DX= 5.000 m.

RESTRAINTS

Node 5550 +Y Mu = .00

Node 5550 Z

From 5550 To 5560 DX= .250 m.

From 4710 To 6530 DY= -.076 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm. Cor= .0000 cm.

GENERAL

T1= 38 C T2= 85 C T3= 21 C T4= 38 C P1= 6,200.1411 KPa

PHyd= 9,300.2119 KPa Mat= (165)A312 TP316L E= 195,127,520 KPa

EH1= 193,729,152 KPa EH2= 190,812,912 KPa EH3= 195,127,520 KPa

EH4= 193,729,152 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa

EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa

v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000600 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6530 Unreinforced Tee Pad= .711 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa

Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa

Sh9= 115,142 KPa Sy= 172,369 KPa

From 6010 To 6020 DX= -.155 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm. Cor= .6000 cm.

GENERAL

T1= 38 C T2= 85 C T3= 21 C T4= 38 C P1= 900.0205 KPa

PHyd= 1,350.0308 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa

EH1= 202,002,864 KPa EH2= 199,086,608 KPa EH3= 203,401,232 KPa

EH4= 202,002,864 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa

EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa

v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000066 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RESTRAINTS

Node 6020 +Y Cnode 0 Mu = .30

Node 6020 Z Gap= .300 cm. Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 6020 To 6030 DX= -12.176 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6029

Angle/Node @2= .00 6028

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From 6030 To 6040 DY= -1.300 m.
BEND at "TO" end
    Radius= 38.100 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 6039
    Angle/Node @2= .00 6038
-----
From 6040 To 6050 DZ= 1.601 m.
RESTRAINTS
    Node 6050 +Y    Mu = .30
-----
From 6050 To 6060 DZ= 6.000 m.
RESTRAINTS
    Node 6060 +Y    Mu = .30
    Node 6060 X     Gap= .300 cm.
-----
From 6060 To 6070 DZ= 6.000 m.
RESTRAINTS
    Node 6070 +Y    Mu = .30
-----
From 6070 To 6080 DZ= 6.000 m.
RESTRAINTS
    Node 6080 +Y    Mu = .30
    Node 6080 X     Gap= .300 cm.    Mu = .30
-----
From 6080 To 6090 DZ= 6.000 m.
RESTRAINTS
    Node 6090 +Y
-----
From 6090 To 4970 DZ= 4.700 m.
-----
From 4970 To 6110 DZ= 1.300 m.
RESTRAINTS
    Node 6110 +Y
    Node 6110 Z     Gap= .300 cm.
    Node 6110 X     Gap= .300 cm.
-----
From 1260 To 2140 DY= 1.530 m.
PIPE
    Dia= 6.032 cm.    Wall= .874 cm.    Cor= .3000 cm.
GENERAL
    T1= 142 C    T2= 175 C    T3= 21 C    T4= 142 C    P1= 6,200.1411 KPa
    PHyd= 9,300.2119 KPa    Mat= (106)A106 Grade B    E= 203,401,232 KPa
    EH1= 195,549,872 KPa    EH2= 193,178,448 KPa    EH3= 203,401,232 KPa
    EH4= 195,549,872 KPa    EH5= 203,401,232 KPa    EH6= 203,401,232 KPa
    EH7= 203,401,232 KPa    EH8= 203,401,232 KPa    EH9= 203,401,232 KPa
    v = .292    Pipe Den= .0078334 kg./cu.cm.    Fluid Den= .0000430 kg./cu.cm.
    Insul Thk= .000 cm.    Insul Den= .0000000 kg./cu.cm.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 2139
    Angle/Node @2= .00 2138
ALLOWABLE STRESSES
    B31.3 (2016)    Cycle Max Switch = ---    Sc= 137,895 KPa
    Sh1= 137,895 KPa    Sh2= 137,571 KPa    Sh3= 137,895 KPa    Sh4= 137,895 KPa
    Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
    Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 2140 To 2160 DX= .000 m.    DZ= .252 m.

```

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BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2159
 Angle/Node @2= .00 2158

 From 2160 To 2180 DX= -3.864 m.

RESTRAINTS

Node 2180 +Y
 Node 2180 Z Gap= .300 cm.

 From 2180 To 2200 DX= -4.915 m.

RESTRAINTS

Node 2200 +Y Mu = .30

 From 2200 To 2220 DX= -4.915 m.

RESTRAINTS

Node 2220 +Y
 Node 2220 Z Gap= .300 cm.

 From 2220 To 2260 DX= -.388 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000

 From 2260 To 2270 DZ= 2.498 m.

RESTRAINTS

Node 2270 +Y Mu = .30

 From 2270 To 2280 DZ= 1.584 m.

SIF's & TEE's

Node 2280 Welding Tee

 From 2280 To 2320 DY= .440 m.

RESTRAINTS

Node 2320 +Y Mu = .30

 From 2320 To 2330 DY= .446 m.

 From 2330 To 2340 DY= .213 m.

 From 2340 To 2360 DY= .083 m.

Element Name= GATE_FLG_600

RIGID Weight= 57.83 N.

 From 2360 To 5650 DY= .301 m.

RIGID Weight= 311.38 N.

 From 5650 To 5660 DY= .083 m.

RIGID Weight= 57.83 N.

 From 5660 To 2400 DY= .400 m.

 From 2400 To 5670 DY= .106 m.

REDUCER

Diam2= 4.826 cm. Wall2= .714 cm.

 From 5670 To 5680 DY= .079 m.

PIPE

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```

    Dia= 4.826 cm.    Wall= .714 cm.
    Insul Thk= .000 cm.
RIGID Weight= 35.59 N.
-----
From 5680 To 5690 DY= .079 m.
RIGID Weight= 35.59 N.
-----
From 5690 To 2420 DY= .042 m.
RIGID Weight= 25.00 N.
FORCES & MOMENTS
    Node 2420    FX1= 2,000.10 N.    FY1= 1,000.05 N.    FZ1= .00 N.
-----
From 2420 To 2440 DX= -.156 m.
PIPE
    Dia= 8.890 cm.    Wall= .762 cm.
    Insul Thk= .000 cm.
RIGID Weight= 100.00 N.
-----
From 2440 To 2460 DX= -.073 m.    DZ= .000 m.
PIPE
    Cor= .6000 cm.    Element Name= FLANGE_FLG_150
GENERAL
    T1= 30 C    T2= 85 C    T3= 21 C    T4= 200 C    P1= 550.0125 KPa
    PHyd= 825.0188 KPa    Fluid Den= .0000015 kg./cu.cm.
RIGID Weight= 54.49 N.
ALLOWABLE STRESSES
    B31.3 (2016)          Cycle Max Switch = ---    Sc= 137,895 KPa
    Sh1= 137,895 KPa    Sh2= 137,895 KPa    Sh3= 137,895 KPa    Sh4= 137,261 KPa
    Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
    Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 2460 To 2480 DX= -.140 m.    DY= -.040 m.    DZ= .000 m.
REDUCER
    Diam2= 16.827 cm.    Wall2= 1.097 cm.
-----
From 2480 To 2500 DX= -.350 m.
PIPE
    Dia= 16.827 cm.    Wall= 1.097 cm.
    Insul Thk= .000 cm.
RESTRAINTS
    Node 2500 +Y    Mu = .30
    Node 2500 Z
    Node 2500 X
-----
From 2500 To 2520 DX= -.579 m.    DZ= .000 m.
SINGLE FLANGED BEND at "TO" end
    Radius= 22.860 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 2519
    Angle/Node @2= .00 2518
-----
From 2520 To 2540 DY= -.229 m.
-----
From 2540 To 5700 DY= -.092 m.
    Element Name= BALL_FLG_150
RIGID Weight= 111.21 N.
-----
From 5700 To 2560 DY= -.276 m.

```

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INPUT LISTING

RIGID Weight= 1,005.30 N.

 From 2560 To 2570 DY= -.092 m.

RIGID Weight= 111.21 N.

 From 2570 To 5710 DY= -.654 m.

 From 5710 To 6440 DX= -.076 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 6440 Unreinforced Tee

 From 5710 To 2580 DY= -.587 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2579

Angle/Node @2= .00 2578

 From 2580 To 5840 DX= -.324 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 5839

 From 5840 To 5800 DX= -.500 m. DZ= .500 m.

 From 2280 To 2300 DZ= .500 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .3000 cm.

GENERAL

T1= 142 C T2= 175 C T3= 21 C T4= 142 C P1= 6,200.1411 KPa

PHyd= 9,300.2119 KPa Fluid Den= .0000430 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2299

Angle/Node @2= .00 2298

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 2300 To 2620 DY= .440 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .3000 cm.

GENERAL

T1= 142 C T2= 175 C T4= 142 C P1= 2,200.0500 KPa

PHyd= 3,300.0752 KPa Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 2620 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,571 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 2620 To 2640 DY= .660 m.

 From 2640 To 5720 DY= .083 m.

RIGID Weight= 57.83 N.

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INPUT LISTING

```

-----
From 5720 To 2660 DY= .301 m.
  Element Name= GATE_FLG_600
RIGID Weight= 311.38 N.
-----
From 2660 To 5730 DY= .083 m.
RIGID Weight= 57.83 N.
-----
From 5730 To 2700 DY= .400 m.
-----
From 2700 To 5740 DY= .106 m.
REDUCER
  Diam2= 4.826 cm. Wall2= .714 cm.
-----
From 5740 To 5750 DY= .079 m.
PIPE
  Dia= 4.826 cm. Wall= .714 cm.
  Insul Thk= .000 cm.
RIGID Weight= 35.59 N.
-----
From 5750 To 5760 DY= .079 m.
RIGID Weight= 35.59 N.
-----
From 5760 To 2720 DY= .041 m.
RIGID Weight= 35.59 N.
FORCES & MOMENTS
  Node 2720 FX2= 2,000.10 N. FY2= 1,000.05 N. FZ2= .00 N.
-----
From 2720 To 2740 DX= -.156 m. DZ= .000 m.
PIPE
  Dia= 8.890 cm. Wall= .762 cm.
  Insul Thk= .000 cm.
RIGID Weight= 100.00 N.
-----
From 2740 To 2760 DX= -.073 m. DZ= .000 m.
PIPE
  Dia= 8.890 cm. Wall= .762 cm. Cor= .6000 cm.
  Element Name= FLANGE_FLG_150
GENERAL
  T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 550.0125 KPa
  PHyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm. Insul Thk= .000 cm.
RIGID Weight= 54.49 N.
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 2760 To 2780 DX= -.140 m. DY= -.040 m. DZ= .000 m.
REDUCER
  Diam2= 16.827 cm. Wall2= 1.097 cm.
-----
From 2780 To 2800 DX= -.350 m.
PIPE
  Dia= 16.827 cm. Wall= 1.097 cm.
  Insul Thk= .000 cm.

```


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INPUT LISTING

RESTRAINTS

Node 2800 +Y
 Node 2800 Z
 Node 2800 X

 From 2800 To 2820 DX= -.579 m. DZ= .000 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2819
 Angle/Node @2= .00 2818

 From 2820 To 2840 DY= -.229 m.

 From 2840 To 2846 DY= -.092 m.

Element Name= BALL_FLG_150

RIGID Weight= 111.21 N.

 From 2846 To 2852 DY= -.276 m.

RIGID Weight= 1,005.30 N.

 From 2852 To 2860 DY= -.092 m.

RIGID Weight= 111.21 N.

 From 2860 To 2870 DY= -.654 m.

 From 2870 To 6460 DX= -.076 m.

RIGID Weight= .00 N.

 From 2870 To 2880 DY= -.587 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2879
 Angle/Node @2= .00 2878

 From 2880 To 5800 DX= -.824 m.

SIF's & TEE's

Node 5800 Welding Tee

 From 5800 To 5805 DX= -1.547 m.

RESTRAINTS

Node 5805 +Y Mu = .30

 From 5805 To 5810 DX= -.950 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5809
 Angle/Node @2= .00 5808

 From 5810 To 5820 DY= -.674 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 39.950 Angle/Node @1= 19.97 5819
 Angle/Node @2= .00 5818

 From 5820 To 6120 DX= .000 m. DY= -1.086 m. DZ= .910 m.

 From 4750 To 6550 DZ= -.178 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm. Cor= .6000 cm.

GENERAL

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INPUT LISTING

T1= 85 C T2= 37 C T3= 21 C T4= 37 C P1= 900.0205 KPa
 PHyd= 1,350.0308 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa
 EH1= 199,086,608 KPa EH2= 202,081,088 KPa EH3= 203,401,232 KPa
 EH4= 202,081,088 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa
 EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa
 v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000060 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6210 To 6220 DY= -.300 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm. Cor= .0000 cm.

GENERAL

T1= 21 C T2= 21 C T3= 21 C T4= 21 C P1= .0000 KPa PHyd= .0000 KPa
 Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000000 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RESTRAINTS

Node 6220 +Y Mu = .30
 Node 6220 Z

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6230 To 6240 DZ= .300 m.

PIPE

Dia= 4.826 cm. Wall= .368 cm.
 Insul Thk= .000 cm.

RESTRAINTS

Node 6240 +Y Cnode 6241 Mu = .30

 From 6260 To 6270 DY= -.350 m.

RESTRAINTS

Node 6270 +Y Cnode 6271 Mu = .30
 Node 6270 Z Cnode 6271 Gap= .300 cm.

 From 6280 To 6290 DX= .300 m.

PIPE

Dia= 6.032 cm. Wall= .391 cm.
 Insul Thk= .000 cm.

RESTRAINTS

Node 6290 +Y Cnode 6291 Mu = .30
 Node 6290 Z Cnode 6291 Gap= .300 cm.

 From 6300 To 6310 DY= -.900 m.

RESTRAINTS

Node 6310 +Y Mu = .30

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INPUT LISTING

```
-----
From 6400 To 6410 DY= -.300 m.
PIPE
  Dia= 11.430 cm.   Wall= .602 cm.
  Insul Thk= .000 cm.
RESTRAINTS
  Node 6410 +Y   Mu = .30
  Node 6410 Z
-----
```

```
-----
From 6420 To 6425 DY= -.230 m.
GENERAL
  Mat= (165)A312 TP316L   E= 195,127,520 KPa   EH1= 195,127,520 KPa
  EH2= 195,127,520 KPa   EH3= 195,127,520 KPa   EH4= 195,127,520 KPa
  EH5= 195,127,520 KPa   EH6= 195,127,520 KPa   EH7= 195,127,520 KPa
  EH8= 195,127,520 KPa   EH9= 195,127,520 KPa   v = .292
  Pipe Den= .0080272 kg./cu.cm.
ALLOWABLE STRESSES
  B31.3 (2016)           Cycle Max Switch = ---   Sc= 115,142 KPa
  Sh1= 115,142 KPa   Sh2= 115,142 KPa   Sh3= 115,142 KPa   Sh4= 115,142 KPa
  Sh5= 115,142 KPa   Sh6= 115,142 KPa   Sh7= 115,142 KPa   Sh8= 115,142 KPa
  Sh9= 115,142 KPa   Sy= 172,369 KPa
-----
```

```
-----
From 6425 To 6430 DY= -.380 m.
GENERAL
  Mat= (102)A53 Grade B   E= 203,401,232 KPa   EH1= 203,401,232 KPa
  EH2= 203,401,232 KPa   EH3= 203,401,232 KPa   EH4= 203,401,232 KPa
  EH5= 203,401,232 KPa   EH6= 203,401,232 KPa   EH7= 203,401,232 KPa
  EH8= 203,401,232 KPa   EH9= 203,401,232 KPa   v = .292
  Pipe Den= .0078334 kg./cu.cm.
RESTRAINTS
  Node 6430 +Y
ALLOWABLE STRESSES
  B31.3 (2016)           Cycle Max Switch = ---   Sc= 137,895 KPa
  Sh1= 137,895 KPa   Sh2= 137,895 KPa   Sh3= 137,895 KPa   Sh4= 137,895 KPa
  Sh5= 137,895 KPa   Sh6= 137,895 KPa   Sh7= 137,895 KPa   Sh8= 137,895 KPa
  Sh9= 137,895 KPa   Sy= 241,316 KPa
-----
```

```
-----
From 6440 To 6450 DX= -.300 m.
RESTRAINTS
  Node 6450 +Y
-----
```

```
-----
From 6460 To 6470 DX= -.300 m.
RESTRAINTS
  Node 6470 Y
-----
```

```
-----
From 6480 To 6485 DY= -.230 m.
GENERAL
  Mat= (165)A312 TP316L   E= 195,127,520 KPa   EH1= 195,127,520 KPa
  EH2= 195,127,520 KPa   EH3= 195,127,520 KPa   EH4= 195,127,520 KPa
  EH5= 195,127,520 KPa   EH6= 195,127,520 KPa   EH7= 195,127,520 KPa
  EH8= 195,127,520 KPa   EH9= 195,127,520 KPa   v = .292
  Pipe Den= .0080272 kg./cu.cm.
ALLOWABLE STRESSES
  B31.3 (2016)           Cycle Max Switch = ---   Sc= 115,142 KPa
  Sh1= 115,142 KPa   Sh2= 115,142 KPa   Sh3= 115,142 KPa   Sh4= 115,142 KPa
  Sh5= 115,142 KPa   Sh6= 115,142 KPa   Sh7= 115,142 KPa   Sh8= 115,142 KPa
-----
```

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INPUT LISTING

Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6485 To 6490 DY= -.380 m.

GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm.

RESTRAINTS

Node 6490 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6510 To 6515 DY= -.230 m.

GENERAL

Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 195,127,520 KPa
 EH2= 195,127,520 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6515 To 6520 DY= -.380 m.

GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm.

RESTRAINTS

Node 6520 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6530 To 6535 DY= -.230 m.

GENERAL

Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 195,127,520 KPa
 EH2= 195,127,520 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa

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INPUT LISTING

Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6535 To 6540 DY= -.380 m.

GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm.

RESTRAINTS

Node 6540 +Y Mu = .30
 Node 6540 X Gap= .300 cm. Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6550 To 6590 DY= -.610 m.

RESTRAINTS

Node 6590 +Y
 Node 6590 X Gap= .300 cm.

 From 6600 To 6610 DY= -.500 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.
 Insul Thk= .000 cm.

RESTRAINTS

Node 6610 +Y
 Node 6610 Z Gap= .300 cm.

 From 6630 To 6640 DY= -.500 m.

RESTRAINTS

Node 6640 +Y Mu = .30
 Node 6640 Z Gap= .300 cm. Mu = .30

 From 6660 To 6670 DY= -.500 m.

RESTRAINTS

Node 6670 +Y
 Node 6670 Z Gap= .300 cm.

 From 6680 To 6690 DY= -.500 m.

RESTRAINTS

Node 6690 +Y Mu = .30

 From 6700 To 6705 DX= .100 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 195,127,520 KPa
 EH2= 195,127,520 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm. Insul Thk= .000 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

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INPUT LISTING

Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6705 To 6710 DX= .400 m.

GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm.

RESTRAINTS

Node 6710 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 6720 To 6730 DY= -.700 m.

PIPE

Dia= 8.890 cm. Wall= .549 cm.
 Insul Thk= .000 cm.

RESTRAINTS

Node 6730 +Y Mu = .30
 Node 6730 X Gap= .300 cm.

 From 6740 To 6750 DZ= -.300 m.

RESTRAINTS

Node 6750 +Y

 From 6760 To 6765 DX= -.100 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 195,127,520 KPa
 EH2= 195,127,520 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm. Insul Thk= .000 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 6765 To 6770 DX= -.450 m.

GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm.

RESTRAINTS

Node 6770 +Y Mu = .30

ALLOWABLE STRESSES

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 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 7000 To 7005 DX= .100 m.

GENERAL

Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 195,127,520 KPa
 EH2= 195,127,520 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 7005 To 7010 DX= .400 m.

GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
 EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm.

RESTRAINTS

Node 7010 +Y Mu = .30
 Node 7010 Z Gap= .300 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

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NODENAMES

2020 2030 From= To=

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MATERIAL Changes:

20	40	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
280	300	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
500	580	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
610	620	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
620	5190	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
5300	5310	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.

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INPUT LISTING

640	660	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
620	680	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
820	840	Mat= (383)A516 70 E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
280	4350	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1020	1040	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1020	1260	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1400	1480	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1660	1680	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1820	1920	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
2000	6420	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
2000	4100	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
4505	6790	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6840	6850	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6860	6845	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
4100	4560	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
4740	4750	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
4570	4980	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
4980	4990	E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
5120	5130	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
2020	2030	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
3960	5420	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
4710	6530	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6010	6020	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1260	2140	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
4750	6550	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6210	6220	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6420	6425	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6425	6430	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.

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INPUT LISTING

6480	6485	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6485	6490	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6510	6515	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6515	6520	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6530	6535	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6535	6540	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6700	6705	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6705	6710	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
6760	6765	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
6765	6770	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
7000	7005	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
7005	7010	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-006\BNK-GCS-CN-006

ALLOWABLE STRESS Changes

20	40	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
140	160	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
120	180	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
280	300	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa

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INPUT LISTING

500	580	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
580	600	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
610	620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
620	5190	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
5300	5310	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
610	640	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
640	660	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
620	680	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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INPUT LISTING

820	840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 160,648 KPa	Sh1= 160,373 KPa
		Sh2= 157,769 KPa	Sh3= 160,648 KPa
		Sh4= 160,373 KPa	Sh5= 160,648 KPa
		Sh6= 160,648 KPa	Sh7= 160,648 KPa
		Sh8= 160,648 KPa	Sh9= 160,648 KPa
		Sy= 262,001 KPa	
280	4350	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4360	4370	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4370	4380	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
900	920	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1020	1040	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1020	1260	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1400	1480	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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INPUT LISTING

1660	1680	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1820	1920	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 111,904 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
2000	6420	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 111,904 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
2000	4100	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 111,904 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
4505	6790	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 111,904 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
6840	6850	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6850	6860	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6860	6845	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 111,904 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	

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INPUT LISTING

4100	4560	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 111,904 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
4740	4750	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4780	4160	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4310	4320	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4780	6620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4570	4980	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4980	4990	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
5120	5130	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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INPUT LISTING

2020	2030	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2020	6120	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6120	2060	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2040	6130	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3965	3960	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3960	5420	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4710	6530	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
6010	6020	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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1260	2140	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2440	2460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2280	2300	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2300	2620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2740	2760	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
4750	6550	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6210	6220	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6420	6425	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	

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6425	6430	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6480	6485	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
6485	6490	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6510	6515	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
6515	6520	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6530	6535	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
6535	6540	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6700	6705	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	

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INPUT LISTING

6705	6710	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
6760	6765	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
6765	6770	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
7000	7005	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
7005	7010	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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BEND ELEMENTS

40	60	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 59
		Angle/Node @2= .00 58
60	80	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
		Angle/Node @2= .00 78
80	100	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 99
		Angle/Node @2= .00 98
120	180	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179
490	500	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		499 Angle/Node @2= .00 498
500	580	Radius= 22.860 cm. (LONG)

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		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
580	600	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		599 Angle/Node @2= .00 598
620	5190	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5189 Angle/Node @2= .00 5188
5230	5240	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5239 Angle/Node @2= .00 5238
5320	5330	Radius= 11.430 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5329 Angle/Node @2= .00 5328
5340	5350	Radius= 11.430 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5349 Angle/Node @2= .00 5348
5355	5360	Radius= 11.430 cm. (LONG)
		Bend Angle= 90.000
5375	5380	Radius= 11.430 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5379 Angle/Node @2= .00 5378
5380	5390	Radius= 11.430 cm. (LONG)
		Bend Angle= 50.075 Angle/Node @1= 25.04
		5389 Angle/Node @2= .00 5388
620	680	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		679 Angle/Node @2= .00 678
4380	4390	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4389 Angle/Node @2= .00 4388
4395	880	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		879 Angle/Node @2= .00 878
960	980	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		979 Angle/Node @2= .00 978
1100	1120	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1119 Angle/Node @2= .00 1118
1120	1140	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1139 Angle/Node @2= .00 1138
1160	1180	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1179 Angle/Node @2= .00 1178
1180	1200	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1199 Angle/Node @2= .00 1198
1390	1400	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1399 Angle/Node @2= .00 1398
1400	1480	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1479 Angle/Node @2= .00 1478
1520	1540	Radius= 22.860 cm. (LONG)

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		Bend Angle= 90.000 Angle/Node @1= 45.00
		1539 Angle/Node @2= .00 1538
1560	1580	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1579 Angle/Node @2= .00 1578
1580	1600	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1599 Angle/Node @2= .00 1598
1600	1620	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1619 Angle/Node @2= .00 1618
1920	1940	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1939
1960	1980	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1979 Angle/Node @2= .00 1978
4482	4485	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4484 Angle/Node @2= .00 4483
6780	6795	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		6794 Angle/Node @2= .00 6793
6795	6800	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		6799 Angle/Node @2= .00 6798
6810	6820	Radius= 22.860 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		6819 Angle/Node @2= .00 6818
4580	4590	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4589 Angle/Node @2= .00 4588
6550	4140	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4139 Angle/Node @2= .00 4138
6560	4760	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4759 Angle/Node @2= .00 4758
4760	4770	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4769
4930	4940	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4939 Angle/Node @2= .00 4938
4940	4950	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4949 Angle/Node @2= .00 4948
4950	4960	Radius= 30.480 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		4959 Angle/Node @2= .00 4958
5010	5020	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5019
5130	5140	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5139

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5145	5150	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5149 Angle/Node @2= .00 5148
5150	5160	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5159 Angle/Node @2= .00 5158
5160	5170	Radius= 15.240 cm. (LONG)
		Bend Angle= 44.939 Angle/Node @1= 22.47
		5169 Angle/Node @2= .00 5168
5460	5470	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5469 Angle/Node @2= .00 5468
6020	6030	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		6029 Angle/Node @2= .00 6028
6030	6040	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		6039 Angle/Node @2= .00 6038
1260	2140	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2139 Angle/Node @2= .00 2138
2140	2160	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2159 Angle/Node @2= .00 2158
2220	2260	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000
2500	2520	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2519 Angle/Node @2= .00 2518
5710	2580	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2579 Angle/Node @2= .00 2578
2580	5840	Radius= 22.860 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		5839
2280	2300	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2299 Angle/Node @2= .00 2298
2800	2820	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2819 Angle/Node @2= .00 2818
2870	2880	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2879 Angle/Node @2= .00 2878
5805	5810	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5809 Angle/Node @2= .00 5808
5810	5820	Radius= 22.860 cm. (LONG)
		Bend Angle= 39.950 Angle/Node @1= 19.97
		5819 Angle/Node @2= .00 5818

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RIGIDS

20	40	RIGID Weight= 191.27 N.

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120	140	RIGID	Weight= .00 N.
200	220	RIGID	Weight= 191.27 N.
220	240	RIGID	Weight= 191.27 N.
320	340	RIGID	Weight= 191.27 N.
340	360	RIGID	Weight= 1,023.41 N.
360	380	RIGID	Weight= 191.27 N.
420	440	RIGID	Weight= 191.27 N.
440	460	RIGID	Weight= 191.27 N.
500	6210	RIGID	Weight= .00 N.
5200	5210	RIGID	Weight= 44.48 N.
5210	5220	RIGID	Weight= 93.41 N.
5220	5230	RIGID	Weight= 44.48 N.
5240	6230	RIGID	Weight= .00 N.
5250	5260	RIGID	Weight= 44.48 N.
5260	5270	RIGID	Weight= 44.48 N.
5275	6260	RIGID	Weight= .00 N.
5280	5290	RIGID	Weight= 44.48 N.
5290	5300	RIGID	Weight= 258.00 N.
5300	5310	RIGID	Weight= 31.14 N.
5340	6280	RIGID	Weight= .00 N.
610	640	RIGID	Weight= .00 N.
700	720	RIGID	Weight= 286.91 N.
721	760	RIGID	Weight= 177.93 N.
780	800	RIGID	Weight= .00 N.
780	6241	RIGID	Weight= .00 N.
780	6271	RIGID	Weight= .00 N.
780	6291	RIGID	Weight= .00 N.
820	840	RIGID	Weight= .00 N.
4350	4360	RIGID	Weight= 44.48 N.
4360	4370	RIGID	Weight= 311.38 N.
4370	4380	RIGID	Weight= 57.83 N.
4390	6300	RIGID	Weight= .00 N.
900	920	RIGID	Weight= 57.83 N.
920	940	RIGID	Weight= 427.03 N.
940	960	RIGID	Weight= 57.83 N.
1060	1080	RIGID	Weight= 364.75 N.
1080	1100	RIGID	Weight= 364.75 N.
1220	1240	RIGID	Weight= 364.75 N.
1300	1320	RIGID	Weight= 364.75 N.
1320	1340	RIGID	Weight= 3,087.07 N.
1340	1360	RIGID	Weight= 364.75 N.
1640	1660	RIGID	Weight= 364.75 N.
1660	1680	RIGID	Weight= 111.21 N.
1720	1740	RIGID	Weight= .00 N.
1740	1760	RIGID	Weight= .00 N.
1800	1820	RIGID	Weight= 111.21 N.
1740	1840	RIGID	Weight= 2,250.11 N.
1840	1860	RIGID	Weight=10,500.52 N.
1860	1880	RIGID	Weight= 4,500.22 N.
1880	1900	RIGID	Weight=10,500.52 N.
1900	1740	RIGID	Weight= 2,250.11 N.
1820	1920	RIGID	Weight= 191.27 N.
2000	6420	RIGID	Weight= .00 N.
2000	6420	RIGID	Weight= .00 N.
4400	4410	RIGID	Weight= 364.75 N.
4410	4420	RIGID	Weight= 3,087.07 N.

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4420	4430	RIGID	Weight= 364.75 N.
4440	6480	RIGID	Weight= .00 N.
4450	4460	RIGID	Weight= 364.75 N.
4460	4470	RIGID	Weight= 733.96 N.
4470	4480	RIGID	Weight= 364.75 N.
4485	6760	RIGID	Weight= .00 N.
4490	4500	RIGID	Weight= 364.75 N.
4500	4505	RIGID	Weight= 1,005.30 N.
4505	6790	RIGID	Weight= 364.75 N.
6795	7000	RIGID	Weight= .00 N.
6840	6850	RIGID	Weight= 524.89 N.
6850	6860	RIGID	Weight= 524.89 N.
4600	4610	RIGID	Weight= 364.75 N.
4610	4620	RIGID	Weight= 2,708.97 N.
4620	4630	RIGID	Weight= 364.75 N.
4640	6510	RIGID	Weight= .00 N.
4660	4670	RIGID	Weight= 191.27 N.
4670	4680	RIGID	Weight= 387.00 N.
4680	4690	RIGID	Weight= 191.27 N.
4710	6530	RIGID	Weight= .00 N.
4720	4730	RIGID	Weight= 364.75 N.
4730	4740	RIGID	Weight= 2,708.97 N.
4740	4750	RIGID	Weight= 111.21 N.
4160	6600	RIGID	Weight= .00 N.
4180	4200	RIGID	Weight= 177.93 N.
4200	4220	RIGID	Weight= 30.00 N.
4220	4240	RIGID	Weight= 177.93 N.
4261	4280	RIGID	Weight= .00 N.
4280	4300	RIGID	Weight= .00 N.
4300	4310	RIGID	Weight= .00 N.
4310	4320	RIGID	Weight= .00 N.
6620	6630	RIGID	Weight= .00 N.
4800	4810	RIGID	Weight= 177.93 N.
4810	4820	RIGID	Weight= 2,090.66 N.
4820	4830	RIGID	Weight= 177.93 N.
4840	4850	RIGID	Weight= 177.93 N.
4850	4860	RIGID	Weight= 360.31 N.
4860	4870	RIGID	Weight= 177.93 N.
6650	6660	RIGID	Weight= .00 N.
4890	4900	RIGID	Weight= 177.93 N.
4900	4910	RIGID	Weight= 2,259.70 N.
4910	4920	RIGID	Weight= 177.93 N.
4930	6680	RIGID	Weight= .00 N.
4980	4990	RIGID	Weight= 364.75 N.
4990	5000	RIGID	Weight= 2,708.97 N.
5000	5010	RIGID	Weight= 364.75 N.
5020	6700	RIGID	Weight= .00 N.
5040	5060	RIGID	Weight= 106.76 N.
5060	5070	RIGID	Weight= 217.96 N.
5070	5080	RIGID	Weight= 106.76 N.
5095	6720	RIGID	Weight= .00 N.
5100	5110	RIGID	Weight= 191.27 N.
5110	5120	RIGID	Weight= 1,116.50 N.
5120	5130	RIGID	Weight= 71.17 N.
5145	6740	RIGID	Weight= .00 N.
5520	5530	RIGID	Weight= .00 N.

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4710	6530	RIGID Weight= .00 N.
2340	2360	RIGID Weight= 57.83 N.
2360	5650	RIGID Weight= 311.38 N.
5650	5660	RIGID Weight= 57.83 N.
5670	5680	RIGID Weight= 35.59 N.
5680	5690	RIGID Weight= 35.59 N.
5690	2420	RIGID Weight= 25.00 N.
2420	2440	RIGID Weight= 100.00 N.
2440	2460	RIGID Weight= 54.49 N.
2540	5700	RIGID Weight= 111.21 N.
5700	2560	RIGID Weight= 1,005.30 N.
2560	2570	RIGID Weight= 111.21 N.
5710	6440	RIGID Weight= .00 N.
2640	5720	RIGID Weight= 57.83 N.
5720	2660	RIGID Weight= 311.38 N.
2660	5730	RIGID Weight= 57.83 N.
5740	5750	RIGID Weight= 35.59 N.
5750	5760	RIGID Weight= 35.59 N.
5760	2720	RIGID Weight= 35.59 N.
2720	2740	RIGID Weight= 100.00 N.
2740	2760	RIGID Weight= 54.49 N.
2840	2846	RIGID Weight= 111.21 N.
2846	2852	RIGID Weight= 1,005.30 N.
2852	2860	RIGID Weight= 111.21 N.
2870	6460	RIGID Weight= .00 N.

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SIF'S & TEE'S

140	160	Node 140 Unreinforced Tee
260	280	Node 280 Weldolet
620	5190	Node 620 Weldolet
5240	6230	Node 6230 Unreinforced Tee
5275	6260	Node 6260 Unreinforced Tee
5340	6280	Node 6280 Unreinforced Tee
610	640	Node 640 Unreinforced Tee
4390	6300	Node 6300 Unreinforced Tee
1000	1020	Node 1020 Weldolet
1020	1260	Node 1260 Weldolet
2000	6420	Node 6420 Unreinforced Tee
		Pad= .711 cm.
2000	6420	Node 6420 Unreinforced Tee
2000	4100	Node 4100 Welding Tee
4440	6480	Node 6480 Unreinforced Tee
		Pad= .711 cm.
4485	6760	Node 6760 Unreinforced Tee
		Pad= .711 cm.
6795	7000	Node 7000 Unreinforced Tee
		Pad= .711 cm.
6845	6830	Node 6830 Welding Tee
4100	4560	Node 4560 Welding Tee
4640	6510	Node 6510 Unreinforced Tee
		Pad= .711 cm.
4710	6530	Node 6530 Unreinforced Tee
		Pad= .711 cm.

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4770	4780	Node 4780	Welding Tee
4160	6600	Node 6600	Unreinforced Tee
6620	6630	Node 6630	Unreinforced Tee
6650	6660	Node 6660	Unreinforced Tee
4930	6680	Node 6680	Unreinforced Tee
5020	6700	Node 6700	Unreinforced Tee
		Pad=	.711 cm.
5095	6720	Node 6720	Reinforced Tee Pad= .602 cm.
5145	6740	Node 6740	Unreinforced Tee
2020	2030	Node 2020	<No Type Specified>
		SIF(in)=	2.080 SIF(out)= 2.460
5520	5530	Node 5530	Weldolet Pad= .927 cm.
4710	6530	Node 6530	Unreinforced Tee
		Pad=	.711 cm.
2270	2280	Node 2280	Welding Tee
5710	6440	Node 6440	Unreinforced Tee
2880	5800	Node 5800	Welding Tee

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REDUCERS

5310	5320	Diam2=	8.890 cm.	Wall2=	.762 cm.
4650	4660	Diam2=	11.430 cm.	Wall2=	.602 cm.
4690	4700	Diam2=	16.827 cm.	Wall2=	.711 cm.
5030	5040	Diam2=	8.890 cm.	Wall2=	.549 cm.
5080	5090	Diam2=	11.430 cm.	Wall2=	.602 cm.
2400	5670	Diam2=	4.826 cm.	Wall2=	.714 cm.
2460	2480	Diam2=	16.827 cm.	Wall2=	1.097 cm.
2700	5740	Diam2=	4.826 cm.	Wall2=	.714 cm.
2760	2780	Diam2=	16.827 cm.	Wall2=	1.097 cm.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP	MU YIELD FORCE	Dir Vectors
STIF2						
20	ANC					.000 .000 .000
160	-X				.30	1.000 .000 .000
160	Z	121				.000 .000 1.000
121	+Y				.10	.000 1.000 .000
160	X	121				1.000 .000 .000
300	+Y				.30	.000 1.000 .000
400	Y					.000 1.000 .000
400	Z					.000 .000 1.000
480	Y					.000 1.000 .000
480	Z					.000 .000 1.000
5355	+Y					.000 1.000 .000
5370	+Y				.30	.000 1.000 .000
5370	Z			.30		.000 .000 1.000
5375	+Y				.30	.000 1.000 .000
660	+Y	800				.000 1.000 .000
720	ANC	721				.000 .000 .000
780	ANC	820				.000 .000 .000
840	ANC					.000 .000 .000
1040	+Y				.30	.000 1.000 .000

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1180	-X		.30	1.000	.000	.000
1180	+Y		.30	.000	1.000	.000
1240	ANC			.000	.000	.000
1280	Y		.30	.000	1.000	.000
1280	Z			.000	.000	1.000
1380	Y		.30	.000	1.000	.000
1380	Z	.30		.000	.000	1.000
1500	+Y			.000	1.000	.000
1500	Z			.000	.000	1.000
1520	+Y		.30	.000	1.000	.000
1560	+Y			.000	1.000	.000
1560	X	.30		1.000	.000	.000
1660	ANC	1661		.000	.000	.000
1700	ANC	1720		.000	.000	.000
1780	ANC	1760		.000	.000	.000
1840	Y		.10	.000	1.000	.000
1840	X		.30	1.000	.000	.000
1840	Z	.60		.000	.000	1.000
1860	Y		.10	.000	1.000	.000
1860	Z	.60	.30	.000	.000	1.000
1880	Y		.10	.000	1.000	.000
1880	Z	.60		.000	.000	1.000
1900	Y		.10	.000	1.000	.000
1900	X		.30	1.000	.000	.000
1900	Z	.60	.30	.000	.000	1.000
1960	+Y		.30	.000	1.000	.000
6845	+Y		.30	.000	1.000	.000
6845	X	1.50		1.000	.000	.000
6870	+Y			.000	1.000	.000
6890	+Y			.000	1.000	.000
6890	X			1.000	.000	.000
6900	+Y			.000	1.000	.000
6910	+Y		.30	.000	1.000	.000
6910	X	.30	.30	1.000	.000	.000
6920	+Y		.30	.000	1.000	.000
6920	X	.30		1.000	.000	.000
6920	Z	.30		.000	.000	1.000
6560	+Y		.30	.000	1.000	.000
6560	Z			.000	.000	1.000
4220	ANC	4221		.000	.000	.000
4260	ANC	4261		.000	.000	.000
4320	ANC			.000	.000	.000
2020	+Y		.30	.000	1.000	.000
2060	+Y		.30	.000	1.000	.000
2060	X	.30	.30	1.000	.000	.000
2060	Z			.000	.000	1.000
3960	+Y		.30	.000	1.000	.000
3960	X	.30		1.000	.000	.000
5420	+Y		.30	.000	1.000	.000
5430	+Y		.30	.000	1.000	.000
5430	X	.30		1.000	.000	.000
5440	+Y		.30	.000	1.000	.000
5450	+Y		.30	.000	1.000	.000
5450	X	.30		1.000	.000	.000
5460	+Y		.30	.000	1.000	.000
5480	+Y			.000	1.000	.000

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5490	+Y			.30	.000	1.000	.000
5490	Z				.000	.000	1.000
5490	X				1.000	.000	.000
5540	+Y			.30	.000	1.000	.000
5550	+Y			.00	.000	1.000	.000
5550	Z				.000	.000	1.000
6020	+Y	0		.30	.000	1.000	.000
6020	Z		.30	.30	.000	.000	1.000
6050	+Y			.30	.000	1.000	.000
6060	+Y			.30	.000	1.000	.000
6060	X		.30		1.000	.000	.000
6070	+Y			.30	.000	1.000	.000
6080	+Y			.30	.000	1.000	.000
6080	X		.30	.30	1.000	.000	.000
6090	+Y				.000	1.000	.000
6110	+Y				.000	1.000	.000
6110	Z		.30		.000	.000	1.000
6110	X		.30		1.000	.000	.000
2180	+Y				.000	1.000	.000
2180	Z		.30		.000	.000	1.000
2200	+Y			.30	.000	1.000	.000
2220	+Y				.000	1.000	.000
2220	Z		.30		.000	.000	1.000
2270	+Y			.30	.000	1.000	.000
2320	+Y			.30	.000	1.000	.000
2500	+Y			.30	.000	1.000	.000
2500	Z				.000	.000	1.000
2500	X				1.000	.000	.000
2620	+Y				.000	1.000	.000
2800	+Y				.000	1.000	.000
2800	Z				.000	.000	1.000
2800	X				1.000	.000	.000
5805	+Y			.30	.000	1.000	.000
6220	+Y			.30	.000	1.000	.000
6220	Z				.000	.000	1.000
6240	+Y	6241		.30	.000	1.000	.000
6270	+Y	6271		.30	.000	1.000	.000
6270	Z	6271	.30		.000	.000	1.000
6290	+Y	6291		.30	.000	1.000	.000
6290	Z	6291	.30		.000	.000	1.000
6310	+Y			.30	.000	1.000	.000
6410	+Y			.30	.000	1.000	.000
6410	Z				.000	.000	1.000
6430	+Y				.000	1.000	.000
6450	+Y				.000	1.000	.000
6470	Y				.000	1.000	.000
6490	+Y			.30	.000	1.000	.000
6520	+Y			.30	.000	1.000	.000
6540	+Y			.30	.000	1.000	.000
6540	X		.30	.30	1.000	.000	.000
6590	+Y				.000	1.000	.000
6590	X		.30		1.000	.000	.000
6610	+Y				.000	1.000	.000
6610	Z		.30		.000	.000	1.000
6640	+Y			.30	.000	1.000	.000
6640	Z		.30	.30	.000	.000	1.000

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6670	+Y			.000	1.000	.000
6670	Z	.30		.000	.000	1.000
6690	+Y		.30	.000	1.000	.000
6710	+Y		.30	.000	1.000	.000
6730	+Y		.30	.000	1.000	.000
6730	X	.30		1.000	.000	.000
6750	+Y			.000	1.000	.000
6770	+Y		.30	.000	1.000	.000
7010	+Y		.30	.000	1.000	.000
7010	Z	.30		.000	.000	1.000

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HANGER CONTROL AND LOCATION DATA

No. of Hanger Design Load Cases = 1
 Actual Cold Load Flag = 0.0
 Short Range Spring Flag = 1
 Allowed Load Variation (%) = 25.0000
 Default Hanger Table = 5

140	160	Hanger Node = 160
		Hanger Connecting Node = 121
		Available Space = -100.0000 cm.
		Allowed Load Variation = 25.0000
		No. Hangers = 0.0 Short Range Flag = -1
		User Operating Load = .00 N. Free Node = 0
		Free Node = 0 Free Code = 0.0
		Spring Rate = .00 N./cm.
		Theoretical Cold Load = .00 N.

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EQUIPMENT LIMITS

20	40	Nozzle Node = 20
Limiting Loads: A=pipe; B=ref; C=AxB; FA= 2,160.11 N. FB= 2,160.11 N.		
FC= 2,160.11 N. MA= 1,155.05 N.m. MB= 1,155.05 N.m. MC= 1,155.05 N.m.		
Equipment Major Direction Vector= .0000 1.0000 .0000		
Interact. Mtd= Absolute		

760	780	Nozzle Node = 780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.		
FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.		
Equipment Major Direction Vector= .0000 .0000 1.0000		
Interact. Mtd= Absolute		

1220	1240	Nozzle Node = 1240

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 2,160.11 N. FB= 2,160.11 N.		
FC= 2,160.11 N. MA= 1,155.05 N.m. MB= 1,155.05 N.m. MC= 1,155.05 N.m.		
Equipment Major Direction Vector= .0000 1.0000 .0000		
Interact. Mtd= Absolute		

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1680 1700 Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute

1780 1800 Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 16,200.81 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute

4240 4260 Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.
 FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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FORCES AND MOMENTS

5690 2420 Node 2420 FX1= 2,000.10 N.
 FY1= 1,000.05 N. FZ1= .00 N.
 5760 2720 Node 2720 FX2= 2,000.10 N.
 FY2= 1,000.05 N. FZ2= .00 N.

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UNIFORM LOAD Changes

20 40 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= SI NOM/SCH INPUT= ON

LENGTH	inches	x	2.540	=	cm.
FORCE	pounds	x	4.448	=	N.
MASS (dynamics)	pounds	x	0.454	=	Kg.
MOMENTS (INPUT)	inch-pounds	x	0.113	=	N.m.
MOMENTS (OUTPUT)	inch-pounds	x	0.113	=	N.m.
STRESS	lbs./sq.in.	x	6.895	=	KPa
TEMP. SCALE	degrees F.	x	0.556	=	C

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INPUT LISTING

PRESSURE	psig	x	6.895	=	KPa
ELASTIC MODULUS	lbs./sq.in.	x	6.895	=	KPa
PIPE DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
INSULATION DENS.	lbs./cu.in.	x	0.028	=	kg./cu.cm.
FLUID DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
TRANSL. STIF	lbs./in.	x	1.751	=	N./cm.
ROTATIONAL STIF	in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD	lb./in.	x	1.751	=	N./cm.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	6.895	=	KPa
ELEVATION	inches	x	0.025	=	m.
COMPOUND LENGTH	inches	x	0.025	=	m.
DIAMETER	inches	x	2.540	=	cm.
WALL THICKNESS	inches	x	2.540	=	cm.

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SETUP FILE PARAMETERS

```

CONNECT GEOMETRY THRU CNODES = YES
MIN ALLOWED BEND ANGLE = 5.00000
MAX ALLOWED BEND ANGLE = 95.0000
BEND LENGTH ATTACHMENT PERCENT = 1.00000
MIN ANGLE TO ADJACENT BEND PT = 5.00000
LOOP CLOSURE TOLERANCE = 2.54000 cm.
THERMAL BOWING HORZ TOLERANCE = 0.100000E-03
AUTO NODE NUMBER INCREMENT= 10.0000
Z AXIS UP= NO
USE PRESSURE STIFFENING = DEFAULT
ALPHA TOLERANCE = 0.500000E-01
RESLD-FORCE = NO
HGR DEF RESWGT STIF = 0.175127E+13 N./cm.
DECOMP SNG TOL = 0.100000E+11
BEND AXIAL SHAPE = YES
FRICT STIF = 0.175127E+07 N./cm.
FRICT NORM FORCE VAR = 0.150000
FRICT ANGLE VAR = 15.0000
FRICT SLIDE MULT = 1.00000
ROD TOLERANCE = 1.00000
ROD INC = 2.00000
INCORE NUMERICAL CHECK = NO
OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.175127E+13 N./cm.
DEFAULT ROT RESTRAINT STIFF= 0.112985E+12 N.m./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 21.1111 C
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO

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INPUT LISTING

B31.1 REDUCED Z FIX =	YES	
CLASS 1 BRANCH FLEX	NO	
ALL STRESS CASES CORRODED =	NO	
ADD TORSION IN SL STRESS =	DEFAULT	
ADD F/A IN STRESS =	DEFAULT	
OCCASIONAL LOAD FACTOR =	0.000000	
DEFAULT CODE =	B31.3	
B31.3 SUS CASE SIF FACTOR =	0.000000	
ALLOW USERS BEND SIF =	NO	
USE SCHNEIDER	NO	
YIELD CRITERION STRESS =	MAX 3D SHEAR	
USE PD/4T	NO	
BASE HOOP STRESS ON ? =	ID	
EN13480 USE IN OUTPLANE SIFS=	NO	
LIBERAL EXPANSION ALLOWABLE=	YES	
B31.3 SEC 319.2.3C SAXIAL=	Default	
B31.3 WELDING/CONTOUR TEE ISB16.9	FALSE	
PRESSURE VARIATION IN EXP CASE=	DEFAULT	
IMPLEMENT B313 APP-P	NO	
IMPLEMENT B313 CODE CASE 178	YES	
IGNORE B31.1/B31.3 Wc FACTOR=	YES	
USE FRP SIF =	YES	
USE FRP FLEX =	YES	
BS 7159 Pressure Stiffening=	Design Strain	
FRP Property Data File=	CAESAR.FRP	
FRP Emod (axial) =	0.220632E+08	KPa
FRP Ratio Gmod/Emod (axial) =	0.250000	
FRP Ea/Eh*Vh/a =	0.152730	
FRP Laminate Type =	THREE	
FRP Alpha =	21.6000	C
FRP Density =	0.166079E-02	kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING =	NO	

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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag	1.000
Bourdon Option	.000
Loop Closure Flag	2.000
Thermal Bowing Delta Temp ..	.000 C
Liberal Allowable Flag	1.000
Uniform Load Option	1.000
Ambient Temperature	20.997 C
Plastic (FRP) Alpha	21.600
Plastic (FRP) GMOD/EMODa ...	.250
Plastic (FRP) Laminate Type.	3.000
Eqn Optimizer	.000
Node Selection	.000
Eqn Ordering	.000
Collins	.000
Degree Determination	.000
User Eqn Control	.000
North Direction	-X

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COORDINATE REPORT

NODE	/----- (cm.) -----/		
	X	Y	Z
20	655.300	-532.935	706.010
40	645.200	-532.935	706.010
60	561.672	-532.935	706.010
80	561.672	-615.848	706.010
100	607.672	-615.848	706.010
120	607.672	-721.675	706.010
140	607.672	-744.575	706.010
160	607.672	-764.575	706.010
120	607.672	-721.675	706.010
180	607.672	-744.575	706.010
200	584.772	-744.575	706.010
220	574.612	-744.575	706.010
240	564.452	-744.575	706.010
260	474.452	-744.575	706.010
280	444.902	-744.575	706.010
300	394.902	-744.575	706.010
320	374.602	-744.575	706.010
340	364.442	-744.575	706.010
360	307.142	-744.575	706.010
380	296.982	-744.575	706.010
400	210.882	-744.575	706.010
420	55.182	-744.575	706.010
440	45.022	-744.575	706.010
460	34.862	-744.575	706.010
480	-89.438	-744.575	706.010
490	-292.938	-744.575	706.010
500	-496.438	-744.575	706.010
6210	-496.438	-752.195	706.010
490	-292.938	-744.575	706.010
500	-496.438	-744.575	706.010
580	-496.438	-332.475	706.010
600	-496.438	-332.475	431.010
610	-527.838	-332.475	431.010
620	-559.438	-332.475	431.010
5190	-559.438	-312.575	431.010
5200	-559.438	-312.575	453.610
5210	-559.438	-312.575	460.913
5220	-559.438	-312.575	491.013
5230	-559.438	-312.575	498.315
5240	-559.438	-312.575	506.015
5245	-593.038	-312.575	506.015
5240	-559.438	-312.575	506.015
6230	-559.438	-314.371	507.811
5245	-593.038	-312.575	506.015
5250	-626.638	-312.575	506.015
5260	-633.940	-312.575	506.015
5270	-641.243	-312.575	506.015
5275	-656.243	-312.575	506.015
6260	-656.243	-315.115	506.015
5275	-656.243	-312.575	506.015
5280	-671.243	-312.575	506.015

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5290	-678.545	-312.575	506.015
5300	-698.545	-312.575	506.015
5310	-705.213	-312.575	506.015
5320	-714.113	-312.575	506.015
5330	-742.813	-312.575	506.015
5340	-742.813	-384.375	506.015
6280	-739.003	-384.375	506.015
5340	-742.813	-384.375	506.015
5350	-742.813	-596.075	506.015
5355	-742.813	-596.075	557.665
5360	-742.813	-596.075	609.315
5370	-1070.813	-596.075	609.315
5375	-1521.013	-596.075	609.315
5380	-1565.113	-596.075	609.315
5390	-1565.113	-667.275	609.315
6130	-1565.088	-725.785	679.230
610	-527.838	-332.475	431.010
640	-527.838	-340.875	431.010
660	-527.838	-370.875	431.010
620	-559.438	-332.475	431.010
680	-644.898	-332.475	431.010
700	-644.898	-355.375	431.010
720	-644.898	-367.975	431.010
760	-644.898	-378.453	431.010
780	-644.898	-398.303	431.010
780	-644.898	-398.303	431.010
660	-527.838	-370.875	431.010
780	-644.898	-398.303	431.010
6240	-559.438	-314.403	537.811
780	-644.898	-398.303	431.010
6270	-656.243	-350.115	506.015
780	-644.898	-398.303	431.010
6290	-709.003	-384.375	506.015
780	-644.898	-398.303	431.010
840	-644.898	-755.303	431.010
280	444.902	-744.575	706.010
4350	444.902	-744.575	718.210
4360	444.902	-744.575	725.513
4370	444.902	-744.575	755.612
4380	444.902	-744.575	763.867
4390	444.902	-744.575	821.467
4395	444.902	-718.875	821.467
4390	444.902	-744.575	821.467
6300	444.902	-747.115	821.467
4395	444.902	-718.875	821.467
880	444.902	-693.175	821.467
900	444.902	-693.175	813.767
920	444.902	-693.175	805.512
940	444.902	-693.175	775.412
960	444.902	-693.175	767.157
980	444.902	-693.175	644.957
1000	444.902	-703.175	644.957
1020	444.902	-732.975	644.957
1040	474.902	-732.975	644.957
1060	491.703	-732.975	644.957
1080	504.303	-732.975	644.957

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1100	516.903	-732.975	644.957
1120	549.903	-732.975	644.957
1140	549.903	-732.975	544.957
1160	596.476	-732.975	544.957
1180	619.763	-732.975	544.957
1200	619.763	-732.975	704.957
1220	642.663	-732.975	704.957
1240	655.363	-732.975	704.957
1020	444.902	-732.975	644.957
1260	304.902	-732.975	644.957
1280	219.902	-732.975	644.957
1300	154.902	-732.975	644.957
1320	142.202	-732.975	644.957
1340	85.402	-732.975	644.957
1360	72.702	-732.975	644.957
1380	-82.198	-732.975	644.957
1390	-285.698	-732.975	644.957
1400	-489.198	-732.975	644.957
1480	-489.198	-574.575	644.957
1500	-1070.798	-574.575	644.957
1520	-1670.798	-574.575	644.957
1540	-2018.298	-574.575	644.957
1560	-2018.298	-574.575	857.857
1580	-2018.298	-574.575	979.957
1600	-2018.298	-295.475	979.957
1620	-2084.018	-295.475	979.957
1640	-2084.018	-318.375	979.957
1660	-2084.018	-331.075	979.957
1680	-2084.018	-334.575	979.957
1700	-2084.018	-354.575	979.957
1740	-2084.018	-378.575	979.957
1780	-2084.018	-402.575	979.957
1800	-2084.018	-422.575	979.957
1820	-2084.018	-426.075	979.957
1740	-2084.018	-378.575	979.957
1840	-2084.018	-378.575	1129.957
1860	-2787.518	-378.575	1129.957
1880	-2787.518	-378.575	829.957
1900	-2084.018	-378.575	829.957
1740	-2084.018	-378.575	979.957
1820	-2084.018	-426.075	979.957
1920	-2084.018	-436.235	979.957
1940	-2084.018	-459.135	979.957
1960	-2084.018	-459.135	947.107
1980	-2084.018	-459.135	914.257
2000	-1684.918	-459.135	914.257
6420	-1684.918	-466.755	914.257
2000	-1684.918	-459.135	914.257
6420	-1684.918	-466.755	914.257
2000	-1684.918	-459.135	914.257
4100	-1615.388	-459.135	914.257
4400	-1615.388	-459.856	1059.056
4410	-1615.388	-459.919	1071.755
4420	-1615.388	-460.202	1128.555
4430	-1615.388	-460.266	1141.255
4440	-1615.388	-460.432	1174.604

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6480	-1615.388	-468.052	1174.604
4440	-1615.388	-460.432	1174.604
4450	-1615.388	-460.598	1207.954
4460	-1615.388	-460.661	1220.654
4470	-1615.388	-460.944	1277.453
4480	-1615.388	-461.007	1290.153
4482	-1615.388	-461.314	1346.603
4485	-1615.388	-461.621	1403.053
6760	-1620.776	-467.009	1403.053
4482	-1615.388	-461.314	1346.603
4485	-1615.388	-461.621	1403.053
4490	-1511.188	-461.621	1403.053
4500	-1498.488	-461.621	1403.053
4505	-1438.688	-461.621	1403.053
6790	-1425.988	-461.621	1403.053
6780	-1393.588	-461.621	1403.053
6795	-1361.188	-461.621	1403.053
7000	-1355.800	-467.009	1403.053
6780	-1393.588	-461.621	1403.053
6795	-1361.188	-461.621	1403.053
6800	-1361.188	-466.521	1543.653
6810	-1567.988	-466.521	1543.653
6820	-1767.988	-466.521	1543.653
6830	-1784.588	-483.121	1543.653
6840	-1784.588	-483.121	1435.778
6850	-1784.588	-483.121	1450.065
6860	-1784.588	-483.121	1464.353
6845	-1784.588	-483.121	1501.253
6830	-1784.588	-483.121	1543.653
6870	-1784.588	-483.121	2101.253
6880	-1784.588	-483.121	2301.253
6890	-1784.588	-483.121	2701.253
6900	-1784.588	-483.121	3301.253
6910	-1784.588	-483.121	3901.253
6920	-1784.588	-483.121	4501.253
4100	-1615.388	-459.135	914.257
4560	-1615.388	-459.135	885.757
4570	-1601.088	-459.135	885.757
4560	-1615.388	-459.135	885.757
4580	-1629.688	-459.135	885.757
4590	-1666.888	-459.135	885.757
4600	-1666.888	-459.135	862.857
4610	-1666.888	-459.135	850.157
4620	-1666.888	-459.135	793.357
4630	-1666.888	-459.135	780.657
4640	-1666.888	-459.135	760.657
6510	-1666.888	-466.755	760.657
4640	-1666.888	-459.135	760.657
4650	-1666.888	-459.135	707.407
4660	-1666.888	-461.835	693.407
4670	-1666.888	-461.835	682.295
4680	-1666.888	-461.835	638.195
4690	-1666.888	-461.835	627.082
4700	-1666.888	-459.135	613.082
4710	-1666.888	-459.135	583.082
6530	-1666.888	-466.755	583.082

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4710	-1666.888	-459.135	583.082
4720	-1666.888	-459.135	553.082
4730	-1666.888	-459.135	540.382
4740	-1666.888	-459.135	484.382
4750	-1666.888	-459.135	475.175
6550	-1666.888	-459.135	457.375
4140	-1666.888	-459.135	78.175
6560	-1623.988	-459.135	78.175
4760	-1184.088	-459.135	78.175
4770	-1184.088	-459.135	32.475
4780	-1184.088	-524.935	32.475
4160	-1084.788	-524.935	32.475
6600	-1084.788	-535.095	32.475
4160	-1084.788	-524.935	32.475
4180	-724.488	-524.935	32.475
4200	-714.010	-524.935	32.475
4220	-712.010	-524.935	32.475
4240	-701.533	-524.935	32.475
4260	-686.033	-524.935	32.475
4280	-640.033	-524.935	32.475
4300	-640.033	-654.935	32.475
4310	-640.033	-754.935	32.475
4320	-640.033	-784.935	32.475
4780	-1184.088	-524.935	32.475
6620	-1223.438	-524.935	32.475
6630	-1223.438	-535.095	32.475
6620	-1223.438	-524.935	32.475
4800	-1262.788	-524.935	32.475
4810	-1273.265	-524.935	32.475
4820	-1323.665	-524.935	32.475
4830	-1334.143	-524.935	32.475
4840	-1365.643	-524.935	32.475
4850	-1376.120	-524.935	32.475
4860	-1436.720	-524.935	32.475
4870	-1447.198	-524.935	32.475
4880	-1467.198	-524.935	32.475
6650	-1495.898	-524.935	32.475
6660	-1495.898	-535.095	32.475
6650	-1495.898	-524.935	32.475
4890	-1544.598	-524.935	32.475
4900	-1555.075	-524.935	32.475
4910	-1603.725	-524.935	32.475
4920	-1614.203	-524.935	32.475
4930	-1668.403	-524.935	32.475
6680	-1668.403	-535.095	32.475
4930	-1668.403	-524.935	32.475
4940	-1728.903	-524.935	32.475
4950	-1728.903	-524.935	182.475
4960	-1816.053	-524.935	182.475
4970	-1849.753	-491.235	182.475
4570	-1601.088	-459.135	885.757
4980	-1571.588	-459.135	885.757
4990	-1558.888	-459.135	885.757
5000	-1502.088	-459.135	885.757
5010	-1489.388	-459.135	885.757
5020	-1466.488	-459.135	885.757

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5025	-1466.488	-459.135	839.307
5020	-1466.488	-459.135	885.757
6700	-1461.100	-464.523	885.757
5025	-1466.488	-459.135	839.307
5030	-1466.488	-459.135	792.857
5040	-1466.488	-463.135	778.857
5060	-1466.488	-463.135	769.650
5070	-1466.488	-463.135	733.650
5080	-1466.488	-463.135	724.442
5090	-1466.488	-461.885	714.242
5095	-1466.488	-461.885	679.242
6720	-1466.488	-466.965	679.242
5095	-1466.488	-461.885	679.242
5100	-1466.488	-461.885	644.242
5110	-1466.488	-461.885	633.130
5120	-1466.488	-461.885	609.780
5130	-1466.488	-461.885	601.842
5140	-1466.488	-461.885	586.542
5145	-1466.488	-524.285	586.542
6740	-1466.488	-524.285	581.462
5145	-1466.488	-524.285	586.542
5150	-1466.488	-565.485	586.542
5160	-1565.088	-565.485	586.542
5170	-1565.088	-672.785	586.542
3965	-1565.088	-725.785	639.430
2020	-1565.088	-725.785	1120.030
2030	-1565.088	-725.785	1020.030
2040	-1565.088	-725.785	920.030
2020	-1565.088	-725.785	1120.030
6120	-1565.088	-725.785	1219.330
2060	-1565.088	-725.785	1630.030
2040	-1565.088	-725.785	920.030
6130	-1565.088	-725.785	679.230
3965	-1565.088	-725.785	639.430
3965	-1565.088	-725.785	639.430
3960	-1565.088	-725.785	559.830
5420	-1565.088	-725.785	-40.170
5430	-1565.088	-725.785	-640.170
5440	-1565.088	-725.785	-1240.170
5450	-1565.088	-725.785	-1840.170
5460	-1565.088	-725.785	-2440.170
5470	-1565.088	-725.785	-2547.170
5480	-1215.088	-725.785	-2547.170
5490	-685.088	-725.785	-2547.170
5500	-255.088	-725.785	-2547.170
5510	-245.388	-725.785	-2547.170
5520	69.912	-725.785	-2547.170
5530	69.912	-713.085	-2547.170
5520	69.912	-725.785	-2547.170
5540	144.912	-725.785	-2547.170
5550	644.912	-725.785	-2547.170
5560	669.912	-725.785	-2547.170
4710	-1666.888	-459.135	583.082
6530	-1666.888	-466.755	583.082
6010	-616.653	-361.235	-2847.625
6020	-632.153	-361.235	-2847.625

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INPUT LISTING

6030	-1849.753	-361.235	-2847.625
6040	-1849.753	-491.235	-2847.625
6050	-1849.753	-491.235	-2687.525
6060	-1849.753	-491.235	-2087.525
6070	-1849.753	-491.235	-1487.525
6080	-1849.753	-491.235	-887.525
6090	-1849.753	-491.235	-287.525
4970	-1849.753	-491.235	182.475
6110	-1849.753	-491.235	312.475
1260	304.902	-732.975	644.957
2140	304.902	-579.975	644.957
2160	304.902	-579.975	670.157
2180	-81.498	-579.975	670.157
2200	-572.948	-579.975	670.157
2220	-1064.398	-579.975	670.157
2260	-1103.198	-579.975	670.157
2270	-1103.198	-579.975	919.957
2280	-1103.198	-579.975	1078.357
2320	-1103.198	-535.975	1078.357
2330	-1103.198	-491.375	1078.357
2340	-1103.198	-470.075	1078.357
2360	-1103.198	-461.820	1078.357
5650	-1103.198	-431.720	1078.357
5660	-1103.198	-423.465	1078.357
2400	-1103.198	-383.465	1078.357
5670	-1103.198	-372.865	1078.357
5680	-1103.198	-364.928	1078.357
5690	-1103.198	-356.990	1078.357
2420	-1103.198	-352.840	1078.357
2440	-1118.798	-352.840	1078.357
2460	-1126.100	-352.840	1078.357
2480	-1140.100	-356.810	1078.357
2500	-1175.100	-356.810	1078.357
2520	-1233.000	-356.810	1078.357
2540	-1233.000	-379.710	1078.357
5700	-1233.000	-388.918	1078.357
2560	-1233.000	-416.518	1078.357
2570	-1233.000	-425.725	1078.357
5710	-1233.000	-491.125	1078.357
6440	-1240.620	-491.125	1078.357
5710	-1233.000	-491.125	1078.357
2580	-1233.000	-549.825	1078.357
5840	-1265.401	-549.825	1078.357
5800	-1315.401	-549.825	1128.357
2280	-1103.198	-579.975	1078.357
2300	-1103.198	-579.975	1128.357
2620	-1103.198	-535.975	1128.357
2640	-1103.198	-469.975	1128.357
5720	-1103.198	-461.720	1128.357
2660	-1103.198	-431.620	1128.357
5730	-1103.198	-423.365	1128.357
2700	-1103.198	-383.365	1128.357
5740	-1103.198	-372.765	1128.357
5750	-1103.198	-364.828	1128.357
5760	-1103.198	-356.890	1128.357
2720	-1103.198	-352.790	1128.357

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INPUT LISTING

2740	-1118.798	-352.790	1128.357
2760	-1126.100	-352.790	1128.357
2780	-1140.100	-356.760	1128.357
2800	-1175.100	-356.760	1128.357
2820	-1233.000	-356.760	1128.357
2840	-1233.000	-379.660	1128.357
2846	-1233.000	-388.868	1128.357
2852	-1233.000	-416.468	1128.357
2860	-1233.000	-425.675	1128.357
2870	-1233.000	-491.075	1128.357
6460	-1240.620	-491.075	1128.357
2870	-1233.000	-491.075	1128.357
2880	-1233.000	-549.775	1128.357
2880	-1233.000	-549.825	1128.357
5800	-1315.401	-549.825	1128.357
5805	-1470.100	-549.825	1128.357
5810	-1565.100	-549.825	1128.357
5820	-1565.100	-617.175	1128.357
5820	-1565.100	-617.175	1128.358
6120	-1565.088	-725.785	1219.330
4750	-1666.888	-459.135	475.175
6550	-1666.888	-459.135	457.375
6210	-496.438	-752.195	706.010
6220	-496.438	-782.195	706.010
6230	-559.438	-314.371	507.811
6240	-559.438	-314.371	537.811
6260	-656.243	-315.115	506.015
6270	-656.243	-350.115	506.015
6280	-739.003	-384.375	506.015
6290	-709.003	-384.375	506.015
6300	444.902	-747.115	821.467
6310	444.902	-837.115	821.467
6400	-489.180	-740.535	644.958
6410	-489.180	-770.535	644.958
6420	-1684.918	-466.755	914.257
6425	-1684.918	-489.755	914.257
6430	-1684.918	-527.755	914.257
6440	-1240.620	-491.125	1078.357
6450	-1270.620	-491.125	1078.357
6460	-1240.620	-491.075	1128.357
6470	-1270.620	-491.075	1128.357
6480	-1615.388	-468.052	1174.604
6485	-1615.388	-491.052	1174.604
6490	-1615.388	-529.052	1174.604
6510	-1666.888	-466.755	760.657
6515	-1666.888	-489.755	760.657
6520	-1666.888	-527.755	760.657
6530	-1666.888	-466.755	583.082
6535	-1666.888	-489.755	583.082
6540	-1666.888	-527.755	583.082
6550	-1666.888	-459.135	457.375
6590	-1666.888	-520.135	457.375
6600	-1084.788	-535.095	32.475
6610	-1084.788	-585.095	32.475
6630	-1223.438	-535.095	32.475
6640	-1223.438	-585.095	32.475

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INPUT LISTING

6660	-1495.898	-535.095	32.475
6670	-1495.898	-585.095	32.475
6680	-1668.403	-535.095	32.475
6690	-1668.403	-585.095	32.475
6700	-1461.100	-464.523	885.757
6705	-1451.100	-464.523	885.757
6710	-1411.100	-464.523	885.757
6720	-1466.488	-466.965	679.242
6730	-1466.488	-536.965	679.242
6740	-1466.488	-524.285	581.462
6750	-1466.488	-524.285	551.462
6760	-1620.776	-467.009	1403.053
6765	-1630.776	-467.009	1403.053
6770	-1675.776	-467.009	1403.053
7000	-1355.800	-467.009	1403.053
7005	-1345.800	-467.009	1403.053
7010	-1305.800	-467.009	1403.053

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H

CASE 4 (OPE) W+T1+P1+H

CASE 6 (OPE) W+T2+P1+H

CASE 8 (OPE) W+T3+P1+H

CASE 10 (OPE) W+T4+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
20		TYPE=Rigid ANC;					
	3(HYD)	-151	-680	15	-7	11	236
	4(OPE)	310	765	141	-181	137	-538
	6(OPE)	814	2455	188	-242	168	-1475
	8(OPE)	-106	-539	16	-8	12	176
	10(OPE)	311	766	137	-179	134	-538
	12(SUS)	-106	-538	16	-8	12	176
	13(SUS)	134	-1626	15	-11	9	1091
	MAX	814/L6	2455/L6	188/L6	-242/L6	168/L6	-1475/L6
121		TYPE=Rigid +Y;					
	3(HYD)	-5	-1704	5	0	0	0
	4(OPE)	0	-1276	128	0	0	0
	6(OPE)	0	-1315	132	0	0	0
	8(OPE)	-2	-1250	7	0	0	0
	10(OPE)	0	-1276	128	0	0	0
	12(SUS)	-2	-1250	9	0	0	0
	13(SUS)	-0	-5	0	0	0	0
	MAX	-5/L3	-1704/L3	132/L6			
160		TYPE=Rigid Z; Rigid -X; Rigid X; Prog Design VSH;					
	3(HYD)	-5	-1704	5	0	0	0
	4(OPE)	1458	-1651	350	0	0	0
	6(OPE)	2268	-1963	333	0	0	0
	8(OPE)	-2	-1250	7	0	0	0
	10(OPE)	1468	-1653	352	0	0	0
	12(SUS)	-2	-1250	9	0	0	0
	13(SUS)	-0	-5	0	0	0	0
	MAX	2268/L6	-1963/L6	352/L10			
300		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	337	-2133	135	0	0	0
	4(OPE)	-801	-2949	376	0	0	0
	6(OPE)	-1521	-5208	359	0	0	0
	8(OPE)	209	-1805	158	0	0	0
	10(OPE)	-804	-2959	377	0	0	0
	12(SUS)	211	-1801	176	0	0	0
	13(SUS)	-10	-2048	196	0	0	0
	MAX	-1521/L6	-5208/L6	377/L10			
400		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	0	-1478	-13	0	0	0
	4(OPE)	0	-310	604	0	0	0
	6(OPE)	0	1004	729	0	0	0
	8(OPE)	0	-1108	-19	0	0	0
	10(OPE)	0	-299	608	0	0	0
	12(SUS)	0	-1108	-21	0	0	0
	13(SUS)	0	-977	-31	0	0	0
	MAX		-1478/L3	729/L6			
480		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	0	-2083	-16	0	0	0
	4(OPE)	0	-1689	-78	0	0	0
	6(OPE)	0	-2249	61	0	0	0
	8(OPE)	0	-1332	-9	0	0	0
	10(OPE)	0	-1712	-92	0	0	0
	12(SUS)	0	-1332	-9	0	0	0
	13(SUS)	0	-1328	-8	0	0	0
	MAX		-2249/L6	-92/L10			
660		TYPE=Rigid +Y;					
	3(HYD)	0	-1316	0	0	0	0
	4(OPE)	0	-870	0	0	0	0
	6(OPE)	0	-881	0	0	0	0
	8(OPE)	0	-944	0	0	0	0
	10(OPE)	0	-1093	0	0	0	0
	12(SUS)	0	-944	0	0	0	0
	13(SUS)	0	-935	0	0	0	0
	MAX		-1316/L3				
720		TYPE=Rigid ANC;					
	3(HYD)	-10	-542	-6	89	63	-18
	4(OPE)	-347	-321	-120	-101	-234	-14
	6(OPE)	-716	-99	-249	-323	-643	-50
	8(OPE)	-17	-475	-3	63	34	-13
	10(OPE)	278	-29	-235	-243	-23	-134

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	-17	-475	-3	63	34	-13
	13(SUS)	-17	-473	-3	62	34	-13
	MAX	-716/L6	-542/L3	-249/L6	-323/L6	-643/L6	-134/L10
780		TYPE=Rigid ANC;					
	3(HYD)	4	-3166	-20	860	72	-1235
	4(OPE)	-277	-3005	-72	1112	-204	-373
	6(OPE)	-491	-2775	-224	828	-492	-207
	8(OPE)	-8	-2644	-13	807	38	-817
	10(OPE)	278	-1371	-235	-315	-23	-1498
	12(SUS)	-8	-2644	-13	807	38	-817
	13(SUS)	-9	-2632	-14	805	37	-806
	MAX	-491/L6	-3166/L3	-235/L10	1112/L4	-492/L6	-1498/L10
840		TYPE=Rigid ANC;					
	3(HYD)	4	-3166	-20	790	72	-1248
	4(OPE)	-277	-3005	-72	855	-204	617
	6(OPE)	-491	-2775	-224	27	-492	1547
	8(OPE)	-8	-2644	-13	760	38	-787
	10(OPE)	278	-1371	-235	-1154	-23	-2490
	12(SUS)	-8	-2644	-13	760	38	-787
	13(SUS)	-9	-2632	-14	757	37	-773
	MAX	-491/L6	-3166/L3	-235/L10	-1154/L10	-492/L6	-2490/L10
1040		TYPE=Rigid +Y;					
	3(HYD)	138	-2865	-136	0	0	0
	4(OPE)	622	-2511	425	0	0	0
	6(OPE)	615	-2536	448	0	0	0
	8(OPE)	-725	-2451	123	0	0	0
	10(OPE)	615	-2485	422	0	0	0
	12(SUS)	173	-2449	-171	0	0	0
	13(SUS)	172	-2424	-174	0	0	0
	MAX	-725/L8	-2865/L3	448/L6			
1180		TYPE=Rigid +Y; Rigid - X;					
	3(HYD)	6	-1182	2	0	0	0
	4(OPE)	11208	-963	-3651	0	0	0
	6(OPE)	14053	-938	-4497	0	0	0
	8(OPE)	-110	-936	258	0	0	0
	10(OPE)	11172	-962	-3640	0	0	0
	12(SUS)	7	-938	2	0	0	0
	13(SUS)	7	-925	2	0	0	0
	MAX	14053/L6	-1182/L3	-4497/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1240		TYPE=Rigid ANC;					
	3(HYD)	2	-662	3	25	1	230
	4(OPE)	1117	-556	93	32	-945	187
	6(OPE)	1497	-556	-53	31	-1282	182
	8(OPE)	-475	-600	-374	18	233	188
	10(OPE)	1119	-559	94	31	-945	188
	12(SUS)	3	-599	5	18	1	188
	13(SUS)	3	-595	5	18	1	186
	MAX	1497/L6	-662/L3	-374/L8	32/L4	-1282/L6	230/L3
1280		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	188	-1512	-55	0	0	0
	4(OPE)	-420	-1399	1994	0	0	0
	6(OPE)	-385	-1283	2592	0	0	0
	8(OPE)	552	-1839	-248	0	0	0
	10(OPE)	-424	-1413	1987	0	0	0
	12(SUS)	238	-1840	-58	0	0	0
	13(SUS)	237	-1841	-58	0	0	0
	MAX	552/L8	-1841/L13	2592/L6			
1380		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	376	-8141	50	0	0	0
	4(OPE)	-2643	-8833	185	0	0	0
	6(OPE)	-2830	-9457	204	0	0	0
	8(OPE)	1614	-6867	72	0	0	0
	10(OPE)	-2644	-8836	186	0	0	0
	12(SUS)	368	-6859	51	0	0	0
	13(SUS)	366	-6797	50	0	0	0
	MAX	-2830/L6	-9457/L6	204/L6			
1500		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-5143	-28	0	0	0
	4(OPE)	0	-1929	-1760	0	0	0
	6(OPE)	0	-1243	-2314	0	0	0
	8(OPE)	0	-4048	-22	0	0	0
	10(OPE)	0	-1928	-1760	0	0	0
	12(SUS)	0	-4057	-45	0	0	0
	13(SUS)	0	-4030	-45	0	0	0
	MAX		-5143/L3	-2314/L6			
1520		TYPE=Rigid +Y;					
	3(HYD)	-765	-2562	-78	0	0	0
	4(OPE)	-447	-1790	-298	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	-431	-1727	-288	0	0	0
	8(OPE)	-602	-2014	-56	0	0	0
	10(OPE)	-447	-1791	-298	0	0	0
	12(SUS)	-580	-2011	-166	0	0	0
	13(SUS)	-577	-2002	-165	0	0	0
	MAX	-765/L3	-2562/L3	-298/L4			
1560		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-4371	0	0	0	0
	4(OPE)	-10361	-7712	0	0	0	0
	6(OPE)	-13756	-8902	0	0	0	0
	8(OPE)	0	-3437	0	0	0	0
	10(OPE)	-10363	-7713	0	0	0	0
	12(SUS)	0	-3402	0	0	0	0
	13(SUS)	0	-3382	0	0	0	0
	MAX	-13756/L6	-8902/L6				
1660		TYPE=Rigid ANC;					
	3(HYD)	0	0	0	-0	-0	-0
	4(OPE)	0	0	0	0	-0	-0
	6(OPE)	0	0	0	0	-0	-0
	8(OPE)	0	0	0	0	-0	-0
	10(OPE)	0	0	-0	0	-0	-0
	12(SUS)	0	0	0	-0	-0	-0
	13(SUS)	0	0	0	-0	-0	-0
	MAX			-0/L10	0/L6	-0/L4	-0/L4
1700		TYPE=Rigid ANC;					
	3(HYD)	-147	-745	90	14	118	-40
	4(OPE)	1441	2965	1705	-355	4663	3825
	6(OPE)	2089	3949	2137	-489	6101	5172
	8(OPE)	-114	-683	70	7	91	-37
	10(OPE)	1441	2966	1706	-355	4663	3826
	12(SUS)	-106	-720	40	28	113	-48
	13(SUS)	-106	-718	40	27	112	-48
	MAX	2089/L6	3949/L6	2137/L6	-489/L6	6101/L6	5172/L6
1780		TYPE=Rigid ANC;					
	3(HYD)	-779	350	161	26	231	-510
	4(OPE)	-2385	16168	-1853	5524	516	-1271
	6(OPE)	-5608	31642	-3207	10531	26	-3010
	8(OPE)	-585	108	96	39	190	-338
	10(OPE)	-2453	16099	-1928	5554	539	-1282
	12(SUS)	-584	110	96	39	190	-338

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	13(SUS)	-580	108	95	39	189	-335
	MAX	-5608/L6	31642/L6	-3207/L6	10531/L6	539/L10	-3010/L6
1840		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	-339	-8583	126	0	0	0
	4(OPE)	1941	-211	603	0	0	0
	6(OPE)	585	6118	787	0	0	0
	8(OPE)	-249	-8179	84	0	0	0
	10(OPE)	1912	-264	600	0	0	0
	12(SUS)	-236	-8201	69	0	0	0
	13(SUS)	-234	-8166	69	0	0	0
	MAX	1941/L4	-8583/L3	787/L6			
1860		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	0	-8277	-1	0	0	0
	4(OPE)	-763	-7916	210	0	0	0
	6(OPE)	-737	-7783	251	0	0	0
	8(OPE)	0	-7808	-1	0	0	0
	10(OPE)	-763	-7913	210	0	0	0
	12(SUS)	0	-7807	-2	0	0	0
	13(SUS)	0	-7772	-2	0	0	0
	MAX	-763/L4	-8277/L3	251/L6			
1880		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	-0	-8278	-2	0	0	0
	4(OPE)	-791	-8003	-120	0	0	0
	6(OPE)	-792	-7947	-68	0	0	0
	8(OPE)	-0	-7808	-2	0	0	0
	10(OPE)	-791	-8001	-119	0	0	0
	12(SUS)	-0	-7808	-2	0	0	0
	13(SUS)	-0	-7772	-2	0	0	0
	MAX	-792/L6	-8278/L3	-120/L4			
1900		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	-587	-8567	128	0	0	0
	4(OPE)	-1232	3891	-759	0	0	0
	6(OPE)	-2608	13832	-2165	0	0	0
	8(OPE)	-450	-8152	85	0	0	0
	10(OPE)	-1278	3871	-770	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	-455	-8165	71	0	0	0
	13(SUS)	-452	-8130	70	0	0	0
	MAX	-2608/L6	13832/L6	-2165/L6			
1960		TYPE=Rigid +Y;					
	3(HYD)	492	-1654	-66	0	0	0
	4(OPE)	114	-17017	2446	0	0	0
	6(OPE)	284	-32506	5655	0	0	0
	8(OPE)	284	-952	-28	0	0	0
	10(OPE)	-172	-16908	2712	0	0	0
	12(SUS)	285	-954	-28	0	0	0
	13(SUS)	281	-943	-28	0	0	0
	MAX	492/L3	-32506/L6	5655/L6			
2020		TYPE=Rigid +Y;					
	3(HYD)	113	-7071	-86	0	0	0
	4(OPE)	409	-4068	-1150	0	0	0
	6(OPE)	-650	-7014	-2001	0	0	0
	8(OPE)	78	-3976	-50	0	0	0
	10(OPE)	-1428	-9080	-2320	0	0	0
	12(SUS)	78	-3976	-50	0	0	0
	13(SUS)	77	-3971	-50	0	0	0
	MAX	-1428/L10	-9080/L10	-2320/L10			
2060		TYPE=Rigid X w/gap; Rigid Z; Rigid +Y;					
	3(HYD)	17	-2143	-205	0	0	0
	4(OPE)	67	-1155	8241	0	0	0
	6(OPE)	-333	-1158	10346	0	0	0
	8(OPE)	9	-1172	-117	0	0	0
	10(OPE)	-1583	-1269	18765	0	0	0
	12(SUS)	9	-1172	-117	0	0	0
	13(SUS)	9	-1171	-117	0	0	0
	MAX	-1583/L10	-2143/L3	18765/L10			
2180		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-559	0	0	0	0
	4(OPE)	0	-418	0	0	0	0
	6(OPE)	0	-402	3	0	0	0
	8(OPE)	0	-498	0	0	0	0
	10(OPE)	0	-424	0	0	0	0
	12(SUS)	0	-497	0	0	0	0
	13(SUS)	0	-495	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX		-559/L3	3/L6			
2200		TYPE=Rigid +Y;					
	3(HYD)	-60	-662	2	0	0	0
	4(OPE)	-184	-613	9	0	0	0
	6(OPE)	-186	-619	1	0	0	0
	8(OPE)	-53	-589	2	0	0	0
	10(OPE)	-183	-615	-25	0	0	0
	12(SUS)	-55	-589	2	0	0	0
	13(SUS)	-55	-586	2	0	0	0
	MAX	-186/L6	-662/L3	-25/L10			
2220		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-439	0	0	0	0
	4(OPE)	0	-356	-1512	0	0	0
	6(OPE)	0	-348	-1730	0	0	0
	8(OPE)	0	-391	0	0	0	0
	10(OPE)	0	-360	-693	0	0	0
	12(SUS)	0	-391	0	0	0	0
	13(SUS)	0	-389	0	0	0	0
	MAX		-439/L3	-1730/L6			
2270		TYPE=Rigid +Y;					
	3(HYD)	-3	-291	14	0	0	0
	4(OPE)	-132	-440	8	0	0	0
	6(OPE)	-141	-479	26	0	0	0
	8(OPE)	-2	-259	12	0	0	0
	10(OPE)	-113	-385	26	0	0	0
	12(SUS)	-2	-259	12	0	0	0
	13(SUS)	-2	-258	12	0	0	0
	MAX	-141/L6	-479/L6	26/L6			
2320		TYPE=Rigid +Y;					
	3(HYD)	-27	-293	-33	0	0	0
	4(OPE)	240	-4068	1197	0	0	0
	6(OPE)	134	-3357	998	0	0	0
	8(OPE)	-24	-349	-24	0	0	0
	10(OPE)	-6	-293	88	0	0	0
	12(SUS)	-24	-349	-24	0	0	0
	13(SUS)	-24	-347	-24	0	0	0
	MAX	240/L4	-4068/L4	1197/L4			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2500		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	68	-2570	-13	0	0	0
	4(OPE)	-765	0	128	0	0	0
	6(OPE)	616	0	34	0	0	0
	8(OPE)	66	-2091	-6	0	0	0
	10(OPE)	2791	0	-492	0	0	0
	12(SUS)	66	-2091	-6	0	0	0
	13(SUS)	66	-2090	-6	0	0	0
	MAX	2791/L10	-2570/L3	-492/L10			
2620		TYPE=Rigid +Y;					
	3(HYD)	0	-144	0	0	0	0
	4(OPE)	0	-1445	0	0	0	0
	6(OPE)	0	-495	0	0	0	0
	8(OPE)	0	-234	0	0	0	0
	10(OPE)	0	-674	0	0	0	0
	12(SUS)	0	-234	0	0	0	0
	13(SUS)	0	-233	0	0	0	0
	MAX		-1445/L4				
2800		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	81	-2652	-19	0	0	0
	4(OPE)	-776	0	277	0	0	0
	6(OPE)	-35	0	280	0	0	0
	8(OPE)	71	-2136	-10	0	0	0
	10(OPE)	882	0	-59	0	0	0
	12(SUS)	71	-2136	-10	0	0	0
	13(SUS)	71	-2135	-10	0	0	0
	MAX	882/L10	-2652/L3	280/L6			
3960		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-81	-6745	-73	0	0	0
	4(OPE)	-194	-4426	-1314	0	0	0
	6(OPE)	-198	-4424	-1312	0	0	0
	8(OPE)	-71	-3769	-49	0	0	0
	10(OPE)	-1471	-4698	-1399	0	0	0
	12(SUS)	-71	-3769	-49	0	0	0
	13(SUS)	-71	-3765	-49	0	0	0
	MAX	-1471/L10	-6745/L3	-1399/L10			
4220		TYPE=Rigid ANC;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	0	0	0	-0	-0	0
	4(OPE)	0	0	0	-0	-0	0
	6(OPE)	0	0	0	-0	0	-0
	8(OPE)	0	0	0	-0	-0	-0
	10(OPE)	0	0	0	-0	0	0
	12(SUS)	0	0	0	0	-0	-0
	13(SUS)	0	0	0	-0	-0	-0
	MAX		0/L6		-0/L4	-0/L3	-0/L6
4260		TYPE=Rigid ANC;					
	3(HYD)	-30	-2060	71	499	275	1456
	4(OPE)	2810	-1931	-41	712	240	2139
	6(OPE)	9312	-2689	-197	870	-989	4306
	8(OPE)	52	-1403	46	326	177	947
	10(OPE)	2763	-1931	17	781	408	2139
	12(SUS)	52	-1403	46	326	177	947
	13(SUS)	53	-1399	45	325	176	944
	MAX	9312/L6	-2689/L6	-197/L6	870/L6	-989/L6	4306/L6
4320		TYPE=Rigid ANC;					
	3(HYD)	-30	-2060	71	684	308	2481
	4(OPE)	2810	-1931	-41	605	221	-4278
	6(OPE)	9312	-2689	-197	358	-1080	-18669
	8(OPE)	52	-1403	46	444	198	1456
	10(OPE)	2763	-1931	17	826	416	-4157
	12(SUS)	52	-1403	46	444	198	1456
	13(SUS)	53	-1399	45	442	197	1449
	MAX	9312/L6	-2689/L6	-197/L6	826/L10	-1080/L6	-18669/L6
5355		TYPE=Rigid +Y;					
	3(HYD)	0	-643	0	0	0	0
	4(OPE)	0	-36	0	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	0	-585	0	0	0	0
	10(OPE)	0	-1687	0	0	0	0
	12(SUS)	0	-585	0	0	0	0
	13(SUS)	0	-584	0	0	0	0
	MAX		-1687/L10				
5370		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	26	-829	-10	0	0	0
	4(OPE)	240	-845	-83	0	0	0
	6(OPE)	242	-893	-115	0	0	0
	8(OPE)	25	-753	-8	0	0	0

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	10(OPE)	236	-795	33	0	0	0
	12(SUS)	25	-753	-8	0	0	0
	13(SUS)	25	-753	-8	0	0	0
	MAX	242/L6	-893/L6	-115/L6			
5375		TYPE=Rigid +Y;					
	3(HYD)	8	-1126	142	0	0	0
	4(OPE)	37	-393	-112	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	10	-992	109	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	10	-992	109	0	0	0
	13(SUS)	10	-992	109	0	0	0
	MAX	37/L4	-1126/L3	142/L3			
5420		TYPE=Rigid +Y;					
	3(HYD)	3	-6595	-33	0	0	0
	4(OPE)	-43	-3488	-1045	0	0	0
	6(OPE)	-73	-3344	-1001	0	0	0
	8(OPE)	2	-3578	-22	0	0	0
	10(OPE)	15	-3199	-959	0	0	0
	12(SUS)	2	-3578	-22	0	0	0
	13(SUS)	2	-3574	-22	0	0	0
	MAX	-73/L6	-6595/L3	-1045/L4			
5430		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-1	-6537	-15	0	0	0
	4(OPE)	26	-3573	-1071	0	0	0
	6(OPE)	-25	-3610	-1083	0	0	0
	8(OPE)	-1	-3548	-10	0	0	0
	10(OPE)	1101	-3646	-1092	0	0	0
	12(SUS)	-1	-3548	-10	0	0	0
	13(SUS)	-1	-3544	-10	0	0	0
	MAX	1101/L10	-6537/L3	-1092/L10			
5440		TYPE=Rigid +Y;					
	3(HYD)	0	-6454	-7	0	0	0
	4(OPE)	-11	-3494	-1048	0	0	0
	6(OPE)	-22	-3487	-1046	0	0	0
	8(OPE)	0	-3503	-5	0	0	0
	10(OPE)	86	-3486	-1042	0	0	0
	12(SUS)	0	-3503	-5	0	0	0
	13(SUS)	0	-3498	-5	0	0	0
	MAX	86/L10	-6454/L3	-1048/L4			

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 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
5450		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-0	-6848	-3	0	0	0
	4(OPE)	-167	-3727	-1106	0	0	0
	6(OPE)	6	-3719	-1116	0	0	0
	8(OPE)	-0	-3716	-2	0	0	0
	10(OPE)	-5911	-3687	-1105	0	0	0
	12(SUS)	-0	-3716	-2	0	0	0
	13(SUS)	-0	-3712	-2	0	0	0
	MAX	-5911/L10	-6848/L3	-1116/L6			
5460		TYPE=Rigid +Y;					
	3(HYD)	0	-5555	-2	0	0	0
	4(OPE)	-216	-2975	-866	0	0	0
	6(OPE)	236	-3021	-875	0	0	0
	8(OPE)	0	-3015	-1	0	0	0
	10(OPE)	-212	-3169	-927	0	0	0
	12(SUS)	0	-3015	-1	0	0	0
	13(SUS)	0	-3011	-1	0	0	0
	MAX	236/L6	-5555/L3	-927/L10			
5480		TYPE=Rigid +Y;					
	3(HYD)	0	-4387	0	0	0	0
	4(OPE)	0	-2416	0	0	0	0
	6(OPE)	0	-2374	0	0	0	0
	8(OPE)	0	-2380	0	0	0	0
	10(OPE)	0	-2241	0	0	0	0
	12(SUS)	0	-2380	0	0	0	0
	13(SUS)	0	-2377	0	0	0	0
	MAX		-4387/L3				
5490		TYPE=Rigid +Y; Rigid Z; Rigid X;					
	3(HYD)	-0	-8143	-0	0	0	0
	4(OPE)	-1046	-4415	-500	0	0	0
	6(OPE)	1163	-4420	-307	0	0	0
	8(OPE)	-0	-4419	-0	0	0	0
	10(OPE)	4022	-4434	-8227	0	0	0
	12(SUS)	-0	-4419	-0	0	0	0
	13(SUS)	-0	-4414	-0	0	0	0
	MAX	4022/L10	-8143/L3	-8227/L10			
5540		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	-0	-8347	0	0	0	0
	4(OPE)	1332	-4531	272	0	0	0
	6(OPE)	-1347	-4530	178	0	0	0
	8(OPE)	-0	-4530	0	0	0	0
	10(OPE)	1046	-4527	866	0	0	0
	12(SUS)	-0	-4530	0	0	0	0
	13(SUS)	-0	-4524	0	0	0	0
	MAX	-1347/L6	-8347/L3	866/L10			
5550		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-1909	-0	0	0	0
	4(OPE)	0	-1036	-56	0	0	0
	6(OPE)	0	-1036	-33	0	0	0
	8(OPE)	0	-1036	-0	0	0	0
	10(OPE)	0	-1037	1440	0	0	0
	12(SUS)	0	-1036	-0	0	0	0
	13(SUS)	0	-1035	-0	0	0	0
	MAX		-1909/L3	1440/L10			
5805		TYPE=Rigid +Y;					
	3(HYD)	-235	-2117	331	0	0	0
	4(OPE)	574	-1931	-77	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	-188	-1466	174	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	-188	-1466	174	0	0	0
	13(SUS)	-188	-1465	174	0	0	0
	MAX	574/L4	-2117/L3	331/L3			
6020		TYPE=Rigid +Y; Rigid Z w/gap;					
	3(HYD)	1946	-6490	-68	0	0	0
	4(OPE)	1063	-3552	-83	0	0	0
	6(OPE)	1045	-3573	-239	0	0	0
	8(OPE)	1064	-3549	-38	0	0	0
	10(OPE)	1063	-3553	-83	0	0	0
	12(SUS)	1064	-3549	-38	0	0	0
	13(SUS)	1058	-3529	-37	0	0	0
	MAX	1946/L3	-6490/L3	-239/L6			
6050		TYPE=Rigid +Y;					
	3(HYD)	-2662	-15289	77	0	0	0
	4(OPE)	-1129	-8301	-2220	0	0	0
	6(OPE)	-743	-8233	-2356	0	0	0
	8(OPE)	-1298	-8319	43	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	10(OPE)	-1129	-8301	-2220	0	0	0
	12(SUS)	-1298	-8319	43	0	0	0
	13(SUS)	-1291	-8272	43	0	0	0
	MAX	-2662/L3	-15289/L3	-2356/L6			
6060		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	673	-3639	80	0	0	0
	4(OPE)	-44	-2005	-600	0	0	0
	6(OPE)	-141	-2070	-610	0	0	0
	8(OPE)	328	-1987	47	0	0	0
	10(OPE)	-44	-2006	-600	0	0	0
	12(SUS)	328	-1987	47	0	0	0
	13(SUS)	326	-1976	47	0	0	0
	MAX	673/L3	-3639/L3	-610/L6			
6070		TYPE=Rigid +Y;					
	3(HYD)	-212	-7335	135	0	0	0
	4(OPE)	172	-3989	-1184	0	0	0
	6(OPE)	-116	-3950	-1179	0	0	0
	8(OPE)	-109	-3998	84	0	0	0
	10(OPE)	172	-3989	-1184	0	0	0
	12(SUS)	-109	-3998	84	0	0	0
	13(SUS)	-109	-3976	83	0	0	0
	MAX	-212/L3	-7335/L3	-1184/L10			
6080		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	138	-6183	282	0	0	0
	4(OPE)	-225	-3385	990	0	0	0
	6(OPE)	-880	-3476	-1065	0	0	0
	8(OPE)	81	-3367	176	0	0	0
	10(OPE)	-220	-3384	991	0	0	0
	12(SUS)	81	-3367	176	0	0	0
	13(SUS)	81	-3348	175	0	0	0
	MAX	-880/L6	-6183/L3	-1065/L6			
6090		TYPE=Rigid +Y;					
	3(HYD)	0	-7115	0	0	0	0
	4(OPE)	0	-3815	0	0	0	0
	6(OPE)	0	-3476	0	0	0	0
	8(OPE)	0	-3890	0	0	0	0
	10(OPE)	0	-3816	0	0	0	0
	12(SUS)	0	-3890	0	0	0	0
	13(SUS)	0	-3868	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX		-7115/L3				
6110		TYPE=Rigid Z w/gap; Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-2963	0	0	0	0
	4(OPE)	0	-1926	2343	0	0	0
	6(OPE)	-5048	-1154	7135	0	0	0
	8(OPE)	0	-1686	0	0	0	0
	10(OPE)	0	-1942	2373	0	0	0
	12(SUS)	0	-1686	0	0	0	0
	13(SUS)	0	-1678	0	0	0	0
	MAX	-5048/L6	-2963/L3	7135/L6			
6220		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-224	-3316	37	0	0	0
	4(OPE)	-596	-1986	58	0	0	0
	6(OPE)	-560	-1866	70	0	0	0
	8(OPE)	-129	-2058	25	0	0	0
	10(OPE)	-566	-1887	49	0	0	0
	12(SUS)	-129	-2058	25	0	0	0
	13(SUS)	-147	-2043	25	0	0	0
	MAX	-596/L4	-3316/L3	70/L6			
6240		TYPE=Rigid +Y;					
	3(HYD)	-19	-63	-0	0	0	0
	4(OPE)	-39	-129	-3	0	0	0
	6(OPE)	-47	-157	-5	0	0	0
	8(OPE)	-19	-64	1	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	-19	-64	1	0	0	0
	13(SUS)	-19	-64	1	0	0	0
	MAX	-47/L6	-157/L6	-5/L6			
6270		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-79	-528	-26	0	0	0
	4(OPE)	-116	-593	87	0	0	0
	6(OPE)	-50	-230	47	0	0	0
	8(OPE)	-74	-518	-22	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	-74	-518	-22	0	0	0
	13(SUS)	-75	-517	-22	0	0	0
	MAX	-116/L4	-593/L4	87/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
6290		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	128	-430	15	0	0	0
	4(OPE)	250	-843	-40	0	0	0
	6(OPE)	347	-1160	-21	0	0	0
	8(OPE)	118	-395	12	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	118	-395	12	0	0	0
	13(SUS)	118	-395	12	0	0	0
	MAX	347/L6	-1160/L6	-40/L4			
6310		TYPE=Rigid +Y;					
	3(HYD)	1	-812	11	0	0	0
	4(OPE)	-98	-1500	159	0	0	0
	6(OPE)	-237	-1754	251	0	0	0
	8(OPE)	0	-847	10	0	0	0
	10(OPE)	-98	-1493	158	0	0	0
	12(SUS)	0	-852	8	0	0	0
	13(SUS)	-3	-857	10	0	0	0
	MAX	-237/L6	-1754/L6	251/L6			
6410		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-71	0	0	0	0
	4(OPE)	0	-47	0	0	0	0
	6(OPE)	0	-47	0	0	0	0
	8(OPE)	0	-47	0	0	0	0
	10(OPE)	0	-47	0	0	0	0
	12(SUS)	0	-47	0	0	0	0
	13(SUS)	0	-47	0	0	0	0
	MAX		-71/L3				
6430		TYPE=Rigid +Y;					
	3(HYD)	0	-5718	0	0	0	0
	4(OPE)	0	-4587	0	0	0	0
	6(OPE)	0	-4319	0	0	0	0
	8(OPE)	0	-4601	0	0	0	0
	10(OPE)	0	-4778	0	0	0	0
	12(SUS)	0	-4601	0	0	0	0
	13(SUS)	0	-4565	0	0	0	0
	MAX		-5718/L3				
6450		TYPE=Rigid +Y;					
	3(HYD)	0	-1205	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	0	-1271	0	0	0	0
	6(OPE)	0	-1824	0	0	0	0
	8(OPE)	0	-1019	0	0	0	0
	10(OPE)	0	-1165	0	0	0	0
	12(SUS)	0	-1019	0	0	0	0
	13(SUS)	0	-1018	0	0	0	0
	MAX		-1824/L6				
6470		TYPE=Rigid Y;					
	3(HYD)	0	-1475	0	0	0	0
	4(OPE)	0	286	0	0	0	0
	6(OPE)	0	-256	0	0	0	0
	8(OPE)	0	-1196	0	0	0	0
	10(OPE)	0	-2194	0	0	0	0
	12(SUS)	0	-1196	0	0	0	0
	13(SUS)	0	-1196	0	0	0	0
	MAX		-2194/L10				
6490		TYPE=Rigid +Y;					
	3(HYD)	-341	-5608	479	0	0	0
	4(OPE)	569	-5558	1567	0	0	0
	6(OPE)	995	-5666	1378	0	0	0
	8(OPE)	-317	-5217	433	0	0	0
	10(OPE)	802	-5669	1500	0	0	0
	12(SUS)	-317	-5217	433	0	0	0
	13(SUS)	-317	-5194	429	0	0	0
	MAX	995/L6	-5669/L10	1567/L4			
6520		TYPE=Rigid +Y;					
	3(HYD)	-263	-4535	-695	0	0	0
	4(OPE)	393	-3714	1042	0	0	0
	6(OPE)	533	-3552	923	0	0	0
	8(OPE)	-219	-4139	-647	0	0	0
	10(OPE)	134	-3838	1144	0	0	0
	12(SUS)	-219	-4139	-647	0	0	0
	13(SUS)	-219	-4116	-646	0	0	0
	MAX	533/L6	-4535/L3	1144/L10			
6540		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-9	-1255	68	0	0	0
	4(OPE)	-175	-1033	256	0	0	0
	6(OPE)	7	-1474	442	0	0	0
	8(OPE)	-2	-1236	94	0	0	0
	10(OPE)	-232	-915	147	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	-2	-1236	94	0	0	0
	13(SUS)	-2	-1226	92	0	0	0
	MAX	-232/L10	-1474/L6	442/L6			
6560		TYPE=Rigid +Y; Rigid Z;					
	3(HYD)	-675	-2251	777	0	0	0
	4(OPE)	-473	-1576	-5627	0	0	0
	6(OPE)	-479	-1596	-15097	0	0	0
	8(OPE)	-484	-1614	549	0	0	0
	10(OPE)	-472	-1572	-7796	0	0	0
	12(SUS)	-484	-1614	549	0	0	0
	13(SUS)	-483	-1610	543	0	0	0
	MAX	-675/L3	-2251/L3	-15097/L6			
6590		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-4304	0	0	0	0
	4(OPE)	0	-3469	0	0	0	0
	6(OPE)	-548	-3060	0	0	0	0
	8(OPE)	0	-3502	0	0	0	0
	10(OPE)	0	-3534	0	0	0	0
	12(SUS)	0	-3502	0	0	0	0
	13(SUS)	0	-3495	0	0	0	0
	MAX	-548/L6	-4304/L3				
6610		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-2971	0	0	0	0
	4(OPE)	0	-210	0	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	0	-1852	0	0	0	0
	10(OPE)	0	-214	0	0	0	0
	12(SUS)	0	-1852	0	0	0	0
	13(SUS)	0	-1846	0	0	0	0
	MAX		-2971/L3				
6640		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	326	-4714	-158	0	0	0
	4(OPE)	-1402	-4756	264	0	0	0
	6(OPE)	-1050	-3711	-369	0	0	0
	8(OPE)	298	-3749	-114	0	0	0
	10(OPE)	-1381	-4747	347	0	0	0
	12(SUS)	298	-3749	-114	0	0	0
	13(SUS)	298	-3743	-113	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-1402/L4	-4756/L4	-369/L6			
6670		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-3865	0	0	0	0
	4(OPE)	0	-3239	0	0	0	0
	6(OPE)	0	-3551	0	0	0	0
	8(OPE)	0	-3225	0	0	0	0
	10(OPE)	0	-3255	0	0	0	0
	12(SUS)	0	-3225	0	0	0	0
	13(SUS)	0	-3222	0	0	0	0
	MAX		-3865/L3				
6690		TYPE=Rigid +Y;					
	3(HYD)	350	-4613	-560	0	0	0
	4(OPE)	-723	-3096	583	0	0	0
	6(OPE)	-1238	-4327	-391	0	0	0
	8(OPE)	120	-3170	-347	0	0	0
	10(OPE)	-713	-3063	580	0	0	0
	12(SUS)	120	-3170	-347	0	0	0
	13(SUS)	118	-3162	-345	0	0	0
	MAX	-1238/L6	-4613/L3	583/L4			
6710		TYPE=Rigid +Y;					
	3(HYD)	673	-2347	-205	0	0	0
	4(OPE)	716	-2400	77	0	0	0
	6(OPE)	993	-3371	190	0	0	0
	8(OPE)	596	-2101	-206	0	0	0
	10(OPE)	887	-3568	-599	0	0	0
	12(SUS)	596	-2101	-206	0	0	0
	13(SUS)	595	-2097	-206	0	0	0
	MAX	993/L6	-3568/L10	-599/L10			
6730		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	158	-1946	-5	0	0	0
	4(OPE)	578	-1958	104	0	0	0
	6(OPE)	1282	-1123	122	0	0	0
	8(OPE)	150	-1712	-12	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	150	-1712	-12	0	0	0
	13(SUS)	150	-1711	-12	0	0	0
	MAX	1282/L6	-1958/L4	122/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
6750		TYPE=Rigid +Y;					
	3(HYD)	0	-566	0	0	0	0
	4(OPE)	0	0	0	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	0	-498	0	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	0	-498	0	0	0	0
	13(SUS)	0	-498	0	0	0	0
	MAX		-566/L3				
6770		TYPE=Rigid +Y;					
	3(HYD)	-460	-2063	-276	0	0	0
	4(OPE)	116	-1472	426	0	0	0
	6(OPE)	256	-1510	373	0	0	0
	8(OPE)	-410	-1476	-167	0	0	0
	10(OPE)	150	-1404	394	0	0	0
	12(SUS)	-410	-1476	-167	0	0	0
	13(SUS)	-402	-1442	-160	0	0	0
	MAX	-460/L3	-2063/L3	426/L4			
6845		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	-245	-3478	-3	0	0	0
	4(OPE)	18	-2615	-784	0	0	0
	6(OPE)	1383	-2487	-731	0	0	0
	8(OPE)	-155	-2630	-1	0	0	0
	10(OPE)	30	-2618	-785	0	0	0
	12(SUS)	-155	-2630	-1	0	0	0
	13(SUS)	-149	-2576	-1	0	0	0
	MAX	1383/L6	-3478/L3	-785/L10			
6870		TYPE=Rigid +Y;					
	3(HYD)	0	-3189	0	0	0	0
	4(OPE)	0	-1995	0	0	0	0
	6(OPE)	0	-2130	0	0	0	0
	8(OPE)	0	-1961	0	0	0	0
	10(OPE)	0	-1993	0	0	0	0
	12(SUS)	0	-1961	0	0	0	0
	13(SUS)	0	-1884	0	0	0	0
	MAX		-3189/L3				
6890		TYPE=Rigid +Y; Rigid X;					
	3(HYD)	-4	-2717	0	0	0	0
	4(OPE)	-290	-1721	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	-1068	-1685	0	0	0	0
	8(OPE)	-3	-1730	0	0	0	0
	10(OPE)	-284	-1722	0	0	0	0
	12(SUS)	-3	-1730	0	0	0	0
	13(SUS)	-3	-1667	0	0	0	0
	MAX	-1068/L6	-2717/L3				
6900		TYPE=Rigid +Y;					
	3(HYD)	0	-2725	0	0	0	0
	4(OPE)	0	-1720	0	0	0	0
	6(OPE)	0	-1729	0	0	0	0
	8(OPE)	0	-1717	0	0	0	0
	10(OPE)	0	-1719	0	0	0	0
	12(SUS)	0	-1717	0	0	0	0
	13(SUS)	0	-1653	0	0	0	0
	MAX		-2725/L3				
6910		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	1	-3164	-0	0	0	0
	4(OPE)	97	-1998	-592	0	0	0
	6(OPE)	225	-1996	-608	0	0	0
	8(OPE)	1	-1999	-0	0	0	0
	10(OPE)	85	-1998	-593	0	0	0
	12(SUS)	1	-1999	-0	0	0	0
	13(SUS)	1	-1925	-0	0	0	0
	MAX	225/L6	-3164/L3	-608/L6			
6920		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	3(HYD)	-0	-1104	-0	0	0	0
	4(OPE)	-26	-697	2381	0	0	0
	6(OPE)	-48	-698	6054	0	0	0
	8(OPE)	-0	-697	-0	0	0	0
	10(OPE)	-26	-697	2405	0	0	0
	12(SUS)	-0	-697	-0	0	0	0
	13(SUS)	-0	-671	-0	0	0	0
	MAX	-48/L6	-1104/L3	6054/L6			
7010		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	860	-2873	-54	0	0	0
	4(OPE)	539	-2205	383	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	694	-2328	2019	0	0	0
	8(OPE)	631	-2104	-12	0	0	0
	10(OPE)	569	-2232	353	0	0	0
	12(SUS)	631	-2104	-12	0	0	0
	13(SUS)	617	-2058	-10	0	0	0
	MAX	860/L3	-2873/L3	2019/L6			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
Stress Summary : Multiple 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC
 CASE 28 (OCC) L28=L21+L12
 CASE 29 (OCC) L29=L22+L12
 CASE 30 (OCC) L30=L23+L12
 CASE 31 (OCC) L31=L24+L12
 CASE 32 (OCC) L32=L25+L12
 CASE 33 (OCC) L33=L26+L12
 CASE 34 (OCC) L34=L27+L12
 CASE 35 (EXP) L35=L4-L12
 CASE 36 (EXP) L36=L6-L12
 CASE 37 (EXP) L37=L4-L6
 CASE 38 (EXP) L38=L8-L12
 CASE 39 (EXP) L39=L4-L8
 CASE 40 (EXP) L40=L6-L8
 CASE 41 (EXP) L41=L10-L12
 CASE 42 (EXP) L42=L4-L10
 CASE 43 (EXP) L43=L6-L10
 CASE 44 (EXP) L44=L8-L10

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (	KPa	)	LOADCASE 3 (HYD) WW+HP+H
Ratio (%):	53.0	@Node	7000
Code Stress:	91356.8	Allowable Stress:	172368.9
Axial Stress:	48376.2	@Node	4650
Bending Stress:	121252.9	@Node	7000
Torsion Stress:	5196.4	@Node	6794
Hoop Stress:	100724.6	@Node	1939
Max Stress Intensity:	121670.1	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (	KPa	)	LOADCASE 12 (SUS) W+P1+H
Ratio (%):	58.4	@Node	6700
Code Stress:	67188.0	Allowable Stress:	115142.4
Axial Stress:	32283.6	@Node	4650
Bending Stress:	89229.8	@Node	6700
Torsion Stress:	3402.7	@Node	6794
Hoop Stress:	67149.7	@Node	4100
Max Stress Intensity:	89495.4	@Node	6700

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC

Highest Stresses: (	KPa	)	LOADCASE 13 (SUS) WNC
Ratio (%):	58.2	@Node	6700

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

Code Stress:	67062.4	Allowable Stress:	115142.4
Axial Stress:	2536.2	@Node	6490
Bending Stress:	89063.0	@Node	6700
Torsion Stress:	3379.5	@Node	5020
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	89328.1	@Node	6700

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L12

Highest Stresses: (KPa)	LOADCASE 28 (OCC) L28=L21+L12		
Ratio (%):	52.8	@Node	7000
Code Stress:	80911.5	Allowable Stress:	153139.4
Axial Stress:	33220.2	@Node	2000
Bending Stress:	107391.6	@Node	7000
Torsion Stress:	9660.4	@Node	2140
Hoop Stress:	67149.7	@Node	4100
Max Stress Intensity:	130525.5	@Node	4100

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L12

Highest Stresses: (KPa)	LOADCASE 29 (OCC) L29=L22+L12		
Ratio (%):	54.2	@Node	7000
Code Stress:	83020.9	Allowable Stress:	153139.4
Axial Stress:	32348.5	@Node	4560
Bending Stress:	109719.9	@Node	7000
Torsion Stress:	6412.6	@Node	1920
Hoop Stress:	67149.7	@Node	4100
Max Stress Intensity:	110450.9	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L12

Highest Stresses: (KPa)	LOADCASE 30 (OCC) L30=L23+L12		
Ratio (%):	49.3	@Node	7000
Code Stress:	75430.0	Allowable Stress:	153139.4
Axial Stress:	32375.9	@Node	4650
Bending Stress:	100120.9	@Node	6700
Torsion Stress:	3047.4	@Node	5020
Hoop Stress:	67149.7	@Node	4100
Max Stress Intensity:	100456.3	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L12

Highest Stresses: (KPa)	LOADCASE 31 (OCC) L31=L24+L12		
Ratio (%):	49.2	@Node	7000
Code Stress:	75389.8	Allowable Stress:	153139.4
Axial Stress:	32172.7	@Node	4650
Bending Stress:	100087.8	@Node	6700
Torsion Stress:	3945.8	@Node	4560
Hoop Stress:	67149.7	@Node	4100
Max Stress Intensity:	100402.5	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L12

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (KPa) LOADCASE 32 (OCC) L32=L25+L12
 Ratio (%): 52.4 @Node 7000
 Code Stress: 80299.8 Allowable Stress: 153139.4
 Axial Stress: 33518.7 @Node 4710
 Bending Stress: 106600.8 @Node 7000
 Torsion Stress: 6353.5 @Node 5280
 Hoop Stress: 67149.7 @Node 4100
 Max Stress Intensity: 106950.0 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L12

Highest Stresses: (KPa) LOADCASE 33 (OCC) L33=L26+L12
 Ratio (%): 43.9 @Node 6700
 Code Stress: 67190.4 Allowable Stress: 153139.4
 Axial Stress: 32283.7 @Node 4650
 Bending Stress: 89233.0 @Node 6700
 Torsion Stress: 3402.7 @Node 6794
 Hoop Stress: 67149.7 @Node 4100
 Max Stress Intensity: 89498.6 @Node 6700

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L12

Highest Stresses: (KPa) LOADCASE 34 (OCC) L34=L27+L12
 Ratio (%): 43.9 @Node 6700
 Code Stress: 67193.6 Allowable Stress: 153139.4
 Axial Stress: 32283.6 @Node 4650
 Bending Stress: 89237.3 @Node 6700
 Torsion Stress: 3402.7 @Node 6794
 Hoop Stress: 67149.7 @Node 4100
 Max Stress Intensity: 89503.0 @Node 6700

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L12

Highest Stresses: (KPa) LOADCASE 35 (EXP) L35=L4-L12
 Ratio (%): 34.7 @Node 6510
 Code Stress: 89835.6 Allowable Stress: 258934.2
 Axial Stress: 59686.8 @Node 6550
 Bending Stress: 88893.9 @Node 6510
 Torsion Stress: 14089.2 @Node 1580
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 130640.0 @Node 6550

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L12

Highest Stresses: (KPa) LOADCASE 36 (EXP) L36=L6-L12
 Ratio (%): 65.5 @Node 6798
 Code Stress: 164770.2 Allowable Stress: 251421.9
 Axial Stress: 60509.6 @Node 6550
 Bending Stress: 163451.1 @Node 6798
 Torsion Stress: 21488.3 @Node 6820
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 164770.2 @Node 6798

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L4-L6

Highest Stresses: (KPa)	LOADCASE 37 (EXP) L37=L4-L6	
Ratio (%):	51.5 @Node 6795	
Code Stress:	126149.7	Allowable Stress: 244734.8
Axial Stress:	119109.4 @Node 6550	
Bending Stress:	128286.6 @Node 6798	
Torsion Stress:	16365.9 @Node 6820	
Hoop Stress:	0.0 @Node 40	
Max Stress Intensity:	256855.7 @Node 4750	

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L8-L12

Highest Stresses: (KPa)	LOADCASE 38 (EXP) L38=L8-L12	
Ratio (%):	1.0 @Node 1178	
Code Stress:	3279.5	Allowable Stress: 316129.5
Axial Stress:	280.4 @Node 1260	
Bending Stress:	3169.3 @Node 1178	
Torsion Stress:	108.0 @Node 980	
Hoop Stress:	0.0 @Node 40	
Max Stress Intensity:	4280.2 @Node 1178	

CODE STRESS CHECK PASSED : LOADCASE 39 (EXP) L39=L4-L8

Highest Stresses: (KPa)	LOADCASE 39 (EXP) L39=L4-L8	
Ratio (%):	34.7 @Node 6510	
Code Stress:	89833.7	Allowable Stress: 258934.2
Axial Stress:	59686.8 @Node 6550	
Bending Stress:	88892.0 @Node 6510	
Torsion Stress:	14094.5 @Node 1580	
Hoop Stress:	0.0 @Node 40	
Max Stress Intensity:	130640.0 @Node 6550	

CODE STRESS CHECK PASSED : LOADCASE 40 (EXP) L40=L6-L8

Highest Stresses: (KPa)	LOADCASE 40 (EXP) L40=L6-L8	
Ratio (%):	65.5 @Node 6798	
Code Stress:	164770.2	Allowable Stress: 251421.9
Axial Stress:	60509.6 @Node 6550	
Bending Stress:	163451.1 @Node 6798	
Torsion Stress:	21488.3 @Node 6820	
Hoop Stress:	0.0 @Node 40	
Max Stress Intensity:	164770.2 @Node 6798	

CODE STRESS CHECK PASSED : LOADCASE 41 (EXP) L41=L10-L12

Highest Stresses: (KPa)	LOADCASE 41 (EXP) L41=L10-L12	
Ratio (%):	39.2 @Node 5469	
Code Stress:	128827.0	Allowable Stress: 328312.9
Axial Stress:	4440.2 @Node 1920	
Bending Stress:	127814.5 @Node 5469	
Torsion Stress:	14091.4 @Node 1580	
Hoop Stress:	0.0 @Node 40	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Max Stress Intensity: 341801.8 @Node 5469

CODE STRESS CHECK PASSED : LOADCASE 42 (EXP) L42=L4-L10

Highest Stresses: (KPa) LOADCASE 42 (EXP) L42=L4-L10
 Ratio (%): 37.6 @Node 5469
 Code Stress: 123354.5 Allowable Stress: 328312.9
 Axial Stress: 59328.0 @Node 6550
 Bending Stress: 122391.1 @Node 5469
 Torsion Stress: 10605.9 @Node 5139
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 327281.4 @Node 5469

CODE STRESS CHECK PASSED : LOADCASE 43 (EXP) L43=L6-L10

Highest Stresses: (KPa) LOADCASE 43 (EXP) L43=L6-L10
 Ratio (%): 52.0 @Node 6798
 Code Stress: 130747.6 Allowable Stress: 251421.9
 Axial Stress: 59781.4 @Node 6550
 Bending Stress: 129715.0 @Node 6798
 Torsion Stress: 16427.8 @Node 6820
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 336362.9 @Node 5469

CODE STRESS CHECK PASSED : LOADCASE 44 (EXP) L44=L8-L10

Highest Stresses: (KPa) LOADCASE 44 (EXP) L44=L8-L10
 Ratio (%): 39.2 @Node 5469
 Code Stress: 128827.0 Allowable Stress: 328312.9
 Axial Stress: 4440.8 @Node 1920
 Bending Stress: 127814.5 @Node 5469
 Torsion Stress: 14096.7 @Node 1580
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 341801.8 @Node 5469

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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NOZZLE CHECK REPORT: Nozzle Loads Screening
Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T1+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
20		Absolute Method								
	Limits	2160	2160	2160		1155	1155	1155		
	4(OPE)	-310	765	-141	0.354	181	137	538	0.466	
	12(SUS)	106	-538	-16	0.249	8	12	-176	0.153	
	13(SUS)	-134	-1626	-15	0.753	11	9	-1091	0.945	
780		Absolute Method								
	Limits	9600	9600	7200		5760	3840	4990		
	4(OPE)	3005	-72	277	0.313	204	-373	-1112	0.223	
	12(SUS)	2644	-13	8	0.275	-38	-817	-807	0.213	
	13(SUS)	2632	-14	9	0.274	-37	-806	-805	0.210	
1240		Absolute Method								
	Limits	2160	2160	2160		1155	1155	1155		
	4(OPE)	1117	-556	93	0.517	32	-945	187	0.818	
	12(SUS)	3	-599	5	0.277	18	1	188	0.163	
	13(SUS)	3	-595	5	0.275	18	1	186	0.161	
1700		Absolute Method								
	Limits	15091	15091	12001		9150	4890	6420		
	4(OPE)	-2965	1705	-1441	0.196	-4663	3825	355	0.782	
	12(SUS)	720	40	106	0.048	-113	-48	-28	0.012	
	13(SUS)	718	40	106	0.048	-112	-48	-27	0.012	

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
1780		Absolute Method								
	Limits	16201	15091	12001		9150	4890	6420		
	4(OPE)	-16168	-1853	2385	0.998	-516	-1271	-5524	0.860	
	12(SUS)	-110	96	584	0.049	-190	-338	-39	0.069	
	13(SUS)	-108	95	580	0.048	-189	-335	-39	0.068	
4260		Absolute Method								
	Limits	8400	8400	6300		3780	2520	3280		
	4(OPE)	2810	-1931	-41	0.334	712	240	2139	0.652	
	12(SUS)	52	-1403	46	0.167	326	177	947	0.289	
	13(SUS)	53	-1399	45	0.166	325	176	944	0.288	

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Line no.

Stress sketch

Input echo

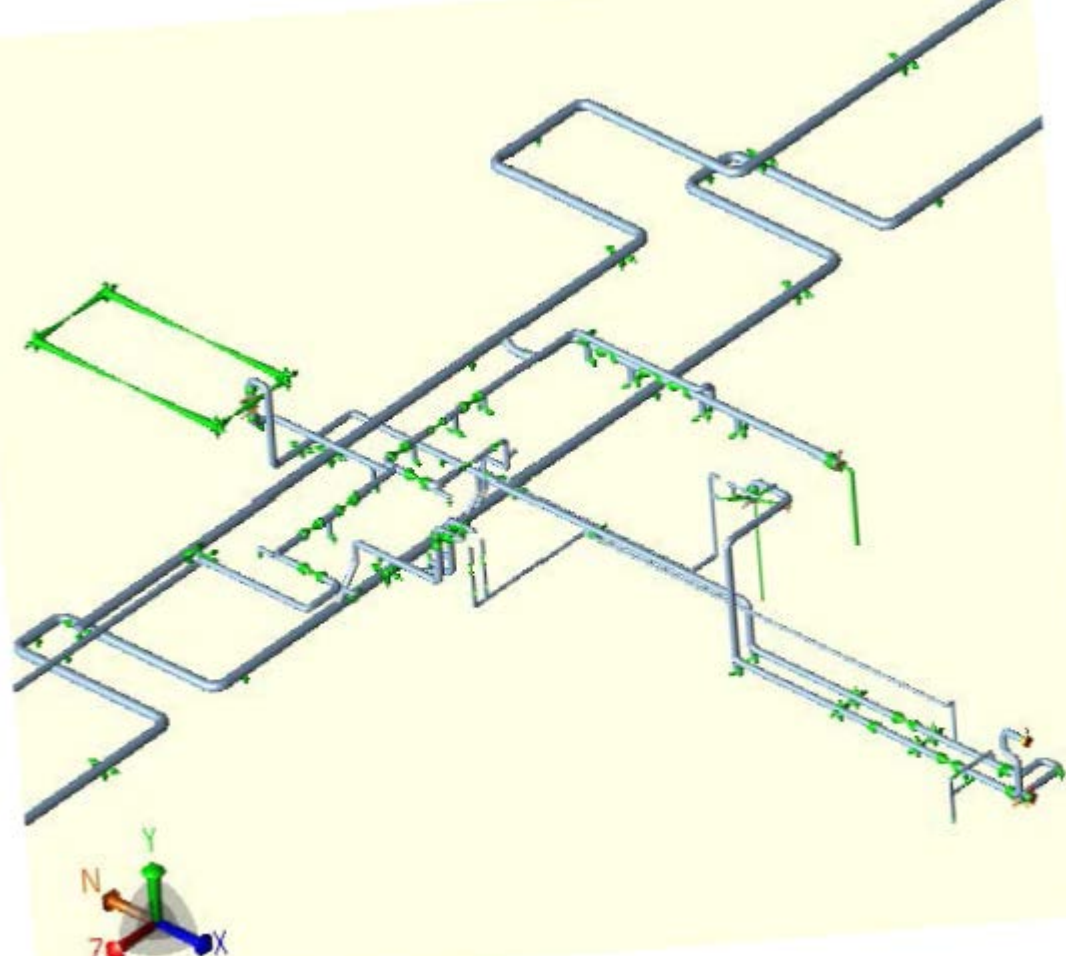
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0044B-CN05-6"-ET
2. GAS-111-0160B-CN05-2"-PT
3. FL-112-0119B-AN07-3"-PT
4. GAS-111-0051B-FN05-6"-IS
5. GAS-111-0058B-FS00-6"-NP
6. GAS-111-0055B-FS00-6"-NP
7. GAS-111-0045B-FS00-6"-NP
8. GAS-111-0046B-AN07-6"-PT
9. GAS-111-0026B-AN07-8"-PT
10. GAS-111-0057B-FS00-4"-NP
11. FL-112-0024B-AN07-4"-PT
12. GAS-111-0047B-FN05-2"-PT
13. GAS-111-0048B-FN05-2"-PT
14. FL-112-0020B-AN07-6"-PT
15. FL-112-0022B-AN07-6"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 20 To 40 DX= -.331 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.

Element Name= FLANGE_FLG_150

GENERAL

T1= 140 F T2= 240 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.

EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0049190 lb./cu.in.

RIGID Weight= 43.00 lb.

RESTRAINTS

Node 20 ANC

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

EQUIPMENT LIMITS

Nozzle Node = 20 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb.

FB= 485.61 lb. FC= 485.61 lb. MA= 10,223.05 in.lb.

MB= 10,223.05 in.lb. MC= 10,223.05 in.lb.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 40 To 60 DX= -2.740 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59

Angle/Node @2= .00 58

From 60 To 80 DY= -2.720 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

Angle/Node @2= .00 78

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INPUT LISTING

From 80 To 100 DX= 1.509 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99

Angle/Node @2= .00 98

From 100 To 120 DY= -3.472 ft.

From 120 To 140 DY= -.751 ft.

RIGID Weight= .00 lb.

From 140 To 160 DY= -.656 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

GENERAL

T1= 70 F T2= 70 F T4= 70 F P1= .0000 lb./sq.in.

PHyd= .0000 lb./sq.in. Fluid Den= .0000000 lb./cu.in.

Insul Thk= 1.575 in.

RESTRAINTS

Node 160 -X Mu = .30

Node 160 Z Cnode 121

Node 121 +Y Mu = .10

Node 160 X Cnode 121

HANGERS

Hanger Node = 160 Hanger Connecting Node = 121

Available Space = -39.3701 in. Allowed Load Variation = 25.0000

No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 lb.

Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 lb./in.

Theoretical Cold Load = .00 lb.

SIF's & TEE's

Node 140 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 120 To 180 DY= -.751 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.

GENERAL

T1= 140 F T2= 240 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in.

DOUBLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 180 To 200 DX= -.751 ft.

From 200 To 220 DX= -.333 ft.

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INPUT LISTING

```

Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 220 To 240 DX= -.333 ft.
Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 240 To 260 DX= -2.953 ft.
-----
From 260 To 280 DX= -.969 ft.
SIF's & TEE's
Node 280 Weldolet
-----
From 280 To 300 DX= -1.640 ft.
PIPE
Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.
GENERAL
T1= 140 F T2= 240 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.
PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B
E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.
EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.
EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.
EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.
Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
RESTRAINTS
Node 300 +Y Mu = .30
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.
-----
From 300 To 320 DX= -.666 ft.
-----
From 320 To 340 DX= -.333 ft.
Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 340 To 360 DX= -1.880 ft.
Element Name= GATE_NOFLG_300
RIGID Weight= 230.07 lb.
-----
From 360 To 380 DX= -.333 ft.
Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 380 To 400 DX= -2.825 ft.
RESTRAINTS
Node 400 Y
Node 400 Z
-----
From 400 To 420 DX= -5.108 ft.
-----

```

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INPUT LISTING

From 420 To 440 DX= -.333 ft.

Element Name= FLANGE_FLG_300

RIGID Weight= 43.00 lb.

From 440 To 460 DX= -.333 ft.

Element Name= FLANGE_FLG_300

RIGID Weight= 43.00 lb.

From 460 To 480 DX= -4.078 ft.

RESTRAINTS

Node 480 Y

Node 480 Z

From 480 To 490 DX= -6.677 ft.

From 500 To 6210 DY= -.250 ft.

RIGID Weight= .00 lb.

From 490 To 500 DX= -6.677 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

From 500 To 580 DY= 13.520 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 240 F P1= 319.0903 lb./sq.in. PHyd= 478.6355 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

EH1= 29,100,956 lb./sq.in. EH2= 28,601,496 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,100,956 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0002095 lb./cu.in. Insul Thk= .000 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 580 To 600 DZ= -9.022 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.

GENERAL

T1= 140 F T2= 240 F P1= 319.0903 lb./sq.in. PHyd= 478.6355 lb./sq.in.

Fluid Den= .0006539 lb./cu.in. Insul Thk= 1.575 in.

Insul Den= .0054191 lb./cu.in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 599

Angle/Node @2= .00 598

ALLOWABLE STRESSES

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INPUT LISTING

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 600 To 610 DX= -1.030 ft.

From 610 To 620 DX= -1.037 ft.

GENERAL

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,100,956 lb./sq.in. EH2= 28,601,496 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,100,956 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 620 To 5190 DY= .653 ft.

PIPE

Dia= 2.375 in. Wall= .218 in.

GENERAL

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,100,956 lb./sq.in. EH2= 28,601,496 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,100,956 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Insul Thk= 1.575 in.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5189
 Angle/Node @2= .00 5188

SIF's & TEE's

Node 620 Weldolet

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 5190 To 5200 DZ= .741 ft.

From 5200 To 5210 DZ= .240 ft.

RIGID Weight= 10.00 lb.

From 5210 To 5220 DZ= .988 ft.

RIGID Weight= 21.00 lb.

From 5220 To 5230 DZ= .240 ft.

RIGID Weight= 10.00 lb.

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INPUT LISTING

```
-----
From 5230 To 5240 DZ= .253 ft.
BEND at "TO" end
      Radius= 3.000 in. (LONG)      Bend Angle= 90.000      Angle/Node @1= 45.00 5239
      Angle/Node @2= .00 5238
-----
```

```
-----
From 5240 To 5245 DX= -1.102 ft.
-----
```

```
-----
From 5240 To 6230 DY= -.059 ft. DZ= .059 ft.
RIGID Weight= .00 lb.
```

SIF's & TEE's

Node 6230 Unreinforced Tee

```
-----
From 5245 To 5250 DX= -1.102 ft.
-----
```

```
-----
From 5250 To 5260 DX= -.240 ft.
```

RIGID Weight= 10.00 lb.

```
-----
From 5260 To 5270 DX= -.240 ft.
```

RIGID Weight= 10.00 lb.

```
-----
From 5270 To 5275 DX= -.492 ft.
-----
```

```
-----
From 5275 To 6260 DY= -.083 ft.
```

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6260 Unreinforced Tee

```
-----
From 5275 To 5280 DX= -.492 ft.
-----
```

```
-----
From 5280 To 5290 DX= -.240 ft.
```

RIGID Weight= 10.00 lb.

```
-----
From 5290 To 5300 DX= -.656 ft.
```

RIGID Weight= 58.00 lb.

```
-----
From 5300 To 5310 DX= -.219 ft.
-----
```

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .2362 in.

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,393,378 lb./sq.in.

EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.

Insul Thk= 1.575 in.

RIGID Weight= 7.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

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INPUT LISTING

```

-----
From 5310 To 5320 DX= -.292 ft.
REDUCER
  Diam2= 3.500 in. Wall2= .300 in.
-----
From 5320 To 5330 DX= -.942 ft.
PIPE
  Dia= 3.500 in. Wall= .300 in.
  Insul Thk= 1.575 in.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5329
  Angle/Node @2= .00 5328
-----
From 5330 To 5340 DY= -2.356 ft.
-----
From 5340 To 6280 DX= .125 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6280 Unreinforced Tee
-----
From 5340 To 5350 DY= -6.946 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5349
  Angle/Node @2= .00 5348
-----
From 5350 To 5355 DZ= 1.695 ft.
RESTRAINTS
  Node 5355 +Y
-----
From 5355 To 5360 DZ= 1.695 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000
-----
From 5360 To 5370 DX= -10.761 ft.
RESTRAINTS
  Node 5370 +Y Mu = .30
  Node 5370 Z Gap= .118 in.
-----
From 5370 To 5375 DX= -14.770 ft.
RESTRAINTS
  Node 5375 +Y Mu = .30
-----
From 5375 To 5380 DX= -1.447 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5379
  Angle/Node @2= .00 5378
-----
From 5380 To 5390 DY= -2.336 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 50.075 Angle/Node @1= 25.04 5389
  Angle/Node @2= .00 5388
-----
From 5390 To 5485 DX= .001 ft. DY= -1.920 ft. DZ= 2.294 ft.
-----
From 610 To 640 DY= -.276 ft.
PIPE
  
```

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INPUT LISTING

Dia= 6.625 in. Wall= .280 in.

GENERAL

T1= 140 F T2= 240 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Insul Thk= 1.575 in.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 640 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 640 To 660 DY= -.984 ft.

PIPE

Dia= 4.500 in. Wall= .237 in. Cor= .0000 in.

GENERAL

T1= 70 F T2= 70 F T3= 70 F T4= 70 F P1= .0000 lb./sq.in.

PHyd= .0000 lb./sq.in. Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.

EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

Insul Den= .0000000 lb./cu.in.

RESTRAINTS

Node 660 +Y Cnode 800

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 620 To 680 DX= -2.804 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.

GENERAL

T1= 140 F T2= 240 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.

EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0054191 lb./cu.in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679

Angle/Node @2= .00 678

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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    Sh7= 20,000 lb./sq.in.    Sh8= 20,000 lb./sq.in.    Sh9= 20,000 lb./sq.in.
    Sy= 35,000 lb./sq.in.
-----
From 680 To 700 DY= -.751 ft.
-----
From 700 To 720 DY= -.413 ft.
    Element Name= FLANGE_FLG_300
RIGID Weight= 64.50 lb.
RESTRAINTS
    Node 720 ANC    Cnode 721
-----
From 721 To 760 DY= -.344 ft.
    Element Name= FLANGE_FLG_300
RIGID Weight= 40.00 lb.
-----
From 760 To 780 DY= -.651 ft.
RESTRAINTS
    Node 780 ANC    Cnode 820
EQUIPMENT LIMITS
    Nozzle Node = 780
    Limiting Loads: A=pipe; B=ref; C=AxB;    FA= 2,158.27 lb.    FB= 2,158.27 lb.
    FC= 1,618.71 lb.    MA= 50,982.47 in.lb.    MB= 33,988.32 in.lb.
    MC= 44,167.11 in.lb.    Equipment Major Direction Vector= .0000 .0000
    1.0000    Interact. Mtd= Absolute
-----
From 780 To 800 DX= 3.841 ft.    DY= .900 ft.    DZ= .000 ft.
RIGID Weight= .00 lb.
-----
From 780 To 6241 DX= 2.804 ft.    DY= 2.753 ft.    DZ= 3.504 ft.
RIGID Weight= .00 lb.
-----
From 780 To 6271 DX= -.372 ft.    DY= 1.581 ft.    DZ= 2.461 ft.
RIGID Weight= .00 lb.
-----
From 780 To 6291 DX= -2.103 ft.    DY= .457 ft.    DZ= 2.461 ft.
RIGID Weight= .00 lb.
-----
From 820 To 840 DY= -11.713 ft.
PIPE
    Dia= 36.000 in.    Wall= .591 in.
GENERAL
    Mat= (383)A516 70    E= 29,500,856 lb./sq.in.    EH1= 29,100,956 lb./sq.in.
    EH2= 28,601,496 lb./sq.in.    EH3= 29,500,856 lb./sq.in.
    EH4= 29,100,956 lb./sq.in.    EH5= 29,500,856 lb./sq.in.
    EH6= 29,500,856 lb./sq.in.    EH7= 29,500,856 lb./sq.in.
    EH8= 29,500,856 lb./sq.in.    EH9= 29,500,856 lb./sq.in.    v = .292
    Pipe Den= .2830000 lb./cu.in.    Insul Thk= 1.575 in.
RIGID Weight= .00 lb.
RESTRAINTS
    Node 840 ANC
ALLOWABLE STRESSES
    B31.3 (2016)    Cycle Max Switch = ---    Sc= 23,300 lb./sq.in.
    Sh1= 23,260 lb./sq.in.    Sh2= 22,882 lb./sq.in.    Sh3= 23,300 lb./sq.in.
    Sh4= 23,260 lb./sq.in.    Sh5= 23,300 lb./sq.in.    Sh6= 23,300 lb./sq.in.
    Sh7= 23,300 lb./sq.in.    Sh8= 23,300 lb./sq.in.    Sh9= 23,300 lb./sq.in.
    Sy= 38,000 lb./sq.in.

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INPUT LISTING

 From 280 To 4350 DZ= .400 ft.

PIPE

Dia= 2.375 in. Wall= .218 in. Cor= .1181 in.

GENERAL

T1= 140 F T2= 240 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.

EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0054191 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4350 To 4360 DZ= .240 ft.

RIGID Weight= 10.00 lb.

 From 4360 To 4370 DZ= .988 ft.

PIPE

Dia= 2.375 in. Wall= .344 in.

GENERAL

T1= 288 F T2= 347 F T4= 288 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Fluid Den= .0015535 lb./cu.in.

Insul Thk= 2.362 in.

RIGID Weight= 70.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4370 To 4380 DZ= .271 ft.

GENERAL

T1= 288 F T2= 347 F T4= 288 F

RIGID Weight= 13.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4380 To 4390 DZ= 1.890 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4389

Angle/Node @2= .00 4388

 From 4390 To 4395 DY= .843 ft.

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 From 4390 To 6300 DY= -.083 ft.
 RIGID Weight= .00 lb.
 SIF's & TEE's
 Node 6300 Unreinforced Tee

From 4395 To 880 DY= .843 ft.
 BEND at "TO" end
 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879
 Angle/Node @2= .00 878

From 880 To 900 DZ= -.253 ft.

From 900 To 920 DZ= -.271 ft.
 Element Name= BALL_FLG_600

GENERAL

T1= 288 F T2= 347 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Fluid Den= .0015535 lb./cu.in.
 RIGID Weight= 13.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

From 920 To 940 DZ= -.988 ft.
 Element Name= CHECK_FLG_150
 RIGID Weight= 96.00 lb.

From 940 To 960 DZ= -.271 ft.
 RIGID Weight= 13.00 lb.

From 960 To 980 DZ= -4.009 ft.
 BEND at "TO" end
 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979
 Angle/Node @2= .00 978

From 980 To 1000 DY= -.328 ft.

From 1000 To 1020 DY= -.978 ft.
 Element Name= CHECK_FLG_600
 SIF's & TEE's
 Node 1020 Weldolet

From 1020 To 1040 DX= .984 ft.
 PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T3= 41 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.
 EH2= 28,018,166 lb./sq.in. EH3= 29,620,846 lb./sq.in.
 EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

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INPUT LISTING

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Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0015535 lb./cu.in.
Insul Thk= 1.575 in.   Insul Den= .0049190 lb./cu.in.
RESTRAINTS
Node 1040 +Y Mu = .30
ALLOWABLE STRESSES
B31.3 (2016)      Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in.   Sh2= 19,953 lb./sq.in.   Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.

-----
From 1040 To 1060 DX= .551 ft.
-----
From 1060 To 1080 DX= .413 ft.
Element Name= FLG.PR_FLG_150
RIGID Weight= 82.00 lb.
-----
From 1080 To 1100 DX= .413 ft.
Element Name= FLG.PR_FLG_150
RIGID Weight= 82.00 lb.
-----
From 1100 To 1120 DX= 1.083 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1119
Angle/Node @2= .00 1118
-----
From 1120 To 1140 DZ= -3.281 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1139
Angle/Node @2= .00 1138
-----
From 1140 To 1160 DX= 1.528 ft.
-----
From 1160 To 1180 DX= .764 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1179
Angle/Node @2= .00 1178
RESTRAINTS
Node 1180 -X Mu = .30
Node 1180 +Y Mu = .30
-----
From 1180 To 1200 DZ= 5.249 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1199
Angle/Node @2= .00 1198
-----
From 1200 To 1220 DX= .751 ft.
-----
From 1220 To 1240 DX= .417 ft.
Element Name= FLANGE_FLG_600
RIGID Weight= 82.00 lb.
RESTRAINTS
Node 1240 ANC
EQUIPMENT LIMITS
Nozzle Node = 1240 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb.
FB= 485.61 lb. FC= 485.61 lb. MA= 10,223.05 in.lb.

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INPUT LISTING

MB= 10,223.05 in.lb. MC= 10,223.05 in.lb.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

 From 1020 To 1260 DX= -4.593 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T3= 70 F T4= 288 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.
 EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0015535 lb./cu.in.
 Insul Thk= 2.362 in. Insul Den= .0054191 lb./cu.in.

SIF's & TEE's

Node 1260 Weldolet

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 1260 To 1280 DX= -2.789 ft.

RESTRAINTS

Node 1280 Y Mu = .30
 Node 1280 Z

 From 1280 To 1300 DX= -2.133 ft.

 From 1300 To 1320 DX= -.417 ft.

Element Name= FLANGE_FLG_600

RIGID Weight= 82.00 lb.

 From 1320 To 1340 DX= -1.864 ft.

Element Name= CHECK_NOFLG_600

RIGID Weight= 694.00 lb.

 From 1340 To 1360 DX= -.417 ft.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 82.00 lb.

 From 1360 To 1380 DX= -5.082 ft.

RESTRAINTS

Node 1380 Y Mu = .30
 Node 1380 Z Gap= .118 in.

 From 1380 To 1390 DX= -6.677 ft.

 From 1390 To 1400 DX= -6.677 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399
 Angle/Node @2= .00 1398

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 From 1400 To 1480 DY= 5.197 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

GENERAL

T1= 288 F T2= 347 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.
 EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0005564 lb./cu.in.
 Insul Thk= 1.575 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479
 Angle/Node @2= .00 1478

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 1480 To 1500 DX= -19.081 ft.

RESTRAINTS

Node 1500 +Y
 Node 1500 Z

 From 1500 To 1520 DX= -19.685 ft.

RESTRAINTS

Node 1520 +Y Mu = .30

 From 1520 To 1540 DX= -11.401 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1539
 Angle/Node @2= .00 1538

 From 1540 To 1560 DZ= 6.985 ft.

RESTRAINTS

Node 1560 +Y
 Node 1560 X Gap= .118 in.

 From 1560 To 1580 DZ= 4.006 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1579
 Angle/Node @2= .00 1578

 From 1580 To 1600 DY= 9.157 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599
 Angle/Node @2= .00 1598

 From 1600 To 1620 DX= -2.156 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619

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Angle/Node @2= .00 1618

 From 1620 To 1640 DY= -.751 ft.

From 1640 To 1660 DY= -.417 ft.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 82.00 lb.

RESTRAINTS

Node 1660 ANC Cnode 1661

 From 1660 To 1680 DY= -.115 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .1181 in.

Element Name= FLANGE_NOFLG_600

GENERAL

T1= 288 F T2= 347 F T3= 70 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0015535 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0049190 lb./cu.in.

RIGID Weight= 25.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 1680 To 1700 DY= -.656 ft.

RESTRAINTS

Node 1700 ANC Cnode 1720

EQUIPMENT LIMITS

Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,392.54 lb. FB= 3,392.54 lb.

FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.

MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000

1.0000 Interact. Mtd= Absolute

From 1720 To 1740 DY= -.787 ft.

RIGID Weight= .00 lb.

From 1740 To 1760 DY= -.787 ft.

RIGID Weight= .00 lb.

From 1780 To 1800 DY= -.656 ft.

RESTRAINTS

Node 1780 ANC Cnode 1760

EQUIPMENT LIMITS

Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,642.09 lb. FB= 3,392.54 lb.

FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.

MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000

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INPUT LISTING

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1.0000 Interact. Mtd= Absolute
-----
From 1800 To 1820 DY= -.115 ft.
  Element Name= FLANGE_NOFLG_150
RIGID Weight= 25.00 lb.
-----
From 1740 To 1840 DZ= 4.921 ft.
RIGID Weight= 505.85 lb.
RESTRAINTS
  Node 1840 Y Mu = .10
  Node 1840 X Mu = .30
  Node 1840 Z Gap= .236 in.
-----
From 1840 To 1860 DX= -23.081 ft.
RIGID Weight= 2,360.61 lb.
RESTRAINTS
  Node 1860 Y Mu = .10
  Node 1860 Z Gap= .236 in. Mu = .30
-----
From 1860 To 1880 DZ= -9.843 ft.
RIGID Weight= 1,011.69 lb.
RESTRAINTS
  Node 1880 Y Mu = .10
  Node 1880 Z Gap= .236 in.
-----
From 1880 To 1900 DX= 23.081 ft.
RIGID Weight= 2,360.61 lb.
RESTRAINTS
  Node 1900 Y Mu = .10
  Node 1900 X Mu = .30
  Node 1900 Z Gap= .236 in. Mu = .30
-----
From 1900 To 1740 DZ= 4.921 ft.
RIGID Weight= 505.85 lb.
-----
From 1820 To 1920 DY= -.333 ft.
PIPE
  Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
  Element Name= FLANGE_NOFLG_150
GENERAL
  T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
  PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
  E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
  EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
  EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
  EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
  EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
  Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021532 lb./cu.in.
  Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
RIGID Weight= 43.00 lb.
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
  Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
  Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
  Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
  Sy= 25,000 lb./sq.in.

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INPUT LISTING

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-----
From 1920 To 1940 DY= -.751 ft.
GENERAL
  P1= 319.0903 lb./sq.in. Fluid Den= .0006611 lb./cu.in.
SINGLE FLANGED BEND at "TO" end
  Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1939
-----
From 1940 To 1960 DY= .000 ft. DZ= -1.078 ft.
RESTRAINTS
  Node 1960 +Y Mu = .30
-----
From 1960 To 1980 DY= .000 ft. DZ= -1.078 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1979
  Angle/Node @2= .00 1978
-----
From 1980 To 2000 DX= 13.094 ft.
-----
From 2000 To 6420 DY= -.250 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6420 Unreinforced Tee Pad= .280 in.
-----
From 2000 To 6420 DY= -.250 ft.
PIPE
  Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
GENERAL
  T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.
  PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
  E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
  EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
  EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
  EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
  EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
  Pipe Den= .2900000 lb./cu.in. Fluid Den= .0006611 lb./cu.in.
  Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6420 Unreinforced Tee
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
  Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
  Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
  Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
  Sy= 25,000 lb./sq.in.
-----
From 2000 To 4100 DX= 2.281 ft.
PIPE
  Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
GENERAL
  T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
  PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
  E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
  EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
  EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
  EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.

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EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021676 lb./cu.in.
 Insul Thk= .000 in.

SIF's & TEE's

Node 4100 Welding Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 4100 To 4400 DY= -.024 ft. DZ= 4.751 ft.

From 4400 To 4410 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4410 To 4420 DY= -.009 ft. DZ= 1.863 ft.
 RIGID Weight= 694.00 lb.

From 4420 To 4430 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4430 To 4440 DY= -.005 ft. DZ= 1.094 ft.

From 4440 To 6480 DY= -.250 ft.
 RIGID Weight= .00 lb.

SIF's & TEE's

Node 6480 Unreinforced Tee Pad= .280 in.

From 4440 To 4450 DY= -.005 ft. DZ= 1.094 ft.

From 4450 To 4460 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4460 To 4470 DY= -.009 ft. DZ= 1.863 ft.
 RIGID Weight= 165.00 lb.

From 4470 To 4480 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4480 To 4482 DY= -.010 ft. DZ= 1.852 ft.

From 4485 To 6760 DX= -.177 ft. DY= -.177 ft.
 RIGID Weight= .00 lb.

SIF's & TEE's

Node 6760 Unreinforced Tee Pad= .280 in.

From 4482 To 4485 DY= -.010 ft. DZ= 1.852 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4484
 Angle/Node @2= .00 4483

From 4485 To 4490 DX= 3.419 ft. DY= .000 ft. DZ= .000 ft.

From 4490 To 4500 DX= .417 ft. DY= .000 ft. DZ= .000 ft.

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RIGID Weight= 82.00 lb.

 From 4500 To 4505 DX= 1.962 ft. DY= .000 ft. DZ= .000 ft.
 RIGID Weight= 226.00 lb.

 From 4505 To 6790 DX= .417 ft. DY= .000 ft. DZ= .000 ft.
 PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
 E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
 EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
 EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
 EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
 EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021676 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= 82.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6790 To 6780 DX= 1.063 ft.

 From 6795 To 7000 DX= .177 ft. DY= -.177 ft.
 RIGID Weight= .00 lb.

SIF's & TEE's

Node 7000 Unreinforced Tee Pad= .280 in.

 From 6780 To 6795 DX= 1.063 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6794
 Angle/Node @2= .00 6793

 From 6795 To 6800 DY= -.161 ft. DZ= 4.613 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6799
 Angle/Node @2= .00 6798

 From 6800 To 6810 DX= -6.785 ft. DY= .000 ft. DZ= .000 ft.

 From 6810 To 6820 DX= -6.562 ft. DY= .000 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 6819
 Angle/Node @2= .00 6818

 From 6820 To 6830 DX= -.545 ft. DY= -.545 ft.

 From 6845 To 6830 DZ= 1.119 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

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T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
 E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
 EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
 EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
 EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
 EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021532 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RESTRAINTS

Node 6845 +Y Mu = .30
 Node 6845 X Gap= .118 in.
 Node 6845 Z Gap= .118 in.

SIF's & TEE's

Node 6830 Welding Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6830 To 6870 DZ= 18.294 ft.

RESTRAINTS

Node 6870 +Y

 From 6870 To 6880 DZ= 6.562 ft.

 From 6880 To 6890 DZ= 13.123 ft.

RESTRAINTS

Node 6890 +Y
 Node 6890 X

 From 6890 To 6900 DZ= 19.685 ft.

RESTRAINTS

Node 6900 +Y

 From 6900 To 6905 DZ= 19.685 ft.

RESTRAINTS

Node 6905 +Y Mu = .30
 Node 6905 X Gap= .118 in.

 From 6905 To 6910 DZ= 19.685 ft.

RESTRAINTS

Node 6910 +Y Mu = .30

 From 6910 To 6915 DZ= 3.937 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6914
 Angle/Node @2= .00 6913

 From 6915 To 6920 DX= 19.685 ft. DZ= .000 ft.

RESTRAINTS

Node 6920 +Y Mu = .30
 Node 6920 X Gap= .118 in.

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From 4100 To 4560 DZ= -.935 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L

E= 28,300,856 lb./sq.in. EH1= 27,900,056 lb./sq.in.

EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.

EH4= 27,900,056 lb./sq.in. EH5= 28,300,856 lb./sq.in.

EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.

EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292

Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021676 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

SIF's & TEE's

Node 4560 Welding Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.

Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.

Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.

Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.

Sy= 25,000 lb./sq.in.

 From 4560 To 4570 DX= .469 ft.

 From 4560 To 4580 DX= -.469 ft.

 From 4580 To 4590 DX= -1.220 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4589

Angle/Node @2= .00 4588

 From 4590 To 4600 DZ= -.751 ft.

 From 4600 To 4610 DZ= -.417 ft.

RIGID Weight= 82.00 lb.

 From 4610 To 4620 DZ= -1.864 ft.

RIGID Weight= 609.00 lb.

 From 4620 To 4630 DZ= -.417 ft.

RIGID Weight= 82.00 lb.

 From 4630 To 4640 DZ= -.656 ft.

 From 4640 To 6510 DY= -.250 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6510 Unreinforced Tee Pad= .280 in.

 From 4640 To 4650 DZ= -1.747 ft.

 From 4650 To 4660 DY= -.089 ft. DZ= -.459 ft.

REDUCER

Diam2= 4.500 in. Wall2= .237 in.

 From 4660 To 4670 DZ= -.365 ft.

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PIPE

Dia= 4.500 in. Wall= .237 in.

Insul Thk= .000 in.

RIGID Weight= 43.00 lb.

 From 4670 To 4680 DZ= -1.447 ft.

RIGID Weight= 87.00 lb.

 From 4680 To 4690 DZ= -.365 ft.

RIGID Weight= 43.00 lb.

 From 4690 To 4700 DY= .089 ft. DZ= -.459 ft.

REDUCER

Diam2= 6.625 in. Wall2= .280 in.

 From 4700 To 4710 DZ= -.984 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.

Insul Thk= .000 in.

 From 4710 To 6530 DY= -.250 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6530 Unreinforced Tee Pad= .280 in.

 From 4710 To 4720 DZ= -.984 ft.

 From 4720 To 4730 DZ= -.417 ft.

RIGID Weight= 82.00 lb.

 From 4730 To 4740 DZ= -1.837 ft.

RIGID Weight= 609.00 lb.

 From 4740 To 4750 DZ= -.302 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .2362 in.

GENERAL

T1= 99 F T2= 185 F T4= 99 F P1= 130.5369 lb./sq.in.

PHyd= 195.8054 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,309,386 lb./sq.in.

EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,309,386 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.

Insul Thk= .000 in.

RIGID Weight= 25.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4750 To 6550 DZ= -.584 ft.

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From 6550 To 4140 DZ= -12.441 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4139
  Angle/Node @2= .00 4138
-----
From 4140 To 6560 DX= 1.407 ft.
RESTRAINTS
  Node 6560 +Y   Mu = .30
  Node 6560 Z
-----
From 6560 To 4760 DX= 14.432 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4759
  Angle/Node @2= .00 4758
-----
From 4760 To 4770 DZ= -1.499 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4769
-----
From 4770 To 4780 DY= -2.159 ft.
SIF's & TEE's
  Node 4780 Welding Tee
-----
From 4780 To 4160 DX= 3.258 ft.
PIPE
  Dia= 8.625 in.   Wall= .406 in.   Cor= .2362 in.
GENERAL
  T1= 99 F   T2= 185 F   P1= 130.5369 lb./sq.in.   PHyd= 195.8054 lb./sq.in.
  Fluid Den= .0002168 lb./cu.in.   Insul Thk= .000 in.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 20,000 lb./sq.in.   Sh3= 20,000 lb./sq.in.
  Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.
-----
From 4160 To 6600 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6600 Unreinforced Tee
-----
From 4160 To 4180 DX= 11.821 ft.
-----
From 4180 To 4200 DX= .344 ft.
  Element Name= FLANGE_FLG_300
RIGID Weight= 40.00 lb.
-----
From 4200 To 4220 DX= .066 ft.
  Element Name= FLANGE_FLG_300
RIGID Weight= 6.74 lb.
RESTRAINTS
  Node 4220 ANC   Cnode 4221
-----
From 4220 To 4240 DX= .344 ft.
  Element Name= FLANGE_FLG_300
RIGID Weight= 40.00 lb.

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INPUT LISTING

From 4240 To 4260 DX= .509 ft.

RESTRAINTS

Node 4260 ANC Cnode 4261

EQUIPMENT LIMITS

Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,888.49 lb. FB= 1,888.49 lb.

FC= 1,416.37 lb. MA= 33,457.25 in.lb. MB= 22,304.83 in.lb.

MC= 29,031.69 in.lb. Equipment Major Direction Vector= .0000 1.0000

.0000 Interact. Mtd= Absolute

From 4261 To 4280 DX= 1.509 ft.

PIPE

Dia= 36.220 in. Wall= .472 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 4280 To 4300 DY= -4.265 ft.

RIGID Weight= .00 lb.

From 4300 To 4310 DY= -3.281 ft.

RIGID Weight= .00 lb.

From 4310 To 4320 DY= -.984 ft.

GENERAL

T1= 70 F T2= 70 F T4= 70 F

RIGID Weight= .00 lb.

RESTRAINTS

Node 4320 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 4780 To 6620 DX= -1.291 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

GENERAL

T1= 99 F T2= 185 F T4= 99 F Insul Thk= .000 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 6620 To 6630 DY= -.333 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6630 Unreinforced Tee

From 6620 To 4800 DX= -1.291 ft.

From 4800 To 4810 DX= -.344 ft.

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INPUT LISTING

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RIGID Weight= 40.00 lb.
-----
From 4810 To 4820 DX= -1.654 ft.
RIGID Weight= 470.00 lb.
-----
From 4820 To 4830 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4830 To 4840 DX= -1.033 ft.
-----
From 4840 To 4850 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4850 To 4860 DX= -1.988 ft.
RIGID Weight= 81.00 lb.
-----
From 4860 To 4870 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4870 To 4880 DX= -.656 ft.
-----
From 4880 To 6650 DX= -.942 ft.
-----
From 6650 To 6660 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
Node 6660 Unreinforced Tee
-----
From 6650 To 4890 DX= -1.598 ft.
-----
From 4890 To 4900 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4900 To 4910 DX= -1.596 ft.
RIGID Weight= 508.00 lb.
-----
From 4910 To 4920 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4920 To 4930 DX= -1.778 ft.
-----
From 4930 To 6680 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
Node 6680 Unreinforced Tee
-----
From 4930 To 4940 DX= -1.985 ft.
BEND at "TO" end
Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4939
Angle/Node @2= .00 4938
-----
From 4940 To 4950 DZ= 4.921 ft.
BEND at "TO" end
Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4949
Angle/Node @2= .00 4948
-----

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From 4950 To 4960 DX= -2.859 ft. DY= .000 ft.
 BEND at "TO" end
 Radius= 12.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 4959
 Angle/Node @2= .00 4958

 From 4960 To 6065 DX= -1.106 ft. DY= 1.106 ft.

From 4570 To 4980 DX= .968 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 29,100,056 lb./sq.in.
 EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 29,100,056 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 4980 To 4990 DX= .417 ft.

E= 29,500,856 lb./sq.in. EH1= 29,100,056 lb./sq.in.
 EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 29,100,056 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in.

RIGID Weight= 82.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 4990 To 5000 DX= 1.864 ft.

RIGID Weight= 609.00 lb.

 From 5000 To 5010 DX= .417 ft.

RIGID Weight= 82.00 lb.

 From 5010 To 5020 DX= .751 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5019

 From 5020 To 5025 DZ= -1.524 ft.

 From 5020 To 6700 DX= .177 ft. DY= -.177 ft.

RIGID Weight= .00 lb.

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SIF's & TEE's

Node 6700 Unreinforced Tee Pad= .280 in.

From 5025 To 5030 DZ= -1.524 ft.

From 5030 To 5040 DY= -.131 ft. DZ= -.459 ft.

REDUCER

Diam2= 3.500 in. Wall2= .216 in.

From 5040 To 5060 DZ= -.302 ft.

PIPE

Dia= 3.500 in. Wall= .216 in.

Insul Thk= .000 in.

RIGID Weight= 24.00 lb.

From 5060 To 5070 DZ= -1.181 ft.

RIGID Weight= 49.00 lb.

From 5070 To 5080 DZ= -.302 ft.

RIGID Weight= 24.00 lb.

From 5080 To 5090 DY= .041 ft. DZ= -.335 ft.

REDUCER

Diam2= 4.500 in. Wall2= .237 in.

From 5090 To 5095 DZ= -1.148 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

Insul Thk= .000 in.

From 5095 To 6720 DY= -.167 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6720 Reinforced Tee Pad= .237 in.

From 5095 To 5100 DZ= -1.148 ft.

From 5100 To 5110 DZ= -.365 ft.

RIGID Weight= 43.00 lb.

From 5110 To 5120 DZ= -.766 ft.

RIGID Weight= 251.00 lb.

From 5120 To 5130 DZ= -.260 ft.

PIPE

Dia= 4.500 in. Wall= .337 in. Cor= .2362 in.

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,393,378 lb./sq.in.

EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.

Insul Thk= .000 in.

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RIGID Weight= 16.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 5130 To 5140 DZ= -.502 ft.

BEND at "TO" end

Radius= 6.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5139

 From 5140 To 5145 DY= -2.047 ft.

 From 5145 To 6740 DZ= -.167 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6740 Unreinforced Tee

 From 5145 To 5150 DY= -1.352 ft.

BEND at "TO" end

Radius= 6.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5149
 Angle/Node @2= .00 5148

 From 5150 To 5160 DX= -3.235 ft.

BEND at "TO" end

Radius= 6.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5159
 Angle/Node @2= .00 5158

 From 5160 To 5170 DY= -3.520 ft.

BEND at "TO" end

Radius= 6.000 in. (LONG) Bend Angle= 44.939 Angle/Node @1= 22.47 5169
 Angle/Node @2= .00 5168

 From 5170 To 5490 DX= .000 ft. DY= -1.739 ft. DZ= 1.735 ft.

 From 3960 To 5420 DZ= -19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

T1= 86 F T2= 46 F T3= 70 F T4= 392 F P1= 108.7808 lb./sq.in.
 P2= .0000 lb./sq.in. PHyd= 163.1712 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 29,393,378 lb./sq.in.
 EH2= 29,598,348 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RESTRAINTS

Node 5420 +Y Mu = .30
 Node 5420 Z Gap= .118 in.
 Node 3960 +Y Mu = .30
 Node 3960 X Gap= .118 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

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Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 5420 To 5425 DZ= -19.685 ft.

RESTRAINTS

Node 5425 +Y Mu = .30
 Node 5425 X Gap= .118 in.

 From 5425 To 5430 DZ= -19.685 ft.

RESTRAINTS

Node 5430 +Y Mu = .30

 From 5430 To 5435 DZ= -19.685 ft.

RESTRAINTS

Node 5435 +Y Mu = .30
 Node 5435 X Gap= .118 in.

 From 5435 To 5440 DZ= -9.022 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5439
 Angle/Node @2= .00 5438

 From 5440 To 5450 DX= -19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5449
 Angle/Node @2= .00 5448

 From 5450 To 5455 DZ= -3.281 ft.

RESTRAINTS

Node 5455 +Y Mu = .30

 From 5455 To 5460 DZ= -3.281 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5459
 Angle/Node @2= .00 5458

 From 5460 To 5465 DX= 19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5464
 Angle/Node @2= .00 5463

 From 5465 To 5470 DZ= -4.101 ft.

RESTRAINTS

Node 5470 +Y Mu = .30

 From 5470 To 5475 DX= .000 ft. DZ= -12.815 ft.

 From 5475 To 5480 DX= .000 ft. DZ= -6.969 ft.

RESTRAINTS

Node 5480 +Y
 Node 5480 X Gap= .118 in.
 Node 5480 Z Gap= .118 in.

 From 5480 To 5485 DX= .000 ft. DZ= -10.751 ft.

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INPUT LISTING

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-----
From 5485 To 5490 DX= .000 ft. DZ= -1.312 ft.
-----
From 5490 To 5495 DX= .000 ft. DZ= -5.541 ft.
RESTRAINTS
  Node 5495 +Y Mu = .30
  Node 5495 X Gap= .118 in.
-----
From 5495 To 5500 DX= .000 ft. DZ= -19.685 ft.
RESTRAINTS
  Node 5500 +Y Mu = .30
-----
From 5500 To 5510 DX= .000 ft. DZ= -19.685 ft.
RESTRAINTS
  Node 5510 +Y Mu = .30
  Node 5510 X Gap= .118 in.
-----
From 5510 To 5515 DX= .000 ft. DZ= -5.988 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5514
  Angle/Node @2= .00 5513
-----
From 5515 To 5520 DX= -19.685 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5519
  Angle/Node @2= .00 5518
-----
From 5520 To 5535 DZ= -3.281 ft.
RESTRAINTS
  Node 5535 +Y Mu = .30
-----
From 5535 To 5540 DZ= -3.281 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5539
  Angle/Node @2= .00 5538
-----
From 5540 To 5545 DX= 19.685 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5544
  Angle/Node @2= .00 5543
-----
From 5545 To 5550 DX= .000 ft. DZ= -7.136 ft.
RESTRAINTS
  Node 5550 +Y Mu = .00
-----
From 5550 To 5560 DZ= -19.685 ft.
RESTRAINTS
  Node 5560 +Y Mu = .30
  Node 5560 X Gap= .118 in.
  Node 5560 Z Gap= .118 in.
-----
From 4710 To 6530 DY= -.250 ft.
PIPE
  Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
GENERAL
  T1= 100 F T2= 185 F T3= 70 F T4= 100 F P1= 899.2545 lb./sq.in.

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  PHyd= 1,348.8818 lb./sq.in.   Mat= (165)A312 TP316L
  E= 28,300,856 lb./sq.in.   EH1= 28,098,040 lb./sq.in.
  EH2= 27,675,074 lb./sq.in.   EH3= 28,300,856 lb./sq.in.
  EH4= 28,098,040 lb./sq.in.   EH5= 28,300,856 lb./sq.in.
  EH6= 28,300,856 lb./sq.in.   EH7= 28,300,856 lb./sq.in.
  EH8= 28,300,856 lb./sq.in.   EH9= 28,300,856 lb./sq.in.   v = .292
  Pipe Den= .2900000 lb./cu.in.   Fluid Den= .0021676 lb./cu.in.
  Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6530   Unreinforced Tee   Pad= .280 in.
ALLOWABLE STRESSES
  B31.3 (2016)           Cycle Max Switch = ---   Sc= 16,700 lb./sq.in.
  Sh1= 16,700 lb./sq.in.   Sh2= 16,700 lb./sq.in.   Sh3= 16,700 lb./sq.in.
  Sh4= 16,700 lb./sq.in.   Sh5= 16,700 lb./sq.in.   Sh6= 16,700 lb./sq.in.
  Sh7= 16,700 lb./sq.in.   Sh8= 16,700 lb./sq.in.   Sh9= 16,700 lb./sq.in.
  Sy= 25,000 lb./sq.in.
-----
From 6010 To 6020 DX= .000 ft.   DZ= 19.685 ft.
PIPE
  Dia= 10.750 in.   Wall= .365 in.   Cor= .2362 in.
GENERAL
  T1= 100 F   T2= 185 F   T3= 70 F   T4= 100 F   P1= 130.5369 lb./sq.in.
  PHyd= 195.8054 lb./sq.in.   Mat= (106)A106 Grade B
  E= 29,500,856 lb./sq.in.   EH1= 29,298,040 lb./sq.in.
  EH2= 28,875,074 lb./sq.in.   EH3= 29,500,856 lb./sq.in.
  EH4= 29,298,040 lb./sq.in.   EH5= 29,500,856 lb./sq.in.
  EH6= 29,500,856 lb./sq.in.   EH7= 29,500,856 lb./sq.in.
  EH8= 29,500,856 lb./sq.in.   EH9= 29,500,856 lb./sq.in.   v = .292
  Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0002384 lb./cu.in.
  Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
RESTRAINTS
  Node 6010 +Y   Cnode 0   Mu = .30
  Node 6010 Z   Gap= .118 in.   Mu = .30
  Node 6010 X   Gap= .118 in.
  Node 6020 +Y
ALLOWABLE STRESSES
  B31.3 (2016)           Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 20,000 lb./sq.in.   Sh3= 20,000 lb./sq.in.
  Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.
-----
From 6020 To 6025 DX= .000 ft.   DZ= 19.685 ft.
RESTRAINTS
  Node 6025 +Y   Mu = .30
  Node 6025 X   Gap= .118 in.
-----
From 6025 To 6030 DX= .000 ft.   DZ= 19.685 ft.
RESTRAINTS
  Node 6030 +Y   Mu = .30
  Node 6030 X   Gap= .118 in.
-----
From 6030 To 6035 DY= .000 ft.   DZ= 3.609 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 6034

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Angle/Node @2= .00 6033
-----
From 6035 To 6040 DX= -19.685 ft. DY= .000 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6039
  Angle/Node @2= .00 6038
-----
From 6040 To 6045 DZ= 6.234 ft.
RESTRAINTS
  Node 6045 +Y Mu = .30
-----
From 6045 To 6050 DZ= 6.234 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6049
  Angle/Node @2= .00 6048
-----
From 6050 To 6055 DX= 19.685 ft. DZ= .000 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6054
  Angle/Node @2= .00 6053
-----
From 6055 To 6060 DZ= 3.609 ft.
RESTRAINTS
  Node 6060 +Y Mu = .30
  Node 6060 X Gap= .118 in.
-----
From 6060 To 6065 DZ= 16.306 ft.
-----
From 6065 To 6070 DZ= 4.265 ft.
RESTRAINTS
  Node 6070 +Y Mu = .30
-----
From 6070 To 6080 DZ= 19.685 ft.
RESTRAINTS
  Node 6080 +Y Mu = .30
  Node 6080 X Gap= .118 in. Mu = .30
-----
From 6080 To 6090 DZ= 19.685 ft.
RESTRAINTS
  Node 6090 +Y Mu = .30
  Node 6090 LIM Gap= .118 in.
-----
From 6090 To 4970 DZ= 15.420 ft.
RESTRAINTS
  Node 4970 +Y Mu = .30
  Node 4970 X Gap= .118 in.
-----
From 1260 To 2140 DY= 5.020 ft.
PIPE
  Dia= 2.375 in. Wall= .344 in. Cor= .1181 in.
GENERAL
  T1= 288 F T2= 347 F T3= 70 F T4= 288 F P1= 899.2545 lb./sq.in.
  PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B
  E= 29,500,856 lb./sq.in. EH1= 28,362,114 lb./sq.in.
  EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.
  EH4= 28,362,114 lb./sq.in. EH5= 29,500,856 lb./sq.in.

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INPUT LISTING

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EH6= 29,500,856 lb./sq.in.   EH7= 29,500,856 lb./sq.in.
EH8= 29,500,856 lb./sq.in.   EH9= 29,500,856 lb./sq.in.   v = .292
Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0015535 lb./cu.in.
Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
BEND at "TO" end
  Radius= 3.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 2139
  Angle/Node @2= .00 2138
ALLOWABLE STRESSES
  B31.3 (2016)           Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 19,953 lb./sq.in.   Sh3= 20,000 lb./sq.in.
  Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.
-----
From 2140 To 2160 DX= .000 ft.   DZ= .827 ft.
BEND at "TO" end
  Radius= 3.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 2159
  Angle/Node @2= .00 2158
-----
From 2160 To 2180 DX= -12.677 ft.
RESTRAINTS
  Node 2180 +Y
  Node 2180 Z   Gap= .118 in.
-----
From 2180 To 2200 DX= -16.124 ft.
RESTRAINTS
  Node 2200 +Y   Mu = .30
-----
From 2200 To 2220 DX= -16.124 ft.
RESTRAINTS
  Node 2220 +Y
  Node 2220 Z   Gap= .118 in.
-----
From 2220 To 2260 DX= -1.273 ft.
BEND at "TO" end
  Radius= 3.000 in. (LONG)   Bend Angle= 90.000
-----
From 2260 To 2270 DZ= 8.196 ft.
RESTRAINTS
  Node 2270 +Y   Mu = .30
-----
From 2270 To 2280 DZ= 5.197 ft.
SIF's & TEE's
  Node 2280 Welding Tee
-----
From 2280 To 2320 DY= 1.444 ft.
RESTRAINTS
  Node 2320 +Y   Mu = .30
-----
From 2320 To 2330 DY= 1.463 ft.
-----
From 2330 To 2340 DY= .699 ft.
-----
From 2340 To 2360 DY= .271 ft.
  Element Name= GATE_FLG_600
RIGID Weight= 13.00 lb.

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INPUT LISTING

 From 2360 To 5650 DY= .988 ft.
 RIGID Weight= 70.00 lb.

From 5650 To 5660 DY= .271 ft.
 RIGID Weight= 13.00 lb.

From 5660 To 2400 DY= 1.312 ft.

From 2400 To 5670 DY= .348 ft.
 REDUCER
 Diam2= 1.900 in. Wall2= .281 in.

From 5670 To 5680 DY= .260 ft.
 PIPE
 Dia= 1.900 in. Wall= .281 in.
 Insul Thk= .000 in.
 RIGID Weight= 8.00 lb.

From 5680 To 5690 DY= .260 ft.
 RIGID Weight= 8.00 lb.

From 5690 To 2420 DY= .136 ft.
 RIGID Weight= 5.62 lb.
 FORCES & MOMENTS
 Node 2420 FX1= 449.64 lb. FY1= 224.82 lb. FZ1= .00 lb.

From 2420 To 2440 DX= -.512 ft.
 PIPE
 Dia= 3.500 in. Wall= .300 in.
 Insul Thk= .000 in.
 RIGID Weight= 22.48 lb.

From 2440 To 2460 DX= -.240 ft. DZ= .000 ft.
 PIPE
 Cor= .2362 in. Element Name= FLANGE_FLG_150
 GENERAL
 T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.
 PHyd= 119.6589 lb./sq.in. Fluid Den= .0000542 lb./cu.in.
 RIGID Weight= 12.25 lb.

ALLOWABLE STRESSES
 B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

From 2460 To 2480 DX= -.459 ft. DY= -.130 ft. DZ= .000 ft.
 REDUCER
 Diam2= 6.625 in. Wall2= .432 in.

From 2480 To 2500 DX= -1.148 ft.
 PIPE
 Dia= 6.625 in. Wall= .432 in.
 Insul Thk= .000 in.
 RESTRAINTS

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INPUT LISTING

```

Node 2500 +Y Mu = .30
Node 2500 Z
Node 2500 X
-----
From 2500 To 2520 DX= -1.900 ft. DZ= .000 ft.
SINGLE FLANGED BEND at "TO" end
  Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2519
  Angle/Node @2= .00 2518
-----
From 2520 To 2540 DY= -.751 ft.
-----
From 2540 To 5700 DY= -.302 ft.
  Element Name= BALL_FLG_150
RIGID Weight= 25.00 lb.
-----
From 5700 To 2560 DY= -.906 ft.
RIGID Weight= 226.00 lb.
-----
From 2560 To 2570 DY= -.302 ft.
RIGID Weight= 25.00 lb.
-----
From 2570 To 5710 DY= -2.146 ft.
-----
From 5710 To 6440 DX= -.250 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6440 Unreinforced Tee
-----
From 5710 To 2580 DY= -1.926 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2579
  Angle/Node @2= .00 2578
-----
From 2580 To 5840 DX= -1.063 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 5839
-----
From 5840 To 5800 DX= -1.640 ft. DZ= 1.640 ft.
-----
From 2280 To 2300 DZ= 1.640 ft.
PIPE
  Dia= 2.375 in. Wall= .344 in. Cor= .1181 in.
GENERAL
  T1= 288 F T2= 347 F T3= 70 F T4= 288 F P1= 899.2545 lb./sq.in.
  PHyd= 1,348.8818 lb./sq.in. Fluid Den= .0015535 lb./cu.in.
  Insul Thk= .000 in.
BEND at "TO" end
  Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2299
  Angle/Node @2= .00 2298
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
  Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.
-----

```

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INPUT LISTING

From 2300 To 2620 DY= 1.444 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T4= 288 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Fluid Den= .0005564 lb./cu.in.

Insul Thk= .000 in.

RESTRAINTS

Node 2620 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 2620 To 2640 DY= 2.165 ft.

 From 2640 To 5720 DY= .271 ft.

RIGID Weight= 13.00 lb.

 From 5720 To 2660 DY= .988 ft.

Element Name= GATE_FLG_600

RIGID Weight= 70.00 lb.

 From 2660 To 5730 DY= .271 ft.

RIGID Weight= 13.00 lb.

 From 5730 To 2700 DY= 1.312 ft.

 From 2700 To 5740 DY= .348 ft.

REDUCER

Diam2= 1.900 in. Wall2= .281 in.

 From 5740 To 5750 DY= .260 ft.

PIPE

Dia= 1.900 in. Wall= .281 in.

Insul Thk= .000 in.

RIGID Weight= 8.00 lb.

 From 5750 To 5760 DY= .260 ft.

RIGID Weight= 8.00 lb.

 From 5760 To 2720 DY= .135 ft.

RIGID Weight= 8.00 lb.

FORCES & MOMENTS

Node 2720 FX2= 449.64 lb. FY2= 224.82 lb. FZ2= .00 lb.

 From 2720 To 2740 DX= -.512 ft. DZ= .000 ft.

PIPE

Dia= 3.500 in. Wall= .300 in.

Insul Thk= .000 in.

RIGID Weight= 22.48 lb.

 From 2740 To 2760 DX= -.240 ft. DZ= .000 ft.

PIPE

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INPUT LISTING

Dia= 3.500 in. Wall= .300 in. Cor= .2362 in.

Element Name= FLANGE_FLG_150

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Fluid Den= .0000542 lb./cu.in.

Insul Thk= .000 in.

RIGID Weight= 12.25 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 2760 To 2780 DX= -.459 ft. DY= -.130 ft. DZ= .000 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

 From 2780 To 2800 DX= -1.148 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RESTRAINTS

Node 2800 +Y

Node 2800 Z

Node 2800 X

 From 2800 To 2820 DX= -1.900 ft. DZ= .000 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2819

Angle/Node @2= .00 2818

 From 2820 To 2840 DY= -.751 ft.

 From 2840 To 2846 DY= -.302 ft.

Element Name= BALL_FLG_150

RIGID Weight= 25.00 lb.

 From 2846 To 2852 DY= -.906 ft.

RIGID Weight= 226.00 lb.

 From 2852 To 2860 DY= -.302 ft.

RIGID Weight= 25.00 lb.

 From 2860 To 2870 DY= -2.146 ft.

 From 2870 To 6460 DX= -.250 ft.

RIGID Weight= .00 lb.

 From 2870 To 2880 DY= -1.926 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2879

Angle/Node @2= .00 2878

 From 2880 To 5800 DX= -2.703 ft.

SIF's & TEE's

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INPUT LISTING

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Node 5800 Welding Tee
-----
From 5800 To 5805 DX= -5.075 ft.
RESTRAINTS
Node 5805 +Y Mu = .30
-----
From 5805 To 5810 DX= -3.117 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5809
Angle/Node @2= .00 5808
-----
From 5810 To 5820 DY= -2.210 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG) Bend Angle= 39.950 Angle/Node @1= 19.97 5819
Angle/Node @2= .00 5818
-----
From 5820 To 5475 DX= .000 ft. DY= -3.563 ft. DZ= 2.985 ft.
-----
From 4750 To 6550 DZ= -.584 ft.
PIPE
Dia= 6.625 in. Wall= .432 in. Cor= .2362 in.
GENERAL
T1= 185 F T2= 99 F T3= 70 F T4= 99 F P1= 130.5369 lb./sq.in.
PHyd= 195.8054 lb./sq.in. Mat= (106)A106 Grade B
E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
EH2= 29,309,386 lb./sq.in. EH3= 29,500,856 lb./sq.in.
EH4= 29,309,386 lb./sq.in. EH5= 29,500,856 lb./sq.in.
EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.
Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.
-----
From 6210 To 6220 DY= -.984 ft.
PIPE
Dia= 4.500 in. Wall= .237 in. Cor= .0000 in.
GENERAL
T1= 70 F T2= 70 F T3= 70 F T4= 70 F P1= .0000 lb./sq.in.
PHyd= .0000 lb./sq.in. Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.
Insul Den= .0000000 lb./cu.in.
RESTRAINTS
Node 6220 +Y Mu = .30
Node 6220 Z
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

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INPUT LISTING

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6230 To 6240 DZ= .984 ft.

PIPE

Dia= 1.900 in. Wall= .145 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6240 +Y Cnode 6241 Mu = .30

 From 6260 To 6270 DY= -1.148 ft.

RESTRAINTS

Node 6270 +Y Cnode 6271 Mu = .30
 Node 6270 Z Cnode 6271 Gap= .118 in.

 From 6280 To 6290 DX= .984 ft.

PIPE

Dia= 2.375 in. Wall= .154 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6290 +Y Cnode 6291 Mu = .30
 Node 6290 Z Cnode 6291 Gap= .118 in.

 From 6300 To 6310 DY= -2.953 ft.

RESTRAINTS

Node 6310 +Y Mu = .30

 From 6400 To 6410 DY= -.984 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6410 +Y Mu = .30
 Node 6410 Z

 From 6420 To 6425 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6425 To 6430 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.

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INPUT LISTING

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6430 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6440 To 6450 DX= -.984 ft.

RESTRAINTS

Node 6450 +Y

 From 6460 To 6470 DX= -.984 ft.

RESTRAINTS

Node 6470 Y

 From 6480 To 6485 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6485 To 6490 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6490 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6510 To 6515 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.

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INPUT LISTING

EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6515 To 6520 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6520 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6530 To 6535 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6535 To 6540 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6540 +Y Mu = .30

Node 6540 X Gap= .118 in. Mu = .30

ALLOWABLE STRESSES

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B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6550 To 6590 DY= -2.001 ft.

RESTRAINTS

Node 6590 +Y
 Node 6590 X Gap= .118 in.

 From 6600 To 6610 DY= -1.640 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6610 +Y
 Node 6610 Z Gap= .118 in.

 From 6630 To 6640 DY= -1.640 ft.

RESTRAINTS

Node 6640 +Y Mu = .30
 Node 6640 Z Gap= .118 in. Mu = .30

 From 6660 To 6670 DY= -1.640 ft.

RESTRAINTS

Node 6670 +Y
 Node 6670 Z Gap= .118 in.

 From 6680 To 6690 DY= -1.640 ft.

RESTRAINTS

Node 6690 +Y Mu = .30

 From 6700 To 6705 DX= .328 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.
 Insul Thk= .000 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6705 To 6710 DX= 1.312 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

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INPUT LISTING

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6710 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6720 To 6730 DY= -2.297 ft.

PIPE

Dia= 3.500 in. Wall= .216 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6730 +Y Mu = .30
 Node 6730 X Gap= .118 in.

 From 6740 To 6750 DZ= -.984 ft.

RESTRAINTS

Node 6750 +Y

 From 6760 To 6765 DX= -.328 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.
 Insul Thk= .000 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6765 To 6770 DX= -1.476 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6770 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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INPUT LISTING

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 7000 To 7005 DX= .328 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 7005 To 7010 DX= 1.312 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 7010 +Y Mu = .30
 Node 7010 Z Gap= .118 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

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MATERIAL Changes:

20	40	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
280	300	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
500	580	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
610	620	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
620	5190	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
5300	5310	Mat= (106)A106 Grade B

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INPUT LISTING

		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
640	660	Mat= (102)A53 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
620	680	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
820	840	Mat= (383)A516 70	E= 29,500,856 lb./sq.in.
		v = .292	Density= .2830 lb./cu.in.
280	4350	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
1020	1040	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
1020	1260	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
1400	1480	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
1660	1680	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
1820	1920	Mat= (165)A312 TP316L	
		E= 28,300,856 lb./sq.in.	v = .292
		Density= .2900 lb./cu.in.	
2000	6420	Mat= (165)A312 TP316L	
		E= 28,300,856 lb./sq.in.	v = .292
		Density= .2900 lb./cu.in.	
2000	4100	Mat= (165)A312 TP316L	
		E= 28,300,856 lb./sq.in.	v = .292
		Density= .2900 lb./cu.in.	
4505	6790	Mat= (165)A312 TP316L	
		E= 28,300,856 lb./sq.in.	v = .292
		Density= .2900 lb./cu.in.	
6845	6830	Mat= (165)A312 TP316L	
		E= 28,300,856 lb./sq.in.	v = .292
		Density= .2900 lb./cu.in.	
4100	4560	Mat= (165)A312 TP316L	
		E= 28,300,856 lb./sq.in.	v = .292
		Density= .2900 lb./cu.in.	
4740	4750	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
4570	4980	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
4980	4990	E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
5120	5130	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292
		Density= .2830 lb./cu.in.	
3960	5420	Mat= (106)A106 Grade B	
		E= 29,500,856 lb./sq.in.	v = .292

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INPUT LISTING

4710	6530	Density= .2830 lb./cu.in. Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6010	6020	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1260	2140	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
4750	6550	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6210	6220	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6420	6425	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6425	6430	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6480	6485	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6485	6490	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6510	6515	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6515	6520	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6530	6535	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6535	6540	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6700	6705	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6705	6710	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6760	6765	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6765	6770	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
7000	7005	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
7005	7010	Mat= (102)A53 Grade B

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INPUT LISTING

E= 29,500,856 lb./sq.in. v = .292

Density= .2830 lb./cu.in.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-007\BNK-GCS-CN-007

ALLOWABLE STRESS Changes

20	40	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
140	160	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
120	180	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
280	300	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
500	580	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.

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INPUT LISTING

		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
580	600	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
610	620	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
620	5190	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
5300	5310	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.

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INPUT LISTING

		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
610	640	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
640	660	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
620	680	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
820	840	B31.3 (2016) Cycle Max Switch = ---
		Sc= 23,300 lb./sq.in.
		Sh1= 23,260 lb./sq.in.
		Sh2= 22,882 lb./sq.in.
		Sh3= 23,300 lb./sq.in.
		Sh4= 23,260 lb./sq.in.
		Sh5= 23,300 lb./sq.in.
		Sh6= 23,300 lb./sq.in.
		Sh7= 23,300 lb./sq.in.
		Sh8= 23,300 lb./sq.in.
		Sh9= 23,300 lb./sq.in.
		Sy= 38,000 lb./sq.in.
280	4350	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.

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INPUT LISTING

		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4360	4370	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4370	4380	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
900	920	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1020	1040	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1020	1260	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.

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		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1400	1480	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1660	1680	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1820	1920	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,230 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
2000	6420	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,230 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.

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2000	4100	Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in. B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
4505	6790	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
6845	6830	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
4100	4560	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
4740	4750	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in.

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		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4780	4160	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4310	4320	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4780	6620	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4570	4980	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4980	4990	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.

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		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
5120	5130	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
3960	5420	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4710	6530	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6010	6020	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.

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		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1260	2140	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
2440	2460	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
2280	2300	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
2300	2620	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
2740	2760	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.

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		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4750	6550	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6210	6220	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6420	6425	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6425	6430	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6480	6485	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.

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		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6485	6490	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6510	6515	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6515	6520	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6530	6535	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.

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		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6535	6540	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6700	6705	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6705	6710	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6760	6765	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6765	6770	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.

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INPUT LISTING

		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
7000	7005	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
7005	7010	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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BEND ELEMENTS

40	60	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 59
		Angle/Node @2= .00 58
60	80	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
		Angle/Node @2= .00 78
80	100	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 99
		Angle/Node @2= .00 98
120	180	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179
490	500	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		499 Angle/Node @2= .00 498
500	580	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
580	600	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		599 Angle/Node @2= .00 598

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INPUT LISTING

620	5190	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5189 Angle/Node @2= .00 5188
5230	5240	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5239 Angle/Node @2= .00 5238
5320	5330	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5329 Angle/Node @2= .00 5328
5340	5350	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5349 Angle/Node @2= .00 5348
5355	5360	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000
5375	5380	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5379 Angle/Node @2= .00 5378
5380	5390	Radius= 4.500 in. (LONG)
		Bend Angle= 50.075 Angle/Node @1= 25.04
		5389 Angle/Node @2= .00 5388
620	680	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		679 Angle/Node @2= .00 678
4380	4390	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4389 Angle/Node @2= .00 4388
4395	880	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		879 Angle/Node @2= .00 878
960	980	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		979 Angle/Node @2= .00 978
1100	1120	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1119 Angle/Node @2= .00 1118
1120	1140	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1139 Angle/Node @2= .00 1138
1160	1180	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1179 Angle/Node @2= .00 1178
1180	1200	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1199 Angle/Node @2= .00 1198
1390	1400	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1399 Angle/Node @2= .00 1398
1400	1480	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1479 Angle/Node @2= .00 1478
1520	1540	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1539 Angle/Node @2= .00 1538
1560	1580	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1579 Angle/Node @2= .00 1578

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INPUT LISTING

1580	1600	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599 Angle/Node @2= .00 1598
1600	1620	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619 Angle/Node @2= .00 1618
1920	1940	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1939
1960	1980	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1979 Angle/Node @2= .00 1978
4482	4485	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4484 Angle/Node @2= .00 4483
6780	6795	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6794 Angle/Node @2= .00 6793
6795	6800	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6799 Angle/Node @2= .00 6798
6810	6820	Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 6819 Angle/Node @2= .00 6818
6910	6915	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6914 Angle/Node @2= .00 6913
4580	4590	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4589 Angle/Node @2= .00 4588
6550	4140	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4139 Angle/Node @2= .00 4138
6560	4760	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4759 Angle/Node @2= .00 4758
4760	4770	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4769
4930	4940	Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4939 Angle/Node @2= .00 4938
4940	4950	Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4949 Angle/Node @2= .00 4948
4950	4960	Radius= 12.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 4959 Angle/Node @2= .00 4958
5010	5020	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5019
5130	5140	Radius= 6.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5139
5145	5150	Radius= 6.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00

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INPUT LISTING

5150	5160	5149 Angle/Node @2= .00 5148 Radius= 6.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5160	5170	5159 Angle/Node @2= .00 5158 Radius= 6.000 in. (LONG) Bend Angle= 44.939 Angle/Node @1= 22.47
5435	5440	5169 Angle/Node @2= .00 5168 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5440	5450	5439 Angle/Node @2= .00 5438 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5455	5460	5449 Angle/Node @2= .00 5448 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5460	5465	5459 Angle/Node @2= .00 5458 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5510	5515	5464 Angle/Node @2= .00 5463 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5515	5520	5514 Angle/Node @2= .00 5513 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5535	5540	5519 Angle/Node @2= .00 5518 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5540	5545	5539 Angle/Node @2= .00 5538 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6030	6035	5544 Angle/Node @2= .00 5543 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6035	6040	6034 Angle/Node @2= .00 6033 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6045	6050	6039 Angle/Node @2= .00 6038 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6050	6055	6049 Angle/Node @2= .00 6048 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1260	2140	6054 Angle/Node @2= .00 6053 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2140	2160	2139 Angle/Node @2= .00 2138 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2220	2260	2159 Angle/Node @2= .00 2158 Radius= 3.000 in. (LONG) Bend Angle= 90.000
2500	2520	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5710	2580	2519 Angle/Node @2= .00 2518 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00

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2580	5840	2579 Angle/Node @2= .00 2578 Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50
2280	2300	5839 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2800	2820	2299 Angle/Node @2= .00 2298 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2870	2880	2819 Angle/Node @2= .00 2818 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5805	5810	2879 Angle/Node @2= .00 2878 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
5810	5820	5809 Angle/Node @2= .00 5808 Radius= 9.000 in. (LONG) Bend Angle= 39.950 Angle/Node @1= 19.97
		5819 Angle/Node @2= .00 5818

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RIGIDS

20	40	RIGID Weight= 43.00 lb.
120	140	RIGID Weight= .00 lb.
200	220	RIGID Weight= 43.00 lb.
220	240	RIGID Weight= 43.00 lb.
320	340	RIGID Weight= 43.00 lb.
340	360	RIGID Weight= 230.07 lb.
360	380	RIGID Weight= 43.00 lb.
420	440	RIGID Weight= 43.00 lb.
440	460	RIGID Weight= 43.00 lb.
500	6210	RIGID Weight= .00 lb.
5200	5210	RIGID Weight= 10.00 lb.
5210	5220	RIGID Weight= 21.00 lb.
5220	5230	RIGID Weight= 10.00 lb.
5240	6230	RIGID Weight= .00 lb.
5250	5260	RIGID Weight= 10.00 lb.
5260	5270	RIGID Weight= 10.00 lb.
5275	6260	RIGID Weight= .00 lb.
5280	5290	RIGID Weight= 10.00 lb.
5290	5300	RIGID Weight= 58.00 lb.
5300	5310	RIGID Weight= 7.00 lb.
5340	6280	RIGID Weight= .00 lb.
610	640	RIGID Weight= .00 lb.
700	720	RIGID Weight= 64.50 lb.
721	760	RIGID Weight= 40.00 lb.
780	800	RIGID Weight= .00 lb.
780	6241	RIGID Weight= .00 lb.
780	6271	RIGID Weight= .00 lb.
780	6291	RIGID Weight= .00 lb.
820	840	RIGID Weight= .00 lb.
4350	4360	RIGID Weight= 10.00 lb.
4360	4370	RIGID Weight= 70.00 lb.
4370	4380	RIGID Weight= 13.00 lb.

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4390	6300	RIGID	Weight= .00 lb.
900	920	RIGID	Weight= 13.00 lb.
920	940	RIGID	Weight= 96.00 lb.
940	960	RIGID	Weight= 13.00 lb.
1060	1080	RIGID	Weight= 82.00 lb.
1080	1100	RIGID	Weight= 82.00 lb.
1220	1240	RIGID	Weight= 82.00 lb.
1300	1320	RIGID	Weight= 82.00 lb.
1320	1340	RIGID	Weight= 694.00 lb.
1340	1360	RIGID	Weight= 82.00 lb.
1640	1660	RIGID	Weight= 82.00 lb.
1660	1680	RIGID	Weight= 25.00 lb.
1720	1740	RIGID	Weight= .00 lb.
1740	1760	RIGID	Weight= .00 lb.
1800	1820	RIGID	Weight= 25.00 lb.
1740	1840	RIGID	Weight= 505.85 lb.
1840	1860	RIGID	Weight= 2,360.61 lb.
1860	1880	RIGID	Weight= 1,011.69 lb.
1880	1900	RIGID	Weight= 2,360.61 lb.
1900	1740	RIGID	Weight= 505.85 lb.
1820	1920	RIGID	Weight= 43.00 lb.
2000	6420	RIGID	Weight= .00 lb.
2000	6420	RIGID	Weight= .00 lb.
4400	4410	RIGID	Weight= 82.00 lb.
4410	4420	RIGID	Weight= 694.00 lb.
4420	4430	RIGID	Weight= 82.00 lb.
4440	6480	RIGID	Weight= .00 lb.
4450	4460	RIGID	Weight= 82.00 lb.
4460	4470	RIGID	Weight= 165.00 lb.
4470	4480	RIGID	Weight= 82.00 lb.
4485	6760	RIGID	Weight= .00 lb.
4490	4500	RIGID	Weight= 82.00 lb.
4500	4505	RIGID	Weight= 226.00 lb.
4505	6790	RIGID	Weight= 82.00 lb.
6795	7000	RIGID	Weight= .00 lb.
4600	4610	RIGID	Weight= 82.00 lb.
4610	4620	RIGID	Weight= 609.00 lb.
4620	4630	RIGID	Weight= 82.00 lb.
4640	6510	RIGID	Weight= .00 lb.
4660	4670	RIGID	Weight= 43.00 lb.
4670	4680	RIGID	Weight= 87.00 lb.
4680	4690	RIGID	Weight= 43.00 lb.
4710	6530	RIGID	Weight= .00 lb.
4720	4730	RIGID	Weight= 82.00 lb.
4730	4740	RIGID	Weight= 609.00 lb.
4740	4750	RIGID	Weight= 25.00 lb.
4160	6600	RIGID	Weight= .00 lb.
4180	4200	RIGID	Weight= 40.00 lb.
4200	4220	RIGID	Weight= 6.74 lb.
4220	4240	RIGID	Weight= 40.00 lb.
4261	4280	RIGID	Weight= .00 lb.
4280	4300	RIGID	Weight= .00 lb.
4300	4310	RIGID	Weight= .00 lb.
4310	4320	RIGID	Weight= .00 lb.
6620	6630	RIGID	Weight= .00 lb.
4800	4810	RIGID	Weight= 40.00 lb.

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4810	4820	RIGID Weight= 470.00 lb.
4820	4830	RIGID Weight= 40.00 lb.
4840	4850	RIGID Weight= 40.00 lb.
4850	4860	RIGID Weight= 81.00 lb.
4860	4870	RIGID Weight= 40.00 lb.
6650	6660	RIGID Weight= .00 lb.
4890	4900	RIGID Weight= 40.00 lb.
4900	4910	RIGID Weight= 508.00 lb.
4910	4920	RIGID Weight= 40.00 lb.
4930	6680	RIGID Weight= .00 lb.
4980	4990	RIGID Weight= 82.00 lb.
4990	5000	RIGID Weight= 609.00 lb.
5000	5010	RIGID Weight= 82.00 lb.
5020	6700	RIGID Weight= .00 lb.
5040	5060	RIGID Weight= 24.00 lb.
5060	5070	RIGID Weight= 49.00 lb.
5070	5080	RIGID Weight= 24.00 lb.
5095	6720	RIGID Weight= .00 lb.
5100	5110	RIGID Weight= 43.00 lb.
5110	5120	RIGID Weight= 251.00 lb.
5120	5130	RIGID Weight= 16.00 lb.
5145	6740	RIGID Weight= .00 lb.
4710	6530	RIGID Weight= .00 lb.
2340	2360	RIGID Weight= 13.00 lb.
2360	5650	RIGID Weight= 70.00 lb.
5650	5660	RIGID Weight= 13.00 lb.
5670	5680	RIGID Weight= 8.00 lb.
5680	5690	RIGID Weight= 8.00 lb.
5690	2420	RIGID Weight= 5.62 lb.
2420	2440	RIGID Weight= 22.48 lb.
2440	2460	RIGID Weight= 12.25 lb.
2540	5700	RIGID Weight= 25.00 lb.
5700	2560	RIGID Weight= 226.00 lb.
2560	2570	RIGID Weight= 25.00 lb.
5710	6440	RIGID Weight= .00 lb.
2640	5720	RIGID Weight= 13.00 lb.
5720	2660	RIGID Weight= 70.00 lb.
2660	5730	RIGID Weight= 13.00 lb.
5740	5750	RIGID Weight= 8.00 lb.
5750	5760	RIGID Weight= 8.00 lb.
5760	2720	RIGID Weight= 8.00 lb.
2720	2740	RIGID Weight= 22.48 lb.
2740	2760	RIGID Weight= 12.25 lb.
2840	2846	RIGID Weight= 25.00 lb.
2846	2852	RIGID Weight= 226.00 lb.
2852	2860	RIGID Weight= 25.00 lb.
2870	6460	RIGID Weight= .00 lb.

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SIF's & TEE's

140	160	Node 140	Unreinforced Tee
260	280	Node 280	Weldolet
620	5190	Node 620	Weldolet
5240	6230	Node 6230	Unreinforced Tee

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5275	6260	Node 6260	Unreinforced Tee	
5340	6280	Node 6280	Unreinforced Tee	
610	640	Node 640	Unreinforced Tee	
4390	6300	Node 6300	Unreinforced Tee	
1000	1020	Node 1020	Weldolet	
1020	1260	Node 1260	Weldolet	
2000	6420	Node 6420	Unreinforced Tee	
		Pad=	.280 in.	
2000	6420	Node 6420	Unreinforced Tee	
2000	4100	Node 4100	Welding Tee	
4440	6480	Node 6480	Unreinforced Tee	
		Pad=	.280 in.	
4485	6760	Node 6760	Unreinforced Tee	
		Pad=	.280 in.	
6795	7000	Node 7000	Unreinforced Tee	
		Pad=	.280 in.	
6845	6830	Node 6830	Welding Tee	
4100	4560	Node 4560	Welding Tee	
4640	6510	Node 6510	Unreinforced Tee	
		Pad=	.280 in.	
4710	6530	Node 6530	Unreinforced Tee	
		Pad=	.280 in.	
4770	4780	Node 4780	Welding Tee	
4160	6600	Node 6600	Unreinforced Tee	
6620	6630	Node 6630	Unreinforced Tee	
6650	6660	Node 6660	Unreinforced Tee	
4930	6680	Node 6680	Unreinforced Tee	
5020	6700	Node 6700	Unreinforced Tee	
		Pad=	.280 in.	
5095	6720	Node 6720	Reinforced Tee	Pad= .237 in.
5145	6740	Node 6740	Unreinforced Tee	
4710	6530	Node 6530	Unreinforced Tee	
		Pad=	.280 in.	
2270	2280	Node 2280	Welding Tee	
5710	6440	Node 6440	Unreinforced Tee	
2880	5800	Node 5800	Welding Tee	

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REDUCERS

5310	5320	Diam2= 3.500 in.	Wall2= .300 in.
4650	4660	Diam2= 4.500 in.	Wall2= .237 in.
4690	4700	Diam2= 6.625 in.	Wall2= .280 in.
5030	5040	Diam2= 3.500 in.	Wall2= .216 in.
5080	5090	Diam2= 4.500 in.	Wall2= .237 in.
2400	5670	Diam2= 1.900 in.	Wall2= .281 in.
2460	2480	Diam2= 6.625 in.	Wall2= .432 in.
2700	5740	Diam2= 1.900 in.	Wall2= .281 in.
2760	2780	Diam2= 6.625 in.	Wall2= .432 in.

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RESTRAINTS

				Len	MU	
				GAP	YIELD	Dir
NODE	TYPE	CNODE	STIF1	STIF2	FORCE	Vectors
-----	+	-----	+	-----	+	-----

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INPUT LISTING

20	ANC			.000	.000	.000
160	-X			.30	1.000	.000
160	Z	121			.000	.000
121	+Y			.10	.000	1.000
160	X	121			1.000	.000
300	+Y			.30	.000	1.000
400	Y				.000	1.000
400	Z				.000	.000
480	Y				.000	1.000
480	Z				.000	.000
5355	+Y				.000	1.000
5370	+Y			.30	.000	1.000
5370	Z		.12		.000	.000
5375	+Y			.30	.000	1.000
660	+Y	800			.000	1.000
720	ANC	721			.000	.000
780	ANC	820			.000	.000
840	ANC				.000	.000
1040	+Y			.30	.000	1.000
1180	-X			.30	1.000	.000
1180	+Y			.30	.000	1.000
1240	ANC				.000	.000
1280	Y			.30	.000	1.000
1280	Z				.000	.000
1380	Y			.30	.000	1.000
1380	Z		.12		.000	.000
1500	+Y				.000	1.000
1500	Z				.000	.000
1520	+Y			.30	.000	1.000
1560	+Y				.000	1.000
1560	X		.12		1.000	.000
1660	ANC	1661			.000	.000
1700	ANC	1720			.000	.000
1780	ANC	1760			.000	.000
1840	Y			.10	.000	1.000
1840	X			.30	1.000	.000
1840	Z		.24		.000	.000
1860	Y			.10	.000	1.000
1860	Z		.24	.30	.000	.000
1880	Y			.10	.000	1.000
1880	Z		.24		.000	.000
1900	Y			.10	.000	1.000
1900	X			.30	1.000	.000
1900	Z		.24	.30	.000	.000
1960	+Y			.30	.000	1.000
6845	+Y			.30	.000	1.000
6845	X		.12		1.000	.000
6845	Z		.12		.000	.000
6870	+Y				.000	1.000
6890	+Y				.000	1.000
6890	X				1.000	.000
6900	+Y				.000	1.000
6905	+Y			.30	.000	1.000
6905	X		.12		1.000	.000
6910	+Y			.30	.000	1.000
6920	+Y			.30	.000	1.000

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INPUT LISTING

6920	X		.12		1.000	.000	.000
6560	+Y			.30	.000	1.000	.000
6560	Z				.000	.000	1.000
4220	ANC	4221			.000	.000	.000
4260	ANC	4261			.000	.000	.000
4320	ANC				.000	.000	.000
5420	+Y			.30	.000	1.000	.000
5420	Z		.12		.000	.000	1.000
3960	+Y			.30	.000	1.000	.000
3960	X		.12		1.000	.000	.000
5425	+Y			.30	.000	1.000	.000
5425	X		.12		1.000	.000	.000
5430	+Y			.30	.000	1.000	.000
5435	+Y			.30	.000	1.000	.000
5435	X		.12		1.000	.000	.000
5455	+Y			.30	.000	1.000	.000
5470	+Y			.30	.000	1.000	.000
5480	+Y				.000	1.000	.000
5480	X		.12		1.000	.000	.000
5480	Z		.12		.000	.000	1.000
5495	+Y			.30	.000	1.000	.000
5495	X		.12		1.000	.000	.000
5500	+Y			.30	.000	1.000	.000
5510	+Y			.30	.000	1.000	.000
5510	X		.12		1.000	.000	.000
5535	+Y			.30	.000	1.000	.000
5550	+Y			.00	.000	1.000	.000
5560	+Y			.30	.000	1.000	.000
5560	X		.12		1.000	.000	.000
5560	Z		.12		.000	.000	1.000
6010	+Y	0		.30	.000	1.000	.000
6010	Z		.12	.30	.000	.000	1.000
6010	X		.12		1.000	.000	.000
6020	+Y				.000	1.000	.000
6025	+Y			.30	.000	1.000	.000
6025	X		.12		1.000	.000	.000
6030	+Y			.30	.000	1.000	.000
6030	X		.12		1.000	.000	.000
6045	+Y			.30	.000	1.000	.000
6060	+Y			.30	.000	1.000	.000
6060	X		.12		1.000	.000	.000
6070	+Y			.30	.000	1.000	.000
6080	+Y			.30	.000	1.000	.000
6080	X		.12	.30	1.000	.000	.000
6090	+Y			.30	.000	1.000	.000
6090	LIM		.12		.000	.000	.000
4970	+Y			.30	.000	1.000	.000
4970	X		.12		1.000	.000	.000
2180	+Y				.000	1.000	.000
2180	Z		.12		.000	.000	1.000
2200	+Y			.30	.000	1.000	.000
2220	+Y				.000	1.000	.000
2220	Z		.12		.000	.000	1.000
2270	+Y			.30	.000	1.000	.000
2320	+Y			.30	.000	1.000	.000
2500	+Y			.30	.000	1.000	.000

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INPUT LISTING

2500	Z				.000	.000	1.000
2500	X				1.000	.000	.000
2620	+Y				.000	1.000	.000
2800	+Y				.000	1.000	.000
2800	Z				.000	.000	1.000
2800	X				1.000	.000	.000
5805	+Y			.30	.000	1.000	.000
6220	+Y			.30	.000	1.000	.000
6220	Z				.000	.000	1.000
6240	+Y	6241		.30	.000	1.000	.000
6270	+Y	6271		.30	.000	1.000	.000
6270	Z	6271	.12		.000	.000	1.000
6290	+Y	6291		.30	.000	1.000	.000
6290	Z	6291	.12		.000	.000	1.000
6310	+Y			.30	.000	1.000	.000
6410	+Y			.30	.000	1.000	.000
6410	Z				.000	.000	1.000
6430	+Y				.000	1.000	.000
6450	+Y				.000	1.000	.000
6470	Y				.000	1.000	.000
6490	+Y			.30	.000	1.000	.000
6520	+Y			.30	.000	1.000	.000
6540	+Y			.30	.000	1.000	.000
6540	X		.12	.30	1.000	.000	.000
6590	+Y				.000	1.000	.000
6590	X		.12		1.000	.000	.000
6610	+Y				.000	1.000	.000
6610	Z		.12		.000	.000	1.000
6640	+Y			.30	.000	1.000	.000
6640	Z		.12	.30	.000	.000	1.000
6670	+Y				.000	1.000	.000
6670	Z		.12		.000	.000	1.000
6690	+Y			.30	.000	1.000	.000
6710	+Y			.30	.000	1.000	.000
6730	+Y			.30	.000	1.000	.000
6730	X		.12		1.000	.000	.000
6750	+Y				.000	1.000	.000
6770	+Y			.30	.000	1.000	.000
7010	+Y			.30	.000	1.000	.000
7010	Z		.12		.000	.000	1.000

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HANGER CONTROL AND LOCATION DATA

No. of Hanger Design Load Cases = 1
 Actual Cold Load Flag = 0.0
 Short Range Spring Flag = 1
 Allowed Load Variation (%) = 25.0000
 Default Hanger Table = 5

140

160

Hanger Node = 160
 Hanger Connecting Node = 121
 Available Space = -39.3701 in.
 Allowed Load Variation = 25.0000
 No. Hangers = 0.0 Short Range Flag = -1
 User Operating Load = .00 lb.

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INPUT LISTING

Free Node = 0 Free Node = 0
 Free Code = 0.0 Spring Rate = .00 lb./in.
 Theoretical Cold Load = .00 lb.

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EQUIPMENT LIMITS

20 40 Nozzle Node = 20

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb. FB= 485.61 lb.
 FC= 485.61 lb. MA= 10,223.05 in.lb. MB= 10,223.05 in.lb.
 MC= 10,223.05 in.lb. Equipment Major Direction Vector= .0000 1.0000
 .0000 Interact. Mtd= Absolute
 760 780 Nozzle Node = 780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 2,158.27 lb. FB= 2,158.27 lb.
 FC= 1,618.71 lb. MA= 50,982.47 in.lb. MB= 33,988.32 in.lb.
 MC= 44,167.11 in.lb. Equipment Major Direction Vector= .0000 .0000
 1.0000 Interact. Mtd= Absolute
 1220 1240 Nozzle Node = 1240

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb. FB= 485.61 lb.
 FC= 485.61 lb. MA= 10,223.05 in.lb. MB= 10,223.05 in.lb.
 MC= 10,223.05 in.lb. Equipment Major Direction Vector= .0000 1.0000
 .0000 Interact. Mtd= Absolute
 1680 1700 Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,392.54 lb. FB= 3,392.54 lb.
 FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.
 MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000
 1.0000 Interact. Mtd= Absolute
 1780 1800 Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,642.09 lb. FB= 3,392.54 lb.
 FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.
 MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000
 1.0000 Interact. Mtd= Absolute
 4240 4260 Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,888.49 lb. FB= 1,888.49 lb.
 FC= 1,416.37 lb. MA= 33,457.25 in.lb. MB= 22,304.83 in.lb.
 MC= 29,031.69 in.lb. Equipment Major Direction Vector= .0000 1.0000
 .0000 Interact. Mtd= Absolute
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FORCES AND MOMENTS

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INPUT LISTING

```

5690          2420          Node 2420   FX1= 449.64 lb.
                                FY1= 224.82 lb.   FZ1= .00 lb.
5760          2720          Node 2720   FX2= 449.64 lb.
                                FY2= 224.82 lb.   FZ2= .00 lb.
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UNIFORM LOAD Changes

```

20          40          Vector1 in G-s
                                X1 Dir = .26 g's   Y1 Dir = .00 g's
                                Z1 Dir = .00 g's
                                Vector2 in G-s
                                X2 Dir = .00 g's   Y2 Dir = .12 g's
                                Z2 Dir = .00 g's
                                Vector3 in G-s
                                X3 Dir = .00 g's   Y3 Dir = .00 g's
                                Z3 Dir = .26 g's
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```

INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

```

LENGTH          inches          x          1.000   =   in.
FORCE            pounds          x          1.000   =   lb.
MASS(dynamics)   pounds          x          1.000   =   lbm
MOMENTS(INPUT)   inch-pounds     x          1.000   =   in.lb.
MOMENTS(OUTPUT)  inch-pounds     x          0.083   =   ft.lb.
STRESS           lbs./sq.in.     x          1.000   =   lb./sq.in.
TEMP. SCALE      degrees F.      x          1.000   =   F
PRESSURE         psig            x          1.000   =   lb./sq.in.
ELASTIC MODULUS  lbs./sq.in.     x          1.000   =   lb./sq.in.
PIPE DENSITY     lbs./cu.in.     x          1.000   =   lb./cu.in.
INSULATION DENS. lbs./cu.in.     x          1.000   =   lb./cu.in.
FLUID DENSITY    lbs./cu.in.     x          1.000   =   lb./cu.in.
TRANSL. STIF     lbs./in.        x          1.000   =   lb./in.
ROTATIONAL STIF  in.lb./deg.     x          1.000   =   in.lb./deg
UNIFORM LOAD     lb./in.         x          1.000   =   lb./in.
G LOAD          g's              x          1.000   =   g's
WIND LOAD        lbs./sq.in.     x        144.000   =   lb./sq.ft.
ELEVATION        inches          x          0.083   =   ft.
COMPOUND LENGTH  inches          x          0.083   =   ft.
DIAMETER         inches          x          1.000   =   in.
WALL THICKNESS   inches          x          1.000   =   in.
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SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =              5.00000
MAX ALLOWED BEND ANGLE =              95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =       5.00000
LOOP CLOSURE TOLERANCE =              1.00000      in.
THERMAL BOWING HORZ TOLERANCE =       0.100000E-03
AUTO NODE NUMBER INCREMENT=          10.0000

```

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INPUT LISTING

Z AXIS UP=	NO
USE PRESSURE STIFFENING =	DEFAULT
ALPHA TOLERANCE =	0.500000E-01
RESLD-FORCE =	NO
HGR DEF RESWGT STIF =	0.100000E+13 lb./in.
DECOMP SNG TOL =	0.100000E+11
BEND AXIAL SHAPE =	YES
FRICT STIF =	0.100000E+07 lb./in.
FRICT NORM FORCE VAR =	0.150000
FRICT ANGLE VAR =	15.0000
FRICT SLIDE MULT =	1.00000
ROD TOLERANCE =	1.00000
ROD INC =	2.00000
INCORE NUMERICAL CHECK =	NO
OUTCORE NUMERICAL CHECK =	NO
DEFAULT TRANS RESTRAINT STIFF=	0.100000E+13 lb./in.
DEFAULT ROT RESTRAINT STIFF=	0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS =	NO
MISSING MASS ZPA =	EXTRACTED
MIN WALL MILL TOLERANCE =	12.5000
WRC-107 VERSION =	MAR 79 1B1/2B1
WRC-107 INTERPOLATION =	LAST VALUE
DEFAULT AMBIENT TEMPERATURE=	70.0000 F
BOURDON PRESSURE=	NONE
COEFFICIENT OF FRICTION (MU) =	0.000000
INCLUDE SPRG STIF IN HGR OPE =	NO
INCLUDE INSULATION IN HYDROTEST =	NO
REDUCED INTERSECTION =	B31.1 (POST1980)
USE WRC329	NO
NO REDUCED SIF FOR RFT AND WLT	NO
B31.1 REDUCED Z FIX =	YES
CLASS 1 BRANCH FLEX	NO
ALL STRESS CASES CORRODED =	NO
ADD TORSION IN SL STRESS =	DEFAULT
ADD F/A IN STRESS =	DEFAULT
OCCASIONAL LOAD FACTOR =	0.000000
DEFAULT CODE =	B31.3
B31.3 SUS CASE SIF FACTOR =	0.000000
ALLOW USERS BEND SIF =	NO
USE SCHNEIDER	NO
YIELD CRITERION STRESS =	MAX 3D SHEAR
USE PD/4T	NO
BASE HOOP STRESS ON ? =	ID
EN13480 USE IN OUTPLANE SIFS=	NO
LIBERAL EXPANSION ALLOWABLE=	YES
B31.3 SEC 319.2.3C SAXIAL=	Default
B31.3 WELDING/CONTOUR TEE ISB16.9	FALSE
PRESSURE VARIATION IN EXP CASE=	DEFAULT
IMPLEMENT B313 APP-P	NO
IMPLEMENT B313 CODE CASE 178	YES
IGNORE B31.1/B31.3 Wc FACTOR=	YES
USE FRP SIF =	YES
USE FRP FLEX =	YES
BS 7159 Pressure Stiffening=	Design Strain
FRP Property Data File=	CAESAR.FRP
FRP Emod (axial) =	0.320000E+07 lb./sq.in.

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INPUT LISTING

FRP Ratio Gmod/Emod (axial) = 0.250000
 FRP Ea/Eh*Vh/a = 0.152730
 FRP Laminate Type = THREE
 FRP Alpha = 12.0000 F
 FRP Density = 0.600000E-01 lb./cu.in.
 EXCLUDE f2 FROM UKOOA BENDING = NO
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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000
 Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 F
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

 Ambient Temperature 69.794 F
 Plastic (FRP) Alpha 12.000
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X
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COORDINATE REPORT

NODE	/----- (in.) -----/		
	X	Y	Z
20	257.992	-209.817	277.957
40	254.016	-209.817	277.957
60	221.131	-209.817	277.957
80	221.131	-242.460	277.957
100	239.241	-242.460	277.957
120	239.241	-284.124	277.957
140	239.241	-293.140	277.957
160	239.241	-301.014	277.957
120	239.241	-284.124	277.957
180	239.241	-293.140	277.957
200	230.225	-293.140	277.957
220	226.225	-293.140	277.957
240	222.225	-293.140	277.957
260	186.792	-293.140	277.957
280	175.158	-293.140	277.957
300	155.473	-293.140	277.957
320	147.481	-293.140	277.957
340	143.481	-293.140	277.957
360	120.922	-293.140	277.957
380	116.922	-293.140	277.957
400	83.024	-293.140	277.957

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INPUT LISTING

420	21.725	-293.140	277.957
440	17.725	-293.140	277.957
460	13.725	-293.140	277.957
480	-35.212	-293.140	277.957
490	-115.330	-293.140	277.957
500	-195.448	-293.140	277.957
6210	-195.448	-296.140	277.957
490	-115.330	-293.140	277.957
500	-195.448	-293.140	277.957
580	-195.448	-130.896	277.957
600	-195.448	-130.896	169.689
610	-207.810	-130.896	169.689
620	-220.251	-130.896	169.689
5190	-220.251	-123.061	169.689
5200	-220.251	-123.061	178.587
5210	-220.251	-123.061	181.462
5220	-220.251	-123.061	193.312
5230	-220.251	-123.061	196.187
5240	-220.251	-123.061	199.219
5245	-233.480	-123.061	199.219
5240	-220.251	-123.061	199.219
6230	-220.251	-123.768	199.926
5245	-233.480	-123.061	199.219
5250	-246.708	-123.061	199.219
5260	-249.583	-123.061	199.219
5270	-252.458	-123.061	199.219
5275	-258.363	-123.061	199.219
6260	-258.363	-124.061	199.219
5275	-258.363	-123.061	199.219
5280	-264.269	-123.061	199.219
5290	-267.144	-123.061	199.219
5300	-275.018	-123.061	199.219
5310	-277.643	-123.061	199.219
5320	-281.147	-123.061	199.219
5330	-292.446	-123.061	199.219
5340	-292.446	-151.329	199.219
6280	-290.946	-151.329	199.219
5340	-292.446	-151.329	199.219
5350	-292.446	-234.675	199.219
5355	-292.446	-234.675	219.553
5360	-292.446	-234.675	239.888
5370	-421.580	-234.675	239.888
5375	-598.824	-234.675	239.888
5380	-616.186	-234.675	239.888
5390	-616.186	-262.707	239.888
5485	-616.176	-285.742	267.413
610	-207.810	-130.896	169.689
640	-207.810	-134.203	169.689
660	-207.810	-146.014	169.689
620	-220.251	-130.896	169.689
680	-253.897	-130.896	169.689
700	-253.897	-139.912	169.689
720	-253.897	-144.872	169.689
760	-253.897	-148.997	169.689
780	-253.897	-156.812	169.689
780	-253.897	-156.812	169.689

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
 Job:: BNK-GCS-CN-007-02
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

660	-207.810	-146.014	169.689
780	-253.897	-156.812	169.689
6240	-220.251	-123.781	211.737
780	-253.897	-156.812	169.689
6270	-258.363	-137.841	199.219
780	-253.897	-156.812	169.689
6290	-279.135	-151.329	199.219
780	-253.897	-156.812	169.689
840	-253.897	-297.363	169.689
280	175.158	-293.140	277.957
4350	175.158	-293.140	282.760
4360	175.158	-293.140	285.635
4370	175.158	-293.140	297.485
4380	175.158	-293.140	300.735
4390	175.158	-293.140	323.412
4395	175.158	-283.022	323.412
4390	175.158	-293.140	323.412
6300	175.158	-294.140	323.412
4395	175.158	-283.022	323.412
880	175.158	-272.904	323.412
900	175.158	-272.904	320.381
920	175.158	-272.904	317.131
940	175.158	-272.904	305.281
960	175.158	-272.904	302.031
980	175.158	-272.904	253.920
1000	175.158	-276.841	253.920
1020	175.158	-288.573	253.920
1040	186.969	-288.573	253.920
1060	193.584	-288.573	253.920
1080	198.544	-288.573	253.920
1100	203.505	-288.573	253.920
1120	216.497	-288.573	253.920
1140	216.497	-288.573	214.550
1160	234.833	-288.573	214.550
1180	244.001	-288.573	214.550
1200	244.001	-288.573	277.542
1220	253.017	-288.573	277.542
1240	258.017	-288.573	277.542
1020	175.158	-288.573	253.920
1260	120.040	-288.573	253.920
1280	86.576	-288.573	253.920
1300	60.985	-288.573	253.920
1320	55.985	-288.573	253.920
1340	33.623	-288.573	253.920
1360	28.623	-288.573	253.920
1380	-32.361	-288.573	253.920
1390	-112.480	-288.573	253.920
1400	-192.598	-288.573	253.920
1480	-192.598	-226.211	253.920
1500	-421.574	-226.211	253.920
1520	-657.794	-226.211	253.920
1540	-794.606	-226.211	253.920
1560	-794.606	-226.211	337.739
1580	-794.606	-226.211	385.810
1600	-794.606	-116.329	385.810
1620	-820.480	-116.329	385.810

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
 Job:: BNK-GCS-CN-007-02
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

1640	-820.480	-125.345	385.810
1660	-820.480	-130.345	385.810
1680	-820.480	-131.723	385.810
1700	-820.480	-139.597	385.810
1740	-820.480	-149.045	385.810
1780	-820.480	-158.494	385.810
1800	-820.480	-166.368	385.810
1820	-820.480	-167.746	385.810
1740	-820.480	-149.045	385.810
1840	-820.480	-149.045	444.865
1860	-1097.448	-149.045	444.865
1880	-1097.448	-149.045	326.755
1900	-820.479	-149.045	326.755
1900	-820.480	-149.045	326.755
1740	-820.480	-149.045	385.810
1820	-820.480	-167.746	385.810
1920	-820.480	-171.746	385.810
1940	-820.480	-180.762	385.810
1960	-820.480	-180.762	372.877
1980	-820.480	-180.762	359.944
2000	-663.354	-180.762	359.944
6420	-663.354	-183.762	359.944
2000	-663.354	-180.762	359.944
6420	-663.354	-183.762	359.944
2000	-663.354	-180.762	359.944
4100	-635.980	-180.762	359.944
4400	-635.980	-181.046	416.951
4410	-635.980	-181.071	421.951
4420	-635.980	-181.182	444.313
4430	-635.980	-181.207	449.313
4440	-635.980	-181.272	462.443
6480	-635.980	-184.272	462.443
4440	-635.980	-181.272	462.443
4450	-635.980	-181.338	475.572
4460	-635.980	-181.363	480.572
4470	-635.980	-181.474	502.934
4480	-635.980	-181.499	507.934
4482	-635.980	-181.620	530.159
4485	-635.980	-181.741	552.383
6760	-638.101	-183.862	552.383
4482	-635.980	-181.620	530.159
4485	-635.980	-181.741	552.383
4490	-594.956	-181.741	552.383
4500	-589.956	-181.741	552.383
4505	-566.413	-181.741	552.383
6790	-561.413	-181.741	552.383
6780	-548.657	-181.741	552.383
6795	-535.901	-181.741	552.383
7000	-533.779	-183.862	552.383
6780	-548.657	-181.741	552.383
6795	-535.901	-181.741	552.383
6800	-535.901	-183.670	607.737
6810	-617.318	-183.670	607.737
6820	-696.058	-183.670	607.737
6830	-702.594	-190.205	607.737
6845	-702.594	-190.205	594.312

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
 Job:: BNK-GCS-CN-007-02
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

6830	-702.594	-190.205	607.737
6870	-702.594	-190.205	827.265
6880	-702.594	-190.205	906.005
6890	-702.594	-190.205	1063.485
6900	-702.594	-190.205	1299.706
6905	-702.594	-190.205	1535.926
6910	-702.594	-190.205	1772.147
6915	-702.594	-190.205	1819.391
6920	-466.373	-190.205	1819.391
4100	-635.980	-180.762	359.944
4560	-635.980	-180.762	348.723
4570	-630.350	-180.762	348.723
4560	-635.980	-180.762	348.723
4580	-641.609	-180.762	348.723
4590	-656.255	-180.762	348.723
4600	-656.255	-180.762	339.708
4610	-656.255	-180.762	334.708
4620	-656.255	-180.762	312.345
4630	-656.255	-180.762	307.345
4640	-656.255	-180.762	299.471
6510	-656.255	-183.762	299.471
4640	-656.255	-180.762	299.471
4650	-656.255	-180.762	278.507
4660	-656.255	-181.825	272.995
4670	-656.255	-181.825	268.620
4680	-656.255	-181.825	251.258
4690	-656.255	-181.825	246.883
4700	-656.255	-180.762	241.371
4710	-656.255	-180.762	229.560
6530	-656.255	-183.762	229.560
4710	-656.255	-180.762	229.560
4720	-656.255	-180.762	217.749
4730	-656.255	-180.762	212.749
4740	-656.255	-180.762	190.702
4750	-656.255	-180.762	187.077
6550	-656.255	-180.762	180.069
4140	-656.255	-180.762	30.778
6560	-639.365	-180.762	30.778
4760	-466.176	-180.762	30.778
4770	-466.176	-180.762	12.785
4780	-466.176	-206.667	12.785
4160	-427.082	-206.667	12.785
6600	-427.082	-210.667	12.785
4160	-427.082	-206.667	12.785
4180	-285.232	-206.667	12.785
4200	-281.107	-206.667	12.785
4220	-280.319	-206.667	12.785
4240	-276.194	-206.667	12.785
4260	-270.092	-206.667	12.785
4280	-251.982	-206.667	12.785
4300	-251.982	-257.849	12.785
4310	-251.982	-297.219	12.785
4320	-251.982	-309.030	12.785
4780	-466.176	-206.667	12.785
6620	-481.669	-206.667	12.785
6630	-481.669	-210.667	12.785

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
 Job:: BNK-GCS-CN-007-02
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

6620	-481.669	-206.667	12.785
4800	-497.161	-206.667	12.785
4810	-501.286	-206.667	12.785
4820	-521.128	-206.667	12.785
4830	-525.253	-206.667	12.785
4840	-537.655	-206.667	12.785
4850	-541.780	-206.667	12.785
4860	-565.638	-206.667	12.785
4870	-569.763	-206.667	12.785
4880	-577.637	-206.667	12.785
6650	-588.936	-206.667	12.785
6660	-588.936	-210.667	12.785
6650	-588.936	-206.667	12.785
4890	-608.109	-206.667	12.785
4900	-612.234	-206.667	12.785
4910	-631.388	-206.667	12.785
4920	-635.513	-206.667	12.785
4930	-656.852	-206.667	12.785
6680	-656.852	-210.667	12.785
4930	-656.852	-206.667	12.785
4940	-680.671	-206.667	12.785
4950	-680.671	-206.667	71.841
4960	-714.982	-206.667	71.841
6065	-728.249	-193.400	71.841
4570	-630.350	-180.762	348.723
4980	-618.735	-180.762	348.723
4990	-613.735	-180.762	348.723
5000	-591.373	-180.762	348.723
5010	-586.373	-180.762	348.723
5020	-577.357	-180.762	348.723
5025	-577.357	-180.762	330.436
5020	-577.357	-180.762	348.723
6700	-575.236	-182.883	348.723
5025	-577.357	-180.762	330.436
5030	-577.357	-180.762	312.149
5040	-577.357	-182.337	306.637
5060	-577.357	-182.337	303.012
5070	-577.357	-182.337	288.839
5080	-577.357	-182.337	285.214
5090	-577.357	-181.845	281.198
5095	-577.357	-181.845	267.418
6720	-577.357	-183.845	267.418
5095	-577.357	-181.845	267.418
5100	-577.357	-181.845	253.639
5110	-577.357	-181.845	249.264
5120	-577.357	-181.845	240.071
5130	-577.357	-181.845	236.946
5140	-577.357	-181.845	230.922
5145	-577.357	-206.412	230.922
6740	-577.357	-206.412	228.922
5145	-577.357	-206.412	230.922
5150	-577.357	-222.632	230.922
5160	-616.176	-222.632	230.922
5170	-616.176	-264.876	230.922
5490	-616.176	-285.742	251.744
3960	-616.176	-285.742	1814.933

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
 Job:: BNK-GCS-CN-007-02
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

5420	-616.176	-285.742	1578.713
5425	-616.176	-285.742	1342.492
5430	-616.176	-285.742	1106.272
5435	-616.176	-285.742	870.051
5440	-616.176	-285.742	761.783
5450	-852.397	-285.742	761.783
5455	-852.397	-285.742	722.413
5460	-852.397	-285.742	683.043
5465	-616.176	-285.742	683.043
5470	-616.176	-285.742	633.831
5475	-616.176	-285.742	480.051
5480	-616.176	-285.742	396.429
5485	-616.176	-285.742	267.413
5490	-616.176	-285.742	251.665
5490	-616.176	-285.742	251.744
5495	-616.176	-285.742	185.248
5500	-616.176	-285.742	-50.972
5510	-616.176	-285.742	-287.193
5515	-616.176	-285.742	-359.043
5520	-852.397	-285.742	-359.043
5535	-852.397	-285.742	-398.413
5540	-852.397	-285.742	-437.783
5545	-616.176	-285.742	-437.783
5550	-616.176	-285.742	-523.413
5560	-616.176	-285.742	-759.634
4710	-656.255	-180.762	229.560
6530	-656.255	-183.762	229.560
6010	-728.249	-193.400	-1068.711
6020	-728.249	-193.400	-832.490
6025	-728.249	-193.400	-596.270
6030	-728.249	-193.400	-360.049
6035	-728.249	-193.400	-316.742
6040	-964.470	-193.400	-316.742
6045	-964.470	-193.400	-241.939
6050	-964.470	-193.400	-167.136
6055	-728.249	-193.400	-167.136
6060	-728.249	-193.400	-123.829
6065	-728.249	-193.400	71.841
6070	-728.249	-193.400	123.022
6080	-728.249	-193.400	359.242
6090	-728.249	-193.400	595.463
4970	-728.249	-193.400	780.502
1260	120.040	-288.573	253.920
2140	120.040	-228.337	253.920
2160	120.040	-228.337	263.842
2180	-32.086	-228.337	263.842
2200	-225.570	-228.337	263.842
2220	-419.054	-228.337	263.842
2260	-434.330	-228.337	263.842
2270	-434.330	-228.337	362.188
2280	-434.330	-228.337	424.550
2320	-434.330	-211.014	424.550
2330	-434.330	-193.455	424.550
2340	-434.330	-185.069	424.550
2360	-434.330	-181.819	424.550
5650	-434.330	-169.969	424.550

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
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INPUT LISTING

5660	-434.330	-166.719	424.550
2400	-434.330	-150.971	424.550
5670	-434.330	-146.797	424.550
5680	-434.330	-143.672	424.550
5690	-434.330	-140.547	424.550
2420	-434.330	-138.914	424.550
2440	-440.472	-138.914	424.550
2460	-443.347	-138.914	424.550
2480	-448.858	-140.477	424.550
2500	-462.638	-140.477	424.550
2520	-485.433	-140.477	424.550
2540	-485.433	-149.492	424.550
5700	-485.433	-153.117	424.550
2560	-485.433	-163.983	424.550
2570	-485.433	-167.608	424.550
5710	-485.433	-193.356	424.550
6440	-488.433	-193.356	424.550
5710	-485.433	-193.356	424.550
2580	-485.433	-216.467	424.550
5840	-498.189	-216.467	424.550
5800	-517.874	-216.467	444.235
2280	-434.330	-228.337	424.550
2300	-434.330	-228.337	444.235
2620	-434.330	-211.014	444.235
2640	-434.330	-185.030	444.235
5720	-434.330	-181.780	444.235
2660	-434.330	-169.929	444.235
5730	-434.330	-166.679	444.235
2700	-434.330	-150.931	444.235
5740	-434.330	-146.758	444.235
5750	-434.330	-143.633	444.235
5760	-434.330	-140.508	444.235
2720	-434.330	-138.894	444.235
2740	-440.472	-138.894	444.235
2760	-443.347	-138.894	444.235
2780	-448.858	-140.457	444.235
2800	-462.638	-140.457	444.235
2820	-485.433	-140.457	444.235
2840	-485.433	-149.473	444.235
2846	-485.433	-153.098	444.235
2852	-485.433	-163.964	444.235
2860	-485.433	-167.589	444.235
2870	-485.433	-193.337	444.235
6460	-488.433	-193.337	444.235
2870	-485.433	-193.337	444.235
2880	-485.433	-216.447	444.235
2880	-485.433	-216.467	444.235
5800	-517.874	-216.467	444.235
5805	-578.780	-216.467	444.235
5810	-616.181	-216.467	444.235
5820	-616.181	-242.982	444.235
5820	-616.181	-242.982	444.235
5475	-616.176	-285.742	480.051
4750	-656.255	-180.762	187.077
6550	-656.255	-180.762	180.069
6210	-195.448	-296.140	277.957

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 12:15
 Job:: BNK-GCS-CN-007-02
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

6220	-195.448	-307.951	277.957
6230	-220.251	-123.768	199.926
6240	-220.251	-123.768	211.737
6260	-258.363	-124.061	199.219
6270	-258.363	-137.841	199.219
6280	-290.946	-151.329	199.219
6290	-279.135	-151.329	199.219
6300	175.158	-294.140	323.412
6310	175.158	-329.573	323.412
6400	-192.591	-291.549	253.920
6410	-192.591	-303.360	253.920
6420	-663.354	-183.762	359.944
6425	-663.354	-192.817	359.944
6430	-663.354	-207.778	359.944
6440	-488.433	-193.356	424.550
6450	-500.244	-193.356	424.550
6460	-488.433	-193.337	444.235
6470	-500.244	-193.337	444.235
6480	-635.980	-184.272	462.443
6485	-635.980	-193.327	462.443
6490	-635.980	-208.288	462.443
6510	-656.255	-183.762	299.471
6515	-656.255	-192.817	299.471
6520	-656.255	-207.778	299.471
6530	-656.255	-183.762	229.560
6535	-656.255	-192.817	229.560
6540	-656.255	-207.778	229.560
6550	-656.255	-180.762	180.069
6590	-656.255	-204.778	180.069
6600	-427.082	-210.667	12.785
6610	-427.082	-230.353	12.785
6630	-481.669	-210.667	12.785
6640	-481.669	-230.353	12.785
6660	-588.936	-210.667	12.785
6670	-588.936	-230.353	12.785
6680	-656.852	-210.667	12.785
6690	-656.852	-230.353	12.785
6700	-575.236	-182.883	348.723
6705	-571.299	-182.883	348.723
6710	-555.551	-182.883	348.723
6720	-577.357	-183.845	267.418
6730	-577.357	-211.404	267.418
6740	-577.357	-206.412	228.922
6750	-577.357	-206.412	217.111
6760	-638.101	-183.862	552.383
6765	-642.038	-183.862	552.383
6770	-659.754	-183.862	552.383
7000	-533.779	-183.862	552.383
7005	-529.842	-183.862	552.383
7010	-514.094	-183.862	552.383

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
Restraint Summary : Multiple.....3

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Job:: BNK-GCS-CN-007-02
Licensed To:: SPLM: Edit company name in <system>\company.txt

LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
CASE 4 (OPE) W+T1+P1+H
CASE 6 (OPE) W+T2+P1+H
CASE 8 (OPE) W+T3+P1+H
CASE 10 (OPE) W+T4+P1+H
CASE 12 (SUS) W+P1+H
CASE 13 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
20		TYPE=Rigid ANC;					
	3(HYD)	-34	-153	3	-5.5	8.2	173.8
	4(OPE)	70	172	32	-133.3	101.0	-396.2
	6(OPE)	183	552	42	-178.1	124.0	-1088.1
	8(OPE)	-24	-121	4	-6.0	9.0	130.1
	10(OPE)	69	170	31	-133.0	97.8	-393.1
	12(SUS)	-24	-121	4	-5.9	9.0	130.0
	13(SUS)	30	-365	3	-7.8	6.7	804.7
	MAX	183/L6	552/L6	42/L6	-178.1/L6	124.0/L6	-1088.1/L6
121		TYPE=Rigid +Y;					
	3(HYD)	-1	-383	1	0.0	0.0	0.0
	4(OPE)	0	-287	29	0.0	0.0	0.0
	6(OPE)	0	-296	30	0.0	0.0	0.0
	8(OPE)	-1	-281	2	0.0	0.0	0.0
	10(OPE)	0	-287	29	0.0	0.0	0.0
	12(SUS)	-0	-281	2	0.0	0.0	0.0
	13(SUS)	-0	-1	0	0.0	0.0	0.0
	MAX	-1/L3	-383/L3	30/L6			
160		TYPE=Rigid Z; Rigid -X; Rigid X; Prog Design VSH;					
	3(HYD)	-1	-383	1	0.0	0.0	0.0
	4(OPE)	327	-371	79	0.0	0.0	0.0
	6(OPE)	510	-441	75	0.0	0.0	0.0
	8(OPE)	-1	-281	2	0.0	0.0	0.0
	10(OPE)	321	-369	78	0.0	0.0	0.0
	12(SUS)	-0	-281	2	0.0	0.0	0.0
	13(SUS)	-0	-1	0	0.0	0.0	0.0
	MAX	510/L6	-441/L6	79/L4			
300		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	3(HYD)	76	-480	30	0.0	0.0	0.0
	4(OPE)	-180	-663	85	0.0	0.0	0.0
	6(OPE)	-342	-1171	81	0.0	0.0	0.0
	8(OPE)	47	-406	35	0.0	0.0	0.0
	10(OPE)	-181	-667	85	0.0	0.0	0.0
	12(SUS)	47	-405	40	0.0	0.0	0.0
	13(SUS)	-2	-460	44	0.0	0.0	0.0
	MAX	-342/L6	-1171/L6	85/L10			
400		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	0	-332	-3	0.0	0.0	0.0
	4(OPE)	0	-70	136	0.0	0.0	0.0
	6(OPE)	0	226	164	0.0	0.0	0.0
	8(OPE)	0	-249	-4	0.0	0.0	0.0
	10(OPE)	0	-66	137	0.0	0.0	0.0
	12(SUS)	0	-249	-5	0.0	0.0	0.0
	13(SUS)	0	-220	-7	0.0	0.0	0.0
	MAX		-332/L3	164/L6			
480		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	0	-468	-4	0.0	0.0	0.0
	4(OPE)	0	-380	-18	0.0	0.0	0.0
	6(OPE)	0	-506	14	0.0	0.0	0.0
	8(OPE)	0	-300	-2	0.0	0.0	0.0
	10(OPE)	0	-386	-22	0.0	0.0	0.0
	12(SUS)	0	-300	-2	0.0	0.0	0.0
	13(SUS)	0	-298	-2	0.0	0.0	0.0
	MAX		-506/L6	-22/L10			
660		TYPE=Rigid +Y;					
	3(HYD)	0	-296	0	0.0	0.0	0.0
	4(OPE)	0	-195	0	0.0	0.0	0.0
	6(OPE)	0	-193	0	0.0	0.0	0.0
	8(OPE)	0	-212	0	0.0	0.0	0.0
	10(OPE)	0	-247	0	0.0	0.0	0.0
	12(SUS)	0	-212	0	0.0	0.0	0.0
	13(SUS)	0	-210	0	0.0	0.0	0.0
	MAX		-296/L3				
720		TYPE=Rigid ANC;					
	3(HYD)	-2	-122	-1	65.4	46.2	-13.6
	4(OPE)	-79	-72	-27	-74.1	-173.9	-9.7
	6(OPE)	-165	-21	-56	-238.6	-472.2	-33.2
	8(OPE)	-4	-107	-1	46.4	25.4	-9.5
	10(OPE)	82	16	-67	-195.5	33.8	-104.9

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	12(SUS)	-4	-107	-1	46.3	25.4	-9.5
	13(SUS)	-4	-106	-1	45.7	24.7	-9.3
	MAX	-165/L6	-122/L3	-67/L10	-238.6/L6	-472.2/L6	-104.9/L10
780		TYPE=Rigid ANC;					
	3(HYD)	1	-712	-4	634.3	53.0	-911.0
	4(OPE)	-64	-686	-15	845.9	-154.5	-247.1
	6(OPE)	-107	-622	-57	627.4	-365.2	-153.8
	8(OPE)	-2	-594	-3	594.9	28.0	-602.9
	10(OPE)	82	-287	-67	-262.1	33.8	-1136.0
	12(SUS)	-2	-594	-3	594.9	28.1	-602.9
	13(SUS)	-2	-592	-3	593.8	27.3	-594.9
	MAX	-107/L6	-712/L3	-67/L10	845.9/L4	-365.2/L6	-1136.0/L10
840		TYPE=Rigid ANC;					
	3(HYD)	1	-712	-4	583.4	53.0	-919.2
	4(OPE)	-64	-686	-15	666.8	-154.5	508.1
	6(OPE)	-107	-622	-57	-42.4	-365.2	1102.7
	8(OPE)	-2	-594	-3	561.3	28.0	-580.1
	10(OPE)	82	-287	-67	-1045.4	33.8	-2093.3
	12(SUS)	-2	-594	-3	561.2	28.1	-580.1
	13(SUS)	-2	-592	-3	558.9	27.3	-569.5
	MAX	-107/L6	-712/L3	-67/L10	-1045.4/L10	-365.2/L6	-2093.3/L10
1040		TYPE=Rigid +Y;					
	3(HYD)	31	-644	-31	0.0	0.0	0.0
	4(OPE)	139	-561	95	0.0	0.0	0.0
	6(OPE)	138	-571	101	0.0	0.0	0.0
	8(OPE)	-163	-551	28	0.0	0.0	0.0
	10(OPE)	138	-557	95	0.0	0.0	0.0
	12(SUS)	39	-551	-38	0.0	0.0	0.0
	13(SUS)	39	-545	-39	0.0	0.0	0.0
	MAX	-163/L8	-644/L3	101/L6			
1180		TYPE=Rigid +Y; Rigid - X;					
	3(HYD)	1	-266	0	0.0	0.0	0.0
	4(OPE)	2516	-217	-820	0.0	0.0	0.0
	6(OPE)	3160	-211	-1012	0.0	0.0	0.0
	8(OPE)	-25	-210	58	0.0	0.0	0.0
	10(OPE)	2509	-216	-817	0.0	0.0	0.0
	12(SUS)	2	-211	1	0.0	0.0	0.0
	13(SUS)	2	-208	1	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	MAX	3160/L6	-266/L3	-1012/L6			
1240		TYPE=Rigid ANC;					
	3(HYD)	0	-149	1	18.8	0.5	169.7
	4(OPE)	251	-125	22	23.6	-696.0	138.3
	6(OPE)	337	-125	-11	23.2	-944.5	134.2
	8(OPE)	-107	-135	-84	13.2	171.9	138.7
	10(OPE)	252	-126	25	23.0	-693.8	138.5
	12(SUS)	1	-135	1	13.5	0.7	138.9
	13(SUS)	1	-134	1	13.4	0.7	137.2
	MAX	337/L6	-149/L3	-84/L8	23.6/L4	-944.5/L6	169.7/L3
1280		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	42	-340	-12	0.0	0.0	0.0
	4(OPE)	-95	-316	448	0.0	0.0	0.0
	6(OPE)	-86	-288	583	0.0	0.0	0.0
	8(OPE)	124	-414	-56	0.0	0.0	0.0
	10(OPE)	-96	-319	447	0.0	0.0	0.0
	12(SUS)	54	-414	-13	0.0	0.0	0.0
	13(SUS)	53	-414	-13	0.0	0.0	0.0
	MAX	124/L8	-414/L13	583/L6			
1380		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	84	-1830	11	0.0	0.0	0.0
	4(OPE)	-594	-1986	42	0.0	0.0	0.0
	6(OPE)	-636	-2126	46	0.0	0.0	0.0
	8(OPE)	363	-1544	16	0.0	0.0	0.0
	10(OPE)	-594	-1987	42	0.0	0.0	0.0
	12(SUS)	83	-1542	11	0.0	0.0	0.0
	13(SUS)	82	-1528	11	0.0	0.0	0.0
	MAX	-636/L6	-2126/L6	46/L6			
1500		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-1156	-6	0.0	0.0	0.0
	4(OPE)	0	-434	-396	0.0	0.0	0.0
	6(OPE)	0	-279	-520	0.0	0.0	0.0
	8(OPE)	0	-910	-5	0.0	0.0	0.0
	10(OPE)	0	-433	-396	0.0	0.0	0.0
	12(SUS)	0	-912	-10	0.0	0.0	0.0
	13(SUS)	0	-906	-10	0.0	0.0	0.0
	MAX		-1156/L3	-520/L6			
1520		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	3(HYD)	-172	-576	-18	0.0	0.0	0.0
	4(OPE)	-101	-403	-67	0.0	0.0	0.0
	6(OPE)	-97	-389	-65	0.0	0.0	0.0
	8(OPE)	-135	-453	-13	0.0	0.0	0.0
	10(OPE)	-101	-403	-67	0.0	0.0	0.0
	12(SUS)	-130	-452	-37	0.0	0.0	0.0
	13(SUS)	-130	-450	-37	0.0	0.0	0.0
	MAX	-172/L3	-576/L3	-67/L4			
1560		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-983	0	0.0	0.0	0.0
	4(OPE)	-2329	-1734	0	0.0	0.0	0.0
	6(OPE)	-3092	-2000	0	0.0	0.0	0.0
	8(OPE)	0	-773	0	0.0	0.0	0.0
	10(OPE)	-2330	-1734	0	0.0	0.0	0.0
	12(SUS)	0	-765	0	0.0	0.0	0.0
	13(SUS)	0	-760	0	0.0	0.0	0.0
	MAX	-3092/L6	-2000/L6				
1660		TYPE=Rigid ANC;					
	3(HYD)	0	0	0	-0.0	-0.0	-0.0
	4(OPE)	0	0	0	0.0	-0.0	-0.0
	6(OPE)	0	0	0	0.0	-0.0	-0.0
	8(OPE)	0	0	0	-0.0	-0.0	-0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	0	0	0	0.0	-0.0	-0.0
	13(SUS)	0	0	0	-0.0	0.0	-0.0
	MAX				0.0/L4	-0.0/L4	-0.0/L4
1700		TYPE=Rigid ANC;					
	3(HYD)	-33	-168	20	10.6	86.7	-29.4
	4(OPE)	324	667	383	-261.6	3439.5	2821.4
	6(OPE)	469	887	480	-362.3	4500.6	3809.7
	8(OPE)	-26	-154	16	5.1	67.0	-27.1
	10(OPE)	324	667	383	-261.7	3439.8	2822.1
	12(SUS)	-24	-162	9	20.3	83.2	-35.3
	13(SUS)	-24	-161	9	20.1	82.6	-35.4
	MAX	469/L6	887/L6	480/L6	-362.3/L6	4500.6/L6	3809.7/L6
1780		TYPE=Rigid ANC;					
	3(HYD)	-170	78	35	20.3	162.3	-368.2
	4(OPE)	-546	3642	-403	4056.1	371.2	-953.5
	6(OPE)	-1010	7137	-678	7709.6	230.9	-1782.5
	8(OPE)	-129	24	21	28.8	135.6	-245.3

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(OPE)	-559	3624	-402	4053.5	358.5	-972.8
	12(SUS)	-129	25	21	29.2	135.6	-245.1
	13(SUS)	-128	24	21	29.1	134.9	-242.8
	MAX	-1010/L6	7137/L6	-678/L6	7709.6/L6	371.2/L4	-1782.5/L6
1840		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	-75	-1930	28	0.0	0.0	0.0
	4(OPE)	431	-41	133	0.0	0.0	0.0
	6(OPE)	281	1410	225	0.0	0.0	0.0
	8(OPE)	-55	-1839	19	0.0	0.0	0.0
	10(OPE)	423	-51	132	0.0	0.0	0.0
	12(SUS)	-52	-1844	16	0.0	0.0	0.0
	13(SUS)	-52	-1836	15	0.0	0.0	0.0
	MAX	431/L4	-1930/L3	225/L6			
1860		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	0	-1861	-0	0.0	0.0	0.0
	4(OPE)	-172	-1779	47	0.0	0.0	0.0
	6(OPE)	-167	-1764	57	0.0	0.0	0.0
	8(OPE)	0	-1755	-0	0.0	0.0	0.0
	10(OPE)	-171	-1778	47	0.0	0.0	0.0
	12(SUS)	0	-1755	-0	0.0	0.0	0.0
	13(SUS)	0	-1747	-0	0.0	0.0	0.0
	MAX	-172/L4	-1861/L3	57/L6			
1880		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	-0	-1861	-0	0.0	0.0	0.0
	4(OPE)	-178	-1798	-27	0.0	0.0	0.0
	6(OPE)	-179	-1800	-16	0.0	0.0	0.0
	8(OPE)	-0	-1756	-0	0.0	0.0	0.0
	10(OPE)	-178	-1798	-27	0.0	0.0	0.0
	12(SUS)	-0	-1755	-0	0.0	0.0	0.0
	13(SUS)	-0	-1747	-0	0.0	0.0	0.0
	MAX	-179/L6	-1861/L3	-27/L4			
1900		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	-129	-1926	28	0.0	0.0	0.0
	4(OPE)	-281	875	-172	0.0	0.0	0.0
	6(OPE)	-474	3125	-455	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	8(OPE)	-99	-1832	19	0.0	0.0	0.0
	10(OPE)	-286	865	-172	0.0	0.0	0.0
	12(SUS)	-101	-1835	16	0.0	0.0	0.0
	13(SUS)	-100	-1827	16	0.0	0.0	0.0
	MAX	-474/L6	3125/L6	-455/L6			
1960		TYPE=Rigid +Y;					
	3(HYD)	111	-372	-14	0.0	0.0	0.0
	4(OPE)	62	-3832	531	0.0	0.0	0.0
	6(OPE)	-531	-7339	1110	0.0	0.0	0.0
	8(OPE)	64	-214	-6	0.0	0.0	0.0
	10(OPE)	140	-3810	524	0.0	0.0	0.0
	12(SUS)	64	-214	-6	0.0	0.0	0.0
	13(SUS)	63	-212	-6	0.0	0.0	0.0
	MAX	-531/L6	-7339/L6	1110/L6			
2180		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-126	0	0.0	0.0	0.0
	4(OPE)	0	-95	0	0.0	0.0	0.0
	6(OPE)	0	-90	1	0.0	0.0	0.0
	8(OPE)	0	-112	0	0.0	0.0	0.0
	10(OPE)	0	-96	0	0.0	0.0	0.0
	12(SUS)	0	-112	0	0.0	0.0	0.0
	13(SUS)	0	-111	0	0.0	0.0	0.0
	MAX		-126/L3	1/L6			
2200		TYPE=Rigid +Y;					
	3(HYD)	-14	-149	0	0.0	0.0	0.0
	4(OPE)	-41	-138	2	0.0	0.0	0.0
	6(OPE)	-42	-139	2	0.0	0.0	0.0
	8(OPE)	-12	-132	0	0.0	0.0	0.0
	10(OPE)	-41	-138	-6	0.0	0.0	0.0
	12(SUS)	-12	-132	0	0.0	0.0	0.0
	13(SUS)	-12	-132	0	0.0	0.0	0.0
	MAX	-42/L6	-149/L3	-6/L10			
2220		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-99	0	0.0	0.0	0.0
	4(OPE)	0	-80	-346	0.0	0.0	0.0
	6(OPE)	0	-78	-444	0.0	0.0	0.0
	8(OPE)	0	-88	0	0.0	0.0	0.0
	10(OPE)	0	-77	-113	0.0	0.0	0.0
	12(SUS)	0	-88	0	0.0	0.0	0.0

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 Job:: BNK-GCS-CN-007-02
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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	13(SUS)	0	-87	0	0.0	0.0	0.0
	MAX		-99/L3	-444/L6			
2270		TYPE=Rigid +Y;					
	3(HYD)	-1	-66	3	0.0	0.0	0.0
	4(OPE)	-30	-99	2	0.0	0.0	0.0
	6(OPE)	-33	-111	5	0.0	0.0	0.0
	8(OPE)	-0	-58	3	0.0	0.0	0.0
	10(OPE)	-38	-130	9	0.0	0.0	0.0
	12(SUS)	-0	-58	3	0.0	0.0	0.0
	13(SUS)	-0	-58	3	0.0	0.0	0.0
	MAX	-38/L10	-130/L10	9/L10			
2320		TYPE=Rigid +Y;					
	3(HYD)	-6	-65	-5	0.0	0.0	0.0
	4(OPE)	52	-938	277	0.0	0.0	0.0
	6(OPE)	28	-858	256	0.0	0.0	0.0
	8(OPE)	-5	-78	-4	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-5	-78	-4	0.0	0.0	0.0
	13(SUS)	-5	-78	-4	0.0	0.0	0.0
	MAX	52/L4	-938/L4	277/L4			
2500		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	24	-567	-3	0.0	0.0	0.0
	4(OPE)	-186	0	28	0.0	0.0	0.0
	6(OPE)	40	0	16	0.0	0.0	0.0
	8(OPE)	20	-464	-2	0.0	0.0	0.0
	10(OPE)	503	0	8	0.0	0.0	0.0
	12(SUS)	20	-464	-2	0.0	0.0	0.0
	13(SUS)	20	-463	-2	0.0	0.0	0.0
	MAX	503/L10	-567/L3	28/L4			
2620		TYPE=Rigid +Y;					
	3(HYD)	0	-46	0	0.0	0.0	0.0
	4(OPE)	0	-289	0	0.0	0.0	0.0
	6(OPE)	0	-95	0	0.0	0.0	0.0
	8(OPE)	0	-61	0	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	0	-61	0	0.0	0.0	0.0
	13(SUS)	0	-60	0	0.0	0.0	0.0
	MAX		-289/L4				

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
2800		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	27	-554	-4	0.0	0.0	0.0
	4(OPE)	-146	0	61	0.0	0.0	0.0
	6(OPE)	-32	0	78	0.0	0.0	0.0
	8(OPE)	22	-456	-2	0.0	0.0	0.0
	10(OPE)	485	0	79	0.0	0.0	0.0
	12(SUS)	22	-456	-2	0.0	0.0	0.0
	13(SUS)	22	-456	-2	0.0	0.0	0.0
	MAX	485/L10	-554/L3	79/L10			
3960		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-584	-0	0.0	0.0	0.0
	4(OPE)	-0	-317	95	0.0	0.0	0.0
	6(OPE)	0	-317	-95	0.0	0.0	0.0
	8(OPE)	0	-317	-0	0.0	0.0	0.0
	10(OPE)	-11	-317	95	0.0	0.0	0.0
	12(SUS)	0	-317	-0	0.0	0.0	0.0
	13(SUS)	0	-317	-0	0.0	0.0	0.0
	MAX	-11/L10	-584/L3	-95/L6			
4220		TYPE=Rigid ANC;					
	3(HYD)	0	0	0	-0.0	-0.0	-0.0
	4(OPE)	0	0	0	-0.0	0.0	-0.0
	6(OPE)	0	0	0	0.0	-0.0	-0.0
	8(OPE)	0	0	0	-0.0	-0.0	0.0
	10(OPE)	0	0	0	0.0	-0.0	-0.0
	12(SUS)	0	0	0	0.0	0.0	0.0
	13(SUS)	0	0	0	0.0	-0.0	-0.0
	MAX				-0.0/L4	-0.0/L6	-0.0/L6
4260		TYPE=Rigid ANC;					
	3(HYD)	65	-463	7	174.0	86.7	1074.6
	4(OPE)	1042	-435	30	221.6	142.1	1585.0
	6(OPE)	1937	-599	200	-262.3	1063.3	3141.4
	8(OPE)	55	-315	5	127.1	62.8	698.8
	10(OPE)	1071	-435	29	235.3	148.0	1582.5
	12(SUS)	55	-315	5	127.1	62.8	698.8
	13(SUS)	55	-314	5	126.9	62.7	696.5
	MAX	1937/L6	-599/L6	200/L6	-262.3/L6	1063.3/L6	3141.4/L6
4320		TYPE=Rigid ANC;					
	3(HYD)	65	-463	7	233.8	97.3	1219.5

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	1042	-435	30	474.6	186.8	-6646.2
	6(OPE)	1937	-599	200	1439.6	1364.4	-12477.6
	8(OPE)	55	-315	5	169.7	70.3	706.1
	10(OPE)	1071	-435	29	481.3	191.5	-6893.5
	12(SUS)	55	-315	5	169.7	70.3	706.1
	13(SUS)	55	-314	5	169.5	70.2	702.5
	MAX	1937/L6	-599/L6	200/L6	1439.6/L6	1364.4/L6	12477.6/L6
4970		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-423	4	0.0	0.0	0.0
	4(OPE)	3	-231	69	0.0	0.0	0.0
	6(OPE)	24	-232	65	0.0	0.0	0.0
	8(OPE)	0	-231	3	0.0	0.0	0.0
	10(OPE)	4	-231	69	0.0	0.0	0.0
	12(SUS)	0	-231	3	0.0	0.0	0.0
	13(SUS)	0	-229	3	0.0	0.0	0.0
	MAX	24/L6	-423/L3	69/L4			
5355		TYPE=Rigid +Y;					
	3(HYD)	0	-145	0	0.0	0.0	0.0
	4(OPE)	0	-1	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-132	0	0.0	0.0	0.0
	10(OPE)	0	-396	0	0.0	0.0	0.0
	12(SUS)	0	-132	0	0.0	0.0	0.0
	13(SUS)	0	-132	0	0.0	0.0	0.0
	MAX		-396/L10				
5370		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-2	-184	-3	0.0	0.0	0.0
	4(OPE)	49	-180	-23	0.0	0.0	0.0
	6(OPE)	60	-202	-7	0.0	0.0	0.0
	8(OPE)	1	-168	-2	0.0	0.0	0.0
	10(OPE)	53	-186	44	0.0	0.0	0.0
	12(SUS)	1	-168	-2	0.0	0.0	0.0
	13(SUS)	1	-168	-2	0.0	0.0	0.0
	MAX	60/L6	-202/L6	44/L10			
5375		TYPE=Rigid +Y;					
	3(HYD)	-21	-284	37	0.0	0.0	0.0
	4(OPE)	-12	-174	51	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	8(OPE)	-11	-242	28	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-11	-242	28	0.0	0.0	0.0
	13(SUS)	-11	-242	28	0.0	0.0	0.0
	MAX	-21/L3	-284/L3	51/L4			
5420		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-0	-1637	-0	0.0	0.0	0.0
	4(OPE)	2	-888	266	0.0	0.0	0.0
	6(OPE)	-1	-888	-266	0.0	0.0	0.0
	8(OPE)	-0	-888	-0	0.0	0.0	0.0
	10(OPE)	20	-887	1515	0.0	0.0	0.0
	12(SUS)	-0	-888	-0	0.0	0.0	0.0
	13(SUS)	-0	-887	-0	0.0	0.0	0.0
	MAX	20/L10	-1637/L3	1515/L10			
5425		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	2	-1530	-0	0.0	0.0	0.0
	4(OPE)	-8	-830	249	0.0	0.0	0.0
	6(OPE)	13	-831	-249	0.0	0.0	0.0
	8(OPE)	1	-830	-0	0.0	0.0	0.0
	10(OPE)	113	-835	-241	0.0	0.0	0.0
	12(SUS)	1	-830	-0	0.0	0.0	0.0
	13(SUS)	1	-829	-0	0.0	0.0	0.0
	MAX	113/L10	-1530/L3	-249/L6			
5430		TYPE=Rigid +Y;					
	3(HYD)	-7	-1054	-1	0.0	0.0	0.0
	4(OPE)	-1	-574	-172	0.0	0.0	0.0
	6(OPE)	-9	-571	171	0.0	0.0	0.0
	8(OPE)	-4	-572	-1	0.0	0.0	0.0
	10(OPE)	31	-553	-163	0.0	0.0	0.0
	12(SUS)	-4	-572	-1	0.0	0.0	0.0
	13(SUS)	-4	-571	-1	0.0	0.0	0.0
	MAX	31/L10	-1054/L3	-172/L4			
5435		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	18	-2390	-2	0.0	0.0	0.0
	4(OPE)	117	-1296	-371	0.0	0.0	0.0
	6(OPE)	-134	-1296	365	0.0	0.0	0.0
	8(OPE)	10	-1297	-1	0.0	0.0	0.0
	10(OPE)	-26	-1310	-392	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	12(SUS)	10	-1297	-1	0.0	0.0	0.0
	13(SUS)	10	-1295	-1	0.0	0.0	0.0
	MAX	-134/L6	-2390/L3	-392/L10			
5455		TYPE=Rigid +Y;					
	3(HYD)	-102	-1849	9	0.0	0.0	0.0
	4(OPE)	-210	-998	-20	0.0	0.0	0.0
	6(OPE)	301	-1005	23	0.0	0.0	0.0
	8(OPE)	-58	-1003	5	0.0	0.0	0.0
	10(OPE)	-317	-1079	-67	0.0	0.0	0.0
	12(SUS)	-58	-1003	5	0.0	0.0	0.0
	13(SUS)	-57	-1002	5	0.0	0.0	0.0
	MAX	-317/L10	-1849/L3	-67/L10			
5470		TYPE=Rigid +Y;					
	3(HYD)	160	-1865	-46	0.0	0.0	0.0
	4(OPE)	158	-1011	259	0.0	0.0	0.0
	6(OPE)	-169	-1076	-275	0.0	0.0	0.0
	8(OPE)	91	-1016	-27	0.0	0.0	0.0
	10(OPE)	-167	-1014	254	0.0	0.0	0.0
	12(SUS)	91	-1016	-27	0.0	0.0	0.0
	13(SUS)	91	-1015	-27	0.0	0.0	0.0
	MAX	-169/L6	-1865/L3	-275/L6			
5480		TYPE=Rigid Z w/gap; Rigid +Y; Rigid X w/gap;					
	3(HYD)	0	-1363	0	0.0	0.0	0.0
	4(OPE)	0	-836	0	0.0	0.0	0.0
	6(OPE)	0	-1477	0	0.0	0.0	0.0
	8(OPE)	0	-766	0	0.0	0.0	0.0
	10(OPE)	-873	-1998	809	0.0	0.0	0.0
	12(SUS)	0	-766	0	0.0	0.0	0.0
	13(SUS)	0	-765	0	0.0	0.0	0.0
	MAX	-873/L10	-1998/L10	809/L10			
5495		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	101	-1513	-33	0.0	0.0	0.0
	4(OPE)	44	-929	275	0.0	0.0	0.0
	6(OPE)	-201	-977	69	0.0	0.0	0.0
	8(OPE)	51	-840	-21	0.0	0.0	0.0
	10(OPE)	63	-1192	-352	0.0	0.0	0.0
	12(SUS)	51	-840	-21	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	13(SUS)	51	-839	-21	0.0	0.0	0.0
	MAX	-201/L6	-1513/L3	-352/L10			
5500		TYPE=Rigid +Y;					
	3(HYD)	-34	-1293	-16	0.0	0.0	0.0
	4(OPE)	-21	-688	-205	0.0	0.0	0.0
	6(OPE)	11	-678	203	0.0	0.0	0.0
	8(OPE)	-18	-700	-10	0.0	0.0	0.0
	10(OPE)	45	-678	-198	0.0	0.0	0.0
	12(SUS)	-18	-700	-10	0.0	0.0	0.0
	13(SUS)	-18	-699	-10	0.0	0.0	0.0
	MAX	45/L10	-1293/L3	-205/L4			
5510		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	12	-2037	-9	0.0	0.0	0.0
	4(OPE)	129	-1108	-306	0.0	0.0	0.0
	6(OPE)	-133	-1106	304	0.0	0.0	0.0
	8(OPE)	7	-1105	-6	0.0	0.0	0.0
	10(OPE)	-2	-1076	-323	0.0	0.0	0.0
	12(SUS)	7	-1105	-6	0.0	0.0	0.0
	13(SUS)	6	-1104	-6	0.0	0.0	0.0
	MAX	-133/L6	-2037/L3	-323/L10			
5535		TYPE=Rigid +Y;					
	3(HYD)	-5	-1871	-1	0.0	0.0	0.0
	4(OPE)	-145	-1015	-38	0.0	0.0	0.0
	6(OPE)	159	-1018	44	0.0	0.0	0.0
	8(OPE)	-3	-1016	-0	0.0	0.0	0.0
	10(OPE)	-298	-1040	-92	0.0	0.0	0.0
	12(SUS)	-3	-1016	-0	0.0	0.0	0.0
	13(SUS)	-3	-1014	-0	0.0	0.0	0.0
	MAX	-298/L10	-1871/L3	-92/L10			
5550		TYPE=Rigid +Y;					
	3(HYD)	0	-2252	0	0.0	0.0	0.0
	4(OPE)	0	-1222	0	0.0	0.0	0.0
	6(OPE)	0	-1223	0	0.0	0.0	0.0
	8(OPE)	0	-1222	0	0.0	0.0	0.0
	10(OPE)	0	-1226	0	0.0	0.0	0.0
	12(SUS)	0	-1222	0	0.0	0.0	0.0
	13(SUS)	0	-1221	0	0.0	0.0	0.0
	MAX		-2252/L3				

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
5560		TYPE=Rigid Z w/gap; Rigid +Y; Rigid X w/gap;					
	3(HYD)	-0	-436	0	0.0	0.0	0.0
	4(OPE)	12	-236	-27	0.0	0.0	0.0
	6(OPE)	-17	-236	43	0.0	0.0	0.0
	8(OPE)	-0	-236	0	0.0	0.0	0.0
	10(OPE)	166	-233	-658	0.0	0.0	0.0
	12(SUS)	-0	-236	0	0.0	0.0	0.0
	13(SUS)	-0	-236	0	0.0	0.0	0.0
	MAX	166/L10	-436/L3	-658/L10			
5805		TYPE=Rigid +Y;					
	3(HYD)	-152	-636	76	0.0	0.0	0.0
	4(OPE)	137	-507	66	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	-97	-427	43	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-97	-427	43	0.0	0.0	0.0
	13(SUS)	-96	-427	43	0.0	0.0	0.0
	MAX	-152/L3	-636/L3	76/L3			
6010		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	3(HYD)	-0	-580	0	0.0	0.0	0.0
	4(OPE)	-3	-316	-95	0.0	0.0	0.0
	6(OPE)	42	-316	-802	0.0	0.0	0.0
	8(OPE)	-0	-316	0	0.0	0.0	0.0
	10(OPE)	-3	-316	-95	0.0	0.0	0.0
	12(SUS)	-0	-316	0	0.0	0.0	0.0
	13(SUS)	-0	-314	0	0.0	0.0	0.0
	MAX	42/L6	-580/L3	-802/L6			
6020		TYPE=Rigid +Y;					
	3(HYD)	0	-1662	0	0.0	0.0	0.0
	4(OPE)	0	-905	0	0.0	0.0	0.0
	6(OPE)	0	-906	0	0.0	0.0	0.0
	8(OPE)	0	-906	0	0.0	0.0	0.0
	10(OPE)	0	-905	0	0.0	0.0	0.0
	12(SUS)	0	-906	0	0.0	0.0	0.0
	13(SUS)	0	-901	0	0.0	0.0	0.0
	MAX		-1662/L3				

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6025		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	0	-1426	0	0.0	0.0	0.0
	4(OPE)	15	-779	-233	0.0	0.0	0.0
	6(OPE)	97	-778	212	0.0	0.0	0.0
	8(OPE)	0	-777	0	0.0	0.0	0.0
	10(OPE)	15	-780	-233	0.0	0.0	0.0
	12(SUS)	0	-777	0	0.0	0.0	0.0
	13(SUS)	0	-773	0	0.0	0.0	0.0
	MAX	97/L6	-1426/L3	-233/L10			
6030		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	-1	-1702	0	0.0	0.0	0.0
	4(OPE)	135	-926	243	0.0	0.0	0.0
	6(OPE)	23	-928	277	0.0	0.0	0.0
	8(OPE)	-0	-927	0	0.0	0.0	0.0
	10(OPE)	138	-926	241	0.0	0.0	0.0
	12(SUS)	-0	-927	0	0.0	0.0	0.0
	13(SUS)	-0	-922	0	0.0	0.0	0.0
	MAX	138/L10	-1702/L3	277/L6			
6045		TYPE=Rigid +Y;					
	3(HYD)	2	-2288	-0	0.0	0.0	0.0
	4(OPE)	-368	-1239	-49	0.0	0.0	0.0
	6(OPE)	-351	-1245	-129	0.0	0.0	0.0
	8(OPE)	0	-1246	0	0.0	0.0	0.0
	10(OPE)	-369	-1239	-46	0.0	0.0	0.0
	12(SUS)	0	-1246	0	0.0	0.0	0.0
	13(SUS)	0	-1239	0	0.0	0.0	0.0
	MAX	-369/L10	-2288/L3	-129/L6			
6060		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	-2	-1786	21	0.0	0.0	0.0
	4(OPE)	26	-978	-292	0.0	0.0	0.0
	6(OPE)	-381	-966	-280	0.0	0.0	0.0
	8(OPE)	1	-977	16	0.0	0.0	0.0
	10(OPE)	29	-979	-292	0.0	0.0	0.0
	12(SUS)	1	-977	16	0.0	0.0	0.0
	13(SUS)	1	-971	16	0.0	0.0	0.0
	MAX	-381/L6	-1786/L3	-292/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6070		TYPE=Rigid +Y;					
	3(HYD)	-51	-1766	26	0.0	0.0	0.0
	4(OPE)	-279	-931	-19	0.0	0.0	0.0
	6(OPE)	-164	-643	-102	0.0	0.0	0.0
	8(OPE)	-35	-983	20	0.0	0.0	0.0
	10(OPE)	-280	-933	-1	0.0	0.0	0.0
	12(SUS)	-35	-983	20	0.0	0.0	0.0
	13(SUS)	-34	-978	20	0.0	0.0	0.0
	MAX	-280/L10	-1766/L3	-102/L6			
6080		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	3	-1440	12	0.0	0.0	0.0
	4(OPE)	-60	-790	229	0.0	0.0	0.0
	6(OPE)	-525	-809	-205	0.0	0.0	0.0
	8(OPE)	2	-783	9	0.0	0.0	0.0
	10(OPE)	-57	-790	230	0.0	0.0	0.0
	12(SUS)	2	-783	9	0.0	0.0	0.0
	13(SUS)	2	-778	9	0.0	0.0	0.0
	MAX	-525/L6	-1440/L3	230/L10			
6090		TYPE=Rigid +Y; Rigid LIM w/gap;					
	3(HYD)	-1	-1463	6	0.0	0.0	0.0
	4(OPE)	13	-796	239	0.0	0.0	0.0
	6(OPE)	80	-791	2099	0.0	0.0	0.0
	8(OPE)	-0	-798	4	0.0	0.0	0.0
	10(OPE)	12	-796	239	0.0	0.0	0.0
	12(SUS)	-0	-798	4	0.0	0.0	0.0
	13(SUS)	-0	-794	4	0.0	0.0	0.0
	MAX	80/L6	-1463/L3	2099/L6			
6220		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-50	-745	8	0.0	0.0	0.0
	4(OPE)	-134	-446	13	0.0	0.0	0.0
	6(OPE)	-126	-419	16	0.0	0.0	0.0
	8(OPE)	-29	-463	6	0.0	0.0	0.0
	10(OPE)	-126	-420	11	0.0	0.0	0.0
	12(SUS)	-29	-463	6	0.0	0.0	0.0
	13(SUS)	-33	-459	6	0.0	0.0	0.0
	MAX	-134/L4	-745/L3	16/L6			
6240		TYPE=Rigid +Y;					
	3(HYD)	-4	-14	-0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	-9	-29	-1	0.0	0.0	0.0
	6(OPE)	-13	-43	-2	0.0	0.0	0.0
	8(OPE)	-4	-14	0	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-4	-14	0	0.0	0.0	0.0
	13(SUS)	-4	-14	0	0.0	0.0	0.0
	MAX	-13/L6	-43/L6	-2/L6			
6270		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-18	-119	-6	0.0	0.0	0.0
	4(OPE)	-28	-136	20	0.0	0.0	0.0
	6(OPE)	-9	-52	13	0.0	0.0	0.0
	8(OPE)	-17	-116	-5	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-17	-116	-5	0.0	0.0	0.0
	13(SUS)	-17	-116	-5	0.0	0.0	0.0
	MAX	-28/L4	-136/L4	20/L4			
6290		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	29	-97	4	0.0	0.0	0.0
	4(OPE)	59	-198	-8	0.0	0.0	0.0
	6(OPE)	76	-257	-13	0.0	0.0	0.0
	8(OPE)	26	-89	3	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	26	-89	3	0.0	0.0	0.0
	13(SUS)	26	-89	3	0.0	0.0	0.0
	MAX	76/L6	-257/L6	-13/L6			
6310		TYPE=Rigid +Y;					
	3(HYD)	0	-182	2	0.0	0.0	0.0
	4(OPE)	-22	-337	36	0.0	0.0	0.0
	6(OPE)	-53	-394	56	0.0	0.0	0.0
	8(OPE)	0	-190	2	0.0	0.0	0.0
	10(OPE)	-22	-335	36	0.0	0.0	0.0
	12(SUS)	0	-191	2	0.0	0.0	0.0
	13(SUS)	-1	-193	2	0.0	0.0	0.0
	MAX	-53/L6	-394/L6	56/L6			
6410		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-16	0	0.0	0.0	0.0
	4(OPE)	0	-11	0	0.0	0.0	0.0
	6(OPE)	0	-11	0	0.0	0.0	0.0
	8(OPE)	0	-11	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(OPE)	0	-11	0	0.0	0.0	0.0
	12(SUS)	0	-11	0	0.0	0.0	0.0
	13(SUS)	0	-11	0	0.0	0.0	0.0
	MAX		-16/L3				
6430		TYPE=Rigid +Y;					
	3(HYD)	0	-1290	0	0.0	0.0	0.0
	4(OPE)	0	-1040	0	0.0	0.0	0.0
	6(OPE)	0	-940	0	0.0	0.0	0.0
	8(OPE)	0	-1037	0	0.0	0.0	0.0
	10(OPE)	0	-1056	0	0.0	0.0	0.0
	12(SUS)	0	-1037	0	0.0	0.0	0.0
	13(SUS)	0	-1029	0	0.0	0.0	0.0
	MAX		-1290/L3				
6450		TYPE=Rigid +Y;					
	3(HYD)	0	-283	0	0.0	0.0	0.0
	4(OPE)	0	-307	0	0.0	0.0	0.0
	6(OPE)	0	-444	0	0.0	0.0	0.0
	8(OPE)	0	-234	0	0.0	0.0	0.0
	10(OPE)	0	-937	0	0.0	0.0	0.0
	12(SUS)	0	-234	0	0.0	0.0	0.0
	13(SUS)	0	-234	0	0.0	0.0	0.0
	MAX		-937/L10				
6470		TYPE=Rigid Y;					
	3(HYD)	0	-302	0	0.0	0.0	0.0
	4(OPE)	0	132	0	0.0	0.0	0.0
	6(OPE)	0	14	0	0.0	0.0	0.0
	8(OPE)	0	-252	0	0.0	0.0	0.0
	10(OPE)	0	8	0	0.0	0.0	0.0
	12(SUS)	0	-252	0	0.0	0.0	0.0
	13(SUS)	0	-252	0	0.0	0.0	0.0
	MAX		-302/L3				
6490		TYPE=Rigid +Y;					
	3(HYD)	-74	-1254	119	0.0	0.0	0.0
	4(OPE)	104	-1247	359	0.0	0.0	0.0
	6(OPE)	105	-1287	371	0.0	0.0	0.0
	8(OPE)	-68	-1166	105	0.0	0.0	0.0
	10(OPE)	106	-1292	373	0.0	0.0	0.0
	12(SUS)	-68	-1166	105	0.0	0.0	0.0
	13(SUS)	-68	-1161	104	0.0	0.0	0.0
	MAX	106/L10	-1292/L10	373/L10			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6520		TYPE=Rigid +Y;					
	3(HYD)	-59	-1023	-144	0.0	0.0	0.0
	4(OPE)	96	-839	233	0.0	0.0	0.0
	6(OPE)	124	-757	190	0.0	0.0	0.0
	8(OPE)	-49	-932	-138	0.0	0.0	0.0
	10(OPE)	95	-793	218	0.0	0.0	0.0
	12(SUS)	-49	-932	-138	0.0	0.0	0.0
	13(SUS)	-49	-927	-138	0.0	0.0	0.0
	MAX	124/L6	-1023/L3	233/L4			
6540		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	1	-286	29	0.0	0.0	0.0
	4(OPE)	-31	-241	66	0.0	0.0	0.0
	6(OPE)	16	-388	115	0.0	0.0	0.0
	8(OPE)	1	-280	29	0.0	0.0	0.0
	10(OPE)	-34	-259	70	0.0	0.0	0.0
	12(SUS)	1	-280	29	0.0	0.0	0.0
	13(SUS)	1	-278	29	0.0	0.0	0.0
	MAX	-34/L10	-388/L6	115/L6			
6560		TYPE=Rigid +Y; Rigid Z;					
	3(HYD)	-153	-511	124	0.0	0.0	0.0
	4(OPE)	-108	-360	-1183	0.0	0.0	0.0
	6(OPE)	-113	-378	-2781	0.0	0.0	0.0
	8(OPE)	-110	-366	95	0.0	0.0	0.0
	10(OPE)	-108	-359	-1319	0.0	0.0	0.0
	12(SUS)	-110	-366	95	0.0	0.0	0.0
	13(SUS)	-109	-365	94	0.0	0.0	0.0
	MAX	-153/L3	-511/L3	-2781/L6			
6590		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-953	0	0.0	0.0	0.0
	4(OPE)	0	-761	0	0.0	0.0	0.0
	6(OPE)	0	-623	0	0.0	0.0	0.0
	8(OPE)	0	-779	0	0.0	0.0	0.0
	10(OPE)	0	-752	0	0.0	0.0	0.0
	12(SUS)	0	-779	0	0.0	0.0	0.0
	13(SUS)	0	-777	0	0.0	0.0	0.0
	MAX		-953/L3				
6610		TYPE=Rigid Z w/gap; Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	3(HYD)	0	-667	0	0.0	0.0	0.0
	4(OPE)	0	-32	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-416	0	0.0	0.0	0.0
	10(OPE)	0	-45	0	0.0	0.0	0.0
	12(SUS)	0	-416	0	0.0	0.0	0.0
	13(SUS)	0	-415	0	0.0	0.0	0.0
	MAX		-667/L3				
6640		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	82	-1062	-40	0.0	0.0	0.0
	4(OPE)	-317	-1087	-75	0.0	0.0	0.0
	6(OPE)	-254	-849	-13	0.0	0.0	0.0
	8(OPE)	72	-844	-28	0.0	0.0	0.0
	10(OPE)	-315	-1077	-69	0.0	0.0	0.0
	12(SUS)	72	-844	-28	0.0	0.0	0.0
	13(SUS)	72	-843	-28	0.0	0.0	0.0
	MAX	-317/L4	-1087/L4	-75/L4			
6670		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-885	0	0.0	0.0	0.0
	4(OPE)	0	-702	0	0.0	0.0	0.0
	6(OPE)	0	-671	-949	0.0	0.0	0.0
	8(OPE)	0	-733	0	0.0	0.0	0.0
	10(OPE)	0	-700	0	0.0	0.0	0.0
	12(SUS)	0	-733	0	0.0	0.0	0.0
	13(SUS)	0	-732	0	0.0	0.0	0.0
	MAX		-885/L3	-949/L6			
6690		TYPE=Rigid +Y;					
	3(HYD)	63	-786	-57	0.0	0.0	0.0
	4(OPE)	-183	-682	-92	0.0	0.0	0.0
	6(OPE)	-259	-1105	-207	0.0	0.0	0.0
	8(OPE)	20	-574	-46	0.0	0.0	0.0
	10(OPE)	-185	-680	-87	0.0	0.0	0.0
	12(SUS)	20	-574	-46	0.0	0.0	0.0
	13(SUS)	20	-573	-46	0.0	0.0	0.0
	MAX	-259/L6	-1105/L6	-207/L6			
6710		TYPE=Rigid +Y;					
	3(HYD)	145	-523	-61	0.0	0.0	0.0
	4(OPE)	159	-540	31	0.0	0.0	0.0
	6(OPE)	209	-753	86	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	8(OPE)	131	-470	-53	0.0	0.0	0.0
	10(OPE)	173	-613	62	0.0	0.0	0.0
	12(SUS)	131	-470	-53	0.0	0.0	0.0
	13(SUS)	130	-469	-53	0.0	0.0	0.0
	MAX	209/L6	-753/L6	86/L6			
6730		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	13	-449	1	0.0	0.0	0.0
	4(OPE)	106	-386	47	0.0	0.0	0.0
	6(OPE)	454	-225	55	0.0	0.0	0.0
	8(OPE)	21	-391	-1	0.0	0.0	0.0
	10(OPE)	40	0	0	0.0	0.0	0.0
	12(SUS)	21	-391	-1	0.0	0.0	0.0
	13(SUS)	21	-391	-1	0.0	0.0	0.0
	MAX	454/L6	-449/L3	55/L6			
6750		TYPE=Rigid +Y;					
	3(HYD)	0	-119	0	0.0	0.0	0.0
	4(OPE)	0	-43	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-108	0	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	0	-108	0	0.0	0.0	0.0
	13(SUS)	0	-108	0	0.0	0.0	0.0
	MAX		-119/L3				
6770		TYPE=Rigid +Y;					
	3(HYD)	-103	-468	-55	0.0	0.0	0.0
	4(OPE)	14	-333	99	0.0	0.0	0.0
	6(OPE)	9	-345	103	0.0	0.0	0.0
	8(OPE)	-74	-336	-32	0.0	0.0	0.0
	10(OPE)	14	-325	97	0.0	0.0	0.0
	12(SUS)	-74	-336	-32	0.0	0.0	0.0
	13(SUS)	-72	-329	-31	0.0	0.0	0.0
	MAX	-103/L3	-468/L3	103/L6			
6845		TYPE=Rigid X w/gap; Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-59	-470	0	0.0	0.0	0.0
	4(OPE)	5	-300	-219	0.0	0.0	0.0
	6(OPE)	489	-272	-30	0.0	0.0	0.0
	8(OPE)	-35	-302	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(OPE)	5	-301	-199	0.0	0.0	0.0
	12(SUS)	-35	-302	0	0.0	0.0	0.0
	13(SUS)	-34	-291	0	0.0	0.0	0.0
	MAX	489/L6	-470/L3	-219/L4			
6870		TYPE=Rigid +Y;					
	3(HYD)	0	-740	0	0.0	0.0	0.0
	4(OPE)	0	-470	0	0.0	0.0	0.0
	6(OPE)	0	-481	0	0.0	0.0	0.0
	8(OPE)	0	-466	0	0.0	0.0	0.0
	10(OPE)	0	-469	0	0.0	0.0	0.0
	12(SUS)	0	-466	0	0.0	0.0	0.0
	13(SUS)	0	-449	0	0.0	0.0	0.0
	MAX		-740/L3				
6890		TYPE=Rigid +Y; Rigid X;					
	3(HYD)	-1	-597	0	0.0	0.0	0.0
	4(OPE)	-25	-377	0	0.0	0.0	0.0
	6(OPE)	-9	-374	0	0.0	0.0	0.0
	8(OPE)	-0	-378	0	0.0	0.0	0.0
	10(OPE)	-26	-377	0	0.0	0.0	0.0
	12(SUS)	-0	-378	0	0.0	0.0	0.0
	13(SUS)	-0	-364	0	0.0	0.0	0.0
	MAX	-26/L10	-597/L3				
6900		TYPE=Rigid +Y;					
	3(HYD)	0	-646	0	0.0	0.0	0.0
	4(OPE)	0	-408	0	0.0	0.0	0.0
	6(OPE)	0	-408	0	0.0	0.0	0.0
	8(OPE)	0	-408	0	0.0	0.0	0.0
	10(OPE)	0	-408	0	0.0	0.0	0.0
	12(SUS)	0	-408	0	0.0	0.0	0.0
	13(SUS)	0	-392	0	0.0	0.0	0.0
	MAX		-646/L3				
6905		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	0	-593	0	0.0	0.0	0.0
	4(OPE)	-16	-375	111	0.0	0.0	0.0
	6(OPE)	-77	-375	112	0.0	0.0	0.0
	8(OPE)	0	-375	0	0.0	0.0	0.0
	10(OPE)	-17	-375	111	0.0	0.0	0.0
	12(SUS)	0	-375	0	0.0	0.0	0.0
	13(SUS)	0	-361	0	0.0	0.0	0.0
	MAX	-77/L6	-593/L3	112/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6910		TYPE=Rigid +Y;					
	3(HYD)	-0	-772	0	0.0	0.0	0.0
	4(OPE)	-18	-487	145	0.0	0.0	0.0
	6(OPE)	-23	-486	144	0.0	0.0	0.0
	8(OPE)	-0	-487	0	0.0	0.0	0.0
	10(OPE)	-18	-487	145	0.0	0.0	0.0
	12(SUS)	-0	-487	0	0.0	0.0	0.0
	13(SUS)	-0	-469	0	0.0	0.0	0.0
	MAX	-23/L6	-772/L3	145/L4			
6920		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	0	-314	0	0.0	0.0	0.0
	4(OPE)	48	-198	36	0.0	0.0	0.0
	6(OPE)	88	-199	60	0.0	0.0	0.0
	8(OPE)	0	-198	0	0.0	0.0	0.0
	10(OPE)	47	-198	36	0.0	0.0	0.0
	12(SUS)	0	-198	0	0.0	0.0	0.0
	13(SUS)	0	-191	0	0.0	0.0	0.0
	MAX	88/L6	-314/L3	60/L6			
7010		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	194	-648	-13	0.0	0.0	0.0
	4(OPE)	100	-495	110	0.0	0.0	0.0
	6(OPE)	151	-524	847	0.0	0.0	0.0
	8(OPE)	142	-475	-4	0.0	0.0	0.0
	10(OPE)	101	-496	110	0.0	0.0	0.0
	12(SUS)	142	-475	-4	0.0	0.0	0.0
	13(SUS)	139	-465	-4	0.0	0.0	0.0
	MAX	194/L3	-648/L3	847/L6			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC
 CASE 28 (OCC) L28=L21+L12
 CASE 29 (OCC) L29=L22+L12
 CASE 30 (OCC) L30=L23+L12
 CASE 31 (OCC) L31=L24+L12
 CASE 32 (OCC) L32=L25+L12
 CASE 33 (OCC) L33=L26+L12
 CASE 34 (OCC) L34=L27+L12
 CASE 35 (EXP) L35=L4-L12
 CASE 36 (EXP) L36=L6-L12
 CASE 37 (EXP) L37=L4-L6
 CASE 38 (EXP) L38=L8-L12
 CASE 39 (EXP) L39=L4-L8
 CASE 40 (EXP) L40=L6-L8
 CASE 41 (EXP) L41=L10-L12
 CASE 42 (EXP) L42=L4-L10
 CASE 43 (EXP) L43=L6-L10
 CASE 44 (EXP) L44=L8-L10

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (lb./sq.in.) LOADCASE 3 (HYD) WW+HP+H
 Ratio (%): 53.2 @Node 7000
 Code Stress: 13304.4 Allowable Stress: 25000.0
 Axial Stress: 7012.0 @Node 4650
 Bending Stress: 17657.8 @Node 7000
 Torsion Stress: 766.5 @Node 6794
 Hoop Stress: 14608.9 @Node 1939
 Max Stress Intensity: 17718.8 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (lb./sq.in.) LOADCASE 12 (SUS) W+P1+H
 Ratio (%): 58.5 @Node 7000
 Code Stress: 9768.9 Allowable Stress: 16700.0
 Axial Stress: 4680.0 @Node 4650
 Bending Stress: 12966.1 @Node 7000
 Torsion Stress: 508.8 @Node 6794
 Hoop Stress: 9739.2 @Node 4100
 Max Stress Intensity: 13010.4 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 13 (SUS) WNC
 Ratio (%): 58.0 @Node 6700

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Code Stress:	9688.0	Allowable Stress:	16700.0
Axial Stress:	365.6	@Node	6490
Bending Stress:	12867.5	@Node	6700
Torsion Stress:	495.0	@Node	5020
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	12904.8	@Node	6700

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L12

Highest Stresses: (lb./sq.in.) LOADCASE 28 (OCC) L28=L21+L12

Ratio (%):	48.5	@Node	6700
Code Stress:	10782.0	Allowable Stress:	22211.0
Axial Stress:	4799.1	@Node	2000
Bending Stress:	14325.5	@Node	6700
Torsion Stress:	1434.4	@Node	2140
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	14848.9	@Node	4100

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L12

Highest Stresses: (lb./sq.in.) LOADCASE 29 (OCC) L29=L22+L12

Ratio (%):	49.8	@Node	6700
Code Stress:	11057.0	Allowable Stress:	22211.0
Axial Stress:	4693.2	@Node	4560
Bending Stress:	14692.6	@Node	6700
Torsion Stress:	799.4	@Node	4350
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	14730.1	@Node	6700

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L12

Highest Stresses: (lb./sq.in.) LOADCASE 30 (OCC) L30=L23+L12

Ratio (%):	49.4	@Node	7000
Code Stress:	10979.4	Allowable Stress:	22211.0
Axial Stress:	4692.3	@Node	4650
Bending Stress:	14576.8	@Node	7000
Torsion Stress:	446.0	@Node	6794
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	14623.6	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L12

Highest Stresses: (lb./sq.in.) LOADCASE 31 (OCC) L31=L24+L12

Ratio (%):	49.4	@Node	7000
Code Stress:	10980.0	Allowable Stress:	22211.0
Axial Stress:	4664.1	@Node	4650
Bending Stress:	14576.9	@Node	7000
Torsion Stress:	574.7	@Node	4560
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	14624.2	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L12

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 32 (OCC) L32=L25+L12

Ratio (%) :	55.5	@Node	7000	
Code Stress:	12322.3	Allowable Stress:		22211.0
Axial Stress:	4877.6	@Node	4710	
Bending Stress:	16366.5	@Node	7000	
Torsion Stress:	912.2	@Node	5280	
Hoop Stress:	9739.2	@Node	4100	
Max Stress Intensity:	16414.0	@Node	7000	

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L12

Highest Stresses: (lb./sq.in.) LOADCASE 33 (OCC) L33=L26+L12

Ratio (%) :	44.0	@Node	7000	
Code Stress:	9768.9	Allowable Stress:		22211.0
Axial Stress:	4680.0	@Node	4650	
Bending Stress:	12966.1	@Node	7000	
Torsion Stress:	508.8	@Node	6794	
Hoop Stress:	9739.2	@Node	4100	
Max Stress Intensity:	13010.5	@Node	7000	

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L12

Highest Stresses: (lb./sq.in.) LOADCASE 34 (OCC) L34=L27+L12

Ratio (%) :	44.0	@Node	7000	
Code Stress:	9768.9	Allowable Stress:		22211.0
Axial Stress:	4680.0	@Node	4650	
Bending Stress:	12966.1	@Node	7000	
Torsion Stress:	508.8	@Node	6794	
Hoop Stress:	9739.2	@Node	4100	
Max Stress Intensity:	13010.5	@Node	7000	

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L12

Highest Stresses: (lb./sq.in.) LOADCASE 35 (EXP) L35=L4-L12

Ratio (%) :	33.9	@Node	6510	
Code Stress:	12790.9	Allowable Stress:		37730.3
Axial Stress:	8649.3	@Node	6550	
Bending Stress:	12678.3	@Node	1538	
Torsion Stress:	2043.6	@Node	1580	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	18857.0	@Node	6550	

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L12

Highest Stresses: (lb./sq.in.) LOADCASE 36 (EXP) L36=L6-L12

Ratio (%) :	74.2	@Node	7000	
Code Stress:	23704.1	Allowable Stress:		31934.5
Axial Stress:	8740.4	@Node	6550	
Bending Stress:	23947.2	@Node	4100	
Torsion Stress:	2667.2	@Node	1580	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	24293.7	@Node	4100	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 37 (EXP) L37=L4-L6

Ratio (%) :	65.1	@Node	7000	
Code Stress:	20784.6	Allowable Stress:		31934.5
Axial Stress:	17247.1	@Node	6550	
Bending Stress:	20705.0	@Node	7000	
Torsion Stress:	2268.2	@Node	5080	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	37450.4	@Node	6550	

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L8-L12

Highest Stresses: (lb./sq.in.) LOADCASE 38 (EXP) L38=L8-L12

Ratio (%) :	1.0	@Node	1178	
Code Stress:	475.7	Allowable Stress:		45850.8
Axial Stress:	40.7	@Node	1260	
Bending Stress:	459.7	@Node	1178	
Torsion Stress:	15.7	@Node	980	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	620.8	@Node	1178	

CODE STRESS CHECK PASSED : LOADCASE 39 (EXP) L39=L4-L8

Highest Stresses: (lb./sq.in.) LOADCASE 39 (EXP) L39=L4-L8

Ratio (%) :	33.9	@Node	6510	
Code Stress:	12790.6	Allowable Stress:		37730.3
Axial Stress:	8649.3	@Node	6550	
Bending Stress:	12656.8	@Node	6510	
Torsion Stress:	2044.4	@Node	1580	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	18857.0	@Node	6550	

CODE STRESS CHECK PASSED : LOADCASE 40 (EXP) L40=L6-L8

Highest Stresses: (lb./sq.in.) LOADCASE 40 (EXP) L40=L6-L8

Ratio (%) :	74.2	@Node	7000	
Code Stress:	23704.1	Allowable Stress:		31934.5
Axial Stress:	8740.4	@Node	6550	
Bending Stress:	23947.1	@Node	4100	
Torsion Stress:	2667.9	@Node	1580	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	24293.6	@Node	4100	

CODE STRESS CHECK PASSED : LOADCASE 41 (EXP) L41=L10-L12

Highest Stresses: (lb./sq.in.) LOADCASE 41 (EXP) L41=L10-L12

Ratio (%) :	33.5	@Node	6510	
Code Stress:	12651.8	Allowable Stress:		37730.3
Axial Stress:	644.8	@Node	1920	
Bending Stress:	12680.2	@Node	1538	
Torsion Stress:	2043.9	@Node	1580	
Hoop Stress:	0.0	@Node	40	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Max Stress Intensity: 25573.2 @Node 5450

CODE STRESS CHECK PASSED : LOADCASE 42 (EXP) L42=L4-L10

Highest Stresses: (lb./sq.in.) LOADCASE 42 (EXP) L42=L4-L10
 Ratio (%): 27.7 @Node 6280
 Code Stress: 11587.2 Allowable Stress: 41775.0
 Axial Stress: 8585.7 @Node 6550
 Bending Stress: 11452.7 @Node 6280
 Torsion Stress: 1357.5 @Node 5188
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 24494.6 @Node 5329

CODE STRESS CHECK PASSED : LOADCASE 43 (EXP) L43=L6-L10

Highest Stresses: (lb./sq.in.) LOADCASE 43 (EXP) L43=L6-L10
 Ratio (%): 65.5 @Node 7000
 Code Stress: 20904.1 Allowable Stress: 31934.5
 Axial Stress: 8661.4 @Node 6550
 Bending Stress: 20819.1 @Node 7000
 Torsion Stress: 1764.0 @Node 5080
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 27042.8 @Node 5458

CODE STRESS CHECK PASSED : LOADCASE 44 (EXP) L44=L8-L10

Highest Stresses: (lb./sq.in.) LOADCASE 44 (EXP) L44=L8-L10
 Ratio (%): 33.5 @Node 6510
 Code Stress: 12651.5 Allowable Stress: 37730.3
 Axial Stress: 644.9 @Node 1920
 Bending Stress: 12657.1 @Node 1538
 Torsion Stress: 2044.7 @Node 1580
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 25573.2 @Node 5450

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H-U2
 18 (OPE) W+T1+P1+H+U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L12
 29 (OCC) L29=L22+L12
 30 (OCC) L30=L23+L12
 31 (OCC) L31=L24+L12
 32 (OCC) L32=L25+L12
 33 (OCC) L33=L26+L12
 34 (OCC) L34=L27+L12
 35 (EXP) L35=L4-L12
 36 (EXP) L36=L6-L12
 37 (EXP) L37=L4-L6
 38 (EXP) L38=L8-L12
 39 (EXP) L39=L4-L8
 40 (EXP) L40=L6-L8
 41 (EXP) L41=L10-L12
 42 (EXP) L42=L4-L10
 43 (EXP) L43=L6-L10
 44 (EXP) L44=L8-L10

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T1+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC

Node		fa lb.	fb lb.	fc lb.	Forces Check	ma ft.lb.	mb ft.lb.	mc ft.lb.	Moments Check	
20		Absolute Method								
	Limits	486	486	486		851.9	851.9	851.9		
	4(OPE)	-70	172	-32	0.354	133.3	101.0	396.2	0.465	
	12(SUS)	24	-121	-4	0.249	5.9	9.0	-130.0	0.153	
	13(SUS)	-30	-365	-3	0.753	7.8	6.7	-804.7	0.945	
780		Absolute Method								
	Limits	2158	2158	1619		4248.5	2832.4	3680.6		
	4(OPE)	686	-15	64	0.318	154.5	-247.1	-845.9	0.230	
	12(SUS)	594	-3	2	0.275	-28.1	-602.9	-594.9	0.213	
	13(SUS)	592	-3	2	0.274	-27.3	-594.9	-593.8	0.210	
1240		Absolute Method								
	Limits	486	486	486		851.9	851.9	851.9		
	4(OPE)	251	-125	22	0.518	23.6	-696.0	138.3	0.817	
	12(SUS)	1	-135	1	0.277	13.5	0.7	138.9	0.163	
	13(SUS)	1	-134	1	0.275	13.4	0.7	137.2	0.161	
1700		Absolute Method								
	Limits	3393	3393	2698		6749.0	3606.8	4735.3		
	4(OPE)	-667	383	-324	0.196	3439.5	2821.4	261.6	0.782	
	12(SUS)	162	9	24	0.048	-83.2	-35.3	-20.3	0.012	
	13(SUS)	161	9	24	0.048	-82.6	-35.4	-20.1	0.012	

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

Node		fa lb.	fb lb.	fc lb.	Forces Check	ma ft.lb.	mb ft.lb.	mc ft.lb.	Moments Check	
1780		Absolute Method								
	Limits	3642	3393	2698		6749.0	3606.8	4735.3		
	4(OPE)	-3642	-403	546	1.000	-371.2	-953.5	4056.1	0.857	*
	12(SUS)	-25	21	129	0.048	-135.6	-245.1	-29.2	0.068	
	13(SUS)	-24	21	128	0.047	-134.9	-242.8	-29.1	0.067	
4260		Absolute Method								
	Limits	1888	1888	1416		2788.1	1858.7	2419.3		
	4(OPE)	1042	-435	30	0.552	221.6	142.1	1585.0	0.655	
	12(SUS)	55	-315	5	0.167	127.1	62.8	698.8	0.289	
	13(SUS)	55	-314	5	0.167	126.9	62.7	696.5	0.288	

BNK-GCS-CN-008

Table of contents:

Line no.

Stress sketch

Input echo

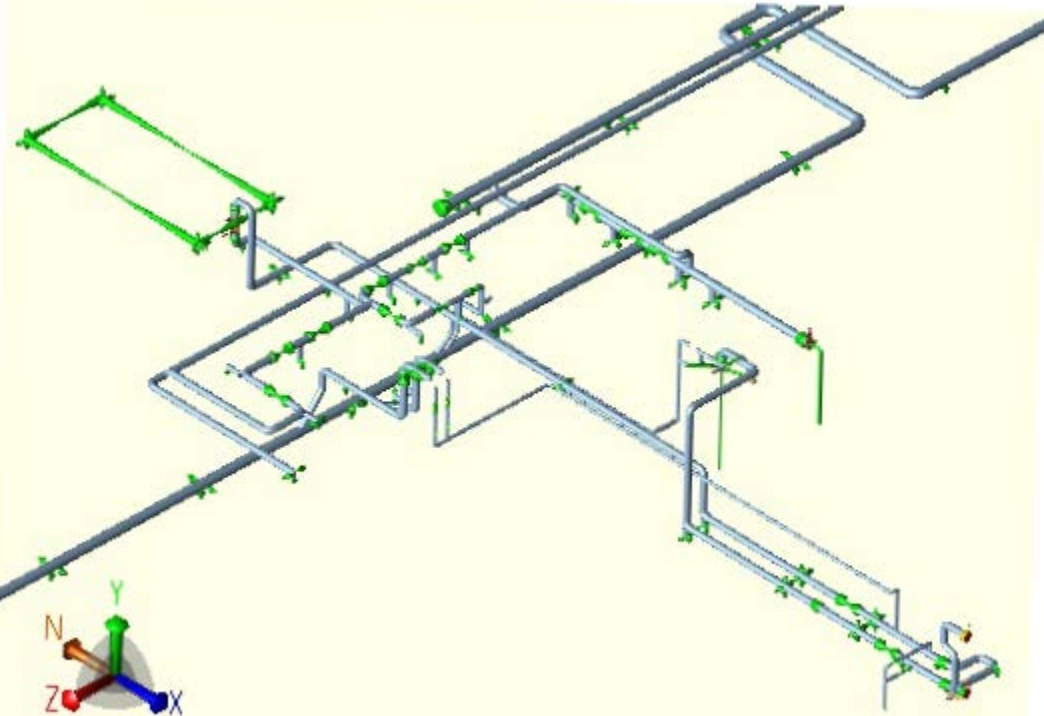
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0044C-CN05-6"-ET
2. GAS-111-0160C-CN05-2"-PT
3. FL-112-0119C-AN07-3"-PT
4. GAS-111-0051C-FN05-6"-IS
5. GAS-111-0058C-FS00-6"-NP
6. GAS-111-0055C-FS00-6"-NP
7. GAS-111-0045C-FS00-6"-NP
8. GAS-111-0046C-AN07-6"-PT
9. GAS-111-0026C-AN07-8"-PT
10. GAS-111-0057C-FS00-4"-NP
11. FL-112-0024C-AN07-4"-PT
12. GAS-111-0047C-FN05-2"-PT
13. GAS-111-0048C-FN05-2"-PT
14. FL-112-0020C-AN07-6"-PT
15. FL-112-0022C-AN07-6"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 20 To 40 DX= -.331 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.

Element Name= FLANGE_FLG_150

GENERAL

T1= 140 F T2= 240 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.

EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0049190 lb./cu.in.

RIGID Weight= 43.00 lb.

RESTRAINTS

Node 20 ANC

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

EQUIPMENT LIMITS

Nozzle Node = 20 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb.

FB= 485.61 lb. FC= 485.61 lb. MA= 10,223.05 in.lb.

MB= 10,223.05 in.lb. MC= 10,223.05 in.lb.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 40 To 60 DX= -2.740 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59

Angle/Node @2= .00 58

 From 60 To 80 DY= -2.720 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

Angle/Node @2= .00 78

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INPUT LISTING

From 80 To 100 DX= 1.509 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99

Angle/Node @2= .00 98

From 100 To 120 DY= -3.472 ft.

From 120 To 140 DY= -.751 ft.

RIGID Weight= .00 lb.

From 140 To 160 DY= -.656 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

GENERAL

T1= 70 F T2= 70 F T4= 70 F P1= .0000 lb./sq.in.

PHyd= .0000 lb./sq.in. Fluid Den= .0000000 lb./cu.in.

Insul Thk= 1.575 in.

RESTRAINTS

Node 160 -X Mu = .30

Node 160 Z Cnode 121

Node 121 +Y Mu = .10

Node 160 X Cnode 121

HANGERS

Hanger Node = 160 Hanger Connecting Node = 121

Available Space = -39.3701 in. Allowed Load Variation = 25.0000

No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 lb.

Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 lb./in.

Theoretical Cold Load = .00 lb.

SIF's & TEE's

Node 140 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 120 To 180 DY= -.751 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.

GENERAL

T1= 140 F T2= 240 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in.

DOUBLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 180 To 200 DX= -.751 ft.

From 200 To 220 DX= -.333 ft.

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INPUT LISTING

```

Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 220 To 240 DX= -.333 ft.
Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 240 To 260 DX= -2.953 ft.
-----
From 260 To 280 DX= -.969 ft.
SIF's & TEE's
Node 280 Weldolet
-----
From 280 To 300 DX= -1.640 ft.
PIPE
Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.
GENERAL
T1= 140 F T2= 240 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.
PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B
E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.
EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.
EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.
EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.
Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
RESTRAINTS
Node 300 +Y Mu = .30
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.
-----
From 300 To 320 DX= -.666 ft.
-----
From 320 To 340 DX= -.333 ft.
Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 340 To 360 DX= -1.880 ft.
Element Name= GATE_NOFLG_300
RIGID Weight= 230.07 lb.
-----
From 360 To 380 DX= -.333 ft.
Element Name= FLANGE_FLG_300
RIGID Weight= 43.00 lb.
-----
From 380 To 400 DX= -2.825 ft.
RESTRAINTS
Node 400 Y
Node 400 Z
-----
From 400 To 420 DX= -5.108 ft.
-----

```

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INPUT LISTING

From 420 To 440 DX= -.333 ft.

Element Name= FLANGE_FLG_300

RIGID Weight= 43.00 lb.

From 440 To 460 DX= -.333 ft.

Element Name= FLANGE_FLG_300

RIGID Weight= 43.00 lb.

From 460 To 480 DX= -4.078 ft.

RESTRAINTS

Node 480 Y

Node 480 Z

From 480 To 490 DX= -6.677 ft.

From 500 To 6210 DY= -.250 ft.

RIGID Weight= .00 lb.

From 490 To 500 DX= -6.677 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

From 500 To 580 DY= 13.520 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 240 F P1= 319.0903 lb./sq.in. PHyd= 478.6355 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

EH1= 29,100,956 lb./sq.in. EH2= 28,601,496 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,100,956 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0002095 lb./cu.in. Insul Thk= .000 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 580 To 600 DZ= -9.022 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.

GENERAL

T1= 140 F T2= 240 F P1= 319.0903 lb./sq.in. PHyd= 478.6355 lb./sq.in.

Fluid Den= .0006539 lb./cu.in. Insul Thk= 1.575 in.

Insul Den= .0054191 lb./cu.in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 599

Angle/Node @2= .00 598

ALLOWABLE STRESSES

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INPUT LISTING

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 600 To 610 DX= -1.030 ft.

From 610 To 620 DX= -1.037 ft.

GENERAL

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,100,956 lb./sq.in. EH2= 28,601,496 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,100,956 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 620 To 5190 DY= .653 ft.

PIPE

Dia= 2.375 in. Wall= .218 in.

GENERAL

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,100,956 lb./sq.in. EH2= 28,601,496 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,100,956 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Insul Thk= 1.575 in.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5189
 Angle/Node @2= .00 5188

SIF's & TEE's

Node 620 Weldolet

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 5190 To 5200 DZ= .741 ft.

From 5200 To 5210 DZ= .240 ft.

RIGID Weight= 10.00 lb.

From 5210 To 5220 DZ= .988 ft.

RIGID Weight= 21.00 lb.

From 5220 To 5230 DZ= .240 ft.

RIGID Weight= 10.00 lb.

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INPUT LISTING

```
-----
From 5230 To 5240 DZ= .253 ft.
BEND at "TO" end
      Radius= 3.000 in. (LONG)      Bend Angle= 90.000      Angle/Node @1= 45.00 5239
      Angle/Node @2= .00 5238
-----
```

```
-----
From 5240 To 5245 DX= -1.102 ft.
-----
```

```
-----
From 5240 To 6230 DY= -.059 ft. DZ= .059 ft.
RIGID Weight= .00 lb.
```

SIF's & TEE's

Node 6230 Unreinforced Tee

```
-----
From 5245 To 5250 DX= -1.102 ft.
-----
```

```
-----
From 5250 To 5260 DX= -.240 ft.
```

RIGID Weight= 10.00 lb.

```
-----
From 5260 To 5270 DX= -.240 ft.
```

RIGID Weight= 10.00 lb.

```
-----
From 5270 To 5275 DX= -.492 ft.
-----
```

```
-----
From 5275 To 6260 DY= -.083 ft.
```

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6260 Unreinforced Tee

```
-----
From 5275 To 5280 DX= -.492 ft.
-----
```

```
-----
From 5280 To 5290 DX= -.240 ft.
```

RIGID Weight= 10.00 lb.

```
-----
From 5290 To 5300 DX= -.656 ft.
```

RIGID Weight= 58.00 lb.

```
-----
From 5300 To 5310 DX= -.219 ft.
-----
```

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .2362 in.

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,393,378 lb./sq.in.

EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.

Insul Thk= 1.575 in.

RIGID Weight= 7.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

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INPUT LISTING

```

-----
From 5310 To 5320 DX= -.292 ft.
REDUCER
  Diam2= 3.500 in. Wall2= .300 in.
-----
From 5320 To 5330 DX= -.942 ft.
PIPE
  Dia= 3.500 in. Wall= .300 in.
  Insul Thk= 1.575 in.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5329
  Angle/Node @2= .00 5328
-----
From 5330 To 5340 DY= -2.356 ft.
-----
From 5340 To 6280 DX= .125 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6280 Unreinforced Tee
-----
From 5340 To 5350 DY= -6.946 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5349
  Angle/Node @2= .00 5348
-----
From 5350 To 5355 DZ= 1.695 ft.
RESTRAINTS
  Node 5355 +Y
-----
From 5355 To 5360 DZ= 1.695 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000
-----
From 5360 To 5370 DX= -10.761 ft.
RESTRAINTS
  Node 5370 +Y Mu = .30
  Node 5370 Z Gap= .118 in.
-----
From 5370 To 5375 DX= -14.770 ft.
RESTRAINTS
  Node 5375 +Y Mu = .30
-----
From 5375 To 5380 DX= -1.447 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5379
  Angle/Node @2= .00 5378
-----
From 5380 To 5390 DY= -2.336 ft.
BEND at "TO" end
  Radius= 4.500 in. (LONG) Bend Angle= 50.075 Angle/Node @1= 25.04 5389
  Angle/Node @2= .00 5388
-----
From 5390 To 5421 DX= .001 ft. DY= -1.920 ft. DZ= 2.294 ft.
-----
From 610 To 640 DY= -.276 ft.
PIPE
  
```

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INPUT LISTING

Dia= 6.625 in. Wall= .280 in.

GENERAL

T1= 140 F T2= 240 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Insul Thk= 1.575 in.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 640 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 640 To 660 DY= -.984 ft.

PIPE

Dia= 4.500 in. Wall= .237 in. Cor= .0000 in.

GENERAL

T1= 70 F T2= 70 F T3= 70 F T4= 70 F P1= .0000 lb./sq.in.

PHyd= .0000 lb./sq.in. Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.

EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

Insul Den= .0000000 lb./cu.in.

RESTRAINTS

Node 660 +Y Cnode 800

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 620 To 680 DX= -2.804 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .1181 in.

GENERAL

T1= 140 F T2= 240 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.

EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0054191 lb./cu.in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679

Angle/Node @2= .00 678

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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```

    Sh7= 20,000 lb./sq.in.    Sh8= 20,000 lb./sq.in.    Sh9= 20,000 lb./sq.in.
    Sy= 35,000 lb./sq.in.
-----
From 680 To 700 DY= -.751 ft.
-----
From 700 To 720 DY= -.413 ft.
    Element Name= FLANGE_FLG_300
RIGID Weight= 64.50 lb.
RESTRAINTS
    Node 720 ANC    Cnode 721
-----
From 721 To 760 DY= -.344 ft.
    Element Name= FLANGE_FLG_300
RIGID Weight= 40.00 lb.
-----
From 760 To 780 DY= -.651 ft.
RESTRAINTS
    Node 780 ANC    Cnode 820
EQUIPMENT LIMITS
    Nozzle Node = 780
    Limiting Loads: A=pipe; B=ref; C=AxB;    FA= 2,158.27 lb.    FB= 2,158.27 lb.
    FC= 1,618.71 lb.    MA= 50,982.47 in.lb.    MB= 33,988.32 in.lb.
    MC= 44,167.11 in.lb.    Equipment Major Direction Vector= .0000 .0000
    1.0000    Interact. Mtd= Absolute
-----
From 780 To 800 DX= 3.841 ft.    DY= .900 ft.    DZ= .000 ft.
RIGID Weight= .00 lb.
-----
From 780 To 6241 DX= 2.804 ft.    DY= 2.753 ft.    DZ= 3.504 ft.
RIGID Weight= .00 lb.
-----
From 780 To 6271 DX= -.372 ft.    DY= 1.581 ft.    DZ= 2.461 ft.
RIGID Weight= .00 lb.
-----
From 780 To 6291 DX= -2.103 ft.    DY= .457 ft.    DZ= 2.461 ft.
RIGID Weight= .00 lb.
-----
From 820 To 840 DY= -11.713 ft.
PIPE
    Dia= 36.000 in.    Wall= .591 in.
GENERAL
    Mat= (383)A516 70    E= 29,500,856 lb./sq.in.    EH1= 29,100,956 lb./sq.in.
    EH2= 28,601,496 lb./sq.in.    EH3= 29,500,856 lb./sq.in.
    EH4= 29,100,956 lb./sq.in.    EH5= 29,500,856 lb./sq.in.
    EH6= 29,500,856 lb./sq.in.    EH7= 29,500,856 lb./sq.in.
    EH8= 29,500,856 lb./sq.in.    EH9= 29,500,856 lb./sq.in.    v = .292
    Pipe Den= .2830000 lb./cu.in.    Insul Thk= 1.575 in.
RIGID Weight= .00 lb.
RESTRAINTS
    Node 840 ANC
ALLOWABLE STRESSES
    B31.3 (2016)    Cycle Max Switch = ---    Sc= 23,300 lb./sq.in.
    Sh1= 23,260 lb./sq.in.    Sh2= 22,882 lb./sq.in.    Sh3= 23,300 lb./sq.in.
    Sh4= 23,260 lb./sq.in.    Sh5= 23,300 lb./sq.in.    Sh6= 23,300 lb./sq.in.
    Sh7= 23,300 lb./sq.in.    Sh8= 23,300 lb./sq.in.    Sh9= 23,300 lb./sq.in.
    Sy= 38,000 lb./sq.in.

```

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INPUT LISTING

 From 280 To 4350 DZ= .400 ft.

PIPE

Dia= 2.375 in. Wall= .218 in. Cor= .1181 in.

GENERAL

T1= 140 F T2= 240 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,956 lb./sq.in.

EH2= 28,601,496 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,956 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0006539 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0054191 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4350 To 4360 DZ= .240 ft.

RIGID Weight= 10.00 lb.

 From 4360 To 4370 DZ= .988 ft.

PIPE

Dia= 2.375 in. Wall= .344 in.

GENERAL

T1= 288 F T2= 347 F T4= 288 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Fluid Den= .0015535 lb./cu.in.

Insul Thk= 2.362 in.

RIGID Weight= 70.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4370 To 4380 DZ= .271 ft.

GENERAL

T1= 288 F T2= 347 F T4= 288 F

RIGID Weight= 13.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 4380 To 4390 DZ= 1.890 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4389

Angle/Node @2= .00 4388

 From 4390 To 4395 DY= .843 ft.

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INPUT LISTING

```
-----
From 4390 To 6300 DY= -.083 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
Node 6300 Unreinforced Tee
-----
```

```
-----
From 4395 To 880 DY= .843 ft.
BEND at "TO" end
Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879
Angle/Node @2= .00 878
-----
```

```
-----
From 880 To 900 DZ= -.253 ft.
-----
```

```
-----
From 900 To 920 DZ= -.271 ft.
-----
```

Element Name= BALL_FLG_600

GENERAL

T1= 288 F T2= 347 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Fluid Den= .0015535 lb./cu.in.

RIGID Weight= 13.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

```
-----
From 920 To 940 DZ= -.988 ft.
-----
```

Element Name= CHECK_FLG_150

RIGID Weight= 96.00 lb.

```
-----
From 940 To 960 DZ= -.271 ft.
-----
```

RIGID Weight= 13.00 lb.

```
-----
From 960 To 980 DZ= -4.009 ft.
-----
```

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979

Angle/Node @2= .00 978

```
-----
From 980 To 1000 DY= -.328 ft.
-----
```

```
-----
From 1000 To 1020 DY= -.978 ft.
-----
```

Element Name= CHECK_FLG_600

SIF's & TEE's

Node 1020 Weldolet

```
-----
From 1020 To 1040 DX= .984 ft.
-----
```

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T3= 41 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,620,846 lb./sq.in.

EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

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INPUT LISTING

```

Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0015535 lb./cu.in.
Insul Thk= 1.575 in.   Insul Den= .0049190 lb./cu.in.
RESTRAINTS
Node 1040 +Y Mu = .30
ALLOWABLE STRESSES
B31.3 (2016)      Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in.   Sh2= 19,953 lb./sq.in.   Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.

-----
From 1040 To 1060 DX= .551 ft.
-----
From 1060 To 1080 DX= .413 ft.
Element Name= FLG.PR_FLG_150
RIGID Weight= 82.00 lb.
-----
From 1080 To 1100 DX= .413 ft.
Element Name= FLG.PR_FLG_150
RIGID Weight= 82.00 lb.
-----
From 1100 To 1120 DX= 1.083 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1119
Angle/Node @2= .00 1118
-----
From 1120 To 1140 DZ= -3.281 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1139
Angle/Node @2= .00 1138
-----
From 1140 To 1160 DX= 1.528 ft.
-----
From 1160 To 1180 DX= .764 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1179
Angle/Node @2= .00 1178
RESTRAINTS
Node 1180 -X Mu = .30
Node 1180 +Y Mu = .30
-----
From 1180 To 1200 DZ= 5.249 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 1199
Angle/Node @2= .00 1198
-----
From 1200 To 1220 DX= .751 ft.
-----
From 1220 To 1240 DX= .417 ft.
Element Name= FLANGE_FLG_600
RIGID Weight= 82.00 lb.
RESTRAINTS
Node 1240 ANC
EQUIPMENT LIMITS
Nozzle Node = 1240 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb.
FB= 485.61 lb. FC= 485.61 lb. MA= 10,223.05 in.lb.

```

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INPUT LISTING

MB= 10,223.05 in.lb. MC= 10,223.05 in.lb.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

 From 1020 To 1260 DX= -4.593 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T3= 70 F T4= 288 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.
 EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0015535 lb./cu.in.
 Insul Thk= 2.362 in. Insul Den= .0054191 lb./cu.in.

SIF's & TEE's

Node 1260 Weldolet

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 1260 To 1280 DX= -2.789 ft.

RESTRAINTS

Node 1280 Y Mu = .30
 Node 1280 Z

 From 1280 To 1300 DX= -2.133 ft.

 From 1300 To 1320 DX= -.417 ft.

Element Name= FLANGE_FLG_600

RIGID Weight= 82.00 lb.

 From 1320 To 1340 DX= -1.864 ft.

Element Name= CHECK_NOFLG_600

RIGID Weight= 694.00 lb.

 From 1340 To 1360 DX= -.417 ft.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 82.00 lb.

 From 1360 To 1380 DX= -5.082 ft.

RESTRAINTS

Node 1380 Y Mu = .30
 Node 1380 Z Gap= .118 in.

 From 1380 To 1390 DX= -6.677 ft.

 From 1390 To 1400 DX= -6.677 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399
 Angle/Node @2= .00 1398

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INPUT LISTING

 From 1400 To 1480 DY= 5.197 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

GENERAL

T1= 288 F T2= 347 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0005564 lb./cu.in.

Insul Thk= 1.575 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479

Angle/Node @2= .00 1478

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 1480 To 1500 DX= -19.081 ft.

RESTRAINTS

Node 1500 +Y

Node 1500 Z

 From 1500 To 1520 DX= -19.685 ft.

RESTRAINTS

Node 1520 +Y Mu = .30

 From 1520 To 1540 DX= -11.401 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1539

Angle/Node @2= .00 1538

 From 1540 To 1560 DZ= 6.985 ft.

RESTRAINTS

Node 1560 +Y

Node 1560 X Gap= .118 in.

 From 1560 To 1580 DZ= 4.006 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1579

Angle/Node @2= .00 1578

 From 1580 To 1600 DY= 9.157 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599

Angle/Node @2= .00 1598

 From 1600 To 1620 DX= -2.156 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619

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INPUT LISTING

Angle/Node @2= .00 1618

 From 1620 To 1640 DY= -.751 ft.

From 1640 To 1660 DY= -.417 ft.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 82.00 lb.

RESTRAINTS

Node 1660 ANC Cnode 1661

 From 1660 To 1680 DY= -.115 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .1181 in.

Element Name= FLANGE_NOFLG_600

GENERAL

T1= 288 F T2= 347 F T3= 70 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,359,414 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 28,359,414 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0015535 lb./cu.in.

Insul Thk= 1.575 in. Insul Den= .0049190 lb./cu.in.

RIGID Weight= 25.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 1680 To 1700 DY= -.656 ft.

RESTRAINTS

Node 1700 ANC Cnode 1720

EQUIPMENT LIMITS

Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,392.54 lb. FB= 3,392.54 lb.

FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.

MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000

1.0000 Interact. Mtd= Absolute

From 1720 To 1740 DY= -.787 ft.

RIGID Weight= .00 lb.

From 1740 To 1760 DY= -.787 ft.

RIGID Weight= .00 lb.

From 1780 To 1800 DY= -.656 ft.

RESTRAINTS

Node 1780 ANC Cnode 1760

EQUIPMENT LIMITS

Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,642.09 lb. FB= 3,392.54 lb.

FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.

MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000

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1.0000 Interact. Mtd= Absolute
-----
From 1800 To 1820 DY= -.115 ft.
  Element Name= FLANGE_NOFLG_150
RIGID Weight= 25.00 lb.
-----
From 1740 To 1840 DZ= 4.921 ft.
RIGID Weight= 505.85 lb.
RESTRAINTS
  Node 1840 Y Mu = .10
  Node 1840 X Mu = .30
  Node 1840 Z Gap= .236 in.
-----
From 1840 To 1860 DX= -23.081 ft.
RIGID Weight= 2,360.61 lb.
RESTRAINTS
  Node 1860 Y Mu = .10
  Node 1860 Z Gap= .236 in. Mu = .30
-----
From 1860 To 1880 DZ= -9.843 ft.
RIGID Weight= 1,011.69 lb.
RESTRAINTS
  Node 1880 Y Mu = .10
  Node 1880 Z Gap= .236 in.
-----
From 1880 To 1900 DX= 23.081 ft.
RIGID Weight= 2,360.61 lb.
RESTRAINTS
  Node 1900 Y Mu = .10
  Node 1900 X Mu = .30
  Node 1900 Z Gap= .236 in. Mu = .30
-----
From 1900 To 1740 DZ= 4.921 ft.
RIGID Weight= 505.85 lb.
-----
From 1820 To 1920 DY= -.333 ft.
PIPE
  Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
  Element Name= FLANGE_NOFLG_150
GENERAL
  T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
  PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
  E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
  EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
  EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
  EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
  EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
  Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021532 lb./cu.in.
  Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
RIGID Weight= 43.00 lb.
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
  Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
  Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
  Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
  Sy= 25,000 lb./sq.in.

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 From 1920 To 1940 DY= -.751 ft.

GENERAL

P1= 319.0903 lb./sq.in. Fluid Den= .0006611 lb./cu.in.
 SINGLE FLANGED BEND at "TO" end
 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1939

From 1940 To 1960 DY= .000 ft. DZ= -1.078 ft.

RESTRAINTS

Node 1960 +Y Mu = .30

From 1960 To 1980 DY= .000 ft. DZ= -1.078 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1979
 Angle/Node @2= .00 1978

From 1980 To 2000 DX= 13.094 ft.

From 2000 To 6420 DY= -.250 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6420 Unreinforced Tee Pad= .280 in.

From 2000 To 6420 DY= -.250 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 319.0903 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
 E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
 EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
 EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
 EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
 EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0006611 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6420 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

From 2000 To 4100 DX= 2.281 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
 E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
 EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
 EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
 EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.

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EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021676 lb./cu.in.
 Insul Thk= .000 in.

SIF's & TEE's

Node 4100 Welding Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 4100 To 4400 DY= -.024 ft. DZ= 4.751 ft.

From 4400 To 4410 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4410 To 4420 DY= -.009 ft. DZ= 1.863 ft.
 RIGID Weight= 694.00 lb.

From 4420 To 4430 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4430 To 4440 DY= -.005 ft. DZ= 1.094 ft.

From 4440 To 6480 DY= -.250 ft.
 RIGID Weight= .00 lb.

SIF's & TEE's

Node 6480 Unreinforced Tee Pad= .280 in.

From 4440 To 4450 DY= -.005 ft. DZ= 1.094 ft.

From 4450 To 4460 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4460 To 4470 DY= -.009 ft. DZ= 1.863 ft.
 RIGID Weight= 165.00 lb.

From 4470 To 4480 DY= -.002 ft. DZ= .417 ft.
 RIGID Weight= 82.00 lb.

From 4480 To 4482 DY= -.010 ft. DZ= 1.852 ft.

From 4485 To 6760 DX= -.177 ft. DY= -.177 ft.
 RIGID Weight= .00 lb.

SIF's & TEE's

Node 6760 Unreinforced Tee Pad= .280 in.

From 4482 To 4485 DY= -.010 ft. DZ= 1.852 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4484
 Angle/Node @2= .00 4483

From 4485 To 4490 DX= 3.419 ft. DY= .000 ft. DZ= .000 ft.

From 4490 To 4500 DX= .417 ft. DY= .000 ft. DZ= .000 ft.

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RIGID Weight= 82.00 lb.

 From 4500 To 4505 DX= 1.962 ft. DY= .000 ft. DZ= .000 ft.

RIGID Weight= 226.00 lb.

 From 4505 To 6790 DX= .417 ft. DY= .000 ft. DZ= .000 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L

E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.

EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.

EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.

EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.

EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292

Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021676 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= 82.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.

Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.

Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.

Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.

Sy= 25,000 lb./sq.in.

 From 6790 To 6780 DX= 1.063 ft.

 From 6795 To 7000 DX= .177 ft. DY= -.177 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 7000 Unreinforced Tee Pad= .280 in.

 From 6780 To 6795 DX= 1.063 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6794

Angle/Node @2= .00 6793

 From 6795 To 6800 DY= -.161 ft. DZ= 4.613 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6799

Angle/Node @2= .00 6798

 From 6800 To 6810 DX= -6.785 ft. DY= .000 ft. DZ= .000 ft.

 From 6810 To 6820 DX= -6.562 ft. DY= .000 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 6819

Angle/Node @2= .00 6818

 From 6820 To 8150 DX= -.545 ft. DY= -.545 ft.

 From 6845 To 6830 DZ= 1.119 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

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T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
 E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
 EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
 EH4= 27,900,956 lb./sq.in. EH5= 28,300,856 lb./sq.in.
 EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
 EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021532 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RESTRAINTS

Node 6845 +Y Mu = .30
 Node 6845 X Gap= .118 in.
 Node 6845 Z Gap= .118 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6830 To 6870 DZ= 18.294 ft.

RESTRAINTS

Node 6870 +Y

 From 6870 To 6880 DZ= 6.562 ft.

 From 6880 To 6890 DZ= 13.123 ft.

RESTRAINTS

Node 6890 +Y
 Node 6890 X

 From 6890 To 6900 DZ= 19.685 ft.

RESTRAINTS

Node 6900 +Y

 From 6900 To 6905 DZ= 19.685 ft.

RESTRAINTS

Node 6905 +Y Mu = .30
 Node 6905 X Gap= .118 in.

 From 6905 To 6910 DZ= 19.685 ft.

RESTRAINTS

Node 6910 +Y Mu = .30

 From 6910 To 8150 DZ= 1.601 ft.

SIF's & TEE's

Node 8150 Welding Tee

 From 8150 To 6915 DZ= 2.336 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 6914
 Angle/Node @2= .00 6913

 From 6915 To 6920 DX= 19.685 ft. DZ= .000 ft.

RESTRAINTS

Node 6920 +Y Mu = .30

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Node 6920 Z Gap= .118 in.
-----
From 4100 To 4560 DZ= -.935 ft.
PIPE
Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
GENERAL
T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.
PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
E= 28,300,856 lb./sq.in. EH1= 27,900,056 lb./sq.in.
EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
EH4= 27,900,056 lb./sq.in. EH5= 28,300,856 lb./sq.in.
EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
Pipe Den= .2900000 lb./cu.in. Fluid Den= .0021676 lb./cu.in.
Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.
SIF's & TEE's
Node 4560 Welding Tee
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
Sy= 25,000 lb./sq.in.
-----
From 4560 To 4570 DX= .469 ft.
-----
From 4560 To 4580 DX= -.469 ft.
-----
From 4580 To 4590 DX= -1.220 ft.
BEND at "TO" end
Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4589
Angle/Node @2= .00 4588
-----
From 4590 To 4600 DZ= -.751 ft.
-----
From 4600 To 4610 DZ= -.417 ft.
RIGID Weight= 82.00 lb.
-----
From 4610 To 4620 DZ= -1.864 ft.
RIGID Weight= 609.00 lb.
-----
From 4620 To 4630 DZ= -.417 ft.
RIGID Weight= 82.00 lb.
-----
From 4630 To 4640 DZ= -.656 ft.
-----
From 4640 To 6510 DY= -.250 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
Node 6510 Unreinforced Tee Pad= .280 in.
-----
From 4640 To 4650 DZ= -1.747 ft.
-----
From 4650 To 4660 DY= -.089 ft. DZ= -.459 ft.
REDUCER
Diam2= 4.500 in. Wall2= .237 in.

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 From 4660 To 4670 DZ= -.365 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

Insul Thk= .000 in.

RIGID Weight= 43.00 lb.

 From 4670 To 4680 DZ= -1.447 ft.

RIGID Weight= 87.00 lb.

 From 4680 To 4690 DZ= -.365 ft.

RIGID Weight= 43.00 lb.

 From 4690 To 4700 DY= .089 ft. DZ= -.459 ft.

REDUCER

Diam2= 6.625 in. Wall2= .280 in.

 From 4700 To 4710 DZ= -.984 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.

Insul Thk= .000 in.

 From 4710 To 6530 DY= -.250 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6530 Unreinforced Tee Pad= .280 in.

 From 4710 To 4720 DZ= -.984 ft.

 From 4720 To 4730 DZ= -.417 ft.

RIGID Weight= 82.00 lb.

 From 4730 To 4740 DZ= -1.837 ft.

RIGID Weight= 609.00 lb.

 From 4740 To 4750 DZ= -.302 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .2362 in.

GENERAL

T1= 99 F T2= 185 F T4= 99 F P1= 130.5369 lb./sq.in.

PHyd= 195.8054 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,309,386 lb./sq.in.

EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,309,386 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.

Insul Thk= .000 in.

RIGID Weight= 25.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

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From 4750 To 6550 DZ= -.584 ft.
-----
From 6550 To 4140 DZ= -12.441 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4139
  Angle/Node @2= .00 4138
-----
From 4140 To 6560 DX= 1.407 ft.
RESTRAINTS
  Node 6560 +Y   Mu = .30
  Node 6560 Z
-----
From 6560 To 4760 DX= 14.432 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4759
  Angle/Node @2= .00 4758
-----
From 4760 To 4770 DZ= -1.499 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4769
-----
From 4770 To 4780 DY= -2.159 ft.
SIF's & TEE's
  Node 4780   Welding Tee
-----
From 4780 To 4160 DX= 3.258 ft.
PIPE
  Dia= 8.625 in.   Wall= .406 in.   Cor= .2362 in.
GENERAL
  T1= 99 F   T2= 185 F   P1= 130.5369 lb./sq.in.   PHyd= 195.8054 lb./sq.in.
  Fluid Den= .0002168 lb./cu.in.   Insul Thk= .000 in.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 20,000 lb./sq.in.   Sh3= 20,000 lb./sq.in.
  Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.
-----
From 4160 To 6600 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6600   Unreinforced Tee
-----
From 4160 To 4180 DX= 11.821 ft.
-----
From 4180 To 4200 DX= .344 ft.
  Element Name= FLANGE_FLG_300
RIGID Weight= 40.00 lb.
-----
From 4200 To 4220 DX= .066 ft.
  Element Name= FLANGE_FLG_300
RIGID Weight= 6.74 lb.
RESTRAINTS
  Node 4220 ANC   Cnode 4221
-----
From 4220 To 4240 DX= .344 ft.

```

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Element Name= FLANGE_FLG_300
RIGID Weight= 40.00 lb.
-----
From 4240 To 4260 DX= .509 ft.
RESTRAINTS
Node 4260 ANC Cnode 4261
EQUIPMENT LIMITS
Nozzle Node = 4260
Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,888.49 lb. FB= 1,888.49 lb.
FC= 1,416.37 lb. MA= 33,457.25 in.lb. MB= 22,304.83 in.lb.
MC= 29,031.69 in.lb. Equipment Major Direction Vector= .0000 1.0000
.0000 Interact. Mtd= Absolute
-----
From 4261 To 4280 DX= 1.509 ft.
PIPE
Dia= 36.220 in. Wall= .472 in.
Insul Thk= .000 in.
RIGID Weight= .00 lb.
-----
From 4280 To 4300 DY= -4.265 ft.
RIGID Weight= .00 lb.
-----
From 4300 To 4310 DY= -3.281 ft.
RIGID Weight= .00 lb.
-----
From 4310 To 4320 DY= -.984 ft.
GENERAL
T1= 70 F T2= 70 F T4= 70 F
RIGID Weight= .00 lb.
RESTRAINTS
Node 4320 ANC
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.
-----
From 4780 To 6620 DX= -1.291 ft.
PIPE
Dia= 8.625 in. Wall= .406 in.
GENERAL
T1= 99 F T2= 185 F T4= 99 F Insul Thk= .000 in.
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.
-----
From 6620 To 6630 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
Node 6630 Unreinforced Tee
-----
From 6620 To 4800 DX= -1.291 ft.

```

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```

-----
From 4800 To 4810 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4810 To 4820 DX= -1.654 ft.
RIGID Weight= 470.00 lb.
-----
From 4820 To 4830 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4830 To 4840 DX= -1.033 ft.
-----
From 4840 To 4850 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4850 To 4860 DX= -1.988 ft.
RIGID Weight= 81.00 lb.
-----
From 4860 To 4870 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4870 To 4880 DX= -.656 ft.
-----
From 4880 To 6650 DX= -.942 ft.
-----
From 6650 To 6660 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6660 Unreinforced Tee
-----
From 6650 To 4890 DX= -1.598 ft.
-----
From 4890 To 4900 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4900 To 4910 DX= -1.596 ft.
RIGID Weight= 508.00 lb.
-----
From 4910 To 4920 DX= -.344 ft.
RIGID Weight= 40.00 lb.
-----
From 4920 To 4930 DX= -1.778 ft.
-----
From 4930 To 6680 DY= -.333 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6680 Unreinforced Tee
-----
From 4930 To 4940 DX= -1.985 ft.
BEND at "TO" end
  Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4939
  Angle/Node @2= .00 4938
-----
From 4940 To 4950 DZ= 4.921 ft.
BEND at "TO" end
  Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4949
  
```

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Angle/Node @2= .00 4948

 From 4950 To 4960 DX= -2.859 ft. DY= .000 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 4959
 Angle/Node @2= .00 4958

From 4960 To 8170 DX= -1.106 ft. DY= 1.106 ft.

From 4570 To 4980 DX= .968 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 140 F T2= 347 F T3= 70 F T4= 140 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,100,056 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,056 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 4980 To 4990 DX= .417 ft.

E= 29,500,856 lb./sq.in. EH1= 29,100,056 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 29,100,056 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in.

RIGID Weight= 82.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 4990 To 5000 DX= 1.864 ft.

RIGID Weight= 609.00 lb.

From 5000 To 5010 DX= .417 ft.

RIGID Weight= 82.00 lb.

From 5010 To 5020 DX= .751 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5019

From 5020 To 5025 DZ= -1.524 ft.

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From 5020 To 6700 DX= .177 ft. DY= -.177 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6700 Unreinforced Tee Pad= .280 in.

From 5025 To 5030 DZ= -1.524 ft.

From 5030 To 5040 DY= -.131 ft. DZ= -.459 ft.

REDUCER

Diam2= 3.500 in. Wall2= .216 in.

From 5040 To 5060 DZ= -.302 ft.

PIPE

Dia= 3.500 in. Wall= .216 in.

Insul Thk= .000 in.

RIGID Weight= 24.00 lb.

From 5060 To 5070 DZ= -1.181 ft.

RIGID Weight= 49.00 lb.

From 5070 To 5080 DZ= -.302 ft.

RIGID Weight= 24.00 lb.

From 5080 To 5090 DY= .041 ft. DZ= -.335 ft.

REDUCER

Diam2= 4.500 in. Wall2= .237 in.

From 5090 To 5095 DZ= -1.148 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

Insul Thk= .000 in.

From 5095 To 6720 DY= -.167 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 6720 Reinforced Tee Pad= .237 in.

From 5095 To 5100 DZ= -1.148 ft.

From 5100 To 5110 DZ= -.365 ft.

RIGID Weight= 43.00 lb.

From 5110 To 5120 DZ= -.766 ft.

RIGID Weight= 251.00 lb.

From 5120 To 5130 DZ= -.260 ft.

PIPE

Dia= 4.500 in. Wall= .337 in. Cor= .2362 in.

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 29,393,378 lb./sq.in.

EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

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  Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0000542 lb./cu.in.
  Insul Thk= .000 in.
RIGID Weight= 16.00 lb.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 20,000 lb./sq.in.   Sh3= 20,000 lb./sq.in.
  Sh4= 19,908 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.

-----
From 5130 To 5140 DZ= -.502 ft.
BEND at "TO" end
  Radius= 6.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 5139
-----
From 5140 To 5145 DY= -2.047 ft.
-----
From 5145 To 6740 DZ= -.167 ft.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6740   Unreinforced Tee
-----
From 5145 To 5150 DY= -1.352 ft.
BEND at "TO" end
  Radius= 6.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 5149
  Angle/Node @2= .00 5148
-----
From 5150 To 5160 DX= -3.235 ft.
BEND at "TO" end
  Radius= 6.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 5159
  Angle/Node @2= .00 5158
-----
From 5160 To 5170 DY= -3.520 ft.
BEND at "TO" end
  Radius= 6.000 in. (LONG)   Bend Angle= 44.939   Angle/Node @1= 22.47 5169
  Angle/Node @2= .00 5168
-----
From 5170 To 5422 DX= .000 ft.   DY= -1.739 ft.   DZ= 1.735 ft.
-----
From 3960 To 8050 DZ= -12.713 ft.
PIPE
  Dia= 10.750 in.   Wall= .365 in.   Cor= .2362 in.
GENERAL
  T1= 86 F   T2= 46 F   T3= 70 F   T4= 392 F   P1= 108.7808 lb./sq.in.
  P2= .0000 lb./sq.in.   PHyd= 163.1712 lb./sq.in.   Mat= (106)A106 Grade B
  E= 29,500,856 lb./sq.in.   EH1= 29,393,378 lb./sq.in.
  EH2= 29,598,348 lb./sq.in.   EH3= 29,500,856 lb./sq.in.
  EH4= 27,748,188 lb./sq.in.   EH5= 29,500,856 lb./sq.in.
  EH6= 29,500,856 lb./sq.in.   EH7= 29,500,856 lb./sq.in.
  EH8= 29,500,856 lb./sq.in.   EH9= 29,500,856 lb./sq.in.   v = .292
  Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0000542 lb./cu.in.
  Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
RESTRAINTS
  Node 3960 +Y   Mu = .30
  Node 3960 X   Gap= .118 in.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.

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Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 8050 To 5420 DZ= -6.972 ft.

RESTRAINTS

Node 5420 +Y Mu = .30
 Node 5420 Z Gap= .118 in.

 From 5420 To 5421 DZ= -10.751 ft.

 From 5421 To 5422 DZ= -1.312 ft.

 From 5422 To 5425 DZ= -6.926 ft.

RESTRAINTS

Node 5425 +Y Mu = .30
 Node 5425 X Gap= .118 in.

 From 5425 To 5430 DZ= -19.685 ft.

RESTRAINTS

Node 5430 +Y Mu = .30

 From 5430 To 5435 DZ= -19.685 ft.

RESTRAINTS

Node 5435 +Y Mu = .30
 Node 5435 X Gap= .118 in.

 From 5435 To 5440 DZ= -9.022 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5439
 Angle/Node @2= .00 5438

 From 5440 To 5450 DX= -19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5449
 Angle/Node @2= .00 5448

 From 5450 To 5455 DZ= -3.281 ft.

RESTRAINTS

Node 5455 +Y Mu = .30

 From 5455 To 5460 DZ= -3.281 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5459
 Angle/Node @2= .00 5458

 From 5460 To 5465 DX= 19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5464
 Angle/Node @2= .00 5463

 From 5465 To 5470 DZ= -4.101 ft.

RESTRAINTS

Node 5470 +Y Mu = .30

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From 5470 To 5475 DX= .000 ft. DZ= -9.843 ft.
-----
From 5475 To 5480 DX= .000 ft. DZ= -9.843 ft.
RESTRAINTS
  Node 5480 +Y
  Node 5480 X Gap= .118 in.
  Node 5480 Z Gap= .118 in.
-----
From 3960 To 8060 DZ= 19.685 ft.
RESTRAINTS
  Node 8060 +Y Mu = .30
  Node 8060 X Gap= .118 in.
-----
From 8060 To 8070 DZ= 17.995 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 8069
  Angle/Node @2= .00 8068
RESTRAINTS
  Node 8070 +Y Mu = .30
-----
From 8070 To 8080 DX= -19.685 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 8079
  Angle/Node @2= .00 8078
-----
From 8080 To 8090 DZ= 3.281 ft.
RESTRAINTS
  Node 8090 +Y Mu = .30
-----
From 8090 To 8100 DZ= 3.281 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 8099
  Angle/Node @2= .00 8098
-----
From 8100 To 8110 DX= 19.685 ft.
BEND at "TO" end
  Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 8109
  Angle/Node @2= .00 8108
RESTRAINTS
  Node 8110 +Y Mu = .30
-----
From 8110 To 8120 DZ= 14.813 ft.
RESTRAINTS
  Node 8120 +Y Mu = .30
  Node 8120 X Gap= .118 in.
-----
From 8120 To 8130 DZ= 19.685 ft.
RESTRAINTS
  Node 8130 +Y Mu = .30
  Node 8130 Z Gap= .118 in.
-----
From 4710 To 6530 DY= -.250 ft.
PIPE
  Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
GENERAL
  T1= 100 F T2= 185 F T3= 70 F T4= 100 F P1= 899.2545 lb./sq.in.

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  PHyd= 1,348.8818 lb./sq.in.   Mat= (165)A312 TP316L
  E= 28,300,856 lb./sq.in.   EH1= 28,098,040 lb./sq.in.
  EH2= 27,675,074 lb./sq.in.   EH3= 28,300,856 lb./sq.in.
  EH4= 28,098,040 lb./sq.in.   EH5= 28,300,856 lb./sq.in.
  EH6= 28,300,856 lb./sq.in.   EH7= 28,300,856 lb./sq.in.
  EH8= 28,300,856 lb./sq.in.   EH9= 28,300,856 lb./sq.in.   v = .292
  Pipe Den= .2900000 lb./cu.in.   Fluid Den= .0021676 lb./cu.in.
  Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
RIGID Weight= .00 lb.
SIF's & TEE's
  Node 6530   Unreinforced Tee   Pad= .280 in.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 16,700 lb./sq.in.
  Sh1= 16,700 lb./sq.in.   Sh2= 16,700 lb./sq.in.   Sh3= 16,700 lb./sq.in.
  Sh4= 16,700 lb./sq.in.   Sh5= 16,700 lb./sq.in.   Sh6= 16,700 lb./sq.in.
  Sh7= 16,700 lb./sq.in.   Sh8= 16,700 lb./sq.in.   Sh9= 16,700 lb./sq.in.
  Sy= 25,000 lb./sq.in.
-----
From 6080 To 6090 DZ= 19.685 ft.
PIPE
  Dia= 10.750 in.   Wall= .365 in.   Cor= .2362 in.
GENERAL
  T1= 100 F   T2= 185 F   T3= 70 F   T4= 100 F   P1= 130.5369 lb./sq.in.
  PHyd= 195.8054 lb./sq.in.   Mat= (106)A106 Grade B
  E= 29,500,856 lb./sq.in.   EH1= 29,298,040 lb./sq.in.
  EH2= 28,875,074 lb./sq.in.   EH3= 29,500,856 lb./sq.in.
  EH4= 29,298,040 lb./sq.in.   EH5= 29,500,856 lb./sq.in.
  EH6= 29,500,856 lb./sq.in.   EH7= 29,500,856 lb./sq.in.
  EH8= 29,500,856 lb./sq.in.   EH9= 29,500,856 lb./sq.in.   v = .292
  Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0002384 lb./cu.in.
  Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
RESTRAINTS
  Node 6090 +Y   Mu = .30
  Node 6090 LIM   Gap= .118 in.
  Node 6080 +Y   Mu = .30
  Node 6080 X   Gap= .118 in.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 20,000 lb./sq.in.   Sh3= 20,000 lb./sq.in.
  Sh4= 20,000 lb./sq.in.   Sh5= 20,000 lb./sq.in.   Sh6= 20,000 lb./sq.in.
  Sh7= 20,000 lb./sq.in.   Sh8= 20,000 lb./sq.in.   Sh9= 20,000 lb./sq.in.
  Sy= 35,000 lb./sq.in.
-----
From 6090 To 4970 DZ= 19.685 ft.
RESTRAINTS
  Node 4970 +Y   Mu = .30
  Node 4970 X   Gap= .118 in.
-----
From 4970 To 8160 DZ= 19.685 ft.
RESTRAINTS
  Node 8160 +Y   Mu = .30
-----
From 8160 To 8170 DZ= 15.420 ft.
SIF's & TEE's
  Node 8170   Welding Tee
-----

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From 8170 To 8180 DZ= 4.265 ft.

RESTRAINTS

Node 8180 +Y Mu = .30

Node 8180 X Gap= .118 in.

From 8180 To 8190 DZ= 1.640 ft.

From 8190 To 8200 DZ= .396 ft.

RIGID Weight= 92.00 lb.

From 8200 To 8210 DZ= .396 ft.

RIGID Weight= 92.00 lb.

From 1260 To 2140 DY= 5.020 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T3= 70 F T4= 288 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,362,114 lb./sq.in.

EH2= 28,018,166 lb./sq.in. EH3= 29,500,856 lb./sq.in.

EH4= 28,362,114 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0015535 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2139

Angle/Node @2= .00 2138

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 2140 To 2160 DX= .000 ft. DZ= .827 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2159

Angle/Node @2= .00 2158

From 2160 To 2180 DX= -12.677 ft.

RESTRAINTS

Node 2180 +Y

Node 2180 Z Gap= .118 in.

From 2180 To 2200 DX= -16.124 ft.

RESTRAINTS

Node 2200 +Y Mu = .30

From 2200 To 2220 DX= -16.124 ft.

RESTRAINTS

Node 2220 +Y

Node 2220 Z Gap= .118 in.

From 2220 To 2260 DX= -1.273 ft.

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```

BEND at "TO" end
  Radius= 3.000 in. (LONG)   Bend Angle= 90.000
-----
From 2260 To 2270 DZ= 8.196 ft.
RESTRAINTS
  Node 2270 +Y Mu = .30
-----
From 2270 To 2280 DZ= 5.197 ft.
SIF's & TEE's
  Node 2280 Welding Tee
-----
From 2280 To 2320 DY= 1.444 ft.
RESTRAINTS
  Node 2320 +Y Mu = .30
-----
From 2320 To 2330 DY= 1.463 ft.
-----
From 2330 To 2340 DY= .699 ft.
-----
From 2340 To 2360 DY= .271 ft.
  Element Name= GATE_FLG_600
RIGID Weight= 13.00 lb.
-----
From 2360 To 5650 DY= .988 ft.
RIGID Weight= 70.00 lb.
-----
From 5650 To 5660 DY= .271 ft.
RIGID Weight= 13.00 lb.
-----
From 5660 To 2400 DY= 1.312 ft.
-----
From 2400 To 5670 DY= .348 ft.
REDUCER
  Diam2= 1.900 in. Wall2= .281 in.
-----
From 5670 To 5680 DY= .260 ft.
PIPE
  Dia= 1.900 in. Wall= .281 in.
  Insul Thk= .000 in.
RIGID Weight= 8.00 lb.
-----
From 5680 To 5690 DY= .260 ft.
RIGID Weight= 8.00 lb.
-----
From 5690 To 2420 DY= .136 ft.
RIGID Weight= 5.62 lb.
FORCES & MOMENTS
  Node 2420 FX1= 449.64 lb. FY1= 224.82 lb. FZ1= .00 lb.
-----
From 2420 To 2440 DX= -.512 ft.
PIPE
  Dia= 3.500 in. Wall= .300 in.
  Insul Thk= .000 in.
RIGID Weight= 22.48 lb.
-----
From 2440 To 2460 DX= -.240 ft. DZ= .000 ft.

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INPUT LISTING

PIPE

Cor= .2362 in. Element Name= FLANGE_FLG_150

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Fluid Den= .0000542 lb./cu.in.

RIGID Weight= 12.25 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 2460 To 2480 DX= -.459 ft. DY= -.130 ft. DZ= .000 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

 From 2480 To 2500 DX= -1.148 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RESTRAINTS

Node 2500 +Y Mu = .30

Node 2500 Z

Node 2500 X

 From 2500 To 2520 DX= -1.900 ft. DZ= .000 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2519

Angle/Node @2= .00 2518

 From 2520 To 2540 DY= -.751 ft.

 From 2540 To 5700 DY= -.302 ft.

Element Name= BALL_FLG_150

RIGID Weight= 25.00 lb.

 From 5700 To 2560 DY= -.906 ft.

RIGID Weight= 226.00 lb.

 From 2560 To 2570 DY= -.302 ft.

RIGID Weight= 25.00 lb.

 From 2570 To 5710 DY= -2.146 ft.

 From 5710 To 6440 DX= -.250 ft.

RIGID Weight= .00 lb.

SIF'S & TEE'S

Node 6440 Unreinforced Tee

 From 5710 To 2580 DY= -1.926 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2579

Angle/Node @2= .00 2578

 From 2580 To 5840 DX= -1.063 ft.

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INPUT LISTING

BEND at "TO" end
 Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 5839

 From 5840 To 5800 DX= -1.640 ft. DZ= 1.640 ft.

 From 2280 To 2300 DZ= 1.640 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T3= 70 F T4= 288 F P1= 899.2545 lb./sq.in.

PHyd= 1,348.8818 lb./sq.in. Fluid Den= .0015535 lb./cu.in.

Insul Thk= .000 in.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2299

Angle/Node @2= .00 2298

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 2300 To 2620 DY= 1.444 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .1181 in.

GENERAL

T1= 288 F T2= 347 F T4= 288 F P1= 319.0903 lb./sq.in.

PHyd= 478.6355 lb./sq.in. Fluid Den= .0005564 lb./cu.in.

Insul Thk= .000 in.

RESTRAINTS

Node 2620 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 2620 To 2640 DY= 2.165 ft.

 From 2640 To 5720 DY= .271 ft.

RIGID Weight= 13.00 lb.

 From 5720 To 2660 DY= .988 ft.

Element Name= GATE_FLG_600

RIGID Weight= 70.00 lb.

 From 2660 To 5730 DY= .271 ft.

RIGID Weight= 13.00 lb.

 From 5730 To 2700 DY= 1.312 ft.

 From 2700 To 5740 DY= .348 ft.

REDUCER

Diam2= 1.900 in. Wall2= .281 in.

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From 5740 To 5750 DY= .260 ft.

PIPE

Dia= 1.900 in. Wall= .281 in.

Insul Thk= .000 in.

RIGID Weight= 8.00 lb.

From 5750 To 5760 DY= .260 ft.

RIGID Weight= 8.00 lb.

From 5760 To 2720 DY= .135 ft.

RIGID Weight= 8.00 lb.

FORCES & MOMENTS

Node 2720 FX2= 449.64 lb. FY2= 224.82 lb. FZ2= .00 lb.

From 2720 To 2740 DX= -.512 ft. DZ= .000 ft.

PIPE

Dia= 3.500 in. Wall= .300 in.

Insul Thk= .000 in.

RIGID Weight= 22.48 lb.

From 2740 To 2760 DX= -.240 ft. DZ= .000 ft.

PIPE

Dia= 3.500 in. Wall= .300 in. Cor= .2362 in.

Element Name= FLANGE_FLG_150

GENERAL

T1= 86 F T2= 185 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHYD= 119.6589 lb./sq.in. Fluid Den= .0000542 lb./cu.in.

Insul Thk= .000 in.

RIGID Weight= 12.25 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 2760 To 2780 DX= -.459 ft. DY= -.130 ft. DZ= .000 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

From 2780 To 2800 DX= -1.148 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RESTRAINTS

Node 2800 +Y

Node 2800 Z

Node 2800 X

From 2800 To 2820 DX= -1.900 ft. DZ= .000 ft.

SINGLE FLANGED BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2819

Angle/Node @2= .00 2818

From 2820 To 2840 DY= -.751 ft.

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INPUT LISTING

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From 2840 To 2846 DY= -.302 ft.
  Element Name= BALL_FLG_150
RIGID Weight= 25.00 lb.
-----
From 2846 To 2852 DY= -.906 ft.
RIGID Weight= 226.00 lb.
-----
From 2852 To 2860 DY= -.302 ft.
RIGID Weight= 25.00 lb.
-----
From 2860 To 2870 DY= -2.146 ft.
-----
From 2870 To 6460 DX= -.250 ft.
RIGID Weight= .00 lb.
-----
From 2870 To 2880 DY= -1.926 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 2879
  Angle/Node @2= .00 2878
-----
From 2880 To 5800 DX= -2.703 ft.
SIF's & TEE's
  Node 5800   Welding Tee
-----
From 5800 To 5805 DX= -5.075 ft.
RESTRAINTS
  Node 5805 +Y   Mu = .30
-----
From 5805 To 5810 DX= -3.117 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 5809
  Angle/Node @2= .00 5808
-----
From 5810 To 5820 DY= -2.210 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 39.950   Angle/Node @1= 19.97 5819
  Angle/Node @2= .00 5818
-----
From 5820 To 8050 DX= .000 ft.   DY= -3.563 ft.   DZ= 2.985 ft.
-----
From 4750 To 6550 DZ= -.584 ft.
PIPE
  Dia= 6.625 in.   Wall= .432 in.   Cor= .2362 in.
GENERAL
  T1= 185 F   T2= 99 F   T3= 70 F   T4= 99 F   P1= 130.5369 lb./sq.in.
  PHyd= 195.8054 lb./sq.in.   Mat= (106)A106 Grade B
  E= 29,500,856 lb./sq.in.   EH1= 28,875,074 lb./sq.in.
  EH2= 29,309,386 lb./sq.in.   EH3= 29,500,856 lb./sq.in.
  EH4= 29,309,386 lb./sq.in.   EH5= 29,500,856 lb./sq.in.
  EH6= 29,500,856 lb./sq.in.   EH7= 29,500,856 lb./sq.in.
  EH8= 29,500,856 lb./sq.in.   EH9= 29,500,856 lb./sq.in.   v = .292
  Pipe Den= .2830000 lb./cu.in.   Fluid Den= .0002168 lb./cu.in.
  Insul Thk= .000 in.   Insul Den= .0000000 lb./cu.in.
ALLOWABLE STRESSES
  B31.3 (2016)   Cycle Max Switch = ---   Sc= 20,000 lb./sq.in.
  Sh1= 20,000 lb./sq.in.   Sh2= 20,000 lb./sq.in.   Sh3= 20,000 lb./sq.in.

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Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6210 To 6220 DY= -.984 ft.

PIPE

Dia= 4.500 in. Wall= .237 in. Cor= .0000 in.

GENERAL

T1= 70 F T2= 70 F T3= 70 F T4= 70 F P1= .0000 lb./sq.in.
 PHyd= .0000 lb./sq.in. Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.
 Insul Den= .0000000 lb./cu.in.

RESTRAINTS

Node 6220 +Y Mu = .30
 Node 6220 Z

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6230 To 6240 DZ= .984 ft.

PIPE

Dia= 1.900 in. Wall= .145 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6240 +Y Cnode 6241 Mu = .30

 From 6260 To 6270 DY= -1.148 ft.

RESTRAINTS

Node 6270 +Y Cnode 6271 Mu = .30
 Node 6270 Z Cnode 6271 Gap= .118 in.

 From 6280 To 6290 DX= .984 ft.

PIPE

Dia= 2.375 in. Wall= .154 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6290 +Y Cnode 6291 Mu = .30
 Node 6290 Z Cnode 6291 Gap= .118 in.

 From 6300 To 6310 DY= -2.953 ft.

RESTRAINTS

Node 6310 +Y Mu = .30

 From 6400 To 6410 DY= -.984 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.
 Insul Thk= .000 in.

RESTRAINTS

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INPUT LISTING

Node 6410 +Y Mu = .30
 Node 6410 Z

 From 6420 To 6425 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6425 To 6430 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6430 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6440 To 6450 DX= -.984 ft.

RESTRAINTS

Node 6450 +Y

 From 6460 To 6470 DX= -.984 ft.

RESTRAINTS

Node 6470 Y

 From 6480 To 6485 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.

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INPUT LISTING

Sy= 25,000 lb./sq.in.

 From 6485 To 6490 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6490 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6510 To 6515 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6515 To 6520 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6520 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6530 To 6535 DY= -.755 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.

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INPUT LISTING

EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6535 To 6540 DY= -1.247 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6540 +Y Mu = .30
 Node 6540 X Gap= .118 in. Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6550 To 6590 DY= -2.001 ft.

RESTRAINTS

Node 6590 +Y
 Node 6590 X Gap= .118 in.

 From 6600 To 6610 DY= -1.640 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6610 +Y
 Node 6610 Z Gap= .118 in.

 From 6630 To 6640 DY= -1.640 ft.

RESTRAINTS

Node 6640 +Y Mu = .30
 Node 6640 Z Gap= .118 in. Mu = .30

 From 6660 To 6670 DY= -1.640 ft.

RESTRAINTS

Node 6670 +Y
 Node 6670 Z Gap= .118 in.

 From 6680 To 6690 DY= -1.640 ft.

RESTRAINTS

Node 6690 +Y Mu = .30

 From 6700 To 6705 DX= .328 ft.

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INPUT LISTING

PIPE

Dia= 4.500 in. Wall= .237 in.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.
 Insul Thk= .000 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6705 To 6710 DX= 1.312 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6710 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 6720 To 6730 DY= -2.297 ft.

PIPE

Dia= 3.500 in. Wall= .216 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 6730 +Y Mu = .30
 Node 6730 X Gap= .118 in.

 From 6740 To 6750 DZ= -.984 ft.

RESTRAINTS

Node 6750 +Y

 From 6760 To 6765 DX= -.328 ft.

PIPE

Dia= 4.500 in. Wall= .237 in.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

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INPUT LISTING

Insul Thk= .000 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 6765 To 6770 DX= -1.476 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 6770 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 7000 To 7005 DX= .328 ft.

GENERAL

Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in.
 EH1= 28,300,856 lb./sq.in. EH2= 28,300,856 lb./sq.in.
 EH3= 28,300,856 lb./sq.in. EH4= 28,300,856 lb./sq.in.
 EH5= 28,300,856 lb./sq.in. EH6= 28,300,856 lb./sq.in.
 EH7= 28,300,856 lb./sq.in. EH8= 28,300,856 lb./sq.in.
 EH9= 28,300,856 lb./sq.in. v = .292 Pipe Den= .2900000 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 7005 To 7010 DX= 1.312 ft.

GENERAL

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

RESTRAINTS

Node 7010 +Y Mu = .30

Node 7010 Z Gap= .118 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

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Sy= 35,000 lb./sq.in.

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MATERIAL Changes:

20	40	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
280	300	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
500	580	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
610	620	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
620	5190	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
5300	5310	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
640	660	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
620	680	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
820	840	Mat= (383)A516 70 E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
280	4350	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1020	1040	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1020	1260	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1400	1480	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1660	1680	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1820	1920	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
2000	6420	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
2000	4100	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.

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INPUT LISTING

4505	6790	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6845	6830	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
4100	4560	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
4740	4750	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
4570	4980	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
4980	4990	E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
5120	5130	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
3960	8050	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
4710	6530	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6080	6090	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
1260	2140	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
4750	6550	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6210	6220	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6420	6425	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6425	6430	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6480	6485	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6485	6490	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6510	6515	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6515	6520	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.

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6530	6535	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6535	6540	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6700	6705	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6705	6710	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
6760	6765	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
6765	6770	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
7000	7005	Mat= (165)A312 TP316L E= 28,300,856 lb./sq.in. v = .292 Density= .2900 lb./cu.in.
7005	7010	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-008-)\BNK-GCS-CN-0

ALLOWABLE STRESS Changes

20	40	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
140	160	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
120	180	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in.

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INPUT LISTING

		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
280	300	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
500	580	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
580	600	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
610	620	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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620	5190	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
5300	5310	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
610	640	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
640	660	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
620	680	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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INPUT LISTING

		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
820	840	B31.3 (2016) Cycle Max Switch = ---
		Sc= 23,300 lb./sq.in.
		Sh1= 23,260 lb./sq.in.
		Sh2= 22,882 lb./sq.in.
		Sh3= 23,300 lb./sq.in.
		Sh4= 23,260 lb./sq.in.
		Sh5= 23,300 lb./sq.in.
		Sh6= 23,300 lb./sq.in.
		Sh7= 23,300 lb./sq.in.
		Sh8= 23,300 lb./sq.in.
		Sh9= 23,300 lb./sq.in.
		Sy= 38,000 lb./sq.in.
280	4350	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4360	4370	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4370	4380	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
900	920	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.

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INPUT LISTING

		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1020	1040	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1020	1260	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1400	1480	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1660	1680	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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1820	1920	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
2000	6420	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
2000	4100	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
4505	6790	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
6845	6830	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.

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4100	4560	Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in. B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
4740	4750	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
4780	4160	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
4310	4320	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
4780	6620	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in.

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		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4570	4980	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4980	4990	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
5120	5130	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
3960	8050	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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4710	6530	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
6080	6090	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
1260	2140	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
2440	2460	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
2280	2300	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 19,953 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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INPUT LISTING

		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
2300	2620	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 19,953 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
2740	2760	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
4750	6550	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6210	6220	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6420	6425	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.

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		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6425	6430	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6480	6485	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6485	6490	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6510	6515	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.

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6515	6520	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
6530	6535	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
6535	6540	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
6700	6705	B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in. Sh1= 16,700 lb./sq.in. Sh2= 16,700 lb./sq.in. Sh3= 16,700 lb./sq.in. Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in. Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in. Sy= 25,000 lb./sq.in.
6705	6710	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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INPUT LISTING

		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
6760	6765	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
6765	6770	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
7000	7005	B31.3 (2016) Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.
		Sh1= 16,700 lb./sq.in.
		Sh2= 16,700 lb./sq.in.
		Sh3= 16,700 lb./sq.in.
		Sh4= 16,700 lb./sq.in.
		Sh5= 16,700 lb./sq.in.
		Sh6= 16,700 lb./sq.in.
		Sh7= 16,700 lb./sq.in.
		Sh8= 16,700 lb./sq.in.
		Sh9= 16,700 lb./sq.in.
		Sy= 25,000 lb./sq.in.
7005	7010	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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INPUT LISTING

BEND ELEMENTS

40	60	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59 Angle/Node @2= .00 58
60	80	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79 Angle/Node @2= .00 78
80	100	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99 Angle/Node @2= .00 98
120	180	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179
490	500	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499 Angle/Node @2= .00 498
500	580	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579 Angle/Node @2= .00 578
580	600	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 599 Angle/Node @2= .00 598
620	5190	Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5189 Angle/Node @2= .00 5188
5230	5240	Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5239 Angle/Node @2= .00 5238
5320	5330	Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5329 Angle/Node @2= .00 5328
5340	5350	Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5349 Angle/Node @2= .00 5348
5355	5360	Radius= 4.500 in. (LONG) Bend Angle= 90.000
5375	5380	Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 5379 Angle/Node @2= .00 5378
5380	5390	Radius= 4.500 in. (LONG) Bend Angle= 50.075 Angle/Node @1= 25.04 5389 Angle/Node @2= .00 5388
620	680	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679 Angle/Node @2= .00 678
4380	4390	Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4389 Angle/Node @2= .00 4388
4395	880	Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879 Angle/Node @2= .00 878
960	980	Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979 Angle/Node @2= .00 978
1100	1120	Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00

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INPUT LISTING

1120	1140	1119 Angle/Node @2= .00 1118 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1160	1180	1139 Angle/Node @2= .00 1138 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1180	1200	1179 Angle/Node @2= .00 1178 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1390	1400	1199 Angle/Node @2= .00 1198 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1400	1480	1399 Angle/Node @2= .00 1398 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1520	1540	1479 Angle/Node @2= .00 1478 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1560	1580	1539 Angle/Node @2= .00 1538 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1580	1600	1579 Angle/Node @2= .00 1578 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1600	1620	1599 Angle/Node @2= .00 1598 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1920	1940	1619 Angle/Node @2= .00 1618 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1960	1980	1939 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4482	4485	1979 Angle/Node @2= .00 1978 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6780	6795	4484 Angle/Node @2= .00 4483 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6795	6800	6794 Angle/Node @2= .00 6793 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6810	6820	6799 Angle/Node @2= .00 6798 Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50
8150	6915	6819 Angle/Node @2= .00 6818 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4580	4590	6914 Angle/Node @2= .00 6913 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6550	4140	4589 Angle/Node @2= .00 4588 Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
6560	4760	4139 Angle/Node @2= .00 4138 Radius= 9.000 in. (LONG)

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INPUT LISTING

		Bend Angle= 90.000 Angle/Node @1= 45.00
		4759 Angle/Node @2= .00 4758
4760	4770	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4769
4930	4940	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4939 Angle/Node @2= .00 4938
4940	4950	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4949 Angle/Node @2= .00 4948
4950	4960	Radius= 12.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		4959 Angle/Node @2= .00 4958
5010	5020	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5019
5130	5140	Radius= 6.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5139
5145	5150	Radius= 6.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5149 Angle/Node @2= .00 5148
5150	5160	Radius= 6.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5159 Angle/Node @2= .00 5158
5160	5170	Radius= 6.000 in. (LONG)
		Bend Angle= 44.939 Angle/Node @1= 22.47
		5169 Angle/Node @2= .00 5168
5435	5440	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5439 Angle/Node @2= .00 5438
5440	5450	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5449 Angle/Node @2= .00 5448
5455	5460	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5459 Angle/Node @2= .00 5458
5460	5465	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5464 Angle/Node @2= .00 5463
8060	8070	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		8069 Angle/Node @2= .00 8068
8070	8080	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		8079 Angle/Node @2= .00 8078
8090	8100	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		8099 Angle/Node @2= .00 8098
8100	8110	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		8109 Angle/Node @2= .00 8108
1260	2140	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2139 Angle/Node @2= .00 2138

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INPUT LISTING

2140	2160	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2159 Angle/Node @2= .00 2158
2220	2260	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000
2500	2520	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2519 Angle/Node @2= .00 2518
5710	2580	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2579 Angle/Node @2= .00 2578
2580	5840	Radius= 9.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		5839
2280	2300	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2299 Angle/Node @2= .00 2298
2800	2820	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2819 Angle/Node @2= .00 2818
2870	2880	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2879 Angle/Node @2= .00 2878
5805	5810	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		5809 Angle/Node @2= .00 5808
5810	5820	Radius= 9.000 in. (LONG)
		Bend Angle= 39.950 Angle/Node @1= 19.97
		5819 Angle/Node @2= .00 5818

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RIGIDS

20	40	RIGID Weight= 43.00 lb.
120	140	RIGID Weight= .00 lb.
200	220	RIGID Weight= 43.00 lb.
220	240	RIGID Weight= 43.00 lb.
320	340	RIGID Weight= 43.00 lb.
340	360	RIGID Weight= 230.07 lb.
360	380	RIGID Weight= 43.00 lb.
420	440	RIGID Weight= 43.00 lb.
440	460	RIGID Weight= 43.00 lb.
500	6210	RIGID Weight= .00 lb.
5200	5210	RIGID Weight= 10.00 lb.
5210	5220	RIGID Weight= 21.00 lb.
5220	5230	RIGID Weight= 10.00 lb.
5240	6230	RIGID Weight= .00 lb.
5250	5260	RIGID Weight= 10.00 lb.
5260	5270	RIGID Weight= 10.00 lb.
5275	6260	RIGID Weight= .00 lb.
5280	5290	RIGID Weight= 10.00 lb.
5290	5300	RIGID Weight= 58.00 lb.
5300	5310	RIGID Weight= 7.00 lb.
5340	6280	RIGID Weight= .00 lb.
610	640	RIGID Weight= .00 lb.

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700	720	RIGID	Weight= 64.50 lb.
721	760	RIGID	Weight= 40.00 lb.
780	800	RIGID	Weight= .00 lb.
780	6241	RIGID	Weight= .00 lb.
780	6271	RIGID	Weight= .00 lb.
780	6291	RIGID	Weight= .00 lb.
820	840	RIGID	Weight= .00 lb.
4350	4360	RIGID	Weight= 10.00 lb.
4360	4370	RIGID	Weight= 70.00 lb.
4370	4380	RIGID	Weight= 13.00 lb.
4390	6300	RIGID	Weight= .00 lb.
900	920	RIGID	Weight= 13.00 lb.
920	940	RIGID	Weight= 96.00 lb.
940	960	RIGID	Weight= 13.00 lb.
1060	1080	RIGID	Weight= 82.00 lb.
1080	1100	RIGID	Weight= 82.00 lb.
1220	1240	RIGID	Weight= 82.00 lb.
1300	1320	RIGID	Weight= 82.00 lb.
1320	1340	RIGID	Weight= 694.00 lb.
1340	1360	RIGID	Weight= 82.00 lb.
1640	1660	RIGID	Weight= 82.00 lb.
1660	1680	RIGID	Weight= 25.00 lb.
1720	1740	RIGID	Weight= .00 lb.
1740	1760	RIGID	Weight= .00 lb.
1800	1820	RIGID	Weight= 25.00 lb.
1740	1840	RIGID	Weight= 505.85 lb.
1840	1860	RIGID	Weight= 2,360.61 lb.
1860	1880	RIGID	Weight= 1,011.69 lb.
1880	1900	RIGID	Weight= 2,360.61 lb.
1900	1740	RIGID	Weight= 505.85 lb.
1820	1920	RIGID	Weight= 43.00 lb.
2000	6420	RIGID	Weight= .00 lb.
2000	6420	RIGID	Weight= .00 lb.
4400	4410	RIGID	Weight= 82.00 lb.
4410	4420	RIGID	Weight= 694.00 lb.
4420	4430	RIGID	Weight= 82.00 lb.
4440	6480	RIGID	Weight= .00 lb.
4450	4460	RIGID	Weight= 82.00 lb.
4460	4470	RIGID	Weight= 165.00 lb.
4470	4480	RIGID	Weight= 82.00 lb.
4485	6760	RIGID	Weight= .00 lb.
4490	4500	RIGID	Weight= 82.00 lb.
4500	4505	RIGID	Weight= 226.00 lb.
4505	6790	RIGID	Weight= 82.00 lb.
6795	7000	RIGID	Weight= .00 lb.
4600	4610	RIGID	Weight= 82.00 lb.
4610	4620	RIGID	Weight= 609.00 lb.
4620	4630	RIGID	Weight= 82.00 lb.
4640	6510	RIGID	Weight= .00 lb.
4660	4670	RIGID	Weight= 43.00 lb.
4670	4680	RIGID	Weight= 87.00 lb.
4680	4690	RIGID	Weight= 43.00 lb.
4710	6530	RIGID	Weight= .00 lb.
4720	4730	RIGID	Weight= 82.00 lb.
4730	4740	RIGID	Weight= 609.00 lb.
4740	4750	RIGID	Weight= 25.00 lb.

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4160	6600	RIGID	Weight= .00 lb.
4180	4200	RIGID	Weight= 40.00 lb.
4200	4220	RIGID	Weight= 6.74 lb.
4220	4240	RIGID	Weight= 40.00 lb.
4261	4280	RIGID	Weight= .00 lb.
4280	4300	RIGID	Weight= .00 lb.
4300	4310	RIGID	Weight= .00 lb.
4310	4320	RIGID	Weight= .00 lb.
6620	6630	RIGID	Weight= .00 lb.
4800	4810	RIGID	Weight= 40.00 lb.
4810	4820	RIGID	Weight= 470.00 lb.
4820	4830	RIGID	Weight= 40.00 lb.
4840	4850	RIGID	Weight= 40.00 lb.
4850	4860	RIGID	Weight= 81.00 lb.
4860	4870	RIGID	Weight= 40.00 lb.
6650	6660	RIGID	Weight= .00 lb.
4890	4900	RIGID	Weight= 40.00 lb.
4900	4910	RIGID	Weight= 508.00 lb.
4910	4920	RIGID	Weight= 40.00 lb.
4930	6680	RIGID	Weight= .00 lb.
4980	4990	RIGID	Weight= 82.00 lb.
4990	5000	RIGID	Weight= 609.00 lb.
5000	5010	RIGID	Weight= 82.00 lb.
5020	6700	RIGID	Weight= .00 lb.
5040	5060	RIGID	Weight= 24.00 lb.
5060	5070	RIGID	Weight= 49.00 lb.
5070	5080	RIGID	Weight= 24.00 lb.
5095	6720	RIGID	Weight= .00 lb.
5100	5110	RIGID	Weight= 43.00 lb.
5110	5120	RIGID	Weight= 251.00 lb.
5120	5130	RIGID	Weight= 16.00 lb.
5145	6740	RIGID	Weight= .00 lb.
4710	6530	RIGID	Weight= .00 lb.
8190	8200	RIGID	Weight= 92.00 lb.
8200	8210	RIGID	Weight= 92.00 lb.
2340	2360	RIGID	Weight= 13.00 lb.
2360	5650	RIGID	Weight= 70.00 lb.
5650	5660	RIGID	Weight= 13.00 lb.
5670	5680	RIGID	Weight= 8.00 lb.
5680	5690	RIGID	Weight= 8.00 lb.
5690	2420	RIGID	Weight= 5.62 lb.
2420	2440	RIGID	Weight= 22.48 lb.
2440	2460	RIGID	Weight= 12.25 lb.
2540	5700	RIGID	Weight= 25.00 lb.
5700	2560	RIGID	Weight= 226.00 lb.
2560	2570	RIGID	Weight= 25.00 lb.
5710	6440	RIGID	Weight= .00 lb.
2640	5720	RIGID	Weight= 13.00 lb.
5720	2660	RIGID	Weight= 70.00 lb.
2660	5730	RIGID	Weight= 13.00 lb.
5740	5750	RIGID	Weight= 8.00 lb.
5750	5760	RIGID	Weight= 8.00 lb.
5760	2720	RIGID	Weight= 8.00 lb.
2720	2740	RIGID	Weight= 22.48 lb.
2740	2760	RIGID	Weight= 12.25 lb.
2840	2846	RIGID	Weight= 25.00 lb.

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2846	2852	RIGID	Weight= 226.00 lb.
2852	2860	RIGID	Weight= 25.00 lb.
2870	6460	RIGID	Weight= .00 lb.

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SIF's & TEE's

140	160	Node 140	Unreinforced Tee
260	280	Node 280	Weldolet
620	5190	Node 620	Weldolet
5240	6230	Node 6230	Unreinforced Tee
5275	6260	Node 6260	Unreinforced Tee
5340	6280	Node 6280	Unreinforced Tee
610	640	Node 640	Unreinforced Tee
4390	6300	Node 6300	Unreinforced Tee
1000	1020	Node 1020	Weldolet
1020	1260	Node 1260	Weldolet
2000	6420	Node 6420	Unreinforced Tee
		Pad= .280 in.	
2000	6420	Node 6420	Unreinforced Tee
2000	4100	Node 4100	Welding Tee
4440	6480	Node 6480	Unreinforced Tee
		Pad= .280 in.	
4485	6760	Node 6760	Unreinforced Tee
		Pad= .280 in.	
6795	7000	Node 7000	Unreinforced Tee
		Pad= .280 in.	
6910	8150	Node 8150	Welding Tee
4100	4560	Node 4560	Welding Tee
4640	6510	Node 6510	Unreinforced Tee
		Pad= .280 in.	
4710	6530	Node 6530	Unreinforced Tee
		Pad= .280 in.	
4770	4780	Node 4780	Welding Tee
4160	6600	Node 6600	Unreinforced Tee
6620	6630	Node 6630	Unreinforced Tee
6650	6660	Node 6660	Unreinforced Tee
4930	6680	Node 6680	Unreinforced Tee
5020	6700	Node 6700	Unreinforced Tee
		Pad= .280 in.	
5095	6720	Node 6720	Reinforced Tee Pad= .237 in.
5145	6740	Node 6740	Unreinforced Tee
4710	6530	Node 6530	Unreinforced Tee
		Pad= .280 in.	
8160	8170	Node 8170	Welding Tee
2270	2280	Node 2280	Welding Tee
5710	6440	Node 6440	Unreinforced Tee
2880	5800	Node 5800	Welding Tee

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REDUCERS

5310	5320	Diam2= 3.500 in.	Wall2= .300 in.
4650	4660	Diam2= 4.500 in.	Wall2= .237 in.

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INPUT LISTING

4690	4700	Diam2= 6.625 in.	Wall2= .280 in.
5030	5040	Diam2= 3.500 in.	Wall2= .216 in.
5080	5090	Diam2= 4.500 in.	Wall2= .237 in.
2400	5670	Diam2= 1.900 in.	Wall2= .281 in.
2460	2480	Diam2= 6.625 in.	Wall2= .432 in.
2700	5740	Diam2= 1.900 in.	Wall2= .281 in.
2760	2780	Diam2= 6.625 in.	Wall2= .432 in.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
20	ANC					.000 .000 .000
160	-X				.30	1.000 .000 .000
160	Z	121				.000 .000 1.000
121	+Y				.10	.000 1.000 .000
160	X	121				1.000 .000 .000
300	+Y				.30	.000 1.000 .000
400	Y					.000 1.000 .000
400	Z					.000 .000 1.000
480	Y					.000 1.000 .000
480	Z					.000 .000 1.000
5355	+Y					.000 1.000 .000
5370	+Y				.30	.000 1.000 .000
5370	Z			.12		.000 .000 1.000
5375	+Y				.30	.000 1.000 .000
660	+Y	800				.000 1.000 .000
720	ANC	721				.000 .000 .000
780	ANC	820				.000 .000 .000
840	ANC					.000 .000 .000
1040	+Y				.30	.000 1.000 .000
1180	-X				.30	1.000 .000 .000
1180	+Y				.30	.000 1.000 .000
1240	ANC					.000 .000 .000
1280	Y				.30	.000 1.000 .000
1280	Z					.000 .000 1.000
1380	Y				.30	.000 1.000 .000
1380	Z			.12		.000 .000 1.000
1500	+Y					.000 1.000 .000
1500	Z					.000 .000 1.000
1520	+Y				.30	.000 1.000 .000
1560	+Y					.000 1.000 .000
1560	X			.12		1.000 .000 .000
1660	ANC	1661				.000 .000 .000
1700	ANC	1720				.000 .000 .000
1780	ANC	1760				.000 .000 .000
1840	Y				.10	.000 1.000 .000
1840	X				.30	1.000 .000 .000
1840	Z			.24		.000 .000 1.000
1860	Y				.10	.000 1.000 .000
1860	Z			.24	.30	.000 .000 1.000
1880	Y				.10	.000 1.000 .000
1880	Z			.24		.000 .000 1.000
1900	Y				.10	.000 1.000 .000
1900	X				.30	1.000 .000 .000

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INPUT LISTING

1900	Z		.24	.30	.000	.000	1.000
1960	+Y			.30	.000	1.000	.000
6845	+Y			.30	.000	1.000	.000
6845	X		.12		1.000	.000	.000
6845	Z		.12		.000	.000	1.000
6870	+Y				.000	1.000	.000
6890	+Y				.000	1.000	.000
6890	X				1.000	.000	.000
6900	+Y				.000	1.000	.000
6905	+Y			.30	.000	1.000	.000
6905	X		.12		1.000	.000	.000
6910	+Y			.30	.000	1.000	.000
6920	+Y			.30	.000	1.000	.000
6920	Z		.12		.000	.000	1.000
6560	+Y			.30	.000	1.000	.000
6560	Z				.000	.000	1.000
4220	ANC	4221			.000	.000	.000
4260	ANC	4261			.000	.000	.000
4320	ANC				.000	.000	.000
3960	+Y			.30	.000	1.000	.000
3960	X		.12		1.000	.000	.000
5420	+Y			.30	.000	1.000	.000
5420	Z		.12		.000	.000	1.000
5425	+Y			.30	.000	1.000	.000
5425	X		.12		1.000	.000	.000
5430	+Y			.30	.000	1.000	.000
5435	+Y			.30	.000	1.000	.000
5435	X		.12		1.000	.000	.000
5455	+Y			.30	.000	1.000	.000
5470	+Y			.30	.000	1.000	.000
5480	+Y				.000	1.000	.000
5480	X		.12		1.000	.000	.000
5480	Z		.12		.000	.000	1.000
8060	+Y			.30	.000	1.000	.000
8060	X		.12		1.000	.000	.000
8070	+Y			.30	.000	1.000	.000
8090	+Y			.30	.000	1.000	.000
8110	+Y			.30	.000	1.000	.000
8120	+Y			.30	.000	1.000	.000
8120	X		.12		1.000	.000	.000
8130	+Y			.30	.000	1.000	.000
8130	Z		.12		.000	.000	1.000
6090	+Y			.30	.000	1.000	.000
6090	LIM		.12		.000	.000	.000
6080	+Y			.30	.000	1.000	.000
6080	X		.12		1.000	.000	.000
4970	+Y			.30	.000	1.000	.000
4970	X		.12		1.000	.000	.000
8160	+Y			.30	.000	1.000	.000
8180	+Y			.30	.000	1.000	.000
8180	X		.12		1.000	.000	.000
2180	+Y				.000	1.000	.000
2180	Z		.12		.000	.000	1.000
2200	+Y			.30	.000	1.000	.000
2220	+Y				.000	1.000	.000
2220	Z		.12		.000	.000	1.000

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2270	+Y			.30	.000	1.000	.000
2320	+Y			.30	.000	1.000	.000
2500	+Y			.30	.000	1.000	.000
2500	Z				.000	.000	1.000
2500	X				1.000	.000	.000
2620	+Y				.000	1.000	.000
2800	+Y				.000	1.000	.000
2800	Z				.000	.000	1.000
2800	X				1.000	.000	.000
5805	+Y			.30	.000	1.000	.000
6220	+Y			.30	.000	1.000	.000
6220	Z				.000	.000	1.000
6240	+Y	6241		.30	.000	1.000	.000
6270	+Y	6271		.30	.000	1.000	.000
6270	Z	6271	.12		.000	.000	1.000
6290	+Y	6291		.30	.000	1.000	.000
6290	Z	6291	.12		.000	.000	1.000
6310	+Y			.30	.000	1.000	.000
6410	+Y			.30	.000	1.000	.000
6410	Z				.000	.000	1.000
6430	+Y				.000	1.000	.000
6450	+Y				.000	1.000	.000
6470	Y				.000	1.000	.000
6490	+Y			.30	.000	1.000	.000
6520	+Y			.30	.000	1.000	.000
6540	+Y			.30	.000	1.000	.000
6540	X		.12	.30	1.000	.000	.000
6590	+Y				.000	1.000	.000
6590	X		.12		1.000	.000	.000
6610	+Y				.000	1.000	.000
6610	Z		.12		.000	.000	1.000
6640	+Y			.30	.000	1.000	.000
6640	Z		.12	.30	.000	.000	1.000
6670	+Y				.000	1.000	.000
6670	Z		.12		.000	.000	1.000
6690	+Y			.30	.000	1.000	.000
6710	+Y			.30	.000	1.000	.000
6730	+Y			.30	.000	1.000	.000
6730	X		.12		1.000	.000	.000
6750	+Y				.000	1.000	.000
6770	+Y			.30	.000	1.000	.000
7010	+Y			.30	.000	1.000	.000
7010	Z		.12		.000	.000	1.000

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HANGER CONTROL AND LOCATION DATA

No. of Hanger Design Load Cases = 1
 Actual Cold Load Flag = 0.0
 Short Range Spring Flag = 1
 Allowed Load Variation (%) = 25.0000
 Default Hanger Table = 5

140

160

Hanger Node = 160
 Hanger Connecting Node = 121
 Available Space = -39.3701 in.

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Allowed Load Variation = 25.0000
 No. Hangers = 0.0 Short Range Flag = -1
 User Operating Load = .00 lb.
 Free Node = 0 Free Node = 0
 Free Code = 0.0 Spring Rate = .00 lb./in.
 Theoretical Cold Load = .00 lb.

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EQUIPMENT LIMITS

20 40 Nozzle Node = 20

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb. FB= 485.61 lb.
 FC= 485.61 lb. MA= 10,223.05 in.lb. MB= 10,223.05 in.lb.
 MC= 10,223.05 in.lb. Equipment Major Direction Vector= .0000 1.0000
 .0000 Interact. Mtd= Absolute
 760 780 Nozzle Node = 780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 2,158.27 lb. FB= 2,158.27 lb.
 FC= 1,618.71 lb. MA= 50,982.47 in.lb. MB= 33,988.32 in.lb.
 MC= 44,167.11 in.lb. Equipment Major Direction Vector= .0000 .0000
 1.0000 Interact. Mtd= Absolute
 1220 1240 Nozzle Node = 1240

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 485.61 lb. FB= 485.61 lb.
 FC= 485.61 lb. MA= 10,223.05 in.lb. MB= 10,223.05 in.lb.
 MC= 10,223.05 in.lb. Equipment Major Direction Vector= .0000 1.0000
 .0000 Interact. Mtd= Absolute
 1680 1700 Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,392.54 lb. FB= 3,392.54 lb.
 FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.
 MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000
 1.0000 Interact. Mtd= Absolute
 1780 1800 Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 3,642.09 lb. FB= 3,392.54 lb.
 FC= 2,697.84 lb. MA= 80,987.78 in.lb. MB= 43,282.00 in.lb.
 MC= 56,824.21 in.lb. Equipment Major Direction Vector= .0000 .0000
 1.0000 Interact. Mtd= Absolute
 4240 4260 Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,888.49 lb. FB= 1,888.49 lb.
 FC= 1,416.37 lb. MA= 33,457.25 in.lb. MB= 22,304.83 in.lb.
 MC= 29,031.69 in.lb. Equipment Major Direction Vector= .0000 1.0000
 .0000 Interact. Mtd= Absolute
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INPUT LISTING

FORCES AND MOMENTS

5690	2420	Node 2420	FX1= 449.64 lb.
		FY1= 224.82 lb.	FZ1= .00 lb.
5760	2720	Node 2720	FX2= 449.64 lb.
		FY2= 224.82 lb.	FZ2= .00 lb.

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UNIFORM LOAD Changes

20	40	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	=	in.
FORCE	pounds	x	1.000	=	lb.
MASS (dynamics)	pounds	x	1.000	=	lbm
MOMENTS (INPUT)	inch-pounds	x	1.000	=	in.lb.
MOMENTS (OUTPUT)	inch-pounds	x	0.083	=	ft.lb.
STRESS	lbs./sq.in.	x	1.000	=	lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	=	F
PRESSURE	psig	x	1.000	=	lb./sq.in.
ELASTIC MODULUS	lbs./sq.in.	x	1.000	=	lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	=	lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	=	lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	=	in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	=	lb./in.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	144.000	=	lb./sq.ft.
ELEVATION	inches	x	0.083	=	ft.
COMPOUND LENGTH	inches	x	0.083	=	ft.
DIAMETER	inches	x	1.000	=	in.
WALL THICKNESS	inches	x	1.000	=	in.

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SETUP FILE PARAMETERS

CONNECT GEOMETRY THRU CNODES =	YES
MIN ALLOWED BEND ANGLE =	5.00000
MAX ALLOWED BEND ANGLE =	95.0000
BEND LENGTH ATTACHMENT PERCENT =	1.00000
MIN ANGLE TO ADJACENT BEND PT =	5.00000

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LOOP CLOSURE TOLERANCE =          1.00000      in.
THERMAL BOWING HORZ TOLERANCE =    0.100000E-03
AUTO NODE NUMBER INCREMENT=        10.0000
Z AXIS UP=                        NO
USE PRESSURE STIFFENING =          DEFAULT
ALPHA TOLERANCE =                  0.500000E-01
RESLD-FORCE =                      NO
HGR DEF RESWGT STIF =              0.100000E+13 lb./in.
DECOMP SNG TOL =                   0.100000E+11
BEND AXIAL SHAPE =                 YES
FRICT STIF =                       0.100000E+07 lb./in.
FRICT NORM FORCE VAR =              0.150000
FRICT ANGLE VAR =                   15.0000
FRICT SLIDE MULT =                  1.00000
ROD TOLERANCE =                     1.00000
ROD INC =                           2.00000
INCORE NUMERICAL CHECK =           NO
OUTCORE NUMERICAL CHECK =          NO
DEFAULT TRANS RESTRAINT STIFF=     0.100000E+13 lb./in.
DEFAULT ROT RESTRAINT STIFF=       0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS =   NO
MISSING MASS ZPA =                 EXTRACTED
MIN WALL MILL TOLERANCE =          12.5000
WRC-107 VERSION =                  MAR 79 1B1/2B1
WRC-107 INTERPOLATION =            LAST VALUE
DEFAULT AMBIENT TEMPERATURE=       70.0000      F
BOURDON PRESSURE=                  NONE
COEFFICIENT OF FRICTION (MU) =      0.000000
INCLUDE SPRG STIF IN HGR OPE =      NO
INCLUDE INSULATION IN HYDROTEST =   NO
REDUCED INTERSECTION =              B31.1 (POST1980)
USE WRC329                          NO
NO REDUCED SIF FOR RFT AND WLT      NO
B31.1 REDUCED Z FIX =               YES
CLASS 1 BRANCH FLEX                 NO
ALL STRESS CASES CORRODED =         NO
ADD TORSION IN SL STRESS =          DEFAULT
ADD F/A IN STRESS =                 DEFAULT
OCCASIONAL LOAD FACTOR =             0.000000
DEFAULT CODE =                      B31.3
B31.3 SUS CASE SIF FACTOR =          0.000000
ALLOW USERS BEND SIF =              NO
USE SCHNEIDER                       NO
YIELD CRITERION STRESS =             MAX 3D SHEAR
USE PD/4T                           NO
BASE HOOP STRESS ON ? =              ID
EN13480 USE IN OUTPLANE SIFS=        NO
LIBERAL EXPANSION ALLOWABLE=         YES
B31.3 SEC 319.2.3C SAXIAL=           Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE=     DEFAULT
IMPLEMENT B313 APP-P                 NO
IMPLEMENT B313 CODE CASE 178        YES
IGNORE B31.1/B31.3 Wc FACTOR=       YES
USE FRP SIF =                       YES
USE FRP FLEX =                      YES

```

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```

BS 7159 Pressure Stiffening=      Design Strain
FRP Property Data File=          CAESAR.FRP
FRP Emod (axial) =                0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) =    0.250000
FRP Ea/Eh*Vh/a =                 0.152730
FRP Laminate Type =              THREE
FRP Alpha =                      12.0000 F
FRP Density =                    0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING =  NO
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EXECUTION CONTROL PARAMETERS

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Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 F
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 69.794 F
Plastic (FRP) Alpha ..... 12.000
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X
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COORDINATE REPORT

```

/----- (in.) -----/
NODE      X      Y      Z
  20      257.992  -209.817  277.957
  40      254.016  -209.817  277.957
  60      221.131  -209.817  277.957
  80      221.131  -242.460  277.957
 100      239.241  -242.460  277.957
 120      239.241  -284.124  277.957
 140      239.241  -293.140  277.957
 160      239.241  -301.014  277.957
 120      239.241  -284.124  277.957
 180      239.241  -293.140  277.957
 200      230.225  -293.140  277.957
 220      226.225  -293.140  277.957
 240      222.225  -293.140  277.957
 260      186.792  -293.140  277.957
 280      175.158  -293.140  277.957
 300      155.473  -293.140  277.957
 320      147.481  -293.140  277.957
 340      143.481  -293.140  277.957

```

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INPUT LISTING

360	120.922	-293.140	277.957
380	116.922	-293.140	277.957
400	83.024	-293.140	277.957
420	21.725	-293.140	277.957
440	17.725	-293.140	277.957
460	13.725	-293.140	277.957
480	-35.212	-293.140	277.957
490	-115.330	-293.140	277.957
500	-195.448	-293.140	277.957
6210	-195.448	-296.140	277.957
490	-115.330	-293.140	277.957
500	-195.448	-293.140	277.957
580	-195.448	-130.896	277.957
600	-195.448	-130.896	169.689
610	-207.810	-130.896	169.689
620	-220.251	-130.896	169.689
5190	-220.251	-123.061	169.689
5200	-220.251	-123.061	178.587
5210	-220.251	-123.061	181.462
5220	-220.251	-123.061	193.312
5230	-220.251	-123.061	196.187
5240	-220.251	-123.061	199.219
5245	-233.480	-123.061	199.219
5240	-220.251	-123.061	199.219
6230	-220.251	-123.768	199.926
5245	-233.480	-123.061	199.219
5250	-246.708	-123.061	199.219
5260	-249.583	-123.061	199.219
5270	-252.458	-123.061	199.219
5275	-258.363	-123.061	199.219
6260	-258.363	-124.061	199.219
5275	-258.363	-123.061	199.219
5280	-264.269	-123.061	199.219
5290	-267.144	-123.061	199.219
5300	-275.018	-123.061	199.219
5310	-277.643	-123.061	199.219
5320	-281.147	-123.061	199.219
5330	-292.446	-123.061	199.219
5340	-292.446	-151.329	199.219
6280	-290.946	-151.329	199.219
5340	-292.446	-151.329	199.219
5350	-292.446	-234.675	199.219
5355	-292.446	-234.675	219.553
5360	-292.446	-234.675	239.888
5370	-421.580	-234.675	239.888
5375	-598.824	-234.675	239.888
5380	-616.186	-234.675	239.888
5390	-616.186	-262.707	239.888
5421	-616.176	-285.742	267.413
610	-207.810	-130.896	169.689
640	-207.810	-134.203	169.689
660	-207.810	-146.014	169.689
620	-220.251	-130.896	169.689
680	-253.897	-130.896	169.689
700	-253.897	-139.912	169.689
720	-253.897	-144.872	169.689

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760	-253.897	-148.997	169.689
780	-253.897	-156.812	169.689
780	-253.897	-156.812	169.689
660	-207.810	-146.014	169.689
780	-253.897	-156.812	169.689
6240	-220.251	-123.781	211.737
780	-253.897	-156.812	169.689
6270	-258.363	-137.841	199.219
780	-253.897	-156.812	169.689
6290	-279.135	-151.329	199.219
780	-253.897	-156.812	169.689
840	-253.897	-297.363	169.689
280	175.158	-293.140	277.957
4350	175.158	-293.140	282.760
4360	175.158	-293.140	285.635
4370	175.158	-293.140	297.485
4380	175.158	-293.140	300.735
4390	175.158	-293.140	323.412
4395	175.158	-283.022	323.412
4390	175.158	-293.140	323.412
6300	175.158	-294.140	323.412
4395	175.158	-283.022	323.412
880	175.158	-272.904	323.412
900	175.158	-272.904	320.381
920	175.158	-272.904	317.131
940	175.158	-272.904	305.281
960	175.158	-272.904	302.031
980	175.158	-272.904	253.920
1000	175.158	-276.841	253.920
1020	175.158	-288.573	253.920
1040	186.969	-288.573	253.920
1060	193.584	-288.573	253.920
1080	198.544	-288.573	253.920
1100	203.505	-288.573	253.920
1120	216.497	-288.573	253.920
1140	216.497	-288.573	214.550
1160	234.833	-288.573	214.550
1180	244.001	-288.573	214.550
1200	244.001	-288.573	277.542
1220	253.017	-288.573	277.542
1240	258.017	-288.573	277.542
1020	175.158	-288.573	253.920
1260	120.040	-288.573	253.920
1280	86.576	-288.573	253.920
1300	60.985	-288.573	253.920
1320	55.985	-288.573	253.920
1340	33.623	-288.573	253.920
1360	28.623	-288.573	253.920
1380	-32.361	-288.573	253.920
1390	-112.480	-288.573	253.920
1400	-192.598	-288.573	253.920
1480	-192.598	-226.211	253.920
1500	-421.574	-226.211	253.920
1520	-657.794	-226.211	253.920
1540	-794.606	-226.211	253.920
1560	-794.606	-226.211	337.739

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 14:45
 Job:: BNK-GCS-CN-008-00
 Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

1580	-794.606	-226.211	385.810
1600	-794.606	-116.329	385.810
1620	-820.480	-116.329	385.810
1640	-820.480	-125.345	385.810
1660	-820.480	-130.345	385.810
1680	-820.480	-131.723	385.810
1700	-820.480	-139.597	385.810
1740	-820.480	-149.045	385.810
1780	-820.480	-158.494	385.810
1800	-820.480	-166.368	385.810
1820	-820.480	-167.746	385.810
1740	-820.480	-149.045	385.810
1840	-820.480	-149.045	444.865
1860	-1097.448	-149.045	444.865
1880	-1097.448	-149.045	326.755
1900	-820.479	-149.045	326.755
1900	-820.480	-149.045	326.755
1740	-820.480	-149.045	385.810
1820	-820.480	-167.746	385.810
1920	-820.480	-171.746	385.810
1940	-820.480	-180.762	385.810
1960	-820.480	-180.762	372.877
1980	-820.480	-180.762	359.944
2000	-663.354	-180.762	359.944
6420	-663.354	-183.762	359.944
2000	-663.354	-180.762	359.944
6420	-663.354	-183.762	359.944
2000	-663.354	-180.762	359.944
4100	-635.980	-180.762	359.944
4400	-635.980	-181.046	416.951
4410	-635.980	-181.071	421.951
4420	-635.980	-181.182	444.313
4430	-635.980	-181.207	449.313
4440	-635.980	-181.272	462.443
6480	-635.980	-184.272	462.443
4440	-635.980	-181.272	462.443
4450	-635.980	-181.338	475.572
4460	-635.980	-181.363	480.572
4470	-635.980	-181.474	502.934
4480	-635.980	-181.499	507.934
4482	-635.980	-181.620	530.159
4485	-635.980	-181.741	552.383
6760	-638.101	-183.862	552.383
4482	-635.980	-181.620	530.159
4485	-635.980	-181.741	552.383
4490	-594.956	-181.741	552.383
4500	-589.956	-181.741	552.383
4505	-566.413	-181.741	552.383
6790	-561.413	-181.741	552.383
6780	-548.657	-181.741	552.383
6795	-535.901	-181.741	552.383
7000	-533.779	-183.862	552.383
6780	-548.657	-181.741	552.383
6795	-535.901	-181.741	552.383
6800	-535.901	-183.670	607.737
6810	-617.318	-183.670	607.737

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INPUT LISTING

6820	-696.058	-183.670	607.737
8150	-702.594	-190.205	607.737
6845	-702.594	-190.205	-589.310
6830	-702.594	-190.205	-575.885
6870	-702.594	-190.205	-356.357
6880	-702.594	-190.205	-277.617
6890	-702.594	-190.205	-120.137
6900	-702.594	-190.205	116.084
6905	-702.594	-190.205	352.304
6910	-702.594	-190.205	588.525
8150	-702.594	-190.205	607.737
6915	-702.594	-190.205	635.769
6920	-466.373	-190.205	635.769
4100	-635.980	-180.762	359.944
4560	-635.980	-180.762	348.723
4570	-630.350	-180.762	348.723
4560	-635.980	-180.762	348.723
4580	-641.609	-180.762	348.723
4590	-656.255	-180.762	348.723
4600	-656.255	-180.762	339.708
4610	-656.255	-180.762	334.708
4620	-656.255	-180.762	312.345
4630	-656.255	-180.762	307.345
4640	-656.255	-180.762	299.471
6510	-656.255	-183.762	299.471
4640	-656.255	-180.762	299.471
4650	-656.255	-180.762	278.507
4660	-656.255	-181.825	272.995
4670	-656.255	-181.825	268.620
4680	-656.255	-181.825	251.258
4690	-656.255	-181.825	246.883
4700	-656.255	-180.762	241.371
4710	-656.255	-180.762	229.560
6530	-656.255	-183.762	229.560
4710	-656.255	-180.762	229.560
4720	-656.255	-180.762	217.749
4730	-656.255	-180.762	212.749
4740	-656.255	-180.762	190.702
4750	-656.255	-180.762	187.077
6550	-656.255	-180.762	180.069
4140	-656.255	-180.762	30.778
6560	-639.365	-180.762	30.778
4760	-466.176	-180.762	30.778
4770	-466.176	-180.762	12.785
4780	-466.176	-206.667	12.785
4160	-427.082	-206.667	12.785
6600	-427.082	-210.667	12.785
4160	-427.082	-206.667	12.785
4180	-285.232	-206.667	12.785
4200	-281.107	-206.667	12.785
4220	-280.319	-206.667	12.785
4240	-276.194	-206.667	12.785
4260	-270.092	-206.667	12.785
4280	-251.982	-206.667	12.785
4300	-251.982	-257.849	12.785
4310	-251.982	-297.219	12.785

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INPUT LISTING

4320	-251.982	-309.030	12.785
4780	-466.176	-206.667	12.785
6620	-481.669	-206.667	12.785
6630	-481.669	-210.667	12.785
6620	-481.669	-206.667	12.785
4800	-497.161	-206.667	12.785
4810	-501.286	-206.667	12.785
4820	-521.128	-206.667	12.785
4830	-525.253	-206.667	12.785
4840	-537.655	-206.667	12.785
4850	-541.780	-206.667	12.785
4860	-565.638	-206.667	12.785
4870	-569.763	-206.667	12.785
4880	-577.637	-206.667	12.785
6650	-588.936	-206.667	12.785
6660	-588.936	-210.667	12.785
6650	-588.936	-206.667	12.785
4890	-608.109	-206.667	12.785
4900	-612.234	-206.667	12.785
4910	-631.388	-206.667	12.785
4920	-635.513	-206.667	12.785
4930	-656.852	-206.667	12.785
6680	-656.852	-210.667	12.785
4930	-656.852	-206.667	12.785
4940	-680.671	-206.667	12.785
4950	-680.671	-206.667	71.841
4960	-714.982	-206.667	71.841
8170	-728.249	-193.400	71.841
4570	-630.350	-180.762	348.723
4980	-618.735	-180.762	348.723
4990	-613.735	-180.762	348.723
5000	-591.373	-180.762	348.723
5010	-586.373	-180.762	348.723
5020	-577.357	-180.762	348.723
5025	-577.357	-180.762	330.436
5020	-577.357	-180.762	348.723
6700	-575.236	-182.883	348.723
5025	-577.357	-180.762	330.436
5030	-577.357	-180.762	312.149
5040	-577.357	-182.337	306.637
5060	-577.357	-182.337	303.012
5070	-577.357	-182.337	288.839
5080	-577.357	-182.337	285.214
5090	-577.357	-181.845	281.198
5095	-577.357	-181.845	267.418
6720	-577.357	-183.845	267.418
5095	-577.357	-181.845	267.418
5100	-577.357	-181.845	253.639
5110	-577.357	-181.845	249.264
5120	-577.357	-181.845	240.071
5130	-577.357	-181.845	236.946
5140	-577.357	-181.845	230.922
5145	-577.357	-206.412	230.922
6740	-577.357	-206.412	228.922
5145	-577.357	-206.412	230.922
5150	-577.357	-222.632	230.922

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 14:45
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INPUT LISTING

5160	-616.176	-222.632	230.922
5170	-616.176	-264.876	230.922
5422	-616.176	-285.742	251.744
3960	-616.176	-285.742	632.650
8050	-616.176	-285.742	480.091
5420	-616.176	-285.742	396.429
5421	-616.176	-285.742	267.413
5422	-616.176	-285.742	251.665
5422	-616.176	-285.742	251.744
5425	-616.176	-285.742	168.634
5430	-616.176	-285.742	-67.587
5435	-616.176	-285.742	-303.807
5440	-616.176	-285.742	-412.075
5450	-852.397	-285.742	-412.075
5455	-852.397	-285.742	-451.445
5460	-852.397	-285.742	-490.815
5465	-616.176	-285.742	-490.815
5470	-616.176	-285.742	-540.028
5475	-616.176	-285.742	-658.138
5480	-616.176	-285.742	-776.248
3960	-616.176	-285.742	632.650
8060	-616.176	-285.742	868.870
8070	-616.176	-285.742	1084.815
8080	-852.397	-285.742	1084.815
8090	-852.397	-285.742	1124.185
8100	-852.397	-285.742	1163.555
8110	-616.176	-285.742	1163.555
8120	-616.176	-285.742	1341.311
8130	-616.176	-285.742	1577.531
4710	-656.255	-180.762	229.560
6530	-656.255	-183.762	229.560
6080	-728.249	-193.400	-821.860
6090	-728.249	-193.400	-585.640
4970	-728.249	-193.400	-349.419
8160	-728.249	-193.400	-113.199
8170	-728.249	-193.400	71.841
8180	-728.249	-193.400	123.022
8190	-728.249	-193.400	142.707
8200	-728.249	-193.400	147.457
8210	-728.249	-193.400	152.207
1260	120.040	-288.573	253.920
2140	120.040	-228.337	253.920
2160	120.040	-228.337	263.842
2180	-32.086	-228.337	263.842
2200	-225.570	-228.337	263.842
2220	-419.054	-228.337	263.842
2260	-434.330	-228.337	263.842
2270	-434.330	-228.337	362.188
2280	-434.330	-228.337	424.550
2320	-434.330	-211.014	424.550
2330	-434.330	-193.455	424.550
2340	-434.330	-185.069	424.550
2360	-434.330	-181.819	424.550
5650	-434.330	-169.969	424.550
5660	-434.330	-166.719	424.550
2400	-434.330	-150.971	424.550

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INPUT LISTING

5670	-434.330	-146.797	424.550
5680	-434.330	-143.672	424.550
5690	-434.330	-140.547	424.550
2420	-434.330	-138.914	424.550
2440	-440.472	-138.914	424.550
2460	-443.347	-138.914	424.550
2480	-448.858	-140.477	424.550
2500	-462.638	-140.477	424.550
2520	-485.433	-140.477	424.550
2540	-485.433	-149.492	424.550
5700	-485.433	-153.117	424.550
2560	-485.433	-163.983	424.550
2570	-485.433	-167.608	424.550
5710	-485.433	-193.356	424.550
6440	-488.433	-193.356	424.550
5710	-485.433	-193.356	424.550
2580	-485.433	-216.467	424.550
5840	-498.189	-216.467	424.550
5800	-517.874	-216.467	444.235
2280	-434.330	-228.337	424.550
2300	-434.330	-228.337	444.235
2620	-434.330	-211.014	444.235
2640	-434.330	-185.030	444.235
5720	-434.330	-181.780	444.235
2660	-434.330	-169.929	444.235
5730	-434.330	-166.679	444.235
2700	-434.330	-150.931	444.235
5740	-434.330	-146.758	444.235
5750	-434.330	-143.633	444.235
5760	-434.330	-140.508	444.235
2720	-434.330	-138.894	444.235
2740	-440.472	-138.894	444.235
2760	-443.347	-138.894	444.235
2780	-448.858	-140.457	444.235
2800	-462.638	-140.457	444.235
2820	-485.433	-140.457	444.235
2840	-485.433	-149.473	444.235
2846	-485.433	-153.098	444.235
2852	-485.433	-163.964	444.235
2860	-485.433	-167.589	444.235
2870	-485.433	-193.337	444.235
6460	-488.433	-193.337	444.235
2870	-485.433	-193.337	444.235
2880	-485.433	-216.447	444.235
2880	-485.433	-216.467	444.235
5800	-517.874	-216.467	444.235
5805	-578.780	-216.467	444.235
5810	-616.181	-216.467	444.235
5820	-616.181	-242.982	444.235
5820	-616.181	-242.982	444.275
8050	-616.176	-285.742	480.091
4750	-656.255	-180.762	187.077
6550	-656.255	-180.762	180.069
6210	-195.448	-296.140	277.957
6220	-195.448	-307.951	277.957
6230	-220.251	-123.768	199.926

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INPUT LISTING

6240	-220.251	-123.768	211.737
6260	-258.363	-124.061	199.219
6270	-258.363	-137.841	199.219
6280	-290.946	-151.329	199.219
6290	-279.135	-151.329	199.219
6300	175.158	-294.140	323.412
6310	175.158	-329.573	323.412
6400	-192.591	-291.549	253.920
6410	-192.591	-303.360	253.920
6420	-663.354	-183.762	359.944
6425	-663.354	-192.817	359.944
6430	-663.354	-207.778	359.944
6440	-488.433	-193.356	424.550
6450	-500.244	-193.356	424.550
6460	-488.433	-193.337	444.235
6470	-500.244	-193.337	444.235
6480	-635.980	-184.272	462.443
6485	-635.980	-193.327	462.443
6490	-635.980	-208.288	462.443
6510	-656.255	-183.762	299.471
6515	-656.255	-192.817	299.471
6520	-656.255	-207.778	299.471
6530	-656.255	-183.762	229.560
6535	-656.255	-192.817	229.560
6540	-656.255	-207.778	229.560
6550	-656.255	-180.762	180.069
6590	-656.255	-204.778	180.069
6600	-427.082	-210.667	12.785
6610	-427.082	-230.353	12.785
6630	-481.669	-210.667	12.785
6640	-481.669	-230.353	12.785
6660	-588.936	-210.667	12.785
6670	-588.936	-230.353	12.785
6680	-656.852	-210.667	12.785
6690	-656.852	-230.353	12.785
6700	-575.236	-182.883	348.723
6705	-571.299	-182.883	348.723
6710	-555.551	-182.883	348.723
6720	-577.357	-183.845	267.418
6730	-577.357	-211.404	267.418
6740	-577.357	-206.412	228.922
6750	-577.357	-206.412	217.111
6760	-638.101	-183.862	552.383
6765	-642.038	-183.862	552.383
6770	-659.754	-183.862	552.383
7000	-533.779	-183.862	552.383
7005	-529.842	-183.862	552.383
7010	-514.094	-183.862	552.383

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 14:45
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Licensed To:: SPLM: Edit company name in <system>\company.txt

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
Restraint Summary : Multiple.....3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H-U2
 18 (OPE) W+T1+P1+H+U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L12
 29 (OCC) L29=L22+L12
 30 (OCC) L30=L23+L12
 31 (OCC) L31=L24+L12
 32 (OCC) L32=L25+L12
 33 (OCC) L33=L26+L12
 34 (OCC) L34=L27+L12
 35 (EXP) L35=L4-L12
 36 (EXP) L36=L6-L12
 37 (EXP) L37=L4-L6
 38 (EXP) L38=L8-L12
 39 (EXP) L39=L4-L8
 40 (EXP) L40=L6-L8
 41 (EXP) L41=L10-L12
 42 (EXP) L42=L4-L10
 43 (EXP) L43=L6-L10
 44 (EXP) L44=L8-L10

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 28, 2023 Time: 14:45

Job:: BNK-GCS-CN-008-00

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
CASE 4 (OPE) W+T1+P1+H
CASE 6 (OPE) W+T2+P1+H
CASE 8 (OPE) W+T3+P1+H
CASE 10 (OPE) W+T4+P1+H
CASE 12 (SUS) W+P1+H
CASE 13 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
20		TYPE=Rigid ANC;					
	3(HYD)	-34	-153	3	-5.5	8.2	173.8
	4(OPE)	70	172	32	-133.2	101.0	-396.8
	6(OPE)	183	551	42	-178.4	123.9	-1086.7
	8(OPE)	-24	-121	4	-6.0	9.0	130.1
	10(OPE)	70	173	31	-131.3	98.4	-398.2
	12(SUS)	-24	-121	4	-5.9	9.0	130.0
	13(SUS)	30	-365	3	-7.8	6.7	804.7
	MAX	183/L6	551/L6	42/L6	-178.4/L6	123.9/L6	-1086.7/L6
121		TYPE=Rigid +Y;					
	3(HYD)	-1	-383	1	0.0	0.0	0.0
	4(OPE)	0	-287	29	0.0	0.0	0.0
	6(OPE)	0	-296	30	0.0	0.0	0.0
	8(OPE)	-1	-281	2	0.0	0.0	0.0
	10(OPE)	0	-287	29	0.0	0.0	0.0
	12(SUS)	-0	-281	2	0.0	0.0	0.0
	13(SUS)	-0	-1	0	0.0	0.0	0.0
	MAX	-1/L3	-383/L3	30/L6			
160		TYPE=Rigid Z; Rigid -X; Rigid X; Prog Design VSH;					
	3(HYD)	-1	-383	1	0.0	0.0	0.0
	4(OPE)	328	-371	79	0.0	0.0	0.0
	6(OPE)	507	-441	75	0.0	0.0	0.0
	8(OPE)	-1	-281	2	0.0	0.0	0.0
	10(OPE)	334	-373	80	0.0	0.0	0.0
	12(SUS)	-0	-281	2	0.0	0.0	0.0
	13(SUS)	-0	-1	0	0.0	0.0	0.0
	MAX	507/L6	-441/L6	80/L10			
300		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	3(HYD)	76	-480	30	0.0	0.0	0.0
	4(OPE)	-180	-663	84	0.0	0.0	0.0
	6(OPE)	-342	-1171	81	0.0	0.0	0.0
	8(OPE)	47	-406	35	0.0	0.0	0.0
	10(OPE)	-181	-665	85	0.0	0.0	0.0
	12(SUS)	47	-405	40	0.0	0.0	0.0
	13(SUS)	-2	-460	44	0.0	0.0	0.0
	MAX	-342/L6	-1171/L6	85/L10			
400		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	0	-332	-3	0.0	0.0	0.0
	4(OPE)	0	-70	136	0.0	0.0	0.0
	6(OPE)	0	226	164	0.0	0.0	0.0
	8(OPE)	0	-249	-4	0.0	0.0	0.0
	10(OPE)	0	-67	137	0.0	0.0	0.0
	12(SUS)	0	-249	-5	0.0	0.0	0.0
	13(SUS)	0	-220	-7	0.0	0.0	0.0
	MAX		-332/L3	164/L6			
480		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	0	-468	-4	0.0	0.0	0.0
	4(OPE)	0	-380	-18	0.0	0.0	0.0
	6(OPE)	0	-506	13	0.0	0.0	0.0
	8(OPE)	0	-300	-2	0.0	0.0	0.0
	10(OPE)	0	-385	-21	0.0	0.0	0.0
	12(SUS)	0	-300	-2	0.0	0.0	0.0
	13(SUS)	0	-298	-2	0.0	0.0	0.0
	MAX		-506/L6	-21/L10			
660		TYPE=Rigid +Y;					
	3(HYD)	0	-296	0	0.0	0.0	0.0
	4(OPE)	0	-195	0	0.0	0.0	0.0
	6(OPE)	0	-194	0	0.0	0.0	0.0
	8(OPE)	0	-212	0	0.0	0.0	0.0
	10(OPE)	0	-248	0	0.0	0.0	0.0
	12(SUS)	0	-212	0	0.0	0.0	0.0
	13(SUS)	0	-210	0	0.0	0.0	0.0
	MAX		-296/L3				
720		TYPE=Rigid ANC;					
	3(HYD)	-2	-122	-1	65.4	46.1	-13.7
	4(OPE)	-79	-73	-27	-74.2	-174.4	-9.5
	6(OPE)	-161	-20	-55	-237.7	-468.1	-35.5
	8(OPE)	-4	-107	-1	46.3	25.3	-9.5
	10(OPE)	63	2	-62	-177.4	0.5	-95.3

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	12(SUS)	-4	-107	-1	46.3	25.3	-9.5
	13(SUS)	-4	-106	-1	45.7	24.6	-9.3
	MAX	-161/L6	-122/L3	-62/L10	-237.7/L6	-468.1/L6	-95.3/L10
780		TYPE=Rigid ANC;					
	3(HYD)	1	-712	-4	634.7	53.0	-910.5
	4(OPE)	-64	-686	-15	845.2	-152.8	-245.2
	6(OPE)	-109	-622	-57	627.2	-371.7	-166.4
	8(OPE)	-2	-595	-3	595.1	28.2	-602.1
	10(OPE)	63	-302	-62	-239.2	0.5	-1110.1
	12(SUS)	-2	-595	-3	595.1	28.3	-602.1
	13(SUS)	-2	-592	-3	594.0	27.5	-594.1
	MAX	-109/L6	-712/L3	-62/L10	845.2/L4	-371.7/L6	- 1110.1/L10
840		TYPE=Rigid ANC;					
	3(HYD)	1	-712	-4	584.8	53.0	-917.4
	4(OPE)	-64	-686	-15	666.5	-152.8	504.9
	6(OPE)	-109	-622	-57	-45.7	-371.7	1108.2
	8(OPE)	-2	-595	-3	562.0	28.2	-579.5
	10(OPE)	63	-302	-62	-966.9	0.5	-1843.9
	12(SUS)	-2	-595	-3	561.8	28.3	-579.5
	13(SUS)	-2	-592	-3	559.5	27.5	-568.9
	MAX	-109/L6	-712/L3	-62/L10	-966.9/L10	-371.7/L6	- 1843.9/L10
1040		TYPE=Rigid +Y;					
	3(HYD)	31	-644	-31	0.0	0.0	0.0
	4(OPE)	140	-563	95	0.0	0.0	0.0
	6(OPE)	138	-570	101	0.0	0.0	0.0
	8(OPE)	-163	-551	28	0.0	0.0	0.0
	10(OPE)	138	-558	95	0.0	0.0	0.0
	12(SUS)	39	-551	-38	0.0	0.0	0.0
	13(SUS)	39	-545	-39	0.0	0.0	0.0
	MAX	-163/L8	-644/L3	101/L6			
1180		TYPE=Rigid +Y; Rigid - X;					
	3(HYD)	1	-266	0	0.0	0.0	0.0
	4(OPE)	2518	-216	-820	0.0	0.0	0.0
	6(OPE)	3159	-211	-1011	0.0	0.0	0.0
	8(OPE)	-25	-210	58	0.0	0.0	0.0
	10(OPE)	2511	-217	-818	0.0	0.0	0.0
	12(SUS)	2	-211	1	0.0	0.0	0.0
	13(SUS)	2	-208	1	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	MAX	3159/L6	-266/L3	-1011/L6			
1240		TYPE=Rigid ANC;					
	3(HYD)	0	-149	1	18.8	0.5	169.7
	4(OPE)	251	-125	21	23.8	-696.3	138.2
	6(OPE)	337	-125	-11	22.7	-944.7	134.1
	8(OPE)	-107	-135	-84	13.2	171.9	138.7
	10(OPE)	251	-126	22	23.3	-696.1	138.6
	12(SUS)	1	-135	1	13.5	0.7	138.9
	13(SUS)	1	-134	1	13.4	0.7	137.2
	MAX	337/L6	-149/L3	-84/L8	23.8/L4	-944.7/L6	169.7/L3
1280		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	42	-340	-12	0.0	0.0	0.0
	4(OPE)	-94	-315	448	0.0	0.0	0.0
	6(OPE)	-87	-289	583	0.0	0.0	0.0
	8(OPE)	124	-414	-56	0.0	0.0	0.0
	10(OPE)	-95	-318	447	0.0	0.0	0.0
	12(SUS)	54	-414	-13	0.0	0.0	0.0
	13(SUS)	53	-414	-13	0.0	0.0	0.0
	MAX	124/L8	-414/L13	583/L6			
1380		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	84	-1830	11	0.0	0.0	0.0
	4(OPE)	-594	-1986	42	0.0	0.0	0.0
	6(OPE)	-636	-2126	46	0.0	0.0	0.0
	8(OPE)	363	-1544	16	0.0	0.0	0.0
	10(OPE)	-594	-1986	42	0.0	0.0	0.0
	12(SUS)	83	-1542	11	0.0	0.0	0.0
	13(SUS)	82	-1528	11	0.0	0.0	0.0
	MAX	-636/L6	-2126/L6	46/L6			
1500		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-1156	-6	0.0	0.0	0.0
	4(OPE)	0	-434	-396	0.0	0.0	0.0
	6(OPE)	0	-279	-520	0.0	0.0	0.0
	8(OPE)	0	-910	-5	0.0	0.0	0.0
	10(OPE)	0	-433	-396	0.0	0.0	0.0
	12(SUS)	0	-912	-10	0.0	0.0	0.0
	13(SUS)	0	-906	-10	0.0	0.0	0.0
	MAX		-1156/L3	-520/L6			
1520		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	3(HYD)	-172	-576	-18	0.0	0.0	0.0
	4(OPE)	-101	-402	-67	0.0	0.0	0.0
	6(OPE)	-97	-388	-65	0.0	0.0	0.0
	8(OPE)	-135	-453	-13	0.0	0.0	0.0
	10(OPE)	-101	-402	-67	0.0	0.0	0.0
	12(SUS)	-130	-452	-37	0.0	0.0	0.0
	13(SUS)	-130	-450	-37	0.0	0.0	0.0
	MAX	-172/L3	-576/L3	-67/L4			
1560		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-983	0	0.0	0.0	0.0
	4(OPE)	-2329	-1734	0	0.0	0.0	0.0
	6(OPE)	-3092	-2001	0	0.0	0.0	0.0
	8(OPE)	0	-773	0	0.0	0.0	0.0
	10(OPE)	-2330	-1734	0	0.0	0.0	0.0
	12(SUS)	0	-765	0	0.0	0.0	0.0
	13(SUS)	0	-760	0	0.0	0.0	0.0
	MAX	-3092/L6	-2001/L6				
1660		TYPE=Rigid ANC;					
	3(HYD)	0	0	0	0.0	-0.0	-0.0
	4(OPE)	-0	0	0	0.0	-0.0	-0.0
	6(OPE)	0	0	0	0.0	0.0	-0.0
	8(OPE)	0	0	0	-0.0	-0.0	-0.0
	10(OPE)	0	0	0	0.0	0.0	-0.0
	12(SUS)	0	0	0	-0.0	0.0	-0.0
	13(SUS)	0	0	0	-0.0	0.0	-0.0
	MAX	-0/L4		0/L10	0.0/L4	-0.0/L4	-0.0/L4
1700		TYPE=Rigid ANC;					
	3(HYD)	-33	-168	20	10.7	86.7	-29.4
	4(OPE)	324	667	383	-261.4	3439.6	2821.0
	6(OPE)	470	888	480	-360.7	4500.2	3815.1
	8(OPE)	-26	-154	16	5.1	67.0	-27.0
	10(OPE)	324	667	383	-261.5	3440.1	2821.5
	12(SUS)	-24	-162	9	20.3	83.2	-35.2
	13(SUS)	-24	-161	9	20.2	82.6	-35.3
	MAX	470/L6	888/L6	480/L6	-360.7/L6	4500.2/L6	3815.1/L6
1780		TYPE=Rigid ANC;					
	3(HYD)	-174	79	36	19.8	168.1	-373.7
	4(OPE)	-533	3632	-429	4091.3	383.8	-930.4
	6(OPE)	-1269	7112	-729	7777.8	-4.2	-2242.3
	8(OPE)	-131	24	22	28.6	138.8	-248.3

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(OPE)	-538	3617	-440	4105.2	378.8	-937.7
	12(SUS)	-131	25	22	29.0	138.8	-248.2
	13(SUS)	-130	24	21	29.0	138.0	-245.8
	MAX	-1269/L6	7112/L6	-729/L6	7777.8/L6	383.8/L4	-2242.3/L6
1840		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	-76	-1930	28	0.0	0.0	0.0
	4(OPE)	472	-51	147	0.0	0.0	0.0
	6(OPE)	127	1372	175	0.0	0.0	0.0
	8(OPE)	-56	-1839	19	0.0	0.0	0.0
	10(OPE)	469	-62	147	0.0	0.0	0.0
	12(SUS)	-53	-1844	16	0.0	0.0	0.0
	13(SUS)	-52	-1836	15	0.0	0.0	0.0
	MAX	472/L4	-1930/L3	175/L6			
1860		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	0	-1861	-0	0.0	0.0	0.0
	4(OPE)	-172	-1780	47	0.0	0.0	0.0
	6(OPE)	-166	-1749	56	0.0	0.0	0.0
	8(OPE)	0	-1755	-0	0.0	0.0	0.0
	10(OPE)	-172	-1779	47	0.0	0.0	0.0
	12(SUS)	0	-1755	-0	0.0	0.0	0.0
	13(SUS)	0	-1747	-0	0.0	0.0	0.0
	MAX	-172/L4	-1861/L3	56/L6			
1880		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	-0	-1861	-0	0.0	0.0	0.0
	4(OPE)	-178	-1799	-27	0.0	0.0	0.0
	6(OPE)	-178	-1786	-15	0.0	0.0	0.0
	8(OPE)	-0	-1755	-0	0.0	0.0	0.0
	10(OPE)	-178	-1799	-27	0.0	0.0	0.0
	12(SUS)	-0	-1755	-0	0.0	0.0	0.0
	13(SUS)	-0	-1747	-0	0.0	0.0	0.0
	MAX	-178/L6	-1861/L3	-27/L4			
1900		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	-131	-1926	29	0.0	0.0	0.0
	4(OPE)	-305	876	-179	0.0	0.0	0.0
	6(OPE)	-579	3110	-485	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	8(OPE)	-101	-1833	19	0.0	0.0	0.0
	10(OPE)	-307	871	-179	0.0	0.0	0.0
	12(SUS)	-102	-1836	16	0.0	0.0	0.0
	13(SUS)	-101	-1828	16	0.0	0.0	0.0
	MAX	-579/L6	3110/L6	-485/L6			
1960		TYPE=Rigid +Y;					
	3(HYD)	111	-372	-15	0.0	0.0	0.0
	4(OPE)	23	-3823	554	0.0	0.0	0.0
	6(OPE)	163	-7309	1237	0.0	0.0	0.0
	8(OPE)	64	-214	-6	0.0	0.0	0.0
	10(OPE)	54	-3806	564	0.0	0.0	0.0
	12(SUS)	64	-214	-6	0.0	0.0	0.0
	13(SUS)	63	-212	-6	0.0	0.0	0.0
	MAX	163/L6	-7309/L6	1237/L6			
2180		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-126	0	0.0	0.0	0.0
	4(OPE)	0	-94	0	0.0	0.0	0.0
	6(OPE)	0	-90	1	0.0	0.0	0.0
	8(OPE)	0	-112	0	0.0	0.0	0.0
	10(OPE)	0	-96	0	0.0	0.0	0.0
	12(SUS)	0	-112	0	0.0	0.0	0.0
	13(SUS)	0	-111	0	0.0	0.0	0.0
	MAX		-126/L3	1/L6			
2200		TYPE=Rigid +Y;					
	3(HYD)	-14	-149	0	0.0	0.0	0.0
	4(OPE)	-41	-138	2	0.0	0.0	0.0
	6(OPE)	-42	-139	1	0.0	0.0	0.0
	8(OPE)	-12	-132	0	0.0	0.0	0.0
	10(OPE)	-41	-138	-4	0.0	0.0	0.0
	12(SUS)	-12	-132	0	0.0	0.0	0.0
	13(SUS)	-12	-132	0	0.0	0.0	0.0
	MAX	-42/L6	-149/L3	-4/L10			
2220		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-99	0	0.0	0.0	0.0
	4(OPE)	0	-80	-337	0.0	0.0	0.0
	6(OPE)	0	-78	-397	0.0	0.0	0.0
	8(OPE)	0	-88	0	0.0	0.0	0.0
	10(OPE)	0	-78	-193	0.0	0.0	0.0
	12(SUS)	0	-88	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	13(SUS)	0	-87	0	0.0	0.0	0.0
	MAX		-99/L3	-397/L6			
2270		TYPE=Rigid +Y;					
	3(HYD)	-1	-65	3	0.0	0.0	0.0
	4(OPE)	-30	-99	2	0.0	0.0	0.0
	6(OPE)	-32	-109	6	0.0	0.0	0.0
	8(OPE)	-0	-58	3	0.0	0.0	0.0
	10(OPE)	-37	-124	6	0.0	0.0	0.0
	12(SUS)	-0	-58	3	0.0	0.0	0.0
	13(SUS)	-0	-58	3	0.0	0.0	0.0
	MAX	-37/L10	-124/L10	6/L10			
2320		TYPE=Rigid +Y;					
	3(HYD)	-6	-69	-7	0.0	0.0	0.0
	4(OPE)	57	-964	284	0.0	0.0	0.0
	6(OPE)	29	-781	233	0.0	0.0	0.0
	8(OPE)	-5	-80	-5	0.0	0.0	0.0
	10(OPE)	3	-228	68	0.0	0.0	0.0
	12(SUS)	-5	-80	-5	0.0	0.0	0.0
	13(SUS)	-5	-80	-5	0.0	0.0	0.0
	MAX	57/L4	-964/L4	284/L4			
2500		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	21	-566	-5	0.0	0.0	0.0
	4(OPE)	-217	0	32	0.0	0.0	0.0
	6(OPE)	122	0	26	0.0	0.0	0.0
	8(OPE)	18	-463	-3	0.0	0.0	0.0
	10(OPE)	341	0	-9	0.0	0.0	0.0
	12(SUS)	18	-463	-3	0.0	0.0	0.0
	13(SUS)	18	-463	-3	0.0	0.0	0.0
	MAX	341/L10	-566/L3	32/L4			
2620		TYPE=Rigid +Y;					
	3(HYD)	0	-40	0	0.0	0.0	0.0
	4(OPE)	0	-329	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-57	0	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	0	-57	0	0.0	0.0	0.0
	13(SUS)	0	-57	0	0.0	0.0	0.0
	MAX		-329/L4				

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
2800		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	26	-569	-6	0.0	0.0	0.0
	4(OPE)	-188	0	63	0.0	0.0	0.0
	6(OPE)	81	0	79	0.0	0.0	0.0
	8(OPE)	21	-465	-3	0.0	0.0	0.0
	10(OPE)	395	0	73	0.0	0.0	0.0
	12(SUS)	21	-465	-3	0.0	0.0	0.0
	13(SUS)	21	-465	-3	0.0	0.0	0.0
	MAX	395/L10	-569/L3	79/L6			
3960		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	25	-1448	-27	0.0	0.0	0.0
	4(OPE)	57	-761	221	0.0	0.0	0.0
	6(OPE)	-57	-915	-268	0.0	0.0	0.0
	8(OPE)	15	-793	-16	0.0	0.0	0.0
	10(OPE)	-102	-946	279	0.0	0.0	0.0
	12(SUS)	15	-793	-16	0.0	0.0	0.0
	13(SUS)	15	-792	-16	0.0	0.0	0.0
	MAX	-102/L10	-1448/L3	279/L10			
4220		TYPE=Rigid ANC;					
	3(HYD)	0	0	0	-0.0	-0.0	0.0
	4(OPE)	0	0	0	-0.0	0.0	-0.0
	6(OPE)	0	0	0	-0.0	0.0	-0.0
	8(OPE)	0	0	0	-0.0	-0.0	-0.0
	10(OPE)	0	0	0	-0.0	-0.0	-0.0
	12(SUS)	0	0	0	-0.0	-0.0	0.0
	13(SUS)	0	0	0	-0.0	0.0	-0.0
	MAX				-0.0/L6	0.0/L6	-0.0/L6
4260		TYPE=Rigid ANC;					
	3(HYD)	40	-463	10	243.7	129.2	1074.5
	4(OPE)	865	-435	-8	426.0	89.2	1583.4
	6(OPE)	1627	-602	-117	576.1	-444.4	3157.0
	8(OPE)	43	-315	7	167.2	87.1	698.7
	10(OPE)	866	-435	-7	433.4	105.1	1583.0
	12(SUS)	43	-315	7	167.2	87.1	698.7
	13(SUS)	43	-314	7	166.8	86.9	696.4
	MAX	1627/L6	-602/L6	-117/L6	576.1/L6	-444.4/L6	3157.0/L6
4320		TYPE=Rigid ANC;					
	3(HYD)	40	-463	10	332.0	144.9	1435.7

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	865	-435	-8	354.5	76.6	-5142.2
	6(OPE)	1627	-602	-117	-422.5	-621.0	-9813.7
	8(OPE)	43	-315	7	226.0	97.5	805.8
	10(OPE)	866	-435	-7	375.2	94.8	-5150.6
	12(SUS)	43	-315	7	226.0	97.5	805.8
	13(SUS)	43	-314	7	225.5	97.3	801.4
	MAX	1627/L6	-602/L6	-117/L6	-422.5/L6	-621.0/L6	-9813.7/L6
4970		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-2	-1380	18	0.0	0.0	0.0
	4(OPE)	3	-759	-119	0.0	0.0	0.0
	6(OPE)	-171	-778	159	0.0	0.0	0.0
	8(OPE)	-2	-753	12	0.0	0.0	0.0
	10(OPE)	3	-759	-116	0.0	0.0	0.0
	12(SUS)	-2	-753	12	0.0	0.0	0.0
	13(SUS)	-2	-749	12	0.0	0.0	0.0
	MAX	-171/L6	-1380/L3	159/L6			
5355		TYPE=Rigid +Y;					
	3(HYD)	0	-146	0	0.0	0.0	0.0
	4(OPE)	0	-1	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-132	0	0.0	0.0	0.0
	10(OPE)	0	-383	0	0.0	0.0	0.0
	12(SUS)	0	-132	0	0.0	0.0	0.0
	13(SUS)	0	-132	0	0.0	0.0	0.0
	MAX		-383/L10				
5370		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	1	-182	-3	0.0	0.0	0.0
	4(OPE)	49	-179	-21	0.0	0.0	0.0
	6(OPE)	60	-202	-7	0.0	0.0	0.0
	8(OPE)	3	-167	-2	0.0	0.0	0.0
	10(OPE)	50	-185	37	0.0	0.0	0.0
	12(SUS)	3	-167	-2	0.0	0.0	0.0
	13(SUS)	3	-167	-2	0.0	0.0	0.0
	MAX	60/L6	-202/L6	37/L10			
5375		TYPE=Rigid +Y;					
	3(HYD)	-14	-317	47	0.0	0.0	0.0
	4(OPE)	-20	-211	60	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	-7	-261	34	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-7	-261	34	0.0	0.0	0.0
	13(SUS)	-7	-261	34	0.0	0.0	0.0
	MAX	-20/L4	-317/L3	60/L4			
5420		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	83	-1378	-38	0.0	0.0	0.0
	4(OPE)	127	-807	206	0.0	0.0	0.0
	6(OPE)	-305	-1585	-50	0.0	0.0	0.0
	8(OPE)	49	-773	-23	0.0	0.0	0.0
	10(OPE)	-506	-1878	473	0.0	0.0	0.0
	12(SUS)	49	-773	-23	0.0	0.0	0.0
	13(SUS)	49	-772	-23	0.0	0.0	0.0
	MAX	-506/L10	-1878/L10	473/L10			
5425		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-2	-1598	-26	0.0	0.0	0.0
	4(OPE)	-47	-957	-283	0.0	0.0	0.0
	6(OPE)	-63	-1066	314	0.0	0.0	0.0
	8(OPE)	-6	-884	-16	0.0	0.0	0.0
	10(OPE)	-58	-1236	-366	0.0	0.0	0.0
	12(SUS)	-6	-884	-16	0.0	0.0	0.0
	13(SUS)	-6	-883	-16	0.0	0.0	0.0
	MAX	-63/L6	-1598/L3	-366/L10			
5430		TYPE=Rigid +Y;					
	3(HYD)	1	-1036	-12	0.0	0.0	0.0
	4(OPE)	-3	-546	-164	0.0	0.0	0.0
	6(OPE)	-18	-537	160	0.0	0.0	0.0
	8(OPE)	1	-560	-8	0.0	0.0	0.0
	10(OPE)	27	-519	-153	0.0	0.0	0.0
	12(SUS)	1	-560	-8	0.0	0.0	0.0
	13(SUS)	1	-560	-8	0.0	0.0	0.0
	MAX	27/L10	-1036/L3	-164/L4			
5435		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-0	-2395	-7	0.0	0.0	0.0
	4(OPE)	113	-1307	-375	0.0	0.0	0.0
	6(OPE)	-103	-1292	374	0.0	0.0	0.0
	8(OPE)	-0	-1300	-5	0.0	0.0	0.0
	10(OPE)	19	-1289	-386	0.0	0.0	0.0
	12(SUS)	-0	-1300	-5	0.0	0.0	0.0

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Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	13(SUS)	-0	-1298	-5	0.0	0.0	0.0
	MAX	113/L4	-2395/L3	-386/L10			
5455		TYPE=Rigid +Y;					
	3(HYD)	0	-1878	0	0.0	0.0	0.0
	4(OPE)	-305	-1017	10	0.0	0.0	0.0
	6(OPE)	308	-1028	11	0.0	0.0	0.0
	8(OPE)	0	-1020	0	0.0	0.0	0.0
	10(OPE)	-282	-1033	-128	0.0	0.0	0.0
	12(SUS)	0	-1020	0	0.0	0.0	0.0
	13(SUS)	0	-1018	0	0.0	0.0	0.0
	MAX	308/L6	-1878/L3	-128/L10			
5470		TYPE=Rigid +Y;					
	3(HYD)	-0	-1935	-0	0.0	0.0	0.0
	4(OPE)	165	-1050	-61	0.0	0.0	0.0
	6(OPE)	-167	-1051	72	0.0	0.0	0.0
	8(OPE)	-0	-1050	-0	0.0	0.0	0.0
	10(OPE)	-112	-1051	295	0.0	0.0	0.0
	12(SUS)	-0	-1050	-0	0.0	0.0	0.0
	13(SUS)	-0	-1049	-0	0.0	0.0	0.0
	MAX	-167/L6	-1935/L3	295/L10			
5480		TYPE=Rigid Z w/gap; Rigid +Y; Rigid X w/gap;					
	3(HYD)	0	-585	0	0.0	0.0	0.0
	4(OPE)	0	-318	0	0.0	0.0	0.0
	6(OPE)	0	-316	0	0.0	0.0	0.0
	8(OPE)	0	-317	0	0.0	0.0	0.0
	10(OPE)	212	-315	-968	0.0	0.0	0.0
	12(SUS)	0	-317	0	0.0	0.0	0.0
	13(SUS)	0	-317	0	0.0	0.0	0.0
	MAX	212/L10	-585/L3	-968/L10			
5805		TYPE=Rigid +Y;					
	3(HYD)	-127	-699	98	0.0	0.0	0.0
	4(OPE)	154	-561	69	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	-84	-461	54	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-84	-461	54	0.0	0.0	0.0
	13(SUS)	-84	-460	54	0.0	0.0	0.0
	MAX	154/L4	-699/L3	98/L3			

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Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6080		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	-0	-578	5	0.0	0.0	0.0
	4(OPE)	-0	-315	-95	0.0	0.0	0.0
	6(OPE)	13	-316	-94	0.0	0.0	0.0
	8(OPE)	-0	-315	3	0.0	0.0	0.0
	10(OPE)	-0	-315	-95	0.0	0.0	0.0
	12(SUS)	-0	-315	3	0.0	0.0	0.0
	13(SUS)	-0	-313	3	0.0	0.0	0.0
	MAX	13/L6	-578/L3	-95/L10			
6090		TYPE=Rigid +Y; Rigid LIM w/gap;					
	3(HYD)	1	-1674	9	0.0	0.0	0.0
	4(OPE)	8	-910	-273	0.0	0.0	0.0
	6(OPE)	26	-906	-464	0.0	0.0	0.0
	8(OPE)	0	-912	6	0.0	0.0	0.0
	10(OPE)	8	-910	-273	0.0	0.0	0.0
	12(SUS)	0	-912	6	0.0	0.0	0.0
	13(SUS)	0	-907	6	0.0	0.0	0.0
	MAX	26/L6	-1674/L3	-464/L6			
6220		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-50	-745	8	0.0	0.0	0.0
	4(OPE)	-134	-447	13	0.0	0.0	0.0
	6(OPE)	-126	-419	16	0.0	0.0	0.0
	8(OPE)	-29	-463	6	0.0	0.0	0.0
	10(OPE)	-127	-425	11	0.0	0.0	0.0
	12(SUS)	-29	-463	6	0.0	0.0	0.0
	13(SUS)	-33	-459	6	0.0	0.0	0.0
	MAX	-134/L4	-745/L3	16/L6			
6240		TYPE=Rigid +Y;					
	3(HYD)	-4	-14	-0	0.0	0.0	0.0
	4(OPE)	-8	-28	-1	0.0	0.0	0.0
	6(OPE)	-13	-44	-2	0.0	0.0	0.0
	8(OPE)	-4	-14	0	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-4	-14	0	0.0	0.0	0.0
	13(SUS)	-4	-14	0	0.0	0.0	0.0
	MAX	-13/L6	-44/L6	-2/L6			

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Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6270		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-18	-119	-6	0.0	0.0	0.0
	4(OPE)	-31	-136	20	0.0	0.0	0.0
	6(OPE)	-6	-50	14	0.0	0.0	0.0
	8(OPE)	-17	-117	-5	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	-17	-117	-5	0.0	0.0	0.0
	13(SUS)	-17	-116	-5	0.0	0.0	0.0
	MAX	-31/L4	-136/L4	20/L4			
6290		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	29	-97	4	0.0	0.0	0.0
	4(OPE)	59	-198	-8	0.0	0.0	0.0
	6(OPE)	76	-258	-14	0.0	0.0	0.0
	8(OPE)	26	-89	3	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	26	-89	3	0.0	0.0	0.0
	13(SUS)	26	-89	3	0.0	0.0	0.0
	MAX	76/L6	-258/L6	-14/L6			
6310		TYPE=Rigid +Y;					
	3(HYD)	0	-182	2	0.0	0.0	0.0
	4(OPE)	-22	-337	36	0.0	0.0	0.0
	6(OPE)	-53	-394	56	0.0	0.0	0.0
	8(OPE)	0	-190	2	0.0	0.0	0.0
	10(OPE)	-22	-336	36	0.0	0.0	0.0
	12(SUS)	0	-191	2	0.0	0.0	0.0
	13(SUS)	-1	-193	2	0.0	0.0	0.0
	MAX	-53/L6	-394/L6	56/L6			
6410		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-16	0	0.0	0.0	0.0
	4(OPE)	0	-11	0	0.0	0.0	0.0
	6(OPE)	0	-11	0	0.0	0.0	0.0
	8(OPE)	0	-11	0	0.0	0.0	0.0
	10(OPE)	0	-11	0	0.0	0.0	0.0
	12(SUS)	0	-11	0	0.0	0.0	0.0
	13(SUS)	0	-11	0	0.0	0.0	0.0
	MAX		-16/L3				
6430		TYPE=Rigid +Y;					
	3(HYD)	0	-1290	0	0.0	0.0	0.0

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 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	0	-1040	0	0.0	0.0	0.0
	6(OPE)	0	-927	0	0.0	0.0	0.0
	8(OPE)	0	-1037	0	0.0	0.0	0.0
	10(OPE)	0	-1043	0	0.0	0.0	0.0
	12(SUS)	0	-1037	0	0.0	0.0	0.0
	13(SUS)	0	-1029	0	0.0	0.0	0.0
	MAX		-1290/L3				
6450		TYPE=Rigid +Y;					
	3(HYD)	0	-263	0	0.0	0.0	0.0
	4(OPE)	0	-286	0	0.0	0.0	0.0
	6(OPE)	0	-519	0	0.0	0.0	0.0
	8(OPE)	0	-224	0	0.0	0.0	0.0
	10(OPE)	0	-706	0	0.0	0.0	0.0
	12(SUS)	0	-224	0	0.0	0.0	0.0
	13(SUS)	0	-224	0	0.0	0.0	0.0
	MAX		-706/L10				
6470		TYPE=Rigid Y;					
	3(HYD)	0	-313	0	0.0	0.0	0.0
	4(OPE)	0	147	0	0.0	0.0	0.0
	6(OPE)	0	-5	0	0.0	0.0	0.0
	8(OPE)	0	-258	0	0.0	0.0	0.0
	10(OPE)	0	-118	0	0.0	0.0	0.0
	12(SUS)	0	-258	0	0.0	0.0	0.0
	13(SUS)	0	-258	0	0.0	0.0	0.0
	MAX		-313/L3				
6490		TYPE=Rigid +Y;					
	3(HYD)	-74	-1250	118	0.0	0.0	0.0
	4(OPE)	80	-1254	368	0.0	0.0	0.0
	6(OPE)	225	-1362	341	0.0	0.0	0.0
	8(OPE)	-69	-1164	105	0.0	0.0	0.0
	10(OPE)	84	-1277	374	0.0	0.0	0.0
	12(SUS)	-69	-1164	105	0.0	0.0	0.0
	13(SUS)	-69	-1159	104	0.0	0.0	0.0
	MAX	225/L6	-1362/L6	374/L10			
6520		TYPE=Rigid +Y;					
	3(HYD)	-59	-1022	-148	0.0	0.0	0.0
	4(OPE)	97	-833	231	0.0	0.0	0.0
	6(OPE)	124	-760	191	0.0	0.0	0.0
	8(OPE)	-49	-932	-140	0.0	0.0	0.0
	10(OPE)	94	-808	223	0.0	0.0	0.0
	12(SUS)	-49	-932	-140	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	13(SUS)	-49	-927	-140	0.0	0.0	0.0
	MAX	124/L6	-1022/L3	231/L4			
6540		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-285	25	0.0	0.0	0.0
	4(OPE)	-30	-233	63	0.0	0.0	0.0
	6(OPE)	19	-355	105	0.0	0.0	0.0
	8(OPE)	1	-279	27	0.0	0.0	0.0
	10(OPE)	-34	-242	64	0.0	0.0	0.0
	12(SUS)	1	-279	27	0.0	0.0	0.0
	13(SUS)	1	-277	27	0.0	0.0	0.0
	MAX	-34/L10	-355/L6	105/L6			
6560		TYPE=Rigid +Y; Rigid Z;					
	3(HYD)	-153	-509	144	0.0	0.0	0.0
	4(OPE)	-107	-356	-1072	0.0	0.0	0.0
	6(OPE)	-109	-364	-1423	0.0	0.0	0.0
	8(OPE)	-109	-365	107	0.0	0.0	0.0
	10(OPE)	-107	-356	-1162	0.0	0.0	0.0
	12(SUS)	-109	-365	107	0.0	0.0	0.0
	13(SUS)	-109	-364	105	0.0	0.0	0.0
	MAX	-153/L3	-509/L3	-1423/L6			
6590		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-958	0	0.0	0.0	0.0
	4(OPE)	0	-771	0	0.0	0.0	0.0
	6(OPE)	0	-674	0	0.0	0.0	0.0
	8(OPE)	0	-782	0	0.0	0.0	0.0
	10(OPE)	0	-768	0	0.0	0.0	0.0
	12(SUS)	0	-782	0	0.0	0.0	0.0
	13(SUS)	0	-780	0	0.0	0.0	0.0
	MAX		-958/L3				
6610		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-667	0	0.0	0.0	0.0
	4(OPE)	0	-35	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-416	0	0.0	0.0	0.0
	10(OPE)	0	-37	0	0.0	0.0	0.0
	12(SUS)	0	-416	0	0.0	0.0	0.0
	13(SUS)	0	-415	0	0.0	0.0	0.0
	MAX		-667/L3				

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6640		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	80	-1063	-37	0.0	0.0	0.0
	4(OPE)	-323	-1078	15	0.0	0.0	0.0
	6(OPE)	-247	-827	16	0.0	0.0	0.0
	8(OPE)	71	-844	-26	0.0	0.0	0.0
	10(OPE)	-322	-1076	17	0.0	0.0	0.0
	12(SUS)	71	-844	-26	0.0	0.0	0.0
	13(SUS)	71	-843	-26	0.0	0.0	0.0
	MAX	-323/L4	-1078/L4	-37/L3			
6670		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-861	0	0.0	0.0	0.0
	4(OPE)	0	-721	0	0.0	0.0	0.0
	6(OPE)	0	-881	0	0.0	0.0	0.0
	8(OPE)	0	-723	0	0.0	0.0	0.0
	10(OPE)	0	-722	0	0.0	0.0	0.0
	12(SUS)	0	-723	0	0.0	0.0	0.0
	13(SUS)	0	-722	0	0.0	0.0	0.0
	MAX		-881/L6				
6690		TYPE=Rigid +Y;					
	3(HYD)	100	-946	-140	0.0	0.0	0.0
	4(OPE)	-182	-681	93	0.0	0.0	0.0
	6(OPE)	-201	-778	119	0.0	0.0	0.0
	8(OPE)	37	-658	-93	0.0	0.0	0.0
	10(OPE)	-181	-680	93	0.0	0.0	0.0
	12(SUS)	37	-658	-93	0.0	0.0	0.0
	13(SUS)	36	-656	-92	0.0	0.0	0.0
	MAX	-201/L6	-946/L3	-140/L3			
6710		TYPE=Rigid +Y;					
	3(HYD)	148	-524	-53	0.0	0.0	0.0
	4(OPE)	160	-544	31	0.0	0.0	0.0
	6(OPE)	211	-748	77	0.0	0.0	0.0
	8(OPE)	132	-470	-50	0.0	0.0	0.0
	10(OPE)	193	-664	48	0.0	0.0	0.0
	12(SUS)	132	-470	-50	0.0	0.0	0.0
	13(SUS)	132	-469	-50	0.0	0.0	0.0
	MAX	211/L6	-748/L6	77/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6730		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	27	-447	2	0.0	0.0	0.0
	4(OPE)	108	-400	52	0.0	0.0	0.0
	6(OPE)	422	-208	49	0.0	0.0	0.0
	8(OPE)	28	-391	-1	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	28	-391	-1	0.0	0.0	0.0
	13(SUS)	28	-390	-1	0.0	0.0	0.0
	MAX	422/L6	-447/L3	52/L4			
6750		TYPE=Rigid +Y;					
	3(HYD)	0	-139	0	0.0	0.0	0.0
	4(OPE)	0	-41	0	0.0	0.0	0.0
	6(OPE)	0	0	0	0.0	0.0	0.0
	8(OPE)	0	-119	0	0.0	0.0	0.0
	10(OPE)	0	0	0	0.0	0.0	0.0
	12(SUS)	0	-119	0	0.0	0.0	0.0
	13(SUS)	0	-119	0	0.0	0.0	0.0
	MAX		-139/L3				
6770		TYPE=Rigid +Y;					
	3(HYD)	-95	-473	-60	0.0	0.0	0.0
	4(OPE)	-1	-336	101	0.0	0.0	0.0
	6(OPE)	45	-281	72	0.0	0.0	0.0
	8(OPE)	-70	-339	-35	0.0	0.0	0.0
	10(OPE)	-1	-330	99	0.0	0.0	0.0
	12(SUS)	-70	-339	-35	0.0	0.0	0.0
	13(SUS)	-68	-331	-33	0.0	0.0	0.0
	MAX	-95/L3	-473/L3	101/L4			
6845		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	3(HYD)	0	-244	0	0.0	0.0	0.0
	4(OPE)	2	-154	-399	0.0	0.0	0.0
	6(OPE)	6	-154	-728	0.0	0.0	0.0
	8(OPE)	0	-154	0	0.0	0.0	0.0
	10(OPE)	2	-154	-400	0.0	0.0	0.0
	12(SUS)	0	-154	0	0.0	0.0	0.0
	13(SUS)	0	-148	0	0.0	0.0	0.0
	MAX	6/L6	-244/L3	-728/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
6870		TYPE=Rigid +Y;					
	3(HYD)	0	-708	0	0.0	0.0	0.0
	4(OPE)	0	-447	0	0.0	0.0	0.0
	6(OPE)	0	-447	0	0.0	0.0	0.0
	8(OPE)	0	-447	0	0.0	0.0	0.0
	10(OPE)	0	-447	0	0.0	0.0	0.0
	12(SUS)	0	-447	0	0.0	0.0	0.0
	13(SUS)	0	-430	0	0.0	0.0	0.0
	MAX		-708/L3				
6890		TYPE=Rigid +Y; Rigid X;					
	3(HYD)	-0	-603	0	0.0	0.0	0.0
	4(OPE)	-7	-381	0	0.0	0.0	0.0
	6(OPE)	-30	-382	0	0.0	0.0	0.0
	8(OPE)	-0	-381	0	0.0	0.0	0.0
	10(OPE)	-7	-381	0	0.0	0.0	0.0
	12(SUS)	-0	-381	0	0.0	0.0	0.0
	13(SUS)	-0	-367	0	0.0	0.0	0.0
	MAX	-30/L6	-603/L3				
6900		TYPE=Rigid +Y;					
	3(HYD)	0	-655	0	0.0	0.0	0.0
	4(OPE)	0	-412	0	0.0	0.0	0.0
	6(OPE)	0	-410	0	0.0	0.0	0.0
	8(OPE)	0	-413	0	0.0	0.0	0.0
	10(OPE)	0	-412	0	0.0	0.0	0.0
	12(SUS)	0	-413	0	0.0	0.0	0.0
	13(SUS)	0	-398	0	0.0	0.0	0.0
	MAX		-655/L3				
6905		TYPE=Rigid +Y; Rigid X w/gap;					
	3(HYD)	1	-551	1	0.0	0.0	0.0
	4(OPE)	-29	-352	102	0.0	0.0	0.0
	6(OPE)	-144	-360	108	0.0	0.0	0.0
	8(OPE)	0	-349	1	0.0	0.0	0.0
	10(OPE)	-30	-352	102	0.0	0.0	0.0
	12(SUS)	0	-349	1	0.0	0.0	0.0
	13(SUS)	0	-336	0	0.0	0.0	0.0
	MAX	-144/L6	-551/L3	108/L6			
6910		TYPE=Rigid +Y;					
	3(HYD)	-46	-1057	2	0.0	0.0	0.0
	4(OPE)	6	-667	200	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	6(OPE)	61	-665	190	0.0	0.0	0.0
	8(OPE)	-28	-670	1	0.0	0.0	0.0
	10(OPE)	5	-667	200	0.0	0.0	0.0
	12(SUS)	-28	-670	1	0.0	0.0	0.0
	13(SUS)	-26	-646	1	0.0	0.0	0.0
	MAX	61/L6	-1057/L3	200/L4			
6920		TYPE=Rigid +Y; Rigid Z w/gap;					
	3(HYD)	-20	-311	-0	0.0	0.0	0.0
	4(OPE)	58	-197	13	0.0	0.0	0.0
	6(OPE)	59	-197	29	0.0	0.0	0.0
	8(OPE)	-13	-197	-0	0.0	0.0	0.0
	10(OPE)	58	-197	13	0.0	0.0	0.0
	12(SUS)	-13	-197	-0	0.0	0.0	0.0
	13(SUS)	-12	-189	-0	0.0	0.0	0.0
	MAX	59/L6	-311/L3	29/L6			
7010		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	195	-652	-19	0.0	0.0	0.0
	4(OPE)	77	-495	131	0.0	0.0	0.0
	6(OPE)	149	-501	382	0.0	0.0	0.0
	8(OPE)	143	-477	-7	0.0	0.0	0.0
	10(OPE)	76	-496	131	0.0	0.0	0.0
	12(SUS)	143	-477	-7	0.0	0.0	0.0
	13(SUS)	140	-466	-7	0.0	0.0	0.0
	MAX	195/L3	-652/L3	382/L6			
8060		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-7	-1556	-13	0.0	0.0	0.0
	4(OPE)	64	-850	247	0.0	0.0	0.0
	6(OPE)	-66	-811	-234	0.0	0.0	0.0
	8(OPE)	-4	-843	-8	0.0	0.0	0.0
	10(OPE)	0	-801	240	0.0	0.0	0.0
	12(SUS)	-4	-843	-8	0.0	0.0	0.0
	13(SUS)	-4	-842	-8	0.0	0.0	0.0
	MAX	-66/L6	-1556/L3	247/L4			
8070		TYPE=Rigid +Y;					
	3(HYD)	2	-1337	-7	0.0	0.0	0.0
	4(OPE)	69	-732	209	0.0	0.0	0.0
	6(OPE)	-59	-719	-207	0.0	0.0	0.0
	8(OPE)	1	-726	-4	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(OPE)	-51	-704	205	0.0	0.0	0.0
	12(SUS)	1	-726	-4	0.0	0.0	0.0
	13(SUS)	1	-725	-4	0.0	0.0	0.0
	MAX	69/L4	-1337/L3	209/L4			
8090		TYPE=Rigid +Y;					
	3(HYD)	0	-1784	0	0.0	0.0	0.0
	4(OPE)	-288	-961	-1	0.0	0.0	0.0
	6(OPE)	294	-981	-2	0.0	0.0	0.0
	8(OPE)	0	-968	0	0.0	0.0	0.0
	10(OPE)	-281	-996	102	0.0	0.0	0.0
	12(SUS)	0	-968	0	0.0	0.0	0.0
	13(SUS)	0	-967	0	0.0	0.0	0.0
	MAX	294/L6	-1784/L3	102/L10			
8110		TYPE=Rigid +Y;					
	3(HYD)	-0	-1127	-0	0.0	0.0	0.0
	4(OPE)	117	-610	-140	0.0	0.0	0.0
	6(OPE)	-96	-616	158	0.0	0.0	0.0
	8(OPE)	-0	-612	-0	0.0	0.0	0.0
	10(OPE)	-73	-620	-171	0.0	0.0	0.0
	12(SUS)	-0	-612	-0	0.0	0.0	0.0
	13(SUS)	-0	-611	-0	0.0	0.0	0.0
	MAX	117/L4	-1127/L3	-171/L10			
8120		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-1529	-0	0.0	0.0	0.0
	4(OPE)	49	-832	124	0.0	0.0	0.0
	6(OPE)	-56	-826	-139	0.0	0.0	0.0
	8(OPE)	0	-830	-0	0.0	0.0	0.0
	10(OPE)	120	-822	-237	0.0	0.0	0.0
	12(SUS)	0	-830	-0	0.0	0.0	0.0
	13(SUS)	0	-829	-0	0.0	0.0	0.0
	MAX	120/L10	-1529/L3	-237/L10			
8130		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-0	-597	-0	0.0	0.0	0.0
	4(OPE)	-13	-324	96	0.0	0.0	0.0
	6(OPE)	14	-325	-96	0.0	0.0	0.0
	8(OPE)	-0	-324	-0	0.0	0.0	0.0
	10(OPE)	95	-325	1128	0.0	0.0	0.0
	12(SUS)	-0	-324	-0	0.0	0.0	0.0
	13(SUS)	-0	-324	-0	0.0	0.0	0.0

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 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	MAX	95/L10	-597/L3	1128/L10			
8160		TYPE=Rigid +Y;					
	3(HYD)	11	-1620	40	0.0	0.0	0.0
	4(OPE)	-117	-852	227	0.0	0.0	0.0
	6(OPE)	-154	-777	174	0.0	0.0	0.0
	8(OPE)	8	-877	26	0.0	0.0	0.0
	10(OPE)	-116	-852	227	0.0	0.0	0.0
	12(SUS)	8	-877	26	0.0	0.0	0.0
	13(SUS)	8	-873	26	0.0	0.0	0.0
	MAX	-154/L6	-1620/L3	227/L10			
8180		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-68	-1081	68	0.0	0.0	0.0
	4(OPE)	-100	-715	190	0.0	0.0	0.0
	6(OPE)	-734	-639	185	0.0	0.0	0.0
	8(OPE)	-43	-684	45	0.0	0.0	0.0
	10(OPE)	-100	-715	190	0.0	0.0	0.0
	12(SUS)	-43	-684	45	0.0	0.0	0.0
	13(SUS)	-43	-681	45	0.0	0.0	0.0
	MAX	-734/L6	-1081/L3	190/L4			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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 Licensed To:: SPLM: Edit company name in <system>\company.txt

**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC
 CASE 28 (OCC) L28=L21+L12
 CASE 29 (OCC) L29=L22+L12
 CASE 30 (OCC) L30=L23+L12
 CASE 31 (OCC) L31=L24+L12
 CASE 32 (OCC) L32=L25+L12
 CASE 33 (OCC) L33=L26+L12
 CASE 34 (OCC) L34=L27+L12
 CASE 35 (EXP) L35=L4-L12
 CASE 36 (EXP) L36=L6-L12
 CASE 37 (EXP) L37=L4-L6
 CASE 38 (EXP) L38=L8-L12
 CASE 39 (EXP) L39=L4-L8
 CASE 40 (EXP) L40=L6-L8
 CASE 41 (EXP) L41=L10-L12
 CASE 42 (EXP) L42=L4-L10
 CASE 43 (EXP) L43=L6-L10
 CASE 44 (EXP) L44=L8-L10

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (lb./sq.in.) LOADCASE 3 (HYD) WW+HP+H
 Ratio (%): 53.5 @Node 7000
 Code Stress: 13376.3 Allowable Stress: 25000.0
 Axial Stress: 7014.0 @Node 4650
 Bending Stress: 17754.4 @Node 7000
 Torsion Stress: 785.2 @Node 6794
 Hoop Stress: 14608.9 @Node 1939
 Max Stress Intensity: 17814.9 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (lb./sq.in.) LOADCASE 12 (SUS) W+P1+H
 Ratio (%): 58.7 @Node 7000
 Code Stress: 9808.1 Allowable Stress: 16700.0
 Axial Stress: 4681.2 @Node 4650
 Bending Stress: 13018.1 @Node 7000
 Torsion Stress: 519.3 @Node 6794
 Hoop Stress: 9739.2 @Node 4100
 Max Stress Intensity: 13062.6 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 13 (SUS) WNC
 Ratio (%): 58.0 @Node 6700

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Code Stress:	9683.4	Allowable Stress:	16700.0
Axial Stress:	365.1	@Node	6490
Bending Stress:	12860.9	@Node	6700
Torsion Stress:	502.5	@Node	6794
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	12898.7	@Node	6700

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L12

Highest Stresses: (lb./sq.in.) LOADCASE 28 (OCC) L28=L21+L12

Ratio (%) :	56.1	@Node	7000
Code Stress:	12464.1	Allowable Stress:	22211.0
Axial Stress:	4815.7	@Node	2000
Bending Stress:	16534.7	@Node	7000
Torsion Stress:	1386.2	@Node	2140
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	17793.9	@Node	4100

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L12

Highest Stresses: (lb./sq.in.) LOADCASE 29 (OCC) L29=L22+L12

Ratio (%) :	55.5	@Node	7000
Code Stress:	12335.7	Allowable Stress:	22211.0
Axial Stress:	4692.2	@Node	4560
Bending Stress:	16316.8	@Node	7000
Torsion Stress:	912.3	@Node	1920
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	16414.9	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L12

Highest Stresses: (lb./sq.in.) LOADCASE 30 (OCC) L30=L23+L12

Ratio (%) :	49.6	@Node	7000
Code Stress:	11018.9	Allowable Stress:	22211.0
Axial Stress:	4694.4	@Node	4650
Bending Stress:	14630.7	@Node	7000
Torsion Stress:	455.1	@Node	6794
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	14676.6	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L12

Highest Stresses: (lb./sq.in.) LOADCASE 31 (OCC) L31=L24+L12

Ratio (%) :	49.6	@Node	7000
Code Stress:	11019.2	Allowable Stress:	22211.0
Axial Stress:	4671.7	@Node	4650
Bending Stress:	14631.2	@Node	7000
Torsion Stress:	583.8	@Node	6794
Hoop Stress:	9739.2	@Node	4100
Max Stress Intensity:	14677.0	@Node	7000

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L12

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 32 (OCC) L32=L25+L12
 Ratio (%): 54.4 @Node 7000
 Code Stress: 12090.0 Allowable Stress: 22211.0
 Axial Stress: 4888.2 @Node 4710
 Bending Stress: 16058.0 @Node 7000
 Torsion Stress: 886.8 @Node 5280
 Hoop Stress: 9739.2 @Node 4100
 Max Stress Intensity: 16104.5 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L12

Highest Stresses: (lb./sq.in.) LOADCASE 33 (OCC) L33=L26+L12
 Ratio (%): 44.2 @Node 7000
 Code Stress: 9808.1 Allowable Stress: 22211.0
 Axial Stress: 4681.2 @Node 4650
 Bending Stress: 13018.2 @Node 7000
 Torsion Stress: 519.3 @Node 6794
 Hoop Stress: 9739.2 @Node 4100
 Max Stress Intensity: 13062.6 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L12

Highest Stresses: (lb./sq.in.) LOADCASE 34 (OCC) L34=L27+L12
 Ratio (%): 44.2 @Node 7000
 Code Stress: 9808.1 Allowable Stress: 22211.0
 Axial Stress: 4681.2 @Node 4650
 Bending Stress: 13018.3 @Node 7000
 Torsion Stress: 519.3 @Node 6794
 Hoop Stress: 9739.2 @Node 4100
 Max Stress Intensity: 13062.7 @Node 7000

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L12

Highest Stresses: (lb./sq.in.) LOADCASE 35 (EXP) L35=L4-L12
 Ratio (%): 36.2 @Node 6510
 Code Stress: 13649.1 Allowable Stress: 37676.8
 Axial Stress: 8645.0 @Node 6550
 Bending Stress: 13508.0 @Node 6510
 Torsion Stress: 2043.6 @Node 1580
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 18854.8 @Node 6550

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L12

Highest Stresses: (lb./sq.in.) LOADCASE 36 (EXP) L36=L6-L12
 Ratio (%): 49.7 @Node 4100
 Code Stress: 17453.4 Allowable Stress: 35146.9
 Axial Stress: 8669.8 @Node 6550
 Bending Stress: 17145.4 @Node 4100
 Torsion Stress: 2667.0 @Node 1580
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 21897.6 @Node 1538

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 37 (EXP) L37=L4-L6

Ratio (%) :	36.1	@Node	6550	
Code Stress:	17501.6	Allowable Stress:		48486.7
Axial Stress:	17180.9	@Node	6550	
Bending Stress:	10640.6	@Node	4100	
Torsion Stress:	1983.1	@Node	5080	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	37152.8	@Node	6550	

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L8-L12

Highest Stresses: (lb./sq.in.) LOADCASE 38 (EXP) L38=L8-L12

Ratio (%) :	1.0	@Node	1178	
Code Stress:	475.7	Allowable Stress:		45848.0
Axial Stress:	40.7	@Node	1260	
Bending Stress:	459.7	@Node	1178	
Torsion Stress:	15.7	@Node	980	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	620.8	@Node	1178	

CODE STRESS CHECK PASSED : LOADCASE 39 (EXP) L39=L4-L8

Highest Stresses: (lb./sq.in.) LOADCASE 39 (EXP) L39=L4-L8

Ratio (%) :	36.2	@Node	6510	
Code Stress:	13648.8	Allowable Stress:		37676.8
Axial Stress:	8645.0	@Node	6550	
Bending Stress:	13507.7	@Node	6510	
Torsion Stress:	2044.4	@Node	1580	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	18854.8	@Node	6550	

CODE STRESS CHECK PASSED : LOADCASE 40 (EXP) L40=L6-L8

Highest Stresses: (lb./sq.in.) LOADCASE 40 (EXP) L40=L6-L8

Ratio (%) :	49.7	@Node	4100	
Code Stress:	17453.3	Allowable Stress:		35146.9
Axial Stress:	8669.8	@Node	6550	
Bending Stress:	17145.3	@Node	4100	
Torsion Stress:	2667.8	@Node	1580	
Hoop Stress:	0.0	@Node	40	
Max Stress Intensity:	21867.2	@Node	1538	

CODE STRESS CHECK PASSED : LOADCASE 41 (EXP) L41=L10-L12

Highest Stresses: (lb./sq.in.) LOADCASE 41 (EXP) L41=L10-L12

Ratio (%) :	36.0	@Node	6510	
Code Stress:	13554.5	Allowable Stress:		37676.8
Axial Stress:	643.6	@Node	1920	
Bending Stress:	13376.6	@Node	6510	
Torsion Stress:	2043.9	@Node	1580	
Hoop Stress:	0.0	@Node	40	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Max Stress Intensity: 25359.5 @Node 8098

CODE STRESS CHECK PASSED : LOADCASE 42 (EXP) L42=L4-L10

Highest Stresses: (lb./sq.in.) LOADCASE 42 (EXP) L42=L4-L10
 Ratio (%): 27.7 @Node 6280
 Code Stress: 11579.9 Allowable Stress: 41775.0
 Axial Stress: 8583.0 @Node 6550
 Bending Stress: 11440.9 @Node 6280
 Torsion Stress: 1260.8 @Node 5040
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 24511.9 @Node 8080

CODE STRESS CHECK PASSED : LOADCASE 43 (EXP) L43=L6-L10

Highest Stresses: (lb./sq.in.) LOADCASE 43 (EXP) L43=L6-L10
 Ratio (%): 36.2 @Node 6280
 Code Stress: 15124.3 Allowable Stress: 41775.0
 Axial Stress: 8597.8 @Node 6550
 Bending Stress: 14939.1 @Node 6280
 Torsion Stress: 1469.9 @Node 6820
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 26652.4 @Node 8098

CODE STRESS CHECK PASSED : LOADCASE 44 (EXP) L44=L8-L10

Highest Stresses: (lb./sq.in.) LOADCASE 44 (EXP) L44=L8-L10
 Ratio (%): 36.0 @Node 6510
 Code Stress: 13554.2 Allowable Stress: 37676.8
 Axial Stress: 643.7 @Node 1920
 Bending Stress: 13376.3 @Node 6510
 Torsion Stress: 2044.7 @Node 1580
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 25359.5 @Node 8098

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H-U2
18 (OPE) W+T1+P1+H+U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L12
29 (OCC) L29=L22+L12
30 (OCC) L30=L23+L12
31 (OCC) L31=L24+L12
32 (OCC) L32=L25+L12
33 (OCC) L33=L26+L12
34 (OCC) L34=L27+L12
35 (EXP) L35=L4-L12
36 (EXP) L36=L6-L12
37 (EXP) L37=L4-L6
38 (EXP) L38=L8-L12
39 (EXP) L39=L4-L8
40 (EXP) L40=L6-L8
41 (EXP) L41=L10-L12
42 (EXP) L42=L4-L10
43 (EXP) L43=L6-L10
44 (EXP) L44=L8-L10

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T1+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC

Node		fa lb.	fb lb.	fc lb.	Forces Check	ma ft.lb.	mb ft.lb.	mc ft.lb.	Moments Check	
20		Absolute Method								
	Limits	486	486	486		851.9	851.9	851.9		
	4(OPE)	-70	172	-32	0.354	133.2	101.0	396.8	0.466	
	12(SUS)	24	-121	-4	0.249	5.9	9.0	-130.0	0.153	
	13(SUS)	-30	-365	-3	0.753	7.8	6.7	-804.7	0.945	
780		Absolute Method								
	Limits	2158	2158	1619		4248.5	2832.4	3680.6		
	4(OPE)	686	-15	64	0.318	152.8	-245.2	-845.2	0.230	
	12(SUS)	595	-3	2	0.275	-28.3	-602.1	-595.1	0.213	
	13(SUS)	592	-3	2	0.274	-27.5	-594.1	-594.0	0.210	
1240		Absolute Method								
	Limits	486	486	486		851.9	851.9	851.9		
	4(OPE)	251	-125	21	0.517	23.8	-696.3	138.2	0.817	
	12(SUS)	1	-135	1	0.277	13.5	0.7	138.9	0.163	
	13(SUS)	1	-134	1	0.275	13.4	0.7	137.2	0.161	
1700		Absolute Method								
	Limits	3393	3393	2698		6749.0	3606.8	4735.3		
	4(OPE)	-667	383	-324	0.196	3439.6	2821.0	261.4	0.782	
	12(SUS)	162	9	24	0.048	-83.2	-35.2	-20.3	0.012	
	13(SUS)	161	9	24	0.048	-82.6	-35.3	-20.2	0.012	

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

Node		fa lb.	fb lb.	fc lb.	Forces Check	ma ft.lb.	mb ft.lb.	mc ft.lb.	Moments Check	
1780		Absolute Method								
	Limits	3642	3393	2698		6749.0	3606.8	4735.3		
	4(OPE)	-3632	-429	533	0.997	-383.8	-930.4	4091.3	0.864	
	12(SUS)	-25	22	131	0.049	-138.8	-248.2	-29.0	0.069	
	13(SUS)	-24	21	130	0.048	-138.0	-245.8	-29.0	0.068	
4260		Absolute Method								
	Limits	1888	1888	1416		2788.1	1858.7	2419.3		
	4(OPE)	865	-435	-8	0.458	426.0	89.2	1583.4	0.654	
	12(SUS)	43	-315	7	0.167	167.2	87.1	698.7	0.289	
	13(SUS)	43	-314	7	0.167	166.8	86.9	696.4	0.288	

BNK-GCS-CN-009

Table of contents:

Line no.

Stress sketch

Input echo

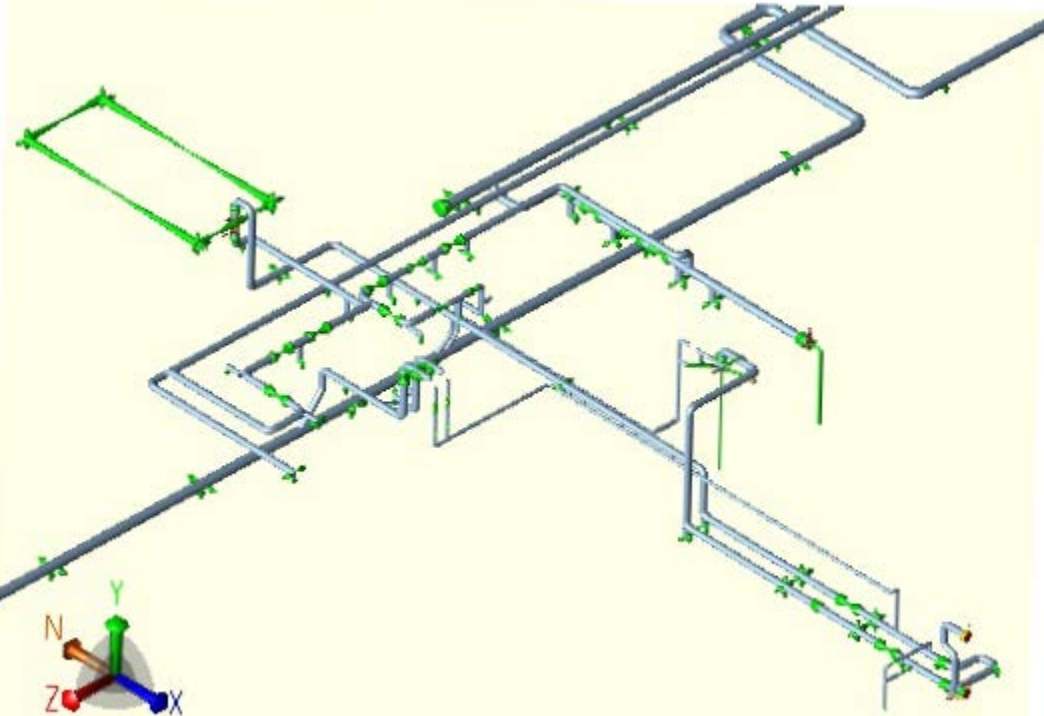
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0019-AN07-8"-PT
2. GAS-111-0012-AN07-8"-PT
3. GAS-111-0017-AN07-8"-PT
4. GAS-111-0101-AN07-6"-PT
5. GAS-111-0001-AN07-6"-PT
6. GAS-111-0005-AN07-10"-PT
7. GAS-111-0020-AN07-10"-PT
8. GAS-111-0025-AN07-10"-PT
9. GAS-111-0001-FN07-8"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1-U2
12 (OPE) W+T2+P1+U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 10 To 20 DY= 1.581 ft.

PIPE

Dia= 8.625 in. Wall= .406 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 90 F P1= 130.5369 lb./sq.in. PHyd= 195.8054 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

EH1= 28,875,074 lb./sq.in. EH2= 29,369,380 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0002168 lb./cu.in. Insul Thk= .000 in.

Insul Den= .0000000 lb./cu.in.

RIGID Weight= 508.00 lb.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 20 To 30 DY= .344 ft.

RIGID Weight= 40.00 lb.

 From 30 To 40 DY= 1.001 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 39

 From 40 To 50 DZ= 5.715 ft.

 From 50 To 60 DZ= .682 ft.

SIF's & TEE's

Node 60 Welding Tee

 From 60 To 70 DZ= 1.568 ft.

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INPUT LISTING

From 70 To 80 DZ= .344 ft.
 RIGID Weight= 40.00 lb.

 From 80 To 90 DZ= 1.654 ft.
 RIGID Weight= 470.00 lb.

 From 90 To 100 DZ= .344 ft.
 RIGID Weight= 40.00 lb.

 From 100 To 110 DZ= 6.358 ft.
 BEND at "TO" end
 Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 109
 Angle/Node @2= .00 108

 From 110 To 120 DY= -20.942 ft.

 From 120 To 130 DX= .709 ft.
 PIPE
 Dia= 10.750 in. Wall= .365 in.
 GENERAL

 T2= 100 F Insul Thk= .000 in.
 ALLOWABLE STRESSES
 B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 120 To 125 DX= -6.788 ft.
 RESTRAINTS
 Node 125 +Y Mu = .30
 Node 125 Z Gap= .118 in. Mu = .30

 From 125 To 140 DX= -1.906 ft.
 BEND at "TO" end
 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 139
 Angle/Node @2= .00 138

 From 140 To 150 DY= 13.123 ft.
 BEND at "TO" end
 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 149
 Angle/Node @2= .00 148

 From 150 To 155 DZ= 14.905 ft.
 RESTRAINTS
 Node 155 +Y Cnode 156 Mu = .30

 From 155 To 160 DZ= 1.362 ft.
 SIF's & TEE's
 Node 160 Welding Tee

 From 160 To 170 DY= -1.785 ft.

 From 170 To 190 DY= -.344 ft.
 RIGID Weight= 53.00 lb.

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INPUT LISTING

 From 190 To 200 DY= -1.811 ft.

RIGID Weight= 801.00 lb.

RESTRAINTS

Node 200 ANC Cnode 201

 From 130 To 210 DX= .584 ft. DY= -.172 ft.

GENERAL

T2= 115 F Fluid Den= .0002384 lb./cu.in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

 From 210 To 215 DX= 19.721 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RESTRAINTS

Node 215 +Y Mu = .30

Node 215 Z Gap= .118 in. Mu = .30

 From 215 To 220 DX= 1.640 ft.

 From 220 To 230 DX= .469 ft.

 From 230 To 240 DX= .302 ft.

RIGID Weight= 25.00 lb.

 From 240 To 250 DX= .906 ft.

RIGID Weight= 226.00 lb.

 From 250 To 260 DX= .302 ft.

RIGID Weight= 25.00 lb.

 From 260 To 270 DX= 2.011 ft.

 From 270 To 280 DX= .459 ft. DY= -.131 ft.

REDUCER

Diam2= 3.500 in. Wall2= .300 in.

 From 280 To 290 DX= .240 ft.

PIPE

Dia= 3.500 in. Wall= .300 in.

Insul Thk= .000 in.

RIGID Weight= 12.25 lb.

 From 290 To 300 DX= 1.362 ft.

RIGID Weight= 25.50 lb.

 From 300 To 310 DX= .240 ft.

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INPUT LISTING

RIGID Weight= 12.25 lb.

 From 310 To 320 DX= .459 ft. DY= .131 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

 From 320 To 330 DX= .656 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

 From 330 To 340 DX= .302 ft.

RIGID Weight= 25.00 lb.

 From 340 To 350 DX= .906 ft.

RIGID Weight= 226.00 lb.

 From 350 To 360 DX= .302 ft.

RIGID Weight= 25.00 lb.

 From 360 To 370 DX= 1.125 ft.

 From 370 To 375 DX= 1.503 ft.

RESTRAINTS

Node 375 +Y Mu = .30

Node 375 Z Gap= .118 in. Mu = .30

Node 375 X Gap= .118 in. Mu = .30

 From 375 To 380 DX= 1.503 ft.

 From 380 To 390 DX= .302 ft.

RIGID Weight= 25.00 lb.

 From 390 To 400 DX= .302 ft.

RIGID Weight= 25.00 lb.

 From 400 To 410 DX= 14.108 ft.

RESTRAINTS

Node 410 +Y Mu = .30

Node 410 Z Gap= .118 in.

 From 220 To 420 DY= 4.478 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 419

Angle/Node @2= .00 418

 From 420 To 430 DX= 10.043 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.027 Angle/Node @1= 45.01 429

Angle/Node @2= .00 428

 From 430 To 440 DX= -.001 ft. DY= -2.060 ft.

 From 440 To 450 DX= -.000 ft. DY= -.292 ft.

RIGID Weight= 25.00 lb.

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INPUT LISTING

 From 450 To 460 DX= -.001 ft. DY= -1.345 ft.
 RIGID Weight= 300.00 lb.

 From 460 To 470 DX= -.000 ft. DY= -.292 ft.
 RIGID Weight= 25.00 lb.

 From 470 To 370 DX= -.000 ft. DY= -.489 ft.

 From 60 To 65 DX= -13.123 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

GENERAL

T2= 90 F Insul Thk= .000 in.

RESTRAINTS

Node 65 +Y Cnode 66 Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 65 To 480 DX= -8.680 ft.

 From 480 To 490 DX= -.344 ft.

RIGID Weight= 40.00 lb.

 From 490 To 500 DX= -1.531 ft.

RIGID Weight= 508.00 lb.

 From 500 To 510 DX= -.344 ft.

RIGID Weight= 40.00 lb.

 From 510 To 520 DX= -.584 ft.

 From 520 To 530 DZ= -6.398 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 529

Angle/Node @2= .00 528

 From 530 To 540 DY= -1.001 ft.

 From 540 To 550 DY= -.344 ft.

RIGID Weight= 40.00 lb.

 From 550 To 560 DY= -1.581 ft.

RIGID Weight= 508.00 lb.

RESTRAINTS

Node 560 ANC Cnode 561

 From 520 To 570 DZ= 10.112 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 569

Angle/Node @2= .00 568

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INPUT LISTING

 From 570 To 580 DY= -21.030 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

From 580 To 590 DX= -1.906 ft.

RESTRAINTS

Node 590 +Y Mu = .30

Node 590 Z Gap= .118 in. Mu = .30

From 590 To 600 DX= -19.685 ft.

RESTRAINTS

Node 600 +Y Mu = .30

From 600 To 610 DX= -19.685 ft.

RESTRAINTS

Node 610 +Y Mu = .30

Node 610 X Gap= .118 in. Mu = .30

Node 610 Z Gap= .118 in. Mu = .30

From 610 To 615 DX= -19.685 ft.

RESTRAINTS

Node 615 +Y Mu = .30

From 615 To 620 DX= -3.707 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 619

Angle/Node @2= .00 618

From 620 To 630 DZ= -2.077 ft.

 From 630 To 640 DZ= -.584 ft.

From 640 To 650 DZ= -.344 ft.

RIGID Weight= 40.00 lb.

From 630 To 660 DY= 1.302 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 659

Angle/Node @2= .00 658

From 660 To 670 DX= -2.943 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 669

Angle/Node @2= .00 668

From 670 To 680 DZ= -3.281 ft.

From 680 To 690 DZ= -.302 ft.

RIGID Weight= 25.00 lb.

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INPUT LISTING

From 650 To 700 DZ= -2.198 ft.

PIPE

Dia= 8.625 in. Wall= .594 in.

Insul Thk= .000 in.

RIGID Weight= 906.00 lb.

From 700 To 710 DZ= -.469 ft.

RIGID Weight= 118.00 lb.

From 710 To 715 DZ= -.984 ft.

RESTRAINTS

Node 715 +Y Mu = .30

Node 715 X Gap= .118 in. Mu = .30

From 715 To 720 DZ= -.984 ft.

From 720 To 730 DY= -.083 ft. DZ= -.500 ft.

REDUCER

Diam2= 6.625 in. Wall2= .562 in.

From 730 To 740 DZ= -.417 ft.

PIPE

Dia= 6.625 in. Wall= .562 in.

Insul Thk= .000 in.

RIGID Weight= 82.00 lb.

From 740 To 750 DZ= -1.867 ft.

RIGID Weight= 165.00 lb.

From 750 To 760 DZ= -.417 ft.

RIGID Weight= 82.00 lb.

From 760 To 770 DY= .083 ft. DZ= -.500 ft.

REDUCER

Diam2= 8.625 in. Wall2= .594 in.

From 770 To 780 DZ= -.656 ft.

PIPE

Dia= 8.625 in. Wall= .594 in.

Insul Thk= .000 in.

From 780 To 790 DZ= -.469 ft.

RIGID Weight= 118.00 lb.

From 790 To 800 DZ= -2.198 ft.

RIGID Weight= 906.00 lb.

From 800 To 810 DZ= -.469 ft.

RIGID Weight= 118.00 lb.

From 810 To 820 DZ= -.584 ft.

SIF's & TEE's

Node 820

From 820 To 830 DZ= -1.931 ft.

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INPUT LISTING

RESTRAINTS

Node 830 +Y Mu = .30
 Node 830 X Gap= .118 in. Mu = .30
 Node 830 Z Gap= .118 in. Mu = .30

 From 820 To 840 DY= 1.302 ft.

PIPE

Dia= 6.625 in. Wall= .562 in.
 Insul Thk= .000 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 839
 Angle/Node @2= .00 838

 From 840 To 850 DX= -2.943 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 849
 Angle/Node @2= .00 848

 From 850 To 855 DZ= 6.184 ft.

RESTRAINTS

Node 855 +Y Mu = .30

 From 855 To 860 DZ= 3.452 ft.

 From 860 To 690 DZ= .420 ft.

RIGID Weight= 82.00 lb.

 From 160 To 1300 DZ= 3.763 ft.

PIPE

Dia= 10.750 in. Wall= .365 in.

GENERAL

T2= 100 F Insul Thk= .000 in.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1299
 Angle/Node @2= .00 1298

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 1300 To 870 DX= -1.250 ft.

 From 870 To 880 DX= -.344 ft.

RIGID Weight= 53.00 lb.

 From 880 To 890 DX= -1.762 ft.

RIGID Weight= 801.00 lb.

 From 890 To 900 DX= -.344 ft.

RIGID Weight= 53.00 lb.

 From 900 To 905 DX= -1.640 ft.

RESTRAINTS

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INPUT LISTING

Node 905 +Y Cnode 906 Mu = .30
 Node 905 Z Cnode 906 Gap= .118 in.

 From 905 To 910 DX= -6.804 ft.

From 910 To 920 DZ= -3.763 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 919
 Angle/Node @2= .00 918

From 920 To 930 DY= -1.788 ft.

From 930 To 940 DY= -.344 ft.

RIGID Weight= 53.00 lb.

From 940 To 950 DY= -1.811 ft.

RIGID Weight= 801.00 lb.

RESTRAINTS

Node 950 ANC Cnode 951

From 910 To 1310 DX= -5.256 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1309
 Angle/Node @2= .00 1308

From 1310 To 1320 DZ= -3.225 ft.

RESTRAINTS

Node 1320 +Y Cnode 1321 Mu = .30

From 1320 To 960 DZ= -.656 ft.

From 960 To 970 DZ= -.344 ft.

RIGID Weight= 53.00 lb.

From 970 To 980 DZ= -2.070 ft.

RIGID Weight= 576.00 lb.

From 980 To 990 DX= .000 ft. DZ= -.344 ft.

RIGID Weight= 53.00 lb.

From 990 To 995 DZ= -3.054 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 994
 Angle/Node @2= .00 993

From 995 To 1350 DX= -20.013 ft.

RESTRAINTS

Node 1350 +Y Mu = .30
 Node 1350 Z Gap= .118 in.

From 1350 To 1000 DX= -23.451 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 999
 Angle/Node @2= .00 998

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INPUT LISTING

From 1000 To 1010 DY= -4.265 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1009

Angle/Node @2= .00 1008

 From 1010 To 1020 DZ= 5.253 ft.

RESTRAINTS

Node 1020 +Y Mu = .30

 From 1020 To 1030 DZ= 19.685 ft.

RESTRAINTS

Node 1030 +Y Mu = .30

Node 1030 X Gap= .118 in. Mu = .30

 From 1030 To 1040 DZ= 19.685 ft.

RESTRAINTS

Node 1040 +Y Mu = .30

 From 1040 To 1050 DZ= 19.685 ft.

RESTRAINTS

Node 1050 +Y Mu = .30

Node 1050 X Gap= .118 in. Mu = .30

 From 1050 To 1060 DZ= 19.685 ft.

RESTRAINTS

Node 1060 +Y Mu = .30

 From 1060 To 1400 DZ= 19.685 ft.

 From 11 To 1080 DY= -.344 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

GENERAL

T1= 185 F T2= 90 F Insul Thk= .000 in.

RIGID Weight= 40.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 1080 To 1090 DY= -.659 ft.

RESTRAINTS

Node 1090 ANC Cnode 1091

 From 1091 To 1100 DY= -6.890 ft.

PIPE

Dia= 168.000 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

 From 1100 To 1110 DX= 7.218 ft.

RIGID Weight= .00 lb.

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INPUT LISTING

From 1110 To 1120 DY= -6.890 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 1120 ANC

From 1100 To 1130 DX= -24.606 ft.

RIGID Weight= .00 lb.

From 1130 To 1170 DX= -2.953 ft.

RIGID Weight= .00 lb.

From 1170 To 1140 DY= -6.890 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 1140 +Y Mu = .30

Node 1140 Z Gap= .118 in. Mu = .30

From 561 To 1150 DY= -.344 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= 40.00 lb.

From 1150 To 1160 DY= -.659 ft.

RESTRAINTS

Node 1160 ANC Cnode 1161

From 1161 To 1130 DX= .000 ft. DY= -6.890 ft. DZ= .000 ft.

PIPE

Dia= 168.000 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 1161 To 66 DX= 11.483 ft. DY= 3.930 ft. DZ= 6.398 ft.

RIGID Weight= .00 lb.

From 201 To 1180 DX= .000 ft. DY= -.344 ft. DZ= .000 ft.

PIPE

Dia= 10.750 in. Wall= .365 in.

GENERAL

T2= 100 F Insul Thk= .000 in.

RIGID Weight= 53.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 1180 To 1190 DY= -.794 ft.

RESTRAINTS

Node 1190 ANC Cnode 1191

From 1191 To 156 DX= .000 ft. DY= 5.078 ft. DZ= -1.362 ft.

RIGID Weight= .00 lb.

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INPUT LISTING

 From 1191 To 906 DX= -5.340 ft. DY= 5.078 ft. DZ= 3.763 ft.
 RIGID Weight= .00 lb.

 From 1191 To 1210 DY= -2.500 ft.
 PIPE
 Dia= 60.960 in. Wall= .365 in.
 Insul Thk= .000 in.
 RIGID Weight= .00 lb.

 From 1200 To 1210 DX= .656 ft.
 RIGID Weight= .00 lb.

 From 1200 To 1220 DY= -2.500 ft.
 RIGID Weight= .00 lb.
 RESTRAINTS
 Node 1220 ANC

 From 1200 To 1230 DX= -11.483 ft.
 RIGID Weight= .00 lb.

 From 1230 To 1240 DY= -2.500 ft.
 RIGID Weight= .00 lb.
 RESTRAINTS
 Node 1240 +Y Mu = .30
 Node 1240 Z Gap= .118 in. Mu = .30

 From 951 To 1260 DY= -.344 ft.
 PIPE
 Dia= 10.750 in. Wall= .365 in.
 Insul Thk= .000 in.
 RIGID Weight= 53.00 lb.

 From 1260 To 1270 DY= -.794 ft.
 RESTRAINTS
 Node 1270 ANC Cnode 1271

 From 1271 To 1321 DX= -5.261 ft. DY= 5.078 ft. DZ= .538 ft.
 RIGID Weight= .00 lb.

 From 1271 To 1230 DX= .000 ft. DY= -2.500 ft. DZ= .000 ft.
 PIPE
 Dia= 60.960 in. Wall= .365 in.
 Insul Thk= .000 in.
 RIGID Weight= .00 lb.

 From 2000 To 6420 DY= -.250 ft.
 PIPE
 Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.
 GENERAL

T1= 140 F T2= 347 F P1= 319.0903 lb./sq.in.
 PHyd= 1,348.8818 lb./sq.in. Mat= (165)A312 TP316L
 E= 28,300,856 lb./sq.in. EH1= 27,900,956 lb./sq.in.
 EH2= 26,765,138 lb./sq.in. EH3= 28,300,856 lb./sq.in.
 EH4= 28,300,856 lb./sq.in. EH5= 28,300,856 lb./sq.in.

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INPUT LISTING

EH6= 28,300,856 lb./sq.in. EH7= 28,300,856 lb./sq.in.
 EH8= 28,300,856 lb./sq.in. EH9= 28,300,856 lb./sq.in. v = .292
 Pipe Den= .2900000 lb./cu.in. Fluid Den= .0006611 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= .00 lb.

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

SIF's & TEE's

Node 6420 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 16,700 lb./sq.in.
 Sh1= 16,700 lb./sq.in. Sh2= 16,230 lb./sq.in. Sh3= 16,700 lb./sq.in.
 Sh4= 16,700 lb./sq.in. Sh5= 16,700 lb./sq.in. Sh6= 16,700 lb./sq.in.
 Sh7= 16,700 lb./sq.in. Sh8= 16,700 lb./sq.in. Sh9= 16,700 lb./sq.in.
 Sy= 25,000 lb./sq.in.

 From 1400 To 1410 DX= .000 ft. DZ= 19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

T1= 100 F T2= 185 F P1= 130.5369 lb./sq.in. P2= .0000 lb./sq.in.
 PHyd= 195.8054 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 29,298,040 lb./sq.in.
 EH2= 28,875,074 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 29,500,856 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002384 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RESTRAINTS

Node 1400 +Y Cnode 0 Mu = .30
 Node 1400 Z Gap= .118 in. Mu = .30
 Node 1400 X Gap= .118 in.
 Node 1410 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 1410 To 1420 DX= .000 ft. DZ= 19.685 ft.

RESTRAINTS

Node 1420 +Y Mu = .30
 Node 1420 X Gap= .118 in.

 From 1420 To 1430 DX= .000 ft. DZ= 19.685 ft.

RESTRAINTS

Node 1430 +Y Mu = .30
 Node 1430 X Gap= .118 in.

 From 1430 To 1440 DY= .000 ft. DZ= 3.609 ft.
 BEND at "TO" end

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Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1439
 Angle/Node @2= .00 1438

 From 1440 To 1450 DX= -19.685 ft. DY= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1449
 Angle/Node @2= .00 1448

 From 1450 To 1460 DZ= 6.234 ft.

RESTRAINTS

Node 1460 +Y Mu = .30

 From 1460 To 1470 DZ= 6.234 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1469
 Angle/Node @2= .00 1468

 From 1470 To 1480 DX= 19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479
 Angle/Node @2= .00 1478

 From 1480 To 1490 DZ= 3.609 ft.

RESTRAINTS

Node 1490 +Y Mu = .30
 Node 1490 X Gap= .118 in.

 From 1490 To 1500 DZ= 16.306 ft.

 From 1500 To 1510 DZ= 4.265 ft.

RESTRAINTS

Node 1510 +Y Mu = .30

 From 1510 To 1520 DZ= 19.685 ft.

RESTRAINTS

Node 1520 +Y Mu = .30
 Node 1520 X Gap= .118 in. Mu = .30

 From 1520 To 1530 DZ= 19.685 ft.

RESTRAINTS

Node 1530 +Y Mu = .30
 Node 1530 LIM Gap= .118 in.

 From 1530 To 1540 DZ= 19.685 ft.

RESTRAINTS

Node 1540 +Y Mu = .30
 Node 1540 X Gap= .118 in.

 From 1540 To 1550 DZ= 19.685 ft.

RESTRAINTS

Node 1550 +Y Mu = .30

 From 1550 To 1560 DZ= 15.420 ft.

SIF's & TEE's

Node 1560 Welding Tee

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INPUT LISTING

 From 1560 To 1570 DZ= 4.265 ft.

RESTRAINTS

Node 1570 +Y Mu = .30
 Node 1570 X Gap= .118 in.

 From 1570 To 1580 DZ= 1.640 ft.

 From 1580 To 1590 DZ= .396 ft.
 RIGID Weight= 92.00 lb.

 From 1590 To 1600 DZ= .396 ft.
 RIGID Weight= 92.00 lb.

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MATERIAL Changes:

10	20	Mat= (106)A106 Grade B
		E= 29,500,856 lb./sq.in. v = .292
		Density= .2830 lb./cu.in.
2000	6420	Mat= (165)A312 TP316L
		E= 28,300,856 lb./sq.in. v = .292
		Density= .2900 lb./cu.in.
1400	1410	Mat= (106)A106 Grade B
		E= 29,500,856 lb./sq.in. v = .292
		Density= .2830 lb./cu.in.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-009-)\BNK-GCS-CN-0

ALLOWABLE STRESS Changes

10	20	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	
120	130	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	

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130	210	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	
60	65	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	
160	1300	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	
11	1080	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	
201	1180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	

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		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	
2000	6420	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 16,700 lb./sq.in.	
		Sh1= 16,700 lb./sq.in.	
		Sh2= 16,230 lb./sq.in.	
		Sh3= 16,700 lb./sq.in.	
		Sh4= 16,700 lb./sq.in.	
		Sh5= 16,700 lb./sq.in.	
		Sh6= 16,700 lb./sq.in.	
		Sh7= 16,700 lb./sq.in.	
		Sh8= 16,700 lb./sq.in.	
		Sh9= 16,700 lb./sq.in.	
1400	1410	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.	
		Sh1= 20,000 lb./sq.in.	
		Sh2= 20,000 lb./sq.in.	
		Sh3= 20,000 lb./sq.in.	
		Sh4= 20,000 lb./sq.in.	
		Sh5= 20,000 lb./sq.in.	
		Sh6= 20,000 lb./sq.in.	
		Sh7= 20,000 lb./sq.in.	
		Sh8= 20,000 lb./sq.in.	
		Sh9= 20,000 lb./sq.in.	
		Sy= 35,000 lb./sq.in.	

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BEND ELEMENTS

30	40	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 39
100	110	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		109 Angle/Node @2= .00 108
125	140	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		139 Angle/Node @2= .00 138
140	150	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		149 Angle/Node @2= .00 148
220	420	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		419 Angle/Node @2= .00 418
420	430	Radius= 9.000 in. (LONG)
		Bend Angle= 90.027 Angle/Node @1= 45.01
		429 Angle/Node @2= .00 428
520	530	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		529 Angle/Node @2= .00 528
520	570	Radius= 12.000 in. (LONG)

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		Bend Angle= 90.000 Angle/Node @1= 45.00
		569 Angle/Node @2= .00 568
570	580	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
615	620	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		619 Angle/Node @2= .00 618
630	660	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		659 Angle/Node @2= .00 658
660	670	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		669 Angle/Node @2= .00 668
820	840	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		839 Angle/Node @2= .00 838
840	850	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		849 Angle/Node @2= .00 848
160	1300	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1299 Angle/Node @2= .00 1298
910	920	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		919 Angle/Node @2= .00 918
910	1310	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1309 Angle/Node @2= .00 1308
990	995	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		994 Angle/Node @2= .00 993
1350	1000	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		999 Angle/Node @2= .00 998
1000	1010	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1009 Angle/Node @2= .00 1008
1430	1440	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1439 Angle/Node @2= .00 1438
1440	1450	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1449 Angle/Node @2= .00 1448
1460	1470	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1469 Angle/Node @2= .00 1468
1470	1480	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1479 Angle/Node @2= .00 1478

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RIGIDS

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INPUT LISTING

10	20	RIGID Weight= 508.00 lb.
20	30	RIGID Weight= 40.00 lb.
70	80	RIGID Weight= 40.00 lb.
80	90	RIGID Weight= 470.00 lb.
90	100	RIGID Weight= 40.00 lb.
170	190	RIGID Weight= 53.00 lb.
190	200	RIGID Weight= 801.00 lb.
230	240	RIGID Weight= 25.00 lb.
240	250	RIGID Weight= 226.00 lb.
250	260	RIGID Weight= 25.00 lb.
280	290	RIGID Weight= 12.25 lb.
290	300	RIGID Weight= 25.50 lb.
300	310	RIGID Weight= 12.25 lb.
330	340	RIGID Weight= 25.00 lb.
340	350	RIGID Weight= 226.00 lb.
350	360	RIGID Weight= 25.00 lb.
380	390	RIGID Weight= 25.00 lb.
390	400	RIGID Weight= 25.00 lb.
440	450	RIGID Weight= 25.00 lb.
450	460	RIGID Weight= 300.00 lb.
460	470	RIGID Weight= 25.00 lb.
480	490	RIGID Weight= 40.00 lb.
490	500	RIGID Weight= 508.00 lb.
500	510	RIGID Weight= 40.00 lb.
540	550	RIGID Weight= 40.00 lb.
550	560	RIGID Weight= 508.00 lb.
640	650	RIGID Weight= 40.00 lb.
680	690	RIGID Weight= 25.00 lb.
650	700	RIGID Weight= 906.00 lb.
700	710	RIGID Weight= 118.00 lb.
730	740	RIGID Weight= 82.00 lb.
740	750	RIGID Weight= 165.00 lb.
750	760	RIGID Weight= 82.00 lb.
780	790	RIGID Weight= 118.00 lb.
790	800	RIGID Weight= 906.00 lb.
800	810	RIGID Weight= 118.00 lb.
860	690	RIGID Weight= 82.00 lb.
870	880	RIGID Weight= 53.00 lb.
880	890	RIGID Weight= 801.00 lb.
890	900	RIGID Weight= 53.00 lb.
930	940	RIGID Weight= 53.00 lb.
940	950	RIGID Weight= 801.00 lb.
960	970	RIGID Weight= 53.00 lb.
970	980	RIGID Weight= 576.00 lb.
980	990	RIGID Weight= 53.00 lb.
11	1080	RIGID Weight= 40.00 lb.
1091	1100	RIGID Weight= .00 lb.
1100	1110	RIGID Weight= .00 lb.
1110	1120	RIGID Weight= .00 lb.
1100	1130	RIGID Weight= .00 lb.
1130	1170	RIGID Weight= .00 lb.
1170	1140	RIGID Weight= .00 lb.
561	1150	RIGID Weight= 40.00 lb.
1161	1130	RIGID Weight= .00 lb.
1161	66	RIGID Weight= .00 lb.

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201	1180	RIGID Weight= 53.00 lb.
1191	156	RIGID Weight= .00 lb.
1191	906	RIGID Weight= .00 lb.
1191	1210	RIGID Weight= .00 lb.
1200	1210	RIGID Weight= .00 lb.
1200	1220	RIGID Weight= .00 lb.
1200	1230	RIGID Weight= .00 lb.
1230	1240	RIGID Weight= .00 lb.
951	1260	RIGID Weight= 53.00 lb.
1271	1321	RIGID Weight= .00 lb.
1271	1230	RIGID Weight= .00 lb.
2000	6420	RIGID Weight= .00 lb.
1580	1590	RIGID Weight= 92.00 lb.
1590	1600	RIGID Weight= 92.00 lb.

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SIF's & TEE's

50	60	Node 60 Welding Tee
155	160	Node 160 Welding Tee
810	820	Node 820
2000	6420	Node 6420 Unreinforced Tee
1550	1560	Node 1560 Welding Tee

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REDUCERS

130	210	Diam2= 6.625 in. Wall2= .432 in.
270	280	Diam2= 3.500 in. Wall2= .300 in.
310	320	Diam2= 6.625 in. Wall2= .432 in.
720	730	Diam2= 6.625 in. Wall2= .562 in.
760	770	Diam2= 8.625 in. Wall2= .594 in.

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RESTRAINTS

			Len	MU			
			GAP	YIELD	Dir		
NODE	TYPE	CNODE	STIF1	STIF2	FORCE	Vectors	
10	ANC	11		.000	.000	.000	
125	+Y		.30	.000	1.000	.000	
125	Z		.12	.30	.000	.000	1.000
155	+Y	156		.30	.000	1.000	.000
200	ANC	201		.000	.000	.000	
215	+Y		.30	.000	1.000	.000	
215	Z		.12	.30	.000	.000	1.000
375	+Y		.30	.000	1.000	.000	
375	Z		.12	.30	.000	.000	1.000
375	X		.12	.30	1.000	.000	.000
410	+Y		.30	.000	1.000	.000	
410	Z		.12	.000	.000	1.000	
65	+Y	66		.30	.000	1.000	.000
560	ANC	561		.000	.000	.000	
590	+Y		.30	.000	1.000	.000	

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590	Z		.12	.30	.000	.000	1.000
600	+Y			.30	.000	1.000	.000
610	+Y			.30	.000	1.000	.000
610	X		.12	.30	1.000	.000	.000
610	Z		.12	.30	.000	.000	1.000
615	+Y			.30	.000	1.000	.000
715	+Y			.30	.000	1.000	.000
715	X		.12	.30	1.000	.000	.000
830	+Y			.30	.000	1.000	.000
830	X		.12	.30	1.000	.000	.000
830	Z		.12	.30	.000	.000	1.000
855	+Y			.30	.000	1.000	.000
905	+Y	906		.30	.000	1.000	.000
905	Z	906	.12		.000	.000	1.000
950	ANC	951			.000	.000	.000
1320	+Y	1321		.30	.000	1.000	.000
1350	+Y			.30	.000	1.000	.000
1350	Z		.12		.000	.000	1.000
1020	+Y			.30	.000	1.000	.000
1030	+Y			.30	.000	1.000	.000
1030	X		.12	.30	1.000	.000	.000
1040	+Y			.30	.000	1.000	.000
1050	+Y			.30	.000	1.000	.000
1050	X		.12	.30	1.000	.000	.000
1060	+Y			.30	.000	1.000	.000
1090	ANC	1091			.000	.000	.000
1120	ANC				.000	.000	.000
1140	+Y			.30	.000	1.000	.000
1140	Z		.12	.30	.000	.000	1.000
1160	ANC	1161			.000	.000	.000
1190	ANC	1191			.000	.000	.000
1220	ANC				.000	.000	.000
1240	+Y			.30	.000	1.000	.000
1240	Z		.12	.30	.000	.000	1.000
1270	ANC	1271			.000	.000	.000
1400	+Y	0		.30	.000	1.000	.000
1400	Z		.12	.30	.000	.000	1.000
1400	X		.12		1.000	.000	.000
1410	+Y				.000	1.000	.000
1420	+Y			.30	.000	1.000	.000
1420	X		.12		1.000	.000	.000
1430	+Y			.30	.000	1.000	.000
1430	X		.12		1.000	.000	.000
1460	+Y			.30	.000	1.000	.000
1490	+Y			.30	.000	1.000	.000
1490	X		.12		1.000	.000	.000
1510	+Y			.30	.000	1.000	.000
1520	+Y			.30	.000	1.000	.000
1520	X		.12	.30	1.000	.000	.000
1530	+Y			.30	.000	1.000	.000
1530	LIM		.12		.000	.000	.000
1540	+Y			.30	.000	1.000	.000
1540	X		.12		1.000	.000	.000
1550	+Y			.30	.000	1.000	.000
1570	+Y			.30	.000	1.000	.000

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INPUT LISTING

1570 X .12 1.000 .000 .000
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UNIFORM LOAD Changes

10	20	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's
2000	6420	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	= in.
FORCE	pounds	x	1.000	= lb.
MASS(dynamics)	pounds	x	1.000	= lbm
MOMENTS(INPUT)	inch-pounds	x	1.000	= in.lb.
MOMENTS(OUTPUT)	inch-pounds	x	0.083	= ft.lb.
STRESS	lbs./sq.in.	x	1.000	= lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	= F
PRESSURE	psig	x	1.000	= lb./sq.in.
ELASTIC MODULUS	lbs./sq.in.	x	1.000	= lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	= lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	= lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	= lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	= lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	= in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	= lb./in.
G LOAD	g's	x	1.000	= g's
WIND LOAD	lbs./sq.in.	x	144.000	= lb./sq.ft.
ELEVATION	inches	x	0.083	= ft.
COMPOUND LENGTH	inches	x	0.083	= ft.
DIAMETER	inches	x	1.000	= in.
WALL THICKNESS	inches	x	1.000	= in.

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SETUP FILE PARAMETERS

 CONNECT GEOMETRY THRU CNODES = YES

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INPUT LISTING

MIN ALLOWED BEND ANGLE = 5.00000
 MAX ALLOWED BEND ANGLE = 95.0000
 BEND LENGTH ATTACHMENT PERCENT = 1.00000
 MIN ANGLE TO ADJACENT BEND PT = 5.00000
 LOOP CLOSURE TOLERANCE = 1.00000 in.
 THERMAL BOWING HORZ TOLERANCE = 0.100000E-03
 AUTO NODE NUMBER INCREMENT= 10.0000
 Z AXIS UP= NO
 USE PRESSURE STIFFENING = DEFAULT
 ALPHA TOLERANCE = 0.500000E-01
 RESLD-FORCE = NO
 HGR DEF RESWGT STIF = 0.100000E+13 lb./in.
 DECOMP SNG TOL = 0.100000E+11
 BEND AXIAL SHAPE = YES
 FRICT STIF = 0.100000E+07 lb./in.
 FRICT NORM FORCE VAR = 0.150000
 FRICT ANGLE VAR = 15.0000
 FRICT SLIDE MULT = 1.00000
 ROD TOLERANCE = 1.00000
 ROD INC = 2.00000
 INCORE NUMERICAL CHECK = NO
 OUTCORE NUMERICAL CHECK = NO
 DEFAULT TRANS RESTRAINT STIFF= 0.100000E+13 lb./in.
 DEFAULT ROT RESTRAINT STIFF= 0.100000E+13 in.lb./deg
 IGNORE SPRING HANGER STIFFNESS = NO
 MISSING MASS ZPA = EXTRACTED
 MIN WALL MILL TOLERANCE = 12.5000
 WRC-107 VERSION = MAR 79 1B1/2B1
 WRC-107 INTERPOLATION = LAST VALUE
 DEFAULT AMBIENT TEMPERATURE= 70.0000 F
 BOURDON PRESSURE= NONE
 COEFFICIENT OF FRICTION (MU) = 0.000000
 INCLUDE SPRG STIF IN HGR OPE = NO
 INCLUDE INSULATION IN HYDROTEST = NO
 REDUCED INTERSECTION = B31.1(POST1980)
 USE WRC329 NO
 NO REDUCED SIF FOR RFT AND WLT NO
 B31.1 REDUCED Z FIX = YES
 CLASS 1 BRANCH FLEX NO
 ALL STRESS CASES CORRODED = NO
 ADD TORSION IN SL STRESS = DEFAULT
 ADD F/A IN STRESS = DEFAULT
 OCCASIONAL LOAD FACTOR = 0.000000
 DEFAULT CODE = B31.3
 B31.3 SUS CASE SIF FACTOR = 0.000000
 ALLOW USERS BEND SIF = NO
 USE SCHNEIDER NO
 YIELD CRITERION STRESS = MAX 3D SHEAR
 USE PD/4T NO
 BASE HOOP STRESS ON ? = ID
 EN13480 USE IN OUTPLANE SIFS= NO
 LIBERAL EXPANSION ALLOWABLE= YES
 B31.3 SEC 319.2.3C SAXIAL= Default
 B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
 PRESSURE VARIATION IN EXP CASE= DEFAULT

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INPUT LISTING

IMPLEMENT B313 APP-P NO
 IMPLEMENT B313 CODE CASE 178 YES
 IGNORE B31.1/B31.3 Wc FACTOR= YES
 USE FRP SIF = YES
 USE FRP FLEX = YES
 BS 7159 Pressure Stiffening= Design Strain
 FRP Property Data File= CAESAR.FRP
 FRP Emod (axial) = 0.320000E+07 lb./sq.in.
 FRP Ratio Gmod/Emod (axial) = 0.250000
 FRP Ea/Eh*Vh/a = 0.152730
 FRP Laminate Type = THREE
 FRP Alpha = 12.0000 F
 FRP Density = 0.600000E-01 lb./cu.in.
 EXCLUDE f2 FROM UKOOA BENDING = NO
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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000
 Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 F
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

 Ambient Temperature 69.794 F
 Plastic (FRP) Alpha 12.000
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X

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COORDINATE REPORT

/------(in.)-----/

NODE	X	Y	Z
10	-618.113	-291.169	288.355
20	-618.113	-272.192	288.355
30	-618.113	-268.067	288.355
40	-618.113	-256.059	288.355
50	-618.113	-256.059	356.938
60	-618.113	-256.059	365.127
70	-618.113	-256.059	383.946
80	-618.113	-256.059	388.071
90	-618.113	-256.059	407.913
100	-618.113	-256.059	412.038
110	-618.113	-256.059	488.337
120	-618.113	-507.359	488.337

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INPUT LISTING

130	-609.609	-507.359	488.337
120	-618.113	-507.359	488.337
125	-699.570	-507.359	488.337
140	-722.444	-507.359	488.337
150	-722.444	-349.878	488.337
155	-722.444	-349.878	667.196
160	-722.444	-349.878	683.534
170	-722.444	-371.296	683.534
190	-722.444	-375.421	683.534
200	-722.444	-397.153	683.534
130	-609.609	-507.359	488.337
210	-602.602	-509.422	488.337
215	-365.948	-509.422	488.337
220	-346.263	-509.422	488.337
230	-340.633	-509.422	488.337
240	-337.008	-509.422	488.337
250	-326.142	-509.422	488.337
260	-322.517	-509.422	488.337
270	-298.383	-509.422	488.337
280	-292.871	-510.996	488.337
290	-289.996	-510.996	488.337
300	-273.658	-510.996	488.337
310	-270.783	-510.996	488.337
320	-265.271	-509.422	488.337
330	-257.397	-509.422	488.337
340	-253.772	-509.422	488.337
350	-242.906	-509.422	488.337
360	-239.281	-509.422	488.337
370	-225.777	-509.422	488.337
375	-207.745	-509.422	488.337
380	-189.714	-509.422	488.337
390	-186.089	-509.422	488.337
400	-182.464	-509.422	488.337
410	-13.172	-509.422	488.337
220	-346.263	-509.422	488.337
420	-346.263	-455.681	488.337
430	-225.751	-455.681	488.337
440	-225.763	-480.406	488.337
450	-225.765	-483.910	488.337
460	-225.776	-500.051	488.337
470	-225.777	-503.555	488.337
470	-225.774	-503.555	488.337
370	-225.777	-509.422	488.337
60	-618.113	-256.059	365.127
65	-775.594	-256.059	365.127
480	-879.755	-256.059	365.127
490	-883.880	-256.059	365.127
500	-902.256	-256.059	365.127
510	-906.381	-256.059	365.127
520	-913.389	-256.059	365.127
530	-913.389	-256.059	288.355
540	-913.389	-268.067	288.355
550	-913.389	-272.192	288.355
560	-913.389	-291.169	288.355
520	-913.389	-256.059	365.127

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INPUT LISTING

570	-913.389	-256.059	486.465
580	-913.389	-508.422	486.465
590	-936.263	-508.422	486.465
600	-1172.484	-508.422	486.465
610	-1408.704	-508.422	486.465
615	-1644.924	-508.422	486.465
620	-1689.413	-508.422	486.465
630	-1689.413	-508.422	461.544
640	-1689.413	-508.422	454.536
650	-1689.413	-508.422	450.411
630	-1689.413	-508.422	461.544
660	-1689.413	-492.792	461.544
670	-1724.728	-492.792	461.544
680	-1724.728	-492.792	422.174
690	-1724.728	-492.792	418.549
650	-1689.413	-508.422	450.411
700	-1689.413	-508.422	424.033
710	-1689.413	-508.422	418.408
715	-1689.413	-508.422	406.597
720	-1689.413	-508.422	394.786
730	-1689.413	-509.422	388.786
740	-1689.413	-509.422	383.786
750	-1689.413	-509.422	361.385
760	-1689.413	-509.422	356.385
770	-1689.413	-508.422	350.385
780	-1689.413	-508.422	342.511
790	-1689.413	-508.422	336.886
800	-1689.413	-508.422	310.508
810	-1689.413	-508.422	304.883
820	-1689.413	-508.422	297.875
830	-1689.413	-508.422	274.705
820	-1689.413	-508.422	297.875
840	-1689.413	-492.792	297.875
850	-1724.728	-492.792	297.875
855	-1724.728	-492.792	372.087
860	-1724.728	-492.792	413.510
690	-1724.728	-492.792	418.549
160	-722.444	-349.878	683.534
1300	-722.444	-349.878	728.692
870	-737.444	-349.878	728.692
880	-741.569	-349.878	728.692
890	-762.711	-349.878	728.692
900	-766.836	-349.878	728.692
905	-786.521	-349.878	728.692
910	-868.174	-349.878	728.692
920	-868.174	-349.878	683.534
930	-868.174	-371.335	683.534
940	-868.174	-375.460	683.534
950	-868.174	-397.192	683.534
910	-868.174	-349.878	728.692
1310	-931.245	-349.878	728.692
1320	-931.245	-349.878	689.991
960	-931.245	-349.878	682.117
970	-931.245	-349.878	677.992
980	-931.245	-349.878	653.149

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INPUT LISTING

990	-931.245	-349.878	649.024
995	-931.245	-349.878	612.371
1350	-1171.403	-349.878	612.371
1000	-1452.820	-349.878	612.371
1010	-1452.820	-401.059	612.371
1020	-1452.820	-401.059	675.402
1030	-1452.820	-401.059	911.623
1040	-1452.820	-401.059	1147.843
1050	-1452.820	-401.059	1384.064
1060	-1452.820	-401.059	1620.284
1400	-1452.820	-401.059	1856.505
10	-618.113	-291.169	288.355
1080	-618.113	-295.302	288.355
1090	-618.113	-303.216	288.355
1100	-618.113	-385.893	288.355
1110	-531.499	-385.893	288.355
1120	-531.499	-468.570	288.355
1100	-618.113	-385.893	288.355
1130	-913.389	-385.893	288.355
1170	-948.822	-385.893	288.355
1140	-948.822	-468.570	288.355
560	-913.389	-291.169	288.355
1150	-913.389	-295.302	288.355
1160	-913.389	-303.216	288.355
1160	-913.389	-303.216	288.355
1130	-913.389	-385.893	288.355
1160	-913.389	-303.216	288.355
65	-775.594	-256.059	365.127
200	-722.444	-397.153	683.534
1180	-722.444	-401.287	683.534
1190	-722.444	-410.814	683.534
155	-722.444	-349.878	667.196
1190	-722.444	-410.814	683.534
905	-786.521	-349.878	728.692
1190	-722.444	-410.814	683.534
1210	-722.444	-440.814	683.534
1200	-730.318	-440.814	683.534
1210	-722.444	-440.814	683.534
1200	-730.318	-440.814	683.534
1220	-730.318	-470.814	683.534
1200	-730.318	-440.814	683.534
1230	-868.113	-440.814	683.534
1240	-868.113	-470.814	683.534
950	-868.174	-397.192	683.534
1260	-868.174	-401.326	683.534
1270	-868.174	-410.854	683.534
1270	-868.115	-410.814	683.534
1320	-931.245	-349.878	689.991
1270	-868.115	-410.814	683.534
1230	-868.113	-440.814	683.534
2000	-663.354	-180.762	359.944
6420	-663.354	-183.762	359.944
1400	-1452.820	-401.059	1856.505
1410	-1452.820	-401.059	2092.725
1420	-1452.820	-401.059	2328.946

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INPUT LISTING

1430	-1452.820	-401.059	2565.166
1440	-1452.820	-401.059	2608.473
1450	-1689.041	-401.059	2608.473
1460	-1689.041	-401.059	2683.276
1470	-1689.041	-401.059	2758.080
1480	-1452.820	-401.059	2758.080
1490	-1452.820	-401.059	2801.387
1500	-1452.820	-401.059	2997.056
1510	-1452.820	-401.059	3048.237
1520	-1452.820	-401.059	3284.458
1530	-1452.820	-401.059	3520.678
1540	-1452.820	-401.059	3756.898
1550	-1452.820	-401.059	3993.119
1560	-1452.820	-401.059	4178.158
1570	-1452.820	-401.059	4229.339
1580	-1452.820	-401.059	4249.024
1590	-1452.820	-401.059	4253.774
1600	-1452.820	-401.059	4258.524

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1-U2
12 (OPE) W+T2+P1+U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid ANC;					
	1(HYD)	-225	-1499	-95	2378.9	-210.6	42.5
	2(OPE)	81	-1214	-227	1358.3	431.0	-608.2
	4(OPE)	-113	-1207	-93	1706.0	-78.9	-167.3
	6(SUS)	-157	-1195	-69	1685.3	-157.9	-0.7
	7(SUS)	-156	-1193	-69	1681.1	-157.5	-1.0
	MAX	-225/L1	-1499/L1	-227/L2	2378.9/L1	431.0/L2	-608.2/L2
65		TYPE=Rigid +Y;					
	1(HYD)	424	-1557	196	0.0	0.0	0.0
	2(OPE)	218	-739	-40	0.0	0.0	0.0
	4(OPE)	300	-1024	67	0.0	0.0	0.0
	6(SUS)	291	-1076	139	0.0	0.0	0.0
	7(SUS)	291	-1073	139	0.0	0.0	0.0
	MAX	424/L1	-1557/L1	196/L1			
125		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	496	-3888	-86	0.0	0.0	0.0
	2(OPE)	-741	-2535	-173	0.0	0.0	0.0
	4(OPE)	-710	-2382	-82	0.0	0.0	0.0
	6(SUS)	602	-2352	-50	0.0	0.0	0.0
	7(SUS)	593	-2343	-50	0.0	0.0	0.0
	MAX	-741/L2	-3888/L1	-173/L2			
155		TYPE=Rigid +Y;					
	1(HYD)	0	0	0	0.0	0.0	0.0
	2(OPE)	0	0	0	0.0	0.0	0.0
	4(OPE)	0	0	0	0.0	0.0	0.0
	6(SUS)	0	0	0	0.0	0.0	0.0
	7(SUS)	0	0	0	0.0	0.0	0.0
200		TYPE=Rigid ANC;					
	1(HYD)	425	-2814	66	1218.6	-1190.0	-1278.3
	2(OPE)	-89	-1804	185	2901.1	509.7	-897.8

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	135	-2006	66	1621.8	-499.0	-768.9
	6(SUS)	308	-2088	28	1121.4	-867.2	-949.8
	7(SUS)	307	-2084	27	1120.6	-865.2	-947.8
	MAX	425/L1	-2814/L1	185/L2	2901.1/L2	-1190.0/L1	-1278.3/L1
215		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	-555	-1849	-0	0.0	0.0	0.0
	2(OPE)	-464	-1547	-6	0.0	0.0	0.0
	4(OPE)	223	-1449	-2	0.0	0.0	0.0
	6(SUS)	-417	-1391	1	0.0	0.0	0.0
	7(SUS)	-417	-1388	1	0.0	0.0	0.0
	MAX	-555/L1	-1849/L1	-6/L2			
375		TYPE=Rigid Z w/gap; Rigid X w/gap; Rigid +Y;					
	1(HYD)	-399	-1329	-0	0.0	0.0	0.0
	2(OPE)	1140	-1060	7	0.0	0.0	0.0
	4(OPE)	329	-1097	1	0.0	0.0	0.0
	6(SUS)	-336	-1118	-1	0.0	0.0	0.0
	7(SUS)	-335	-1117	-1	0.0	0.0	0.0
	MAX	1140/L2	-1329/L1	7/L2			
410		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	-75	-250	0	0.0	0.0	0.0
	2(OPE)	53	-178	-0	0.0	0.0	0.0
	4(OPE)	53	-177	-0	0.0	0.0	0.0
	6(SUS)	-53	-176	0	0.0	0.0	0.0
	7(SUS)	-53	-176	0	0.0	0.0	0.0
	MAX	-75/L1	-250/L1	-0/L2			
560		TYPE=Rigid ANC;					
	1(HYD)	83	-1316	-41	1179.1	384.2	247.2
	2(OPE)	117	-1150	67	907.8	780.8	230.5
	4(OPE)	71	-1095	-14	894.8	353.4	175.4
	6(SUS)	57	-1092	-32	895.9	268.2	179.6
	7(SUS)	57	-1091	-32	894.0	267.6	179.1
	MAX	117/L2	-1316/L1	67/L2	1179.1/L1	780.8/L2	247.2/L1
590		TYPE=Rigid +Y; Rigid Z w/gap;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	1(HYD)	-14	-2469	38	0.0	0.0	0.0
	2(OPE)	494	-1655	53	0.0	0.0	0.0
	4(OPE)	487	-1625	30	0.0	0.0	0.0
	6(SUS)	-9	-1616	28	0.0	0.0	0.0
	7(SUS)	-9	-1610	28	0.0	0.0	0.0
	MAX	494/L2	-2469/L1	53/L2			
600		TYPE=Rigid +Y;					
	1(HYD)	-5	-1034	-1	0.0	0.0	0.0
	2(OPE)	250	-834	0	0.0	0.0	0.0
	4(OPE)	204	-681	-6	0.0	0.0	0.0
	6(SUS)	-4	-653	-1	0.0	0.0	0.0
	7(SUS)	-4	-651	-1	0.0	0.0	0.0
	MAX	250/L2	-1034/L1	-6/L4			
610		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	-1	-1137	0	0.0	0.0	0.0
	2(OPE)	-93	-650	171	0.0	0.0	0.0
	4(OPE)	-206	-699	40	0.0	0.0	0.0
	6(SUS)	-1	-712	0	0.0	0.0	0.0
	7(SUS)	-1	-709	0	0.0	0.0	0.0
	MAX	-206/L4	-1137/L1	171/L2			
615		TYPE=Rigid +Y;					
	1(HYD)	3	-1088	1	0.0	0.0	0.0
	2(OPE)	-209	-769	97	0.0	0.0	0.0
	4(OPE)	-208	-763	95	0.0	0.0	0.0
	6(SUS)	1	-738	0	0.0	0.0	0.0
	7(SUS)	1	-735	0	0.0	0.0	0.0
	MAX	-209/L2	-1088/L1	97/L2			
715		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	38	-2214	-43	0.0	0.0	0.0
	2(OPE)	-631	-2107	39	0.0	0.0	0.0
	4(OPE)	-597	-2034	126	0.0	0.0	0.0
	6(SUS)	32	-2028	-40	0.0	0.0	0.0
	7(SUS)	32	-2027	-40	0.0	0.0	0.0
	MAX	-631/L2	-2214/L1	126/L4			
830		TYPE=Rigid +Y; Rigid X					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
		w/gap; Rigid Z w/gap;					
	1(HYD)	48	-957	-27	0.0	0.0	0.0
	2(OPE)	177	-839	-179	0.0	0.0	0.0
	4(OPE)	212	-835	-133	0.0	0.0	0.0
	6(SUS)	39	-842	-26	0.0	0.0	0.0
	7(SUS)	39	-841	-26	0.0	0.0	0.0
	MAX	212/L4	-957/L1	-179/L2			
855		TYPE=Rigid +Y;					
	1(HYD)	-95	-724	69	0.0	0.0	0.0
	2(OPE)	-112	-501	-100	0.0	0.0	0.0
	4(OPE)	-117	-568	-124	0.0	0.0	0.0
	6(SUS)	-75	-586	66	0.0	0.0	0.0
	7(SUS)	-75	-585	66	0.0	0.0	0.0
	MAX	-117/L4	-724/L1	-124/L4			
905		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-12	-686	-41	0.0	0.0	0.0
	2(OPE)	208	-728	67	0.0	0.0	0.0
	4(OPE)	108	-594	59	0.0	0.0	0.0
	6(SUS)	-7	-550	-15	0.0	0.0	0.0
	7(SUS)	-7	-549	-14	0.0	0.0	0.0
	MAX	208/L2	-728/L2	67/L2			
950		TYPE=Rigid ANC;					
	1(HYD)	-447	-1085	232	-125.9	-875.4	237.5
	2(OPE)	-115	-635	564	1018.7	-274.7	-371.8
	4(OPE)	-260	-821	254	129.6	-560.3	37.6
	6(SUS)	-300	-888	164	-104.1	-581.0	179.8
	7(SUS)	-299	-887	164	-103.9	-579.0	179.4
	MAX	-447/L1	-1085/L1	564/L2	1018.7/L2	-875.4/L1	-371.8/L2
1020		TYPE=Rigid +Y;					
	1(HYD)	-121	-2214	27	0.0	0.0	0.0
	2(OPE)	-177	-1300	-347	0.0	0.0	0.0
	4(OPE)	-132	-1234	-346	0.0	0.0	0.0
	6(SUS)	-59	-1200	16	0.0	0.0	0.0
	7(SUS)	-58	-1193	16	0.0	0.0	0.0
	MAX	-177/L2	-2214/L1	-347/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
1030		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	10	-1196	12	0.0	0.0	0.0
	2(OPE)	-299	-702	-284	0.0	0.0	0.0
	4(OPE)	-36	-658	-194	0.0	0.0	0.0
	6(SUS)	3	-650	7	0.0	0.0	0.0
	7(SUS)	3	-647	7	0.0	0.0	0.0
	MAX	-299/L2	-1196/L1	-284/L2			
1040		TYPE=Rigid +Y;					
	1(HYD)	-3	-1541	6	0.0	0.0	0.0
	2(OPE)	9	-827	-248	0.0	0.0	0.0
	4(OPE)	-3	-838	-251	0.0	0.0	0.0
	6(SUS)	-1	-840	3	0.0	0.0	0.0
	7(SUS)	-1	-836	3	0.0	0.0	0.0
	MAX	9/L2	-1541/L1	-251/L4			
1050		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	1	-1450	3	0.0	0.0	0.0
	2(OPE)	19	-794	-237	0.0	0.0	0.0
	4(OPE)	8	-791	-237	0.0	0.0	0.0
	6(SUS)	0	-790	1	0.0	0.0	0.0
	7(SUS)	0	-786	1	0.0	0.0	0.0
	MAX	19/L2	-1450/L1	-237/L2			
1060		TYPE=Rigid +Y;					
	1(HYD)	-0	-1474	1	0.0	0.0	0.0
	2(OPE)	88	-802	-224	0.0	0.0	0.0
	4(OPE)	-22	-803	150	0.0	0.0	0.0
	6(SUS)	-0	-803	1	0.0	0.0	0.0
	7(SUS)	-0	-799	1	0.0	0.0	0.0
	MAX	88/L2	-1474/L1	-224/L2			
1090		TYPE=Rigid ANC;					
	1(HYD)	-225	-1584	-95	2283.3	-210.6	268.4
	2(OPE)	81	-1278	-227	1130.7	431.0	-689.8
	4(OPE)	-113	-1271	-93	1612.2	-78.9	-53.5
	6(SUS)	-157	-1259	-69	1616.3	-157.9	156.5
	7(SUS)	-156	-1257	-69	1612.3	-157.5	155.7
	MAX	-225/L1	-1584/L1	-227/L2	2283.3/L1	431.0/L2	-689.8/L2
1120		TYPE=Rigid ANC;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	1(HYD)	323	-2384	-8	13733.8	3699.8	7118.8
	2(OPE)	924	-1607	-196	3996.8	2226.2	-342.0
	4(OPE)	732	-1706	-47	8625.0	2087.6	2021.8
	6(SUS)	222	-1810	-9	9550.1	2468.5	5494.7
	7(SUS)	221	-1806	-9	9523.4	2461.2	5484.2
	MAX	924/L2	-2384/L1	-196/L2	13733.8/L1	3699.8/L1	7118.8/L1
1140		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-18	-2157	-3	0.0	0.0	0.0
	2(OPE)	-487	-1623	0	0.0	0.0	0.0
	4(OPE)	-524	-1747	-0	0.0	0.0	0.0
	6(SUS)	-13	-1681	-3	0.0	0.0	0.0
	7(SUS)	-13	-1678	-3	0.0	0.0	0.0
	MAX	-524/L4	-2157/L1	-3/L1			
1160		TYPE=Rigid ANC;					
	1(HYD)	83	-1400	-41	1138.0	384.2	164.2
	2(OPE)	117	-1213	67	974.7	780.8	113.5
	4(OPE)	71	-1159	-14	880.8	353.4	104.3
	6(SUS)	57	-1156	-32	863.9	268.2	122.4
	7(SUS)	57	-1154	-32	862.1	267.6	121.9
	MAX	117/L2	-1400/L1	67/L2	1138.0/L1	780.8/L2	164.2/L1
1190		TYPE=Rigid ANC;					
	1(HYD)	425	-2938	66	1294.2	-1190.0	-1762.5
	2(OPE)	-89	-1889	185	3112.2	509.7	-796.7
	4(OPE)	135	-2091	66	1696.7	-499.0	-922.5
	6(SUS)	308	-2173	28	1152.9	-867.2	-1300.7
	7(SUS)	307	-2169	27	1151.9	-865.2	-1297.9
	MAX	425/L1	-2938/L1	185/L2	3112.2/L2	-1190.0/L1	-1762.5/L1
1220		TYPE=Rigid ANC;					
	1(HYD)	275	-2612	127	4861.9	-1803.7	-1850.4
	2(OPE)	1585	-1933	778	12571.2	7344.1	-3527.3
	4(OPE)	1417	-1962	263	6279.8	798.4	-3660.2
	6(SUS)	185	-2032	77	3807.2	-1332.0	-1188.1
	7(SUS)	185	-2028	76	3800.2	-1329.2	-1184.1
	MAX	1585/L2	-2612/L1	778/L2	12571.2/L2	7344.1/L2	-3660.2/L4
1240		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	28	-4629	-21	0.0	0.0	0.0
	2(OPE)	-989	-3295	1	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	-992	-3307	0	0.0	0.0	0.0
	6(SUS)	18	-3262	-15	0.0	0.0	0.0
	7(SUS)	18	-3253	-15	0.0	0.0	0.0
	MAX	-992/L4	-4629/L1	-21/L1			
1270		TYPE=Rigid ANC;					
	1(HYD)	-447	-1209	232	138.5	-875.4	747.0
	2(OPE)	-115	-720	564	1660.2	-274.7	-240.5
	4(OPE)	-260	-906	254	419.1	-560.3	334.2
	6(SUS)	-300	-974	164	82.7	-581.0	521.8
	7(SUS)	-299	-972	164	82.3	-579.0	520.3
	MAX	-447/L1	-1209/L1	564/L2	1660.2/L2	-875.4/L1	747.0/L1
1320		TYPE=Rigid +Y;					
	1(HYD)	337	-2408	-152	0.0	0.0	0.0
	2(OPE)	566	-1891	-39	0.0	0.0	0.0
	4(OPE)	487	-1677	-126	0.0	0.0	0.0
	6(SUS)	203	-1597	-116	0.0	0.0	0.0
	7(SUS)	202	-1591	-116	0.0	0.0	0.0
	MAX	566/L2	-2408/L1	-152/L1			
1350		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	-29	-2172	-96	0.0	0.0	0.0
	2(OPE)	-248	-926	-1007	0.0	0.0	0.0
	4(OPE)	-194	-1127	-277	0.0	0.0	0.0
	6(SUS)	-31	-1204	-56	0.0	0.0	0.0
	7(SUS)	-31	-1197	-56	0.0	0.0	0.0
	MAX	-248/L2	-2172/L1	-1007/L2			
1400		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	0	-1467	1	0.0	0.0	0.0
	2(OPE)	442	-800	1219	0.0	0.0	0.0
	4(OPE)	38	-800	237	0.0	0.0	0.0
	6(SUS)	0	-800	0	0.0	0.0	0.0
	7(SUS)	0	-795	0	0.0	0.0	0.0
	MAX	442/L2	-1467/L1	1219/L2			
1410		TYPE=Rigid +Y;					
	1(HYD)	0	-1470	0	0.0	0.0	0.0
	2(OPE)	0	-800	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	0	-801	0	0.0	0.0	0.0
	6(SUS)	0	-801	0	0.0	0.0	0.0
	7(SUS)	0	-797	0	0.0	0.0	0.0
	MAX		-1470/L1				
1420		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-1464	0	0.0	0.0	0.0
	2(OPE)	99	-801	219	0.0	0.0	0.0
	4(OPE)	129	-799	230	0.0	0.0	0.0
	6(SUS)	-0	-798	0	0.0	0.0	0.0
	7(SUS)	-0	-793	0	0.0	0.0	0.0
	MAX	129/L4	-1464/L1	230/L4			
1430		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1707	0	0.0	0.0	0.0
	2(OPE)	93	-920	260	0.0	0.0	0.0
	4(OPE)	42	-927	275	0.0	0.0	0.0
	6(SUS)	0	-930	0	0.0	0.0	0.0
	7(SUS)	0	-925	0	0.0	0.0	0.0
	MAX	93/L2	-1707/L1	275/L4			
1460		TYPE=Rigid +Y;					
	1(HYD)	-0	-2313	0	0.0	0.0	0.0
	2(OPE)	-310	-1268	42	0.0	0.0	0.0
	4(OPE)	-376	-1263	48	0.0	0.0	0.0
	6(SUS)	-0	-1261	0	0.0	0.0	0.0
	7(SUS)	-0	-1254	0	0.0	0.0	0.0
	MAX	-376/L4	-2313/L1	48/L4			
1490		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1725	0	0.0	0.0	0.0
	2(OPE)	92	-941	-267	0.0	0.0	0.0
	4(OPE)	35	-940	-280	0.0	0.0	0.0
	6(SUS)	0	-940	0	0.0	0.0	0.0
	7(SUS)	0	-935	0	0.0	0.0	0.0
	MAX	92/L2	-1725/L1	-280/L4			
1510		TYPE=Rigid +Y;					
	1(HYD)	-0	-1521	0	0.0	0.0	0.0
	2(OPE)	52	-827	-243	0.0	0.0	0.0
	4(OPE)	76	-828	-236	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	6(SUS)	-0	-829	0	0.0	0.0	0.0
	7(SUS)	-0	-824	0	0.0	0.0	0.0
	MAX	76/L4	-1521/L1	-243/L2			
1520		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1452	0	0.0	0.0	0.0
	2(OPE)	-3	-792	-238	0.0	0.0	0.0
	4(OPE)	61	-792	-229	0.0	0.0	0.0
	6(SUS)	0	-791	0	0.0	0.0	0.0
	7(SUS)	0	-787	0	0.0	0.0	0.0
	MAX	61/L4	-1452/L1	-238/L2			
1530		TYPE=Rigid +Y; Rigid LIM w/gap;					
	1(HYD)	-0	-1483	0	0.0	0.0	0.0
	2(OPE)	-6	-807	242	0.0	0.0	0.0
	4(OPE)	-13	-808	457	0.0	0.0	0.0
	6(SUS)	-0	-808	0	0.0	0.0	0.0
	7(SUS)	-0	-803	0	0.0	0.0	0.0
	MAX	-13/L4	-1483/L1	457/L4			
1540		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1427	0	0.0	0.0	0.0
	2(OPE)	0	-781	234	0.0	0.0	0.0
	4(OPE)	-5	-781	234	0.0	0.0	0.0
	6(SUS)	0	-781	0	0.0	0.0	0.0
	7(SUS)	0	-777	0	0.0	0.0	0.0
	MAX	-5/L4	-1427/L1	234/L2			
1550		TYPE=Rigid +Y;					
	1(HYD)	-0	-1622	0	0.0	0.0	0.0
	2(OPE)	0	-872	262	0.0	0.0	0.0
	4(OPE)	-1	-872	262	0.0	0.0	0.0
	6(SUS)	-0	-872	0	0.0	0.0	0.0
	7(SUS)	-0	-867	0	0.0	0.0	0.0
	MAX	-1/L4	-1622/L1	262/L2			
1570		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-947	0	0.0	0.0	0.0
	2(OPE)	0	-594	178	0.0	0.0	0.0
	4(OPE)	0	-594	178	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	6(SUS)	0	-594	0	0.0	0.0	0.0
	7(SUS)	0	-592	0	0.0	0.0	0.0
	MAX	0/L4	-947/L1	178/L2			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1-U2
12 (OPE) W+T2+P1+U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 6 (SUS) W+P1
 CASE 7 (SUS) WNC
 CASE 18 (OCC) L18=L13+L6
 CASE 19 (OCC) L19=L14+L6
 CASE 20 (OCC) L20=L15+L6
 CASE 21 (OCC) L21=L16+L6
 CASE 22 (OCC) L22=L17+L6
 CASE 23 (EXP) L23=L2-L6
 CASE 24 (EXP) L24=L4-L6
 CASE 25 (EXP) L25=L2-L4

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP			
Ratio (%) :	13.4	@Node	120
Code Stress:	4693.3	Allowable Stress:	35000.0
Axial Stress:	1375.3	@Node	130
Bending Stress:	4410.5	@Node	138
Torsion Stress:	444.8	@Node	1308
Hoop Stress:	2687.6	@Node	130
Max Stress Intensity:	5720.7	@Node	138

CODE STRESS CHECK PASSED : LOADCASE 6 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 6 (SUS) W+P1			
Ratio (%) :	44.3	@Node	120
Code Stress:	8858.4	Allowable Stress:	20000.0
Axial Stress:	2838.5	@Node	130
Bending Stress:	7525.6	@Node	138
Torsion Stress:	783.3	@Node	1308
Hoop Stress:	5317.8	@Node	130
Max Stress Intensity:	10179.6	@Node	138

CODE STRESS CHECK PASSED : LOADCASE 7 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 7 (SUS) WNC			
Ratio (%) :	31.1	@Node	120
Code Stress:	6211.9	Allowable Stress:	20000.0
Axial Stress:	719.1	@Node	280
Bending Stress:	7500.4	@Node	138
Torsion Stress:	780.7	@Node	1308
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	7527.7	@Node	138

CODE STRESS CHECK PASSED : LOADCASE 18 (OCC) L18=L13+L6

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 18 (OCC) L18=L13+L6

Ratio (%) :	39.0	@Node	160	
Code Stress:	10378.8	Allowable Stress:		26600.0
Axial Stress:	2808.1	@Node	120	
Bending Stress:	10337.7	@Node	160	
Torsion Stress:	1178.0	@Node	530	
Hoop Stress:	5317.8	@Node	130	
Max Stress Intensity:	13002.3	@Node	160	

CODE STRESS CHECK PASSED : LOADCASE 19 (OCC) L19=L14+L6

Highest Stresses: (lb./sq.in.) LOADCASE 19 (OCC) L19=L14+L6

Ratio (%) :	36.5	@Node	160	
Code Stress:	9701.1	Allowable Stress:		26600.0
Axial Stress:	2930.0	@Node	130	
Bending Stress:	9438.3	@Node	160	
Torsion Stress:	816.1	@Node	1308	
Hoop Stress:	5317.8	@Node	130	
Max Stress Intensity:	12100.6	@Node	160	

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L6

Highest Stresses: (lb./sq.in.) LOADCASE 20 (OCC) L20=L15+L6

Ratio (%) :	36.1	@Node	120	
Code Stress:	9591.6	Allowable Stress:		26600.0
Axial Stress:	2853.3	@Node	130	
Bending Stress:	8446.0	@Node	138	
Torsion Stress:	696.5	@Node	1308	
Hoop Stress:	5317.8	@Node	130	
Max Stress Intensity:	11103.4	@Node	138	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L6

Highest Stresses: (lb./sq.in.) LOADCASE 21 (OCC) L21=L16+L6

Ratio (%) :	36.1	@Node	120	
Code Stress:	9591.5	Allowable Stress:		26600.0
Axial Stress:	2827.0	@Node	130	
Bending Stress:	8441.2	@Node	138	
Torsion Stress:	881.4	@Node	1308	
Hoop Stress:	5317.8	@Node	130	
Max Stress Intensity:	11098.6	@Node	138	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L6

Highest Stresses: (lb./sq.in.) LOADCASE 22 (OCC) L22=L17+L6

Ratio (%) :	44.0	@Node	310	
Code Stress:	11700.8	Allowable Stress:		26600.0
Axial Stress:	2879.7	@Node	130	
Bending Stress:	8226.0	@Node	138	
Torsion Stress:	2316.8	@Node	310	
Hoop Stress:	5317.8	@Node	130	
Max Stress Intensity:	11700.8	@Node	310	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 23 (EXP) L23=L2-L6

Highest Stresses: (lb./sq.in.) LOADCASE 23 (EXP) L23=L2-L6
 Ratio (%): 8.4 @Node 1010
 Code Stress: 3845.0 Allowable Stress: 45763.4
 Axial Stress: 524.6 @Node 310
 Bending Stress: 3803.5 @Node 1010
 Torsion Stress: 938.8 @Node 1000
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 10202.8 @Node 1010

CODE STRESS CHECK PASSED : LOADCASE 24 (EXP) L24=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 24 (EXP) L24=L4-L6
 Ratio (%): 8.5 @Node 1449
 Code Stress: 4010.1 Allowable Stress: 47029.2
 Axial Stress: 256.2 @Node 310
 Bending Stress: 3975.7 @Node 1449
 Torsion Stress: 203.4 @Node 1000
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 10639.9 @Node 1449

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 25 (EXP) L25=L2-L4
 Ratio (%): 6.7 @Node 1010
 Code Stress: 3051.8 Allowable Stress: 45763.4
 Axial Stress: 268.5 @Node 310
 Bending Stress: 3019.7 @Node 1010
 Torsion Stress: 735.4 @Node 1000
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 8098.0 @Node 1010

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Table of contents:

Line no.

Stress sketch

Input echo

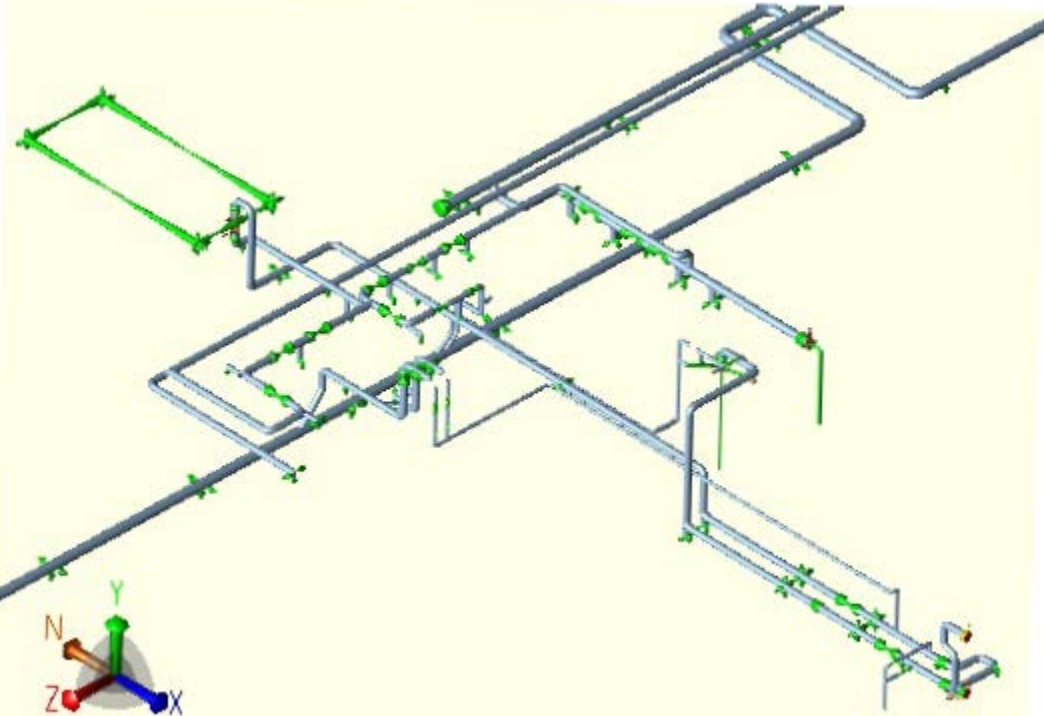
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0021-AN07-2"-PT
2. GAS-111-0022-AN07-2"-PT
3. FL-112-0011-AN07-10"-PT
4. FL-112-0009-AN07-6"-PT
5. FL-112-0010-AN07-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OPE) W+T2+P1+F2
17 (OCC) L17=L10-L4
18 (OCC) L18=L11-L4
19 (OCC) L19=L12-L4
20 (OCC) L20=L13-L4
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17+L8
25 (OCC) L25=L18+L8
26 (OCC) L26=L19+L8
27 (OCC) L27=L20+L8
28 (OCC) L28=L21+L8
29 (OCC) L29=L22+L8
30 (OCC) L30=L23+L8
31 (EXP) L31=L2-L8
32 (EXP) L32=L4-L8
33 (EXP) L33=L2-L4
34 (EXP) L34=L6-L8
35 (EXP) L35=L2-L6
36 (EXP) L36=L4-L6

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) AUG 29, 2023 16:10:30

PIPE DATA

 From 10 To 20 DZ= -19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F T3= 392 F P1= 108.7808 lb./sq.in.
 PHyd= 163.1712 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
 EH2= 29,393,378 lb./sq.in. EH3= 27,748,188 lb./sq.in.
 EH4= 29,500,856 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RESTRAINTS

Node 20 +Y Mu = .30
 Node 10 +Y Mu = .30
 Node 10 X Gap= .118 in. Mu = .30
 Node 10 Z Gap= .118 in. Mu = .30

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

SIF's & TEE's

Node 10 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 20 To 30 DZ= -19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 28,875,074 lb./sq.in. EH2= 29,393,378 lb./sq.in.
 EH3= 27,748,188 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000542 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 30 +Y Mu = .30

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INPUT LISTING

Node 30 X

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 30 To 40 DZ= -19.685 ft.

GENERAL

P2= .0000 lb./sq.in.

RESTRAINTS

Node 40 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 40 To 50 DZ= -19.685 ft.

RESTRAINTS

Node 50 +Y Mu = .30

Node 50 X Gap= .118 in.

 From 50 To 60 DZ= -19.685 ft.

RESTRAINTS

Node 60 +Y Mu = .30

 From 60 To 70 DZ= -19.685 ft.

RESTRAINTS

Node 70 +Y Mu = .30

Node 70 X Gap= .118 in.

 From 70 To 80 DZ= -19.685 ft.

RESTRAINTS

Node 80 +Y Mu = .30

 From 80 To 90 DZ= -3.510 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 89
 Angle/Node @2= .00 88

 From 90 To 100 DX= 11.483 ft.

RESTRAINTS

Node 100 +Y

 From 100 To 110 DX= 17.388 ft.

RESTRAINTS

Node 110 +Y Mu = .30

Node 110 Z

 From 110 To 120 DX= 14.108 ft.

 From 120 To 130 DX= .318 ft.

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INPUT LISTING

From 130 To 135 DX= 7.103 ft.

From 135 To 170 DY= .417 ft.

RIGID Weight= .00 lb.

From 135 To 140 DX= 5.702 ft.

RESTRAINTS

Node 140 +Y Mu = .30

From 140 To 150 DX= 16.404 ft.

RESTRAINTS

Node 150 +Y Mu = .00

Node 150 Z

From 150 To 160 DX= .820 ft.

From 170 To 180 DX= 2.352 ft. DY= 1.936 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 50.550 Angle/Node @1= 25.27 179

Angle/Node @2= .00 178

From 180 To 190 DY= 2.060 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 189

Angle/Node @2= .00 188

From 190 To 200 DZ= 11.493 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 199

Angle/Node @2= .00 198

From 200 To 210 DX= 3.274 ft.

From 210 To 340 DY= .333 ft.

RIGID Weight= .00 lb.

From 210 To 220 DX= 5.892 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 219

Angle/Node @2= .00 218

From 220 To 230 DY= 6.932 ft.

From 230 To 235 DZ= .333 ft.

RIGID Weight= .00 lb.

From 230 To 240 DY= 4.236 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 239

Angle/Node @2= .00 238

From 240 To 250 DZ= 1.001 ft.

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INPUT LISTING

From 250 To 260 DZ= .344 ft.

RIGID Weight= 40.00 lb.

From 260 To 270 DZ= 1.529 ft.

RIGID Weight= 508.00 lb.

From 270 To 280 DZ= .344 ft.

RIGID Weight= 40.00 lb.

From 280 To 290 DZ= .869 ft.

RESTRAINTS

Node 290 +Y

Node 290 X Gap= .118 in. Mu = .30

Node 290 Z Gap= .118 in. Mu = .30

From 290 To 300 DZ= .869 ft.

From 300 To 310 DY= .083 ft. DZ= .502 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

From 310 To 330 DZ= .302 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RIGID Weight= 25.00 lb.

From 340 To 350 DX= 1.821 ft. DY= 1.488 ft.

PIPE

Dia= 8.625 in. Wall= .406 in.

Insul Thk= .000 in.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 50.753 Angle/Node @1= 25.38 349

Angle/Node @2= .00 348

From 350 To 355 DY= 5.112 ft.

From 355 To 890 DZ= .333 ft.

RIGID Weight= .00 lb.

From 355 To 360 DY= 4.236 ft.

BEND at "TO" end

Radius= 12.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 359

Angle/Node @2= .00 358

From 360 To 370 DZ= 1.001 ft.

From 370 To 380 DZ= .344 ft.

RIGID Weight= 40.00 lb.

From 380 To 390 DZ= 1.529 ft.

RIGID Weight= 508.00 lb.

From 390 To 400 DZ= .344 ft.

RIGID Weight= 40.00 lb.

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INPUT LISTING

From 400 To 405 DZ= .869 ft.

RESTRAINTS

Node 405 +Y

Node 405 X Gap= .118 in. Mu = .30

Node 405 Z Gap= .118 in. Mu = .30

From 405 To 410 DZ= .869 ft.

From 410 To 420 DY= .083 ft. DZ= .502 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

From 420 To 430 DZ= .302 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

RIGID Weight= 25.00 lb.

From 330 To 440 DZ= .302 ft.

GENERAL

T1= 185 F T2= 99 F T3= 99 F P1= 130.5369 lb./sq.in.

PHyd= 195.8054 lb./sq.in. Fluid Den= .0002168 lb./cu.in.

Insul Den= .0000000 lb./cu.in.

RIGID Weight= 25.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 440 To 450 DZ= .354 ft.

RIGID Weight= 25.00 lb.

From 450 To 460 DY= -.401 ft.

PIPE

Dia= 4.500 in. Wall= .337 in.

Insul Thk= .000 in.

RIGID Weight= 16.00 lb.

FORCES & MOMENTS

Node 460 FY1= 337.23 lb. FZ1= 449.64 lb.

From 460 To 470 DY= -.260 ft.

RIGID Weight= 16.00 lb.

From 470 To 480 DY= -.260 ft.

RIGID Weight= 16.00 lb.

From 480 To 490 DY= -.459 ft.

REDUCER

Diam2= 6.625 in. Wall2= .432 in.

From 490 To 500 DY= -1.106 ft.

PIPE

Dia= 6.625 in. Wall= .432 in.

Insul Thk= .000 in.

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INPUT LISTING

From 500 To 510 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 510 To 520 DY= -.906 ft.

RIGID Weight= 226.00 lb.

From 520 To 530 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 530 To 540 DY= -.354 ft.

From 540 To 550 DY= -1.155 ft.

From 550 To 560 DY= -1.444 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 559

Angle/Node @2= .00 558

From 560 To 625 DX= -2.036 ft.

RESTRAINTS

Node 625 +Y Mu = .30

From 625 To 690 DX= -2.036 ft.

From 430 To 570 DZ= .302 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 99 F T3= 99 F P1= 130.5369 lb./sq.in.

P2= .0000 lb./sq.in. PHyd= 195.8054 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.

EH2= 29,309,386 lb./sq.in. EH3= 29,309,386 lb./sq.in.

EH4= 29,500,856 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0002168 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= 25.00 lb.

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 570 To 580 DZ= .354 ft.

RIGID Weight= 25.00 lb.

From 580 To 590 DY= -.401 ft.

PIPE

Dia= 4.500 in. Wall= .337 in.

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      Insul Thk= .000 in.
RIGID Weight= 16.00 lb.
FORCES & MOMENTS
      Node 590   FY2= 337.23 lb.   FZ2= 449.64 lb.
-----
From 590 To 600 DY= -.260 ft.
RIGID Weight= 16.00 lb.
-----
From 600 To 610 DY= -.260 ft.
RIGID Weight= 16.00 lb.
-----
From 610 To 620 DY= -.459 ft.
REDUCER
      Diam2= 6.625 in.   Wall2= .432 in.
-----
From 620 To 630 DY= -1.106 ft.
PIPE
      Dia= 6.625 in.   Wall= .432 in.
      Insul Thk= .000 in.
-----
From 630 To 640 DY= -.302 ft.
RIGID Weight= 25.00 lb.
-----
From 640 To 650 DY= -.906 ft.
RIGID Weight= 226.00 lb.
-----
From 650 To 660 DY= -.302 ft.
RIGID Weight= 25.00 lb.
-----
From 660 To 670 DY= -.354 ft.
-----
From 670 To 680 DY= -1.155 ft.
-----
From 680 To 690 DY= -1.444 ft.
SIF's & TEE's
      Node 690   Welding Tee
-----
From 690 To 700 DX= -1.588 ft.
BEND at "TO" end
      Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 699
      Angle/Node @2= .00 698
-----
From 700 To 710 DZ= -6.562 ft.
BEND at "TO" end
      Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 709
      Angle/Node @2= .00 708
-----
From 710 To 720 DX= -4.085 ft.
-----
From 720 To 860 DY= -.250 ft.
RIGID Weight= .00 lb.
-----
From 720 To 750 DX= -10.827 ft.
BEND at "TO" end
      Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 749
      Angle/Node @2= .00 748

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-----
From 750 To 760 DZ= 3.675 ft.
BEND at "TO" end
  Radius= 9.000 in. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 759
  Angle/Node @2= .00 758
-----
From 760 To 770 DY= -.751 ft.
-----
From 770 To 780 DY= -.302 ft.
RIGID Weight= 25.00 lb.
RESTRAINTS
  Node 780 ANC   Cnode 781
-----
From 781 To 790 DY= -.302 ft.
RIGID Weight= 25.00 lb.
-----
From 790 To 800 DY= -.574 ft.
RESTRAINTS
  Node 800 ANC   Cnode 801
-----
From 800 To 810 DY= -2.500 ft.
PIPE
  Dia= 60.000 in.   Wall= .432 in.
  Insul Thk= .000 in.
RIGID Weight= .00 lb.
-----
From 810 To 871 DX= 10.827 ft.   DY= 2.962 ft.   DZ= -3.675 ft.
RIGID Weight= .00 lb.
-----
From 810 To 820 DX= 8.989 ft.
RIGID Weight= .00 lb.
-----
From 820 To 830 DY= -2.500 ft.
RIGID Weight= .00 lb.
RESTRAINTS
  Node 830 ANC
-----
From 810 To 840 DX= -2.461 ft.
RIGID Weight= .00 lb.
-----
From 840 To 850 DY= -2.500 ft.
RIGID Weight= .00 lb.
RESTRAINTS
  Node 850 +Y   Mu = .30
  Node 850 Z   Gap= .118 in.   Mu = .30
-----
From 860 To 870 DY= -1.217 ft.
PIPE
  Dia= 4.500 in.   Wall= .237 in.   Cor= .0000 in.
GENERAL
  T1= 70 F   T2= 70 F   T3= 70 F   P1= .0000 lb./sq.in.
  PHyd= .0000 lb./sq.in.   Mat= (102)A53 Grade B   E= 29,500,856 lb./sq.in.
  EH1= 29,500,856 lb./sq.in.   EH2= 29,500,856 lb./sq.in.
  EH3= 29,500,856 lb./sq.in.   EH4= 29,500,856 lb./sq.in.
  EH5= 29,500,856 lb./sq.in.   EH6= 29,500,856 lb./sq.in.
  EH7= 29,500,856 lb./sq.in.   EH8= 29,500,856 lb./sq.in.

```

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EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 870 +Y Cnode 871 Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 235 To 880 DZ= .984 ft.

PIPE

Dia= 6.625 in. Wall= .280 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 880 +Y Mu = .30

 From 890 To 900 DZ= .984 ft.

RESTRAINTS

Node 900 +Y Mu = .30

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MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
20	30	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
430	570	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
860	870	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.

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ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 19,908 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
20	30	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

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INPUT LISTING

		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 19,908 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
30	40	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 19,908 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
330	440	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
430	570	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
860	870	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.

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INPUT LISTING

Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

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BEND ELEMENTS

80	90	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 89
		Angle/Node @2= .00 88
170	180	Radius= 12.000 in. (LONG)
		Bend Angle= 50.550 Angle/Node @1= 25.27
		179 Angle/Node @2= .00 178
180	190	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		189 Angle/Node @2= .00 188
190	200	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		199 Angle/Node @2= .00 198
210	220	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		219 Angle/Node @2= .00 218
230	240	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		239 Angle/Node @2= .00 238
340	350	Radius= 12.000 in. (LONG)
		Bend Angle= 50.753 Angle/Node @1= 25.38
		349 Angle/Node @2= .00 348
355	360	Radius= 12.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		359 Angle/Node @2= .00 358
550	560	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		559 Angle/Node @2= .00 558
690	700	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		699 Angle/Node @2= .00 698
700	710	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		709 Angle/Node @2= .00 708
720	750	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		749 Angle/Node @2= .00 748
750	760	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		759 Angle/Node @2= .00 758

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RIGIDS

135	170	RIGID Weight= .00 lb.
210	340	RIGID Weight= .00 lb.
230	235	RIGID Weight= .00 lb.
250	260	RIGID Weight= 40.00 lb.
260	270	RIGID Weight= 508.00 lb.

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270	280	RIGID	Weight= 40.00 lb.
310	330	RIGID	Weight= 25.00 lb.
355	890	RIGID	Weight= .00 lb.
370	380	RIGID	Weight= 40.00 lb.
380	390	RIGID	Weight= 508.00 lb.
390	400	RIGID	Weight= 40.00 lb.
420	430	RIGID	Weight= 25.00 lb.
330	440	RIGID	Weight= 25.00 lb.
440	450	RIGID	Weight= 25.00 lb.
450	460	RIGID	Weight= 16.00 lb.
460	470	RIGID	Weight= 16.00 lb.
470	480	RIGID	Weight= 16.00 lb.
500	510	RIGID	Weight= 25.00 lb.
510	520	RIGID	Weight= 226.00 lb.
520	530	RIGID	Weight= 25.00 lb.
430	570	RIGID	Weight= 25.00 lb.
570	580	RIGID	Weight= 25.00 lb.
580	590	RIGID	Weight= 16.00 lb.
590	600	RIGID	Weight= 16.00 lb.
600	610	RIGID	Weight= 16.00 lb.
630	640	RIGID	Weight= 25.00 lb.
640	650	RIGID	Weight= 226.00 lb.
650	660	RIGID	Weight= 25.00 lb.
720	660	RIGID	Weight= .00 lb.
770	780	RIGID	Weight= 25.00 lb.
781	790	RIGID	Weight= 25.00 lb.
800	810	RIGID	Weight= .00 lb.
810	871	RIGID	Weight= .00 lb.
810	820	RIGID	Weight= .00 lb.
820	830	RIGID	Weight= .00 lb.
810	840	RIGID	Weight= .00 lb.
840	850	RIGID	Weight= .00 lb.

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SIF's & TEE's

10	20	Node 10	<No Type Specified>
		SIF(in)= 2.080	SIF(out)= 2.460
680	690	Node 690	Welding Tee

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REDUCERS

300	310	Diam2= 6.625 in.	Wall2= .432 in.
410	420	Diam2= 6.625 in.	Wall2= .432 in.
480	490	Diam2= 6.625 in.	Wall2= .432 in.
610	620	Diam2= 6.625 in.	Wall2= .432 in.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP	MU YIELD FORCE	Dir Vectors
20	+Y				.30	.000 1.000 .000

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10	+Y			.30	.000	1.000	.000
10	X		.12	.30	1.000	.000	.000
10	Z		.12	.30	.000	.000	1.000
30	+Y			.30	.000	1.000	.000
30	X				1.000	.000	.000
40	+Y			.30	.000	1.000	.000
50	+Y			.30	.000	1.000	.000
50	X		.12		1.000	.000	.000
60	+Y			.30	.000	1.000	.000
70	+Y			.30	.000	1.000	.000
70	X		.12		1.000	.000	.000
80	+Y			.30	.000	1.000	.000
100	+Y				.000	1.000	.000
110	+Y			.30	.000	1.000	.000
110	Z				.000	.000	1.000
140	+Y			.30	.000	1.000	.000
150	+Y			.00	.000	1.000	.000
150	Z				.000	.000	1.000
290	+Y				.000	1.000	.000
290	X		.12	.30	1.000	.000	.000
290	Z		.12	.30	.000	.000	1.000
405	+Y				.000	1.000	.000
405	X		.12	.30	1.000	.000	.000
405	Z		.12	.30	.000	.000	1.000
625	+Y			.30	.000	1.000	.000
780	ANC	781			.000	.000	.000
800	ANC	801			.000	.000	.000
830	ANC				.000	.000	.000
850	+Y			.30	.000	1.000	.000
850	Z		.12	.30	.000	.000	1.000
870	+Y	871		.30	.000	1.000	.000
880	+Y			.30	.000	1.000	.000
900	+Y			.30	.000	1.000	.000

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FORCES AND MOMENTS

450	460	Node 460	FY1= 337.23 lb.
			FZ1= 449.64 lb.
580	590	Node 590	FY2= 337.23 lb.
			FZ2= 449.64 lb.

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UNIFORM LOAD Changes

10	20	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's

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430          570          Vector1 in G-s
                      X1 Dir = .26 g's   Y1 Dir = .00 g's
                      Z1 Dir = .00 g's
                      Vector2 in G-s
                      X2 Dir = .00 g's   Y2 Dir = .12 g's
                      Z2 Dir = .00 g's
                      Vector3 in G-s
                      X3 Dir = .00 g's   Y3 Dir = .00 g's
                      Z3 Dir = .26 g's

```

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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	=	in.
FORCE	pounds	x	1.000	=	lb.
MASS (dynamics)	pounds	x	1.000	=	lbm
MOMENTS (INPUT)	inch-pounds	x	1.000	=	in.lb.
MOMENTS (OUTPUT)	inch-pounds	x	0.083	=	ft.lb.
STRESS	lbs./sq.in.	x	1.000	=	lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	=	F
PRESSURE	psig	x	1.000	=	lb./sq.in.
ELASTIC MODULUS	lbs./sq.in.	x	1.000	=	lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	=	lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	=	lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	=	in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	=	lb./in.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	144.000	=	lb./sq.ft.
ELEVATION	inches	x	0.083	=	ft.
COMPOUND LENGTH	inches	x	0.083	=	ft.
DIAMETER	inches	x	1.000	=	in.
WALL THICKNESS	inches	x	1.000	=	in.

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SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =             5.00000
MAX ALLOWED BEND ANGLE =             95.0000
BEND LENGTH ATTACHMENT PERCENT =     1.00000
MIN ANGLE TO ADJACENT BEND PT =      5.00000
LOOP CLOSURE TOLERANCE =             1.00000      in.
THERMAL BOWING HORZ TOLERANCE =      0.100000E-03
AUTO NODE NUMBER INCREMENT=         10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =             DEFAULT
ALPHA TOLERANCE =                     0.500000E-01
RESLD-FORCE =                         NO
HGR DEF RESWGT STIF =                 0.100000E+13 lb./in.
DECOMP SNG TOL =                     0.100000E+11
BEND AXIAL SHAPE =                    YES
FRICT STIF =                         0.100000E+07 lb./in.
FRICT NORM FORCE VAR =                0.150000

```

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INPUT LISTING

```

FRICT ANGLE VAR = 15.0000
FRICT SLIDE MULT = 1.00000
ROD TOLERANCE = 1.00000
ROD INC = 2.00000
INCORE NUMERICAL CHECK = NO
OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.100000E+13 lb./in.
DEFAULT ROT RESTRAINT STIFF= 0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 70.0000 F
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 12.0000 F
FRP Density = 0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING = NO

```

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INPUT LISTING

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 F
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 69.794 F
Plastic (FRP) Alpha ..... 12.000
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X

```

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COORDINATE REPORT

```

/----- (in.) -----/
NODE      X      Y      Z
10      -618.113   -291.169   288.355
20      -618.113   -291.169    52.135
30      -618.113   -291.169  -184.086
40      -618.113   -291.169  -420.306
50      -618.113   -291.169  -656.527
60      -618.113   -291.169  -892.747
70      -618.113   -291.169 -1128.968
80      -618.113   -291.169 -1365.188
90      -618.113   -291.169 -1407.314
100     -480.318   -291.169 -1407.314
110     -271.657   -291.169 -1407.314
120     -102.365   -291.169 -1407.314
130      -98.546   -291.169 -1407.314
135     -13.310   -291.169 -1407.314
170     -13.310   -286.169 -1407.314
135     -13.310   -291.169 -1407.314
140       55.115   -291.169 -1407.314
150      251.965   -291.169 -1407.314
160      261.808   -291.169 -1407.314
170     -13.310   -286.169 -1407.314
180       14.918   -262.940 -1407.314
190       14.918   -238.216 -1407.314
200       14.918   -238.216 -1269.401
210       54.209   -238.216 -1269.401
340       54.209   -234.216 -1269.401
210       54.209   -238.216 -1269.401
220      124.918   -238.216 -1269.401
230      124.918   -155.027 -1269.401
235      124.918   -155.027 -1265.401
230      124.918   -155.027 -1269.401

```

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INPUT LISTING

240	124.918	-104.200	-1269.401
250	124.918	-104.200	-1257.393
260	124.918	-104.200	-1253.259
270	124.918	-104.200	-1234.913
280	124.918	-104.200	-1230.779
290	124.918	-104.200	-1220.346
300	124.918	-104.200	-1209.912
310	124.918	-103.200	-1203.889
330	124.918	-103.200	-1200.264
340	54.209	-234.216	-1269.401
350	76.060	-216.366	-1269.401
355	76.060	-155.027	-1269.401
890	76.060	-155.027	-1265.401
355	76.060	-155.027	-1269.401
360	76.060	-104.200	-1269.401
370	76.060	-104.200	-1257.393
380	76.060	-104.200	-1253.259
390	76.060	-104.200	-1234.913
400	76.060	-104.200	-1230.779
405	76.060	-104.200	-1220.346
410	76.060	-104.200	-1209.912
420	76.060	-103.200	-1203.889
430	76.060	-103.200	-1200.264
330	124.918	-103.200	-1200.264
440	124.918	-103.200	-1196.639
450	124.918	-103.200	-1192.387
460	124.918	-108.008	-1192.387
470	124.918	-111.133	-1192.387
480	124.918	-114.258	-1192.387
490	124.918	-119.770	-1192.387
500	124.918	-133.038	-1192.387
510	124.918	-136.663	-1192.387
520	124.918	-147.529	-1192.387
530	124.918	-151.154	-1192.387
540	124.918	-155.406	-1192.387
550	124.918	-169.264	-1192.387
560	124.918	-186.587	-1192.387
625	100.489	-186.587	-1192.387
690	76.060	-186.587	-1192.387
430	76.060	-103.200	-1200.264
570	76.060	-103.200	-1196.639
580	76.060	-103.200	-1192.387
590	76.060	-108.008	-1192.387
600	76.060	-111.133	-1192.387
610	76.060	-114.258	-1192.387
620	76.060	-119.770	-1192.387
630	76.060	-133.038	-1192.387
640	76.060	-136.663	-1192.387
650	76.060	-147.529	-1192.387
660	76.060	-151.154	-1192.387
670	76.060	-155.406	-1192.387
680	76.060	-169.264	-1192.387
690	76.060	-186.587	-1192.387
700	57.005	-186.587	-1192.387
710	57.005	-186.587	-1271.127
720	7.989	-186.587	-1271.127

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INPUT LISTING

860	7.989	-189.587	-1271.127
720	7.989	-186.587	-1271.127
750	-121.932	-186.587	-1271.127
760	-121.932	-186.587	-1227.032
770	-121.932	-195.603	-1227.032
780	-121.932	-199.228	-1227.032
790	-121.932	-202.853	-1227.032
800	-121.932	-209.742	-1227.032
810	-121.932	-239.742	-1227.032
870	7.989	-204.193	-1271.127
810	-121.932	-239.742	-1227.032
820	-14.058	-239.742	-1227.032
830	-14.058	-269.742	-1227.032
810	-121.932	-239.742	-1227.032
840	-151.460	-239.742	-1227.032
850	-151.460	-269.742	-1227.032
860	7.989	-189.587	-1271.127
870	7.989	-204.193	-1271.127
235	124.918	-155.027	-1265.401
880	124.918	-155.027	-1253.590
890	76.060	-155.027	-1265.401
900	76.060	-155.027	-1253.590

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OPE) W+T2+P1+F2
17 (OCC) L17=L10-L4
18 (OCC) L18=L11-L4
19 (OCC) L19=L12-L4
20 (OCC) L20=L13-L4
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17+L8
25 (OCC) L25=L18+L8
26 (OCC) L26=L19+L8
27 (OCC) L27=L20+L8
28 (OCC) L28=L21+L8
29 (OCC) L29=L22+L8
30 (OCC) L30=L23+L8
31 (EXP) L31=L2-L8
32 (EXP) L32=L4-L8
33 (EXP) L33=L2-L4
34 (EXP) L34=L6-L8
35 (EXP) L35=L2-L6
36 (EXP) L36=L4-L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	-0	-580	-0	0.0	0.0	0.0
	2(OPE)	0	-315	2182	0.0	0.0	0.0
	4(OPE)	-0	-315	94	0.0	0.0	0.0
	6(OPE)	1	-315	3286	0.0	0.0	0.0
	8(SUS)	-0	-315	-0	0.0	0.0	0.0
	9(SUS)	-0	-314	-0	0.0	0.0	0.0
	MAX	1/L6	-580/L1	3286/L6			
20		TYPE=Rigid +Y;					
	1(HYD)	0	-1664	-0	0.0	0.0	0.0
	2(OPE)	-10	-903	-271	0.0	0.0	0.0
	4(OPE)	-1	-903	271	0.0	0.0	0.0
	6(OPE)	1	-903	-271	0.0	0.0	0.0
	8(SUS)	0	-903	-0	0.0	0.0	0.0
	9(SUS)	0	-902	-0	0.0	0.0	0.0
	MAX	-10/L2	-1664/L1	-271/L6			
30		TYPE=Rigid +Y; Rigid X;					
	1(HYD)	-0	-1417	-0	0.0	0.0	0.0
	2(OPE)	15	-769	-231	0.0	0.0	0.0
	4(OPE)	0	-769	231	0.0	0.0	0.0
	6(OPE)	-38	-769	-231	0.0	0.0	0.0
	8(SUS)	-0	-769	-0	0.0	0.0	0.0
	9(SUS)	-0	-768	-0	0.0	0.0	0.0
	MAX	-38/L6	-1417/L1	231/L4			
40		TYPE=Rigid +Y;					
	1(HYD)	0	-1481	-0	0.0	0.0	0.0
	2(OPE)	14	-804	-241	0.0	0.0	0.0
	4(OPE)	0	-804	241	0.0	0.0	0.0
	6(OPE)	2	-805	-241	0.0	0.0	0.0
	8(SUS)	0	-804	-0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	9(SUS)	0	-803	-0	0.0	0.0	0.0
	MAX	14/L2	-1481/L1	-241/L6			
50		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-1471	-0	0.0	0.0	0.0
	2(OPE)	23	-797	-238	0.0	0.0	0.0
	4(OPE)	4	-799	-71	0.0	0.0	0.0
	6(OPE)	303	-794	-238	0.0	0.0	0.0
	8(SUS)	-0	-799	-0	0.0	0.0	0.0
	9(SUS)	-0	-798	-0	0.0	0.0	0.0
	MAX	303/L6	-1471/L1	-238/L2			
60		TYPE=Rigid +Y;					
	1(HYD)	0	-1446	-1	0.0	0.0	0.0
	2(OPE)	14	-790	-237	0.0	0.0	0.0
	4(OPE)	12	-784	-235	0.0	0.0	0.0
	6(OPE)	26	-802	-239	0.0	0.0	0.0
	8(SUS)	0	-784	-0	0.0	0.0	0.0
	9(SUS)	0	-783	-0	0.0	0.0	0.0
	MAX	26/L6	-1446/L1	-239/L6			
70		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-1	-1560	-2	0.0	0.0	0.0
	2(OPE)	-419	-826	-246	0.0	0.0	0.0
	4(OPE)	-33	-847	-252	0.0	0.0	0.0
	6(OPE)	-1652	-780	-234	0.0	0.0	0.0
	8(SUS)	-0	-848	-1	0.0	0.0	0.0
	9(SUS)	-0	-847	-1	0.0	0.0	0.0
	MAX	-1652/L6	-1560/L1	-252/L4			
80		TYPE=Rigid +Y;					
	1(HYD)	15	-1243	-4	0.0	0.0	0.0
	2(OPE)	-67	-698	-198	0.0	0.0	0.0
	4(OPE)	-95	-677	-180	0.0	0.0	0.0
	6(OPE)	-66	-743	-213	0.0	0.0	0.0
	8(SUS)	9	-675	-2	0.0	0.0	0.0
	9(SUS)	9	-674	-2	0.0	0.0	0.0
	MAX	-95/L4	-1243/L1	-213/L6			
100		TYPE=Rigid +Y;					
	1(HYD)	0	-950	0	0.0	0.0	0.0
	2(OPE)	0	-475	0	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	0	-505	0	0.0	0.0	0.0
	6(OPE)	0	-413	0	0.0	0.0	0.0
	8(SUS)	0	-511	0	0.0	0.0	0.0
	9(SUS)	0	-510	0	0.0	0.0	0.0
	MAX		-950/L1				
110		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	30	-1898	38	0.0	0.0	0.0
	2(OPE)	-343	-1145	-1007	0.0	0.0	0.0
	4(OPE)	-316	-1052	-60	0.0	0.0	0.0
	6(OPE)	-400	-1335	-3245	0.0	0.0	0.0
	8(SUS)	18	-1038	23	0.0	0.0	0.0
	9(SUS)	18	-1037	23	0.0	0.0	0.0
	MAX	-400/L6	-1898/L1	-3245/L6			
140		TYPE=Rigid +Y;					
	1(HYD)	53	-2446	185	0.0	0.0	0.0
	2(OPE)	545	-1835	74	0.0	0.0	0.0
	4(OPE)	429	-1457	83	0.0	0.0	0.0
	6(OPE)	757	-2555	120	0.0	0.0	0.0
	8(SUS)	31	-1380	115	0.0	0.0	0.0
	9(SUS)	31	-1378	114	0.0	0.0	0.0
	MAX	757/L6	-2555/L6	185/L1			
150		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	0	-374	-26	0.0	0.0	0.0
	2(OPE)	0	-135	-57	0.0	0.0	0.0
	4(OPE)	0	-188	-9	0.0	0.0	0.0
	6(OPE)	0	-30	-174	0.0	0.0	0.0
	8(SUS)	0	-197	-16	0.0	0.0	0.0
	9(SUS)	0	-197	-16	0.0	0.0	0.0
	MAX		-374/L1	-174/L6			
290		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	0	-1202	0	0.0	0.0	0.0
	2(OPE)	0	0	0	0.0	0.0	0.0
	4(OPE)	0	0	0	0.0	0.0	0.0
	6(OPE)	45	55	237	0.0	0.0	0.0
	8(SUS)	0	-1076	0	0.0	0.0	0.0
	9(SUS)	0	-1075	0	0.0	0.0	0.0
	MAX	45/L6	-1202/L1	237/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
405		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	0	-1628	0	0.0	0.0	0.0
	2(OPE)	0	0	0	0.0	0.0	0.0
	4(OPE)	0	0	0	0.0	0.0	0.0
	6(OPE)	74	151	562	0.0	0.0	0.0
	8(SUS)	0	-1373	0	0.0	0.0	0.0
	9(SUS)	0	-1372	0	0.0	0.0	0.0
	MAX	74/L6	-1628/L1	562/L6			
625		TYPE=Rigid +Y;					
	1(HYD)	0	0	0	0.0	0.0	0.0
	2(OPE)	280	-1346	291	0.0	0.0	0.0
	4(OPE)	99	-1378	46	0.0	0.0	0.0
	6(OPE)	86	-348	60	0.0	0.0	0.0
	8(SUS)	0	0	0	0.0	0.0	0.0
	9(SUS)	0	0	0	0.0	0.0	0.0
	MAX	280/L2	-1378/L4	291/L2			
780		TYPE=Rigid ANC;					
	1(HYD)	-13	-315	22	-614.9	17.0	35.9
	2(OPE)	-170	-218	-12	-275.4	512.2	68.4
	4(OPE)	-44	-224	8	-382.5	125.9	34.1
	6(OPE)	255	-283	55	-327.8	-987.2	-270.1
	8(SUS)	-11	-231	17	-440.1	14.3	25.6
	9(SUS)	-11	-231	17	-439.1	14.2	25.6
	MAX	255/L6	-315/L1	55/L6	-614.9/L1	-987.2/L6	-270.1/L6
800		TYPE=Rigid ANC;					
	1(HYD)	-0	0	0	0.0	-0.0	0.0
	2(OPE)	0	0	0	0.0	0.0	-0.0
	4(OPE)	0	0	0	0.0	0.0	0.0
	6(OPE)	-0	0	0	0.0	0.0	0.0
	8(SUS)	0	0	0	0.0	-0.0	0.0
	9(SUS)	0	0	0	0.0	0.0	0.0
	MAX	-0/L6	0/L2	0/L2		0.0/L6	-0.0/L2
830		TYPE=Rigid ANC;					
	1(HYD)	-24	-853	-101	-3410.8	289.5	605.3
	2(OPE)	-227	-728	-164	-3492.3	1067.3	966.6
	4(OPE)	-74	-678	-119	-3022.8	699.5	599.1
	6(OPE)	313	-568	147	-618.4	-808.4	-316.8

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	8(SUS)	-17	-611	-73	-2439.1	214.0	438.2
	9(SUS)	-17	-610	-73	-2434.2	214.0	437.3
	MAX	313/L6	-853/L1	-164/L2	-3492.3/L2	1067.3/L2	966.6/L2
850		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-10	-152	17	0.0	0.0	0.0
	2(OPE)	-48	-161	0	0.0	0.0	0.0
	4(OPE)	-39	-129	0	0.0	0.0	0.0
	6(OPE)	-18	-60	-0	0.0	0.0	0.0
	8(SUS)	-7	-117	13	0.0	0.0	0.0
	9(SUS)	-7	-117	13	0.0	0.0	0.0
	MAX	-48/L2	-161/L2	17/L1			
870		TYPE=Rigid +Y;					
	1(HYD)	-21	-639	-106	0.0	0.0	0.0
	2(OPE)	-107	-630	-156	0.0	0.0	0.0
	4(OPE)	-82	-542	-141	0.0	0.0	0.0
	6(OPE)	36	-304	84	0.0	0.0	0.0
	8(SUS)	-13	-456	-78	0.0	0.0	0.0
	9(SUS)	-13	-455	-78	0.0	0.0	0.0
	MAX	-107/L2	-639/L1	-156/L2			
880		TYPE=Rigid +Y;					
	1(HYD)	76	-547	-6	0.0	0.0	0.0
	2(OPE)	197	-658	15	0.0	0.0	0.0
	4(OPE)	127	-794	21	0.0	0.0	0.0
	6(OPE)	183	-688	96	0.0	0.0	0.0
	8(SUS)	49	-363	-5	0.0	0.0	0.0
	9(SUS)	49	-363	-5	0.0	0.0	0.0
	MAX	197/L2	-794/L4	96/L6			
900		TYPE=Rigid +Y;					
	1(HYD)	-139	-1870	-101	0.0	0.0	0.0
	2(OPE)	171	-1366	372	0.0	0.0	0.0
	4(OPE)	-115	-1671	0	0.0	0.0	0.0
	6(OPE)	364	-2041	492	0.0	0.0	0.0
	8(SUS)	-83	-1187	-52	0.0	0.0	0.0
	9(SUS)	-83	-1187	-52	0.0	0.0	0.0
	MAX	364/L6	-2041/L6	492/L6			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OPE) W+T2+P1+F2
17 (OCC) L17=L10-L4
18 (OCC) L18=L11-L4
19 (OCC) L19=L12-L4
20 (OCC) L20=L13-L4
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17+L8
25 (OCC) L25=L18+L8
26 (OCC) L26=L19+L8
27 (OCC) L27=L20+L8
28 (OCC) L28=L21+L8
29 (OCC) L29=L22+L8
30 (OCC) L30=L23+L8
31 (EXP) L31=L2-L8
32 (EXP) L32=L4-L8
33 (EXP) L33=L2-L4
34 (EXP) L34=L6-L8
35 (EXP) L35=L2-L6
36 (EXP) L36=L4-L6

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 24 (OCC) L24=L17+L8
 CASE 25 (OCC) L25=L18+L8
 CASE 26 (OCC) L26=L19+L8
 CASE 27 (OCC) L27=L20+L8
 CASE 28 (OCC) L28=L21+L8
 CASE 29 (OCC) L29=L22+L8
 CASE 30 (OCC) L30=L23+L8
 CASE 31 (EXP) L31=L2-L8
 CASE 32 (EXP) L32=L4-L8
 CASE 33 (EXP) L33=L2-L4
 CASE 34 (EXP) L34=L6-L8
 CASE 35 (EXP) L35=L2-L6
 CASE 36 (EXP) L36=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP
 Ratio (%): 8.8 @Node 140
 Code Stress: 3070.4 Allowable Stress: 35000.0
 Axial Stress: 1084.2 @Node 120
 Bending Stress: 2586.1 @Node 890
 Torsion Stress: 137.1 @Node 180
 Hoop Stress: 2239.7 @Node 20
 Max Stress Intensity: 3102.9 @Node 140

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 8 (SUS) W+P1
 Ratio (%): 25.9 @Node 140
 Code Stress: 5153.7 Allowable Stress: 19908.0
 Axial Stress: 2195.1 @Node 120
 Bending Stress: 2964.8 @Node 140
 Torsion Stress: 179.5 @Node 180
 Hoop Stress: 4431.5 @Node 20
 Max Stress Intensity: 5198.8 @Node 140

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 9 (SUS) WNC
 Ratio (%): 15.3 @Node 610
 Code Stress: 3050.9 Allowable Stress: 20000.0
 Axial Stress: 449.9 @Node 610
 Bending Stress: 2961.3 @Node 140
 Torsion Stress: 179.3 @Node 180

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	3050.9	@Node	610

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L17+L8

Highest Stresses: (lb./sq.in.) LOADCASE 24 (OCC) L24=L17+L8			
Ratio (%) :	26.7	@Node	610
Code Stress:	7093.1	Allowable Stress:	26600.0
Axial Stress:	2295.4	@Node	110
Bending Stress:	5249.4	@Node	610
Torsion Stress:	1374.1	@Node	480
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	7244.3	@Node	480

CODE STRESS CHECK PASSED : LOADCASE 25 (OCC) L25=L18+L8

Highest Stresses: (lb./sq.in.) LOADCASE 25 (OCC) L25=L18+L8			
Ratio (%) :	33.9	@Node	610
Code Stress:	9019.8	Allowable Stress:	26600.0
Axial Stress:	2330.6	@Node	140
Bending Stress:	5673.4	@Node	610
Torsion Stress:	1643.9	@Node	610
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	9034.3	@Node	610

CODE STRESS CHECK PASSED : LOADCASE 26 (OCC) L26=L19+L8

Highest Stresses: (lb./sq.in.) LOADCASE 26 (OCC) L26=L19+L8			
Ratio (%) :	20.8	@Node	140
Code Stress:	5515.6	Allowable Stress:	26477.7
Axial Stress:	2212.3	@Node	50
Bending Stress:	3323.3	@Node	140
Torsion Stress:	163.0	@Node	180
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	5568.0	@Node	140

CODE STRESS CHECK PASSED : LOADCASE 27 (OCC) L27=L20+L8

Highest Stresses: (lb./sq.in.) LOADCASE 27 (OCC) L27=L20+L8			
Ratio (%) :	43.0	@Node	480
Code Stress:	11429.3	Allowable Stress:	26600.0
Axial Stress:	2235.8	@Node	120
Bending Stress:	9603.4	@Node	480
Torsion Stress:	558.3	@Node	610
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	12378.1	@Node	480

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L8

Highest Stresses: (lb./sq.in.) LOADCASE 28 (OCC) L28=L21+L8			
Ratio (%) :	24.9	@Node	110
Code Stress:	6604.1	Allowable Stress:	26477.7
Axial Stress:	2387.5	@Node	40

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Bending Stress:	4387.6	@Node	480
Torsion Stress:	488.0	@Node	480
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	7207.1	@Node	480

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L8

Highest Stresses: (lb./sq.in.) LOADCASE 29 (OCC) L29=L22+L8			
Ratio (%):	53.4	@Node	480
Code Stress:	14196.1	Allowable Stress:	26600.0
Axial Stress:	2198.5	@Node	120
Bending Stress:	12456.2	@Node	480
Torsion Stress:	749.0	@Node	610
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	15144.9	@Node	480

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L8

Highest Stresses: (lb./sq.in.) LOADCASE 30 (OCC) L30=L23+L8			
Ratio (%):	36.1	@Node	610
Code Stress:	9610.0	Allowable Stress:	26600.0
Axial Stress:	2190.2	@Node	120
Bending Stress:	7707.3	@Node	610
Torsion Stress:	234.0	@Node	698
Hoop Stress:	4431.5	@Node	20
Max Stress Intensity:	9624.5	@Node	610

CODE STRESS CHECK PASSED : LOADCASE 31 (EXP) L31=L2-L8

Highest Stresses: (lb./sq.in.) LOADCASE 31 (EXP) L31=L2-L8			
Ratio (%):	13.7	@Node	89
Code Stress:	6504.5	Allowable Stress:	47496.2
Axial Stress:	190.0	@Node	610
Bending Stress:	6446.2	@Node	89
Torsion Stress:	892.1	@Node	200
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	17258.5	@Node	89

CODE STRESS CHECK PASSED : LOADCASE 32 (EXP) L32=L4-L8

Highest Stresses: (lb./sq.in.) LOADCASE 32 (EXP) L32=L4-L8			
Ratio (%):	2.3	@Node	625
Code Stress:	1069.8	Allowable Stress:	46468.0
Axial Stress:	188.3	@Node	610
Bending Stress:	1045.8	@Node	625
Torsion Stress:	199.3	@Node	698
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	2673.1	@Node	610

CODE STRESS CHECK PASSED : LOADCASE 33 (EXP) L33=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 33 (EXP) L33=L2-L4			
Ratio (%):	12.4	@Node	89

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Code Stress:	5900.6	Allowable Stress:	47496.2
Axial Stress:	175.3	@Node	20
Bending Stress:	5853.3	@Node	89
Torsion Stress:	712.8	@Node	200
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	15655.4	@Node	89

CODE STRESS CHECK PASSED : LOADCASE 34 (EXP) L34=L6-L8

Highest Stresses: (lb./sq.in.) LOADCASE 34 (EXP) L34=L6-L8

Ratio (%) :	45.7	@Node	89
Code Stress:	21645.1	Allowable Stress:	47381.2
Axial Stress:	276.0	@Node	20
Bending Stress:	21456.7	@Node	89
Torsion Stress:	2144.7	@Node	200
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	57430.6	@Node	89

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L2-L6

Highest Stresses: (lb./sq.in.) LOADCASE 35 (EXP) L35=L2-L6

Ratio (%) :	32.0	@Node	89
Code Stress:	15140.6	Allowable Stress:	47381.2
Axial Stress:	183.0	@Node	610
Bending Stress:	15010.5	@Node	89
Torsion Stress:	1252.6	@Node	200
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	40172.2	@Node	89

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 36 (EXP) L36=L4-L6

Ratio (%) :	44.4	@Node	89
Code Stress:	21041.2	Allowable Stress:	47381.2
Axial Stress:	268.0	@Node	20
Bending Stress:	20863.8	@Node	89
Torsion Stress:	1965.4	@Node	200
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	55827.5	@Node	89

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Line no.

Stress sketch

Input echo

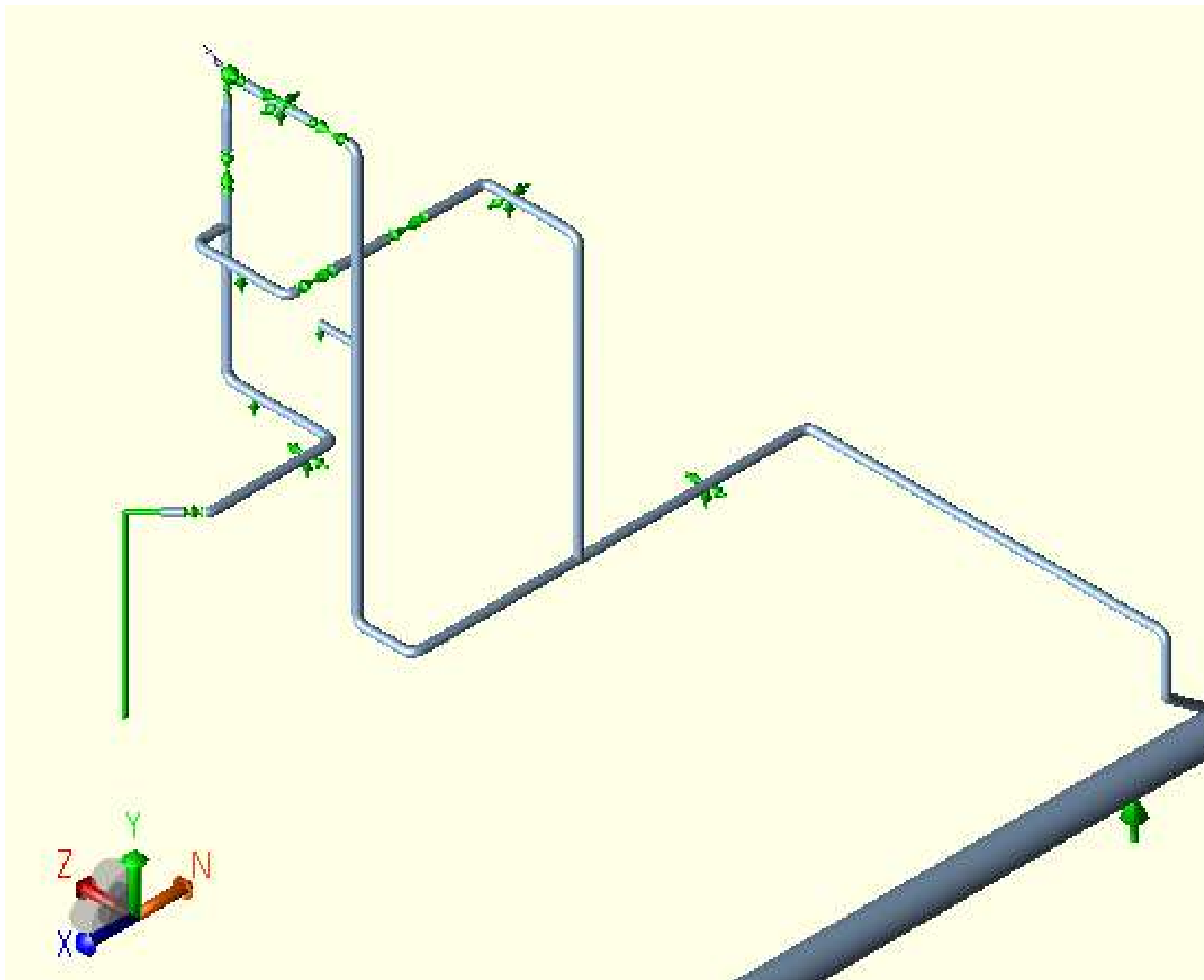
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. FLG-111-0011-AN07-2"-PT
2. FL-112-0033-AN07-2"-PT
3. FL-112-0034-AN07-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T4+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OCC) L16=L10-L1
17 (OCC) L17=L11-L4
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16+L8
23 (OCC) L23=L17+L8
24 (OCC) L24=L18+L8
25 (OCC) L25=L19+L8
26 (OCC) L26=L20+L8
27 (OCC) L27=L21+L8
28 (EXP) L28=L2-L8
29 (EXP) L29=L4-L8
30 (EXP) L30=L2-L4
31 (EXP) L31=L6-L8
32 (EXP) L32=L2-L6
33 (EXP) L33=L4-L6

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Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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File created by FEATools

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PIPE DATA

From 10 To 20 DZ= -6.000 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm. Cor= .6000 cm.

GENERAL

T1= 85 C T2= 30 C T3= 21 C T4= 30 C P1= 750.0171 KPa
 PHyd= 1,125.0256 KPa Mat= (106)A106 Grade B E= 203,401,232 KPa
 EH1= 199,086,608 KPa EH2= 202,660,192 KPa EH3= 203,401,232 KPa
 EH4= 202,660,192 KPa EH5= 203,401,232 KPa EH6= 203,401,232 KPa
 EH7= 203,401,232 KPa EH8= 203,401,232 KPa EH9= 203,401,232 KPa
 v = .292 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000015 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0001362 kg./cu.cm.

RESTRAINTS

Node 20 +Y Mu = .30
 Node 10 +Y Mu = .30
 Node 10 X Gap= .300 cm. Mu = .30
 Node 10 Z Gap= .300 cm. Mu = .30

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

SIF's & TEE's

Node 10 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

From 20 To 30 DZ= -6.000 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm. Cor= .6000 cm.

GENERAL

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
 EH2= 202,660,192 KPa EH3= 203,401,232 KPa EH4= 202,660,192 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000015 kg./cu.cm.
 Insul Thk= .000 cm.

RESTRAINTS

Node 30 +Y Mu = .30
 Node 30 X

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

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Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa

From 30 To 40 DZ= -6.000 m.

GENERAL

P2= .0000 KPa

RESTRAINTS

Node 40 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 40 To 50 DZ= -6.000 m.

RESTRAINTS

Node 50 +Y Mu = .30

Node 50 X Gap= .300 cm.

From 50 To 60 DZ= -6.000 m.

RESTRAINTS

Node 60 +Y Mu = .30

From 60 To 70 DZ= -6.000 m.

RESTRAINTS

Node 70 +Y Mu = .30

Node 70 X Gap= .300 cm.

From 70 To 80 DZ= -6.000 m.

RESTRAINTS

Node 80 +Y Mu = .30

From 80 To 90 DZ= -1.070 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 89

Angle/Node @2= .00 88

From 90 To 100 DX= 3.500 m.

RESTRAINTS

Node 100 +Y

From 100 To 110 DX= 5.300 m.

RESTRAINTS

Node 110 +Y Mu = .30

Node 110 Z

Node 110 X

From 110 To 120 DX= 4.300 m.

From 120 To 130 DX= .097 m.

From 130 To 140 DX= 3.153 m.

From 140 To 150 DY= .127 m.

RIGID Weight= .00 N.

SIF's & TEE's

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INPUT LISTING

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Node 150 Weldolet Pad= .927 cm.
-----
From 140 To 160 DX= .750 m.
RESTRAINTS
Node 160 +Y Mu = .30
-----
From 160 To 170 DX= 5.000 m.
RESTRAINTS
Node 170 +Y Mu = .00
Node 170 Z
-----
From 170 To 180 DX= .250 m.
-----
From 150 To 190 DX= .466 m. DY= .339 m.
PIPE
Dia= 6.032 cm. Wall= .874 cm.
Insul Thk= .000 cm.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 53.965 Angle/Node @1= 26.98 189
Angle/Node @2= .00 188
-----
From 190 To 200 DY= .495 m.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 199
Angle/Node @2= .00 198
-----
From 200 To 210 DZ= 3.205 m.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 209
Angle/Node @2= .00 208
-----
From 210 To 560 DX= .908 m.
RESTRAINTS
Node 560 +Y Mu = .30
Node 560 Z Gap= .300 cm. Mu = .30
-----
From 560 To 570 DX= 1.140 m.
SIF's & TEE's
Node 570 Welding Tee
-----
From 570 To 580 DY= 2.504 m.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579
Angle/Node @2= .00 578
-----
From 580 To 590 DZ= .622 m.
RESTRAINTS
Node 590 +Y Mu = .30
Node 590 X Gap= .300 cm.
-----
From 590 To 600 DZ= .210 m.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 599
Angle/Node @2= .00 598
-----
From 600 To 610 DX= .545 m.

```

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INPUT LISTING

```

-----
From 610 To 620 DX= .067 m.
RIGID Weight= 31.14 N.
-----
From 620 To 630 DX= .212 m.
RIGID Weight= 271.34 N.
-----
From 630 To 640 DX= .067 m.
RIGID Weight= 31.14 N.
-----
From 640 To 645 DX= .243 m.
RESTRAINTS
    Node 645 +Y Mu = .30
-----
From 645 To 650 DX= .243 m.
-----
From 650 To 660 DX= .067 m.
RIGID Weight= 31.14 N.
-----
From 660 To 670 DX= .187 m.
RIGID Weight= 209.07 N.
-----
From 670 To 680 DX= .067 m.
RIGID Weight= 31.14 N.
-----
From 680 To 690 DX= .077 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 689
    Angle/Node @2= .00 688
-----
From 690 To 695 DZ= .412 m.
RESTRAINTS
    Node 695 +Y Mu = .30
-----
From 695 To 700 DZ= .412 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG) Bend Angle= 90.059 Angle/Node @1= 45.03 699
    Angle/Node @2= .00 698
-----
From 700 To 440 DX= -.289 m. DY= -.001 m. DZ= -.000 m.
-----
From 570 To 220 DX= 1.484 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 219
    Angle/Node @2= .00 218
-----
From 220 To 230 DZ= .493 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 229
    Angle/Node @2= .00 228
-----
From 230 To 240 DY= 2.151 m.
-----
From 240 To 710 DZ= .025 m.
RIGID Weight= .00 N.
SIF's & TEE's

```


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INPUT LISTING

```

Node 710      Unreinforced Tee
-----
From 240 To 250 DY= .352 m.
SIF's & TEE's
Node 250      Welding Tee
-----
From 250 To 260 DY= 1.177 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 259
    Angle/Node @2= .00 258
-----
From 260 To 270 DZ= .077 m.
-----
From 270 To 280 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 280 To 290 DZ= .187 m.
RIGID Weight= 209.07 N.
-----
From 290 To 300 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 300 To 310 DZ= .290 m.
RESTRAINTS
    Node 310 +Y
    Node 310 X
    Node 310 Z    Gap= .300 cm.
-----
From 310 To 320 DZ= .290 m.
-----
From 320 To 330 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 330 To 340 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 340 To 350 DZ= .052 m.
RIGID Weight= 31.14 N.
FORCES & MOMENTS
    Node 350    FY1= 500.02 N.    FZ1= 1,000.05 N.
-----
From 350 To 360 DY= -.056 m.    DZ= .000 m.
PIPE
    Dia= 3.340 cm.    Wall= .909 cm.
    Insul Thk= .000 cm.
RIGID Weight= 15.57 N.
-----
From 360 To 370 DY= -.059 m.
RIGID Weight= 15.57 N.
-----
From 370 To 380 DY= -.059 m.
RIGID Weight= 15.57 N.
-----
From 380 To 390 DY= -.165 m.
REDUCER
    Diam2= 6.032 cm.    Wall2= .874 cm.

```

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INPUT LISTING

```

-----
From 390 To 400 DY= -.250 m.
PIPE
  Dia= 6.032 cm. Wall= .874 cm.
  Insul Thk= .000 cm.
-----
From 400 To 410 DY= -.067 m.
RIGID Weight= 31.14 N.
-----
From 410 To 420 DY= -.187 m.
RIGID Weight= 209.07 N.
-----
From 420 To 430 DY= -.067 m.
RIGID Weight= 31.14 N.
-----
From 430 To 440 DY= -.269 m.
SIF's & TEE's
  Node 440 Weldolet
-----
From 440 To 450 DY= -.354 m.
-----
From 450 To 460 DY= -.837 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 459
  Angle/Node @2= .00 458
-----
From 460 To 470 DX= .000 m. DZ= -.243 m.
RESTRAINTS
  Node 470 +Y Mu = .30
-----
From 470 To 475 DX= .000 m. DZ= -.717 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 474
  Angle/Node @2= .00 473
-----
From 475 To 477 DX= .243 m.
RESTRAINTS
  Node 477 +Y Mu = .30
  Node 477 Z Gap= .300 cm.
-----
From 477 To 480 DX= .867 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 479
  Angle/Node @2= .00 478
-----
From 480 To 490 DX= .025 m. DZ= .025 m.
-----
From 490 To 500 DX= .050 m. DZ= .050 m.
RIGID Weight= 31.14 N.
RESTRAINTS
  Node 500 ANC Cnode 510
-----
From 510 To 520 DX= .047 m. DZ= .047 m.
RIGID Weight= 31.14 N.
-----
From 520 To 530 DX= .098 m. DZ= .098 m.

```

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INPUT LISTING

RESTRAINTS

Node 530 ANC Cnode 531

From 531 To 540 DX= .162 m. DZ= .162 m.

PIPE

Dia= 45.720 cm. Wall= .874 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

From 540 To 550 DY= -1.590 m.

RIGID Weight= .00 N.

RESTRAINTS

Node 550 ANC

From 710 To 720 DZ= .300 m.

PIPE

Dia= 4.826 cm. Wall= .368 cm. Cor= .0000 cm.

GENERAL

T1= 21 C T2= 21 C T3= 21 C P1= .0000 KPa PHyd= .0000 KPa

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa

EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 202,660,192 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000000 kg./cu.cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 720 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

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MATERIAL Changes:

10 20 Mat= (106)A106 Grade B E= 203,401,232 KPa

v = .292 Density= .0078 kg./cu.cm.

20 30 Mat= (106)A106 Grade B E= 203,401,232 KPa

v = .292 Density= .0078 kg./cu.cm.

710 720 Mat= (102)A53 Grade B E= 203,401,232 KPa

v = .292 Density= .0078 kg./cu.cm.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-011-))EQHOLD\BNK-G

ALLOWABLE STRESS Changes

10 20 B31.3 (2016) Cycle Max Switch = ---

Sc= 137,895 KPa Sh1= 137,895 KPa

Sh2= 137,895 KPa Sh3= 137,895 KPa

Sh4= 137,895 KPa Sh5= 137,895 KPa

Sh6= 137,895 KPa Sh7= 137,895 KPa

Sh8= 137,895 KPa Sh9= 137,895 KPa

Sy= 241,316 KPa

20 30 B31.3 (2016) Cycle Max Switch = ---

Sc= 137,895 KPa Sh1= 137,895 KPa

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INPUT LISTING

		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
30	40	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
710	720	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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BEND ELEMENTS

80	90	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 89
		Angle/Node @2= .00 88
150	190	Radius= 7.620 cm. (LONG)
		Bend Angle= 53.965 Angle/Node @1= 26.98
		189 Angle/Node @2= .00 188
190	200	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		199 Angle/Node @2= .00 198
200	210	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		209 Angle/Node @2= .00 208
570	580	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
590	600	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		599 Angle/Node @2= .00 598
680	690	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		689 Angle/Node @2= .00 688
695	700	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.059 Angle/Node @1= 45.03
		699 Angle/Node @2= .00 698
570	220	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		219 Angle/Node @2= .00 218
220	230	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		229 Angle/Node @2= .00 228
250	260	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00

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INPUT LISTING

450	460	259 Angle/Node @2= .00 258 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
470	475	459 Angle/Node @2= .00 458 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
477	480	474 Angle/Node @2= .00 473 Radius= 7.620 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50
		479 Angle/Node @2= .00 478

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RIGIDS

140	150	RIGID Weight= .00 N.
610	620	RIGID Weight= 31.14 N.
620	630	RIGID Weight= 271.34 N.
630	640	RIGID Weight= 31.14 N.
650	660	RIGID Weight= 31.14 N.
660	670	RIGID Weight= 209.07 N.
670	680	RIGID Weight= 31.14 N.
240	710	RIGID Weight= .00 N.
270	280	RIGID Weight= 31.14 N.
280	290	RIGID Weight= 209.07 N.
290	300	RIGID Weight= 31.14 N.
320	330	RIGID Weight= 31.14 N.
330	340	RIGID Weight= 31.14 N.
340	350	RIGID Weight= 31.14 N.
350	360	RIGID Weight= 15.57 N.
360	370	RIGID Weight= 15.57 N.
370	380	RIGID Weight= 15.57 N.
400	410	RIGID Weight= 31.14 N.
410	420	RIGID Weight= 209.07 N.
420	430	RIGID Weight= 31.14 N.
490	500	RIGID Weight= 31.14 N.
510	520	RIGID Weight= 31.14 N.
531	540	RIGID Weight= .00 N.
540	550	RIGID Weight= .00 N.

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SIF's & TEE's

10	20	Node 10 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460
140	150	Node 150 Weldolet Pad= .927 cm.
560	570	Node 570 Welding Tee
240	710	Node 710 Unreinforced Tee
240	250	Node 250 Welding Tee
430	440	Node 440 Weldolet

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REDUCERS

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INPUT LISTING

380 390 Diam2= 6.032 cm. Wall2= .874 cm.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
20	+Y				.30	.000 1.000 .000
10	+Y				.30	.000 1.000 .000
10	X			.30	.30	1.000 .000 .000
10	Z			.30	.30	.000 .000 1.000
30	+Y				.30	.000 1.000 .000
30	X					1.000 .000 .000
40	+Y				.30	.000 1.000 .000
50	+Y				.30	.000 1.000 .000
50	X			.30		1.000 .000 .000
60	+Y				.30	.000 1.000 .000
70	+Y				.30	.000 1.000 .000
70	X			.30		1.000 .000 .000
80	+Y				.30	.000 1.000 .000
100	+Y					.000 1.000 .000
110	+Y				.30	.000 1.000 .000
110	Z					.000 .000 1.000
110	X					1.000 .000 .000
160	+Y				.30	.000 1.000 .000
170	+Y				.00	.000 1.000 .000
170	Z					.000 .000 1.000
560	+Y				.30	.000 1.000 .000
560	Z			.30	.30	.000 .000 1.000
590	+Y				.30	.000 1.000 .000
590	X			.30		1.000 .000 .000
645	+Y				.30	.000 1.000 .000
695	+Y				.30	.000 1.000 .000
310	+Y					.000 1.000 .000
310	X					1.000 .000 .000
310	Z			.30		.000 .000 1.000
470	+Y				.30	.000 1.000 .000
477	+Y				.30	.000 1.000 .000
477	Z			.30		.000 .000 1.000
500	ANC	510				.000 .000 .000
530	ANC	531				.000 .000 .000
550	ANC					.000 .000 .000
720	+Y				.30	.000 1.000 .000

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FORCES AND MOMENTS

340 350 Node 350 FY1= 500.02 N.

FZ1= 1,000.05 N.

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UNIFORM LOAD Changes

10

20

Vector1 in G-s

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INPUT LISTING

X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS=	SI	NOM/SCH	INPUT=	ON				
LENGTH		inches	x	2.540	=	cm.		
FORCE		pounds	x	4.448	=	N.		
MASS (dynamics)		pounds	x	0.454	=	Kg.		
MOMENTS (INPUT)		inch-pounds	x	0.113	=	N.m.		
MOMENTS (OUTPUT)		inch-pounds	x	0.113	=	N.m.		
STRESS		lbs./sq.in.	x	6.895	=	KPa		
TEMP. SCALE		degrees F.	x	0.556	=	C		
PRESSURE		psig	x	6.895	=	KPa		
ELASTIC MODULUS		lbs./sq.in.	x	6.895	=	KPa		
PIPE DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
INSULATION DENS.		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
FLUID DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
TRANSL. STIF		lbs./in.	x	1.751	=	N./cm.		
ROTATIONAL STIF		in.lb./deg.	x	0.113	=	N.m./deg		
UNIFORM LOAD		lb./in.	x	1.751	=	N./cm.		
G LOAD		g's	x	1.000	=	g's		
WIND LOAD		lbs./sq.in.	x	6.895	=	KPa		
ELEVATION		inches	x	0.025	=	m.		
COMPOUND LENGTH		inches	x	0.025	=	m.		
DIAMETER		inches	x	2.540	=	cm.		
WALL THICKNESS		inches	x	2.540	=	cm.		

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SETUP FILE PARAMETERS

```

CONNECT GEOMETRY THRU CNODES = YES
MIN ALLOWED BEND ANGLE = 5.00000
MAX ALLOWED BEND ANGLE = 95.0000
BEND LENGTH ATTACHMENT PERCENT = 1.00000
MIN ANGLE TO ADJACENT BEND PT = 5.00000
LOOP CLOSURE TOLERANCE = 2.54000 cm.
THERMAL BOWING HORZ TOLERANCE = 0.100000E-03
AUTO NODE NUMBER INCREMENT= 10.0000
Z AXIS UP= NO
USE PRESSURE STIFFENING = DEFAULT
ALPHA TOLERANCE = 0.500000E-01
RESLD-FORCE = NO
HGR DEF RESWGT STIF = 0.175127E+13 N./cm.
DECOMP SNG TOL = 0.100000E+11
BEND AXIAL SHAPE = YES
FRICT STIF = 0.175127E+07 N./cm.
FRICT NORM FORCE VAR = 0.150000
FRICT ANGLE VAR = 15.0000

```

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```

FRICT SLIDE MULT =                1.00000
ROD TOLERANCE =                  1.00000
ROD INC =                        2.00000
INCORE NUMERICAL CHECK =          NO
OUTCORE NUMERICAL CHECK =          NO
DEFAULT TRANS RESTRAINT STIFF=    0.175127E+13    N./cm.
DEFAULT ROT RESTRAINT STIFF=      0.112985E+12    N.m./deg
IGNORE SPRING HANGER STIFFNESS =  NO
MISSING MASS ZPA =                EXTRACTED
MIN WALL MILL TOLERANCE =         12.5000
WRC-107 VERSION =                 MAR 79 1B1/2B1
WRC-107 INTERPOLATION =           LAST VALUE
DEFAULT AMBIENT TEMPERATURE=      21.1111        C
BOURDON PRESSURE=                 NONE
COEFFICIENT OF FRICTION (MU) =    0.000000
INCLUDE SPRG STIF IN HGR OPE =    NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION =            B31.1 (POST1980)
USE WRC329                        NO
NO REDUCED SIF FOR RFT AND WLT    NO
B31.1 REDUCED Z FIX =              YES
CLASS 1 BRANCH FLEX               NO
ALL STRESS CASES CORRODED =       NO
ADD TORSION IN SL STRESS =         DEFAULT
ADD F/A IN STRESS =               DEFAULT
OCCASIONAL LOAD FACTOR =          0.000000
DEFAULT CODE =                    B31.3
B31.3 SUS CASE SIF FACTOR =        0.000000
ALLOW USERS BEND SIF =            NO
USE SCHNEIDER                     NO
YIELD CRITERION STRESS =           MAX 3D SHEAR
USE PD/4T                          NO
BASE HOOP STRESS ON ? =            ID
EN13480 USE IN OUTPLANE SIFS=      NO
LIBERAL EXPANSION ALLOWABLE=       YES
B31.3 SEC 319.2.3C SAXIAL=         Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE=    DEFAULT
IMPLEMENT B313 APP-P               NO
IMPLEMENT B313 CODE CASE 178       YES
IGNORE B31.1/B31.3 Wc FACTOR=      YES
USE FRP SIF =                      YES
USE FRP FLEX =                     YES
BS 7159 Pressure Stiffening=       Design Strain
FRP Property Data File=             CAESAR.FRP
FRP Emod (axial) =                  0.220632E+08    KPa
FRP Ratio Gmod/Emod (axial) =       0.250000
FRP Ea/Eh*Vh/a =                    0.152730
FRP Laminate Type =                 THREE
FRP Alpha =                         21.6000        C
FRP Density =                       0.166079E-02    kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING =    NO
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INPUT LISTING

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 C
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 20.997 C
Plastic (FRP) Alpha ..... 21.600
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X

```

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COORDINATE REPORT

```

/----- (cm.) -----/
NODE      X      Y      Z
10      -1570.008    -739.568    732.422
20      -1570.008    -739.568    132.422
30      -1570.008    -739.568   -467.578
40      -1570.008    -739.568  -1067.578
50      -1570.008    -739.568  -1667.578
60      -1570.008    -739.568  -2267.578
70      -1570.008    -739.568  -2867.578
80      -1570.008    -739.568  -3467.578
90      -1570.008    -739.568  -3574.578
100     -1220.008    -739.568  -3574.578
110      -690.008    -739.568  -3574.578
120     -260.008    -739.568  -3574.578
130     -250.308    -739.568  -3574.578
140       64.992    -739.568  -3574.578
150       64.992   -726.868  -3574.578
140       64.992    -739.568  -3574.578
160      139.992    -739.568  -3574.578
170      639.992    -739.568  -3574.578
180      664.992    -739.568  -3574.578
150       64.992   -726.868  -3574.578
190      111.592   -692.968  -3574.578
200      111.592   -643.468  -3574.578
210      111.592   -643.468  -3254.078
560      202.392   -643.468  -3254.078
570      316.392   -643.468  -3254.078
580      316.392   -393.068  -3254.078
590      316.392   -393.068  -3191.878
600      316.392   -393.068  -3170.878
610      370.892   -393.068  -3170.878
620      377.559   -393.068  -3170.878
630      398.759   -393.068  -3170.878

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INPUT LISTING

640	405.427	-393.068	-3170.878
645	429.677	-393.068	-3170.878
650	453.927	-393.068	-3170.878
660	460.594	-393.068	-3170.878
670	479.294	-393.068	-3170.878
680	485.962	-393.068	-3170.878
690	493.662	-393.068	-3170.878
695	493.662	-393.068	-3129.628
700	493.662	-393.068	-3088.378
440	464.792	-393.151	-3088.408
570	316.392	-643.468	-3254.078
220	464.792	-643.468	-3254.078
230	464.792	-643.468	-3204.778
240	464.792	-428.368	-3204.778
710	464.792	-428.368	-3202.238
240	464.792	-428.368	-3204.778
250	464.792	-393.168	-3204.778
260	464.792	-275.468	-3204.778
270	464.792	-275.468	-3197.078
280	464.792	-275.468	-3190.411
290	464.792	-275.468	-3171.711
300	464.792	-275.468	-3165.043
310	464.792	-275.468	-3135.993
320	464.792	-275.468	-3106.943
330	464.792	-275.468	-3100.276
340	464.792	-275.468	-3093.608
350	464.792	-275.468	-3088.408
360	464.792	-281.068	-3088.408
370	464.792	-286.942	-3088.408
380	464.792	-292.816	-3088.408
390	464.792	-309.316	-3088.408
400	464.792	-334.316	-3088.408
410	464.792	-340.983	-3088.408
420	464.792	-359.683	-3088.408
430	464.792	-366.351	-3088.408
430	464.792	-366.251	-3088.408
440	464.792	-393.151	-3088.408
450	464.792	-428.551	-3088.408
460	464.792	-512.251	-3088.408
470	464.792	-512.251	-3112.708
475	464.792	-512.251	-3184.408
477	489.092	-512.251	-3184.408
480	575.792	-512.251	-3184.408
490	578.292	-512.251	-3181.908
500	583.292	-512.251	-3176.908
520	588.007	-512.251	-3172.193
530	597.765	-512.251	-3162.435
540	613.958	-512.251	-3146.243
550	613.958	-671.251	-3146.243
710	464.792	-428.368	-3202.238
720	464.792	-428.368	-3172.238

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T4+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OCC) L16=L10-L1
17 (OCC) L17=L11-L4
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16+L8
23 (OCC) L23=L17+L8
24 (OCC) L24=L18+L8
25 (OCC) L25=L19+L8
26 (OCC) L26=L20+L8
27 (OCC) L27=L21+L8
28 (EXP) L28=L2-L8
29 (EXP) L29=L4-L8
30 (EXP) L30=L2-L4
31 (EXP) L31=L6-L8
32 (EXP) L32=L2-L6
33 (EXP) L33=L4-L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T4+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	0	-2578	0	0	0	0
	2(OPE)	1	-1399	9228	0	0	0
	4(OPE)	0	-1399	420	0	0	0
	6(OPE)	0	-1399	420	0	0	0
	8(SUS)	0	-1399	0	0	0	0
	9(SUS)	0	-1397	0	0	0	0
	MAX	1/L2	-2578/L1	9228/L2			
20		TYPE=Rigid +Y;					
	1(HYD)	-0	-7403	0	0	0	0
	2(OPE)	-33	-4018	-1205	0	0	0
	4(OPE)	0	-4018	1205	0	0	0
	6(OPE)	0	-4018	1205	0	0	0
	8(SUS)	-0	-4018	0	0	0	0
	9(SUS)	-0	-4013	0	0	0	0
	MAX	-33/L2	-7403/L1	1205/L4			
30		TYPE=Rigid +Y; Rigid X;					
	1(HYD)	0	-6304	0	0	0	0
	2(OPE)	57	-3421	-1026	0	0	0
	4(OPE)	0	-3421	1026	0	0	0
	6(OPE)	0	-3421	1026	0	0	0
	8(SUS)	0	-3421	0	0	0	0
	9(SUS)	0	-3417	0	0	0	0
	MAX	57/L2	-6304/L1	1026/L6			
40		TYPE=Rigid +Y;					
	1(HYD)	-0	-6588	0	0	0	0
	2(OPE)	42	-3577	-1072	0	0	0
	4(OPE)	-4	-3575	1073	0	0	0
	6(OPE)	-4	-3575	1073	0	0	0
	8(SUS)	-0	-3575	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	9(SUS)	-0	-3571	0	0	0	0
	MAX	42/L2	-6588/L1	1073/L4			
50		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-6540	0	0	0	0
	2(OPE)	61	-3543	-1061	0	0	0
	4(OPE)	13	-3549	-216	0	0	0
	6(OPE)	13	-3549	-216	0	0	0
	8(SUS)	0	-3549	0	0	0	0
	9(SUS)	0	-3545	0	0	0	0
	MAX	61/L2	-6540/L1	-1061/L2			
60		TYPE=Rigid +Y;					
	1(HYD)	-0	-6453	0	0	0	0
	2(OPE)	18	-3523	-1057	0	0	0
	4(OPE)	39	-3503	-1050	0	0	0
	6(OPE)	39	-3502	-1050	0	0	0
	8(SUS)	-0	-3502	0	0	0	0
	9(SUS)	-0	-3497	0	0	0	0
	MAX	39/L6	-6453/L1	-1057/L2			
70		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-6853	0	0	0	0
	2(OPE)	-1495	-3640	-1084	0	0	0
	4(OPE)	-141	-3717	-1106	0	0	0
	6(OPE)	-141	-3717	-1106	0	0	0
	8(SUS)	0	-3720	0	0	0	0
	9(SUS)	0	-3715	0	0	0	0
	MAX	-1495/L2	-6853/L1	-1106/L6			
80		TYPE=Rigid +Y;					
	1(HYD)	-1	-5540	0	0	0	0
	2(OPE)	-226	-3048	-886	0	0	0
	4(OPE)	-375	-3009	-821	0	0	0
	6(OPE)	-375	-3009	-821	0	0	0
	8(SUS)	-1	-3007	0	0	0	0
	9(SUS)	-1	-3003	0	0	0	0
	MAX	-375/L4	-5540/L1	-886/L2			
100		TYPE=Rigid +Y;					
	1(HYD)	0	-4394	0	0	0	0
	2(OPE)	0	-2418	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	0	-2383	0	0	0	0
	6(OPE)	0	-2383	0	0	0	0
	8(SUS)	0	-2382	0	0	0	0
	9(SUS)	0	-2379	0	0	0	0
	MAX		-4394/L1				
110		TYPE=Rigid +Y; Rigid Z; Rigid X;					
	1(HYD)	1	-8155	-2	0	0	0
	2(OPE)	54	-4426	-3109	0	0	0
	4(OPE)	-934	-4431	-303	0	0	0
	6(OPE)	-934	-4431	-303	0	0	0
	8(SUS)	0	-4431	-2	0	0	0
	9(SUS)	0	-4425	-2	0	0	0
	MAX	-934/L4	-8155/L1	-3109/L2			
160		TYPE=Rigid +Y;					
	1(HYD)	-0	-8701	-90	0	0	0
	2(OPE)	1337	-4904	614	0	0	0
	4(OPE)	1453	-4847	62	0	0	0
	6(OPE)	1453	-4847	63	0	0	0
	8(SUS)	-1	-4843	-79	0	0	0
	9(SUS)	-1	-4838	-78	0	0	0
	MAX	1453/L4	-8701/L1	614/L2			
170		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	0	-1894	3	0	0	0
	2(OPE)	0	-1010	33	0	0	0
	4(OPE)	0	-1022	-36	0	0	0
	6(OPE)	0	-1022	-36	0	0	0
	8(SUS)	0	-1023	3	0	0	0
	9(SUS)	0	-1021	3	0	0	0
	MAX		-1894/L1	-36/L4			
310		TYPE=Rigid +Y; Rigid X; Rigid Z w/gap;					
	1(HYD)	10	-1131	0	0	0	0
	2(OPE)	29	0	0	0	0	0
	4(OPE)	5	-688	0	0	0	0
	6(OPE)	5	-688	0	0	0	0
	8(SUS)	7	-1050	0	0	0	0
	9(SUS)	7	-1050	0	0	0	0
	MAX	29/L2	-1131/L1				

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
470		TYPE=Rigid +Y;					
	1(HYD)	0	0	0	0	0	0
	2(OPE)	-211	-867	153	0	0	0
	4(OPE)	-41	-245	61	0	0	0
	6(OPE)	-40	-244	61	0	0	0
	8(SUS)	0	0	0	0	0	0
	9(SUS)	0	0	0	0	0	0
	MAX	-211/L2	-867/L2	153/L2			
477		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-3	-148	44	0	0	0
	2(OPE)	0	0	0	0	0	0
	4(OPE)	-8	-26	-0	0	0	0
	6(OPE)	-8	-27	-0	0	0	0
	8(SUS)	-2	-132	40	0	0	0
	9(SUS)	-2	-132	40	0	0	0
	MAX	-8/L6	-148/L1	44/L1			
500		TYPE=Rigid ANC;					
	1(HYD)	7	-68	13	-6	11	1
	2(OPE)	253	-202	-130	42	-39	93
	4(OPE)	60	-125	-4	-10	4	41
	6(OPE)	60	-125	-4	-10	4	41
	8(SUS)	8	-63	8	-5	8	1
	9(SUS)	8	-63	8	-5	8	1
	MAX	253/L2	-202/L2	-130/L2	42/L2	-39/L2	93/L2
530		TYPE=Rigid ANC;					
	1(HYD)	7	-117	13	-21	12	15
	2(OPE)	253	-248	-130	8	-94	126
	4(OPE)	60	-171	-4	-33	-6	63
	6(OPE)	60	-171	-4	-33	-6	63
	8(SUS)	8	-109	8	-19	8	14
	9(SUS)	8	-109	8	-19	8	14
	MAX	253/L2	-248/L2	-130/L2	-33/L4	-94/L2	126/L2
550		TYPE=Rigid ANC;					
	1(HYD)	7	-117	13	-20	13	23
	2(OPE)	253	-248	-130	-239	-156	-235
	4(OPE)	60	-171	-4	-66	-16	-4
	6(OPE)	60	-171	-4	-66	-16	-4
	8(SUS)	8	-109	8	-23	8	20
	9(SUS)	8	-109	8	-23	8	20

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	253/L2	-248/L2	-130/L2	-239/L2	-156/L2	-235/L2
560		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	-22	-597	178	0	0	0
	2(OPE)	7	-679	626	0	0	0
	4(OPE)	-25	-548	163	0	0	0
	6(OPE)	-25	-548	163	0	0	0
	8(SUS)	-19	-526	157	0	0	0
	9(SUS)	-19	-526	157	0	0	0
	MAX	-25/L6	-679/L2	626/L2			
590		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	117	-430	-54	0	0	0
	2(OPE)	-49	-201	-35	0	0	0
	4(OPE)	-77	-373	-81	0	0	0
	6(OPE)	-78	-373	-81	0	0	0
	8(SUS)	109	-394	-46	0	0	0
	9(SUS)	109	-394	-46	0	0	0
	MAX	117/L1	-430/L1	-81/L4			
645		TYPE=Rigid +Y;					
	1(HYD)	-68	-579	-123	0	0	0
	2(OPE)	52	-583	-117	0	0	0
	4(OPE)	36	-569	-118	0	0	0
	6(OPE)	37	-569	-120	0	0	0
	8(SUS)	-65	-551	-104	0	0	0
	9(SUS)	-65	-551	-104	0	0	0
	MAX	-68/L1	-583/L2	-123/L1			
695		TYPE=Rigid +Y;					
	1(HYD)	-13	-291	-86	0	0	0
	2(OPE)	0	0	0	0	0	0
	4(OPE)	61	-283	-59	0	0	0
	6(OPE)	61	-284	-60	0	0	0
	8(SUS)	-17	-285	-84	0	0	0
	9(SUS)	-17	-285	-84	0	0	0
	MAX	61/L4	-291/L1	-86/L1			
720		TYPE=Rigid +Y;					
	1(HYD)	-19	-440	131	0	0	0
	2(OPE)	82	-802	95	0	0	0
	4(OPE)	-5	-530	137	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	-4	-530	140	0	0	0
	8(SUS)	-16	-390	116	0	0	0
	9(SUS)	-16	-390	116	0	0	0
	MAX	82/L2	-802/L2	140/L6			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T4+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OPE) W+T2+P1+F1
16 (OCC) L16=L10-L1
17 (OCC) L17=L11-L4
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16+L8
23 (OCC) L23=L17+L8
24 (OCC) L24=L18+L8
25 (OCC) L25=L19+L8
26 (OCC) L26=L20+L8
27 (OCC) L27=L21+L8
28 (EXP) L28=L2-L8
29 (EXP) L29=L4-L8
30 (EXP) L30=L2-L4
31 (EXP) L31=L6-L8
32 (EXP) L32=L2-L6
33 (EXP) L33=L4-L6

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 22 (OCC) L22=L16+L8
 CASE 23 (OCC) L23=L17+L8
 CASE 24 (OCC) L24=L18+L8
 CASE 25 (OCC) L25=L19+L8
 CASE 26 (OCC) L26=L20+L8
 CASE 27 (OCC) L27=L21+L8
 CASE 28 (EXP) L28=L2-L8
 CASE 29 (EXP) L29=L4-L8
 CASE 30 (EXP) L30=L2-L4
 CASE 31 (EXP) L31=L6-L8
 CASE 32 (EXP) L32=L2-L6
 CASE 33 (EXP) L33=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (KPa)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	14.1 @Node 710	
Code Stress:	33940.4	Allowable Stress: 241316.5
Axial Stress:	7449.7 @Node 160	
Bending Stress:	44934.6 @Node 710	
Torsion Stress:	1431.8 @Node 689	
Hoop Stress:	15442.1 @Node 20	
Max Stress Intensity:	45174.1 @Node 710	

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (KPa)	LOADCASE 8 (SUS) W+P1	
Ratio (%):	24.7 @Node 150	
Code Stress:	34069.4	Allowable Stress: 137895.1
Axial Stress:	15092.1 @Node 160	
Bending Stress:	40713.4 @Node 150	
Torsion Stress:	3057.4 @Node 689	
Hoop Stress:	30554.2 @Node 20	
Max Stress Intensity:	44905.2 @Node 150	

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (KPa)	LOADCASE 9 (SUS) WNC	
Ratio (%):	22.8 @Node 380	
Code Stress:	31461.8	Allowable Stress: 137895.1
Axial Stress:	1355.8 @Node 380	
Bending Stress:	40703.5 @Node 150	
Torsion Stress:	3056.9 @Node 689	
Hoop Stress:	0.0 @Node 20	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Max Stress Intensity: 41338.3 @Node 150

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L16+L8

Highest Stresses: (KPa) LOADCASE 22 (OCC) L22=L16+L8
 Ratio (%): 29.2 @Node 110
 Code Stress: 53573.8 Allowable Stress: 183400.5
 Axial Stress: 7852.3 @Node 110
 Bending Stress: 56471.4 @Node 150
 Torsion Stress: 4133.5 @Node 689
 Hoop Stress: 15277.1 @Node 20
 Max Stress Intensity: 62727.3 @Node 150

CODE STRESS CHECK PASSED : LOADCASE 23 (OCC) L23=L17+L8

Highest Stresses: (KPa) LOADCASE 23 (OCC) L23=L17+L8
 Ratio (%): 34.5 @Node 150
 Code Stress: 63293.9 Allowable Stress: 183400.5
 Axial Stress: 15841.3 @Node 110
 Bending Stress: 79308.1 @Node 150
 Torsion Stress: 5497.8 @Node 599
 Hoop Stress: 30554.2 @Node 20
 Max Stress Intensity: 83745.4 @Node 150

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L18+L8

Highest Stresses: (KPa) LOADCASE 24 (OCC) L24=L18+L8
 Ratio (%): 20.7 @Node 150
 Code Stress: 37940.4 Allowable Stress: 183400.5
 Axial Stress: 15261.6 @Node 60
 Bending Stress: 45720.9 @Node 150
 Torsion Stress: 2660.4 @Node 689
 Hoop Stress: 30554.2 @Node 20
 Max Stress Intensity: 50010.2 @Node 150

CODE STRESS CHECK PASSED : LOADCASE 25 (OCC) L25=L19+L8

Highest Stresses: (KPa) LOADCASE 25 (OCC) L25=L19+L8
 Ratio (%): 58.0 @Node 380
 Code Stress: 106344.8 Allowable Stress: 183400.5
 Axial Stress: 15235.5 @Node 120
 Bending Stress: 102067.6 @Node 380
 Torsion Stress: 9475.3 @Node 700
 Hoop Stress: 30554.2 @Node 20
 Max Stress Intensity: 106323.8 @Node 380

CODE STRESS CHECK PASSED : LOADCASE 26 (OCC) L26=L20+L8

Highest Stresses: (KPa) LOADCASE 26 (OCC) L26=L20+L8
 Ratio (%): 28.2 @Node 150
 Code Stress: 51681.1 Allowable Stress: 183400.5
 Axial Stress: 16404.5 @Node 40
 Bending Stress: 64000.7 @Node 150

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Torsion Stress:	4388.8	@Node	699
Hoop Stress:	30554.2	@Node	20
Max Stress Intensity:	68306.9	@Node	150

CODE STRESS CHECK PASSED : LOADCASE 27 (OCC) L27=L21+L8

Highest Stresses: (KPa)	LOADCASE 27 (OCC) L27=L21+L8		
Ratio (%):	77.9	@Node	380
Code Stress:	142837.7	Allowable Stress:	183400.5
Axial Stress:	15098.2	@Node	160
Bending Stress:	139092.5	@Node	380
Torsion Stress:	10944.7	@Node	700
Hoop Stress:	30554.2	@Node	20
Max Stress Intensity:	142816.6	@Node	380

CODE STRESS CHECK PASSED : LOADCASE 28 (EXP) L28=L2-L8

Highest Stresses: (KPa)	LOADCASE 28 (EXP) L28=L2-L8		
Ratio (%):	15.7	@Node	710
Code Stress:	44102.0	Allowable Stress:	281235.3
Axial Stress:	1201.2	@Node	20
Bending Stress:	44042.5	@Node	710
Torsion Stress:	7160.0	@Node	189
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	103482.9	@Node	89

CODE STRESS CHECK PASSED : LOADCASE 29 (EXP) L29=L4-L8

Highest Stresses: (KPa)	LOADCASE 29 (EXP) L29=L4-L8		
Ratio (%):	5.2	@Node	710
Code Stress:	14753.2	Allowable Stress:	281235.3
Axial Stress:	465.4	@Node	50
Bending Stress:	14662.8	@Node	710
Torsion Stress:	778.5	@Node	480
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	14711.6	@Node	710

CODE STRESS CHECK PASSED : LOADCASE 30 (EXP) L30=L2-L4

Highest Stresses: (KPa)	LOADCASE 30 (EXP) L30=L2-L4		
Ratio (%):	10.7	@Node	88
Code Stress:	34941.1	Allowable Stress:	326661.7
Axial Stress:	1149.2	@Node	20
Bending Stress:	34955.5	@Node	89
Torsion Stress:	6534.9	@Node	189
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	93404.1	@Node	89

CODE STRESS CHECK PASSED : LOADCASE 31 (EXP) L31=L6-L8

Highest Stresses: (KPa)	LOADCASE 31 (EXP) L31=L6-L8		
Ratio (%):	5.2	@Node	710
Code Stress:	14728.1	Allowable Stress:	281235.3

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Axial Stress:	465.4	@Node	50
Bending Stress:	14628.1	@Node	710
Torsion Stress:	778.8	@Node	480
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	14682.1	@Node	710

CODE STRESS CHECK PASSED : LOADCASE 32 (EXP) L32=L2-L6

Highest Stresses: (KPa)	LOADCASE 32 (EXP) L32=L2-L6	
Ratio (%):	10.7	@Node 88
Code Stress:	34941.3	Allowable Stress: 326661.7
Axial Stress:	1149.2	@Node 20
Bending Stress:	34955.8	@Node 89
Torsion Stress:	6536.1	@Node 189
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	93404.8	@Node 89

CODE STRESS CHECK PASSED : LOADCASE 33 (EXP) L33=L4-L6

Highest Stresses: (KPa)	LOADCASE 33 (EXP) L33=L4-L6	
Ratio (%):	0.1	@Node 380
Code Stress:	253.5	Allowable Stress: 306331.4
Axial Stress:	5.2	@Node 720
Bending Stress:	242.8	@Node 380
Torsion Stress:	34.5	@Node 380
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	434.4	@Node 380

BNK-GCS-CN-012

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Line no.

Stress sketch

Input echo

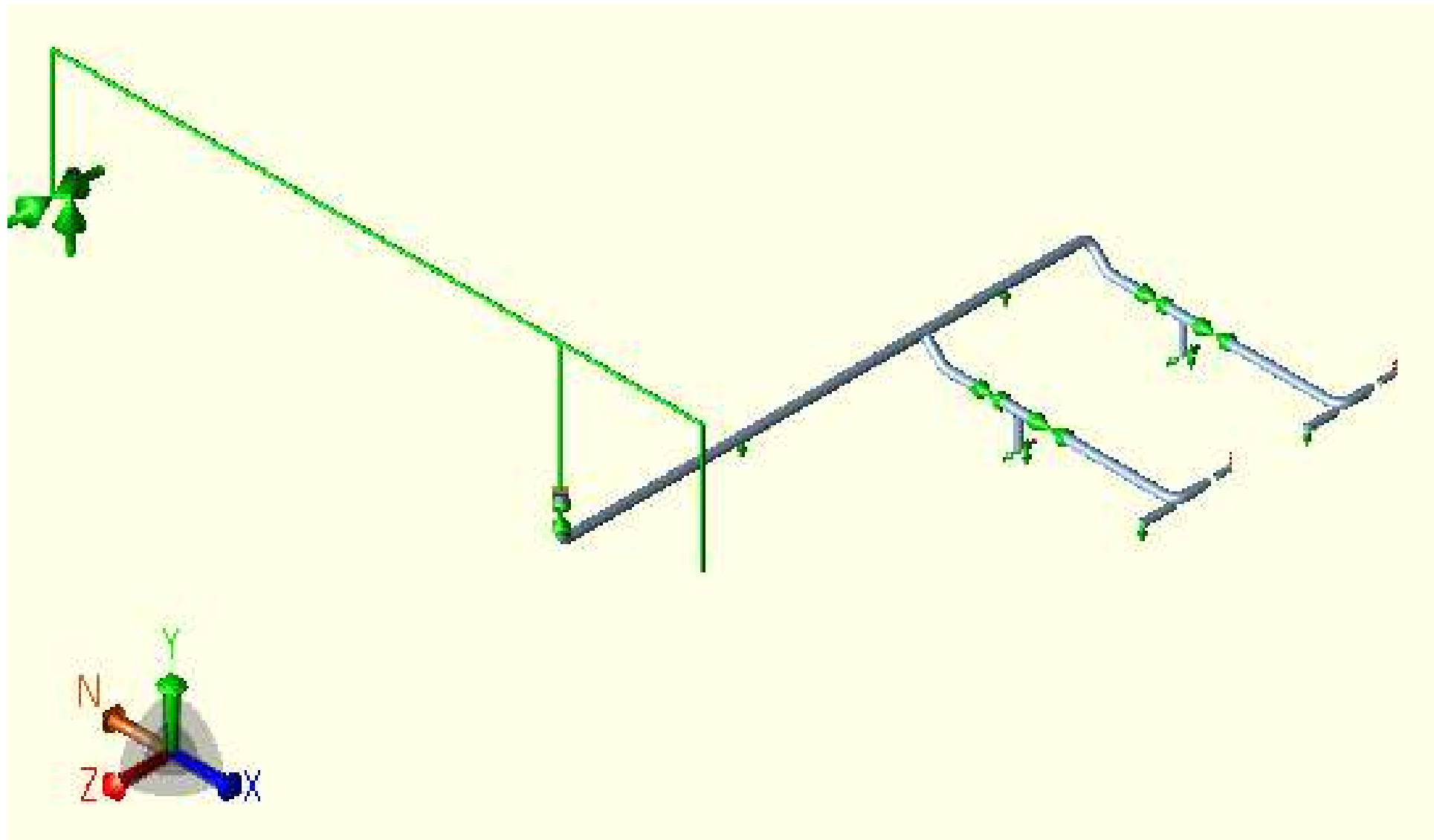
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. CDH-111-0004-AS00-4"-NP
2. CDH-111-0010-AS00-4"-NP
3. CDH-111-0011-AS00-4"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 10 To 20 DZ= .067 m.

PIPE

Dia= 6.032 cm. Wall= .277 cm. Cor= .0000 cm.

GENERAL

T1= 85 C T2= 32 C T3= 21 C P1= 60.0014 KPa PHyd= 90.0021 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 202,494,736 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0010020 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 31.14 N.

RESTRAINTS

Node 10 ANC Cnode 340

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

SIF's & TEE's

Node 10 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 20 To 30 DY= -.027 m. DZ= .102 m.

REDUCER

Diam2= 11.430 cm. Wall2= .305 cm.

From 30 To 40 DZ= .424 m.

PIPE

Dia= 11.430 cm. Wall= .305 cm.

Insul Thk= .000 cm.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 39

Angle/Node @2= .00 38

From 40 To 50 DX= -.888 m.

From 40 To 60 DY= -.036 m. DZ= .036 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 60 Reinforced Tee Pad= .304 cm.

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INPUT LISTING

From 50 To 70 DX= -.888 m.

From 70 To 80 DX= -.079 m.
RIGID Weight= 71.17 N.

From 80 To 90 DX= -.371 m.
RIGID Weight= 213.51 N.

From 90 To 100 DX= -.079 m.
RIGID Weight= 71.17 N.

From 100 To 110 DX= -.250 m.

From 110 To 120 DY= -.051 m.
RIGID Weight= .00 N.

From 110 To 130 DX= -.250 m.

From 130 To 140 DX= -.079 m.
RIGID Weight= 71.17 N.

From 140 To 150 DX= -.255 m.
RIGID Weight= 631.65 N.

From 150 To 160 DX= -.079 m.
RIGID Weight= 71.17 N.

From 160 To 170 DX= -.552 m.
BEND at "TO" end
Radius= 15.240 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 169
Angle/Node @2= .00 168

From 170 To 180 DX= -.341 m. DY= .341 m.
BEND at "TO" end
Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179
Angle/Node @2= .00 178

From 180 To 190 DZ= 1.340 m.
RESTRAINTS
Node 190 +Y Mu = .30

From 190 To 200 DZ= 1.340 m.
SIF's & TEE's
Node 200 Welding Tee

From 200 To 210 DZ= 2.960 m.
PIPE
Dia= 11.430 cm. Wall= .305 cm. Cor= .0000 cm.

GENERAL
T1= 85 C T2= 32 C T3= 21 C P1= 60.0014 KPa PHyd= 90.0021 KPa
Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
EH2= 202,494,736 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0010020 kg./cu.cm.

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INPUT LISTING

Insul Thk= .000 cm. Insul Den= .0001362 kg./cu.cm.

RESTRAINTS

Node 210 +Y Mu = .30

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 210 To 220 DZ= 2.960 m.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 219

Angle/Node @2= .00 218

From 220 To 230 DY= .151 m.

From 230 To 240 DY= .079 m.

RIGID Weight= 71.17 N.

From 240 To 250 DY= .265 m.

RIGID Weight= 631.65 N.

RESTRAINTS

Node 250 ANC Cnode 260

From 260 To 270 DY= .079 m.

RIGID Weight= 71.17 N.

From 270 To 280 DY= .135 m.

RESTRAINTS

Node 280 ANC Cnode 281

From 281 To 290 DY= 2.100 m.

PIPE

Dia= 420.000 cm. Wall= .305 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

From 290 To 300 DX= 2.300 m.

RIGID Weight= .00 N.

From 300 To 310 DY= -2.100 m.

RIGID Weight= .00 N.

RESTRAINTS

Node 310 ANC

From 290 To 320 DX= -8.300 m.

RIGID Weight= .00 N.

From 320 To 330 DY= -2.100 m.

RIGID Weight= .00 N.

RESTRAINTS

Node 330 +Y Mu = .30

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INPUT LISTING

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Node 330 Z Gap= .300 cm. Mu = .30
-----
From 340 To 350 DZ= -.067 m.
PIPE
Dia= 6.032 cm. Wall= .277 cm. Cor= .0000 cm.
GENERAL
Fluid Den= .0010020 kg./cu.cm. Insul Thk= .000 cm.
RIGID Weight= 31.14 N.
-----
From 350 To 360 DZ= -.233 m.
RESTRAINTS
Node 360 ANC
EQUIPMENT LIMITS
Nozzle Node = 360 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N.
FB= 1,156.54 N. FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m.
MC= 705.03 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000
Interact. Mtd= Absolute
-----
From 60 To 370 DZ= .500 m.
PIPE
Dia= 8.890 cm. Wall= .549 cm.
GENERAL
T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa
Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa
EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000000 kg./cu.cm.
Insul Thk= .000 cm.
RESTRAINTS
Node 370 +Y Mu = .30
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 120 To 380 DY= -.500 m.
RESTRAINTS
Node 380 +Y Mu = .30
Node 380 Z Gap= .300 cm. Mu = .30
-----
From 400 To 410 DZ= .067 m.
PIPE
Dia= 6.032 cm. Wall= .277 cm. Cor= .0000 cm.
GENERAL
T1= 85 C T2= 32 C T3= 21 C P1= 60.0014 KPa PHyd= 90.0021 KPa
Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
EH2= 202,494,736 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0010020 kg./cu.cm.
Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.
RIGID Weight= 31.14 N.
RESTRAINTS
Node 400 ANC Cnode 580

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UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

SIF's & TEE's

Node 400 <No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 410 To 420 DY= -.027 m. DZ= .102 m.

REDUCER

Diam2= 11.430 cm. Wall2= .305 cm.

 From 420 To 430 DZ= .424 m.

PIPE

Dia= 11.430 cm. Wall= .305 cm.

Insul Thk= .000 cm.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 429
 Angle/Node @2= .00 428

 From 430 To 440 DX= -.888 m.

 From 430 To 450 DY= -.036 m. DZ= .036 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 450 Reinforced Tee Pad= .304 cm.

 From 440 To 460 DX= -.888 m.

 From 460 To 470 DX= -.079 m.

RIGID Weight= 71.17 N.

 From 470 To 480 DX= -.371 m.

RIGID Weight= 213.51 N.

 From 480 To 490 DX= -.079 m.

RIGID Weight= 71.17 N.

 From 490 To 500 DX= -.250 m.

 From 500 To 510 DY= -.051 m.

RIGID Weight= .00 N.

 From 500 To 520 DX= -.250 m.

 From 520 To 530 DX= -.079 m.

RIGID Weight= 71.17 N.

 From 530 To 540 DX= -.255 m.

RIGID Weight= 631.65 N.

 From 540 To 550 DX= -.079 m.

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INPUT LISTING

RIGID Weight= 71.17 N.

From 550 To 560 DX= -.552 m.

BEND at "TO" end

Radius= 15.240 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 559

Angle/Node @2= .00 558

From 560 To 200 DX= -.341 m. DY= .341 m.

From 580 To 590 DZ= -.067 m.

PIPE

Dia= 6.032 cm. Wall= .277 cm. Cor= .0000 cm.

GENERAL

T1= 85 C T2= 32 C T3= 21 C P1= 60.0014 KPa PHyd= 90.0021 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 202,494,736 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0010020 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0001362 kg./cu.cm.

RIGID Weight= 31.14 N.

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 590 To 600 DZ= -.233 m.

RESTRAINTS

Node 600 ANC

EQUIPMENT LIMITS

Nozzle Node = 600 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N.

FB= 1,156.54 N. FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m.

MC= 705.03 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 450 To 610 DZ= .500 m.

PIPE

Dia= 8.890 cm. Wall= .549 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 203,401,232 KPa

EH2= 203,401,232 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000000 kg./cu.cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 610 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

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INPUT LISTING

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa

From 510 To 620 DY= -.500 m.

RESTRAINTS

Node 620 +Y Mu = .30

Node 620 Z Gap= .300 cm. Mu = .30

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MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
200	210	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
60	370	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
400	410	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
580	590	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
450	610	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-012-))EQHOLD\BNK-G

ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
200	210	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
60	370	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
400	410	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa

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INPUT LISTING

580	590	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
450	610	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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BEND ELEMENTS

30	40	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 39
		Angle/Node @2= .00 38
160	170	Radius= 15.240 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		169 Angle/Node @2= .00 168
170	180	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179 Angle/Node @2= .00 178
210	220	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		219 Angle/Node @2= .00 218
420	430	Radius= 15.240 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		429 Angle/Node @2= .00 428
550	560	Radius= 15.240 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		559 Angle/Node @2= .00 558

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RIGIDS

10	20	RIGID Weight= 31.14 N.
40	60	RIGID Weight= .00 N.
70	80	RIGID Weight= 71.17 N.
80	90	RIGID Weight= 213.51 N.
90	100	RIGID Weight= 71.17 N.
110	120	RIGID Weight= .00 N.
130	140	RIGID Weight= 71.17 N.
140	150	RIGID Weight= 631.65 N.
150	160	RIGID Weight= 71.17 N.
230	240	RIGID Weight= 71.17 N.
240	250	RIGID Weight= 631.65 N.
260	270	RIGID Weight= 71.17 N.
281	290	RIGID Weight= .00 N.
290	300	RIGID Weight= .00 N.

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INPUT LISTING

300	310	RIGID	Weight= .00 N.
290	320	RIGID	Weight= .00 N.
320	330	RIGID	Weight= .00 N.
340	350	RIGID	Weight= 31.14 N.
400	410	RIGID	Weight= 31.14 N.
430	450	RIGID	Weight= .00 N.
460	470	RIGID	Weight= 71.17 N.
470	480	RIGID	Weight= 213.51 N.
480	490	RIGID	Weight= 71.17 N.
500	510	RIGID	Weight= .00 N.
520	530	RIGID	Weight= 71.17 N.
530	540	RIGID	Weight= 631.65 N.
540	550	RIGID	Weight= 71.17 N.
580	590	RIGID	Weight= 31.14 N.

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SIF's & TEE's

10	20	Node 10	<No Type Specified>
		SIF(in)=	2.080 SIF(out)= 2.460
40	60	Node 60	Reinforced Tee Pad= .304 cm.
190	200	Node 200	Welding Tee
400	410	Node 400	<No Type Specified>
		SIF(in)=	2.080 SIF(out)= 2.460
430	450	Node 450	Reinforced Tee Pad= .304 cm.

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REDUCERS

20	30	Diam2= 11.430 cm.	Wall2= .305 cm.
410	420	Diam2= 11.430 cm.	Wall2= .305 cm.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	340				.000 .000 .000
190	+Y				.30	.000 1.000 .000
210	+Y				.30	.000 1.000 .000
250	ANC	260				.000 .000 .000
280	ANC	281				.000 .000 .000
310	ANC					.000 .000 .000
330	+Y				.30	.000 1.000 .000
330	Z			.30	.30	.000 .000 1.000
360	ANC					.000 .000 .000
370	+Y				.30	.000 1.000 .000
380	+Y				.30	.000 1.000 .000
380	Z			.30	.30	.000 .000 1.000
400	ANC	580				.000 .000 .000
600	ANC					.000 .000 .000
610	+Y				.30	.000 1.000 .000
620	+Y				.30	.000 1.000 .000
620	Z			.30	.30	.000 .000 1.000

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INPUT LISTING

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EQUIPMENT LIMITS

350 360 Nozzle Node = 360

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

590 600 Nozzle Node = 600

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10 20

Vector1 in G-s

X1 Dir = .26 g's Y1 Dir = .00 g's

Z1 Dir = .00 g's

Vector2 in G-s

X2 Dir = .00 g's Y2 Dir = .12 g's

Z2 Dir = .00 g's

Vector3 in G-s

X3 Dir = .00 g's Y3 Dir = .00 g's

Z3 Dir = .26 g's

200 210

Vector1 in G-s

X1 Dir = .26 g's Y1 Dir = .00 g's

Z1 Dir = .00 g's

Vector2 in G-s

X2 Dir = .00 g's Y2 Dir = .12 g's

Z2 Dir = .00 g's

Vector3 in G-s

X3 Dir = .00 g's Y3 Dir = .00 g's

Z3 Dir = .26 g's

400 410

Vector1 in G-s

X1 Dir = .26 g's Y1 Dir = .00 g's

Z1 Dir = .00 g's

Vector2 in G-s

X2 Dir = .00 g's Y2 Dir = .12 g's

Z2 Dir = .00 g's

Vector3 in G-s

X3 Dir = .00 g's Y3 Dir = .00 g's

Z3 Dir = .26 g's

580 590

Vector1 in G-s

X1 Dir = .26 g's Y1 Dir = .00 g's

Z1 Dir = .00 g's

Vector2 in G-s

X2 Dir = .00 g's Y2 Dir = .12 g's

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INPUT LISTING

Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS=	SI	NOM/SCH	INPUT=	ON				
LENGTH		inches	x	2.540	=	cm.		
FORCE		pounds	x	4.448	=	N.		
MASS (dynamics)		pounds	x	0.454	=	Kg.		
MOMENTS (INPUT)		inch-pounds	x	0.113	=	N.m.		
MOMENTS (OUTPUT)		inch-pounds	x	0.113	=	N.m.		
STRESS		lbs./sq.in.	x	6.895	=	KPa		
TEMP. SCALE		degrees F.	x	0.556	=	C		
PRESSURE		psig	x	6.895	=	KPa		
ELASTIC MODULUS		lbs./sq.in.	x	6.895	=	KPa		
PIPE DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
INSULATION DENS.		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
FLUID DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
TRANSL. STIF		lbs./in.	x	1.751	=	N./cm.		
ROTATIONAL STIF		in.lb./deg.	x	0.113	=	N.m./deg		
UNIFORM LOAD		lb./in.	x	1.751	=	N./cm.		
G LOAD		g's	x	1.000	=	g's		
WIND LOAD		lbs./sq.in.	x	6.895	=	KPa		
ELEVATION		inches	x	0.025	=	m.		
COMPOUND LENGTH		inches	x	0.025	=	m.		
DIAMETER		inches	x	2.540	=	cm.		
WALL THICKNESS		inches	x	2.540	=	cm.		

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SETUP FILE PARAMETERS

```

CONNECT GEOMETRY THRU CNODES = YES
MIN ALLOWED BEND ANGLE = 5.00000
MAX ALLOWED BEND ANGLE = 95.0000
BEND LENGTH ATTACHMENT PERCENT = 1.00000
MIN ANGLE TO ADJACENT BEND PT = 5.00000
LOOP CLOSURE TOLERANCE = 2.54000 cm.
THERMAL BOWING HORZ TOLERANCE = 0.100000E-03
AUTO NODE NUMBER INCREMENT= 10.0000
Z AXIS UP= NO
USE PRESSURE STIFFENING = DEFAULT
ALPHA TOLERANCE = 0.500000E-01
RESLD-FORCE = NO
HGR DEF RESWGT STIF = 0.175127E+13 N./cm.
DECOMP SNG TOL = 0.100000E+11
BEND AXIAL SHAPE = YES
FRICT STIF = 0.175127E+07 N./cm.
FRICT NORM FORCE VAR = 0.150000
FRICT ANGLE VAR = 15.0000
FRICT SLIDE MULT = 1.00000
ROD TOLERANCE = 1.00000
ROD INC = 2.00000
INCORE NUMERICAL CHECK = NO

```

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INPUT LISTING

```

OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.175127E+13 N./cm.
DEFAULT ROT RESTRAINT STIFF= 0.112985E+12 N.m./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 21.1111 C
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.220632E+08 KPa
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 21.6000 C
FRP Density = 0.166079E-02 kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING = NO
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```

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000

```

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INPUT LISTING

```

Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 C
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 20.997 C
Plastic (FRP) Alpha ..... 21.600
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X

```

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COORDINATE REPORT

```

/----- (cm.) -----/
NODE      X          Y          Z
10      -1570.008    -739.568    732.422
20      -1570.008    -739.568    739.089
30      -1570.008    -742.268    749.289
40      -1570.008    -742.268    791.689
50      -1658.808    -742.268    791.689
40      -1570.008    -742.268    791.689
60      -1570.008    -745.860    795.282
50      -1658.808    -742.268    791.689
70      -1747.608    -742.268    791.689
80      -1755.546    -742.268    791.689
90      -1792.646    -742.268    791.689
100     -1800.583    -742.268    791.689
110     -1825.583    -742.268    791.689
120     -1825.583    -747.348    791.689
110     -1825.583    -742.268    791.689
130     -1850.583    -742.268    791.689
140     -1858.521    -742.268    791.689
150     -1884.021    -742.268    791.689
160     -1891.958    -742.268    791.689
170     -1947.158    -742.268    791.689
180     -1981.258    -708.168    791.689
190     -1981.258    -708.168    925.689
200     -1981.258    -708.168    1059.689
210     -1981.258    -708.168    1355.689
220     -1981.258    -708.168    1651.689
230     -1981.258    -693.068    1651.689
240     -1981.258    -685.131    1651.689
250     -1981.258    -658.631    1651.689
270     -1981.258    -650.693    1651.689
280     -1981.258    -637.193    1651.689
290     -1981.258    -427.193    1651.689
300     -1751.258    -427.193    1651.689
310     -1751.258    -637.193    1651.689
290     -1981.258    -427.193    1651.689
320     -2811.258    -427.193    1651.689

```

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INPUT LISTING

330	-2811.258	-637.193	1651.689
10	-1570.008	-739.568	732.422
350	-1570.008	-739.568	725.754
360	-1570.008	-739.568	702.454
60	-1570.008	-745.860	795.282
370	-1570.008	-745.860	845.282
120	-1825.583	-747.348	791.689
380	-1825.583	-797.348	791.689
400	-1570.008	-739.568	1000.422
410	-1570.008	-739.568	1007.089
420	-1570.008	-742.268	1017.289
430	-1570.008	-742.268	1059.689
440	-1658.808	-742.268	1059.689
430	-1570.008	-742.268	1059.689
450	-1570.008	-745.860	1063.281
440	-1658.808	-742.268	1059.689
460	-1747.608	-742.268	1059.689
470	-1755.546	-742.268	1059.689
480	-1792.646	-742.268	1059.689
490	-1800.583	-742.268	1059.689
500	-1825.583	-742.268	1059.689
510	-1825.583	-747.348	1059.689
500	-1825.583	-742.268	1059.689
520	-1850.583	-742.268	1059.689
530	-1858.521	-742.268	1059.689
540	-1884.021	-742.268	1059.689
550	-1891.958	-742.268	1059.689
560	-1947.158	-742.268	1059.689
200	-1981.258	-708.168	1059.689
400	-1570.008	-739.568	1000.422
590	-1570.008	-739.568	993.754
600	-1570.008	-739.568	970.454
450	-1570.008	-745.860	1063.281
610	-1570.008	-745.860	1113.281
510	-1825.583	-747.348	1059.689
620	-1825.583	-797.348	1059.689

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
Restraint Summary : Multiple.....3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid ANC;					
	1(HYD)	-10	-173	-11	-7	-3	17
	2(OPE)	476	-215	38	-75	75	28
	4(OPE)	124	-196	-14	-7	25	15
	6(OPE)	-11	-168	-12	-7	-3	16
	8(SUS)	-11	-168	-12	-7	-3	16
	9(SUS)	-17	-98	-15	-6	-5	7
	MAX	476/L2	-215/L2	38/L2	-75/L2	75/L2	28/L2
190		TYPE=Rigid +Y;					
	1(HYD)	-89	-799	12	0	0	0
	2(OPE)	-113	-810	-215	0	0	0
	4(OPE)	-93	-842	-235	0	0	0
	6(OPE)	-90	-801	12	0	0	0
	8(SUS)	-90	-801	12	0	0	0
	9(SUS)	-48	-476	2	0	0	0
	MAX	-113/L2	-842/L4	-235/L4			
210		TYPE=Rigid +Y;					
	1(HYD)	-24	-681	82	0	0	0
	2(OPE)	-147	-706	-153	0	0	0
	4(OPE)	-78	-699	-195	0	0	0
	6(OPE)	-24	-682	82	0	0	0
	8(SUS)	-24	-682	82	0	0	0
	9(SUS)	-11	-335	36	0	0	0
	MAX	-147/L2	-706/L2	-195/L4			
250		TYPE=Rigid ANC;					
	1(HYD)	6	-938	-93	13	-2	7
	2(OPE)	35	-896	1046	-456	-7	22
	4(OPE)	24	-917	579	-272	-19	13
	6(OPE)	6	-938	-93	13	-2	7
	8(SUS)	6	-938	-93	13	-2	7
	9(SUS)	3	-797	-41	6	-2	1
	MAX	35/L2	-938/L6	1046/L2	-456/L2	-19/L4	22/L2

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
280		TYPE=Rigid ANC;					
	1(HYD)	6	-1039	-93	33	-2	8
	2(OPE)	35	-997	1046	-680	-7	30
	4(OPE)	24	-1019	579	-396	-19	18
	6(OPE)	6	-1040	-93	33	-2	8
	8(SUS)	6	-1040	-93	33	-2	8
	9(SUS)	3	-879	-41	14	-2	2
	MAX	35/L2	-1040/L6	1046/L2	-680/L2	-19/L4	30/L2
310		TYPE=Rigid ANC;					
	1(HYD)	14	-889	-86	33	-135	806
	2(OPE)	82	-842	1045	-680	2397	678
	4(OPE)	73	-862	579	-396	1312	698
	6(OPE)	14	-889	-86	33	-135	806
	8(SUS)	14	-889	-86	33	-135	806
	9(SUS)	10	-753	-37	14	-59	682
	MAX	82/L2	-889/L6	1045/L2	-680/L2	2397/L2	806/L6
330		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-8	-150	-8	0	0	0
	2(OPE)	-47	-155	0	0	0	0
	4(OPE)	-47	-157	0	0	0	0
	6(OPE)	-8	-150	-8	0	0	0
	8(SUS)	-8	-150	-8	0	0	0
	9(SUS)	-7	-127	-3	0	0	0
	MAX	-47/L4	-157/L4	-8/L6			
360		TYPE=Rigid ANC;					
	1(HYD)	-10	-220	-11	55	-6	17
	2(OPE)	476	-262	38	0	217	28
	4(OPE)	124	-243	-14	62	62	15
	6(OPE)	-11	-215	-12	53	-6	16
	8(SUS)	-11	-215	-12	53	-6	16
	9(SUS)	-17	-138	-15	33	-11	7
	MAX	476/L2	-262/L2	38/L2	62/L4	217/L2	28/L2
370		TYPE=Rigid +Y;					
	1(HYD)	-56	-187	-7	0	0	0
	2(OPE)	0	0	0	0	0	0
	4(OPE)	22	-97	19	0	0	0
	6(OPE)	-50	-168	-6	0	0	0
	8(SUS)	-50	-168	-6	0	0	0
	9(SUS)	-30	-102	-3	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-56/L1	-187/L1	19/L4			
380		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	97	-1547	56	0	0	0
	2(OPE)	-319	-1738	-412	0	0	0
	4(OPE)	-82	-1578	-63	0	0	0
	6(OPE)	93	-1524	54	0	0	0
	8(SUS)	93	-1524	54	0	0	0
	9(SUS)	68	-1268	36	0	0	0
	MAX	-319/L2	-1738/L2	-412/L2			
400		TYPE=Rigid ANC;					
	1(HYD)	-39	-149	-5	-7	-5	11
	2(OPE)	322	-198	-13	-10	32	13
	4(OPE)	102	-165	16	-7	26	11
	6(OPE)	-40	-144	2	-7	-5	11
	8(SUS)	-40	-144	2	-7	-5	11
	9(SUS)	-29	-88	6	-6	-4	6
	MAX	322/L2	-198/L2	16/L4	-10/L2	32/L2	13/L2
600		TYPE=Rigid ANC;					
	1(HYD)	-39	-196	-5	48	-17	11
	2(OPE)	322	-245	-13	60	128	13
	4(OPE)	102	-212	16	53	56	11
	6(OPE)	-40	-191	2	46	-17	11
	8(SUS)	-40	-191	2	46	-17	11
	9(SUS)	-29	-128	6	29	-13	6
	MAX	322/L2	-245/L2	16/L4	60/L2	128/L2	13/L2
610		TYPE=Rigid +Y;					
	1(HYD)	-54	-191	20	0	0	0
	2(OPE)	-3	-56	17	0	0	0
	4(OPE)	30	-126	23	0	0	0
	6(OPE)	-50	-172	12	0	0	0
	8(SUS)	-50	-172	12	0	0	0
	9(SUS)	-33	-111	1	0	0	0
	MAX	-54/L1	-191/L1	23/L4			
620		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	161	-1646	-40	0	0	0
	2(OPE)	-307	-1602	-370	0	0	0
	4(OPE)	-62	-1600	-167	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	159	-1622	-41	0	0	0
	8(SUS)	159	-1622	-41	0	0	0
	9(SUS)	95	-1288	-23	0	0	0
	MAX	-307/L2	-1646/L1	-370/L2			

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Stress Summary : Multiple 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 20 (OCC) L20=L15+L8
 CASE 21 (OCC) L21=L16+L8
 CASE 22 (OCC) L22=L17+L8
 CASE 23 (OCC) L23=L18+L8
 CASE 24 (OCC) L24=L19+L8
 CASE 25 (EXP) L25=L2-L8
 CASE 26 (EXP) L26=L4-L8
 CASE 27 (EXP) L27=L2-L4
 CASE 28 (EXP) L28=L6-L8
 CASE 29 (EXP) L29=L2-L6
 CASE 30 (EXP) L30=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (KPa)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	6.7	@Node 500
Code Stress:	16187.0	Allowable Stress: 241316.5
Axial Stress:	1752.5	@Node 280
Bending Stress:	15401.6	@Node 500
Torsion Stress:	1221.0	@Node 360
Hoop Stress:	1597.5	@Node 30
Max Stress Intensity:	16324.9	@Node 500

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (KPa)	LOADCASE 8 (SUS) W+P1	
Ratio (%):	11.5	@Node 500
Code Stress:	15900.9	Allowable Stress: 137895.1
Axial Stress:	1493.9	@Node 280
Bending Stress:	15374.1	@Node 500
Torsion Stress:	1191.6	@Node 20
Hoop Stress:	1065.0	@Node 30
Max Stress Intensity:	16040.8	@Node 500

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (KPa)	LOADCASE 9 (SUS) WNC	
Ratio (%):	7.5	@Node 500
Code Stress:	10383.7	Allowable Stress: 137895.1
Axial Stress:	895.9	@Node 620
Bending Stress:	10309.9	@Node 500
Torsion Stress:	644.4	@Node 40
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	10383.7	@Node 500

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

```

CODE STRESS CHECK PASSED      : LOADCASE 20 (OCC) L20=L15+L8

Highest Stresses: (   KPa   ) LOADCASE 20 (OCC) L20=L15+L8
Ratio (%):              11.5      @Node   500
Code Stress:            21043.7    Allowable Stress:      183400.5
Axial Stress:           1499.4     @Node   280
Bending Stress:         20172.7    @Node   500
Torsion Stress:          1949.5    @Node   360
Hoop Stress:            1065.0     @Node   30
Max Stress Intensity:     21183.6   @Node   500

CODE STRESS CHECK PASSED      : LOADCASE 21 (OCC) L21=L16+L8

Highest Stresses: (   KPa   ) LOADCASE 21 (OCC) L21=L16+L8
Ratio (%):              14.5      @Node   600
Code Stress:            26576.5    Allowable Stress:      183400.5
Axial Stress:           1493.1     @Node   280
Bending Stress:         26024.9    @Node   600
Torsion Stress:          1060.6    @Node   20
Hoop Stress:            1065.0     @Node   30
Max Stress Intensity:     26566.8   @Node   600

CODE STRESS CHECK PASSED      : LOADCASE 22 (OCC) L22=L17+L8

Highest Stresses: (   KPa   ) LOADCASE 22 (OCC) L22=L17+L8
Ratio (%):              9.6       @Node   500
Code Stress:            17669.2    Allowable Stress:      183400.5
Axial Stress:           1378.3     @Node   280
Bending Stress:         17121.5    @Node   500
Torsion Stress:          1066.4    @Node   360
Hoop Stress:            1065.0     @Node   30
Max Stress Intensity:     17809.0   @Node   500

CODE STRESS CHECK PASSED      : LOADCASE 23 (OCC) L23=L18+L8

Highest Stresses: (   KPa   ) LOADCASE 23 (OCC) L23=L18+L8
Ratio (%):              11.3      @Node   280
Code Stress:            20650.9    Allowable Stress:      183400.5
Axial Stress:           1471.7     @Node   280
Bending Stress:         19133.1    @Node   280
Torsion Stress:          1526.9    @Node   130
Hoop Stress:            1065.0     @Node   30
Max Stress Intensity:     20650.8   @Node   280

CODE STRESS CHECK PASSED      : LOADCASE 24 (OCC) L24=L19+L8

Highest Stresses: (   KPa   ) LOADCASE 24 (OCC) L24=L19+L8
Ratio (%):              11.0      @Node   280
Code Stress:            20111.2    Allowable Stress:      183400.5
Axial Stress:           1515.5     @Node   280
Bending Stress:         18594.7    @Node   280
Torsion Stress:          2093.5     @Node   520

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Hoop Stress:	1065.0	@Node	30
Max Stress Intensity:	20111.1	@Node	280

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L8

Highest Stresses: (KPa)	LOADCASE 25 (EXP) L25=L2-L8	
Ratio (%):	10.5	@Node 360
Code Stress:	33503.3	Allowable Stress: 317776.7
Axial Stress:	1069.0	@Node 218
Bending Stress:	33360.2	@Node 360
Torsion Stress:	3191.3	@Node 50
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	33503.3	@Node 360

CODE STRESS CHECK PASSED : LOADCASE 26 (EXP) L26=L4-L8

Highest Stresses: (KPa)	LOADCASE 26 (EXP) L26=L4-L8	
Ratio (%):	4.4	@Node 280
Code Stress:	14887.8	Allowable Stress: 341784.1
Axial Stress:	630.8	@Node 218
Bending Stress:	14856.6	@Node 280
Torsion Stress:	966.8	@Node 50
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	14887.8	@Node 280

CODE STRESS CHECK PASSED : LOADCASE 27 (EXP) L27=L2-L4

Highest Stresses: (KPa)	LOADCASE 27 (EXP) L27=L2-L4	
Ratio (%):	7.7	@Node 360
Code Stress:	24428.5	Allowable Stress: 317776.7
Axial Stress:	458.4	@Node 210
Bending Stress:	24251.4	@Node 360
Torsion Stress:	2224.5	@Node 50
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	24428.5	@Node 360

CODE STRESS CHECK PASSED : LOADCASE 28 (EXP) L28=L6-L8

Highest Stresses: (KPa)	LOADCASE 28 (EXP) L28=L6-L8	
Ratio (%):	0.0	@Node 30
Code Stress:	0.0	Allowable Stress: 342716.0
Axial Stress:	0.0	@Node 20
Bending Stress:	0.0	@Node 20
Torsion Stress:	0.0	@Node 20
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	0.0	@Node 20

CODE STRESS CHECK PASSED : LOADCASE 29 (EXP) L29=L2-L6

Highest Stresses: (KPa)	LOADCASE 29 (EXP) L29=L2-L6	
Ratio (%):	10.5	@Node 360
Code Stress:	33503.3	Allowable Stress: 317776.7
Axial Stress:	1069.0	@Node 218

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Bending Stress:	33360.2	@Node	360
Torsion Stress:	3191.3	@Node	50
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	33503.3	@Node	360

CODE STRESS CHECK PASSED : LOADCASE 30 (EXP) L30=L4-L6

Highest Stresses: (KPa)	LOADCASE 30 (EXP) L30=L4-L6	
Ratio (%):	4.4	@Node 280
Code Stress:	14887.8	Allowable Stress: 341784.1
Axial Stress:	630.8	@Node 218
Bending Stress:	14856.6	@Node 280
Torsion Stress:	966.8	@Node 50
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	14887.8	@Node 280

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T2+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
360		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	14	-243	124	0.210	-15	62	62	0.088	
	8(SUS)	12	-215	-11	0.186	-16	-6	53	0.076	
	9(SUS)	15	-138	-17	0.120	-7	-11	33	0.046	
600		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	-16	-212	102	0.183	-11	56	53	0.075	
	8(SUS)	-2	-191	-40	0.166	-11	-17	46	0.066	
	9(SUS)	-6	-128	-29	0.111	-6	-13	29	0.042	

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Line no.

Stress sketch

Input echo

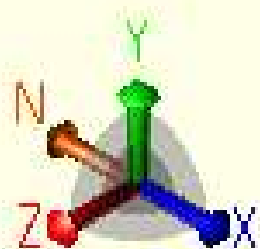
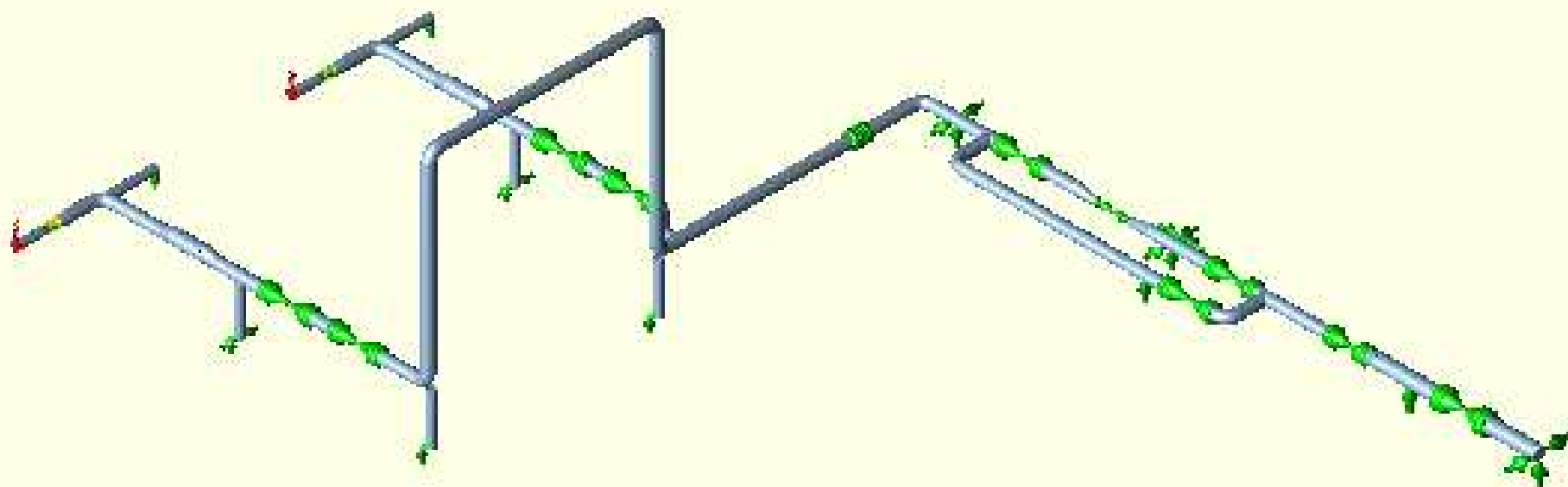
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. CDH-112-0012-CN05-3"-PT
2. CDH-112-0013-CN05-3"-PT
3. CDH-112-0014-CN05-3"-PT
4. CDH-112-0015-CN07-4"-PT



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INPUT LISTING 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 10 To 20 DZ= -73.025 mm.

PIPE

Dia= 60.325 mm. Wall= 5.537 mm. Cor= 3.0000 mm.

GENERAL

T1= 85 C T2= 32 C T3= 21 C P1= 2,450.0559 KPa PHyd= 3,700.0842 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 202,494,736 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0010020 kg./cu.cm.

Insul Thk= .000 mm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 44.48 N.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 20 To 30 DZ= -89.000 mm.

REDUCER

Diam2= 88.900 mm. Wall2= 5.486 mm.

From 30 To 40 DZ= -365.000 mm.

PIPE

Dia= 88.900 mm. Wall= 5.486 mm.

Insul Thk= .000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 39

Angle/Node @2= .00 38

From 40 To 45 DX= 307.500 mm.

From 40 To 800 DY= -26.941 mm. DZ= -26.941 mm.

RIGID Weight= .00 N.

SIF's & TEE's

Node 800 Unreinforced Tee

From 45 To 50 DX= 307.500 mm.

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INPUT LISTING

From 50 To 60 DX= 102.000 mm. DY= 12.700 mm.

REDUCER

Diam2= 114.300 mm. Wall2= 6.020 mm.

From 60 To 70 DX= 300.000 mm.

PIPE

Dia= 114.300 mm. Wall= 6.020 mm.

Insul Thk= .000 mm.

From 70 To 80 DX= 101.600 mm. DY= -12.700 mm.

REDUCER

Diam2= 88.900 mm. Wall2= 5.486 mm.

From 80 To 85 DX= 248.500 mm.

PIPE

Dia= 88.900 mm. Wall= 5.486 mm.

Insul Thk= .000 mm.

From 85 To 840 DY= -38.100 mm.

RIGID Weight= .00 N.

SIF's & TEE's

Node 840 Unreinforced Tee

From 85 To 90 DX= 248.500 mm.

From 90 To 100 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 100 To 110 DX= 327.000 mm.

RIGID Weight= 653.89 N.

From 110 To 120 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 120 To 130 DX= 200.000 mm.

From 130 To 140 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 140 To 150 DX= 310.000 mm.

RIGID Weight= 622.75 N.

From 150 To 160 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 160 To 165 DX= 232.000 mm.

From 170 To 880 DX= 26.941 mm. DY= -26.941 mm.

RIGID Weight= .00 N.

SIF's & TEE's

Node 880 Unreinforced Tee

From 165 To 170 DX= 232.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 169

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INPUT LISTING

Angle/Node @2= .00 168

From 170 To 180 DY= 2,011.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

Angle/Node @2= .00 178

From 180 To 190 DZ= -2,267.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 189

Angle/Node @2= .00 188

From 190 To 195 DY= -1,005.500 mm.

From 200 To 890 DX= 26.941 mm. DY= -26.941 mm.

RIGID Weight= .00 N.

From 195 To 200 DY= -1,005.500 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 199

Angle/Node @2= .00 198

From 200 To 210 DZ= -200.000 mm.

SIF's & TEE's

Node 210 Welding Tee

From 210 To 220 DZ= -1,721.000 mm.

From 220 To 230 DZ= -82.550 mm.

RIGID Weight= 71.17 N.

From 230 To 240 DZ= -82.550 mm.

RIGID Weight= 71.17 N.

From 240 To 250 DZ= -570.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 249

Angle/Node @2= .00 248

From 250 To 255 DX= 341.500 mm.

RESTRAINTS

Node 255 +Y Mu = .30

Node 255 Z Gap= 3.000 mm. Mu = .30

From 255 To 260 DX= 341.500 mm.

SIF's & TEE's

Node 260 Welding Tee

From 260 To 700 DZ= 400.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 699

Angle/Node @2= .00 698

From 700 To 705 DX= 1,937.000 mm.

RESTRAINTS

Node 705 +Y Mu = .30

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INPUT LISTING

From 705 To 710 DX= 200.000 mm.

From 710 To 720 DX= 82.550 mm.
RIGID Weight= 71.17 N.

From 720 To 730 DX= 327.000 mm.
RIGID Weight= 742.85 N.

From 730 To 740 DX= 82.550 mm.
RIGID Weight= 71.17 N.

From 740 To 750 DX= 115.000 mm.
BEND at "TO" end
Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 749

From 750 To 410 DX= .000 mm. DY= .320 mm. DZ= -400.000 mm.

From 260 To 270 DX= 86.000 mm.

From 270 To 280 DX= 82.550 mm.
RIGID Weight= 71.17 N.

From 280 To 290 DX= 292.000 mm.
RIGID Weight= 622.75 N.

From 290 To 300 DX= 82.550 mm.
RIGID Weight= 71.17 N.

From 300 To 310 DX= 300.000 mm.

From 310 To 320 DX= 203.000 mm. DY= -20.000 mm.
REDUCER
Diam2= 48.260 mm. Wall2= 7.137 mm.

From 320 To 330 DX= 71.438 mm.
PIPE
Dia= 48.260 mm. Wall= 7.137 mm.
Insul Thk= .000 mm.
RIGID Weight= 40.03 N.

From 330 To 340 DX= 209.000 mm.
RIGID Weight= 84.52 N.

From 340 To 350 DX= 71.438 mm.
RIGID Weight= 40.03 N.

From 350 To 360 DX= 203.000 mm. DY= 20.320 mm.
REDUCER
Diam2= 88.900 mm. Wall2= 5.486 mm.

From 360 To 365 DX= 200.000 mm.
PIPE
Dia= 88.900 mm. Wall= 5.486 mm.
Insul Thk= .000 mm.
RESTRAINTS

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INPUT LISTING

Node 365 +Y Mu = .30
 Node 365 X Gap= 3.000 mm. Mu = .30
 Node 365 Z Gap= 3.000 mm. Mu = .30

 From 365 To 370 DX= 400.000 mm.

From 370 To 380 DX= 82.550 mm.
 RIGID Weight= 71.17 N.

From 380 To 390 DX= 292.000 mm.
 RIGID Weight= 622.75 N.

From 390 To 400 DX= 82.550 mm.
 RIGID Weight= 71.17 N.

From 400 To 410 DX= 86.000 mm.

SIF's & TEE's

Node 410 Welding Tee

 From 410 To 420 DX= 635.000 mm.

From 420 To 430 DX= 82.550 mm.
 RIGID Weight= 71.17 N.

From 430 To 440 DX= 229.000 mm.
 RIGID Weight= 146.79 N.

From 440 To 450 DX= 82.550 mm.

GENERAL

T1= 85 C T2= 21 C P1= 550.0125 KPa PHyd= 825.0188 KPa

RIGID Weight= 71.17 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 450 To 460 DX= 101.200 mm. DY= 12.700 mm.

REDUCER

Diam2= 114.300 mm. Wall2= 6.020 mm.

From 460 To 465 DX= 300.000 mm.

PIPE

Dia= 114.300 mm. Wall= 6.020 mm.

Insul Thk= .000 mm.

RESTRAINTS

Node 465 +Y Mu = .30

From 465 To 470 DX= 300.000 mm.

From 470 To 480 DX= 88.900 mm.

RIGID Weight= 115.65 N.

From 480 To 490 DX= 314.000 mm.

RIGID Weight= 965.26 N.

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INPUT LISTING

From 490 To 500 DX= 88.900 mm.

RIGID Weight= 115.65 N.

From 500 To 510 DX= 495.000 mm.

RESTRAINTS

Node 510 +Y Mu = .30

Node 510 Z Gap= 3.000 mm. Mu = .30

From 520 To 530 DZ= -73.025 mm.

PIPE

Dia= 60.325 mm. Wall= 5.537 mm. Cor= 3.0000 mm.

GENERAL

T1= 85 C T2= 32 C T3= 21 C P1= 2,450.0559 KPa PHyd= 3,700.0842 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa

EH2= 202,494,736 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0010020 kg./cu.cm.

Insul Thk= .000 mm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 44.48 N.

RESTRAINTS

Node 520 ANC Cnode 521

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 530 To 540 DZ= -89.000 mm.

REDUCER

Diam2= 88.900 mm. Wall2= 5.486 mm.

From 540 To 550 DZ= -365.000 mm.

PIPE

Dia= 88.900 mm. Wall= 5.486 mm.

Insul Thk= .000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 549

Angle/Node @2= .00 548

From 550 To 555 DX= 307.500 mm.

From 550 To 810 DY= -26.941 mm. DZ= -26.941 mm.

RIGID Weight= .00 N.

SIF'S & TEE'S

Node 810 Unreinforced Tee

From 555 To 560 DX= 307.500 mm.

From 560 To 570 DX= 102.000 mm. DY= 12.700 mm.

REDUCER

Diam2= 114.300 mm. Wall2= 6.020 mm.

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INPUT LISTING

 From 570 To 580 DX= 300.000 mm.

PIPE

Dia= 114.300 mm. Wall= 6.020 mm.

Insul Thk= .000 mm.

From 580 To 590 DX= 101.600 mm. DY= -12.700 mm.

REDUCER

Diam2= 88.900 mm. Wall2= 5.486 mm.

From 590 To 595 DX= 248.500 mm.

PIPE

Dia= 88.900 mm. Wall= 5.486 mm.

Insul Thk= .000 mm.

From 595 To 850 DY= -38.100 mm.

RIGID Weight= .00 N.

SIF's & TEE's

Node 850 Unreinforced Tee

From 595 To 600 DX= 248.500 mm.

From 600 To 610 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 610 To 620 DX= 327.000 mm.

RIGID Weight= 653.89 N.

From 620 To 630 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 630 To 640 DX= 200.000 mm.

From 640 To 650 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 650 To 660 DX= 310.000 mm.

RIGID Weight= 622.75 N.

From 660 To 670 DX= 82.550 mm.

RIGID Weight= 71.17 N.

From 670 To 680 DX= 51.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 679

From 680 To 690 DX= 213.000 mm. DY= .000 mm. DZ= 213.000 mm.

BEND at "TO" end

Radius= 114.300 mm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 689
 Angle/Node @2= .00 688

From 690 To 210 DX= 137.000 mm.

From 521 To 760 DZ= 73.025 mm.

PIPE

Dia= 60.325 mm. Wall= 5.537 mm.

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INPUT LISTING

```

Insul Thk= .000 mm.
RIGID Weight= 44.48 N.
-----
From 760 To 770 DZ= 252.000 mm.
RESTRAINTS
Node 770 ANC
EQUIPMENT LIMITS
Nozzle Node = 770 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N.
FB= 1,156.54 N. FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m.
MC= 705.03 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000
Interact. Mtd= Absolute
-----
From 11 To 780 DZ= 73.025 mm.
RIGID Weight= 44.48 N.
-----
From 780 To 790 DZ= 252.000 mm.
RESTRAINTS
Node 790 ANC
EQUIPMENT LIMITS
Nozzle Node = 790 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N.
FB= 1,156.54 N. FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m.
MC= 705.03 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000
Interact. Mtd= Absolute
-----
From 800 To 820 DZ= -500.000 mm.
PIPE
Dia= 60.325 mm. Wall= 3.912 mm. Cor= .0000 mm.
GENERAL
T1= 21 C T2= 21 C P1= .0000 KPa Mat= (102)A53 Grade B
E= 203,401,232 KPa EH1= 203,401,232 KPa EH2= 203,401,232 KPa
EH3= 203,401,232 KPa EH4= 203,401,232 KPa EH5= 203,401,232 KPa
EH6= 203,401,232 KPa EH7= 203,401,232 KPa EH8= 203,401,232 KPa
EH9= 203,401,232 KPa v = .292 Pipe Den= .0078334 kg./cu.cm.
Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 mm.
RESTRAINTS
Node 820 +Y Mu = .30
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 810 To 830 DZ= -500.000 mm.
RESTRAINTS
Node 830 +Y Mu = .30
-----
From 840 To 860 DY= -500.000 mm.
RESTRAINTS
Node 860 +Y Mu = .30
Node 860 Z Gap= 3.000 mm. Mu = .30
-----
From 850 To 870 DY= -500.000 mm.
RESTRAINTS
Node 870 +Y Mu = .30
Node 870 Z Gap= 3.000 mm. Mu = .30
-----

```

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INPUT LISTING

From 880 To 900 DY= -500.000 mm.

RESTRAINTS

Node 900 +Y Mu = .30

From 890 To 910 DY= -500.000 mm.

GENERAL

Insul/Clad Unit Wt= 8.90 N./cm.

RESTRAINTS

Node 910 +Y Mu = .30

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MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
520	530	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
800	820	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.

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ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
440	450	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
520	530	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
800	820	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa

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INPUT LISTING

BEND ELEMENTS

30	40	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 39
		Angle/Node @2= .00 38
165	170	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		169 Angle/Node @2= .00 168
170	180	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179 Angle/Node @2= .00 178
180	190	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		189 Angle/Node @2= .00 188
195	200	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		199 Angle/Node @2= .00 198
240	250	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		249 Angle/Node @2= .00 248
260	700	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		699 Angle/Node @2= .00 698
740	750	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		749
540	550	Radius= 114.300 mm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		549 Angle/Node @2= .00 548
670	680	Radius= 114.300 mm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		679
680	690	Radius= 114.300 mm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		689 Angle/Node @2= .00 688

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RIGIDS

10	20	RIGID Weight= 44.48 N.
40	800	RIGID Weight= .00 N.
85	840	RIGID Weight= .00 N.
90	100	RIGID Weight= 71.17 N.
100	110	RIGID Weight= 653.89 N.
110	120	RIGID Weight= 71.17 N.
130	140	RIGID Weight= 71.17 N.
140	150	RIGID Weight= 622.75 N.
150	160	RIGID Weight= 71.17 N.
170	880	RIGID Weight= .00 N.
200	890	RIGID Weight= .00 N.
220	230	RIGID Weight= 71.17 N.
230	240	RIGID Weight= 71.17 N.
710	720	RIGID Weight= 71.17 N.
720	730	RIGID Weight= 742.85 N.
730	740	RIGID Weight= 71.17 N.
270	280	RIGID Weight= 71.17 N.

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INPUT LISTING

280	290	RIGID	Weight=	622.75 N.
290	300	RIGID	Weight=	71.17 N.
320	330	RIGID	Weight=	40.03 N.
330	340	RIGID	Weight=	84.52 N.
340	350	RIGID	Weight=	40.03 N.
370	380	RIGID	Weight=	71.17 N.
380	390	RIGID	Weight=	622.75 N.
390	400	RIGID	Weight=	71.17 N.
420	430	RIGID	Weight=	71.17 N.
430	440	RIGID	Weight=	146.79 N.
440	450	RIGID	Weight=	71.17 N.
470	480	RIGID	Weight=	115.65 N.
480	490	RIGID	Weight=	965.26 N.
490	500	RIGID	Weight=	115.65 N.
520	530	RIGID	Weight=	44.48 N.
550	810	RIGID	Weight=	.00 N.
595	850	RIGID	Weight=	.00 N.
600	610	RIGID	Weight=	71.17 N.
610	620	RIGID	Weight=	653.89 N.
620	630	RIGID	Weight=	71.17 N.
640	650	RIGID	Weight=	71.17 N.
650	660	RIGID	Weight=	622.75 N.
660	670	RIGID	Weight=	71.17 N.
521	760	RIGID	Weight=	44.48 N.
11	780	RIGID	Weight=	44.48 N.

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SIF'S & TEE'S

40	800	Node	800	Unreinforced Tee
85	840	Node	840	Unreinforced Tee
170	880	Node	880	Unreinforced Tee
200	210	Node	210	Welding Tee
255	260	Node	260	Welding Tee
400	410	Node	410	Welding Tee
550	810	Node	810	Unreinforced Tee
595	850	Node	850	Unreinforced Tee

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REDUCERS

20	30	Diam2=	88.900 mm.	Wall2=	5.486 mm.
50	60	Diam2=	114.300 mm.	Wall2=	6.020 mm.
70	80	Diam2=	88.900 mm.	Wall2=	5.486 mm.
310	320	Diam2=	48.260 mm.	Wall2=	7.137 mm.
350	360	Diam2=	88.900 mm.	Wall2=	5.486 mm.
450	460	Diam2=	114.300 mm.	Wall2=	6.020 mm.
530	540	Diam2=	88.900 mm.	Wall2=	5.486 mm.
560	570	Diam2=	114.300 mm.	Wall2=	6.020 mm.
580	590	Diam2=	88.900 mm.	Wall2=	5.486 mm.

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RESTRAINTS

Len	MU	
GAP	YIELD	Dir

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INPUT LISTING

NODE	TYPE	CNODE	STIF1	STIF2	FORCE	Vectors		
10	ANC	11				.000	.000	.000
255	+Y				.30	.000	1.000	.000
255	Z			3.00	.30	.000	.000	1.000
705	+Y				.30	.000	1.000	.000
365	+Y				.30	.000	1.000	.000
365	X			3.00	.30	1.000	.000	.000
365	Z			3.00	.30	.000	.000	1.000
465	+Y				.30	.000	1.000	.000
510	+Y				.30	.000	1.000	.000
510	Z			3.00	.30	.000	.000	1.000
520	ANC	521				.000	.000	.000
770	ANC					.000	.000	.000
790	ANC					.000	.000	.000
820	+Y				.30	.000	1.000	.000
830	+Y				.30	.000	1.000	.000
860	+Y				.30	.000	1.000	.000
860	Z			3.00	.30	.000	.000	1.000
870	+Y				.30	.000	1.000	.000
870	Z			3.00	.30	.000	.000	1.000
900	+Y				.30	.000	1.000	.000
910	+Y				.30	.000	1.000	.000

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EQUIPMENT LIMITS

760 770 Nozzle Node = 770

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

780 790 Nozzle Node = 790

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10 20 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT LISTING

```

520                               530
                               Vector1 in G-s
                               X1 Dir = .26 g's   Y1 Dir = .00 g's
                               Z1 Dir = .00 g's
                               Vector2 in G-s
                               X2 Dir = .00 g's   Y2 Dir = .12 g's
                               Z2 Dir = .00 g's
                               Vector3 in G-s
                               X3 Dir = .00 g's   Y3 Dir = .00 g's
                               Z3 Dir = .26 g's

```

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INPUT UNITS USED...

```

UNITS=      SI (m NOM/SCH INPUT= ON
LENGTH      inches      x      25.400   =   mm.
FORCE        pounds      x      4.448   =   N.
MASS(dynamics) pounds      x      0.454   =   Kg.
MOMENTS(INPUT) inch-pounds x      0.113   =   N.m.
MOMENTS(OUTPUT) inch-pounds x      0.113   =   N.m.
STRESS       lbs./sq.in.  x      6.895   =   KPa
TEMP. SCALE  degrees F.   x      0.556   =   C
PRESSURE     psig         x      6.895   =   KPa
ELASTIC MODULUS lbs./sq.in. x      6.895   =   KPa
PIPE DENSITY  lbs./cu.in.  x      0.028   =   kg./cu.cm.
INSULATION DENS. lbs./cu.in. x      0.028   =   kg./cu.cm.
FLUID DENSITY lbs./cu.in.  x      0.028   =   kg./cu.cm.
TRANSL. STIF  lbs./in.     x      1.751   =   N./cm.
ROTATIONAL STIF in.lb./deg. x      0.113   =   N.m./deg
UNIFORM LOAD  lb./in.      x      1.751   =   N./cm.
G LOAD        g's         x      1.000   =   g's
WIND LOAD     lbs./sq.in.  x      6.895   =   KPa
ELEVATION     inches      x      0.025   =   m.
COMPOUND LENGTH inches      x      25.400   =   mm.
DIAMETER      inches      x      25.400   =   mm.
WALL THICKNESS inches      x      25.400   =   mm.

```

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SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =            5.00000
MAX ALLOWED BEND ANGLE =            95.0000
BEND LENGTH ATTACHMENT PERCENT =    1.00000
MIN ANGLE TO ADJACENT BEND PT =     5.00000
LOOP CLOSURE TOLERANCE =            25.4000   mm.
THERMAL BOWING HORZ TOLERANCE =     0.100000E-03
AUTO NODE NUMBER INCREMENT=        10.0000
Z AXIS UP=                          NO
USE PRESSURE STIFFENING =            DEFAULT
ALPHA TOLERANCE =                   0.500000E-01
RESLD-FORCE =                        NO
HGR DEF RESWGT STIF =                0.175127E+13 N./cm.
DECOMP SNG TOL =                    0.100000E+11
BEND AXIAL SHAPE =                   YES
FRICT STIF =                        0.175127E+07 N./cm.
FRICT NORM FORCE VAR =               0.150000

```

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```

FRICT ANGLE VAR = 15.0000
FRICT SLIDE MULT = 1.00000
ROD TOLERANCE = 1.00000
ROD INC = 2.00000
INCORE NUMERICAL CHECK = NO
OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.175127E+13 N./cm.
DEFAULT ROT RESTRAINT STIFF= 0.112985E+12 N.m./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 21.1111 C
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.220632E+08 KPa
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 21.6000 C
FRP Density = 0.166079E-02 kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING = NO

```

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INPUT LISTING

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 C
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 20.997 C
Plastic (FRP) Alpha ..... 21.600
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X

```

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COORDINATE REPORT

```

/----- (mm.) -----/
NODE      X          Y          Z
10      -15700.080    -7395.683    7324.219
20      -15700.080    -7395.683    7251.194
30      -15700.080    -7395.683    7162.194
40      -15700.080    -7395.683    6797.194
45      -15392.580    -7395.683    6797.194
40      -15700.080    -7395.683    6797.194
800      -15700.080    -7422.624    6770.253
45      -15392.580    -7395.683    6797.194
50      -15085.080    -7395.683    6797.194
60      -14983.080    -7382.983    6797.194
70      -14683.080    -7382.983    6797.194
80      -14581.480    -7395.683    6797.194
85      -14332.980    -7395.683    6797.194
840      -14332.980    -7433.783    6797.194
85      -14332.980    -7395.683    6797.194
90      -14084.480    -7395.683    6797.194
100      -14001.931    -7395.683    6797.194
110      -13674.931    -7395.683    6797.194
120      -13592.381    -7395.683    6797.194
130      -13392.381    -7395.683    6797.194
140      -13309.831    -7395.683    6797.194
150      -12999.831    -7395.683    6797.194
160      -12917.281    -7395.683    6797.194
165      -12685.281    -7395.683    6797.194
170      -12453.281    -7395.683    6797.194
880      -12426.341    -7422.624    6797.194
165      -12685.281    -7395.683    6797.194
170      -12453.281    -7395.683    6797.194
180      -12453.281    -5384.683    6797.194
190      -12453.281    -5384.683    4530.194

```


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INPUT LISTING

195	-12453.281	-6390.183	4530.194
200	-12453.281	-7395.683	4530.194
890	-12426.341	-7422.624	4530.194
195	-12453.281	-6390.183	4530.194
200	-12453.281	-7395.683	4530.194
210	-12453.281	-7395.683	4330.194
220	-12453.281	-7395.683	2609.194
230	-12453.281	-7395.683	2526.644
240	-12453.281	-7395.683	2444.094
250	-12453.281	-7395.683	1874.094
255	-12111.781	-7395.683	1874.094
260	-11770.281	-7395.683	1874.094
700	-11770.281	-7395.683	2274.094
705	-9833.281	-7395.683	2274.094
710	-9633.281	-7395.683	2274.094
720	-9550.731	-7395.683	2274.094
730	-9223.731	-7395.683	2274.094
740	-9141.182	-7395.683	2274.094
750	-9026.182	-7395.683	2274.094
410	-9026.182	-7395.363	1874.094
260	-11770.281	-7395.683	1874.094
270	-11684.281	-7395.683	1874.094
280	-11601.731	-7395.683	1874.094
290	-11309.731	-7395.683	1874.094
300	-11227.182	-7395.683	1874.094
310	-10927.182	-7395.683	1874.094
320	-10724.182	-7415.683	1874.094
330	-10652.744	-7415.683	1874.094
340	-10443.744	-7415.683	1874.094
350	-10372.307	-7415.683	1874.094
360	-10169.307	-7395.363	1874.094
365	-9969.307	-7395.363	1874.094
370	-9569.307	-7395.363	1874.094
380	-9486.757	-7395.363	1874.094
390	-9194.757	-7395.363	1874.094
400	-9112.207	-7395.363	1874.094
400	-9112.182	-7395.363	1874.094
410	-9026.182	-7395.363	1874.094
420	-8391.182	-7395.363	1874.094
430	-8308.632	-7395.363	1874.094
440	-8079.632	-7395.363	1874.094
450	-7997.082	-7395.363	1874.094
460	-7895.882	-7382.663	1874.094
465	-7595.882	-7382.663	1874.094
470	-7295.882	-7382.663	1874.094
480	-7206.982	-7382.663	1874.094
490	-6892.982	-7382.663	1874.094
500	-6804.082	-7382.663	1874.094
510	-6309.082	-7382.663	1874.094
520	-15637.080	-7395.683	4644.219
530	-15637.080	-7395.683	4571.194
540	-15637.080	-7395.683	4482.194
550	-15637.080	-7395.683	4117.194
555	-15329.580	-7395.683	4117.194
550	-15637.080	-7395.683	4117.194
810	-15637.080	-7422.624	4090.254

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INPUT LISTING

555	-15329.580	-7395.683	4117.194
560	-15022.080	-7395.683	4117.194
570	-14920.080	-7382.983	4117.194
580	-14620.080	-7382.983	4117.194
590	-14518.480	-7395.683	4117.194
595	-14269.980	-7395.683	4117.194
850	-14269.980	-7433.783	4117.194
595	-14269.980	-7395.683	4117.194
600	-14021.480	-7395.683	4117.194
610	-13938.931	-7395.683	4117.194
620	-13611.931	-7395.683	4117.194
630	-13529.381	-7395.683	4117.194
640	-13329.381	-7395.683	4117.194
650	-13246.831	-7395.683	4117.194
660	-12936.831	-7395.683	4117.194
670	-12854.281	-7395.683	4117.194
680	-12803.281	-7395.683	4117.194
690	-12590.281	-7395.683	4330.194
210	-12453.281	-7395.683	4330.194
520	-15637.080	-7395.683	4644.219
760	-15637.080	-7395.683	4717.244
770	-15637.080	-7395.683	4969.244
10	-15700.080	-7395.683	7324.219
780	-15700.080	-7395.683	7397.244
790	-15700.080	-7395.683	7649.244
800	-15700.080	-7422.624	6770.253
820	-15700.080	-7422.624	6270.253
810	-15637.080	-7422.624	4090.254
830	-15637.080	-7422.624	3590.254
840	-14332.980	-7433.783	6797.194
860	-14332.980	-7933.783	6797.194
850	-14269.980	-7433.783	4117.194
870	-14269.980	-7933.783	4117.194
880	-12426.341	-7422.624	6797.194
900	-12426.341	-7922.624	6797.194
890	-12426.341	-7422.624	4530.194
910	-12426.341	-7922.624	4530.194

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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Job:: BNK-GCS-CN-014-01

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid ANC;					
	1(HYD)	-16	-90	5	7	2	6
	2(OPE)	-629	-31	192	12	88	14
	4(OPE)	-197	-82	61	7	33	7
	6(OPE)	-16	-87	2	8	3	6
	8(SUS)	-16	-87	2	8	3	6
	9(SUS)	-12	-59	0	8	2	6
	MAX	-629/L2	-90/L1	192/L2	12/L2	88/L2	14/L2
255		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	120	-1005	-222	0	0	0
	2(OPE)	-227	-1020	-206	0	0	0
	4(OPE)	-207	-998	-216	0	0	0
	6(OPE)	120	-1006	-222	0	0	0
	8(SUS)	120	-1006	-222	0	0	0
	9(SUS)	105	-860	-195	0	0	0
	MAX	-227/L2	-1020/L2	-222/L6			
365		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	158	-1175	18	0	0	0
	2(OPE)	81	-1187	-347	0	0	0
	4(OPE)	-186	-1190	-99	0	0	0
	6(OPE)	158	-1175	18	0	0	0
	8(SUS)	158	-1175	18	0	0	0
	9(SUS)	148	-1098	16	0	0	0
	MAX	-186/L4	-1190/L4	-347/L2			
465		TYPE=Rigid +Y;					
	1(HYD)	-145	-1796	5	0	0	0
	2(OPE)	527	-1773	74	0	0	0
	4(OPE)	536	-1788	27	0	0	0
	6(OPE)	-145	-1797	5	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	8(SUS)	-145	-1797	5	0	0	0
	9(SUS)	-143	-1660	5	0	0	0
	MAX	536/L4	-1797/L6	74/L2			
510		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-102	-342	-6	0	0	0
	2(OPE)	104	-348	10	0	0	0
	4(OPE)	102	-342	-6	0	0	0
	6(OPE)	-103	-342	-5	0	0	0
	8(SUS)	-103	-342	-5	0	0	0
	9(SUS)	-93	-308	-2	0	0	0
	MAX	104/L2	-348/L2	10/L2			
520		TYPE=Rigid ANC;					
	1(HYD)	-0	-54	-38	4	8	9
	2(OPE)	-913	22	223	2	153	17
	4(OPE)	-194	-43	22	3	42	10
	6(OPE)	-0	-51	-38	5	8	9
	8(SUS)	-0	-51	-38	5	8	9
	9(SUS)	2	-27	-35	6	7	9
	MAX	-913/L2	-54/L1	223/L2	6/L9	153/L2	17/L2
705		TYPE=Rigid +Y;					
	1(HYD)	-12	-1310	-4	0	0	0
	2(OPE)	-151	-1334	-0	0	0	0
	4(OPE)	-271	-1315	4	0	0	0
	6(OPE)	-12	-1311	-4	0	0	0
	8(SUS)	-12	-1311	-4	0	0	0
	9(SUS)	-8	-1175	-4	0	0	0
	MAX	-271/L4	-1334/L2	-4/L6			
770		TYPE=Rigid ANC;					
	1(HYD)	-0	-123	-38	-29	8	9
	2(OPE)	-913	-47	223	-7	450	17
	4(OPE)	-194	-112	22	-27	105	10
	6(OPE)	-0	-120	-38	-28	8	9
	8(SUS)	-0	-120	-38	-28	8	9
	9(SUS)	2	-90	-35	-18	7	9
	MAX	-913/L2	-123/L1	223/L2	-29/L1	450/L2	17/L2
790		TYPE=Rigid ANC;					
	1(HYD)	-16	-159	5	-38	8	6
	2(OPE)	-629	-100	192	-14	293	14

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-197	-151	61	-36	97	7
	6(OPE)	-16	-156	2	-37	8	6
	8(SUS)	-16	-156	2	-37	8	6
	9(SUS)	-12	-122	0	-26	6	6
	MAX	-629/L2	-159/L1	192/L2	-38/L1	293/L2	14/L2
820		TYPE=Rigid +Y;					
	1(HYD)	-16	-57	-7	0	0	0
	2(OPE)	-4	-24	-6	0	0	0
	4(OPE)	-14	-60	-11	0	0	0
	6(OPE)	-14	-50	-4	0	0	0
	8(SUS)	-14	-50	-4	0	0	0
	9(SUS)	-10	-33	-2	0	0	0
	MAX	-16/L1	-60/L4	-11/L4			
830		TYPE=Rigid +Y;					
	1(HYD)	-24	-79	-3	0	0	0
	2(OPE)	-24	-107	-21	0	0	0
	4(OPE)	-24	-90	-13	0	0	0
	6(OPE)	-21	-72	-3	0	0	0
	8(SUS)	-21	-72	-3	0	0	0
	9(SUS)	-16	-53	-2	0	0	0
	MAX	-24/L2	-107/L2	-21/L2			
860		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-113	-1344	2	0	0	0
	2(OPE)	335	-1304	-202	0	0	0
	4(OPE)	-94	-1286	-50	0	0	0
	6(OPE)	-114	-1332	2	0	0	0
	8(SUS)	-114	-1332	2	0	0	0
	9(SUS)	-113	-1226	2	0	0	0
	MAX	335/L2	-1344/L1	-202/L2			
870		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-148	-1332	49	0	0	0
	2(OPE)	126	-1230	-78	0	0	0
	4(OPE)	-143	-1268	8	0	0	0
	6(OPE)	-150	-1321	49	0	0	0
	8(SUS)	-150	-1321	49	0	0	0
	9(SUS)	-145	-1212	45	0	0	0
	MAX	-150/L6	-1332/L1	-78/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
900		TYPE=Rigid +Y;					
	1(HYD)	142	-1195	7	0	0	0
	2(OPE)	382	-1292	66	0	0	0
	4(OPE)	305	-1227	20	0	0	0
	6(OPE)	142	-1185	7	0	0	0
	8(SUS)	142	-1185	7	0	0	0
	9(SUS)	133	-1008	2	0	0	0
	MAX	382/L2	-1292/L2	66/L2			
910		TYPE=Rigid +Y;					
	1(HYD)	152	-1507	189	0	0	0
	2(OPE)	544	-2041	281	0	0	0
	4(OPE)	292	-1982	242	0	0	0
	6(OPE)	152	-1942	189	0	0	0
	8(SUS)	152	-1942	189	0	0	0
	9(SUS)	143	-1690	169	0	0	0
	MAX	544/L2	-2041/L2	281/L2			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 20 (OCC) L20=L15+L8
 CASE 21 (OCC) L21=L16+L8
 CASE 22 (OCC) L22=L17+L8
 CASE 23 (OCC) L23=L18+L8
 CASE 24 (OCC) L24=L19+L8
 CASE 25 (EXP) L25=L2-L8
 CASE 26 (EXP) L26=L4-L8
 CASE 27 (EXP) L27=L2-L4
 CASE 28 (EXP) L28=L6-L8
 CASE 29 (EXP) L29=L2-L6
 CASE 30 (EXP) L30=L4-L6

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (KPa)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	13.2	@Node 850
Code Stress:	31909.3	Allowable Stress: 241316.5
Axial Stress:	14837.7	@Node 570
Bending Stress:	29629.9	@Node 850
Torsion Stress:	1843.8	@Node 750
Hoop Stress:	31427.3	@Node 60
Max Stress Intensity:	43052.7	@Node 850

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (KPa)	LOADCASE 8 (SUS) W+P1	
Ratio (%):	34.0	@Node 130
Code Stress:	46823.0	Allowable Stress: 137895.1
Axial Stress:	21359.6	@Node 570
Bending Stress:	29807.7	@Node 850
Torsion Stress:	3673.2	@Node 750
Hoop Stress:	43917.5	@Node 60
Max Stress Intensity:	50052.3	@Node 410

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (KPa)	LOADCASE 9 (SUS) WNC	
Ratio (%):	19.0	@Node 130
Code Stress:	26268.1	Allowable Stress: 137895.1
Axial Stress:	2437.2	@Node 910
Bending Stress:	28730.5	@Node 850
Torsion Stress:	3420.5	@Node 750
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	30440.5	@Node 850

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L8

Highest Stresses: (KPa)	LOADCASE 20 (OCC) L20=L15+L8	
Ratio (%):	43.4 @Node 850	
Code Stress:	79579.3	Allowable Stress: 183400.5
Axial Stress:	21687.3 @Node 570	
Bending Stress:	103376.7 @Node 850	
Torsion Stress:	8159.0 @Node 210	
Hoop Stress:	43917.5 @Node 60	
Max Stress Intensity:	105423.5 @Node 850	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L8

Highest Stresses: (KPa)	LOADCASE 21 (OCC) L21=L16+L8	
Ratio (%):	35.3 @Node 850	
Code Stress:	64729.0	Allowable Stress: 183400.5
Axial Stress:	21500.7 @Node 420	
Bending Stress:	83506.8 @Node 850	
Torsion Stress:	6539.2 @Node 680	
Hoop Stress:	43917.5 @Node 60	
Max Stress Intensity:	85605.7 @Node 850	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L8

Highest Stresses: (KPa)	LOADCASE 22 (OCC) L22=L17+L8	
Ratio (%):	27.3 @Node 130	
Code Stress:	50006.7	Allowable Stress: 183400.5
Axial Stress:	21358.3 @Node 570	
Bending Stress:	33483.9 @Node 850	
Torsion Stress:	3233.3 @Node 750	
Hoop Stress:	43917.5 @Node 60	
Max Stress Intensity:	53640.8 @Node 410	

CODE STRESS CHECK PASSED : LOADCASE 23 (OCC) L23=L18+L8

Highest Stresses: (KPa)	LOADCASE 23 (OCC) L23=L18+L8	
Ratio (%):	40.6 @Node 850	
Code Stress:	74369.9	Allowable Stress: 183400.5
Axial Stress:	21407.6 @Node 370	
Bending Stress:	96601.9 @Node 850	
Torsion Stress:	4725.7 @Node 45	
Hoop Stress:	43917.5 @Node 60	
Max Stress Intensity:	98520.4 @Node 850	

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L19+L8

Highest Stresses: (KPa)	LOADCASE 24 (OCC) L24=L19+L8	
Ratio (%):	39.2 @Node 880	
Code Stress:	71933.3	Allowable Stress: 183400.5
Axial Stress:	21530.7 @Node 60	
Bending Stress:	93338.5 @Node 880	
Torsion Stress:	6335.1 @Node 590	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Hoop Stress:	43917.5	@Node	60
Max Stress Intensity:	95267.9	@Node	880

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L8

Highest Stresses: (KPa)	LOADCASE 25 (EXP) L25=L2-L8	
Ratio (%):	26.0	@Node 840
Code Stress:	84623.5	Allowable Stress: 325810.3
Axial Stress:	1014.7	@Node 320
Bending Stress:	84482.3	@Node 840
Torsion Stress:	2922.4	@Node 210
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	84522.8	@Node 840

CODE STRESS CHECK PASSED : LOADCASE 26 (EXP) L26=L4-L8

Highest Stresses: (KPa)	LOADCASE 26 (EXP) L26=L4-L8	
Ratio (%):	9.7	@Node 880
Code Stress:	31218.6	Allowable Stress: 322912.1
Axial Stress:	679.3	@Node 420
Bending Stress:	31006.7	@Node 880
Torsion Stress:	1328.6	@Node 210
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	31067.6	@Node 880

CODE STRESS CHECK PASSED : LOADCASE 27 (EXP) L27=L2-L4

Highest Stresses: (KPa)	LOADCASE 27 (EXP) L27=L2-L4	
Ratio (%):	23.8	@Node 840
Code Stress:	77532.8	Allowable Stress: 325810.3
Axial Stress:	501.0	@Node 590
Bending Stress:	77440.8	@Node 840
Torsion Stress:	1593.8	@Node 210
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	77467.2	@Node 840

CODE STRESS CHECK PASSED : LOADCASE 28 (EXP) L28=L6-L8

Highest Stresses: (KPa)	LOADCASE 28 (EXP) L28=L6-L8	
Ratio (%):	0.0	@Node 30
Code Stress:	0.0	Allowable Stress: 323557.1
Axial Stress:	0.0	@Node 20
Bending Stress:	0.0	@Node 20
Torsion Stress:	0.0	@Node 20
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	0.0	@Node 20

CODE STRESS CHECK PASSED : LOADCASE 29 (EXP) L29=L2-L6

Highest Stresses: (KPa)	LOADCASE 29 (EXP) L29=L2-L6	
Ratio (%):	26.0	@Node 840
Code Stress:	84623.5	Allowable Stress: 325810.3
Axial Stress:	1014.7	@Node 320

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Bending Stress:	84482.3	@Node	840
Torsion Stress:	2922.4	@Node	210
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	84522.8	@Node	840

CODE STRESS CHECK PASSED : LOADCASE 30 (EXP) L30=L4-L6

Highest Stresses: (KPa)	LOADCASE 30 (EXP) L30=L4-L6	
Ratio (%):	9.7	@Node 880
Code Stress:	31218.6	Allowable Stress: 322912.1
Axial Stress:	679.3	@Node 420
Bending Stress:	31006.7	@Node 880
Torsion Stress:	1328.6	@Node 210
Hoop Stress:	0.0	@Node 20
Max Stress Intensity:	31067.6	@Node 880

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4
28 (EXP) L28=L6-L8
29 (EXP) L29=L2-L6
30 (EXP) L30=L4-L6

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T2+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
770		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	22	-112	194	0.136	10	105	27	0.039	
	8(SUS)	-38	-120	0	0.104	9	8	28	0.040	
	9(SUS)	-35	-90	-2	0.078	9	7	18	0.026	
790		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	61	-151	197	0.139	7	97	36	0.051	
	8(SUS)	2	-156	16	0.135	6	8	37	0.052	
	9(SUS)	0	-122	12	0.105	6	6	26	0.037	

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Line no.

Stress sketch

Input echo

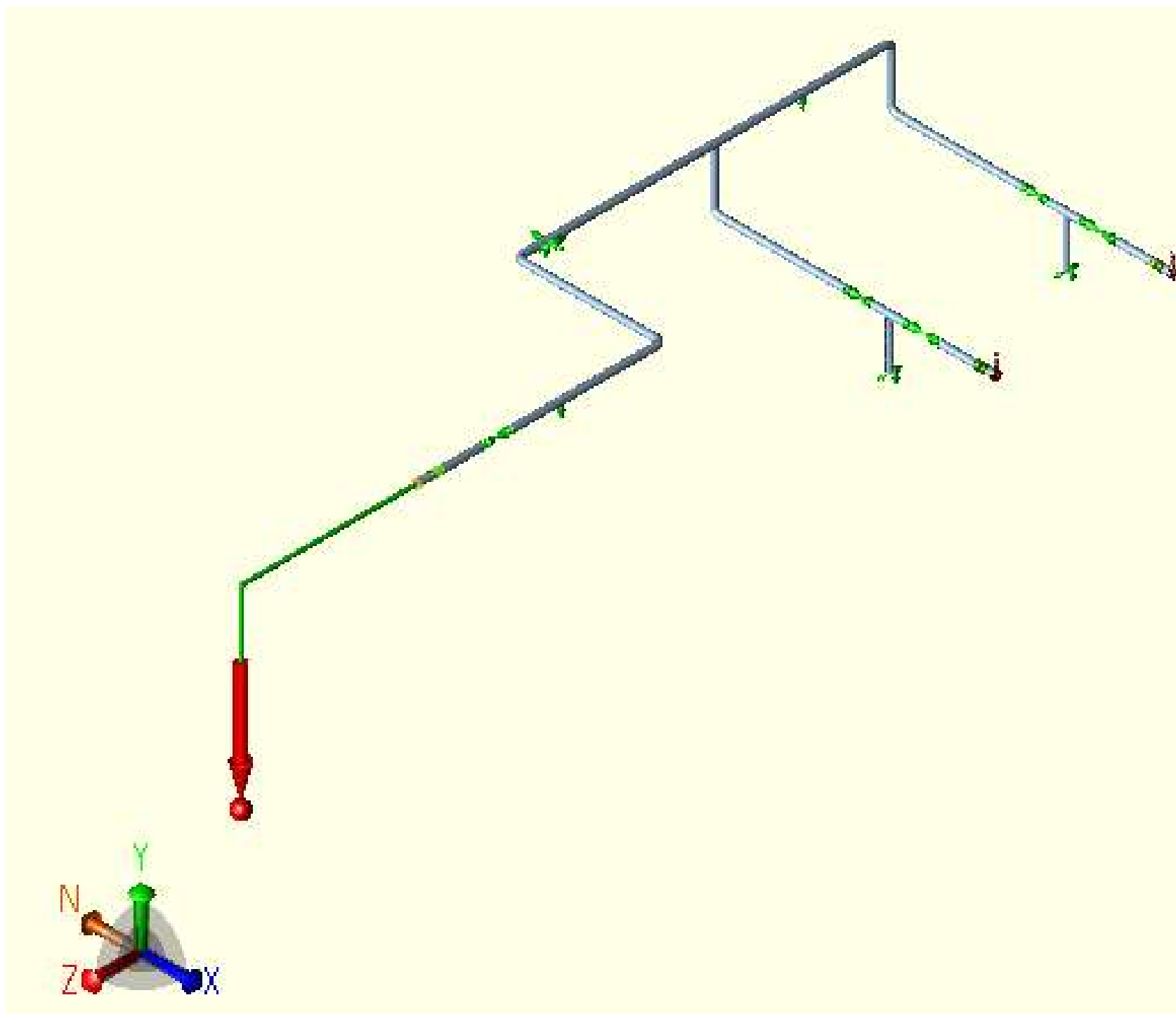
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. TEG-111-0004-AN04-2"-PT
2. TEG-111-0005-AN04-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+D1+T2+P1+U1
9 (OPE) W+D1+T2+P1-U1
10 (OPE) W+D1+T2+P1+U2
11 (OPE) W+D1+T2+P1+U3
12 (OPE) W+D1+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 10 To 20 DX= -.219 ft. DY= .000 ft.

PIPE

Dia= 2.375 in. Wall= .218 in. Cor= .1181 in.

GENERAL

T1= 185 F T2= 70 F P1= 50.7644 lb./sq.in. PHyd= 76.1466 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

EH1= 28,875,074 lb./sq.in. EH2= 29,500,106 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0402818 lb./cu.in. Insul Thk= .000 in.

Insul Den= .0000000 lb./cu.in.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 20 To 30 DX= -1.312 ft.

 From 30 To 40 DX= -.219 ft.

RIGID Weight= 7.00 lb.

 From 40 To 50 DX= -.883 ft.

RIGID Weight= 21.00 lb.

 From 50 To 60 DX= -.219 ft.

RIGID Weight= 7.00 lb.

 From 60 To 65 DX= -.595 ft.

 From 65 To 430 DY= -.083 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 430 Unreinforced Tee

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INPUT LISTING

From 65 To 70 DX= -.595 ft.

From 70 To 80 DX= -.219 ft.
RIGID Weight= 7.00 lb.

From 80 To 90 DX= -.548 ft.
RIGID Weight= 60.00 lb.

From 90 To 100 DX= -.219 ft.
RIGID Weight= 7.00 lb.

From 100 To 120 DX= -4.921 ft.
BEND at "TO" end
Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 119
Angle/Node @2= .00 118

From 120 To 130 DY= 2.231 ft.
BEND at "TO" end
Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 129
Angle/Node @2= .00 128

From 130 To 135 DZ= 3.281 ft.
RESTRAINTS
Node 135 +Y Mu = .30

From 135 To 140 DZ= 3.281 ft.
SIF's & TEE's
Node 140 Welding Tee

From 140 To 150 DZ= 6.234 ft.
RESTRAINTS
Node 150 +Y Mu = .30
Node 150 X Gap= .118 in.
Node 150 Z Gap= .118 in.

From 150 To 160 DZ= 1.115 ft.
BEND at "TO" end
Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 159
Angle/Node @2= .00 158

From 160 To 170 DX= 5.420 ft.
BEND at "TO" end
Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 169
Angle/Node @2= .00 168

From 170 To 175 DZ= 3.766 ft.
RESTRAINTS
Node 175 +Y Mu = .30

From 175 To 180 DZ= 1.860 ft.

From 180 To 190 DZ= .219 ft.
RIGID Weight= 7.00 lb.

From 190 To 200 DZ= .659 ft.

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INPUT LISTING

RIGID Weight= 60.00 lb.

From 200 To 210 DZ= .219 ft.

RIGID Weight= 7.00 lb.

From 210 To 220 DZ= 1.476 ft.

From 220 To 230 DZ= .219 ft.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 230 ANC Cnode 231

From 240 To 250 DX= -.219 ft. DY= .000 ft.

PIPE

Dia= 2.375 in. Wall= .218 in. Cor= .1181 in.

GENERAL

T1= 185 F T2= 70 F P1= 50.7644 lb./sq.in. PHyd= 76.1466 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

EH1= 28,875,074 lb./sq.in. EH2= 29,500,106 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0402818 lb./cu.in. Insul Thk= .000 in.

Insul Den= .0000000 lb./cu.in.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 240 ANC Cnode 241

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 250 To 260 DX= -1.312 ft.

From 260 To 270 DX= -.219 ft.

RIGID Weight= 7.00 lb.

From 270 To 280 DX= -.883 ft.

RIGID Weight= 21.00 lb.

From 280 To 290 DX= -.219 ft.

RIGID Weight= 7.00 lb.

From 290 To 295 DX= -.595 ft.

From 295 To 450 DY= -.083 ft.

RIGID Weight= .00 lb.

SIF'S & TEE'S

Node 450 Unreinforced Tee

From 295 To 300 DX= -.595 ft.

From 300 To 310 DX= -.219 ft.

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INPUT LISTING

RIGID Weight= 7.00 lb.

From 310 To 320 DX= -.548 ft.

RIGID Weight= 60.00 lb.

From 320 To 330 DX= -.219 ft.

RIGID Weight= 7.00 lb.

From 330 To 340 DX= -4.921 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 339

Angle/Node @2= .00 338

From 340 To 140 DY= 2.231 ft.

From 11 To 350 DX= .219 ft.

RIGID Weight= 7.00 lb.

From 350 To 360 DX= .289 ft.

RESTRAINTS

Node 360 ANC

EQUIPMENT LIMITS

Nozzle Node = 360 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb.

FB= 260.00 lb. FC= 320.00 lb. MA= 8,159.99 in.lb. MB= 6,240.01 in.lb.

MC= 4,080.00 in.lb. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 241 To 370 DX= .219 ft.

RIGID Weight= 7.00 lb.

From 370 To 380 DX= .289 ft.

RESTRAINTS

Node 380 ANC

EQUIPMENT LIMITS

Nozzle Node = 380 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb.

FB= 260.00 lb. FC= 320.00 lb. MA= 8,159.99 in.lb. MB= 6,240.01 in.lb.

MC= 4,080.00 in.lb. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 231 To 390 DZ= .219 ft.

RIGID Weight= 7.00 lb.

From 390 To 400 DZ= .449 ft.

RESTRAINTS

Node 400 ANC Cnode 401

From 400 To 410 DZ= 6.562 ft.

PIPE

Dia= 157.480 in. Wall= .218 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 410 To 420 DY= -2.461 ft.

RIGID Weight= .00 lb.

DISPLACEMENTS

Node 420 DX1= .000 in. DY1= -.591 in. DZ1= .000 in. RX1= .000

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INPUT LISTING

RY1= .000 RZ1= .000

 From 430 To 440 DY= -1.804 ft.

PIPE

Dia= 1.900 in. Wall= .145 in. Cor= .0000 in.

GENERAL

T1= 70 F P1= .0000 lb./sq.in. PHyd= .0000 lb./sq.in.

Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.

EH1= 29,500,856 lb./sq.in. EH2= 29,500,106 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 440 +Y Mu = .30

Node 440 Z Gap= .118 in. Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 450 To 460 DY= -1.804 ft.

RESTRAINTS

Node 460 +Y Mu = .30

Node 460 Z Gap= .118 in. Mu = .30

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MATERIAL Changes:

10 20 Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. v = .292
 Density= .2830 lb./cu.in.

240 250 Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. v = .292
 Density= .2830 lb./cu.in.

430 440 Mat= (102)A53 Grade B
 E= 29,500,856 lb./sq.in. v = .292
 Density= .2830 lb./cu.in.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-016-)\BNK-GCS-CN-0

ALLOWABLE STRESS Changes

10 20 B31.3 (2016) Cycle Max Switch = ---
 Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in.
 Sh2= 20,000 lb./sq.in.
 Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in.
 Sh5= 20,000 lb./sq.in.
 Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in.
 Sh8= 20,000 lb./sq.in.

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INPUT LISTING

		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
240	250	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
430	440	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 20,000 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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BEND ELEMENTS

100	120	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		119 Angle/Node @2= .00 118
120	130	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		129 Angle/Node @2= .00 128
150	160	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		159 Angle/Node @2= .00 158
160	170	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		169 Angle/Node @2= .00 168
330	340	Radius= 3.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		339 Angle/Node @2= .00 338

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RIGIDS

10	20	RIGID Weight= 7.00 lb.
30	40	RIGID Weight= 7.00 lb.
40	50	RIGID Weight= 21.00 lb.
50	60	RIGID Weight= 7.00 lb.
65	430	RIGID Weight= .00 lb.

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INPUT LISTING

70	80	RIGID	Weight= 7.00 lb.
80	90	RIGID	Weight= 60.00 lb.
90	100	RIGID	Weight= 7.00 lb.
180	190	RIGID	Weight= 7.00 lb.
190	200	RIGID	Weight= 60.00 lb.
200	210	RIGID	Weight= 7.00 lb.
220	230	RIGID	Weight= 7.00 lb.
240	250	RIGID	Weight= 7.00 lb.
260	270	RIGID	Weight= 7.00 lb.
270	280	RIGID	Weight= 21.00 lb.
280	290	RIGID	Weight= 7.00 lb.
295	450	RIGID	Weight= .00 lb.
300	310	RIGID	Weight= 7.00 lb.
310	320	RIGID	Weight= 60.00 lb.
320	330	RIGID	Weight= 7.00 lb.
11	350	RIGID	Weight= 7.00 lb.
241	370	RIGID	Weight= 7.00 lb.
231	390	RIGID	Weight= 7.00 lb.
400	410	RIGID	Weight= .00 lb.
410	420	RIGID	Weight= .00 lb.

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SIF's & TEE's

65	430	Node 430	Unreinforced Tee
135	140	Node 140	Welding Tee
295	450	Node 450	Unreinforced Tee

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	11				.000 .000 .000
135	+Y				.30	.000 1.000 .000
150	+Y				.30	.000 1.000 .000
150	X			.12		1.000 .000 .000
150	Z			.12		.000 .000 1.000
175	+Y				.30	.000 1.000 .000
230	ANC	231				.000 .000 .000
240	ANC	241				.000 .000 .000
360	ANC					.000 .000 .000
380	ANC					.000 .000 .000
400	ANC	401				.000 .000 .000
440	+Y				.30	.000 1.000 .000
440	Z			.12	.30	.000 .000 1.000
460	+Y				.30	.000 1.000 .000
460	Z			.12	.30	.000 .000 1.000

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DISPLACEMENTS

410	420	Node 420	DX1= .000 in.	DY1= -.591 in.
			DZ1= .000 in.	RX1= .000 RY1= .000

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INPUT LISTING

RZ1= .000

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EQUIPMENT LIMITS

350 360 Nozzle Node = 360

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb. FB= 260.00 lb.
 FC= 320.00 lb. MA= 8,159.99 in.lb. MB= 6,240.01 in.lb.
 MC= 4,080.00 in.lb. Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute
 370 380 Nozzle Node = 380

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb. FB= 260.00 lb.
 FC= 320.00 lb. MA= 8,159.99 in.lb. MB= 6,240.01 in.lb.
 MC= 4,080.00 in.lb. Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10 20 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	=	in.
FORCE	pounds	x	1.000	=	lb.
MASS (dynamics)	pounds	x	1.000	=	lbm
MOMENTS (INPUT)	inch-pounds	x	1.000	=	in.lb.
MOMENTS (OUTPUT)	inch-pounds	x	0.083	=	ft.lb.
STRESS	lbs./sq.in.	x	1.000	=	lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	=	F
PRESSURE	psig	x	1.000	=	lb./sq.in.
ELASTIC MODULUS	lbs./sq.in.	x	1.000	=	lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	=	lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	=	lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	=	in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	=	lb./in.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	144.000	=	lb./sq.ft.

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INPUT LISTING

ELEVATION	inches	x	0.083	=	ft.
COMPOUND LENGTH	inches	x	0.083	=	ft.
DIAMETER	inches	x	1.000	=	in.
WALL THICKNESS	inches	x	1.000	=	in.

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SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =             5.00000
MAX ALLOWED BEND ANGLE =             95.0000
BEND LENGTH ATTACHMENT PERCENT =     1.00000
MIN ANGLE TO ADJACENT BEND PT =      5.00000
LOOP CLOSURE TOLERANCE =             1.00000      in.
THERMAL BOWING HORZ TOLERANCE =      0.100000E-03
AUTO NODE NUMBER INCREMENT=         10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =             DEFAULT
ALPHA TOLERANCE =                    0.500000E-01
RESLD-FORCE =                         NO
HGR DEF RESWGT STIF =                 0.100000E+13 lb./in.
DECOMP SNG TOL =                     0.100000E+11
BEND AXIAL SHAPE =                    YES
FRICT STIF =                         0.100000E+07 lb./in.
FRICT NORM FORCE VAR =                 0.150000
FRICT ANGLE VAR =                     15.0000
FRICT SLIDE MULT =                    1.00000
ROD TOLERANCE =                       1.00000
ROD INC =                             2.00000
INCORE NUMERICAL CHECK =              NO
OUTCORE NUMERICAL CHECK =             NO
DEFAULT TRANS RESTRAINT STIFF=        0.100000E+13      lb./in.
DEFAULT ROT RESTRAINT STIFF=          0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS =      NO
MISSING MASS ZPA =                    EXTRACTED
MIN WALL MILL TOLERANCE =             12.5000
WRC-107 VERSION =                     MAR 79 1B1/2B1
WRC-107 INTERPOLATION =               LAST VALUE
DEFAULT AMBIENT TEMPERATURE=          70.0000      F
BOURDON PRESSURE=                     NONE
COEFFICIENT OF FRICTION (MU) =         0.000000
INCLUDE SPRG STIF IN HGR OPE =        NO
INCLUDE INSULATION IN HYDROTEST =     NO
REDUCED INTERSECTION =                 B31.1 (POST1980)
USE WRC329                            NO
NO REDUCED SIF FOR RFT AND WLT        NO
B31.1 REDUCED Z FIX =                  YES
CLASS 1 BRANCH FLEX                    NO
ALL STRESS CASES CORRODED =           NO
ADD TORSION IN SL STRESS =             DEFAULT
ADD F/A IN STRESS =                   DEFAULT
OCCASIONAL LOAD FACTOR =               0.000000
DEFAULT CODE =                         B31.3
B31.3 SUS CASE SIF FACTOR =            0.000000
ALLOW USERS BEND SIF =                 NO
USE SCHNEIDER                         NO

```


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INPUT LISTING

```

YIELD CRITERION STRESS =          MAX 3D SHEAR
USE PD/4T                  NO
BASE HOOP STRESS ON ? =      ID
EN13480 USE IN OUTPLANE SIFS=  NO
LIBERAL EXPANSION ALLOWABLE=  YES
B31.3 SEC 319.2.3C SAXIAL=    Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P        NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF =               YES
USE FRP FLEX =              YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File=     CAESAR.FRP
FRP Emod (axial) =          0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a =            0.152730
FRP Laminate Type =         THREE
FRP Alpha =                  12.0000                      F
FRP Density =                0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING = NO
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```

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 F
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 69.794 F
Plastic (FRP) Alpha ..... 12.000
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X
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```

COORDINATE REPORT

```

/----- (in.) -----/
NODE      X          Y          Z
10      -618.113    -291.169    288.355
20      -620.738    -291.169    288.355
30      -636.486    -291.169    288.355
40      -639.111    -291.169    288.355
50      -649.702    -291.169    288.355

```

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INPUT LISTING

60	-652.327	-291.169	288.355
65	-659.473	-291.169	288.355
430	-659.473	-292.169	288.355
65	-659.473	-291.169	288.355
70	-666.618	-291.169	288.355
80	-669.243	-291.169	288.355
90	-675.818	-291.169	288.355
100	-678.443	-291.169	288.355
120	-737.498	-291.169	288.355
130	-737.498	-264.397	288.355
135	-737.498	-264.397	327.725
140	-737.498	-264.397	367.095
150	-737.498	-264.397	441.898
160	-737.498	-264.397	455.284
170	-672.459	-264.397	455.284
175	-672.459	-264.397	500.481
180	-672.459	-264.397	522.804
190	-672.459	-264.397	525.429
200	-672.459	-264.397	533.342
210	-672.459	-264.397	535.967
220	-672.459	-264.397	553.684
230	-672.459	-264.397	556.309
240	-618.113	-291.169	367.095
250	-620.738	-291.169	367.095
260	-636.486	-291.169	367.095
270	-639.111	-291.169	367.095
280	-649.702	-291.169	367.095
290	-652.327	-291.169	367.095
295	-659.473	-291.169	367.095
450	-659.473	-292.169	367.095
295	-659.473	-291.169	367.095
300	-666.618	-291.169	367.095
310	-669.243	-291.169	367.095
320	-675.818	-291.169	367.095
330	-678.443	-291.169	367.095
340	-737.498	-291.169	367.095
140	-737.498	-264.397	367.095
10	-618.113	-291.169	288.355
350	-615.488	-291.169	288.355
360	-612.024	-291.169	288.355
240	-618.113	-291.169	367.095
370	-615.488	-291.169	367.095
380	-612.024	-291.169	367.095
230	-672.459	-264.397	556.309
390	-672.459	-264.397	558.934
400	-672.459	-264.397	564.328
410	-672.459	-264.397	643.068
420	-672.459	-293.925	643.068
430	-659.473	-292.169	288.355
440	-659.473	-313.822	288.355
450	-659.473	-292.169	367.095
460	-659.473	-313.822	367.095

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+D1+T2+P1+U1
9 (OPE) W+D1+T2+P1-U1
10 (OPE) W+D1+T2+P1+U2
11 (OPE) W+D1+T2+P1+U3
12 (OPE) W+D1+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+D1+T1+P1

CASE 4 (OPE) W+D1+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid ANC;					
	1(HYD)	-15	-2	-3	-0.9	4.0	-6.0
	2(OPE)	72	51	-3	-33.3	-49.0	-41.5
	4(OPE)	-6	1	-4	-1.7	3.6	-8.3
	6(SUS)	-15	-2	-3	-0.9	4.1	-6.1
	7(SUS)	-13	-3	-2	-0.7	3.4	-5.1
	MAX	72/L2	51/L2	-4/L4	-33.3/L2	-49.0/L2	-41.5/L2
135		TYPE=Rigid +Y;					
	1(HYD)	5	-111	-1	0.0	0.0	0.0
	2(OPE)	-27	-109	-19	0.0	0.0	0.0
	4(OPE)	-30	-104	-9	0.0	0.0	0.0
	6(SUS)	5	-113	-1	0.0	0.0	0.0
	7(SUS)	5	-90	-1	0.0	0.0	0.0
	MAX	-30/L4	-113/L6	-19/L2			
150		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	1	-56	0	0.0	0.0	0.0
	2(OPE)	-10	-35	1	0.0	0.0	0.0
	4(OPE)	-7	-33	7	0.0	0.0	0.0
	6(SUS)	1	-57	0	0.0	0.0	0.0
	7(SUS)	1	-45	0	0.0	0.0	0.0
	MAX	-10/L2	-57/L6	7/L4			
175		TYPE=Rigid +Y;					
	1(HYD)	-0	-100	0	0.0	0.0	0.0
	2(OPE)	15	-454	-135	0.0	0.0	0.0
	4(OPE)	2	-471	-80	0.0	0.0	0.0
	6(SUS)	-0	-102	0	0.0	0.0	0.0
	7(SUS)	-0	-86	0	0.0	0.0	0.0
	MAX	15/L2	-471/L4	-135/L2			
230		TYPE=Rigid ANC;					
	1(HYD)	0	-40	0	-11.6	-0.1	-6.8

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	2(OPE)	16	276	176	1197.3	-35.0	97.0
	4(OPE)	-1	290	79	1247.1	0.9	100.7
	6(SUS)	0	-40	0	-11.2	-0.1	-7.0
	7(SUS)	0	-41	0	-14.5	-0.1	-5.1
	MAX	16/L2	290/L4	176/L2	1247.1/L4	-35.0/L2	100.7/L4
240		TYPE=Rigid ANC;					
	1(HYD)	-15	-3	2	0.3	-3.2	-5.7
	2(OPE)	51	22	1	-11.9	-27.3	-23.4
	4(OPE)	16	-10	1	0.8	0.4	-1.5
	6(SUS)	-16	-3	2	0.3	-3.3	-5.8
	7(SUS)	-14	-4	1	0.3	-2.6	-4.7
	MAX	51/L2	22/L2	2/L6	-11.9/L2	-27.3/L2	-23.4/L2
360		TYPE=Rigid ANC;					
	1(HYD)	-15	-12	-3	-0.9	2.6	-1.6
	2(OPE)	72	42	-3	-33.3	-50.3	-64.4
	4(OPE)	-6	-8	-4	-1.7	1.8	-5.6
	6(SUS)	-15	-12	-3	-0.9	2.7	-1.7
	7(SUS)	-13	-11	-2	-0.7	2.2	-0.7
	MAX	72/L2	42/L2	-4/L4	-33.3/L2	-50.3/L2	-64.4/L2
380		TYPE=Rigid ANC;					
	1(HYD)	-15	-12	2	0.3	-2.3	-1.1
	2(OPE)	51	13	1	-11.9	-26.8	-31.2
	4(OPE)	16	-19	1	0.8	0.9	6.8
	6(SUS)	-16	-12	2	0.3	-2.4	-1.3
	7(SUS)	-14	-12	1	0.3	-1.9	0.1
	MAX	51/L2	-19/L4	2/L6	-11.9/L2	-26.8/L2	-31.2/L2
400		TYPE=Rigid ANC;					
	1(HYD)	0	0	0	0.0	0.0	0.0
	2(OPE)	0	0	0	-0.0	0.0	-0.0
	4(OPE)	0	0	0	0.0	-0.0	-0.0
	6(SUS)	0	0	0	0.0	0.0	0.0
	7(SUS)	0	-0	0	0.0	0.0	0.0
	MAX		-0/L7		-0.0/L2	-0.0/L4	-0.0/L2
420		TYPE=Displ. Reaction;					
	1(HYD)	0	-50	0	-371.6	-0.8	-7.1
	2(OPE)	16	266	176	3553.7	-152.3	57.1
	4(OPE)	-1	280	79	3467.1	7.5	102.9
	6(SUS)	0	-50	0	-371.0	-0.8	-7.3
	7(SUS)	0	-50	0	-377.0	-0.8	-5.3

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	MAX	16/L2	280/L4	176/L2	3553.7/L2	-152.3/L2	102.9/L4
440		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	12	-153	6	0.0	0.0	0.0
	2(OPE)	-57	-212	-7	0.0	0.0	0.0
	4(OPE)	14	-160	7	0.0	0.0	0.0
	6(SUS)	12	-153	6	0.0	0.0	0.0
	7(SUS)	11	-141	5	0.0	0.0	0.0
	MAX	-57/L2	-212/L2	-7/L2			
460		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	12	-153	-4	0.0	0.0	0.0
	2(OPE)	-48	-162	-7	0.0	0.0	0.0
	4(OPE)	8	-137	-1	0.0	0.0	0.0
	6(SUS)	12	-153	-4	0.0	0.0	0.0
	7(SUS)	10	-140	-3	0.0	0.0	0.0
	MAX	-48/L2	-162/L2	-7/L2			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+D1+T2+P1+U1
9 (OPE) W+D1+T2+P1-U1
10 (OPE) W+D1+T2+P1+U2
11 (OPE) W+D1+T2+P1+U3
12 (OPE) W+D1+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 6 (SUS) W+P1
 CASE 7 (SUS) WNC
 CASE 18 (OCC) L18=L13+L6
 CASE 19 (OCC) L19=L14+L6
 CASE 20 (OCC) L20=L15+L6
 CASE 21 (OCC) L21=L16+L6
 CASE 22 (OCC) L22=L17+L6
 CASE 23 (EXP) L23=L2-L6
 CASE 24 (EXP) L24=L4-L6
 CASE 25 (EXP) L25=L2-L4

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP			
Ratio (%):	5.7	@Node	135
Code Stress:	1998.3	Allowable Stress:	35000.0
Axial Stress:	191.8	@Node	440
Bending Stress:	2325.3	@Node	430
Torsion Stress:	103.8	@Node	150
Hoop Stress:	338.6	@Node	30
Max Stress Intensity:	2509.0	@Node	430

CODE STRESS CHECK PASSED : LOADCASE 6 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 6 (SUS) W+P1			
Ratio (%):	19.0	@Node	135
Code Stress:	3798.8	Allowable Stress:	20000.0
Axial Stress:	306.8	@Node	140
Bending Stress:	3528.9	@Node	135
Torsion Stress:	200.0	@Node	150
Hoop Stress:	552.7	@Node	30
Max Stress Intensity:	3798.2	@Node	135

CODE STRESS CHECK PASSED : LOADCASE 7 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 7 (SUS) WNC			
Ratio (%):	14.2	@Node	135
Code Stress:	2836.8	Allowable Stress:	20000.0
Axial Stress:	176.3	@Node	440
Bending Stress:	2832.2	@Node	135
Torsion Stress:	149.2	@Node	70
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	2836.8	@Node	135

CODE STRESS CHECK PASSED : LOADCASE 18 (OCC) L18=L13+L6

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 18 (OCC) L18=L13+L6

Ratio (%) :	15.6	@Node	135	
Code Stress:	4142.9	Allowable Stress:		26600.0
Axial Stress:	304.9	@Node	140	
Bending Stress:	3865.8	@Node	135	
Torsion Stress:	179.6	@Node	159	
Hoop Stress:	552.7	@Node	30	
Max Stress Intensity:	4142.3	@Node	135	

CODE STRESS CHECK PASSED : LOADCASE 19 (OCC) L19=L14+L6

Highest Stresses: (lb./sq.in.) LOADCASE 19 (OCC) L19=L14+L6

Ratio (%) :	15.4	@Node	175	
Code Stress:	4086.9	Allowable Stress:		26600.0
Axial Stress:	369.6	@Node	380	
Bending Stress:	3808.4	@Node	175	
Torsion Stress:	282.1	@Node	150	
Hoop Stress:	552.7	@Node	30	
Max Stress Intensity:	4087.4	@Node	175	

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L6

Highest Stresses: (lb./sq.in.) LOADCASE 20 (OCC) L20=L15+L6

Ratio (%) :	15.8	@Node	135	
Code Stress:	4202.8	Allowable Stress:		26600.0
Axial Stress:	302.6	@Node	140	
Bending Stress:	3925.6	@Node	135	
Torsion Stress:	187.2	@Node	150	
Hoop Stress:	552.7	@Node	30	
Max Stress Intensity:	4202.2	@Node	135	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L6

Highest Stresses: (lb./sq.in.) LOADCASE 21 (OCC) L21=L16+L6

Ratio (%) :	16.1	@Node	430	
Code Stress:	4274.0	Allowable Stress:		26600.0
Axial Stress:	313.6	@Node	140	
Bending Stress:	5449.6	@Node	430	
Torsion Stress:	367.7	@Node	70	
Hoop Stress:	552.7	@Node	30	
Max Stress Intensity:	5636.4	@Node	430	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L6

Highest Stresses: (lb./sq.in.) LOADCASE 22 (OCC) L22=L17+L6

Ratio (%) :	16.2	@Node	135	
Code Stress:	4313.0	Allowable Stress:		26600.0
Axial Stress:	313.4	@Node	129	
Bending Stress:	4945.8	@Node	430	
Torsion Stress:	270.3	@Node	260	
Hoop Stress:	552.7	@Node	30	
Max Stress Intensity:	5139.4	@Node	430	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 23 (EXP) L23=L2-L6

Highest Stresses: (lb./sq.in.) LOADCASE 23 (EXP) L23=L2-L6
 Ratio (%): 48.5 @Node 400
 Code Stress: 23500.4 Allowable Stress: 48409.6
 Axial Stress: 118.9 @Node 180
 Bending Stress: 23319.4 @Node 400
 Torsion Stress: 1226.3 @Node 159
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 44091.8 @Node 400

CODE STRESS CHECK PASSED : LOADCASE 24 (EXP) L24=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 24 (EXP) L24=L4-L6
 Ratio (%): 50.4 @Node 400
 Code Stress: 24398.8 Allowable Stress: 48409.6
 Axial Stress: 53.1 @Node 180
 Bending Stress: 24281.6 @Node 400
 Torsion Stress: 1325.4 @Node 159
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 45763.8 @Node 400

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 25 (EXP) L25=L2-L4
 Ratio (%): 26.6 @Node 430
 Code Stress: 12764.6 Allowable Stress: 48045.9
 Axial Stress: 65.8 @Node 180
 Bending Stress: 12592.9 @Node 430
 Torsion Stress: 259.7 @Node 30
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 12658.6 @Node 430

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Nozzle Check : Multiple 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+D1+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+D1+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+D1+T2+P1+U1
9 (OPE) W+D1+T2+P1-U1
10 (OPE) W+D1+T2+P1+U2
11 (OPE) W+D1+T2+P1+U3
12 (OPE) W+D1+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+D1+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node		fa lb.	fb lb.	fc lb.	Forces Check	ma ft.lb.	mb ft.lb.	mc ft.lb.	Moments Check	
360		Absolute Method								
	Limits	400	260	320		680.0	520.0	340.0		
	4(OPE)	-6	-8	-4	0.031	-1.7	1.8	-5.6	0.017	
	6(SUS)	-15	-12	-3	0.044	-0.9	2.7	-1.7	0.005	
	7(SUS)	-13	-11	-2	0.044	-0.7	2.2	-0.7	0.004	
380		Absolute Method								
	Limits	400	260	320		680.0	520.0	340.0		
	4(OPE)	16	-19	1	0.074	0.8	0.9	6.8	0.020	
	6(SUS)	-16	-12	2	0.046	0.3	-2.4	-1.3	0.005	
	7(SUS)	-14	-12	1	0.046	0.3	-1.9	0.1	0.004	

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Table of contents:

Line no.

Stress sketch

Input echo

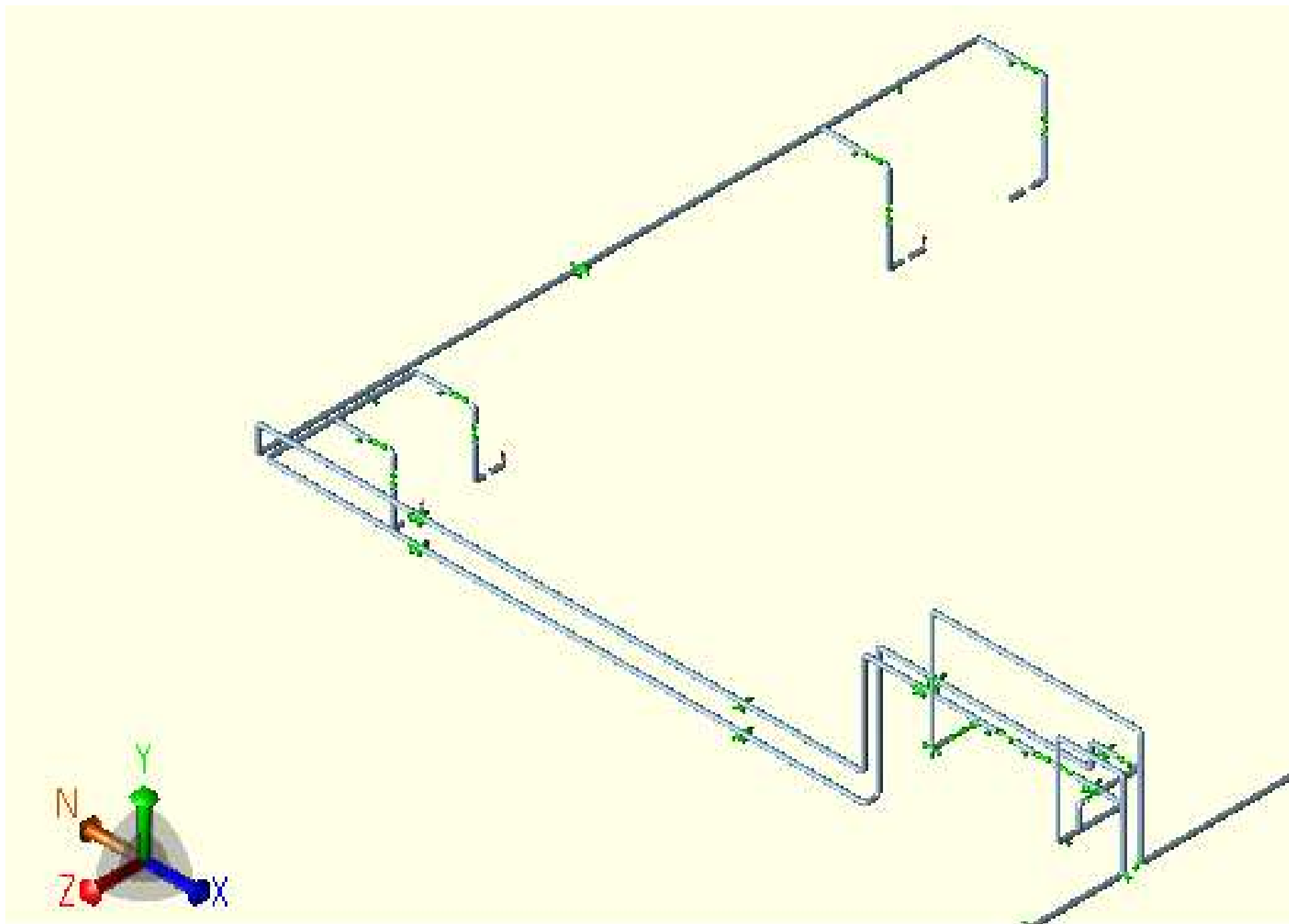
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. CDH-112-0032-AN07-2"-PT
2. CDH-112-0033-AN07-2"-PT
3. CDH-112-0038-AN07-2"-PT
4. CDH-112-0037-AN07-2"-PT
5. CDH-112-0145-AN07-2"-PT
6. CDH-112-0041-AN07-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 10 To 20 DZ= -.067 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .6000 cm.

GENERAL

T1= 85 C T2= 21 C P1= 770.0175 KPa PHyd= 1,155.0264 KPa
 Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
 EH2= 203,396,064 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0011150 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 31.14 N.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

From 20 To 30 DZ= -.262 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 29
 Angle/Node @2= .00 28

From 30 To 40 DY= .728 m.

From 40 To 50 DY= .067 m.

RIGID Weight= 31.14 N.

From 50 To 60 DY= .187 m.

RIGID Weight= 266.89 N.

From 60 To 70 DY= .067 m.

RIGID Weight= 31.14 N.

From 70 To 80 DY= .607 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79
 Angle/Node @2= .00 78

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INPUT LISTING

```

-----
From 80 To 90 DX= -.077 m.
-----
From 90 To 100 DX= -.067 m.
RIGID Weight= 31.14 N.
-----
From 100 To 110 DX= -.212 m.
RIGID Weight= 217.96 N.
-----
From 110 To 120 DX= -.067 m.
RIGID Weight= 31.14 N.
-----
From 120 To 125 DX= -.200 m.
RESTRAINTS
  Node 125 +Y
-----
From 125 To 130 DX= -.604 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 129
  Angle/Node @2= .00 128
-----
From 130 To 135 DZ= 1.450 m.
RESTRAINTS
  Node 135 +Y Mu = .30
-----
From 135 To 140 DZ= 1.450 m.
SIF's & TEE's
  Node 140 Welding Tee
-----
From 140 To 150 DZ= 4.500 m.
RESTRAINTS
  Node 150 +Y Mu = .30
  Node 150 X Gap= .300 cm.
  Node 150 Z Gap= .300 cm.
-----
From 150 To 190 DZ= 3.943 m.
RESTRAINTS
  Node 190 +Y
-----
From 190 To 200 DZ= 2.032 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 199
  Angle/Node @2= .00 198
-----
From 200 To 210 DY= .500 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 209
  Angle/Node @2= .00 208
-----
From 210 To 220 DX= 3.000 m.
RESTRAINTS
  Node 220 +Y Mu = .30
  Node 220 X Gap= .300 cm.
  Node 220 Z Gap= .300 cm.
-----
From 220 To 230 DX= 6.000 m.

```

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INPUT LISTING

RESTRAINTS

Node 230 +Y Mu = .30
Node 230 Z Gap= .300 cm.

From 230 To 300 DX= 2.239 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 299
Angle/Node @2= .00 298

From 300 To 310 DY= 1.900 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 309
Angle/Node @2= .00 308

From 310 To 315 DX= 1.100 m.

RESTRAINTS

Node 315 +Y Mu = .30
Node 315 Z Gap= .300 cm.
Node 315 X Gap= .300 cm.

From 315 To 320 DX= 1.058 m.

SIF's & TEE's

Node 320 Welding Tee

From 320 To 325 DX= .156 m.

RESTRAINTS

Node 325 +Y Mu = .30

From 325 To 330 DX= .156 m.

From 330 To 340 DX= .067 m.

RIGID Weight= 31.14 N.

From 340 To 350 DX= .212 m.

RIGID Weight= 217.96 N.

From 350 To 360 DX= .067 m.

RIGID Weight= 31.14 N.

From 360 To 365 DX= .175 m.

RESTRAINTS

Node 365 +Y Mu = .30

From 365 To 370 DX= .175 m.

From 370 To 380 DX= .067 m.

RIGID Weight= 31.14 N.

From 380 To 390 DX= .186 m.

RIGID Weight= 266.89 N.

From 390 To 400 DX= .067 m.

RIGID Weight= 31.14 N.

From 400 To 410 DX= .100 m.

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INPUT LISTING

From 410 To 420 DX= .067 m.

RIGID Weight= 31.14 N.

From 420 To 430 DX= .201 m.

RIGID Weight= 266.89 N.

From 430 To 440 DX= .067 m.

RIGID Weight= 31.14 N.

From 440 To 450 DX= .150 m.

From 450 To 455 DX= .163 m.

RESTRAINTS

Node 455 +Y Mu = .30

Node 455 Z Gap= .300 cm.

From 455 To 460 DX= .597 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 459

Angle/Node @2= .00 458

From 460 To 470 DZ= .840 m.

SIF's & TEE's

Node 470 Welding Tee

From 470 To 475 DZ= .195 m.

RESTRAINTS

Node 475 +Y Mu = .30

From 475 To 480 DZ= .195 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 479

Angle/Node @2= .00 478

From 480 To 490 DY= 1.700 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 489

Angle/Node @2= .00 488

From 490 To 500 DX= 1.217 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

From 500 To 510 DY= -1.600 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 509

Angle/Node @2= .00 508

RESTRAINTS

Node 510 +Y Mu = .30

From 510 To 520 DZ= 1.700 m.

RESTRAINTS

Node 520 +Y Mu = .30

Node 520 X Gap= .300 cm.

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INPUT LISTING

From 520 To 530 DZ= 6.000 m.

RESTRAINTS

Node 530 +Y Mu = .30

Node 530 X Gap= .300 cm.

From 530 To 540 DZ= 6.000 m.

RESTRAINTS

Node 540 +Y Mu = .30

Node 540 X Gap= .300 cm.

From 540 To 550 DZ= 6.000 m.

RESTRAINTS

Node 550 +Y Mu = .30

Node 550 X Gap= .300 cm.

From 550 To 560 DZ= 6.000 m.

RESTRAINTS

Node 560 +Y Mu = .30

Node 560 Z Gap= .300 cm.

Node 560 X Gap= .300 cm.

From 560 To 570 DZ= 6.000 m.

RESTRAINTS

Node 570 +Y Mu = .30

Node 570 X Gap= .300 cm.

From 570 To 575 DZ= 8.000 m.

RESTRAINTS

Node 575 +Y Mu = .30

Node 575 X Gap= .300 cm. Mu = .30

From 575 To 576 DZ= 6.000 m.

RESTRAINTS

Node 576 +Y Mu = .30

From 576 To 580 DZ= 3.000 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

From 580 To 585 DX= 1.899 m.

RESTRAINTS

Node 585 +Y Mu = .30

From 585 To 590 DX= 6.000 m.

RESTRAINTS

Node 590 +Y Mu = .30

Node 590 Z Gap= .300 cm. Mu = .30

From 590 To 600 DX= 6.000 m.

RESTRAINTS

Node 600 +Y Mu = .30

Node 600 Z Gap= .300 cm.

From 600 To 610 DX= 6.000 m.

RESTRAINTS

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INPUT LISTING

Node 610 +Y Mu = .30
Node 610 Z Gap= .300 cm.

From 610 To 620 DX= 6.000 m.

RESTRAINTS

Node 620 +Y Mu = .30
Node 620 Z Gap= .300 cm.

From 620 To 630 DX= 6.000 m.

RESTRAINTS

Node 630 +Y Mu = .30
Node 630 Z Gap= .300 cm.

From 630 To 640 DX= 6.000 m.

RESTRAINTS

Node 640 +Y Mu = .30
Node 640 X Gap= .300 cm.
Node 640 Z Gap= .300 cm.

From 640 To 650 DX= 6.000 m.

RESTRAINTS

Node 650 +Y Mu = .30
Node 650 Z Gap= .300 cm.

From 650 To 660 DX= 6.000 m.

RESTRAINTS

Node 660 +Y Mu = .30
Node 660 Z Gap= .300 cm.

From 660 To 670 DX= 6.000 m.

RESTRAINTS

Node 670 +Y Mu = .30
Node 670 Z Gap= .300 cm.

From 670 To 680 DX= 6.000 m.

RESTRAINTS

Node 680 +Y Mu = .30
Node 680 Z Gap= .300 cm.

From 680 To 690 DX= 6.000 m.

RESTRAINTS

Node 690 +Y Mu = .30
Node 690 Z Gap= .300 cm.

From 690 To 700 DX= 4.500 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 699
Angle/Node @2= .00 698

From 700 To 704 DZ= 2.000 m.

RESTRAINTS

Node 704 +Y Mu = .30

From 704 To 706 DZ= 5.000 m.

RESTRAINTS

Node 706 +Y Mu = .30

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```

Node 706 X Gap= .300 cm.
-----
From 706 To 705 DZ= 2.495 m.
RESTRAINTS
Node 705 +Y Mu = .30
Node 705 X Gap= .300 cm.
-----
From 705 To 710 DZ= .500 m.
-----
From 710 To 720 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 720 To 730 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 740 To 750 DZ= .067 m.
PIPE
Dia= 6.032 cm. Wall= .874 cm. Cor= .6000 cm.
GENERAL
T1= 85 C T2= 21 C P1= 770.0175 KPa PHyd= 1,155.0264 KPa
Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
EH2= 203,396,064 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0011150 kg./cu.cm.
Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.
RIGID Weight= 31.14 N.
RESTRAINTS
Node 740 ANC Cnode 741
ALLOWABLE STRESSES
B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 750 To 760 DZ= .262 m.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 759
Angle/Node @2= .00 758
-----
From 760 To 770 DY= .728 m.
-----
From 770 To 780 DY= .067 m.
RIGID Weight= 31.14 N.
-----
From 780 To 790 DY= .187 m.
RIGID Weight= 266.89 N.
-----
From 790 To 800 DY= .067 m.
RIGID Weight= 31.14 N.
-----
From 800 To 810 DY= .607 m.
BEND at "TO" end
Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 809
Angle/Node @2= .00 808
-----

```

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```

From 810 To 820 DX= -.077 m.
-----
From 820 To 830 DX= -.067 m.
RIGID Weight= 31.14 N.
-----
From 830 To 840 DX= -.212 m.
RIGID Weight= 217.96 N.
-----
From 840 To 850 DX= -.067 m.
RIGID Weight= 31.14 N.
-----
From 850 To 495 DX= -.200 m.
RESTRAINTS
  Node 495 +Y Mu = .30
-----
From 495 To 140 DX= -.604 m.
-----
From 470 To 860 DY= .440 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 861
  Angle/Node @2= .00 862
-----
From 860 To 870 DZ= -.077 m.
-----
From 870 To 880 DZ= -.067 m.
RIGID Weight= 31.14 N.
-----
From 880 To 890 DZ= -.212 m.
RIGID Weight= 217.96 N.
-----
From 890 To 900 DZ= -.067 m.
RIGID Weight= 31.14 N.
-----
From 900 To 910 DZ= -.677 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 909
  Angle/Node @2= .00 908
-----
From 910 To 920 DX= -.077 m.
-----
From 920 To 930 DX= -.067 m.
RIGID Weight= 31.14 N.
-----
From 930 To 940 DX= -.186 m.
RIGID Weight= 271.34 N.
-----
From 940 To 950 DX= -.067 m.
RIGID Weight= 31.14 N.
-----
From 950 To 955 DX= -.200 m.
RESTRAINTS
  Node 955 +Y Mu = .30
  Node 955 Z Gap= .300 cm.
-----
From 955 To 960 DX= -.276 m.
BEND at "TO" end

```

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```

    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 959
    Angle/Node @2= .00 958
-----
From 960 To 970 DY= -.440 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 969
    Angle/Node @2= .00 968
-----
From 970 To 980 DX= -1.131 m.
SIF's & TEE's
    Node 980    Welding Tee
-----
From 980 To 985 DX= -1.727 m.
GENERAL
    P1= 550.0125 KPa    PHyd= 825.0188 KPa
RESTRAINTS
    Node 985 +Y    Mu = .30
    Node 985 Z    Gap= .300 cm.
    Node 985 X    Gap= .300 cm.
-----
From 985 To 990 DX= -1.088 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 989
    Angle/Node @2= .00 988
-----
From 990 To 1000 DY= -2.400 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 999
    Angle/Node @2= .00 998
-----
From 1000 To 1010 DZ= .252 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 1009
    Angle/Node @2= .00 1008
-----
From 1010 To 1030 DX= -2.250 m.
RESTRAINTS
    Node 1030 +Y    Mu = .30
    Node 1030 Z    Gap= .300 cm.
-----
From 1030 To 1040 DX= -6.000 m.
RESTRAINTS
    Node 1040 +Y    Mu = .30
    Node 1040 X    Gap= .300 cm.
    Node 1040 Z    Gap= .300 cm.
-----
From 1040 To 1050 DX= -2.840 m.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 1049
    Angle/Node @2= .00 1048
-----
From 1050 To 1200 DZ= -1.275 m.
SIF's & TEE's
    Node 1200    Welding Tee
-----
From 1200 To 1135 DZ= -.750 m.

```

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INPUT LISTING

RESTRAINTS

Node 1135 +Y Mu = .30

From 1135 To 1070 DZ= -.750 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1069

Angle/Node @2= .00 1068

From 1070 To 1075 DX= .454 m.

RESTRAINTS

Node 1075 +Y Mu = .30

From 1075 To 1080 DX= .200 m.

From 1080 To 1090 DX= .067 m.

RIGID Weight= 31.14 N.

From 1090 To 1100 DX= .212 m.

RIGID Weight= 217.96 N.

From 1100 To 1110 DX= .067 m.

RIGID Weight= 31.14 N.

From 1110 To 1120 DX= .077 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1119

Angle/Node @2= .00 1118

From 1120 To 1130 DY= -.276 m.

From 1130 To 1140 DY= -.067 m.

RIGID Weight= 31.14 N.

From 1140 To 1150 DY= -.187 m.

RIGID Weight= 266.89 N.

From 1150 To 1160 DY= -.067 m.

RIGID Weight= 31.14 N.

From 1160 To 1170 DY= -.619 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1169

Angle/Node @2= .00 1168

From 1170 To 1180 DZ= -.176 m.

From 1180 To 1190 DZ= -.067 m.

RIGID Weight= 31.14 N.

RESTRAINTS

Node 1190 ANC Cnode 1191

From 1200 To 1205 DX= .454 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .6000 cm.

GENERAL

T1= 85 C T2= 21 C P1= 550.0125 KPa PHyd= 825.0188 KPa

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INPUT LISTING

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
 EH2= 203,396,064 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0011150 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RESTRAINTS

Node 1205 +Y

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1205 To 1210 DX= .200 m.

From 1210 To 1220 DX= .067 m.
 RIGID Weight= 31.14 N.

From 1220 To 1230 DX= .212 m.
 RIGID Weight= 217.96 N.

From 1230 To 1240 DX= .067 m.
 RIGID Weight= 31.14 N.

From 1240 To 1250 DX= .077 m.
 BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1249
 Angle/Node @2= .00 1248

From 1250 To 1260 DY= -.276 m.

From 1260 To 1270 DY= -.067 m.
 RIGID Weight= 31.14 N.

From 1270 To 1280 DY= -.187 m.
 RIGID Weight= 266.89 N.

From 1280 To 1290 DY= -.067 m.
 RIGID Weight= 31.14 N.

From 1290 To 1300 DY= -.619 m.
 BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1299
 Angle/Node @2= .00 1298

From 1300 To 1310 DZ= -.176 m.

From 1310 To 1320 DZ= -.067 m.
 RIGID Weight= 31.14 N.

RESTRAINTS

Node 1320 ANC Cnode 1321

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INPUT LISTING

```

-----
From 320 To 1330 DZ= .064 m.
-----
From 1330 To 1340 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 1340 To 1350 DZ= .187 m.
RIGID Weight= 266.89 N.
-----
From 1350 To 1360 DZ= .212 m.
RIGID Weight= 217.96 N.
-----
From 1360 To 1370 DZ= .067 m.
RIGID Weight= 31.14 N.
-----
From 1370 To 1380 DZ= .294 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1379
  Angle/Node @2= .00 1378
RESTRAINTS
  Node 1380 +Y Mu = .30
  Node 1380 X Gap= .300 cm.
-----
From 1380 To 1390 DY= 2.220 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1389
  Angle/Node @2= .00 1388
-----
From 1390 To 1400 DX= 3.875 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399
  Angle/Node @2= .00 1398
-----
From 1400 To 1410 DY= -2.120 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1409
  Angle/Node @2= .00 1408
RESTRAINTS
  Node 1410 +Y Mu = .30
-----
From 1410 To 1420 DZ= -3.950 m.
RESTRAINTS
  Node 1420 +Y Mu = .30
  Node 1420 X Gap= .300 cm.
-----
From 1420 To 1430 DZ= -6.000 m.
RESTRAINTS
  Node 1430 +Y Mu = .30
  Node 1430 X Gap= .300 cm.
-----
From 1430 To 1440 DZ= -6.000 m.
RESTRAINTS
  Node 1440 +Y Mu = .30
  Node 1440 X Gap= .300 cm.
-----
From 1440 To 1450 DZ= -6.000 m.

```

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INPUT LISTING

RESTRAINTS

Node 1450 +Y Mu = .30
 Node 1450 X Gap= .300 cm.

 From 1450 To 1460 DZ= -6.000 m.

RESTRAINTS

Node 1460 +Y Mu = .30
 Node 1460 X Gap= .300 cm.

 From 1460 To 1470 DZ= -6.000 m.

RESTRAINTS

Node 1470 +Y Mu = .30
 Node 1470 X Gap= .300 cm.

 From 1470 To 1480 DZ= -6.000 m.

RESTRAINTS

Node 1480 +Y Mu = .30
 Node 1480 X Gap= .300 cm.

 From 1480 To 1490 DZ= -6.000 m.

RESTRAINTS

Node 1490 +Y Mu = .30
 Node 1490 X Gap= .300 cm.

 From 1490 To 1500 DZ= -6.000 m.

RESTRAINTS

Node 1500 +Y Mu = .30
 Node 1500 X Gap= .300 cm.

 From 1500 To 1510 DZ= -6.000 m.

RESTRAINTS

Node 1510 +Y Mu = .30
 Node 1510 X Gap= .300 cm.

 From 1510 To 1520 DZ= -6.000 m.

RESTRAINTS

Node 1520 +Y Mu = .30
 Node 1520 X Gap= .300 cm.

 From 1520 To 1530 DZ= -6.000 m.

RESTRAINTS

Node 1530 +Y Mu = .30
 Node 1530 X Gap= .300 cm.

 From 1530 To 1540 DZ= -6.000 m.

RESTRAINTS

Node 1540 +Y Mu = .30
 Node 1540 Z Gap= .300 cm.
 Node 1540 X Gap= .300 cm.

 From 1540 To 1550 DZ= -6.000 m.

RESTRAINTS

Node 1550 +Y Mu = .30
 Node 1550 X Gap= .300 cm.

 From 1550 To 1560 DZ= -6.000 m.

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INPUT LISTING

RESTRAINTS

Node 1560 +Y Mu = .30
 Node 1560 X Gap= .300 cm.

 From 1560 To 1570 DZ= -6.000 m.

RESTRAINTS

Node 1570 +Y Mu = .30
 Node 1570 X Gap= .300 cm.

 From 1570 To 1580 DZ= -6.000 m.

RESTRAINTS

Node 1580 +Y Mu = .30
 Node 1580 X Gap= .300 cm.

 From 1580 To 1590 DZ= -6.000 m.

RESTRAINTS

Node 1590 +Y Mu = .30
 Node 1590 X Gap= .300 cm.

 From 1590 To 1600 DZ= -6.000 m.

RESTRAINTS

Node 1600 +Y Mu = .30
 Node 1600 X Gap= .300 cm.

 From 1600 To 1610 DZ= -6.000 m.

RESTRAINTS

Node 1610 +Y Mu = .30
 Node 1610 X Gap= .300 cm.

 From 1610 To 1620 DZ= -6.000 m.

RESTRAINTS

Node 1620 +Y Mu = .30
 Node 1620 X Gap= .300 cm.

 From 1620 To 1630 DZ= -6.000 m.

RESTRAINTS

Node 1630 +Y Mu = .30
 Node 1630 X Gap= .300 cm.

 From 1630 To 1640 DZ= -6.000 m.

RESTRAINTS

Node 1640 +Y Mu = .30
 Node 1640 X Gap= .300 cm.

 From 1640 To 1650 DZ= -6.000 m.

RESTRAINTS

Node 1650 +Y Mu = .30
 Node 1650 X Gap= .300 cm.

 From 1650 To 1660 DZ= -6.000 m.

RESTRAINTS

Node 1660 +Y Mu = .30
 Node 1660 X Gap= .300 cm.

 From 11 To 1670 DZ= .067 m.

RIGID Weight= 31.14 N.

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INPUT LISTING

 From 1670 To 1680 DZ= .257 m.

RESTRAINTS

Node 1680 ANC

EQUIPMENT LIMITS

Nozzle Node = 1680

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.

FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 741 To 1690 DZ= -.067 m.

RIGID Weight= 31.14 N.

 From 1690 To 1700 DZ= -.257 m.

RESTRAINTS

Node 1700 ANC

EQUIPMENT LIMITS

Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.

FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 1191 To 1710 DZ= -.067 m.

RIGID Weight= 31.14 N.

 From 1710 To 1720 DZ= -.233 m.

RESTRAINTS

Node 1720 ANC

EQUIPMENT LIMITS

Nozzle Node = 1720

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.

FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 1321 To 1730 DZ= -.067 m.

RIGID Weight= 31.14 N.

 From 1730 To 1740 DZ= -.233 m.

RESTRAINTS

Node 1740 ANC

EQUIPMENT LIMITS

Nozzle Node = 1740

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.

FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

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MATERIAL Changes:

10

20

Mat= (106)A106 Grade B E= 203,401,232 KPa
 v = .292 Density= .0078 kg./cu.cm.

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INPUT LISTING

740	750	Mat= (106)A106 Grade B E= 203,401,232 KPa
		v = .292 Density= .0078 kg./cu.cm.
1200	1205	Mat= (106)A106 Grade B E= 203,401,232 KPa
		v = .292 Density= .0078 kg./cu.cm.

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ALLOWABLE STRESS Changes

10	20	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
740	750	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1200	1205	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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BEND ELEMENTS

20	30	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 29
		Angle/Node @2= .00 28
70	80	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
		Angle/Node @2= .00 78
125	130	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		129 Angle/Node @2= .00 128
190	200	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		199 Angle/Node @2= .00 198
200	210	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		209 Angle/Node @2= .00 208
230	300	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		299 Angle/Node @2= .00 298
300	310	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		309 Angle/Node @2= .00 308
455	460	Radius= 7.620 cm. (LONG)

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INPUT LISTING

		Bend Angle= 90.000 Angle/Node @1= 45.00
		459 Angle/Node @2= .00 458
475	480	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		479 Angle/Node @2= .00 478
480	490	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		489 Angle/Node @2= .00 488
490	500	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		499 Angle/Node @2= .00 498
500	510	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		509 Angle/Node @2= .00 508
576	580	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
690	700	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		699 Angle/Node @2= .00 698
750	760	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		759 Angle/Node @2= .00 758
800	810	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		809 Angle/Node @2= .00 808
470	860	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		861 Angle/Node @2= .00 862
900	910	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		909 Angle/Node @2= .00 908
955	960	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		959 Angle/Node @2= .00 958
960	970	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		969 Angle/Node @2= .00 968
985	990	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		989 Angle/Node @2= .00 988
990	1000	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		999 Angle/Node @2= .00 998
1000	1010	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1009 Angle/Node @2= .00 1008
1040	1050	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1049 Angle/Node @2= .00 1048
1135	1070	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1069 Angle/Node @2= .00 1068
1110	1120	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1119 Angle/Node @2= .00 1118

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INPUT LISTING

1160	1170	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1169 Angle/Node @2= .00 1168
1240	1250	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1249 Angle/Node @2= .00 1248
1290	1300	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1299 Angle/Node @2= .00 1298
1370	1380	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1379 Angle/Node @2= .00 1378
1380	1390	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1389 Angle/Node @2= .00 1388
1390	1400	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1399 Angle/Node @2= .00 1398
1400	1410	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1409 Angle/Node @2= .00 1408

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RIGIDS

10	20	RIGID Weight= 31.14 N.
40	50	RIGID Weight= 31.14 N.
50	60	RIGID Weight= 266.89 N.
60	70	RIGID Weight= 31.14 N.
90	100	RIGID Weight= 31.14 N.
100	110	RIGID Weight= 217.96 N.
110	120	RIGID Weight= 31.14 N.
330	340	RIGID Weight= 31.14 N.
340	350	RIGID Weight= 217.96 N.
350	360	RIGID Weight= 31.14 N.
370	380	RIGID Weight= 31.14 N.
380	390	RIGID Weight= 266.89 N.
390	400	RIGID Weight= 31.14 N.
410	420	RIGID Weight= 31.14 N.
420	430	RIGID Weight= 266.89 N.
430	440	RIGID Weight= 31.14 N.
710	720	RIGID Weight= 31.14 N.
720	730	RIGID Weight= 31.14 N.
740	750	RIGID Weight= 31.14 N.
770	780	RIGID Weight= 31.14 N.
780	790	RIGID Weight= 266.89 N.
790	800	RIGID Weight= 31.14 N.
820	830	RIGID Weight= 31.14 N.
830	840	RIGID Weight= 217.96 N.
840	850	RIGID Weight= 31.14 N.
870	880	RIGID Weight= 31.14 N.
880	890	RIGID Weight= 217.96 N.
890	900	RIGID Weight= 31.14 N.
920	930	RIGID Weight= 31.14 N.
930	940	RIGID Weight= 271.34 N.

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INPUT LISTING

940	950	RIGID	Weight=	31.14	N.
1080	1090	RIGID	Weight=	31.14	N.
1090	1100	RIGID	Weight=	217.96	N.
1100	1110	RIGID	Weight=	31.14	N.
1130	1140	RIGID	Weight=	31.14	N.
1140	1150	RIGID	Weight=	266.89	N.
1150	1160	RIGID	Weight=	31.14	N.
1180	1190	RIGID	Weight=	31.14	N.
1210	1220	RIGID	Weight=	31.14	N.
1220	1230	RIGID	Weight=	217.96	N.
1230	1240	RIGID	Weight=	31.14	N.
1260	1270	RIGID	Weight=	31.14	N.
1270	1280	RIGID	Weight=	266.89	N.
1280	1290	RIGID	Weight=	31.14	N.
1310	1320	RIGID	Weight=	31.14	N.
1330	1340	RIGID	Weight=	31.14	N.
1340	1350	RIGID	Weight=	266.89	N.
1350	1360	RIGID	Weight=	217.96	N.
1360	1370	RIGID	Weight=	31.14	N.
11	1670	RIGID	Weight=	31.14	N.
741	1690	RIGID	Weight=	31.14	N.
1191	1710	RIGID	Weight=	31.14	N.
1321	1730	RIGID	Weight=	31.14	N.

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SIF's & TEE's

135	140	Node	140	Welding Tee
315	320	Node	320	Welding Tee
460	470	Node	470	Welding Tee
970	980	Node	980	Welding Tee
1050	1200	Node	1200	Welding Tee

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	11				.000 .000 .000
125	+Y					.000 1.000 .000
135	+Y				.30	.000 1.000 .000
150	+Y				.30	.000 1.000 .000
150	X			.30		1.000 .000 .000
150	Z			.30		.000 .000 1.000
190	+Y					.000 1.000 .000
220	+Y				.30	.000 1.000 .000
220	X			.30		1.000 .000 .000
220	Z			.30		.000 .000 1.000
230	+Y				.30	.000 1.000 .000
230	Z			.30		.000 .000 1.000
315	+Y				.30	.000 1.000 .000
315	Z			.30		.000 .000 1.000
315	X			.30		1.000 .000 .000
325	+Y				.30	.000 1.000 .000
365	+Y				.30	.000 1.000 .000

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455	+Y		.30	.000	1.000	.000
455	Z	.30		.000	.000	1.000
475	+Y		.30	.000	1.000	.000
510	+Y		.30	.000	1.000	.000
520	+Y		.30	.000	1.000	.000
520	X	.30		1.000	.000	.000
530	+Y		.30	.000	1.000	.000
530	X	.30		1.000	.000	.000
540	+Y		.30	.000	1.000	.000
540	X	.30		1.000	.000	.000
550	+Y		.30	.000	1.000	.000
550	X	.30		1.000	.000	.000
560	+Y		.30	.000	1.000	.000
560	Z	.30		.000	.000	1.000
560	X	.30		1.000	.000	.000
570	+Y		.30	.000	1.000	.000
570	X	.30		1.000	.000	.000
575	+Y		.30	.000	1.000	.000
575	X	.30		1.000	.000	.000
576	+Y		.30	.000	1.000	.000
585	+Y		.30	.000	1.000	.000
590	+Y		.30	.000	1.000	.000
590	Z	.30		.000	.000	1.000
600	+Y		.30	.000	1.000	.000
600	Z	.30		.000	.000	1.000
610	+Y		.30	.000	1.000	.000
610	Z	.30		.000	.000	1.000
620	+Y		.30	.000	1.000	.000
620	Z	.30		.000	.000	1.000
630	+Y		.30	.000	1.000	.000
630	Z	.30		.000	.000	1.000
640	+Y		.30	.000	1.000	.000
640	X	.30		1.000	.000	.000
640	Z	.30		.000	.000	1.000
650	+Y		.30	.000	1.000	.000
650	Z	.30		.000	.000	1.000
660	+Y		.30	.000	1.000	.000
660	Z	.30		.000	.000	1.000
670	+Y		.30	.000	1.000	.000
670	Z	.30		.000	.000	1.000
680	+Y		.30	.000	1.000	.000
680	Z	.30		.000	.000	1.000
690	+Y		.30	.000	1.000	.000
690	Z	.30		.000	.000	1.000
704	+Y		.30	.000	1.000	.000
706	+Y		.30	.000	1.000	.000
706	X	.30		1.000	.000	.000
705	+Y		.30	.000	1.000	.000
705	X	.30		1.000	.000	.000
740	ANC	741		.000	.000	.000
495	+Y		.30	.000	1.000	.000
955	+Y		.30	.000	1.000	.000
955	Z	.30		.000	.000	1.000
985	+Y		.30	.000	1.000	.000
985	Z	.30		.000	.000	1.000
985	X	.30		1.000	.000	.000

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1030	+Y			.30	.000	1.000	.000
1030	Z			.30	.000	.000	1.000
1040	+Y				.30	.000	1.000
1040	X			.30		1.000	.000
1040	Z			.30		.000	1.000
1135	+Y				.30	.000	1.000
1075	+Y				.30	.000	1.000
1190	ANC	1191				.000	.000
1205	+Y					.000	1.000
1320	ANC	1321				.000	.000
1380	+Y				.30	.000	1.000
1380	X			.30		1.000	.000
1410	+Y				.30	.000	1.000
1420	+Y				.30	.000	1.000
1420	X			.30		1.000	.000
1430	+Y				.30	.000	1.000
1430	X			.30		1.000	.000
1440	+Y				.30	.000	1.000
1440	X			.30		1.000	.000
1450	+Y				.30	.000	1.000
1450	X			.30		1.000	.000
1460	+Y				.30	.000	1.000
1460	X			.30		1.000	.000
1470	+Y				.30	.000	1.000
1470	X			.30		1.000	.000
1480	+Y				.30	.000	1.000
1480	X			.30		1.000	.000
1490	+Y				.30	.000	1.000
1490	X			.30		1.000	.000
1500	+Y				.30	.000	1.000
1500	X			.30		1.000	.000
1510	+Y				.30	.000	1.000
1510	X			.30		1.000	.000
1520	+Y				.30	.000	1.000
1520	X			.30		1.000	.000
1530	+Y				.30	.000	1.000
1530	X			.30		1.000	.000
1540	+Y				.30	.000	1.000
1540	Z			.30		.000	.000
1540	X			.30		1.000	.000
1550	+Y				.30	.000	1.000
1550	X			.30		1.000	.000
1560	+Y				.30	.000	1.000
1560	X			.30		1.000	.000
1570	+Y				.30	.000	1.000
1570	X			.30		1.000	.000
1580	+Y				.30	.000	1.000
1580	X			.30		1.000	.000
1590	+Y				.30	.000	1.000
1590	X			.30		1.000	.000
1600	+Y				.30	.000	1.000
1600	X			.30		1.000	.000
1610	+Y				.30	.000	1.000
1610	X			.30		1.000	.000
1620	+Y				.30	.000	1.000
1620	X			.30		1.000	.000

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1630	+Y		.30	.000	1.000	.000
1630	X	.30		1.000	.000	.000
1640	+Y		.30	.000	1.000	.000
1640	X	.30		1.000	.000	.000
1650	+Y		.30	.000	1.000	.000
1650	X	.30		1.000	.000	.000
1660	+Y		.30	.000	1.000	.000
1660	X	.30		1.000	.000	.000
1680	ANC			.000	.000	.000
1700	ANC			.000	.000	.000
1720	ANC			.000	.000	.000
1740	ANC			.000	.000	.000

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EQUIPMENT LIMITS

1670 1680 Nozzle Node = 1680

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

1690 1700 Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

1710 1720 Nozzle Node = 1720

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

1730 1740 Nozzle Node = 1740

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10	20	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's

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1200          1205          Vector3 in G-s
                        X3 Dir = .00 g's   Y3 Dir = .00 g's
                        Z3 Dir = .26 g's
                        Vector1 in G-s
                        X1 Dir = .26 g's   Y1 Dir = .00 g's
                        Z1 Dir = .00 g's
                        Vector2 in G-s
                        X2 Dir = .00 g's   Y2 Dir = .12 g's
                        Z2 Dir = .00 g's
                        Vector3 in G-s
                        X3 Dir = .00 g's   Y3 Dir = .00 g's
                        Z3 Dir = .26 g's
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INPUT UNITS USED...

```

UNITS=      SI      NOM/SCH INPUT= ON
LENGTH      inches      x      2.540      =      cm.
FORCE        pounds      x      4.448      =      N.
MASS(dynamics) pounds      x      0.454      =      Kg.
MOMENTS(INPUT) inch-pounds x      0.113      =      N.m.
MOMENTS(OUTPUT) inch-pounds x      0.113      =      N.m.
STRESS        lbs./sq.in. x      6.895      =      KPa
TEMP. SCALE   degrees F. x      0.556      =      C
PRESSURE       psig       x      6.895      =      KPa
ELASTIC MODULUS lbs./sq.in. x      6.895      =      KPa
PIPE DENSITY   lbs./cu.in. x      0.028      =      kg./cu.cm.
INSULATION DENS. lbs./cu.in. x      0.028      =      kg./cu.cm.
FLUID DENSITY  lbs./cu.in. x      0.028      =      kg./cu.cm.
TRANSL. STIF   lbs./in.   x      1.751      =      N./cm.
ROTATIONAL STIF in.lb./deg. x      0.113      =      N.m./deg
UNIFORM LOAD   lb./in.    x      1.751      =      N./cm.
G LOAD         g's        x      1.000      =      g's
WIND LOAD       lbs./sq.in. x      6.895      =      KPa
ELEVATION       inches     x      0.025      =      m.
COMPOUND LENGTH inches     x      0.025      =      m.
DIAMETER        inches     x      2.540      =      cm.
WALL THICKNESS  inches     x      2.540      =      cm.
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SETUP FILE PARAMETERS

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-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =      5.00000
MAX ALLOWED BEND ANGLE =      95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =      5.00000
LOOP CLOSURE TOLERANCE =      2.54000      cm.
THERMAL BOWING HORZ TOLERANCE =      0.100000E-03
AUTO NODE NUMBER INCREMENT=      10.0000
Z AXIS UP=      NO
USE PRESSURE STIFFENING =      DEFAULT
ALPHA TOLERANCE =      0.500000E-01
RESLD-FORCE =      NO
HGR DEF RESWGT STIF =      0.175127E+13 N./cm.
DECOMP SNG TOL =      0.100000E+11

```

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BEND AXIAL SHAPE = YES
FRICT STIF = 0.175127E+07 N./cm.
FRICT NORM FORCE VAR = 0.150000
FRICT ANGLE VAR = 15.0000
FRICT SLIDE MULT = 1.00000
ROD TOLERANCE = 1.00000
ROD INC = 2.00000
INCORE NUMERICAL CHECK = NO
OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.175127E+13 N./cm.
DEFAULT ROT RESTRAINT STIFF= 0.112985E+12 N.m./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 21.1111 C
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.220632E+08 KPa
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 21.6000 C
FRP Density = 0.166079E-02 kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING = NO

```

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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000
 Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 C
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

 Ambient Temperature 20.997 C
 Plastic (FRP) Alpha 21.600
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X

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COORDINATE REPORT

NODE	X	Y	Z
10	-1570.008	-739.568	732.422
20	-1570.008	-739.568	725.754
30	-1570.008	-739.568	699.554
40	-1570.008	-666.768	699.554
50	-1570.008	-660.101	699.554
60	-1570.008	-641.401	699.554
70	-1570.008	-634.733	699.554
80	-1570.008	-574.033	699.554
90	-1577.708	-574.033	699.554
100	-1584.375	-574.033	699.554
110	-1605.575	-574.033	699.554
120	-1612.243	-574.033	699.554
125	-1632.243	-574.033	699.554
130	-1692.643	-574.033	699.554
135	-1692.643	-574.033	844.554
140	-1692.643	-574.033	989.554
150	-1692.643	-574.033	1439.554
190	-1692.643	-574.033	1833.854
200	-1692.643	-574.033	2037.055
210	-1692.643	-524.033	2037.055
220	-1392.643	-524.033	2037.055
230	-792.643	-524.033	2037.055
300	-568.743	-524.033	2037.055
310	-568.743	-334.033	2037.055
315	-458.743	-334.033	2037.055
320	-352.943	-334.033	2037.055
325	-337.293	-334.033	2037.055

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330	-321.643	-334.033	2037.055
340	-314.975	-334.033	2037.055
350	-293.775	-334.033	2037.055
360	-287.108	-334.033	2037.055
365	-269.608	-334.033	2037.055
370	-252.108	-334.033	2037.055
380	-245.440	-334.033	2037.055
390	-226.840	-334.033	2037.055
400	-220.173	-334.033	2037.055
410	-210.173	-334.033	2037.055
420	-203.505	-334.033	2037.055
430	-183.405	-334.033	2037.055
440	-176.738	-334.033	2037.055
450	-161.738	-334.033	2037.055
455	-145.438	-334.033	2037.055
460	-85.738	-334.033	2037.055
470	-85.738	-334.033	2121.055
475	-85.738	-334.033	2140.555
480	-85.738	-334.033	2160.055
490	-85.738	-164.033	2160.055
500	35.962	-164.033	2160.055
510	35.962	-324.033	2160.055
520	35.962	-324.033	2330.055
530	35.962	-324.033	2930.055
540	35.962	-324.033	3530.055
550	35.962	-324.033	4130.055
560	35.962	-324.033	4730.055
570	35.962	-324.033	5330.055
575	35.962	-324.033	6130.055
576	35.962	-324.033	6730.055
580	35.962	-324.033	7030.055
585	225.862	-324.033	7030.055
590	825.862	-324.033	7030.055
600	1425.862	-324.033	7030.055
610	2025.862	-324.033	7030.055
620	2625.862	-324.033	7030.055
630	3225.862	-324.033	7030.055
640	3825.862	-324.033	7030.055
650	4425.862	-324.033	7030.055
660	5025.862	-324.033	7030.055
670	5625.862	-324.033	7030.055
680	6225.862	-324.033	7030.055
690	6825.862	-324.033	7030.055
700	7275.862	-324.033	7030.055
704	7275.862	-324.033	7230.055
706	7275.862	-324.033	7730.055
705	7275.862	-324.033	7979.555
710	7275.862	-324.033	8029.555
720	7275.862	-324.033	8036.222
730	7275.862	-324.033	8042.890
740	-1570.008	-739.568	956.687
750	-1570.008	-739.568	963.354
760	-1570.008	-739.568	989.554
770	-1570.008	-666.768	989.554
780	-1570.008	-660.101	989.554
790	-1570.008	-641.401	989.554

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800	-1570.008	-634.733	989.554
810	-1570.008	-574.033	989.554
820	-1577.708	-574.033	989.554
830	-1584.375	-574.033	989.554
840	-1605.575	-574.033	989.554
850	-1612.243	-574.033	989.554
495	-1632.243	-574.033	989.554
140	-1692.643	-574.033	989.554
470	-85.738	-334.033	2121.055
860	-85.738	-290.033	2121.055
870	-85.738	-290.033	2113.355
880	-85.738	-290.033	2106.687
890	-85.738	-290.033	2085.487
900	-85.738	-290.033	2078.820
910	-85.738	-290.033	2011.120
920	-93.438	-290.033	2011.120
930	-100.105	-290.033	2011.120
940	-118.705	-290.033	2011.120
950	-125.373	-290.033	2011.120
955	-145.373	-290.033	2011.120
960	-172.973	-290.033	2011.120
970	-172.973	-334.033	2011.120
980	-286.073	-334.033	2011.120
985	-458.773	-334.033	2011.120
990	-567.573	-334.033	2011.120
1000	-567.573	-574.033	2011.120
1010	-567.573	-574.033	2036.320
1030	-792.573	-574.033	2036.320
1040	-1392.573	-574.033	2036.320
1050	-1676.573	-574.033	2036.320
1200	-1676.573	-574.033	1908.820
1135	-1676.573	-574.033	1833.820
1070	-1676.573	-574.033	1758.820
1075	-1631.173	-574.033	1758.820
1080	-1611.173	-574.033	1758.820
1090	-1604.505	-574.033	1758.820
1100	-1583.305	-574.033	1758.820
1110	-1576.638	-574.033	1758.820
1120	-1568.938	-574.033	1758.820
1130	-1568.938	-601.633	1758.820
1140	-1568.938	-608.301	1758.820
1150	-1568.938	-627.001	1758.820
1160	-1568.938	-633.668	1758.820
1170	-1568.938	-695.568	1758.820
1180	-1568.938	-695.568	1741.220
1190	-1568.938	-695.568	1734.552
1200	-1676.573	-574.033	1908.820
1205	-1631.173	-574.033	1908.820
1210	-1611.173	-574.033	1908.820
1220	-1604.505	-574.033	1908.820
1230	-1583.305	-574.033	1908.820
1240	-1576.638	-574.033	1908.820
1250	-1568.938	-574.033	1908.820
1260	-1568.938	-601.633	1908.820
1270	-1568.938	-608.301	1908.820
1280	-1568.938	-627.001	1908.820

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INPUT LISTING

1290	-1568.938	-633.668	1908.820
1300	-1568.938	-695.568	1908.820
1310	-1568.938	-695.568	1891.220
1320	-1568.938	-695.568	1884.552
320	-352.943	-334.033	2037.055
1330	-352.943	-334.033	2043.455
1340	-352.943	-334.033	2050.122
1350	-352.943	-334.033	2068.822
1360	-352.943	-334.033	2090.022
1370	-352.943	-334.033	2096.689
1380	-352.943	-334.033	2126.089
1390	-352.943	-112.033	2126.089
1400	34.557	-112.033	2126.089
1410	34.557	-324.033	2126.089
1420	34.557	-324.033	1731.089
1430	34.557	-324.033	1131.089
1440	34.557	-324.033	531.089
1450	34.557	-324.033	-68.911
1460	34.557	-324.033	-668.911
1470	34.557	-324.033	-1268.911
1480	34.557	-324.033	-1868.911
1490	34.557	-324.033	-2468.911
1500	34.557	-324.033	-3068.911
1510	34.557	-324.033	-3668.911
1520	34.557	-324.033	-4268.911
1530	34.557	-324.033	-4868.911
1540	34.557	-324.033	-5468.911
1550	34.557	-324.033	-6068.911
1560	34.557	-324.033	-6668.911
1570	34.557	-324.033	-7268.911
1580	34.557	-324.033	-7868.911
1590	34.557	-324.033	-8468.910
1600	34.557	-324.033	-9068.910
1610	34.557	-324.033	-9668.910
1620	34.557	-324.033	-10268.910
1630	34.557	-324.033	-10868.910
1640	34.557	-324.033	-11468.910
1650	34.557	-324.033	-12068.910
1660	34.557	-324.033	-12668.910
10	-1570.008	-739.568	732.422
1670	-1570.008	-739.568	739.089
1680	-1570.008	-739.568	764.789
740	-1570.008	-739.568	956.687
1690	-1570.008	-739.568	950.019
1700	-1570.008	-739.568	924.319
1190	-1568.938	-695.568	1734.552
1710	-1568.938	-695.568	1727.885
1720	-1568.938	-695.568	1704.585
1320	-1568.938	-695.568	1884.552
1730	-1568.938	-695.568	1877.885
1740	-1568.938	-695.568	1854.585

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid ANC;					
	1(HYD)	-31	-502	34	-87	18	-3
	2(OPE)	57	-829	-24	-265	-12	11
	4(OPE)	-30	-504	34	-88	18	-3
	6(SUS)	-31	-502	34	-87	18	-3
	7(SUS)	-27	-490	32	-86	16	-5
	MAX	57/L2	-829/L2	34/L6	-265/L2	18/L6	11/L2
125		TYPE=Rigid +Y;					
	1(HYD)	0	-517	0	0	0	0
	2(OPE)	0	-127	0	0	0	0
	4(OPE)	0	-521	0	0	0	0
	6(SUS)	0	-522	0	0	0	0
	7(SUS)	0	-481	0	0	0	0
	MAX		-522/L6				
135		TYPE=Rigid +Y;					
	1(HYD)	38	-126	-1	0	0	0
	2(OPE)	-54	-341	-87	0	0	0
	4(OPE)	38	-128	-5	0	0	0
	6(SUS)	38	-128	-1	0	0	0
	7(SUS)	30	-103	-6	0	0	0
	MAX	-54/L2	-341/L2	-87/L2			
150		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	-1	-449	-122	0	0	0
	2(OPE)	-56	-472	172	0	0	0
	4(OPE)	-2	-456	-117	0	0	0
	6(SUS)	-1	-456	-121	0	0	0
	7(SUS)	-2	-397	-119	0	0	0
	MAX	-56/L2	-472/L2	172/L2			
190		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	1(HYD)	0	-641	0	0	0	0
	2(OPE)	0	-666	0	0	0	0
	4(OPE)	0	-650	0	0	0	0
	6(SUS)	0	-649	0	0	0	0
	7(SUS)	0	-567	0	0	0	0
	MAX		-666/L2				
220		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	8	-728	32	0	0	0
	2(OPE)	-525	-697	110	0	0	0
	4(OPE)	-138	-737	33	0	0	0
	6(SUS)	8	-737	32	0	0	0
	7(SUS)	7	-644	28	0	0	0
	MAX	-525/L2	-737/L6	110/L2			
230		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	29	-632	-25	0	0	0
	2(OPE)	254	-855	-38	0	0	0
	4(OPE)	190	-641	-27	0	0	0
	6(SUS)	29	-641	-25	0	0	0
	7(SUS)	25	-560	-22	0	0	0
	MAX	254/L2	-855/L2	-38/L2			
315		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	-24	-659	43	0	0	0
	2(OPE)	-152	-524	-40	0	0	0
	4(OPE)	-195	-668	48	0	0	0
	6(SUS)	-24	-668	44	0	0	0
	7(SUS)	-22	-585	39	0	0	0
	MAX	-195/L4	-668/L6	48/L4			
325		TYPE=Rigid +Y;					
	1(HYD)	-2	-297	89	0	0	0
	2(OPE)	9	-34	-5	0	0	0
	4(OPE)	-24	-295	85	0	0	0
	6(SUS)	-2	-295	88	0	0	0
	7(SUS)	-3	-310	93	0	0	0
	MAX	-24/L4	-310/L7	93/L7			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
365		TYPE=Rigid +Y;					
	1(HYD)	-15	-590	1	0	0	0
	2(OPE)	151	-515	-33	0	0	0
	4(OPE)	-22	-592	1	0	0	0
	6(SUS)	-15	-592	1	0	0	0
	7(SUS)	-14	-571	-0	0	0	0
	MAX	151/L2	-592/L4	-33/L2			
455		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-18	-564	-14	0	0	0
	2(OPE)	231	-874	-124	0	0	0
	4(OPE)	159	-567	-17	0	0	0
	6(SUS)	-18	-567	-14	0	0	0
	7(SUS)	-18	-540	-14	0	0	0
	MAX	231/L2	-874/L2	-124/L2			
475		TYPE=Rigid +Y;					
	1(HYD)	5	-648	56	0	0	0
	2(OPE)	105	-359	-24	0	0	0
	4(OPE)	6	-655	59	0	0	0
	6(SUS)	5	-654	56	0	0	0
	7(SUS)	5	-591	56	0	0	0
	MAX	105/L2	-655/L4	59/L4			
495		TYPE=Rigid +Y;					
	1(HYD)	23	-1164	125	0	0	0
	2(OPE)	-133	-443	4	0	0	0
	4(OPE)	22	-1175	122	0	0	0
	6(SUS)	22	-1176	124	0	0	0
	7(SUS)	26	-1060	112	0	0	0
	MAX	-133/L2	-1176/L6	125/L1			
510		TYPE=Rigid +Y;					
	1(HYD)	14	-213	5	0	0	0
	2(OPE)	3	-100	-30	0	0	0
	4(OPE)	14	-216	-63	0	0	0
	6(SUS)	14	-216	6	0	0	0
	7(SUS)	13	-191	4	0	0	0
	MAX	14/L4	-216/L6	-63/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
520		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	3	-626	2	0	0	0
	2(OPE)	90	-810	-238	0	0	0
	4(OPE)	3	-634	-190	0	0	0
	6(SUS)	3	-634	3	0	0	0
	7(SUS)	2	-553	2	0	0	0
	MAX	90/L2	-810/L2	-238/L2			
530		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	-0	-760	0	0	0	0
	2(OPE)	12	-762	-228	0	0	0
	4(OPE)	-0	-770	-76	0	0	0
	6(SUS)	-0	-770	0	0	0	0
	7(SUS)	-0	-672	0	0	0	0
	MAX	12/L2	-770/L6	-228/L2			
540		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	0	-728	0	0	0	0
	2(OPE)	-3	-740	-222	0	0	0
	4(OPE)	0	-738	-14	0	0	0
	6(SUS)	0	-738	0	0	0	0
	7(SUS)	0	-644	0	0	0	0
	MAX	-3/L2	-740/L2	-222/L2			
550		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	-0	-753	0	0	0	0
	2(OPE)	0	-763	-229	0	0	0
	4(OPE)	-0	-763	-2	0	0	0
	6(SUS)	-0	-763	0	0	0	0
	7(SUS)	-0	-667	0	0	0	0
	MAX	0/L2	-763/L6	-229/L2			
560		TYPE=Rigid Z w/gap; Rigid X w/gap; Rigid +Y;					
	1(HYD)	0	-684	0	0	0	0
	2(OPE)	-2	-694	322	0	0	0
	4(OPE)	0	-693	3	0	0	0
	6(SUS)	0	-693	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	7(SUS)	0	-606	0	0	0	0
	MAX	-2/L2	-694/L2	322/L2			
570		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	-0	-900	0	0	0	0
	2(OPE)	8	-912	274	0	0	0
	4(OPE)	-0	-912	20	0	0	0
	6(SUS)	-0	-912	0	0	0	0
	7(SUS)	-0	-797	0	0	0	0
	MAX	8/L2	-912/L4	274/L2			
575		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	0	-913	0	0	0	0
	2(OPE)	-3	-926	278	0	0	0
	4(OPE)	0	-926	140	0	0	0
	6(SUS)	0	-926	0	0	0	0
	7(SUS)	0	-808	0	0	0	0
	MAX	-3/L2	-926/L2	278/L2			
576		TYPE=Rigid +Y;					
	1(HYD)	-0	-596	0	0	0	0
	2(OPE)	-119	-603	137	0	0	0
	4(OPE)	-0	-604	181	0	0	0
	6(SUS)	-0	-604	0	0	0	0
	7(SUS)	-0	-527	0	0	0	0
	MAX	-119/L2	-604/L4	181/L4			
585		TYPE=Rigid +Y;					
	1(HYD)	0	-691	0	0	0	0
	2(OPE)	-171	-700	122	0	0	0
	4(OPE)	-210	-700	0	0	0	0
	6(SUS)	0	-700	0	0	0	0
	7(SUS)	0	-612	0	0	0	0
	MAX	-210/L4	-700/L2	122/L2			
590		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-734	-0	0	0	0
	2(OPE)	-222	-745	23	0	0	0
	4(OPE)	-113	-744	-0	0	0	0
	6(SUS)	0	-744	-0	0	0	0
	7(SUS)	0	-650	-0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-222/L2	-745/L2	23/L2			
600		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-224	-748	-9	0	0	0
	4(OPE)	-21	-748	0	0	0	0
	6(SUS)	0	-748	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	-224/L2	-748/L4	-9/L2			
610		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-737	-0	0	0	0
	2(OPE)	-224	-747	-1	0	0	0
	4(OPE)	-4	-747	-0	0	0	0
	6(SUS)	0	-747	-0	0	0	0
	7(SUS)	0	-652	-0	0	0	0
	MAX	-224/L2	-747/L2	-1/L2			
620		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-224	-747	0	0	0	0
	4(OPE)	-1	-747	0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	-224/L2	-747/L4	0/L2			
630		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-738	-0	0	0	0
	2(OPE)	-224	-747	-0	0	0	0
	4(OPE)	-0	-747	-0	0	0	0
	6(SUS)	0	-747	-0	0	0	0
	7(SUS)	0	-653	-0	0	0	0
	MAX	-224/L2	-747/L2	-0/L2			
640		TYPE=Rigid X w/gap; Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-737	0	0	0	0
	2(OPE)	224	-747	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	0	-747	0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	224/L2	-747/L4	0/L2			
650		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-738	-0	0	0	0
	2(OPE)	224	-748	-0	0	0	0
	4(OPE)	1	-748	-0	0	0	0
	6(SUS)	0	-748	-0	0	0	0
	7(SUS)	0	-653	-0	0	0	0
	MAX	224/L2	-748/L2	-0/L2			
660		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-736	0	0	0	0
	2(OPE)	224	-746	-1	0	0	0
	4(OPE)	3	-746	0	0	0	0
	6(SUS)	0	-746	0	0	0	0
	7(SUS)	0	-651	0	0	0	0
	MAX	224/L2	-746/L4	-1/L2			
670		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-743	-0	0	0	0
	2(OPE)	226	-753	2	0	0	0
	4(OPE)	19	-753	-0	0	0	0
	6(SUS)	0	-753	-0	0	0	0
	7(SUS)	0	-657	-0	0	0	0
	MAX	226/L2	-753/L2	2/L2			
680		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-717	0	0	0	0
	2(OPE)	218	-727	9	0	0	0
	4(OPE)	102	-727	0	0	0	0
	6(SUS)	0	-727	0	0	0	0
	7(SUS)	0	-635	0	0	0	0
	MAX	218/L2	-727/L4	9/L2			
690		TYPE=Rigid Z w/gap; Rigid +Y;					
	1(HYD)	0	-760	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	2(OPE)	230	-770	-99	0	0	0
	4(OPE)	231	-770	-0	0	0	0
	6(SUS)	0	-770	0	0	0	0
	7(SUS)	0	-673	0	0	0	0
	MAX	231/L4	-770/L2	-99/L2			
704		TYPE=Rigid +Y;					
	1(HYD)	0	-826	0	0	0	0
	2(OPE)	245	-837	-55	0	0	0
	4(OPE)	0	-837	-181	0	0	0
	6(SUS)	0	-837	0	0	0	0
	7(SUS)	0	-731	0	0	0	0
	MAX	245/L2	-837/L2	-181/L4			
705		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	0	-266	0	0	0	0
	2(OPE)	-35	-268	73	0	0	0
	4(OPE)	0	-268	80	0	0	0
	6(SUS)	0	-268	0	0	0	0
	7(SUS)	0	-242	0	0	0	0
	MAX	-35/L2	-268/L2	80/L4			
706		TYPE=Rigid X w/gap; Rigid +Y;					
	1(HYD)	0	-375	0	0	0	0
	2(OPE)	23	-380	75	0	0	0
	4(OPE)	-0	-380	114	0	0	0
	6(SUS)	0	-380	0	0	0	0
	7(SUS)	0	-330	0	0	0	0
	MAX	23/L2	-380/L4	114/L4			
740		TYPE=Rigid ANC;					
	1(HYD)	-27	-223	-57	20	-12	5
	2(OPE)	146	-795	-138	111	-6	-24
	4(OPE)	-27	-222	-57	20	-12	5
	6(SUS)	-27	-221	-57	20	-12	5
	7(SUS)	-28	-237	-53	25	-13	5
	MAX	146/L2	-795/L2	-138/L2	111/L2	-13/L7	-24/L2
955		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	178	-631	-66	0	0	0
	2(OPE)	155	-641	-114	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	178	-635	-67	0	0	0
	6(SUS)	179	-636	-66	0	0	0
	7(SUS)	167	-596	-64	0	0	0
	MAX	179/L6	-641/L2	-114/L2			
985		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	-197	-657	7	0	0	0
	2(OPE)	-165	-552	-12	0	0	0
	4(OPE)	-200	-666	7	0	0	0
	6(SUS)	-200	-666	7	0	0	0
	7(SUS)	-173	-579	7	0	0	0
	MAX	-200/L6	-666/L6	-12/L2			
1030		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	33	-686	-1	0	0	0
	2(OPE)	255	-849	10	0	0	0
	4(OPE)	208	-695	-1	0	0	0
	6(SUS)	34	-695	-1	0	0	0
	7(SUS)	29	-608	-1	0	0	0
	MAX	255/L2	-849/L2	10/L2			
1040		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	11	-659	3	0	0	0
	2(OPE)	-182	-641	62	0	0	0
	4(OPE)	-138	-668	3	0	0	0
	6(SUS)	11	-668	3	0	0	0
	7(SUS)	11	-584	4	0	0	0
	MAX	-182/L2	-668/L6	62/L2			
1075		TYPE=Rigid +Y;					
	1(HYD)	59	-326	78	0	0	0
	2(OPE)	0	0	0	0	0	0
	4(OPE)	59	-331	80	0	0	0
	6(SUS)	59	-328	79	0	0	0
	7(SUS)	55	-303	73	0	0	0
	MAX	59/L4	-331/L4	80/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1135		TYPE=Rigid +Y;					
	1(HYD)	0	0	0	0	0	0
	2(OPE)	-49	-164	1	0	0	0
	4(OPE)	0	0	0	0	0	0
	6(SUS)	0	0	0	0	0	0
	7(SUS)	0	0	0	0	0	0
	MAX	-49/L2	-164/L2	1/L2			
1190		TYPE=Rigid ANC;					
	1(HYD)	-32	-538	-39	69	-11	-6
	2(OPE)	67	-787	-90	81	-49	3
	4(OPE)	-33	-538	-41	67	-11	-5
	6(SUS)	-32	-539	-39	69	-11	-6
	7(SUS)	-30	-525	-37	68	-11	-6
	MAX	67/L2	-787/L2	-90/L2	81/L2	-49/L2	-6/L7
1205		TYPE=Rigid +Y;					
	1(HYD)	0	-930	0	0	0	0
	2(OPE)	0	-860	0	0	0	0
	4(OPE)	0	-938	0	0	0	0
	6(SUS)	0	-940	0	0	0	0
	7(SUS)	0	-843	0	0	0	0
	MAX		-940/L6				
1320		TYPE=Rigid ANC;					
	1(HYD)	-25	-323	-34	56	-17	-6
	2(OPE)	-209	-331	31	134	-82	156
	4(OPE)	-25	-323	-36	55	-18	-6
	6(SUS)	-25	-323	-34	56	-17	-6
	7(SUS)	-25	-332	-32	56	-16	-6
	MAX	-209/L2	-332/L7	-36/L4	134/L2	-82/L2	156/L2
1380		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-54	-734	-116	0	0	0
	2(OPE)	-172	-932	221	0	0	0
	4(OPE)	-56	-740	-109	0	0	0
	6(SUS)	-55	-741	-116	0	0	0
	7(SUS)	-47	-671	-116	0	0	0
	MAX	-172/L2	-932/L2	221/L2			
1410		TYPE=Rigid +Y;					
	1(HYD)	60	-677	1	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	2(OPE)	5	-634	190	0	0	0
	4(OPE)	67	-686	195	0	0	0
	6(SUS)	60	-686	1	0	0	0
	7(SUS)	53	-599	1	0	0	0
	MAX	67/L4	-686/L4	195/L4			
1420		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-2	-658	0	0	0	0
	2(OPE)	63	-732	219	0	0	0
	4(OPE)	-2	-667	128	0	0	0
	6(SUS)	-2	-667	0	0	0	0
	7(SUS)	-2	-583	0	0	0	0
	MAX	63/L2	-732/L2	219/L2			
1430		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-756	0	0	0	0
	2(OPE)	-0	-756	227	0	0	0
	4(OPE)	0	-766	23	0	0	0
	6(SUS)	0	-766	0	0	0	0
	7(SUS)	0	-669	0	0	0	0
	MAX	0/L6	-766/L6	227/L2			
1440		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-733	0	0	0	0
	2(OPE)	-1	-745	224	0	0	0
	4(OPE)	-0	-742	4	0	0	0
	6(SUS)	-0	-742	0	0	0	0
	7(SUS)	-0	-648	0	0	0	0
	MAX	-1/L2	-745/L2	224/L2			
1450		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-739	0	0	0	0
	2(OPE)	0	-748	224	0	0	0
	4(OPE)	0	-749	1	0	0	0
	6(SUS)	0	-749	0	0	0	0
	7(SUS)	0	-654	0	0	0	0
	MAX	0/L6	-749/L6	224/L2			
1460		TYPE=Rigid +Y; Rigid X w/gap;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	1(HYD)	-0	-737	0	0	0	0
	2(OPE)	1	-747	224	0	0	0
	4(OPE)	-0	-747	0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-652	0	0	0	0
	MAX	1/L2	-747/L2	224/L2			
1470		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	2	-747	224	0	0	0
	4(OPE)	0	-747	0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	2/L2	-747/L6	224/L2			
1480		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-737	0	0	0	0
	2(OPE)	3	-747	224	0	0	0
	4(OPE)	-0	-747	0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	3/L2	-747/L2	224/L2			
1490		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	3	-747	224	0	0	0
	4(OPE)	0	-747	0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	3/L2	-747/L4	224/L2			
1500		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-738	0	0	0	0
	2(OPE)	2	-747	224	0	0	0
	4(OPE)	-0	-747	0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	2/L2	-747/L2	224/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1510		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	0	-747	224	0	0	0
	4(OPE)	0	-747	0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	0/L2	-747/L4	224/L2			
1520		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-738	0	0	0	0
	2(OPE)	-0	-747	224	0	0	0
	4(OPE)	-0	-747	0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	-0/L2	-747/L2	224/L2			
1530		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-0	-747	224	0	0	0
	4(OPE)	0	-747	0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	-0/L2	-747/L2	224/L2			
1540		TYPE=Rigid +Y; Rigid Z w/gap; Rigid X w/gap;					
	1(HYD)	-0	-738	0	0	0	0
	2(OPE)	-1	-747	-587	0	0	0
	4(OPE)	-0	-747	-0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-587/L2			
1550		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-1	-747	-224	0	0	0
	4(OPE)	0	-747	-0	0	0	0
	6(SUS)	0	-747	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	7(SUS)	0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-224/L2			
1560		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-738	0	0	0	0
	2(OPE)	-1	-747	-224	0	0	0
	4(OPE)	-0	-747	-0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-224/L2			
1570		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-1	-747	-224	0	0	0
	4(OPE)	0	-747	-0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-224/L2			
1580		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-737	0	0	0	0
	2(OPE)	-1	-747	-224	0	0	0
	4(OPE)	-0	-747	-0	0	0	0
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-224/L2			
1590		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-1	-747	-224	0	0	0
	4(OPE)	0	-747	-0	0	0	0
	6(SUS)	0	-747	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-224/L2			
1600		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-737	0	0	0	0
	2(OPE)	-1	-747	-224	0	0	0
	4(OPE)	-0	-747	-0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(SUS)	-0	-747	0	0	0	0
	7(SUS)	-0	-653	0	0	0	0
	MAX	-1/L2	-747/L2	-224/L2			
1610		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-738	0	0	0	0
	2(OPE)	-1	-748	-224	0	0	0
	4(OPE)	0	-748	-0	0	0	0
	6(SUS)	0	-748	0	0	0	0
	7(SUS)	0	-653	0	0	0	0
	MAX	-1/L2	-748/L2	-224/L2			
1620		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-736	0	0	0	0
	2(OPE)	-1	-745	-224	0	0	0
	4(OPE)	-0	-745	-1	0	0	0
	6(SUS)	0	-745	0	0	0	0
	7(SUS)	0	-651	0	0	0	0
	MAX	-1/L2	-745/L2	-224/L2			
1630		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-745	0	0	0	0
	2(OPE)	-1	-754	-226	0	0	0
	4(OPE)	0	-754	-7	0	0	0
	6(SUS)	0	-754	0	0	0	0
	7(SUS)	0	-659	0	0	0	0
	MAX	-1/L2	-754/L2	-226/L2			
1640		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-711	0	0	0	0
	2(OPE)	-1	-720	-216	0	0	0
	4(OPE)	-0	-720	-36	0	0	0
	6(SUS)	0	-720	0	0	0	0
	7(SUS)	0	-629	0	0	0	0
	MAX	-1/L2	-720/L2	-216/L2			
1650		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-836	0	0	0	0
	2(OPE)	-1	-847	-254	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	0	-847	-199	0	0	0
	6(SUS)	0	-847	0	0	0	0
	7(SUS)	0	-740	0	0	0	0
	MAX	-1/L2	-847/L2	-254/L2			
1660		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-291	0	0	0	0
	2(OPE)	-0	-295	-88	0	0	0
	4(OPE)	-0	-295	-88	0	0	0
	6(SUS)	0	-295	0	0	0	0
	7(SUS)	0	-257	0	0	0	0
	MAX	-0/L2	-295/L2	-88/L4			
1680		TYPE=Rigid ANC;					
	1(HYD)	-31	-565	34	-263	28	-3
	2(OPE)	57	-893	-24	-547	-31	11
	4(OPE)	-30	-568	34	-264	28	-3
	6(SUS)	-31	-566	34	-263	28	-3
	7(SUS)	-27	-549	32	-258	25	-5
	MAX	57/L2	-893/L2	34/L6	-547/L2	-31/L2	11/L2
1700		TYPE=Rigid ANC;					
	1(HYD)	-27	-286	-57	106	-21	5
	2(OPE)	146	-859	-138	382	41	-24
	4(OPE)	-27	-286	-57	105	-21	5
	6(SUS)	-27	-285	-57	105	-21	5
	7(SUS)	-28	-296	-53	114	-22	5
	MAX	146/L2	-859/L2	-138/L2	382/L2	41/L2	-24/L2
1720		TYPE=Rigid ANC;					
	1(HYD)	-32	-598	-39	242	-21	-6
	2(OPE)	67	-848	-90	329	-29	3
	4(OPE)	-33	-599	-41	240	-21	-5
	6(SUS)	-32	-600	-39	242	-21	-6
	7(SUS)	-30	-581	-37	236	-20	-6
	MAX	67/L2	-848/L2	-90/L2	329/L2	-29/L2	-6/L7
1740		TYPE=Rigid ANC;					
	1(HYD)	-25	-384	-34	164	-25	-6
	2(OPE)	-209	-392	31	245	-144	156
	4(OPE)	-25	-384	-36	163	-25	-6
	6(SUS)	-25	-384	-34	164	-25	-6
	7(SUS)	-25	-388	-32	167	-24	-6

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-209/L2	-392/L2	-36/L4	245/L2	-144/L2	156/L2

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 6 (SUS) W+P1
 CASE 7 (SUS) WNC
 CASE 18 (OCC) L18=L13+L6
 CASE 19 (OCC) L19=L14+L6
 CASE 20 (OCC) L20=L15+L6
 CASE 21 (OCC) L21=L16+L6
 CASE 22 (OCC) L22=L17+L6
 CASE 23 (EXP) L23=L2-L6
 CASE 24 (EXP) L24=L4-L6
 CASE 25 (EXP) L25=L2-L4

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (	KPa	)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	15.5	@Node	704	
Code Stress:	37426.7	Allowable Stress:		241316.5
Axial Stress:	1406.4	@Node	808	
Bending Stress:	36250.4	@Node	704	
Torsion Stress:	1687.7	@Node	810	
Hoop Stress:	2832.2	@Node	28	
Max Stress Intensity:	37426.7	@Node	704	

CODE STRESS CHECK PASSED : LOADCASE 6 (SUS) W+P1

Highest Stresses: (	KPa	)	LOADCASE 6 (SUS) W+P1	
Ratio (%):	65.4	@Node	704	
Code Stress:	90173.4	Allowable Stress:		137895.1
Axial Stress:	4341.4	@Node	808	
Bending Stress:	86499.8	@Node	704	
Torsion Stress:	4028.0	@Node	810	
Hoop Stress:	7713.9	@Node	28	
Max Stress Intensity:	90173.4	@Node	704	

CODE STRESS CHECK PASSED : LOADCASE 7 (SUS) WNC

Highest Stresses: (	KPa	)	LOADCASE 7 (SUS) WNC	
Ratio (%):	54.8	@Node	704	
Code Stress:	75553.2	Allowable Stress:		137895.1
Axial Stress:	948.3	@Node	1168	
Bending Stress:	75553.2	@Node	704	
Torsion Stress:	3457.7	@Node	810	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	75553.2	@Node	704	

CODE STRESS CHECK PASSED : LOADCASE 18 (OCC) L18=L13+L6

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (KPa) LOADCASE 18 (OCC) L18=L13+L6
 Ratio (%): 61.5 @Node 575
 Code Stress: 112760.2 Allowable Stress: 183400.5
 Axial Stress: 4517.9 @Node 660
 Bending Stress: 108622.7 @Node 575
 Torsion Stress: 10215.2 @Node 28
 Hoop Stress: 7713.9 @Node 28
 Max Stress Intensity: 112760.2 @Node 575

CODE STRESS CHECK PASSED : LOADCASE 19 (OCC) L19=L14+L6

Highest Stresses: (KPa) LOADCASE 19 (OCC) L19=L14+L6
 Ratio (%): 61.2 @Node 575
 Code Stress: 112313.5 Allowable Stress: 183400.5
 Axial Stress: 4462.4 @Node 610
 Bending Stress: 108123.5 @Node 575
 Torsion Stress: 12987.4 @Node 1330
 Hoop Stress: 7713.9 @Node 28
 Max Stress Intensity: 112313.5 @Node 575

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L6

Highest Stresses: (KPa) LOADCASE 20 (OCC) L20=L15+L6
 Ratio (%): 54.8 @Node 704
 Code Stress: 100584.5 Allowable Stress: 183400.5
 Axial Stress: 4261.3 @Node 808
 Bending Stress: 96879.8 @Node 704
 Torsion Stress: 3544.5 @Node 810
 Hoop Stress: 7713.9 @Node 28
 Max Stress Intensity: 100584.5 @Node 704

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L6

Highest Stresses: (KPa) LOADCASE 21 (OCC) L21=L16+L6
 Ratio (%): 49.8 @Node 704
 Code Stress: 91383.5 Allowable Stress: 183400.5
 Axial Stress: 4544.8 @Node 570
 Bending Stress: 87139.2 @Node 704
 Torsion Stress: 7042.4 @Node 1070
 Hoop Stress: 7713.9 @Node 28
 Max Stress Intensity: 91383.5 @Node 704

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L6

Highest Stresses: (KPa) LOADCASE 22 (OCC) L22=L17+L6
 Ratio (%): 49.5 @Node 704
 Code Stress: 90868.9 Allowable Stress: 183400.5
 Axial Stress: 4468.9 @Node 550
 Bending Stress: 86952.0 @Node 704
 Torsion Stress: 7860.6 @Node 809
 Hoop Stress: 7713.9 @Node 28
 Max Stress Intensity: 90868.9 @Node 704

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 23 (EXP) L23=L2-L6

Highest Stresses: (KPa)	LOADCASE 23 (EXP) L23=L2-L6	
Ratio (%):	6.5 @Node 475	
Code Stress:	21650.3	Allowable Stress: 334797.3
Axial Stress:	2235.3 @Node 1540	
Bending Stress:	20921.5 @Node 475	
Torsion Stress:	9135.8 @Node 499	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	51091.1 @Node 475	

CODE STRESS CHECK PASSED : LOADCASE 24 (EXP) L24=L4-L6

Highest Stresses: (KPa)	LOADCASE 24 (EXP) L24=L4-L6	
Ratio (%):	0.1 @Node 570	
Code Stress:	231.7	Allowable Stress: 257018.7
Axial Stress:	234.3 @Node 1520	
Bending Stress:	152.2 @Node 1720	
Torsion Stress:	32.0 @Node 1170	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	669.9 @Node 1500	

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L4

Highest Stresses: (KPa)	LOADCASE 25 (EXP) L25=L2-L4	
Ratio (%):	6.5 @Node 475	
Code Stress:	21639.6	Allowable Stress: 334797.3
Axial Stress:	2001.0 @Node 1540	
Bending Stress:	20910.6 @Node 475	
Torsion Stress:	9132.6 @Node 499	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	51065.7 @Node 475	

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2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
1680		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	34	-568	30	0.491	-3	28	264	0.375	
	6(SUS)	34	-566	31	0.490	-3	28	263	0.373	
	7(SUS)	32	-549	27	0.474	-5	25	258	0.365	
1700		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	57	-286	-27	0.247	-5	-21	105	0.149	
	6(SUS)	57	-285	-27	0.247	-5	-21	105	0.148	
	7(SUS)	53	-296	-28	0.256	-5	-22	114	0.162	
1720		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	41	-599	-33	0.518	5	-21	240	0.340	
	6(SUS)	39	-600	-32	0.519	6	-21	242	0.344	
	7(SUS)	37	-581	-30	0.502	6	-20	236	0.335	
1740		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	36	-384	-25	0.332	6	-25	163	0.232	
	6(SUS)	34	-384	-25	0.332	6	-25	164	0.233	
	7(SUS)	32	-388	-25	0.336	6	-24	167	0.237	

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NOZZLE CHECK REPORT: Nozzle Loads Screening
Various Load Cases

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Line no.

Stress sketch

Input echo

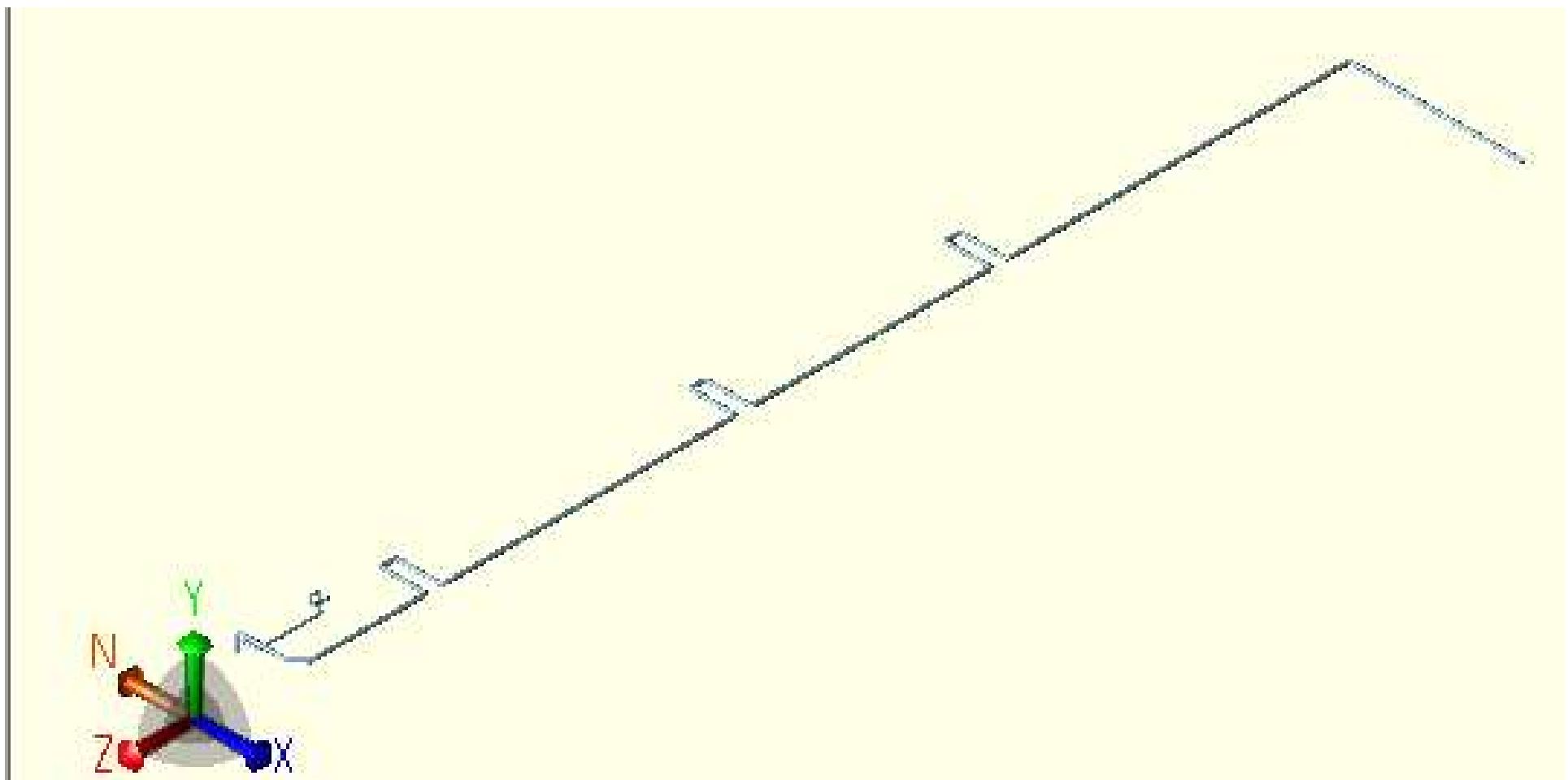
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0019-AN07-8"-PT
2. GAS-111-0012-AN07-8"-PT
3. GAS-111-0017-AN07-8"-PT
4. GAS-111-0101-AN07-6"-PT
5. GAS-111-0001-AN07-6"-PT
6. GAS-111-0005-AN07-10"-PT
7. GAS-111-0020-AN07-10"-PT
8. GAS-111-0025-AN07-10"-PT
9. GAS-111-0001-FN07-8"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (OPE) W+T4+P1
9 (Alt-SUS) W+P1
10 (SUS) W+P1
11 (SUS) WNC
12 (OPE) W+T2+P1+U1
13 (OPE) W+T2+P1-U1
14 (OPE) W+T2+P1+U2
15 (OPE) W+T2+P1-U2
16 (OPE) W+T2+P1+U3
17 (OPE) W+T2+P1+F1
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16-L4
23 (OCC) L23=L17-L4
24 (OCC) L24=L18+L10
25 (OCC) L25=L19+L10
26 (OCC) L26=L20+L10
27 (OCC) L27=L21+L10
28 (OCC) L28=L22+L10
29 (OCC) L29=L23+L10
30 (EXP) L30=L2-L10
31 (EXP) L31=L4-L10
32 (EXP) L32=L2-L4
33 (EXP) L33=L6-L10
34 (EXP) L34=L2-L6
35 (EXP) L35=L4-L6
36 (EXP) L36=L8-L10
37 (EXP) L37=L2-L8
38 (EXP) L38=L4-L8
39 (EXP) L39=L6-L8

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Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 10 To 20 DY= .219 ft.

PIPE

Dia= 8.625 in. Wall= .406 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F T3= 70 F T4= 392 F P1= 79.7726 lb./sq.in.

PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B

E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.

EH2= 29,393,378 lb./sq.in. EH3= 29,500,106 lb./sq.in.

EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.

EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.

EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292

Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.

Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 20 To 30 DY= .584 ft.

REDUCER

Diam2= 10.750 in. Wall2= .365 in.

From 30 To 40 DY= .951 ft.

PIPE

Dia= 10.750 in. Wall= .365 in.

Insul Thk= .000 in.

SIF's & TEE's

Node 40 Weldolet

From 40 To 50 DY= 4.626 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 49

Angle/Node @2= .00 48

From 50 To 60 DX= 20.341 ft.

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BEND at "TO" end
 Radius= 15.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 59
 Angle/Node @2= .00 58

 From 60 To 70 DX= 5.906 ft. DZ= -5.906 ft.

BEND at "TO" end
 Radius= 15.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 69
 Angle/Node @2= .00 68

 From 70 To 80 DZ= -13.780 ft.

RESTRAINTS

Node 80 +Y Mu = .30
 Node 80 Z Gap= .118 in.

 From 70 To 90 DY= -.295 ft. DZ= .295 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 90 Unreinforced Tee

 From 40 To 110 DY= 1.248 ft. DZ= -1.248 ft.

PIPE

Dia= 3.500 in. Wall= .300 in.
 Insul Thk= .000 in.

BEND at "TO" end
 Radius= 4.500 in. (LONG) Bend Angle= 89.954 Angle/Node @1= 44.98 109
 Angle/Node @2= .00 108

 From 110 To 120 DX= 7.562 ft. DY= .009 ft.

BEND at "TO" end
 Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 119
 Angle/Node @2= .00 118

 From 120 To 470 DY= .008 ft. DZ= -3.937 ft.

RESTRAINTS

Node 470 +Y Mu = .30

 From 470 To 480 DY= .039 ft. DZ= -19.806 ft.

RESTRAINTS

Node 480 +Y Mu = .30

 From 480 To 130 DY= .008 ft. DZ= -3.937 ft.

BEND at "TO" end
 Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 129
 Angle/Node @2= .00 128

 From 130 To 140 DX= -3.451 ft. DY= .007 ft.

SIF's & TEE's

Node 140 Welding Tee

 From 140 To 150 DX= -2.139 ft. DY= .004 ft.

BEND at "TO" end
 Radius= 4.500 in. (LONG) Bend Angle= 89.886 Angle/Node @1= 44.94 149
 Angle/Node @2= .00 148

 From 150 To 160 DY= 2.953 ft.

BEND at "TO" end

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INPUT LISTING

Radius= 4.500 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 159
Angle/Node @2= .00 158

From 160 To 170 DZ= -.377 ft.

From 170 To 180 DZ= -.240 ft.
RIGID Weight= 12.25 lb.

From 180 To 190 DZ= -.666 ft.
RIGID Weight= 100.50 lb.

From 190 To 200 DZ= -.240 ft.
RIGID Weight= 12.25 lb.

From 200 To 205 DZ= -.906 ft.
RESTRAINTS

Node 205 +Y Mu = .30
Node 205 X Gap= .118 in.
Node 205 Z Gap= .118 in.

From 205 To 210 DZ= -.909 ft.

From 210 To 220 DZ= -.240 ft.
RIGID Weight= 12.25 lb.

From 220 To 230 DZ= -.240 ft.
RIGID Weight= 12.25 lb.

FORCES & MOMENTS

Node 230 FX1= .00 lb. FY1= 337.23 lb. FZ1= -337.23 lb.
MX1= .00 in.lb. MY1= .00 in.lb. MZ1= .00 in.lb.

From 230 To 240 DY= -.219 ft.
PIPE

Dia= 2.375 in. Wall= .218 in. Cor= .1181 in.

GENERAL

T1= 185 F T2= 86 F P1= 50.7644 lb./sq.in. PHyd= 76.1466 lb./sq.in.
Fluid Den= .0402818 lb./cu.in. Insul Thk= .000 in.

RIGID Weight= 7.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.

From 240 To 250 DY= -.219 ft.
RIGID Weight= 7.00 lb.

From 250 To 260 DY= -.219 ft.
RIGID Weight= 7.00 lb.

From 260 To 280 DY= -2.290 ft.

From 280 To 290 DY= -.219 ft.
RIGID Weight= 7.00 lb.

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INPUT LISTING

From 290 To 300 DY= -.614 ft.
 RIGID Weight= 47.00 lb.

 From 300 To 310 DY= -.219 ft.
 RIGID Weight= 7.00 lb.

 From 310 To 315 DY= -.863 ft.

 From 315 To 320 DY= -.958 ft.

 From 320 To 330 DY= -.219 ft.
 RIGID Weight= 7.00 lb.

RESTRAINTS

Node 330 ANC Cnode 331

 From 315 To 340 DZ= -1.191 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F P1= 79.7726 lb./sq.in. PHyd= 119.6589 lb./sq.in.

Fluid Den= .0000542 lb./cu.in. Insul Thk= .000 in.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 340 To 350 DZ= -.219 ft.

RIGID Weight= 7.00 lb.

 From 350 To 360 DZ= -.614 ft.

RIGID Weight= 61.00 lb.

 From 360 To 370 DZ= -.219 ft.

RIGID Weight= 7.00 lb.

 From 370 To 380 DZ= -.253 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 379

Angle/Node @2= .00 378

 From 380 To 385 DX= .413 ft.

 From 380 To 460 DX= -.059 ft. DY= -.059 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 460 Unreinforced Tee

 From 385 To 390 DX= .413 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 389

Angle/Node @2= .00 388

 From 390 To 400 DY= 1.903 ft.

BEND at "TO" end

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INPUT LISTING

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 399
Angle/Node @2= .00 398

From 400 To 410 DZ= .253 ft.

From 410 To 420 DZ= .219 ft.
RIGID Weight= 7.00 lb.

From 420 To 430 DZ= .679 ft.
RIGID Weight= 60.00 lb.

From 430 To 440 DZ= .219 ft.
RIGID Weight= 7.00 lb.

From 440 To 445 DZ= .656 ft.
RESTRAINTS

Node 445 +Y Mu = .30

From 445 To 450 DZ= 2.972 ft.
BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 44.993 Angle/Node @1= 22.50 449
Angle/Node @2= .00 448

From 450 To 140 DX= 1.312 ft. DY= .000 ft. DZ= 1.313 ft.

From 331 To 500 DY= -.219 ft.
PIPE

Dia= 2.375 in. Wall= .218 in. Cor= .1181 in.

GENERAL

T1= 185 F T2= 86 F P1= 50.7644 lb./sq.in. PHyd= 76.1466 lb./sq.in.

Fluid Den= .0402818 lb./cu.in. Insul Thk= .000 in.

RIGID Weight= 7.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 500 To 510 DY= -.942 ft.

RESTRAINTS

Node 510 ANC Cnode 511

From 511 To 520 DY= -1.657 ft.

PIPE

Dia= 43.307 in. Wall= .218 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 520 To 530 DX= -.951 ft.

RIGID Weight= .00 lb.

From 530 To 540 DY= -1.657 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 540 ANC

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INPUT LISTING

From 11 To 550 DY= -.344 ft.

PIPE

Dia= 8.625 in. Wall= .406 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F P1= 79.7726 lb./sq.in. PHyd= 119.6589 lb./sq.in.

Fluid Den= .0000542 lb./cu.in. Insul Thk= .000 in.

RIGID Weight= 40.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 550 To 560 DY= -.666 ft.

RESTRAINTS

Node 560 ANC Cnode 561

From 561 To 570 DY= -1.663 ft.

PIPE

Dia= 39.921 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 570 To 580 DX= -.295 ft.

RIGID Weight= .00 lb.

From 580 To 590 DY= -1.663 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 590 ANC

From 90 To 600 DZ= 1.640 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

GENERAL

T1= 70 F T2= 70 F T4= 70 F P1= .0000 lb./sq.in.

PHyd= .0000 lb./sq.in. Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.

EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.

EH3= 29,500,106 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 600 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 460 To 610 DX= -1.640 ft.

PIPE

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INPUT LISTING

Dia= 1.900 in. Wall= .145 in.
 Insul Thk= .000 in.

RESTRAINTS

Node 610 +Y Mu = .30

 From 620 To 630 DZ= 19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F T3= 70 F T4= 392 F P1= 108.7808 lb./sq.in.
 PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
 EH2= 29,393,378 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RESTRAINTS

Node 630 +Y Mu = .30
 Node 630 X

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 630 To 640 DZ= 17.989 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 639
 Angle/Node @2= .00 638

RESTRAINTS

Node 640 +Y Mu = .30

 From 640 To 650 DX= -19.685 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 649
 Angle/Node @2= .00 648

 From 650 To 660 DZ= 1.696 ft.

 From 660 To 670 DZ= 1.640 ft.

RESTRAINTS

Node 670 +Y Mu = .30

 From 670 To 680 DZ= 3.225 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679
 Angle/Node @2= .00 678

 From 680 To 690 DX= 19.685 ft.

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BEND at "TO" end
 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 689
 Angle/Node @2= .00 688

RESTRAINTS
 Node 690 +Y Mu = .30

 From 690 To 700 DZ= 14.820 ft.

RESTRAINTS
 Node 700 +Y Mu = .30
 Node 700 X

 From 700 To 80 DZ= 19.685 ft.

 From 620 To 740 DZ= -12.713 ft.

PIPE
 Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL
 T1= 185 F T2= 86 F T3= 70 F T4= 392 F P1= 108.7808 lb./sq.in.
 P2= .0000 lb./sq.in. PHyd= 163.1712 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
 EH2= 29,393,378 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RESTRAINTS
 Node 620 +Y Mu = .30
 Node 620 X Gap= .118 in.

UNIFORM LOAD
 Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES
 B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 740 To 750 DZ= -6.972 ft.

RESTRAINTS
 Node 750 +Y Mu = .30
 Node 750 Z Gap= .118 in.

 From 750 To 760 DZ= -10.751 ft.

 From 760 To 770 DZ= -1.312 ft.

 From 770 To 780 DZ= -6.926 ft.

RESTRAINTS
 Node 780 +Y Mu = .30
 Node 780 X Gap= .118 in.

 From 780 To 790 DZ= -19.685 ft.

RESTRAINTS

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Node 790 +Y Mu = .30
-----
From 790 To 800 DZ= -19.685 ft.
RESTRAINTS
Node 800 +Y Mu = .30
Node 800 X Gap= .118 in.
-----
From 800 To 810 DZ= -9.022 ft.
BEND at "TO" end
Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 809
Angle/Node @2= .00 808
-----
From 810 To 820 DX= -19.685 ft. DZ= .000 ft.
BEND at "TO" end
Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 819
Angle/Node @2= .00 818
-----
From 820 To 830 DZ= -3.281 ft.
RESTRAINTS
Node 830 +Y Mu = .30
-----
From 830 To 840 DZ= -3.281 ft.
BEND at "TO" end
Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 839
Angle/Node @2= .00 838
-----
From 840 To 850 DX= 19.685 ft. DZ= .000 ft.
BEND at "TO" end
Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 849
Angle/Node @2= .00 848
-----
From 850 To 860 DZ= -4.101 ft.
RESTRAINTS
Node 860 +Y Mu = .30
-----
From 860 To 870 DX= .000 ft. DZ= -19.685 ft.
RESTRAINTS
Node 870 +Y Mu = .30
Node 870 X Gap= .118 in.
-----
From 870 To 875 DZ= -19.685 ft.
RESTRAINTS
Node 875 +Y Mu = .30
-----
From 875 To 880 DZ= -9.843 ft.
RESTRAINTS
Node 880 +Y
Node 880 X Gap= .118 in.
Node 880 Z Gap= .118 in.
-----
From 880 To 1050 DZ= -19.685 ft.
PIPE
Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.
GENERAL
T1= 185 F T2= 86 F T3= 70 F T4= 392 F P1= 108.7808 lb./sq.in.
P2= .0000 lb./sq.in. PHyd= 163.1712 lb./sq.in. Mat= (106)A106 Grade B

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INPUT LISTING

E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
 EH2= 29,393,378 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RESTRAINTS

Node 1050 +Y Mu = .30

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 1050 To 1060 DZ= -19.685 ft.

RESTRAINTS

Node 1060 +Y Mu = .30
 Node 1060 X Gap= .118 in.

 From 1060 To 1070 DZ= -9.022 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1069
 Angle/Node @2= .00 1068

 From 1070 To 1080 DX= -19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1079
 Angle/Node @2= .00 1078

 From 1080 To 1090 DZ= -3.281 ft.

RESTRAINTS

Node 1090 +Y Mu = .30

 From 1090 To 1100 DZ= -3.281 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1099
 Angle/Node @2= .00 1098

 From 1100 To 1110 DX= 19.685 ft. DZ= .000 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1109
 Angle/Node @2= .00 1108

 From 1110 To 1120 DZ= -4.101 ft.

RESTRAINTS

Node 1120 +Y Mu = .30

 From 1120 To 1130 DX= .000 ft. DZ= -9.843 ft.

 From 1130 To 1140 DX= .000 ft. DZ= -9.843 ft.

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RESTRAINTS

Node 1140 +Y
 Node 1140 X Gap= .118 in.

 From 1140 To 890 DZ= -19.685 ft.

PIPE

Dia= 10.750 in. Wall= .365 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 86 F T3= 70 F P1= 108.7808 lb./sq.in.
 PHyd= 163.1712 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 28,875,074 lb./sq.in.
 EH2= 29,393,378 lb./sq.in. EH3= 29,500,856 lb./sq.in.
 EH4= 27,748,188 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0049190 lb./cu.in.

RESTRAINTS

Node 890 +Y Mu = .30
 Node 890 X
 Node 890 Z Gap= .118 in.

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 890 To 900 DZ= -19.685 ft.

GENERAL

P2= .0000 lb./sq.in.

RESTRAINTS

Node 900 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 900 To 910 DZ= -19.685 ft.

RESTRAINTS

Node 910 +Y Mu = .30
 Node 910 X Gap= .118 in.

 From 910 To 920 DZ= -19.685 ft.

RESTRAINTS

Node 920 +Y Mu = .30

 From 920 To 930 DZ= -19.685 ft.

RESTRAINTS

Node 930 +Y Mu = .30

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INPUT LISTING

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Node 930 X Gap= .118 in.
-----
From 930 To 940 DZ= -19.685 ft.
RESTRAINTS
Node 940 +Y Mu = .30
-----
From 940 To 950 DZ= -3.510 ft.
BEND at "TO" end
Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 949
Angle/Node @2= .00 948
-----
From 950 To 960 DX= 11.483 ft.
RESTRAINTS
Node 960 +Y
-----
From 960 To 970 DX= 17.388 ft.
RESTRAINTS
Node 970 +Y Mu = .30
Node 970 Z
-----
From 970 To 980 DX= 14.108 ft.
-----
From 980 To 990 DX= .318 ft.
-----
From 990 To 1000 DY= .417 ft.
RIGID Weight= .00 lb.
-----
From 990 To 1010 DX= 12.805 ft.
RESTRAINTS
Node 1010 +Y Mu = .30
-----
From 1010 To 1020 DX= 16.404 ft.
RESTRAINTS
Node 1020 +Y Mu = .00
Node 1020 Z
-----
From 1020 To 1030 DX= .820 ft.
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MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
90	600	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
620	630	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
620	740	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
880	1050	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292

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INPUT LISTING

```

1140          890          Density= .2830 lb./cu.in.
                               Mat= (106)A106 Grade B
                               E= 29,500,856 lb./sq.in.   v = .292
                               Density= .2830 lb./cu.in.
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ALLOWABLE STRESS Changes

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10            20            B31.3 (2016)          Cycle Max Switch = ---
                               Sc= 20,000 lb./sq.in.
                               Sh1= 20,000 lb./sq.in.
                               Sh2= 20,000 lb./sq.in.
                               Sh3= 20,000 lb./sq.in.
                               Sh4= 19,908 lb./sq.in.
                               Sh5= 20,000 lb./sq.in.
                               Sh6= 20,000 lb./sq.in.
                               Sh7= 20,000 lb./sq.in.
                               Sh8= 20,000 lb./sq.in.
                               Sh9= 20,000 lb./sq.in.
                               Sy= 35,000 lb./sq.in.
230           240           B31.3 (2016)          Cycle Max Switch = ---
                               Sc= 20,000 lb./sq.in.
                               Sh1= 20,000 lb./sq.in.
                               Sh2= 20,000 lb./sq.in.
                               Sh3= 20,000 lb./sq.in.
                               Sh4= 19,908 lb./sq.in.
                               Sh5= 20,000 lb./sq.in.
                               Sh6= 20,000 lb./sq.in.
                               Sh7= 20,000 lb./sq.in.
                               Sh8= 20,000 lb./sq.in.
                               Sh9= 20,000 lb./sq.in.
                               Sy= 35,000 lb./sq.in.
315           340           B31.3 (2016)          Cycle Max Switch = ---
                               Sc= 20,000 lb./sq.in.
                               Sh1= 20,000 lb./sq.in.
                               Sh2= 20,000 lb./sq.in.
                               Sh3= 20,000 lb./sq.in.
                               Sh4= 19,908 lb./sq.in.
                               Sh5= 20,000 lb./sq.in.
                               Sh6= 20,000 lb./sq.in.
                               Sh7= 20,000 lb./sq.in.
                               Sh8= 20,000 lb./sq.in.
                               Sh9= 20,000 lb./sq.in.
                               Sy= 35,000 lb./sq.in.
331           500           B31.3 (2016)          Cycle Max Switch = ---
                               Sc= 20,000 lb./sq.in.
                               Sh1= 20,000 lb./sq.in.
                               Sh2= 20,000 lb./sq.in.
                               Sh3= 20,000 lb./sq.in.
                               Sh4= 19,908 lb./sq.in.
                               Sh5= 20,000 lb./sq.in.
                               Sh6= 20,000 lb./sq.in.
                               Sh7= 20,000 lb./sq.in.
                               Sh8= 20,000 lb./sq.in.
                               Sh9= 20,000 lb./sq.in.
                               Sy= 35,000 lb./sq.in.

```


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INPUT LISTING

11	550	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
90	600	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
620	630	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
620	740	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
880	1050	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 19,908 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

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INPUT LISTING

		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
1140	890	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.
890	900	B31.3 (2016) Cycle Max Switch = ---
		Sc= 20,000 lb./sq.in.
		Sh1= 20,000 lb./sq.in.
		Sh2= 20,000 lb./sq.in.
		Sh3= 20,000 lb./sq.in.
		Sh4= 19,908 lb./sq.in.
		Sh5= 20,000 lb./sq.in.
		Sh6= 20,000 lb./sq.in.
		Sh7= 20,000 lb./sq.in.
		Sh8= 20,000 lb./sq.in.
		Sh9= 20,000 lb./sq.in.
		Sy= 35,000 lb./sq.in.

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BEND ELEMENTS

40	50	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 49
		Angle/Node @2= .00 48
50	60	Radius= 15.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50 59
		Angle/Node @2= .00 58
60	70	Radius= 15.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50 69
		Angle/Node @2= .00 68
40	110	Radius= 4.500 in. (LONG)
		Bend Angle= 89.954 Angle/Node @1= 44.98
		109 Angle/Node @2= .00 108
110	120	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		119 Angle/Node @2= .00 118
480	130	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		129 Angle/Node @2= .00 128
140	150	Radius= 4.500 in. (LONG)
		Bend Angle= 89.886 Angle/Node @1= 44.94
		149 Angle/Node @2= .00 148
150	160	Radius= 4.500 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00

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INPUT LISTING

370	380	159 Angle/Node @2= .00 158 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
385	390	379 Angle/Node @2= .00 378 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
390	400	389 Angle/Node @2= .00 388 Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
445	450	399 Angle/Node @2= .00 398 Radius= 3.000 in. (LONG) Bend Angle= 44.993 Angle/Node @1= 22.50
630	640	449 Angle/Node @2= .00 448 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
640	650	639 Angle/Node @2= .00 638 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
670	680	649 Angle/Node @2= .00 648 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
680	690	679 Angle/Node @2= .00 678 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
800	810	689 Angle/Node @2= .00 688 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
810	820	809 Angle/Node @2= .00 808 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
830	840	819 Angle/Node @2= .00 818 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
840	850	839 Angle/Node @2= .00 838 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1060	1070	849 Angle/Node @2= .00 848 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1070	1080	1069 Angle/Node @2= .00 1068 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1090	1100	1079 Angle/Node @2= .00 1078 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1100	1110	1099 Angle/Node @2= .00 1098 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
940	950	1109 Angle/Node @2= .00 1108 Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
		949 Angle/Node @2= .00 948

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INPUT LISTING

RIGIDS

10	20	RIGID Weight= 7.00 lb.
70	90	RIGID Weight= .00 lb.
170	180	RIGID Weight= 12.25 lb.
180	190	RIGID Weight= 100.50 lb.
190	200	RIGID Weight= 12.25 lb.
210	220	RIGID Weight= 12.25 lb.
220	230	RIGID Weight= 12.25 lb.
230	240	RIGID Weight= 7.00 lb.
240	250	RIGID Weight= 7.00 lb.
250	260	RIGID Weight= 7.00 lb.
280	290	RIGID Weight= 7.00 lb.
290	300	RIGID Weight= 47.00 lb.
300	310	RIGID Weight= 7.00 lb.
320	330	RIGID Weight= 7.00 lb.
340	350	RIGID Weight= 7.00 lb.
350	360	RIGID Weight= 61.00 lb.
360	370	RIGID Weight= 7.00 lb.
380	460	RIGID Weight= .00 lb.
410	420	RIGID Weight= 7.00 lb.
420	430	RIGID Weight= 60.00 lb.
430	440	RIGID Weight= 7.00 lb.
331	500	RIGID Weight= 7.00 lb.
511	520	RIGID Weight= .00 lb.
520	530	RIGID Weight= .00 lb.
530	540	RIGID Weight= .00 lb.
11	550	RIGID Weight= 40.00 lb.
561	570	RIGID Weight= .00 lb.
570	580	RIGID Weight= .00 lb.
580	590	RIGID Weight= .00 lb.
990	1000	RIGID Weight= .00 lb.

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SIF's & TEE's

30	40	Node 40	Weldolet
70	90	Node 90	Unreinforced Tee
130	140	Node 140	Welding Tee
380	460	Node 460	Unreinforced Tee

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REDUCERS

20	30	Diam2= 10.750 in.	Wall2= .365 in.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP	MU YIELD FORCE	Dir Vectors
10	ANC	11				.000 .000 .000
80	+Y				.30	.000 1.000 .000
80	Z			.12		.000 .000 1.000
470	+Y				.30	.000 1.000 .000

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INPUT LISTING

480	+Y		.30	.000	1.000	.000
205	+Y		.30	.000	1.000	.000
205	X	.12		1.000	.000	.000
205	Z	.12		.000	.000	1.000
330	ANC	331		.000	.000	.000
445	+Y		.30	.000	1.000	.000
510	ANC	511		.000	.000	.000
540	ANC			.000	.000	.000
560	ANC	561		.000	.000	.000
590	ANC			.000	.000	.000
600	+Y		.30	.000	1.000	.000
610	+Y		.30	.000	1.000	.000
630	+Y		.30	.000	1.000	.000
630	X			1.000	.000	.000
640	+Y		.30	.000	1.000	.000
670	+Y		.30	.000	1.000	.000
690	+Y		.30	.000	1.000	.000
700	+Y		.30	.000	1.000	.000
700	X			1.000	.000	.000
620	+Y		.30	.000	1.000	.000
620	X	.12		1.000	.000	.000
750	+Y		.30	.000	1.000	.000
750	Z	.12		.000	.000	1.000
780	+Y		.30	.000	1.000	.000
780	X	.12		1.000	.000	.000
790	+Y		.30	.000	1.000	.000
800	+Y		.30	.000	1.000	.000
800	X	.12		1.000	.000	.000
830	+Y		.30	.000	1.000	.000
860	+Y		.30	.000	1.000	.000
870	+Y		.30	.000	1.000	.000
870	X	.12		1.000	.000	.000
875	+Y		.30	.000	1.000	.000
880	+Y			.000	1.000	.000
880	X	.12		1.000	.000	.000
880	Z	.12		.000	.000	1.000
1050	+Y		.30	.000	1.000	.000
1060	+Y		.30	.000	1.000	.000
1060	X	.12		1.000	.000	.000
1090	+Y		.30	.000	1.000	.000
1120	+Y		.30	.000	1.000	.000
1140	+Y			.000	1.000	.000
1140	X	.12		1.000	.000	.000
890	+Y		.30	.000	1.000	.000
890	X			1.000	.000	.000
890	Z	.12		.000	.000	1.000
900	+Y		.30	.000	1.000	.000
910	+Y		.30	.000	1.000	.000
910	X	.12		1.000	.000	.000
920	+Y		.30	.000	1.000	.000
930	+Y		.30	.000	1.000	.000
930	X	.12		1.000	.000	.000
940	+Y		.30	.000	1.000	.000
960	+Y			.000	1.000	.000
970	+Y		.30	.000	1.000	.000
970	Z			.000	.000	1.000

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INPUT LISTING

1010	+Y		.30	.000	1.000	.000
1020	+Y		.00	.000	1.000	.000
1020	Z			.000	.000	1.000

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FORCES AND MOMENTS

220	230	Node 230	FX1= .00 lb.	FY1= 337.23 lb.
			FZ1= -337.23 lb.	MX1= .00 in.lb.
			MY1= .00 in.lb.	MZ1= .00 in.lb.

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UNIFORM LOAD Changes

10	20	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's
620	630	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's
620	740	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's
880	1050	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's
1140	890	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s

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INPUT LISTING

X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	=	in.
FORCE	pounds	x	1.000	=	lb.
MASS (dynamics)	pounds	x	1.000	=	lbm
MOMENTS (INPUT)	inch-pounds	x	1.000	=	in.lb.
MOMENTS (OUTPUT)	inch-pounds	x	0.083	=	ft.lb.
STRESS	lbs./sq.in.	x	1.000	=	lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	=	F
PRESSURE	psig	x	1.000	=	lb./sq.in.
ELASTIC MODULUS	lbs./sq.in.	x	1.000	=	lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	=	lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	=	lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	=	in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	=	lb./in.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	144.000	=	lb./sq.ft.
ELEVATION	inches	x	0.083	=	ft.
COMPOUND LENGTH	inches	x	0.083	=	ft.
DIAMETER	inches	x	1.000	=	in.
WALL THICKNESS	inches	x	1.000	=	in.

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SETUP FILE PARAMETERS

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-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =              5.00000
MAX ALLOWED BEND ANGLE =              95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =       5.00000
LOOP CLOSURE TOLERANCE =              1.00000      in.
THERMAL BOWING HORZ TOLERANCE =       0.100000E-03
AUTO NODE NUMBER INCREMENT=          10.0000
Z AXIS UP=                            NO
USE PRESSURE STIFFENING =              DEFAULT
ALPHA TOLERANCE =                     0.500000E-01
RESLD-FORCE =                          NO
HGR DEF RESWGT STIF =                  0.100000E+13 lb./in.
DECOMP SNG TOL =                       0.100000E+11
BEND AXIAL SHAPE =                     YES
FRICT STIF =                           0.100000E+07 lb./in.
FRICT NORM FORCE VAR =                  0.150000
FRICT ANGLE VAR =                       15.0000
FRICT SLIDE MULT =                     1.00000
ROD TOLERANCE =                         1.00000
ROD INC =                              2.00000

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INPUT LISTING

```

INCORE NUMERICAL CHECK = NO
OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.100000E+13 lb./in.
DEFAULT ROT RESTRAINT STIFF= 0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 70.0000 F
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 12.0000 F
FRP Density = 0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING = NO
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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000

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INPUT LISTING

Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 F
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

Ambient Temperature 69.794 F
 Plastic (FRP) Alpha 12.000
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X

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COORDINATE REPORT

NODE	X	Y	Z
10	-618.113	-291.169	288.355
20	-618.113	-288.544	288.355
30	-618.113	-281.536	288.355
40	-618.113	-270.118	288.355
50	-618.113	-214.607	288.355
60	-374.019	-214.607	288.355
70	-303.153	-214.607	217.489
80	-303.153	-214.607	52.135
70	-303.153	-214.607	217.489
90	-303.153	-218.142	221.025
40	-618.113	-270.118	288.355
110	-618.113	-255.141	273.378
120	-527.365	-255.038	273.378
470	-527.365	-254.946	226.134
480	-527.365	-254.481	-11.544
130	-527.365	-254.389	-58.788
140	-568.783	-254.306	-58.788
150	-594.452	-254.255	-58.788
160	-594.452	-218.821	-58.788
170	-594.452	-218.821	-63.315
180	-594.452	-218.821	-66.190
190	-594.452	-218.821	-74.182
200	-594.452	-218.821	-77.057
205	-594.452	-218.821	-87.923
210	-594.452	-218.821	-98.829
220	-594.452	-218.821	-101.704
230	-594.452	-218.821	-104.579
240	-594.452	-221.446	-104.579
250	-594.452	-224.071	-104.579
260	-594.452	-226.696	-104.579
280	-594.452	-254.177	-104.579
290	-594.452	-256.802	-104.579
300	-594.452	-264.164	-104.579
310	-594.452	-266.789	-104.579

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INPUT LISTING

315	-594.452	-277.143	-104.579
320	-594.452	-288.639	-104.579
330	-594.452	-291.264	-104.579
315	-594.452	-277.143	-104.579
340	-594.452	-277.143	-118.870
350	-594.452	-277.143	-121.495
360	-594.452	-277.143	-128.857
370	-594.452	-277.143	-131.482
380	-594.452	-277.143	-134.514
385	-589.491	-277.143	-134.514
380	-594.452	-277.143	-134.514
460	-595.159	-277.850	-134.514
385	-589.491	-277.143	-134.514
390	-584.531	-277.143	-134.514
400	-584.531	-254.309	-134.514
410	-584.531	-254.309	-131.482
420	-584.531	-254.309	-128.857
430	-584.531	-254.309	-120.708
440	-584.531	-254.309	-118.083
445	-584.531	-254.309	-110.209
450	-584.531	-254.309	-74.539
450	-584.531	-254.309	-74.539
140	-568.783	-254.306	-58.788
330	-594.452	-291.264	-104.579
500	-594.452	-293.889	-104.579
510	-594.452	-305.189	-104.579
520	-594.452	-325.071	-104.579
530	-605.869	-325.071	-104.579
540	-605.869	-344.952	-104.579
10	-618.113	-291.169	288.355
550	-618.113	-295.294	288.355
560	-618.113	-303.286	288.355
570	-618.113	-323.246	288.355
580	-621.657	-323.246	288.355
590	-621.657	-343.207	288.355
90	-303.153	-218.142	221.025
600	-303.153	-218.142	240.710
460	-595.159	-277.850	-134.514
610	-614.844	-277.850	-134.514
620	-303.153	-214.607	-892.747
630	-303.153	-214.607	-656.527
640	-303.153	-214.607	-440.661
650	-539.373	-214.607	-440.661
660	-539.373	-214.607	-420.306
670	-539.373	-214.607	-400.621
680	-539.373	-214.607	-361.921
690	-303.153	-214.607	-361.921
700	-303.153	-214.607	-184.086
80	-303.153	-214.607	52.135
620	-303.153	-214.607	-892.747
740	-303.153	-214.607	-1045.306
750	-303.153	-214.607	-1128.968
760	-303.153	-214.607	-1257.984
770	-303.153	-214.607	-1273.732
780	-303.153	-214.607	-1356.842
790	-303.153	-214.607	-1593.062

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INPUT LISTING

800	-303.153	-214.607	-1829.283
810	-303.153	-214.607	-1937.550
820	-539.373	-214.607	-1937.550
830	-539.373	-214.607	-1976.921
840	-539.373	-214.607	-2016.291
850	-303.153	-214.607	-2016.291
860	-303.153	-214.607	-2065.503
870	-303.153	-214.607	-2301.724
875	-303.153	-214.607	-2537.944
880	-303.153	-214.607	-2656.054
1050	-303.153	-214.607	-2892.275
1060	-303.153	-214.607	-3128.495
1070	-303.153	-214.607	-3236.763
1080	-539.373	-214.607	-3236.763
1090	-539.373	-214.607	-3276.133
1100	-539.373	-214.607	-3315.503
1110	-303.153	-214.607	-3315.503
1120	-303.153	-214.607	-3364.716
1130	-303.153	-214.607	-3482.826
1140	-303.153	-214.607	-3600.937
890	-303.153	-214.607	-3837.157
900	-303.153	-214.607	-4073.378
910	-303.153	-214.607	-4309.598
920	-303.153	-214.607	-4545.819
930	-303.153	-214.607	-4782.040
940	-303.153	-214.607	-5018.260
950	-303.153	-214.607	-5060.386
960	-165.357	-214.607	-5060.386
970	43.304	-214.607	-5060.386
980	212.595	-214.607	-5060.386
990	216.414	-214.607	-5060.386
1000	216.414	-209.607	-5060.386
990	216.414	-214.607	-5060.386
1010	370.076	-214.607	-5060.386
1020	566.926	-214.607	-5060.386
1030	576.768	-214.607	-5060.386

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (OPE) W+T4+P1
9 (Alt-SUS) W+P1
10 (SUS) W+P1
11 (SUS) WNC
12 (OPE) W+T2+P1+U1
13 (OPE) W+T2+P1-U1
14 (OPE) W+T2+P1+U2
15 (OPE) W+T2+P1-U2
16 (OPE) W+T2+P1+U3
17 (OPE) W+T2+P1+F1
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16-L4
23 (OCC) L23=L17-L4
24 (OCC) L24=L18+L10
25 (OCC) L25=L19+L10
26 (OCC) L26=L20+L10
27 (OCC) L27=L21+L10
28 (OCC) L28=L22+L10
29 (OCC) L29=L23+L10
30 (EXP) L30=L2-L10
31 (EXP) L31=L4-L10
32 (EXP) L32=L2-L4
33 (EXP) L33=L6-L10
34 (EXP) L34=L2-L6
35 (EXP) L35=L4-L6
36 (EXP) L36=L8-L10
37 (EXP) L37=L2-L8
38 (EXP) L38=L4-L8
39 (EXP) L39=L6-L8

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (OPE) W+T4+P1

CASE 10 (SUS) W+P1

CASE 11 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid ANC;					
	1(HYD)	-364	-1593	45	901.4	-68.6	-752.2
	2(OPE)	-403	-933	291	1554.6	-2259.4	98.4
	4(OPE)	-227	-891	73	664.8	-366.4	-371.1
	6(OPE)	-201	-884	26	472.1	-42.4	-385.6
	8(OPE)	-436	-992	551	2561.2	-4816.9	-589.8
	10(SUS)	-197	-883	25	467.2	-38.9	-404.6
	11(SUS)	-197	-882	25	466.6	-38.9	-404.1
	MAX	-436/L8	-1593/L1	551/L8	2561.2/L8	-4816.9/L8	-752.2/L1
80		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-57	-1294	67	0.0	0.0	0.0
	2(OPE)	154	-674	217	0.0	0.0	0.0
	4(OPE)	49	-693	202	0.0	0.0	0.0
	6(OPE)	-31	-700	-17	0.0	0.0	0.0
	8(OPE)	190	-649	578	0.0	0.0	0.0
	10(SUS)	-31	-703	36	0.0	0.0	0.0
	11(SUS)	-31	-702	36	0.0	0.0	0.0
	MAX	190/L8	-1294/L1	578/L8			
205		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	-14	-457	5	0.0	0.0	0.0
	2(OPE)	0	0	0	0.0	0.0	0.0
	4(OPE)	-25	-206	42	0.0	0.0	0.0
	6(OPE)	-12	-399	5	0.0	0.0	0.0
	8(OPE)	0	0	0	0.0	0.0	0.0
	10(SUS)	-12	-403	3	0.0	0.0	0.0
	11(SUS)	-12	-403	3	0.0	0.0	0.0
	MAX	-25/L4	-457/L1	42/L4			
330		TYPE=Rigid ANC;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	1(HYD)	-3	28	36	-13.1	0.0	-10.4
	2(OPE)	-34	-504	-75	-83.7	67.4	98.0
	4(OPE)	3	-167	-4	-42.9	4.3	-13.5
	6(OPE)	-4	-3	36	-12.4	-0.1	-8.8
	8(OPE)	-47	-559	-150	-227.0	238.7	43.0
	10(SUS)	-4	1	36	-12.2	-0.2	-8.9
	11(SUS)	-4	9	36	-12.2	-0.2	-8.9
	MAX	-47/L8	-559/L8	-150/L8	-227.0/L8	238.7/L8	98.0/L2
445		TYPE=Rigid +Y;					
	1(HYD)	13	-137	-39	0.0	0.0	0.0
	2(OPE)	0	0	0	0.0	0.0	0.0
	4(OPE)	6	-146	-44	0.0	0.0	0.0
	6(OPE)	12	-132	-38	0.0	0.0	0.0
	8(OPE)	0	0	0	0.0	0.0	0.0
	10(SUS)	13	-132	-37	0.0	0.0	0.0
	11(SUS)	13	-132	-37	0.0	0.0	0.0
	MAX	13/L1	-146/L4	-44/L4			
470		TYPE=Rigid +Y;					
	1(HYD)	0	-232	-2	0.0	0.0	0.0
	2(OPE)	35	-162	34	0.0	0.0	0.0
	4(OPE)	20	-177	49	0.0	0.0	0.0
	6(OPE)	0	-181	44	0.0	0.0	0.0
	8(OPE)	34	-141	25	0.0	0.0	0.0
	10(SUS)	-0	-181	-2	0.0	0.0	0.0
	11(SUS)	-0	-181	-2	0.0	0.0	0.0
	MAX	35/L2	-232/L1	49/L4			
480		TYPE=Rigid +Y;					
	1(HYD)	-1	-231	-5	0.0	0.0	0.0
	2(OPE)	52	-202	-32	0.0	0.0	0.0
	4(OPE)	19	-190	-54	0.0	0.0	0.0
	6(OPE)	-1	-181	-54	0.0	0.0	0.0
	8(OPE)	49	-179	-22	0.0	0.0	0.0
	10(SUS)	-2	-181	-5	0.0	0.0	0.0
	11(SUS)	-2	-181	-5	0.0	0.0	0.0
	MAX	52/L2	-231/L1	-54/L6			
510		TYPE=Rigid ANC;					
	1(HYD)	-3	14	36	28.6	0.0	-6.7
	2(OPE)	-34	-517	-75	-171.1	67.4	137.4
	4(OPE)	3	-181	-4	-48.1	4.3	-17.0
	6(OPE)	-4	-16	36	29.1	-0.1	-3.8
	8(OPE)	-47	-572	-150	-400.9	238.7	97.8

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(SUS)	-4	-13	36	29.2	-0.2	-4.2
	11(SUS)	-4	-2	36	29.2	-0.2	-4.2
	MAX	-47/L8	-572/L8	-150/L8	-400.9/L8	238.7/L8	137.4/L2
540		TYPE=Rigid ANC;					
	1(HYD)	-3	14	36	147.6	-34.1	17.4
	2(OPE)	-34	-517	-75	-420.8	139.1	-241.9
	4(OPE)	3	-181	-4	-62.7	8.5	-199.1
	6(OPE)	-4	-16	36	147.7	-34.2	-5.1
	8(OPE)	-47	-572	-150	-897.5	381.3	-290.2
	10(SUS)	-4	-13	36	147.5	-34.2	-2.5
	11(SUS)	-4	-2	36	147.5	-34.1	7.2
	MAX	-47/L8	-572/L8	-150/L8	-897.5/L8	381.3/L8	-290.2/L8
560		TYPE=Rigid ANC;					
	1(HYD)	-364	-1678	45	947.2	-68.6	-384.6
	2(OPE)	-403	-996	291	1848.3	-2259.4	505.3
	4(OPE)	-227	-955	73	738.8	-366.4	-142.0
	6(OPE)	-201	-947	26	498.0	-42.4	-182.2
	8(OPE)	-436	-1056	551	3118.0	-4816.9	-149.6
	10(SUS)	-197	-947	25	492.4	-38.9	-205.2
	11(SUS)	-197	-946	25	491.7	-38.9	-205.0
	MAX	-436/L8	-1678/L1	551/L8	3118.0/L8	-4816.9/L8	505.3/L2
590		TYPE=Rigid ANC;					
	1(HYD)	-364	-1678	45	1098.1	-82.0	331.1
	2(OPE)	-403	-996	291	2816.0	-2345.3	1552.0
	4(OPE)	-227	-955	73	982.6	-388.0	331.0
	6(OPE)	-201	-947	26	583.3	-49.9	208.0
	8(OPE)	-436	-1056	551	4952.7	-4979.7	989.3
	10(SUS)	-197	-947	25	575.1	-46.2	171.9
	11(SUS)	-197	-946	25	574.3	-46.2	171.6
	MAX	-436/L8	-1678/L1	551/L8	4952.7/L8	-4979.7/L8	1552.0/L2
600		TYPE=Rigid +Y;					
	1(HYD)	409	-1550	-166	0.0	0.0	0.0
	2(OPE)	187	-838	169	0.0	0.0	0.0
	4(OPE)	186	-848	173	0.0	0.0	0.0
	6(OPE)	226	-846	5	0.0	0.0	0.0
	8(OPE)	209	-817	127	0.0	0.0	0.0
	10(SUS)	222	-844	-89	0.0	0.0	0.0
	11(SUS)	221	-843	-89	0.0	0.0	0.0
	MAX	409/L1	-1550/L1	173/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
610		TYPE=Rigid +Y;					
	1(HYD)	8	-26	1	0.0	0.0	0.0
	2(OPE)	-9	-31	-3	0.0	0.0	0.0
	4(OPE)	-0	-30	-9	0.0	0.0	0.0
	6(OPE)	7	-24	1	0.0	0.0	0.0
	8(OPE)	0	0	0	0.0	0.0	0.0
	10(SUS)	7	-24	1	0.0	0.0	0.0
	11(SUS)	7	-24	1	0.0	0.0	0.0
	MAX	-9/L2	-31/L2	-9/L4			
620		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1470	-0	0.0	0.0	0.0
	2(OPE)	-11	-797	239	0.0	0.0	0.0
	4(OPE)	-25	-798	238	0.0	0.0	0.0
	6(OPE)	0	-798	-0	0.0	0.0	0.0
	8(OPE)	33	-796	237	0.0	0.0	0.0
	10(SUS)	0	-798	-0	0.0	0.0	0.0
	11(SUS)	0	-797	-0	0.0	0.0	0.0
	MAX	33/L8	-1470/L1	239/L2			
630		TYPE=Rigid +Y; Rigid X;					
	1(HYD)	-0	-1550	-0	0.0	0.0	0.0
	2(OPE)	195	-843	253	0.0	0.0	0.0
	4(OPE)	95	-841	252	0.0	0.0	0.0
	6(OPE)	-0	-841	-0	0.0	0.0	0.0
	8(OPE)	60	-846	254	0.0	0.0	0.0
	10(SUS)	-0	-841	-0	0.0	0.0	0.0
	11(SUS)	-0	-840	-0	0.0	0.0	0.0
	MAX	195/L2	-1550/L1	254/L8			
640		TYPE=Rigid +Y;					
	1(HYD)	-1	-1334	0	0.0	0.0	0.0
	2(OPE)	-23	-722	215	0.0	0.0	0.0
	4(OPE)	58	-724	209	0.0	0.0	0.0
	6(OPE)	-1	-724	0	0.0	0.0	0.0
	8(OPE)	-68	-718	205	0.0	0.0	0.0
	10(SUS)	-1	-724	0	0.0	0.0	0.0
	11(SUS)	-1	-723	0	0.0	0.0	0.0
	MAX	-68/L8	-1334/L1	215/L2			
670		TYPE=Rigid +Y;					
	1(HYD)	3	-1807	-0	0.0	0.0	0.0
	2(OPE)	-283	-973	73	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	4(OPE)	-294	-980	8	0.0	0.0	0.0
	6(OPE)	1	-981	-0	0.0	0.0	0.0
	8(OPE)	-277	-959	79	0.0	0.0	0.0
	10(SUS)	1	-981	-0	0.0	0.0	0.0
	11(SUS)	1	-979	-0	0.0	0.0	0.0
	MAX	-294/L4	-1807/L1	79/L8			
690		TYPE=Rigid +Y;					
	1(HYD)	-6	-1157	22	0.0	0.0	0.0
	2(OPE)	-61	-636	-181	0.0	0.0	0.0
	4(OPE)	91	-629	-165	0.0	0.0	0.0
	6(OPE)	-3	-628	-5	0.0	0.0	0.0
	8(OPE)	-102	-651	-167	0.0	0.0	0.0
	10(SUS)	-3	-628	12	0.0	0.0	0.0
	11(SUS)	-3	-627	12	0.0	0.0	0.0
	MAX	-102/L8	-1157/L1	-181/L2			
700		TYPE=Rigid +Y; Rigid X;					
	1(HYD)	16	-1348	32	0.0	0.0	0.0
	2(OPE)	177	-738	-222	0.0	0.0	0.0
	4(OPE)	28	-734	-220	0.0	0.0	0.0
	6(OPE)	8	-732	-8	0.0	0.0	0.0
	8(OPE)	307	-746	-224	0.0	0.0	0.0
	10(SUS)	8	-731	17	0.0	0.0	0.0
	11(SUS)	8	-730	17	0.0	0.0	0.0
	MAX	307/L8	-1348/L1	-224/L8			
750		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-0	-1409	-0	0.0	0.0	0.0
	2(OPE)	-3	-765	81	0.0	0.0	0.0
	4(OPE)	0	-765	56	0.0	0.0	0.0
	6(OPE)	-0	-765	-0	0.0	0.0	0.0
	8(OPE)	107	-765	280	0.0	0.0	0.0
	10(SUS)	-0	-765	-0	0.0	0.0	0.0
	11(SUS)	-0	-764	-0	0.0	0.0	0.0
	MAX	107/L8	-1409/L1	280/L8			
780		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1550	-0	0.0	0.0	0.0
	2(OPE)	50	-841	-247	0.0	0.0	0.0
	4(OPE)	-6	-841	-252	0.0	0.0	0.0
	6(OPE)	0	-841	-0	0.0	0.0	0.0
	8(OPE)	135	-841	-242	0.0	0.0	0.0

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Job:: BNK-GCS-CN-018-04

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(SUS)	0	-841	-0	0.0	0.0	0.0
	11(SUS)	0	-840	-0	0.0	0.0	0.0
	MAX	135/L8	-1550/L1	-252/L4			
790		TYPE=Rigid +Y;					
	1(HYD)	-0	-1048	-0	0.0	0.0	0.0
	2(OPE)	47	-569	-164	0.0	0.0	0.0
	4(OPE)	7	-569	-170	0.0	0.0	0.0
	6(OPE)	-0	-569	-0	0.0	0.0	0.0
	8(OPE)	37	-569	-166	0.0	0.0	0.0
	10(SUS)	-0	-569	-0	0.0	0.0	0.0
	11(SUS)	-0	-568	-0	0.0	0.0	0.0
	MAX	47/L2	-1048/L1	-170/L4			
800		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-2390	-0	0.0	0.0	0.0
	2(OPE)	70	-1297	-383	0.0	0.0	0.0
	4(OPE)	110	-1297	-373	0.0	0.0	0.0
	6(OPE)	0	-1297	-0	0.0	0.0	0.0
	8(OPE)	-8	-1297	-389	0.0	0.0	0.0
	10(SUS)	0	-1297	-0	0.0	0.0	0.0
	11(SUS)	0	-1295	-0	0.0	0.0	0.0
	MAX	110/L4	-2390/L1	-389/L8			
830		TYPE=Rigid +Y;					
	1(HYD)	-0	-1871	-0	0.0	0.0	0.0
	2(OPE)	-302	-1015	-42	0.0	0.0	0.0
	4(OPE)	-245	-1015	-4	0.0	0.0	0.0
	6(OPE)	-0	-1015	-0	0.0	0.0	0.0
	8(OPE)	-303	-1016	-34	0.0	0.0	0.0
	10(SUS)	-0	-1015	-0	0.0	0.0	0.0
	11(SUS)	-0	-1014	-0	0.0	0.0	0.0
	MAX	-303/L8	-1871/L1	-42/L2			
860		TYPE=Rigid +Y;					
	1(HYD)	0	-1812	-0	0.0	0.0	0.0
	2(OPE)	15	-983	295	0.0	0.0	0.0
	4(OPE)	115	-983	272	0.0	0.0	0.0
	6(OPE)	0	-983	-0	0.0	0.0	0.0
	8(OPE)	-57	-983	289	0.0	0.0	0.0
	10(SUS)	0	-983	-0	0.0	0.0	0.0
	11(SUS)	0	-982	-0	0.0	0.0	0.0
	MAX	115/L4	-1812/L1	295/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
870		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-1498	-0	0.0	0.0	0.0
	2(OPE)	46	-813	240	0.0	0.0	0.0
	4(OPE)	27	-813	242	0.0	0.0	0.0
	6(OPE)	-0	-813	-0	0.0	0.0	0.0
	8(OPE)	42	-813	240	0.0	0.0	0.0
	10(SUS)	-0	-813	-0	0.0	0.0	0.0
	11(SUS)	-0	-812	-0	0.0	0.0	0.0
	MAX	46/L2	-1498/L1	242/L4			
875		TYPE=Rigid +Y;					
	1(HYD)	0	-1001	-0	0.0	0.0	0.0
	2(OPE)	88	-543	-38	0.0	0.0	0.0
	4(OPE)	-18	-543	8	0.0	0.0	0.0
	6(OPE)	0	-543	-0	0.0	0.0	0.0
	8(OPE)	100	-543	129	0.0	0.0	0.0
	10(SUS)	0	-543	-0	0.0	0.0	0.0
	11(SUS)	0	-543	-0	0.0	0.0	0.0
	MAX	100/L8	-1001/L1	129/L8			
880		TYPE=Rigid +Y; Rigid X w/gap; Rigid Z w/gap;					
	1(HYD)	0	-1195	0	0.0	0.0	0.0
	2(OPE)	0	-649	0	0.0	0.0	0.0
	4(OPE)	0	-649	0	0.0	0.0	0.0
	6(OPE)	0	-649	0	0.0	0.0	0.0
	8(OPE)	194	-649	-162	0.0	0.0	0.0
	10(SUS)	0	-649	0	0.0	0.0	0.0
	11(SUS)	0	-648	0	0.0	0.0	0.0
	MAX	194/L8	-1195/L1	-162/L8			
890		TYPE=Rigid +Y; Rigid X; Rigid Z w/gap;					
	1(HYD)	-0	-1480	0	0.0	0.0	0.0
	2(OPE)	133	-803	767	0.0	0.0	0.0
	4(OPE)	23	-803	241	0.0	0.0	0.0
	6(OPE)	-0	-803	0	0.0	0.0	0.0
	8(OPE)	231	-803	891	0.0	0.0	0.0
	10(SUS)	-0	-803	0	0.0	0.0	0.0
	11(SUS)	-0	-802	0	0.0	0.0	0.0
	MAX	231/L8	-1480/L1	891/L8			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
900		TYPE=Rigid +Y;					
	1(HYD)	0	-1465	-0	0.0	0.0	0.0
	2(OPE)	-30	-795	-237	0.0	0.0	0.0
	4(OPE)	-13	-795	238	0.0	0.0	0.0
	6(OPE)	0	-795	-0	0.0	0.0	0.0
	8(OPE)	-0	-795	-238	0.0	0.0	0.0
	10(SUS)	0	-795	-0	0.0	0.0	0.0
	11(SUS)	0	-794	-0	0.0	0.0	0.0
	MAX	-30/L2	-1465/L1	-238/L8			
910		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	-0	-1474	-0	0.0	0.0	0.0
	2(OPE)	10	-800	-240	0.0	0.0	0.0
	4(OPE)	8	-800	-240	0.0	0.0	0.0
	6(OPE)	-0	-800	-0	0.0	0.0	0.0
	8(OPE)	17	-800	-239	0.0	0.0	0.0
	10(SUS)	0	-800	0	0.0	0.0	0.0
	11(SUS)	-0	-799	-0	0.0	0.0	0.0
	MAX	17/L8	-1474/L1	-240/L4			
920		TYPE=Rigid +Y;					
	1(HYD)	0	-1451	0	0.0	0.0	0.0
	2(OPE)	-3	-787	-236	0.0	0.0	0.0
	4(OPE)	5	-787	-236	0.0	0.0	0.0
	6(OPE)	0	-787	0	0.0	0.0	0.0
	8(OPE)	13	-787	-236	0.0	0.0	0.0
	10(SUS)	0	-787	0	0.0	0.0	0.0
	11(SUS)	0	-786	0	0.0	0.0	0.0
	MAX	13/L8	-1451/L1	-236/L2			
930		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1535	0	0.0	0.0	0.0
	2(OPE)	-245	-833	-245	0.0	0.0	0.0
	4(OPE)	-36	-833	-247	0.0	0.0	0.0
	6(OPE)	0	-833	0	0.0	0.0	0.0
	8(OPE)	-716	-833	-250	0.0	0.0	0.0
	10(SUS)	0	-833	0	0.0	0.0	0.0
	11(SUS)	0	-832	0	0.0	0.0	0.0
	MAX	-716/L8	-1535/L1	-250/L8			
940		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	1(HYD)	0	-1268	0	0.0	0.0	0.0
	2(OPE)	-69	-688	-195	0.0	0.0	0.0
	4(OPE)	-76	-688	-192	0.0	0.0	0.0
	6(OPE)	0	-688	0	0.0	0.0	0.0
	8(OPE)	-32	-688	-204	0.0	0.0	0.0
	10(SUS)	0	-688	0	0.0	0.0	0.0
	11(SUS)	0	-688	0	0.0	0.0	0.0
	MAX	-76/L4	-1268/L1	-204/L8			
960		TYPE=Rigid +Y;					
	1(HYD)	0	-968	0	0.0	0.0	0.0
	2(OPE)	0	-526	0	0.0	0.0	0.0
	4(OPE)	0	-526	0	0.0	0.0	0.0
	6(OPE)	0	-526	0	0.0	0.0	0.0
	8(OPE)	0	-526	0	0.0	0.0	0.0
	10(SUS)	0	-526	0	0.0	0.0	0.0
	11(SUS)	0	-525	0	0.0	0.0	0.0
	MAX		-968/L1				
970		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	0	-1832	0	0.0	0.0	0.0
	2(OPE)	22	-994	-450	0.0	0.0	0.0
	4(OPE)	-243	-994	-72	0.0	0.0	0.0
	6(OPE)	0	-994	0	0.0	0.0	0.0
	8(OPE)	298	-994	-1241	0.0	0.0	0.0
	10(SUS)	0	-994	0	0.0	0.0	0.0
	11(SUS)	0	-993	0	0.0	0.0	0.0
	MAX	298/L8	-1832/L1	-1241/L8			
1010		TYPE=Rigid +Y;					
	1(HYD)	0	-1876	0	0.0	0.0	0.0
	2(OPE)	281	-1018	120	0.0	0.0	0.0
	4(OPE)	304	-1018	33	0.0	0.0	0.0
	6(OPE)	0	-1018	0	0.0	0.0	0.0
	8(OPE)	287	-1018	104	0.0	0.0	0.0
	10(SUS)	0	-1018	0	0.0	0.0	0.0
	11(SUS)	0	-1017	0	0.0	0.0	0.0
	MAX	304/L4	-1876/L1	120/L2			
1020		TYPE=Rigid +Y; Rigid Z;					
	1(HYD)	0	-429	0	0.0	0.0	0.0
	2(OPE)	0	-233	34	0.0	0.0	0.0
	4(OPE)	0	-233	-8	0.0	0.0	0.0
	6(OPE)	0	-233	0	0.0	0.0	0.0
	8(OPE)	0	-233	235	0.0	0.0	0.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	10(SUS)	0	-233	0	0.0	0.0	0.0
	11(SUS)	0	-233	0	0.0	0.0	0.0
	MAX		-429/L1	235/L8			
1050		TYPE=Rigid +Y;					
	1(HYD)	-0	-1101	-0	0.0	0.0	0.0
	2(OPE)	47	-597	-173	0.0	0.0	0.0
	4(OPE)	4	-597	-179	0.0	0.0	0.0
	6(OPE)	-0	-597	-0	0.0	0.0	0.0
	8(OPE)	46	-597	-173	0.0	0.0	0.0
	10(SUS)	-0	-597	-0	0.0	0.0	0.0
	11(SUS)	-0	-597	-0	0.0	0.0	0.0
	MAX	47/L2	-1101/L1	-179/L4			
1060		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-2370	-0	0.0	0.0	0.0
	2(OPE)	68	-1286	-380	0.0	0.0	0.0
	4(OPE)	106	-1286	-371	0.0	0.0	0.0
	6(OPE)	0	-1286	-0	0.0	0.0	0.0
	8(OPE)	-4	-1286	-386	0.0	0.0	0.0
	10(SUS)	0	-1286	-0	0.0	0.0	0.0
	11(SUS)	0	-1284	-0	0.0	0.0	0.0
	MAX	106/L4	-2370/L1	-386/L8			
1090		TYPE=Rigid +Y;					
	1(HYD)	-0	-1879	-0	0.0	0.0	0.0
	2(OPE)	-306	-1020	-9	0.0	0.0	0.0
	4(OPE)	-219	-1020	0	0.0	0.0	0.0
	6(OPE)	-0	-1020	-0	0.0	0.0	0.0
	8(OPE)	-306	-1020	-10	0.0	0.0	0.0
	10(SUS)	-0	-1020	-0	0.0	0.0	0.0
	11(SUS)	-0	-1019	-0	0.0	0.0	0.0
	MAX	-306/L2	-1879/L1	-10/L8			
1120		TYPE=Rigid +Y;					
	1(HYD)	0	-1824	-0	0.0	0.0	0.0
	2(OPE)	32	-990	295	0.0	0.0	0.0
	4(OPE)	103	-990	279	0.0	0.0	0.0
	6(OPE)	0	-990	-0	0.0	0.0	0.0
	8(OPE)	-44	-990	294	0.0	0.0	0.0
	10(SUS)	0	-990	-0	0.0	0.0	0.0
	11(SUS)	0	-989	-0	0.0	0.0	0.0
	MAX	103/L4	-1824/L1	295/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
1140		TYPE=Rigid +Y; Rigid X w/gap;					
	1(HYD)	0	-1427	0	0.0	0.0	0.0
	2(OPE)	0	-775	0	0.0	0.0	0.0
	4(OPE)	0	-775	0	0.0	0.0	0.0
	6(OPE)	0	-775	0	0.0	0.0	0.0
	8(OPE)	0	-775	0	0.0	0.0	0.0
	10(SUS)	0	-775	0	0.0	0.0	0.0
	11(SUS)	0	-774	0	0.0	0.0	0.0
	MAX		-1427/L1				

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
Stress Summary : Multiple 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (OPE) W+T4+P1
9 (Alt-SUS) W+P1
10 (SUS) W+P1
11 (SUS) WNC
12 (OPE) W+T2+P1+U1
13 (OPE) W+T2+P1-U1
14 (OPE) W+T2+P1+U2
15 (OPE) W+T2+P1-U2
16 (OPE) W+T2+P1+U3
17 (OPE) W+T2+P1+F1
18 (OCC) L18=L12-L4
19 (OCC) L19=L13-L4
20 (OCC) L20=L14-L4
21 (OCC) L21=L15-L4
22 (OCC) L22=L16-L4
23 (OCC) L23=L17-L4
24 (OCC) L24=L18+L10
25 (OCC) L25=L19+L10
26 (OCC) L26=L20+L10
27 (OCC) L27=L21+L10
28 (OCC) L28=L22+L10
29 (OCC) L29=L23+L10
30 (EXP) L30=L2-L10
31 (EXP) L31=L4-L10
32 (EXP) L32=L2-L4
33 (EXP) L33=L6-L10
34 (EXP) L34=L2-L6
35 (EXP) L35=L4-L6
36 (EXP) L36=L8-L10
37 (EXP) L37=L2-L8
38 (EXP) L38=L4-L8
39 (EXP) L39=L6-L8

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 10 (SUS) W+P1
 CASE 11 (SUS) WNC
 CASE 24 (OCC) L24=L18+L10
 CASE 25 (OCC) L25=L19+L10
 CASE 26 (OCC) L26=L20+L10
 CASE 27 (OCC) L27=L21+L10
 CASE 28 (OCC) L28=L22+L10
 CASE 29 (OCC) L29=L23+L10
 CASE 30 (EXP) L30=L2-L10
 CASE 31 (EXP) L31=L4-L10
 CASE 32 (EXP) L32=L2-L4
 CASE 33 (EXP) L33=L6-L10
 CASE 34 (EXP) L34=L2-L6
 CASE 35 (EXP) L35=L4-L6
 CASE 36 (EXP) L36=L8-L10
 CASE 37 (EXP) L37=L2-L8
 CASE 38 (EXP) L38=L4-L8
 CASE 39 (EXP) L39=L6-L8

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP
 Ratio (%): 41.5 @Node 90
 Code Stress: 14518.8 Allowable Stress: 35000.0
 Axial Stress: 1080.5 @Node 808
 Bending Stress: 19318.8 @Node 90
 Torsion Stress: 443.1 @Node 60
 Hoop Stress: 2239.7 @Node 740
 Max Stress Intensity: 19348.5 @Node 90

CODE STRESS CHECK PASSED : LOADCASE 10 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 10 (SUS) W+P1
 Ratio (%): 39.5 @Node 90
 Code Stress: 7890.2 Allowable Stress: 20000.0
 Axial Stress: 2195.6 @Node 80
 Bending Stress: 10498.9 @Node 90
 Torsion Stress: 637.4 @Node 60
 Hoop Stress: 4431.5 @Node 630
 Max Stress Intensity: 10514.9 @Node 90

CODE STRESS CHECK PASSED : LOADCASE 11 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 11 (SUS) WNC
 Ratio (%): 39.4 @Node 90
 Code Stress: 7880.4 Allowable Stress: 20000.0

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Axial Stress:	233.0	@Node	260
Bending Stress:	10485.8	@Node	90
Torsion Stress:	636.6	@Node	60
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	10501.8	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L18+L10

Highest Stresses: (lb./sq.in.) LOADCASE 24 (OCC) L24=L18+L10			
Ratio (%):	30.8	@Node	90
Code Stress:	8194.0	Allowable Stress:	26600.0
Axial Stress:	2305.0	@Node	970
Bending Stress:	10898.6	@Node	90
Torsion Stress:	889.5	@Node	140
Hoop Stress:	4431.5	@Node	630
Max Stress Intensity:	10918.7	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 25 (OCC) L25=L19+L10

Highest Stresses: (lb./sq.in.) LOADCASE 25 (OCC) L25=L19+L10			
Ratio (%):	32.6	@Node	1060
Code Stress:	8627.3	Allowable Stress:	26477.7
Axial Stress:	2287.5	@Node	1010
Bending Stress:	10774.6	@Node	90
Torsion Stress:	670.5	@Node	140
Hoop Stress:	4431.5	@Node	630
Max Stress Intensity:	10794.6	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 26 (OCC) L26=L20+L10

Highest Stresses: (lb./sq.in.) LOADCASE 26 (OCC) L26=L20+L10			
Ratio (%):	33.2	@Node	90
Code Stress:	8829.9	Allowable Stress:	26600.0
Axial Stress:	2210.6	@Node	760
Bending Stress:	11748.0	@Node	90
Torsion Stress:	560.4	@Node	60
Hoop Stress:	4431.5	@Node	630
Max Stress Intensity:	11766.9	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 27 (OCC) L27=L21+L10

Highest Stresses: (lb./sq.in.) LOADCASE 27 (OCC) L27=L21+L10			
Ratio (%):	33.2	@Node	90
Code Stress:	8829.9	Allowable Stress:	26600.0
Axial Stress:	2188.9	@Node	650
Bending Stress:	11748.0	@Node	90
Torsion Stress:	714.5	@Node	60
Hoop Stress:	4431.5	@Node	630
Max Stress Intensity:	11766.9	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L22+L10

Highest Stresses: (lb./sq.in.) LOADCASE 28 (OCC) L28=L22+L10

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Ratio (%) :	32.3	@Node	90	
Code Stress:	8596.1	Allowable Stress:		26600.0
Axial Stress:	2376.9	@Node	780	
Bending Stress:	11428.9	@Node	90	
Torsion Stress:	699.0	@Node	60	
Hoop Stress:	4431.5	@Node	630	
Max Stress Intensity:	11453.3	@Node	90	

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L23+L10

Highest Stresses: (lb./sq.in.) LOADCASE 29 (OCC) L29=L23+L10

Ratio (%) :	34.5	@Node	205	
Code Stress:	9133.2	Allowable Stress:		26477.7
Axial Stress:	2195.6	@Node	80	
Bending Stress:	10500.2	@Node	90	
Torsion Stress:	1420.5	@Node	149	
Hoop Stress:	4431.5	@Node	630	
Max Stress Intensity:	10516.2	@Node	90	

CODE STRESS CHECK PASSED : LOADCASE 30 (EXP) L30=L2-L10

Highest Stresses: (lb./sq.in.) LOADCASE 30 (EXP) L30=L2-L10

Ratio (%) :	13.5	@Node	315	
Code Stress:	5422.8	Allowable Stress:		40190.8
Axial Stress:	341.4	@Node	320	
Bending Stress:	5170.2	@Node	315	
Torsion Stress:	647.5	@Node	20	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	10927.8	@Node	949	

CODE STRESS CHECK PASSED : LOADCASE 31 (EXP) L31=L4-L10

Highest Stresses: (lb./sq.in.) LOADCASE 31 (EXP) L31=L4-L10

Ratio (%) :	4.4	@Node	260	
Code Stress:	1837.4	Allowable Stress:		42214.8
Axial Stress:	116.4	@Node	280	
Bending Stress:	1716.6	@Node	260	
Torsion Stress:	95.5	@Node	20	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	3468.1	@Node	260	

CODE STRESS CHECK PASSED : LOADCASE 32 (EXP) L32=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 32 (EXP) L32=L2-L4

Ratio (%) :	12.9	@Node	315	
Code Stress:	5169.1	Allowable Stress:		40190.8
Axial Stress:	227.5	@Node	320	
Bending Stress:	5030.9	@Node	315	
Torsion Stress:	602.3	@Node	380	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	9719.6	@Node	315	

CODE STRESS CHECK PASSED : LOADCASE 33 (EXP) L33=L6-L10

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 33 (EXP) L33=L6-L10
 Ratio (%): 0.3 @Node 90
 Code Stress: 144.0 Allowable Stress: 42109.8
 Axial Stress: 16.9 @Node 600
 Bending Stress: 54.8 @Node 90
 Torsion Stress: 4.6 @Node 385
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 97.2 @Node 140

CODE STRESS CHECK PASSED : LOADCASE 34 (EXP) L34=L2-L6

Highest Stresses: (lb./sq.in.) LOADCASE 34 (EXP) L34=L2-L6
 Ratio (%): 13.5 @Node 315
 Code Stress: 5434.8 Allowable Stress: 40190.8
 Axial Stress: 338.9 @Node 320
 Bending Stress: 5184.7 @Node 315
 Torsion Stress: 646.5 @Node 20
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 10927.8 @Node 949

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 35 (EXP) L35=L4-L6
 Ratio (%): 4.3 @Node 260
 Code Stress: 1808.1 Allowable Stress: 42214.8
 Axial Stress: 113.9 @Node 280
 Bending Stress: 1689.7 @Node 260
 Torsion Stress: 94.5 @Node 20
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 3412.6 @Node 260

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L8-L10

Highest Stresses: (lb./sq.in.) LOADCASE 36 (EXP) L36=L8-L10
 Ratio (%): 25.1 @Node 949
 Code Stress: 11953.7 Allowable Stress: 47584.5
 Axial Stress: 379.0 @Node 510
 Bending Stress: 11861.0 @Node 949
 Torsion Stress: 1961.1 @Node 320
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 31715.4 @Node 949

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L2-L8

Highest Stresses: (lb./sq.in.) LOADCASE 37 (EXP) L37=L2-L8
 Ratio (%): 16.5 @Node 949
 Code Stress: 7835.1 Allowable Stress: 47584.5
 Axial Stress: 59.1 @Node 880
 Bending Stress: 7777.2 @Node 949
 Torsion Stress: 1406.0 @Node 320
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 20787.6 @Node 949

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L4-L8

Highest Stresses: (lb./sq.in.) LOADCASE 38 (EXP) L38=L4-L8
 Ratio (%): 23.9 @Node 949
 Code Stress: 11375.7 Allowable Stress: 47584.5
 Axial Stress: 265.1 @Node 320
 Bending Stress: 11291.0 @Node 949
 Torsion Stress: 1924.5 @Node 320
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 30181.4 @Node 949

CODE STRESS CHECK PASSED : LOADCASE 39 (EXP) L39=L6-L8

Highest Stresses: (lb./sq.in.) LOADCASE 39 (EXP) L39=L6-L8
 Ratio (%): 25.1 @Node 949
 Code Stress: 11953.7 Allowable Stress: 47584.5
 Axial Stress: 376.5 @Node 510
 Bending Stress: 11861.0 @Node 949
 Torsion Stress: 1960.6 @Node 320
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 31715.4 @Node 949

BNK-GCS-CN-020

Table of contents:

Line no.

Stress sketch

Input echo

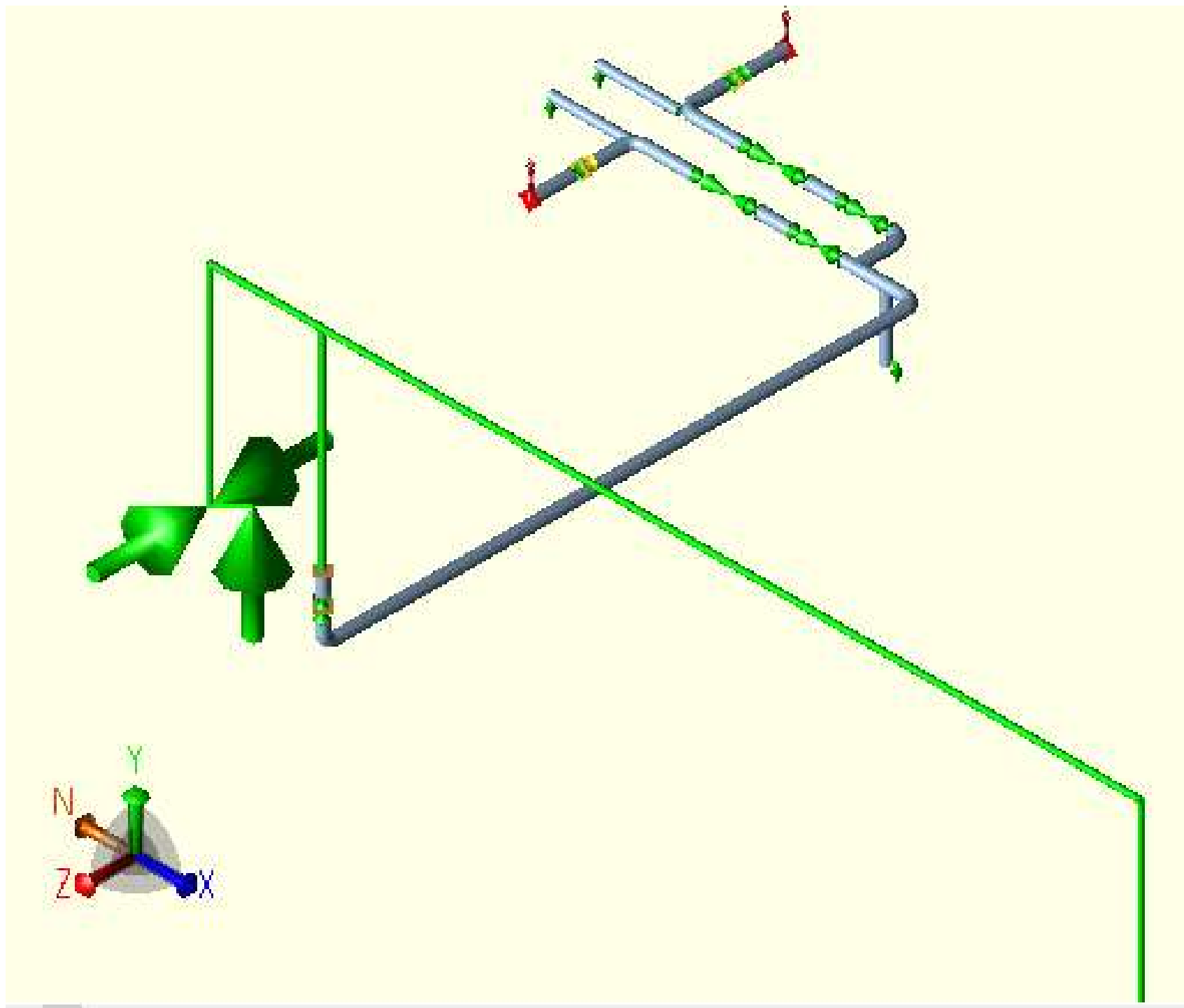
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. CDH-112-0031-AN07-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 10 To 20 DZ= -.219 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 70 F P1= 79.7726 lb./sq.in. PHyd= 119.6589 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

EH1= 28,875,074 lb./sq.in. EH2= 29,500,106 lb./sq.in.

EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.

EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.

EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.

EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.

Fluid Den= .0354769 lb./cu.in. Insul Thk= .000 in.

Insul Den= .0000000 lb./cu.in.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

 From 20 To 30 DZ= -.850 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 29

Angle/Node @2= .00 28

 From 30 To 35 DX= .638 ft.

 From 30 To 410 DX= -.059 ft. DY= -.059 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 410 Unreinforced Tee

 From 35 To 40 DX= .638 ft.

 From 40 To 50 DX= .219 ft.

RIGID Weight= 7.00 lb.

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INPUT LISTING

From 50 To 60 DX= .883 ft.

RIGID Weight= 21.00 lb.

From 60 To 70 DX= .219 ft.

RIGID Weight= 7.00 lb.

From 70 To 80 DX= .656 ft.

From 80 To 90 DX= .219 ft.

RIGID Weight= 7.00 lb.

From 90 To 100 DX= .614 ft.

RIGID Weight= 60.00 lb.

From 100 To 110 DX= .219 ft.

RIGID Weight= 7.00 lb.

From 110 To 120 DX= .210 ft.

From 120 To 125 DX= .636 ft.

From 125 To 450 DY= -.083 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 450 Unreinforced Tee

From 125 To 130 DX= .636 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 129

Angle/Node @2= .00 128

From 130 To 150 DZ= 12.149 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 149

Angle/Node @2= .00 148

From 150 To 160 DY= .459 ft.

From 160 To 170 DY= .219 ft.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 170 ANC Cnode 171

From 171 To 180 DY= .219 ft.

RIGID Weight= 7.00 lb.

From 180 To 190 DY= .423 ft.

RESTRAINTS

Node 190 ANC Cnode 191

From 200 To 210 DZ= .219 ft.

PIPE

Dia= 2.375 in. Wall= .344 in. Cor= .2362 in.

GENERAL

T1= 185 F T2= 70 F P1= 79.7726 lb./sq.in. PHyd= 119.6589 lb./sq.in.

Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.

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INPUT LISTING

EH1= 28,875,074 lb./sq.in. EH2= 29,500,106 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0354769 lb./cu.in. Insul Thk= .000 in.
 Insul Den= .0000000 lb./cu.in.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 200 ANC Cnode 201

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 210 To 220 DZ= .850 ft.

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 219
 Angle/Node @2= .00 218

 From 220 To 225 DX= .638 ft.

 From 220 To 420 DX= -.059 ft. DY= -.059 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 420 Unreinforced Tee

 From 225 To 230 DX= .638 ft.

 From 230 To 240 DX= .219 ft.

RIGID Weight= 7.00 lb.

 From 240 To 250 DX= .883 ft.

RIGID Weight= 21.00 lb.

 From 250 To 260 DX= .219 ft.

RIGID Weight= 7.00 lb.

 From 260 To 270 DX= .656 ft.

 From 270 To 280 DX= .219 ft.

RIGID Weight= 7.00 lb.

 From 280 To 290 DX= .614 ft.

RIGID Weight= 60.00 lb.

 From 290 To 300 DX= .219 ft.

RIGID Weight= 7.00 lb.

 From 300 To 310 DX= .253 ft.

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INPUT LISTING

BEND at "TO" end

Radius= 3.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 309

Angle/Node @2= .00 308

From 310 To 120 DZ= 1.027 ft.

From 11 To 320 DZ= .219 ft.

RIGID Weight= 7.00 lb.

From 320 To 330 DZ= .830 ft.

RESTRAINTS

Node 330 ANC

EQUIPMENT LIMITS

Nozzle Node = 330 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb.

FB= 260.00 lb. FC= 320.00 lb. MA= 4,080.00 in.lb. MB= .00 in.lb.

MC= 6,240.01 in.lb. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 201 To 340 DZ= -.219 ft.

RIGID Weight= 7.00 lb.

From 340 To 350 DZ= -.830 ft.

RESTRAINTS

Node 350 ANC

EQUIPMENT LIMITS

Nozzle Node = 350 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb.

FB= 260.00 lb. FC= 320.00 lb. MA= 4,080.00 in.lb. MB= .00 in.lb.

MC= 6,240.01 in.lb. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 191 To 360 DY= 4.298 ft.

PIPE

Dia= 103.150 in. Wall= .344 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 360 To 370 DX= -2.297 ft.

RIGID Weight= .00 lb.

From 370 To 380 DY= -4.298 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 380 +Y Mu = .30

Node 380 Z Gap= .118 in. Mu = .30

From 360 To 390 DX= 16.732 ft.

RIGID Weight= .00 lb.

From 390 To 400 DY= -4.298 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 400 ANC

From 410 To 430 DX= -1.640 ft.

PIPE

Dia= 1.900 in. Wall= .145 in. Cor= .0000 in.

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INPUT LISTING

GENERAL

T1= 70 F P1= .0000 lb./sq.in. PHyd= .0000 lb./sq.in.
 Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,106 lb./sq.in.
 EH3= 29,500,856 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 430 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 420 To 440 DX= -1.640 ft.

RESTRAINTS

Node 440 +Y Mu = .30

 From 450 To 460 DY= -1.312 ft.

RESTRAINTS

Node 460 +Y Mu = .30

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MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
200	210	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
410	430	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.

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ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
200	210	B31.3 (2016) Cycle Max Switch = ---

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INPUT LISTING

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Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in.
Sh2= 20,000 lb./sq.in.
Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in.
Sh5= 20,000 lb./sq.in.
Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in.
Sh8= 20,000 lb./sq.in.
Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.
410          430      B31.3 (2016)      Cycle Max Switch = ---
Sc= 20,000 lb./sq.in.
Sh1= 20,000 lb./sq.in.
Sh2= 20,000 lb./sq.in.
Sh3= 20,000 lb./sq.in.
Sh4= 20,000 lb./sq.in.
Sh5= 20,000 lb./sq.in.
Sh6= 20,000 lb./sq.in.
Sh7= 20,000 lb./sq.in.
Sh8= 20,000 lb./sq.in.
Sh9= 20,000 lb./sq.in.
Sy= 35,000 lb./sq.in.

```

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BEND ELEMENTS

```

20          30      Radius= 3.000 in. (LONG)
Bend Angle= 90.000 Angle/Node @1= 45.00 29
Angle/Node @2= .00 28
125         130      Radius= 3.000 in. (LONG)
Bend Angle= 90.000 Angle/Node @1= 45.00
129 Angle/Node @2= .00 128
130         150      Radius= 3.000 in. (LONG)
Bend Angle= 90.000 Angle/Node @1= 45.00
149 Angle/Node @2= .00 148
210         220      Radius= 3.000 in. (LONG)
Bend Angle= 90.000 Angle/Node @1= 45.00
219 Angle/Node @2= .00 218
300         310      Radius= 3.000 in. (LONG)
Bend Angle= 90.000 Angle/Node @1= 45.00
309 Angle/Node @2= .00 308

```

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RIGIDS

```

10          20      RIGID Weight= 7.00 lb.
30          410     RIGID Weight= .00 lb.
40          50      RIGID Weight= 7.00 lb.
50          60      RIGID Weight= 21.00 lb.
60          70      RIGID Weight= 7.00 lb.
80          90      RIGID Weight= 7.00 lb.
90          100     RIGID Weight= 60.00 lb.
100         110     RIGID Weight= 7.00 lb.

```

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INPUT LISTING

125	450	RIGID	Weight= .00 lb.
160	170	RIGID	Weight= 7.00 lb.
171	180	RIGID	Weight= 7.00 lb.
200	210	RIGID	Weight= 7.00 lb.
220	420	RIGID	Weight= .00 lb.
230	240	RIGID	Weight= 7.00 lb.
240	250	RIGID	Weight= 21.00 lb.
250	260	RIGID	Weight= 7.00 lb.
270	280	RIGID	Weight= 7.00 lb.
280	290	RIGID	Weight= 60.00 lb.
290	300	RIGID	Weight= 7.00 lb.
11	320	RIGID	Weight= 7.00 lb.
201	340	RIGID	Weight= 7.00 lb.
191	360	RIGID	Weight= .00 lb.
360	370	RIGID	Weight= .00 lb.
370	380	RIGID	Weight= .00 lb.
360	390	RIGID	Weight= .00 lb.
390	400	RIGID	Weight= .00 lb.

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SIF's & TEE's

30	410	Node 410	Unreinforced Tee
125	450	Node 450	Unreinforced Tee
220	420	Node 420	Unreinforced Tee

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	11				.000 .000 .000
170	ANC	171				.000 .000 .000
190	ANC	191				.000 .000 .000
200	ANC	201				.000 .000 .000
330	ANC					.000 .000 .000
350	ANC					.000 .000 .000
380	+Y				.30	.000 1.000 .000
380	Z			.12	.30	.000 .000 1.000
400	ANC					.000 .000 .000
430	+Y				.30	.000 1.000 .000
440	+Y				.30	.000 1.000 .000
460	+Y				.30	.000 1.000 .000

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EQUIPMENT LIMITS

320 330 Nozzle Node = 330

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb. FB= 260.00 lb.
 FC= 320.00 lb. MA= 4,080.00 in.lb. MB= .00 in.lb. MC= 6,240.01 in.lb.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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INPUT LISTING

340 350 Nozzle Node = 350

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 400.00 lb. FB= 260.00 lb.
 FC= 320.00 lb. MA= 4,080.00 in.lb. MB= .00 in.lb. MC= 6,240.01 in.lb.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10	20	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's
200	210	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	=	in.
FORCE	pounds	x	1.000	=	lb.
MASS (dynamics)	pounds	x	1.000	=	lbm
MOMENTS (INPUT)	inch-pounds	x	1.000	=	in.lb.
MOMENTS (OUTPUT)	inch-pounds	x	0.083	=	ft.lb.
STRESS	lbs./sq.in.	x	1.000	=	lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	=	F
PRESSURE	psig	x	1.000	=	lb./sq.in.
ELASTIC MODULUS	lbs./sq.in.	x	1.000	=	lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	=	lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	=	lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	=	in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	=	lb./in.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	144.000	=	lb./sq.ft.
ELEVATION	inches	x	0.083	=	ft.
COMPOUND LENGTH	inches	x	0.083	=	ft.
DIAMETER	inches	x	1.000	=	in.
WALL THICKNESS	inches	x	1.000	=	in.

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INPUT LISTING

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SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =             5.00000
MAX ALLOWED BEND ANGLE =             95.0000
BEND LENGTH ATTACHMENT PERCENT =     1.00000
MIN ANGLE TO ADJACENT BEND PT =      5.00000
LOOP CLOSURE TOLERANCE =             1.00000      in.
THERMAL BOWING HORZ TOLERANCE =      0.100000E-03
AUTO NODE NUMBER INCREMENT=         10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =             DEFAULT
ALPHA TOLERANCE =                    0.500000E-01
RESLD-FORCE =                         NO
HGR DEF RESWGT STIF =                 0.100000E+13 lb./in.
DECOMP SNG TOL =                     0.100000E+11
BEND AXIAL SHAPE =                    YES
FRICT STIF =                         0.100000E+07 lb./in.
FRICT NORM FORCE VAR =                 0.150000
FRICT ANGLE VAR =                     15.0000
FRICT SLIDE MULT =                    1.00000
ROD TOLERANCE =                       1.00000
ROD INC =                             2.00000
INCORE NUMERICAL CHECK =              NO
OUTCORE NUMERICAL CHECK =             NO
DEFAULT TRANS RESTRAINT STIFF=        0.100000E+13 lb./in.
DEFAULT ROT RESTRAINT STIFF=          0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS =      NO
MISSING MASS ZPA =                    EXTRACTED
MIN WALL MILL TOLERANCE =             12.5000
WRC-107 VERSION =                     MAR 79 1B1/2B1
WRC-107 INTERPOLATION =               LAST VALUE
DEFAULT AMBIENT TEMPERATURE=          70.0000      F
BOURDON PRESSURE=                     NONE
COEFFICIENT OF FRICTION (MU) =         0.000000
INCLUDE SPRG STIF IN HGR OPE =        NO
INCLUDE INSULATION IN HYDROTEST =     NO
REDUCED INTERSECTION =                B31.1 (POST1980)
USE WRC329                            NO
NO REDUCED SIF FOR RFT AND WLT        NO
B31.1 REDUCED Z FIX =                 YES
CLASS 1 BRANCH FLEX                   NO
ALL STRESS CASES CORRODED =           NO
ADD TORSION IN SL STRESS =             DEFAULT
ADD F/A IN STRESS =                   DEFAULT
OCCASIONAL LOAD FACTOR =               0.000000
DEFAULT CODE =                         B31.3
B31.3 SUS CASE SIF FACTOR =            0.000000
ALLOW USERS BEND SIF =                 NO
USE SCHNEIDER                         NO
YIELD CRITERION STRESS =               MAX 3D SHEAR
USE PD/4T                             NO
BASE HOOP STRESS ON ? =               ID
EN13480 USE IN OUTPLANE SIFS=         NO

```

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INPUT LISTING

```
LIBERAL EXPANSION ALLOWABLE=      YES
B31.3 SEC 319.2.3C SAXIAL=        Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE=    DEFAULT
IMPLEMENT B313 APP-P              NO
IMPLEMENT B313 CODE CASE 178      YES
IGNORE B31.1/B31.3 Wc FACTOR=     YES
USE FRP SIF =                     YES
USE FRP FLEX =                     YES
BS 7159 Pressure Stiffening=       Design Strain
FRP Property Data File=            CAESAR.FRP
FRP Emod (axial) =                  0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) =       0.250000
FRP Ea/Eh*Vh/a =                    0.152730
FRP Laminate Type =                 THREE
FRP Alpha =                         12.0000 F
FRP Density =                       0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING =    NO
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```

EXECUTION CONTROL PARAMETERS

```
Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 F
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 69.794 F
Plastic (FRP) Alpha ..... 12.000
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X
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```

COORDINATE REPORT

```
/----- (in.) -----/
NODE      X          Y          Z
10      -618.113    -291.169    288.355
20      -618.113    -291.169    285.730
30      -618.113    -291.169    275.533
35      -610.456    -291.169    275.533
30      -618.113    -291.169    275.533
410     -618.820    -291.876    275.533
35      -610.456    -291.169    275.533
40      -602.798    -291.169    275.533
50      -600.173    -291.169    275.533
```

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INPUT LISTING

60	-589.583	-291.169	275.533
70	-586.958	-291.169	275.533
80	-579.084	-291.169	275.533
90	-576.459	-291.169	275.533
100	-569.097	-291.169	275.533
110	-566.472	-291.169	275.533
120	-563.952	-291.169	275.533
125	-556.314	-291.169	275.533
450	-556.314	-292.169	275.533
125	-556.314	-291.169	275.533
130	-548.676	-291.169	275.533
150	-548.676	-291.169	421.321
160	-548.676	-285.657	421.321
170	-548.676	-283.032	421.321
180	-548.676	-280.407	421.321
190	-548.676	-275.328	421.321
200	-618.625	-291.169	250.389
210	-618.625	-291.169	253.014
220	-618.625	-291.169	263.210
225	-610.968	-291.169	263.210
220	-618.625	-291.169	263.210
420	-619.332	-291.876	263.210
225	-610.968	-291.169	263.210
230	-603.310	-291.169	263.210
240	-600.685	-291.169	263.210
250	-590.095	-291.169	263.210
260	-587.470	-291.169	263.210
270	-579.596	-291.169	263.210
280	-576.971	-291.169	263.210
290	-569.608	-291.169	263.210
300	-566.983	-291.169	263.210
310	-563.952	-291.169	263.210
120	-563.952	-291.169	275.533
10	-618.113	-291.169	288.355
320	-618.113	-291.169	290.980
330	-618.113	-291.169	300.941
200	-618.625	-291.169	250.389
340	-618.625	-291.169	247.764
350	-618.625	-291.169	237.803
190	-548.676	-275.328	421.321
360	-548.676	-223.753	421.321
370	-576.235	-223.753	421.321
380	-576.235	-275.328	421.321
360	-548.676	-223.753	421.321
390	-347.889	-223.753	421.321
400	-347.889	-275.328	421.321
410	-618.820	-291.876	275.533
430	-638.506	-291.876	275.533
420	-619.332	-291.876	263.210
440	-639.017	-291.876	263.210
450	-556.314	-292.169	275.533
460	-556.314	-307.917	275.533

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid ANC;					
	1(HYD)	-15	-57	3	-33.4	3.2	-15.8
	2(OPE)	250	-43	-53	-39.7	-12.6	-12.2
	4(OPE)	-15	-56	3	-33.0	3.3	-15.8
	6(SUS)	-15	-56	3	-33.0	3.3	-15.8
	7(SUS)	-15	-53	2	-32.6	3.3	-15.3
	MAX	250/L2	-57/L1	-53/L2	-39.7/L2	-12.6/L2	-15.8/L6
170		TYPE=Rigid ANC;					
	1(HYD)	-0	-62	2	-91.6	1.5	2.3
	2(OPE)	31	-54	267	-217.4	-156.1	20.5
	4(OPE)	-0	-62	2	-91.7	1.3	2.3
	6(SUS)	-0	-62	1	-91.4	1.5	2.3
	7(SUS)	-0	-55	0	-80.0	1.5	2.3
	MAX	31/L2	-62/L1	267/L2	-217.4/L2	-156.1/L2	20.5/L2
190		TYPE=Rigid ANC;					
	1(HYD)	-0	-73	2	-92.6	1.5	2.0
	2(OPE)	31	-64	267	-389.0	-156.1	40.6
	4(OPE)	-0	-73	2	-93.1	1.3	2.1
	6(SUS)	-0	-73	1	-92.4	1.5	2.0
	7(SUS)	-0	-66	0	-80.1	1.5	2.1
	MAX	31/L2	-73/L1	267/L2	-389.0/L2	-156.1/L2	40.6/L2
200		TYPE=Rigid ANC;					
	1(HYD)	-0	-59	2	24.3	-2.6	-17.0
	2(OPE)	-329	-62	-148	14.8	51.2	-20.2
	4(OPE)	-1	-58	1	23.7	-2.7	-17.1
	6(SUS)	-0	-58	2	23.8	-2.6	-17.1
	7(SUS)	-1	-56	1	22.2	-2.7	-16.9
	MAX	-329/L2	-62/L2	-148/L2	24.3/L1	51.2/L2	-20.2/L2
330		TYPE=Rigid ANC;					
	1(HYD)	-15	-71	3	-102.9	19.0	-15.8
	2(OPE)	250	-57	-53	-94.5	-275.1	-12.2
	4(OPE)	-15	-70	3	-101.7	19.1	-15.8

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	6(SUS)	-15	-71	3	-101.8	19.2	-15.8
	7(SUS)	-15	-67	2	-97.8	18.6	-15.3
	MAX	250/L2	-71/L1	-53/L2	-102.9/L1	-275.1/L2	-15.8/L6
350		TYPE=Rigid ANC;					
	1(HYD)	-0	-73	2	95.5	-2.6	-17.0
	2(OPE)	-329	-76	-148	89.7	-293.9	-20.2
	4(OPE)	-1	-72	1	94.3	-3.5	-17.1
	6(SUS)	-0	-72	2	94.4	-2.8	-17.1
	7(SUS)	-1	-69	1	90.1	-4.1	-16.9
	MAX	-329/L2	-76/L2	-148/L2	95.5/L1	-293.9/L2	-20.2/L2
380		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-0	-62	1	0.0	0.0	0.0
	2(OPE)	-20	-67	0	0.0	0.0	0.0
	4(OPE)	-19	-65	0	0.0	0.0	0.0
	6(SUS)	-0	-61	1	0.0	0.0	0.0
	7(SUS)	-0	-55	0	0.0	0.0	0.0
	MAX	-20/L2	-67/L2	1/L1			
400		TYPE=Rigid ANC;					
	1(HYD)	-0	-11	1	-92.6	16.8	48.3
	2(OPE)	53	2	267	-389.0	4316.1	-153.5
	4(OPE)	18	-8	2	-93.1	37.6	-19.6
	6(SUS)	-0	-11	1	-92.4	16.7	48.2
	7(SUS)	-0	-10	-0	-80.1	-0.1	43.5
	MAX	53/L2	-11/L1	267/L2	-389.0/L2	4316.1/L2	-153.5/L2
430		TYPE=Rigid +Y;					
	1(HYD)	-4	-13	1	0.0	0.0	0.0
	2(OPE)	4	-16	-3	0.0	0.0	0.0
	4(OPE)	-4	-12	1	0.0	0.0	0.0
	6(SUS)	-4	-12	1	0.0	0.0	0.0
	7(SUS)	-4	-12	0	0.0	0.0	0.0
	MAX	-4/L1	-16/L2	-3/L2			
440		TYPE=Rigid +Y;					
	1(HYD)	-3	-10	-1	0.0	0.0	0.0
	2(OPE)	-0	-7	2	0.0	0.0	0.0
	4(OPE)	-2	-9	-1	0.0	0.0	0.0
	6(SUS)	-2	-9	-1	0.0	0.0	0.0
	7(SUS)	-2	-8	-1	0.0	0.0	0.0
	MAX	-3/L1	-10/L1	2/L2			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
460		TYPE=Rigid +Y;					
	1(HYD)	22	-232	-5	0.0	0.0	0.0
	2(OPE)	42	-246	-61	0.0	0.0	0.0
	4(OPE)	22	-231	-6	0.0	0.0	0.0
	6(SUS)	22	-230	-5	0.0	0.0	0.0
	7(SUS)	22	-218	-3	0.0	0.0	0.0
	MAX	42/L2	-246/L2	-61/L2			

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Stress Summary : Multiple 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 6 (SUS) W+P1
 CASE 7 (SUS) WNC
 CASE 18 (OCC) L18=L13+L6
 CASE 19 (OCC) L19=L14+L6
 CASE 20 (OCC) L20=L15+L6
 CASE 21 (OCC) L21=L16+L6
 CASE 22 (OCC) L22=L17+L6
 CASE 23 (EXP) L23=L2-L6
 CASE 24 (EXP) L24=L4-L6
 CASE 25 (EXP) L25=L2-L4

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP			
Ratio (%) :	5.1	@Node	450
Code Stress:	1798.9	Allowable Stress:	35000.0
Axial Stress:	290.1	@Node	460
Bending Stress:	2019.6	@Node	450
Torsion Stress:	505.8	@Node	128
Hoop Stress:	293.4	@Node	28
Max Stress Intensity:	2303.8	@Node	450

CODE STRESS CHECK PASSED : LOADCASE 6 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 6 (SUS) W+P1			
Ratio (%) :	17.0	@Node	330
Code Stress:	3392.8	Allowable Stress:	20000.0
Axial Stress:	475.2	@Node	190
Bending Stress:	2985.6	@Node	330
Torsion Stress:	1188.7	@Node	128
Hoop Stress:	799.2	@Node	28
Max Stress Intensity:	3401.2	@Node	330

CODE STRESS CHECK PASSED : LOADCASE 7 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 7 (SUS) WNC			
Ratio (%) :	14.5	@Node	330
Code Stress:	2906.5	Allowable Stress:	20000.0
Axial Stress:	273.1	@Node	460
Bending Stress:	2869.9	@Node	330
Torsion Stress:	1069.2	@Node	128
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	2906.5	@Node	330

CODE STRESS CHECK PASSED : LOADCASE 18 (OCC) L18=L13+L6

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 18 (OCC) L18=L13+L6

Ratio (%) :	18.4	@Node	330	
Code Stress:	4883.0	Allowable Stress:		26600.0
Axial Stress:	475.5	@Node	190	
Bending Stress:	4473.3	@Node	330	
Torsion Stress:	1168.9	@Node	128	
Hoop Stress:	799.2	@Node	28	
Max Stress Intensity:	4891.4	@Node	330	

CODE STRESS CHECK PASSED : LOADCASE 19 (OCC) L19=L14+L6

Highest Stresses: (lb./sq.in.) LOADCASE 19 (OCC) L19=L14+L6

Ratio (%) :	19.2	@Node	330	
Code Stress:	5110.9	Allowable Stress:		26600.0
Axial Stress:	474.9	@Node	190	
Bending Stress:	4700.3	@Node	330	
Torsion Stress:	1208.9	@Node	128	
Hoop Stress:	799.2	@Node	28	
Max Stress Intensity:	5119.3	@Node	330	

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L6

Highest Stresses: (lb./sq.in.) LOADCASE 20 (OCC) L20=L15+L6

Ratio (%) :	14.1	@Node	330	
Code Stress:	3755.9	Allowable Stress:		26600.0
Axial Stress:	463.9	@Node	190	
Bending Stress:	3344.0	@Node	330	
Torsion Stress:	1046.1	@Node	128	
Hoop Stress:	799.2	@Node	28	
Max Stress Intensity:	3764.3	@Node	330	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L6

Highest Stresses: (lb./sq.in.) LOADCASE 21 (OCC) L21=L16+L6

Ratio (%) :	19.1	@Node	190	
Code Stress:	5088.6	Allowable Stress:		26600.0
Axial Stress:	474.7	@Node	190	
Bending Stress:	4611.2	@Node	190	
Torsion Stress:	1185.8	@Node	125	
Hoop Stress:	799.2	@Node	28	
Max Stress Intensity:	5088.5	@Node	190	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L6

Highest Stresses: (lb./sq.in.) LOADCASE 22 (OCC) L22=L17+L6

Ratio (%) :	19.1	@Node	190	
Code Stress:	5084.3	Allowable Stress:		26600.0
Axial Stress:	475.7	@Node	190	
Bending Stress:	4606.9	@Node	190	
Torsion Stress:	1208.1	@Node	128	
Hoop Stress:	799.2	@Node	28	
Max Stress Intensity:	5084.2	@Node	190	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 23 (EXP) L23=L2-L6

Highest Stresses: (lb./sq.in.) LOADCASE 23 (EXP) L23=L2-L6

Ratio (%) :	11.9	@Node	450	
Code Stress:	5748.8	Allowable Stress:		48211.4
Axial Stress:	154.2	@Node	219	
Bending Stress:	5712.7	@Node	450	
Torsion Stress:	965.0	@Node	150	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	11196.1	@Node	220	

CODE STRESS CHECK PASSED : LOADCASE 24 (EXP) L24=L4-L6

Highest Stresses: (lb./sq.in.) LOADCASE 24 (EXP) L24=L4-L6

Ratio (%) :	0.1	@Node	450	
Code Stress:	50.0	Allowable Stress:		48211.4
Axial Stress:	0.3	@Node	219	
Bending Stress:	49.6	@Node	450	
Torsion Stress:	2.1	@Node	125	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	49.8	@Node	450	

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 25 (EXP) L25=L2-L4

Ratio (%) :	11.8	@Node	450	
Code Stress:	5700.5	Allowable Stress:		48211.4
Axial Stress:	153.9	@Node	219	
Bending Stress:	5664.8	@Node	450	
Torsion Stress:	963.5	@Node	150	
Hoop Stress:	0.0	@Node	20	
Max Stress Intensity:	11172.6	@Node	220	

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node		fa lb.	fb lb.	fc lb.	Forces Check	ma ft.lb.	mb ft.lb.	mc ft.lb.	Moments Check	
330		Absolute Method								
	Limits	400	260	320		340.0	0.0	520.0		
	4(OPE)	3	-70	15	0.271	-15.8	19.1	101.7	0.196	
	6(SUS)	3	-71	15	0.271	-15.8	19.2	101.8	0.196	
	7(SUS)	2	-67	15	0.256	-15.3	18.6	97.8	0.188	
350		Absolute Method								
	Limits	400	260	320		340.0	0.0	520.0		
	4(OPE)	-1	-72	-1	0.278	17.1	-3.5	94.3	0.181	
	6(SUS)	-2	-72	-0	0.278	17.1	-2.8	94.4	0.181	
	7(SUS)	-1	-69	-1	0.266	16.9	-4.1	90.1	0.173	

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Line no.

Stress sketch

Input echo

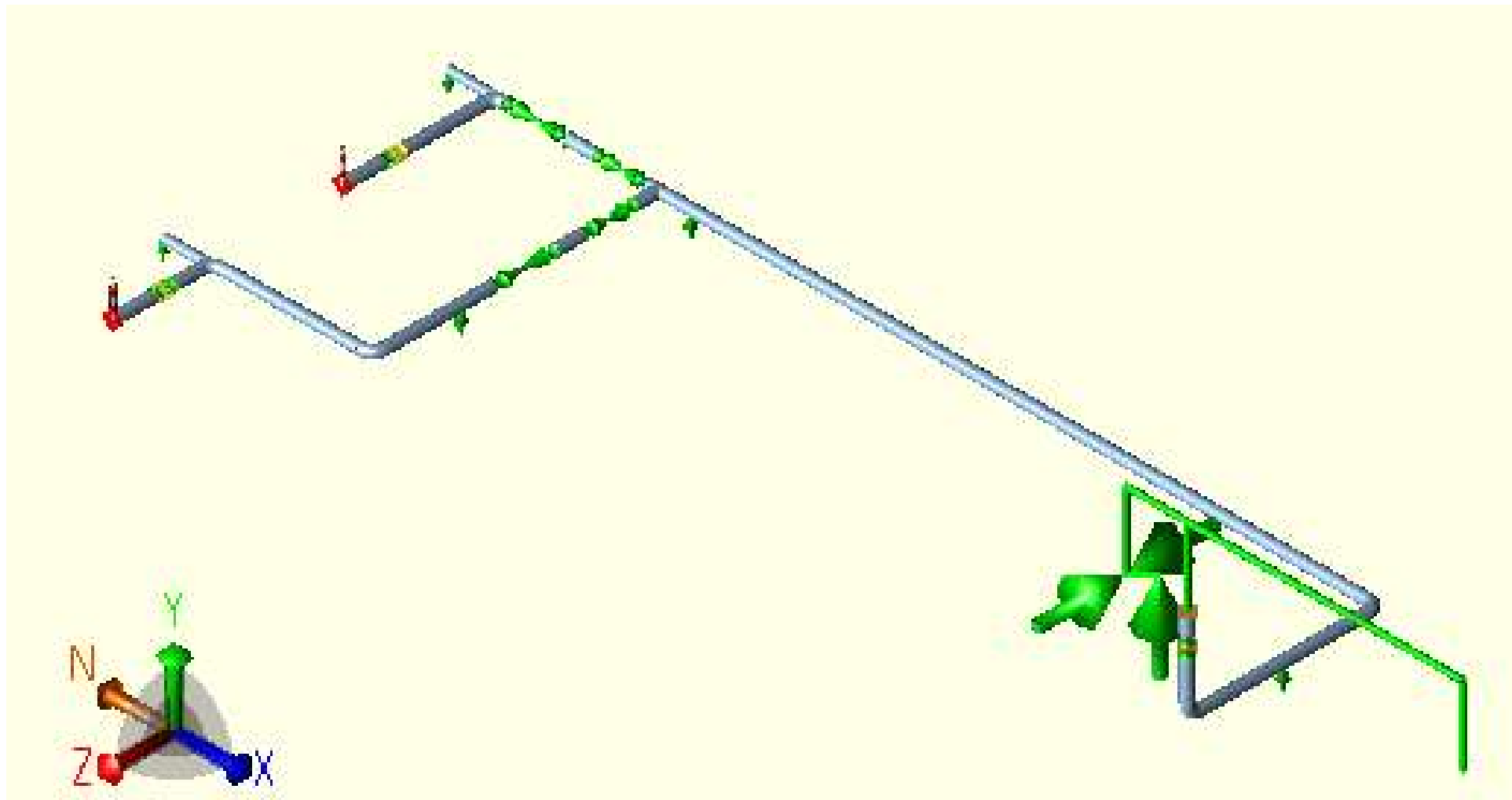
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. CDH-112-0036-AN07-2"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 10 To 20 DZ= -.067 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .6000 cm.

GENERAL

T1= 85 C T2= 21 C P1= 550.0125 KPa PHyd= 825.0188 KPa
 Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
 EH2= 203,396,064 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0009820 kg./cu.cm.
 Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 31.14 N.

RESTRAINTS

Node 10 ANC Cnode 11

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 20 To 25 DZ= -.305 m.

 From 30 To 430 DX= -.001 m. DY= -.001 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 430 Unreinforced Tee

 From 25 To 30 DZ= -.305 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 29
 Angle/Node @2= .00 28

 From 30 To 40 DX= .077 m.

 From 40 To 50 DX= .067 m.

RIGID Weight= 31.14 N.

 From 50 To 60 DX= .269 m.

RIGID Weight= 93.41 N.

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INPUT LISTING

From 60 To 70 DX= .067 m.

RIGID Weight= 31.14 N.

From 70 To 80 DX= .185 m.

From 80 To 90 DX= .067 m.

RIGID Weight= 31.14 N.

From 90 To 100 DX= .201 m.

RIGID Weight= 266.89 N.

From 100 To 110 DX= .067 m.

RIGID Weight= 31.14 N.

From 110 To 120 DX= .064 m.

From 120 To 130 DZ= .164 m.

From 130 To 140 DZ= .067 m.

RIGID Weight= 31.14 N.

From 140 To 150 DZ= .201 m.

RIGID Weight= 266.89 N.

From 150 To 160 DZ= .067 m.

RIGID Weight= 31.14 N.

From 160 To 170 DZ= .185 m.

From 170 To 180 DZ= .067 m.

RIGID Weight= 31.14 N.

From 180 To 190 DZ= .269 m.

RIGID Weight= 93.41 N.

From 190 To 200 DZ= .067 m.

RIGID Weight= 31.14 N.

From 200 To 205 DZ= .200 m.

RESTRAINTS

Node 205 +Y Mu = .30

From 205 To 210 DZ= .577 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 209

Angle/Node @2= .00 208

From 210 To 215 DX= -.525 m.

From 220 To 400 DX= -.018 m. DY= -.018 m.

RIGID Weight= .00 N.

SIF's & TEE's

Node 400 Unreinforced Tee

From 215 To 220 DX= -.525 m.

BEND at "TO" end

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INPUT LISTING

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 219
Angle/Node @2= .00 218

From 220 To 230 DZ= .259 m.

From 230 To 240 DZ= .067 m.
RIGID Weight= 31.14 N.

RESTRAINTS

Node 240 ANC Cnode 241

From 120 To 185 DX= .210 m.

RESTRAINTS

Node 185 +Y Mu = .30

From 185 To 250 DX= 4.490 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 249
Angle/Node @2= .00 248

From 250 To 255 DZ= .627 m.

RESTRAINTS

Node 255 +Y Mu = .30

From 255 To 260 DZ= .627 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 259
Angle/Node @2= .00 258

From 260 To 270 DY= .332 m.

From 270 To 280 DY= .067 m.

RIGID Weight= 31.14 N.

RESTRAINTS

Node 280 ANC Cnode 281

From 11 To 290 DZ= .067 m.

RIGID Weight= 31.14 N.

From 290 To 300 DZ= .253 m.

RESTRAINTS

Node 300 ANC

EQUIPMENT LIMITS

Nozzle Node = 300 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N.
FB= 1,156.54 N. FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m.
MC= 705.03 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000
Interact. Mtd= Absolute

From 241 To 310 DZ= .067 m.

RIGID Weight= 31.14 N.

From 310 To 320 DZ= .253 m.

RESTRAINTS

Node 320 ANC

EQUIPMENT LIMITS

Nozzle Node = 320 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N.
FB= 1,156.54 N. FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m.

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INPUT LISTING

MC= 705.03 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000
Interact. Mtd= Absolute

From 281 To 330 DY= .067 m.
RIGID Weight= 31.14 N.

From 330 To 340 DY= .133 m.
RESTRAINTS
Node 340 ANC Cnode 341

From 341 To 350 DY= .507 m.
PIPE
Dia= 101.400 cm. Wall= .874 cm.
Insul Thk= .000 cm.
RIGID Weight= .00 N.

From 350 To 360 DX= -.400 m.
RIGID Weight= .00 N.

From 360 To 370 DY= -.507 m.
RIGID Weight= .00 N.
RESTRAINTS
Node 370 +Y Mu = .30
Node 370 Z Gap= .300 cm.

From 350 To 380 DX= 1.800 m.
RIGID Weight= .00 N.

From 380 To 390 DY= -.507 m.
RIGID Weight= .00 N.
RESTRAINTS
Node 390 ANC

From 400 To 410 DX= -.300 m.
PIPE
Dia= 4.826 cm. Wall= .368 cm. Cor= .0000 cm.
GENERAL

Mat= (102)A53 Grade B E= 203,401,232 KPa EH1= 199,086,608 KPa
EH2= 203,396,064 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000000 kg./cu.cm.
Insul Thk= .000 cm.

RESTRAINTS
Node 410 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
Sh9= 137,895 KPa Sy= 241,316 KPa

From 430 To 440 DX= -.300 m.
RESTRAINTS

Node 440 +Y Mu = .30

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INPUT LISTING

MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
400	410	Mat= (102)A53 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-022\BNK-GCS-CN-022

ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
400	410	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa

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BEND ELEMENTS

25	30	Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 29 Angle/Node @2= .00 28
205	210	Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 209 Angle/Node @2= .00 208
215	220	Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 219 Angle/Node @2= .00 218
185	250	Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 249 Angle/Node @2= .00 248
255	260	Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 259 Angle/Node @2= .00 258

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RIGIDS

10	20	RIGID Weight= 31.14 N.
30	430	RIGID Weight= .00 N.
40	50	RIGID Weight= 31.14 N.
50	60	RIGID Weight= 93.41 N.
60	70	RIGID Weight= 31.14 N.
80	90	RIGID Weight= 31.14 N.

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INPUT LISTING

90	100	RIGID	Weight= 266.89 N.
100	110	RIGID	Weight= 31.14 N.
130	140	RIGID	Weight= 31.14 N.
140	150	RIGID	Weight= 266.89 N.
150	160	RIGID	Weight= 31.14 N.
170	180	RIGID	Weight= 31.14 N.
180	190	RIGID	Weight= 93.41 N.
190	200	RIGID	Weight= 31.14 N.
220	400	RIGID	Weight= .00 N.
230	240	RIGID	Weight= 31.14 N.
270	280	RIGID	Weight= 31.14 N.
11	290	RIGID	Weight= 31.14 N.
241	310	RIGID	Weight= 31.14 N.
281	330	RIGID	Weight= 31.14 N.
341	350	RIGID	Weight= .00 N.
350	360	RIGID	Weight= .00 N.
360	370	RIGID	Weight= .00 N.
350	380	RIGID	Weight= .00 N.
380	390	RIGID	Weight= .00 N.

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SIF's & TEE's

30	430	Node 430	Unreinforced Tee
220	400	Node 400	Unreinforced Tee

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	11				.000 .000 .000
205	+Y				.30	.000 1.000 .000
240	ANC	241				.000 .000 .000
185	+Y				.30	.000 1.000 .000
255	+Y				.30	.000 1.000 .000
280	ANC	281				.000 .000 .000
300	ANC					.000 .000 .000
320	ANC					.000 .000 .000
340	ANC	341				.000 .000 .000
370	+Y				.30	.000 1.000 .000
370	Z			.30		.000 .000 1.000
390	ANC					.000 .000 .000
410	+Y				.30	.000 1.000 .000
440	+Y				.30	.000 1.000 .000

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EQUIPMENT LIMITS

290	300	Nozzle Node = 300

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.

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INPUT LISTING

Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute
 310 320 Nozzle Node = 320

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 1,779.29 N. FB= 1,156.54 N.
 FC= 1,423.43 N. MA= 460.98 N.m. MB= .00 N.m. MC= 705.03 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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UNIFORM LOAD Changes

10 20 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS=	SI	NOM/SCH	INPUT=	ON				
LENGTH		inches	x	2.540	=	cm.		
FORCE		pounds	x	4.448	=	N.		
MASS (dynamics)		pounds	x	0.454	=	Kg.		
MOMENTS (INPUT)		inch-pounds	x	0.113	=	N.m.		
MOMENTS (OUTPUT)		inch-pounds	x	0.113	=	N.m.		
STRESS		lbs./sq.in.	x	6.895	=	KPa		
TEMP. SCALE		degrees F.	x	0.556	=	C		
PRESSURE		psig	x	6.895	=	KPa		
ELASTIC MODULUS		lbs./sq.in.	x	6.895	=	KPa		
PIPE DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
INSULATION DENS.		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
FLUID DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.		
TRANSL. STIF		lbs./in.	x	1.751	=	N./cm.		
ROTATIONAL STIF		in.lb./deg.	x	0.113	=	N.m./deg		
UNIFORM LOAD		lb./in.	x	1.751	=	N./cm.		
G LOAD		g's	x	1.000	=	g's		
WIND LOAD		lbs./sq.in.	x	6.895	=	KPa		
ELEVATION		inches	x	0.025	=	m.		
COMPOUND LENGTH		inches	x	0.025	=	m.		
DIAMETER		inches	x	2.540	=	cm.		
WALL THICKNESS		inches	x	2.540	=	cm.		

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SETUP FILE PARAMETERS

CONNECT GEOMETRY THRU CNODES = YES
 MIN ALLOWED BEND ANGLE = 5.00000
 MAX ALLOWED BEND ANGLE = 95.0000

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INPUT LISTING

```

BEND LENGTH ATTACHMENT PERCENT = 1.00000
MIN ANGLE TO ADJACENT BEND PT = 5.00000
LOOP CLOSURE TOLERANCE = 2.54000 cm.
THERMAL BOWING HORZ TOLERANCE = 0.100000E-03
AUTO NODE NUMBER INCREMENT= 10.0000
Z AXIS UP= NO
USE PRESSURE STIFFENING = DEFAULT
ALPHA TOLERANCE = 0.500000E-01
RESLD-FORCE = NO
HGR DEF RESWGT STIF = 0.175127E+13 N./cm.
DECOMP SNG TOL = 0.100000E+11
BEND AXIAL SHAPE = YES
FRICT STIF = 0.175127E+07 N./cm.
FRICT NORM FORCE VAR = 0.150000
FRICT ANGLE VAR = 15.0000
FRICT SLIDE MULT = 1.00000
ROD TOLERANCE = 1.00000
ROD INC = 2.00000
INCORE NUMERICAL CHECK = NO
OUTCORE NUMERICAL CHECK = NO
DEFAULT TRANS RESTRAINT STIFF= 0.175127E+13 N./cm.
DEFAULT ROT RESTRAINT STIFF= 0.112985E+12 N.m./deg
IGNORE SPRING HANGER STIFFNESS = NO
MISSING MASS ZPA = EXTRACTED
MIN WALL MILL TOLERANCE = 12.5000
WRC-107 VERSION = MAR 79 1B1/2B1
WRC-107 INTERPOLATION = LAST VALUE
DEFAULT AMBIENT TEMPERATURE= 21.1111 C
BOURDON PRESSURE= NONE
COEFFICIENT OF FRICTION (MU) = 0.000000
INCLUDE SPRG STIF IN HGR OPE = NO
INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES

```

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```

USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.220632E+08 KPa
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 21.6000 C
FRP Density = 0.166079E-02 kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING = NO
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```

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 C
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 20.997 C
Plastic (FRP) Alpha ..... 21.600
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000
Collins ..... .000
Degree Determination ..... .000
User Eqn Control ..... .000
North Direction ..... -X
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```

COORDINATE REPORT

```

/----- (cm.) -----/
NODE      X      Y      Z
10      -1570.008    -739.568    732.422
20      -1570.008    -739.568    725.754
25      -1570.008    -739.568    695.304
30      -1570.008    -739.568    664.854
430     -1570.108    -739.668    664.854
25      -1570.008    -739.568    695.304
30      -1570.008    -739.568    664.854
40      -1562.308    -739.568    664.854
50      -1555.641    -739.568    664.854
60      -1528.741    -739.568    664.854
70      -1522.073    -739.568    664.854
80      -1503.573    -739.568    664.854
90      -1496.906    -739.568    664.854
100     -1476.806    -739.568    664.854
110     -1470.138    -739.568    664.854
120     -1463.738    -739.568    664.854

```

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INPUT LISTING

130	-1463.738	-739.568	681.254
140	-1463.738	-739.568	687.922
150	-1463.738	-739.568	708.022
160	-1463.738	-739.568	714.689
170	-1463.738	-739.568	733.189
180	-1463.738	-739.568	739.857
190	-1463.738	-739.568	766.757
200	-1463.738	-739.568	773.424
205	-1463.738	-739.568	793.424
210	-1463.738	-739.568	851.124
215	-1516.238	-739.568	851.124
220	-1568.738	-739.568	851.124
400	-1570.534	-741.364	851.124
215	-1516.238	-739.568	851.124
220	-1568.738	-739.568	851.124
230	-1568.738	-739.568	877.024
240	-1568.738	-739.568	883.692
120	-1463.738	-739.568	664.854
185	-1442.738	-739.568	664.854
250	-993.738	-739.568	664.854
255	-993.738	-739.568	727.504
260	-993.738	-739.568	790.154
270	-993.738	-706.368	790.154
280	-993.738	-699.701	790.154
10	-1570.008	-739.568	732.422
290	-1570.008	-739.568	739.089
300	-1570.008	-739.568	764.389
240	-1568.738	-739.568	883.692
310	-1568.738	-739.568	890.359
320	-1568.738	-739.568	915.659
280	-993.738	-699.701	790.154
330	-993.738	-693.033	790.154
340	-993.738	-679.733	790.154
350	-993.738	-629.033	790.154
360	-1033.738	-629.033	790.154
370	-1033.738	-679.733	790.154
350	-993.738	-629.033	790.154
380	-813.738	-629.033	790.154
390	-813.738	-679.733	790.154
400	-1570.534	-741.364	851.124
410	-1600.534	-741.364	851.124
430	-1570.108	-739.668	664.854
440	-1600.108	-739.668	664.854

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
10		TYPE=Rigid ANC;					
	1(HYD)	-0	-87	0	-1	0	2
	2(OPE)	-579	-90	148	-1	240	2
	4(OPE)	-1	-87	0	-1	0	2
	6(SUS)	-0	-87	0	-1	0	2
	7(SUS)	-0	-85	0	-3	0	1
	MAX	-579/L2	-90/L2	148/L2	-3/L7	240/L2	2/L1
185		TYPE=Rigid +Y;					
	1(HYD)	-32	-1097	-4	0	0	0
	2(OPE)	4	-1090	-327	0	0	0
	4(OPE)	-13	-1095	-26	0	0	0
	6(SUS)	-32	-1095	-4	0	0	0
	7(SUS)	-27	-1026	-4	0	0	0
	MAX	-32/L1	-1097/L1	-327/L2			
205		TYPE=Rigid +Y;					
	1(HYD)	2	-380	4	0	0	0
	2(OPE)	84	-389	-81	0	0	0
	4(OPE)	5	-379	25	0	0	0
	6(SUS)	2	-379	4	0	0	0
	7(SUS)	2	-353	3	0	0	0
	MAX	84/L2	-389/L2	-81/L2			
240		TYPE=Rigid ANC;					
	1(HYD)	2	-88	-1	-7	-0	-12
	2(OPE)	-88	-75	187	-4	-35	-14
	4(OPE)	4	-87	3	-6	-1	-12
	6(SUS)	2	-87	-1	-6	-0	-12
	7(SUS)	2	-78	-1	-6	-0	-10
	MAX	-88/L2	-88/L1	187/L2	-7/L1	-35/L2	-14/L2
255		TYPE=Rigid +Y;					
	1(HYD)	117	-659	-94	0	0	0
	2(OPE)	223	-870	-136	0	0	0
	4(OPE)	121	-658	-97	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(SUS)	117	-657	-94	0	0	0
	7(SUS)	103	-582	-83	0	0	0
	MAX	223/L2	-870/L2	-136/L2			
280		TYPE=Rigid ANC;					
	1(HYD)	-71	203	95	0	17	49
	2(OPE)	383	419	219	76	-380	215
	4(OPE)	-72	204	98	-0	17	48
	6(SUS)	-70	203	95	0	17	48
	7(SUS)	-62	177	84	0	15	43
	MAX	383/L2	419/L2	219/L2	76/L2	-380/L2	215/L2
300		TYPE=Rigid ANC;					
	1(HYD)	-0	-151	0	-43	0	2
	2(OPE)	-579	-153	148	-43	425	2
	4(OPE)	-1	-150	0	-42	1	2
	6(SUS)	-0	-150	0	-42	0	2
	7(SUS)	-0	-144	0	-42	0	1
	MAX	-579/L2	-153/L2	148/L2	-43/L2	425/L2	2/L1
320		TYPE=Rigid ANC;					
	1(HYD)	2	-152	-1	-48	-1	-12
	2(OPE)	-88	-138	187	-41	-7	-14
	4(OPE)	4	-150	3	-47	-2	-12
	6(SUS)	2	-150	-1	-47	-1	-12
	7(SUS)	2	-137	-1	-43	-1	-10
	MAX	-88/L2	-152/L1	187/L2	-48/L1	-7/L2	-14/L2
340		TYPE=Rigid ANC;					
	1(HYD)	-71	155	95	-18	17	34
	2(OPE)	383	371	219	32	-380	291
	4(OPE)	-72	156	98	-20	17	34
	6(SUS)	-70	155	95	-18	17	34
	7(SUS)	-62	131	84	-16	15	30
	MAX	383/L2	371/L2	219/L2	32/L2	-380/L2	291/L2
370		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	0	0	0	0	0	0
	2(OPE)	0	0	0	0	0	0
	4(OPE)	0	0	0	0	0	0
	6(SUS)	0	0	0	0	0	0
	7(SUS)	0	0	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
390		TYPE=Rigid ANC;					
	1(HYD)	-71	155	95	-18	187	-245
	2(OPE)	383	371	219	32	14	-376
	4(OPE)	-72	156	98	-20	192	-247
	6(SUS)	-70	155	95	-18	187	-244
	7(SUS)	-62	131	84	-16	165	-205
	MAX	383/L2	371/L2	219/L2	32/L2	192/L4	-376/L2
410		TYPE=Rigid +Y;					
	1(HYD)	-4	-49	1	0	0	0
	2(OPE)	-7	-58	-16	0	0	0
	4(OPE)	-8	-47	-1	0	0	0
	6(SUS)	-4	-46	1	0	0	0
	7(SUS)	-4	-44	1	0	0	0
	MAX	-8/L4	-58/L2	-16/L2			
440		TYPE=Rigid +Y;					
	1(HYD)	-15	-128	-0	0	0	0
	2(OPE)	-33	-122	-16	0	0	0
	4(OPE)	-37	-125	-2	0	0	0
	6(SUS)	-15	-125	-0	0	0	0
	7(SUS)	-14	-129	-0	0	0	0
	MAX	-37/L4	-129/L7	-16/L2			

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 6 (SUS) W+P1
 CASE 7 (SUS) WNC
 CASE 18 (OCC) L18=L13+L6
 CASE 19 (OCC) L19=L14+L6
 CASE 20 (OCC) L20=L15+L6
 CASE 21 (OCC) L21=L16+L6
 CASE 22 (OCC) L22=L17+L6
 CASE 23 (EXP) L23=L2-L6
 CASE 24 (EXP) L24=L4-L6
 CASE 25 (EXP) L25=L2-L4

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (KPa)	LOADCASE 1 (HYD) WW+HP	
Ratio (%):	6.9 @Node 185	
Code Stress:	16718.5	Allowable Stress: 241316.5
Axial Stress:	2092.9 @Node 410	
Bending Stress:	15868.9 @Node 185	
Torsion Stress:	2385.9 @Node 250	
Hoop Stress:	4580.3 @Node 410	
Max Stress Intensity:	16761.6 @Node 185	

CODE STRESS CHECK PASSED : LOADCASE 6 (SUS) W+P1

Highest Stresses: (KPa)	LOADCASE 6 (SUS) W+P1	
Ratio (%):	29.0 @Node 185	
Code Stress:	39932.8	Allowable Stress: 137895.1
Axial Stress:	2626.5 @Node 230	
Bending Stress:	37292.6 @Node 185	
Torsion Stress:	5607.5 @Node 250	
Hoop Stress:	5509.9 @Node 25	
Max Stress Intensity:	40055.9 @Node 185	

CODE STRESS CHECK PASSED : LOADCASE 7 (SUS) WNC

Highest Stresses: (KPa)	LOADCASE 7 (SUS) WNC	
Ratio (%):	24.3 @Node 185	
Code Stress:	33496.4	Allowable Stress: 137895.1
Axial Stress:	475.6 @Node 260	
Bending Stress:	33370.9 @Node 185	
Torsion Stress:	4940.7 @Node 250	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	33496.4 @Node 185	

CODE STRESS CHECK PASSED : LOADCASE 18 (OCC) L18=L13+L6

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Various Load Cases

Highest Stresses: (KPa) LOADCASE 18 (OCC) L18=L13+L6
 Ratio (%): 22.0 @Node 185
 Code Stress: 40332.6 Allowable Stress: 183400.5
 Axial Stress: 2821.3 @Node 185
 Bending Stress: 37327.1 @Node 185
 Torsion Stress: 5585.3 @Node 250
 Hoop Stress: 5509.9 @Node 25
 Max Stress Intensity: 40391.6 @Node 185

CODE STRESS CHECK PASSED : LOADCASE 19 (OCC) L19=L14+L6

Highest Stresses: (KPa) LOADCASE 19 (OCC) L19=L14+L6
 Ratio (%): 22.3 @Node 185
 Code Stress: 40833.1 Allowable Stress: 183400.5
 Axial Stress: 2953.8 @Node 185
 Bending Stress: 37833.5 @Node 185
 Torsion Stress: 5545.2 @Node 250
 Hoop Stress: 5509.9 @Node 25
 Max Stress Intensity: 40892.1 @Node 185

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L6

Highest Stresses: (KPa) LOADCASE 20 (OCC) L20=L15+L6
 Ratio (%): 24.2 @Node 185
 Code Stress: 44422.0 Allowable Stress: 183400.5
 Axial Stress: 2626.2 @Node 230
 Bending Stress: 41767.7 @Node 185
 Torsion Stress: 4934.6 @Node 250
 Hoop Stress: 5509.9 @Node 25
 Max Stress Intensity: 44548.1 @Node 185

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L6

Highest Stresses: (KPa) LOADCASE 21 (OCC) L21=L16+L6
 Ratio (%): 26.2 @Node 185
 Code Stress: 48010.9 Allowable Stress: 183400.5
 Axial Stress: 2926.1 @Node 120
 Bending Stress: 45283.5 @Node 185
 Torsion Stress: 5608.9 @Node 250
 Hoop Stress: 5509.9 @Node 25
 Max Stress Intensity: 48198.1 @Node 185

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L6

Highest Stresses: (KPa) LOADCASE 22 (OCC) L22=L17+L6
 Ratio (%): 26.0 @Node 185
 Code Stress: 47726.7 Allowable Stress: 183400.5
 Axial Stress: 2813.6 @Node 300
 Bending Stress: 44971.2 @Node 185
 Torsion Stress: 5563.8 @Node 250
 Hoop Stress: 5509.9 @Node 25
 Max Stress Intensity: 47913.9 @Node 185

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 23 (EXP) L23=L2-L6

Highest Stresses: (KPa)	LOADCASE 23 (EXP) L23=L2-L6	
Ratio (%):	8.9 @Node 340	
Code Stress:	29659.2	Allowable Stress: 332464.3
Axial Stress:	434.1 @Node 185	
Bending Stress:	26441.0 @Node 300	
Torsion Stress:	12347.4 @Node 270	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	69887.3 @Node 340	

CODE STRESS CHECK PASSED : LOADCASE 24 (EXP) L24=L4-L6

Highest Stresses: (KPa)	LOADCASE 24 (EXP) L24=L4-L6	
Ratio (%):	0.1 @Node 430	
Code Stress:	282.0	Allowable Stress: 334063.8
Axial Stress:	40.8 @Node 440	
Bending Stress:	228.8 @Node 120	
Torsion Stress:	11.5 @Node 260	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	583.6 @Node 120	

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L4

Highest Stresses: (KPa)	LOADCASE 25 (EXP) L25=L2-L4	
Ratio (%):	8.9 @Node 340	
Code Stress:	29669.1	Allowable Stress: 332464.3
Axial Stress:	418.5 @Node 185	
Bending Stress:	26407.2 @Node 300	
Torsion Stress:	12335.9 @Node 270	
Hoop Stress:	0.0 @Node 20	
Max Stress Intensity:	69910.5 @Node 340	

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (SUS) W+P1
7 (SUS) WNC
8 (OPE) W+T2+P1+U1
9 (OPE) W+T2+P1-U1
10 (OPE) W+T2+P1+U2
11 (OPE) W+T2+P1+U3
12 (OPE) W+T2+P1-U3
13 (OCC) L13=L8-L4
14 (OCC) L14=L9-L4
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13+L6
19 (OCC) L19=L14+L6
20 (OCC) L20=L15+L6
21 (OCC) L21=L16+L6
22 (OCC) L22=L17+L6
23 (EXP) L23=L2-L6
24 (EXP) L24=L4-L6
25 (EXP) L25=L2-L4

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NOZZLE CHECK REPORT: Nozzle Loads Screening
Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T2+P1

CASE 6 (SUS) W+P1

CASE 7 (SUS) WNC

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
300		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	0	-150	1	0.130	2	1	42	0.060	
	6(SUS)	0	-150	0	0.130	2	0	42	0.060	
	7(SUS)	0	-144	0	0.124	1	0	42	0.060	
320		Absolute Method								
	Limits	1779	1157	1423		461	0	705		
	4(OPE)	3	-150	-4	0.130	-12	-2	47	0.067	
	6(SUS)	-1	-150	-2	0.130	-12	-1	47	0.067	
	7(SUS)	-1	-137	-2	0.118	-10	-1	43	0.061	

BNK-GCS-CN-033

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Line no.

Stress sketch

Input echo

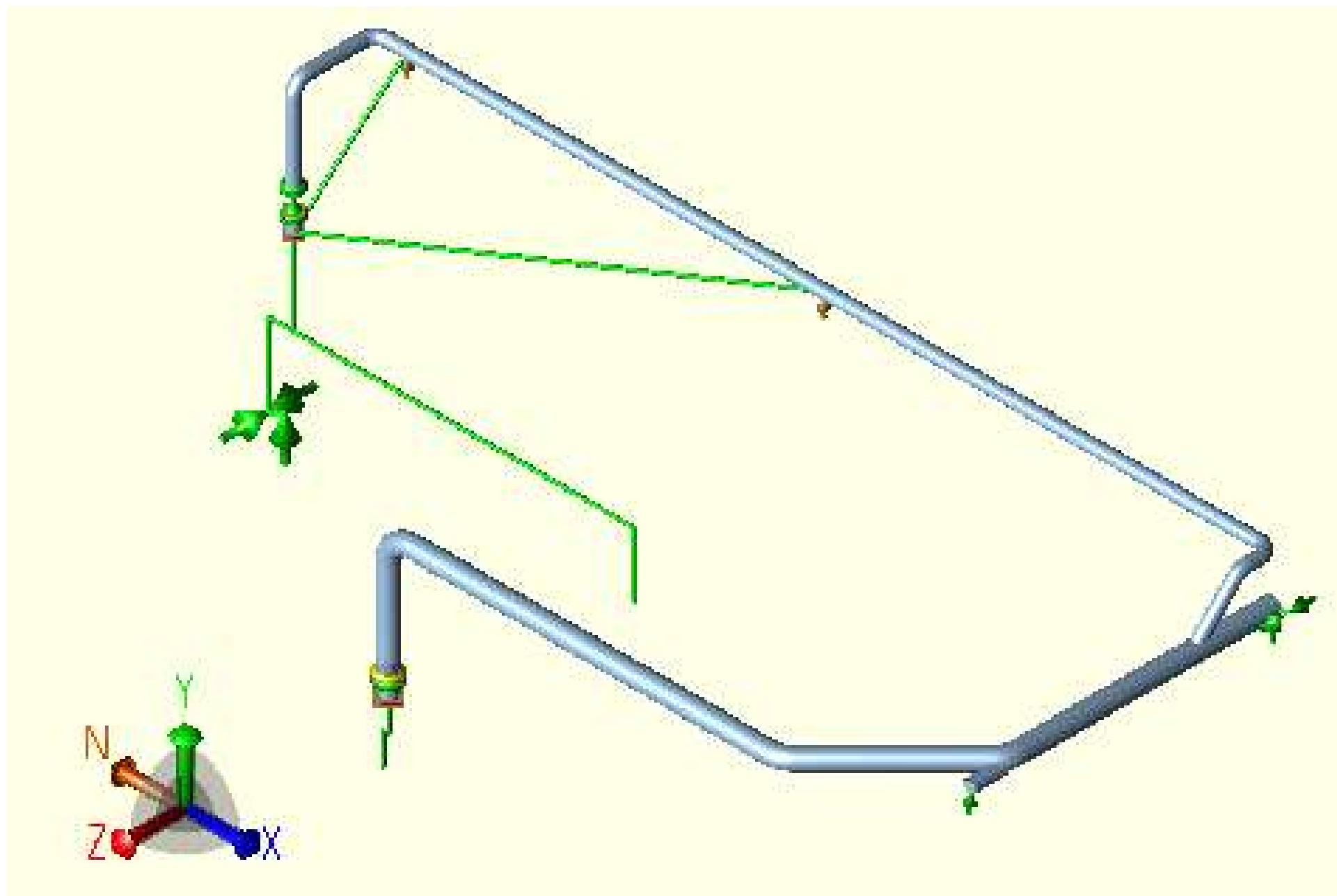
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. FL-112-0031-AN07-6"-PT



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 10 To 20 DY= .219 ft.

PIPE

Dia= 8.625 in. Wall= .406 in. Cor= .2362 in.

GENERAL

T1= 572 F T2= 392 F T3= 70 F P1= 79.7726 lb./sq.in.
 PHyd= 119.6589 lb./sq.in. Mat= (106)A106 Grade B
 E= 29,500,856 lb./sq.in. EH1= 26,868,274 lb./sq.in.
 EH2= 27,748,188 lb./sq.in. EH3= 29,500,106 lb./sq.in.
 EH4= 29,500,856 lb./sq.in. EH5= 29,500,856 lb./sq.in.
 EH6= 29,500,856 lb./sq.in. EH7= 29,500,856 lb./sq.in.
 EH8= 29,500,856 lb./sq.in. EH9= 29,500,856 lb./sq.in. v = .292
 Pipe Den= .2830000 lb./cu.in. Fluid Den= .0000542 lb./cu.in.
 Insul Thk= .000 in. Insul Den= .0000000 lb./cu.in.

RIGID Weight= 7.00 lb.

RESTRAINTS

Node 10 ANC Cnode 100

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's
 Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's
 Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 18,209 lb./sq.in. Sh2= 19,908 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 20 To 30 DY= .584 ft.

REDUCER

Diam2= 10.750 in. Wall2= .365 in.

 From 30 To 40 DY= .951 ft.

PIPE

Dia= 10.750 in. Wall= .365 in.
 Insul Thk= .000 in.

 From 40 To 50 DY= 4.626 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 49
 Angle/Node @2= .00 48

 From 50 To 60 DX= 20.341 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 59

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INPUT LISTING

Angle/Node @2= .00 58

From 60 To 70 DX= 5.906 ft. DZ= -5.906 ft.

BEND at "TO" end

Radius= 15.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 69

Angle/Node @2= .00 68

From 70 To 180 DZ= -9.557 ft.

SIF's & TEE's

Node 180 Welding Tee

From 180 To 80 DZ= -4.222 ft.

RESTRAINTS

Node 80 +Y Mu = .30

Node 80 Z Gap= .118 in.

From 70 To 90 DY= -.295 ft. DZ= .295 ft.

RIGID Weight= .00 lb.

SIF's & TEE's

Node 90 Unreinforced Tee

From 100 To 110 DY= -.344 ft.

PIPE

Dia= 8.625 in. Wall= .406 in. Cor= .2362 in.

GENERAL

T1= 572 F T2= 392 F P1= 79.7726 lb./sq.in. PHyd= 119.6589 lb./sq.in.

Fluid Den= .0000542 lb./cu.in. Insul Thk= .000 in.

RIGID Weight= 40.00 lb.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.

Sh1= 18,209 lb./sq.in. Sh2= 19,908 lb./sq.in. Sh3= 20,000 lb./sq.in.

Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

From 110 To 120 DY= -.666 ft.

RESTRAINTS

Node 120 ANC Cnode 130

From 130 To 140 DY= -1.663 ft.

PIPE

Dia= 39.921 in. Wall= .406 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 140 To 150 DX= -.295 ft.

RIGID Weight= .00 lb.

From 150 To 160 DY= -1.663 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 160 ANC

From 90 To 170 DZ= 1.640 ft.

PIPE

Dia= 6.625 in. Wall= .280 in. Cor= .0000 in.

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INPUT LISTING

GENERAL

T1= 70 F T2= 70 F P1= .0000 lb./sq.in. PHyd= .0000 lb./sq.in.
 Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in.
 EH1= 29,500,856 lb./sq.in. EH2= 29,500,856 lb./sq.in.
 EH3= 29,500,106 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000000 lb./cu.in. Insul Thk= .000 in.

RESTRAINTS

Node 170 +Y Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 180 To 190 DY= 2.507 ft. DZ= -2.507 ft.

PIPE

Dia= 6.625 in. Wall= .432 in. Cor= .2362 in.

GENERAL

T1= 572 F T2= 392 F P1= 79.7726 lb./sq.in. PHyd= 119.6589 lb./sq.in.
 Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in.
 EH1= 26,868,274 lb./sq.in. EH2= 27,748,188 lb./sq.in.
 EH3= 29,500,106 lb./sq.in. EH4= 29,500,856 lb./sq.in.
 EH5= 29,500,856 lb./sq.in. EH6= 29,500,856 lb./sq.in.
 EH7= 29,500,856 lb./sq.in. EH8= 29,500,856 lb./sq.in.
 EH9= 29,500,856 lb./sq.in. v = .292 Pipe Den= .2830000 lb./cu.in.
 Fluid Den= .0000542 lb./cu.in. Insul Thk= .000 in.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 189
 Angle/Node @2= .00 188

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in.
 Sh1= 18,209 lb./sq.in. Sh2= 19,908 lb./sq.in. Sh3= 20,000 lb./sq.in.
 Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in.
 Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in.
 Sy= 35,000 lb./sq.in.

 From 190 To 200 DZ= -1.719 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 199
 Angle/Node @2= .00 198

 From 200 To 280 DX= -23.310 ft.

RESTRAINTS

Node 280 +Y Cnode 281 Mu = .30

 From 280 To 290 DX= -21.637 ft.

RESTRAINTS

Node 290 +Y Cnode 291 Mu = .30

 From 290 To 300 DX= -1.640 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 299

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INPUT LISTING

Angle/Node @2= .00 298

From 300 To 310 DZ= 4.265 ft.

BEND at "TO" end

Radius= 9.000 in. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 309

Angle/Node @2= .00 308

From 310 To 320 DY= -4.649 ft.

From 320 To 330 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 330 To 340 DY= -.958 ft.

RIGID Weight= 226.00 lb.

RESTRAINTS

Node 340 ANC Cnode 341

From 341 To 350 DY= -.302 ft.

RIGID Weight= 25.00 lb.

From 350 To 360 DY= -.650 ft.

RESTRAINTS

Node 360 ANC Cnode 361

From 361 To 370 DY= -4.465 ft.

PIPE

Dia= 103.150 in. Wall= .432 in.

Insul Thk= .000 in.

RIGID Weight= .00 lb.

From 361 To 291 DX= 1.640 ft. DY= 6.861 ft. DZ= -4.265 ft.

RIGID Weight= .00 lb.

From 361 To 281 DX= 23.278 ft. DY= 6.861 ft. DZ= -4.265 ft.

RIGID Weight= .00 lb.

From 370 To 380 DX= -1.312 ft.

RIGID Weight= .00 lb.

From 380 To 390 DY= -4.298 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 390 +Y Mu = .30

Node 390 Z Gap= .118 in.

From 370 To 400 DX= 17.717 ft.

RIGID Weight= .00 lb.

From 400 To 410 DY= -3.314 ft.

RIGID Weight= .00 lb.

RESTRAINTS

Node 410 ANC

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Job:: BNK-GCS-CN-033-00

Licensed To:: SPLM: Edit company name in <system>\company.txt

INPUT LISTING

MATERIAL Changes:

10	20	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
90	170	Mat= (102)A53 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.
180	190	Mat= (106)A106 Grade B E= 29,500,856 lb./sq.in. v = .292 Density= .2830 lb./cu.in.

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JOBNAME: D:\BINAK PRO\NATIVE CAESAR FILE- SARKARI\BNK-GCS-CN-033-)\BNK-GCS-CN-0

ALLOWABLE STRESS Changes

10	20	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 18,209 lb./sq.in. Sh2= 19,908 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
100	110	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 18,209 lb./sq.in. Sh2= 19,908 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
90	170	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 20,000 lb./sq.in. Sh2= 20,000 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in. Sh5= 20,000 lb./sq.in. Sh6= 20,000 lb./sq.in. Sh7= 20,000 lb./sq.in. Sh8= 20,000 lb./sq.in. Sh9= 20,000 lb./sq.in. Sy= 35,000 lb./sq.in.
180	190	B31.3 (2016) Cycle Max Switch = --- Sc= 20,000 lb./sq.in. Sh1= 18,209 lb./sq.in. Sh2= 19,908 lb./sq.in. Sh3= 20,000 lb./sq.in. Sh4= 20,000 lb./sq.in.

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INPUT LISTING

Sh5= 20,000 lb./sq.in.

Sh6= 20,000 lb./sq.in.

Sh7= 20,000 lb./sq.in.

Sh8= 20,000 lb./sq.in.

Sh9= 20,000 lb./sq.in.

Sy= 35,000 lb./sq.in.

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BEND ELEMENTS

40	50	Radius= 15.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 49
		Angle/Node @2= .00 48
50	60	Radius= 15.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50 59
		Angle/Node @2= .00 58
60	70	Radius= 15.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50 69
		Angle/Node @2= .00 68
180	190	Radius= 9.000 in. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		189 Angle/Node @2= .00 188
190	200	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		199 Angle/Node @2= .00 198
290	300	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		299 Angle/Node @2= .00 298
300	310	Radius= 9.000 in. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		309 Angle/Node @2= .00 308

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RIGIDS

10	20	RIGID Weight= 7.00 lb.
70	90	RIGID Weight= .00 lb.
100	110	RIGID Weight= 40.00 lb.
130	140	RIGID Weight= .00 lb.
140	150	RIGID Weight= .00 lb.
150	160	RIGID Weight= .00 lb.
320	330	RIGID Weight= 25.00 lb.
330	340	RIGID Weight= 226.00 lb.
341	350	RIGID Weight= 25.00 lb.
361	370	RIGID Weight= .00 lb.
361	291	RIGID Weight= .00 lb.
361	281	RIGID Weight= .00 lb.
370	380	RIGID Weight= .00 lb.
380	390	RIGID Weight= .00 lb.
370	400	RIGID Weight= .00 lb.
400	410	RIGID Weight= .00 lb.

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INPUT LISTING

SIF's & TEE's

70 180 Node 180 Welding Tee
 70 90 Node 90 Unreinforced Tee
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REDUCERS

20 30 Diam2= 10.750 in. Wall2= .365 in.
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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
10	ANC	100				.000 .000 .000
80	+Y				.30	.000 1.000 .000
80	Z			.12		.000 .000 1.000
120	ANC	130				.000 .000 .000
160	ANC					.000 .000 .000
170	+Y				.30	.000 1.000 .000
280	+Y	281			.30	.000 1.000 .000
290	+Y	291			.30	.000 1.000 .000
340	ANC	341				.000 .000 .000
360	ANC	361				.000 .000 .000
390	+Y				.30	.000 1.000 .000
390	Z			.12		.000 .000 1.000
410	ANC					.000 .000 .000

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UNIFORM LOAD Changes

10 20 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's
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INPUT UNITS USED...

UNITS= ENGLISH NOM/SCH INPUT= ON

LENGTH	inches	x	1.000	=	in.
FORCE	pounds	x	1.000	=	lb.
MASS (dynamics)	pounds	x	1.000	=	lbm
MOMENTS (INPUT)	inch-pounds	x	1.000	=	in.lb.
MOMENTS (OUTPUT)	inch-pounds	x	0.083	=	ft.lb.
STRESS	lbs./sq.in.	x	1.000	=	lb./sq.in.
TEMP. SCALE	degrees F.	x	1.000	=	F
PRESSURE	psig	x	1.000	=	lb./sq.in.

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INPUT LISTING

ELASTIC MODULUS	lbs./sq.in.	x	1.000	=	lb./sq.in.
PIPE DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
INSULATION DENS.	lbs./cu.in.	x	1.000	=	lb./cu.in.
FLUID DENSITY	lbs./cu.in.	x	1.000	=	lb./cu.in.
TRANSL. STIF	lbs./in.	x	1.000	=	lb./in.
ROTATIONAL STIF	in.lb./deg.	x	1.000	=	in.lb./deg
UNIFORM LOAD	lb./in.	x	1.000	=	lb./in.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	144.000	=	lb./sq.ft.
ELEVATION	inches	x	0.083	=	ft.
COMPOUND LENGTH	inches	x	0.083	=	ft.
DIAMETER	inches	x	1.000	=	in.
WALL THICKNESS	inches	x	1.000	=	in.

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SETUP FILE PARAMETERS

```

CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =              5.00000
MAX ALLOWED BEND ANGLE =              95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =       5.00000
LOOP CLOSURE TOLERANCE =              1.00000      in.
THERMAL BOWING HORZ TOLERANCE =       0.100000E-03
AUTO NODE NUMBER INCREMENT=          10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =             DEFAULT
ALPHA TOLERANCE =                     0.500000E-01
RESLD-FORCE =                         NO
HGR DEF RESWGT STIF =                  0.100000E+13 lb./in.
DECOMP SNG TOL =                       0.100000E+11
BEND AXIAL SHAPE =                     YES
FRICT STIF =                           0.100000E+07 lb./in.
FRICT NORM FORCE VAR =                  0.150000
FRICT ANGLE VAR =                       15.0000
FRICT SLIDE MULT =                     1.00000
ROD TOLERANCE =                        1.00000
ROD INC =                              2.00000
INCORE NUMERICAL CHECK =               NO
OUTCORE NUMERICAL CHECK =              NO
DEFAULT TRANS RESTRAINT STIFF=         0.100000E+13      lb./in.
DEFAULT ROT RESTRAINT STIFF=           0.100000E+13 in.lb./deg
IGNORE SPRING HANGER STIFFNESS =      NO
MISSING MASS ZPA =                     EXTRACTED
MIN WALL MILL TOLERANCE =              12.5000
WRC-107 VERSION =                      MAR 79 1B1/2B1
WRC-107 INTERPOLATION =                LAST VALUE
DEFAULT AMBIENT TEMPERATURE=           70.0000      F
BOURDON PRESSURE=                      NONE
COEFFICIENT OF FRICTION (MU) =         0.000000
INCLUDE SPRG STIF IN HGR OPE =         NO
INCLUDE INSULATION IN HYDROTEST =      NO
REDUCED INTERSECTION =                 B31.1 (POST1980)
USE WRC329                             NO
NO REDUCED SIF FOR RFT AND WLT         NO
B31.1 REDUCED Z FIX =                  YES

```


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INPUT LISTING

CLASS 1 BRANCH FLEX	NO
ALL STRESS CASES CORRODED =	NO
ADD TORSION IN SL STRESS =	DEFAULT
ADD F/A IN STRESS =	DEFAULT
OCCASIONAL LOAD FACTOR =	0.000000
DEFAULT CODE =	B31.3
B31.3 SUS CASE SIF FACTOR =	0.000000
ALLOW USERS BEND SIF =	NO
USE SCHNEIDER	NO
YIELD CRITERION STRESS =	MAX 3D SHEAR
USE PD/4T	NO
BASE HOOP STRESS ON ? =	ID
EN13480 USE IN OUTPLANE SIFS=	NO
LIBERAL EXPANSION ALLOWABLE=	YES
B31.3 SEC 319.2.3C SAXIAL=	Default
B31.3 WELDING/CONTOUR TEE ISB16.9	FALSE
PRESSURE VARIATION IN EXP CASE=	DEFAULT
IMPLEMENT B313 APP-P	NO
IMPLEMENT B313 CODE CASE 178	YES
IGNORE B31.1/B31.3 Wc FACTOR=	YES
USE FRP SIF =	YES
USE FRP FLEX =	YES
BS 7159 Pressure Stiffening=	Design Strain
FRP Property Data File=	CAESAR.FRP
FRP Emod (axial) =	0.320000E+07 lb./sq.in.
FRP Ratio Gmod/Emod (axial) =	0.250000
FRP Ea/Eh*Vh/a =	0.152730
FRP Laminate Type =	THREE
FRP Alpha =	12.0000 F
FRP Density =	0.600000E-01 lb./cu.in.
EXCLUDE f2 FROM UKOOA BENDING =	NO

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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag	1.000
Bourdon Option	.000
Loop Closure Flag	2.000
Thermal Bowing Delta Temp ..	.000 F
Liberal Allowable Flag	1.000
Uniform Load Option	1.000
Ambient Temperature	69.794 F
Plastic (FRP) Alpha	12.000
Plastic (FRP) GMOD/EMODa ...	.250
Plastic (FRP) Laminate Type.	3.000
Eqn Optimizer	.000
Node Selection	.000
Eqn Ordering	.000
Collins	.000
Degree Determination	.000
User Eqn Control	.000
North Direction	-X

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INPUT LISTING

COORDINATE REPORT

```

/----- (in.) -----/
NODE      X      Y      Z
  10      -618.113    -291.169    288.355
  20      -618.113    -288.544    288.355
  30      -618.113    -281.536    288.355
  40      -618.113    -270.118    288.355
  50      -618.113    -214.607    288.355
  60      -374.019    -214.607    288.355
  70      -303.153    -214.607    217.489
 180      -303.153    -214.607    102.804
  80      -303.153    -214.607     52.135
  70      -303.153    -214.607    217.489
  90      -303.153    -218.142    221.025
  10      -618.113    -291.169    288.355
 110      -618.113    -295.294    288.355
 120      -618.113    -303.286    288.355
 140      -618.113    -323.246    288.355
 150      -621.657    -323.246    288.355
 160      -621.657    -343.207    288.355
  90      -303.153    -218.142    221.025
 170      -303.153    -218.142    240.710
 180      -303.153    -214.607    102.804
 190      -303.153    -184.528     72.725
 200      -303.153    -184.528     52.095
 280      -582.877    -184.528     52.095
 290      -842.523    -184.528     52.095
 300      -862.208    -184.528     52.095
 310      -862.208    -184.528    103.276
 320      -862.208    -240.315    103.276
 330      -862.208    -243.940    103.276
 340      -862.208    -255.436    103.276
 350      -862.208    -259.061    103.276
 360      -862.208    -266.857    103.276
 370      -862.208    -320.439    103.276
 360      -862.208    -266.857    103.276
 290      -842.523    -184.528     52.095
 360      -862.208    -266.857    103.276
 280      -582.877    -184.528     52.095
 370      -862.208    -320.439    103.276
 380      -877.956    -320.439    103.276
 390      -877.956    -372.014    103.276
 370      -862.208    -320.439    103.276
 400      -649.609    -320.439    103.276
 410      -649.609    -360.203    103.276

```

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP

CASE 2 (OPE) W+T1+P1

CASE 4 (OPE) W+T2+P1

CASE 6 (OPE) W+T3+P1

CASE 8 (SUS) W+P1

CASE 9 (SUS) WNC

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
10		TYPE=Rigid ANC;					
	1(HYD)	-365	-1509	38	880.1	-44.0	-685.0
	2(OPE)	-508	-912	392	2174.7	-4472.5	-462.2
	4(OPE)	-375	-875	226	1407.7	-2495.4	-488.4
	6(OPE)	-205	-824	21	469.2	-28.6	-344.2
	8(SUS)	-201	-824	21	466.4	-26.1	-363.7
	9(SUS)	-201	-823	21	465.8	-26.1	-363.2
	MAX	-508/L2	-1509/L1	392/L2	2174.7/L2	-4472.5/L2	-685.0/L1
80		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	282	-941	-6	0.0	0.0	0.0
	2(OPE)	157	-526	-511	0.0	0.0	0.0
	4(OPE)	166	-558	-307	0.0	0.0	0.0
	6(OPE)	182	-606	-7	0.0	0.0	0.0
	8(SUS)	182	-606	-4	0.0	0.0	0.0
	9(SUS)	182	-606	-4	0.0	0.0	0.0
	MAX	282/L1	-941/L1	-511/L2			
120		TYPE=Rigid ANC;					
	1(HYD)	-365	-1594	38	918.2	-44.0	-316.7
	2(OPE)	-508	-976	392	2570.2	-4472.5	50.7
	4(OPE)	-375	-939	226	1635.8	-2495.4	-109.2
	6(OPE)	-205	-888	21	490.5	-28.6	-137.6
	8(SUS)	-201	-888	21	487.2	-26.1	-160.9
	9(SUS)	-201	-887	21	486.5	-26.1	-160.7
	MAX	-508/L2	-1594/L1	392/L2	2570.2/L2	-4472.5/L2	-316.7/L1
160		TYPE=Rigid ANC;					
	1(HYD)	-365	-1594	38	1043.9	-55.1	425.8
	2(OPE)	-508	-976	392	3873.2	-4588.1	1452.4
	4(OPE)	-375	-939	226	2387.4	-2562.1	862.7
	6(OPE)	-205	-888	21	560.8	-34.8	281.1
	8(SUS)	-201	-888	21	555.7	-32.2	245.2
	9(SUS)	-201	-887	21	555.0	-32.2	244.9
	MAX	-508/L2	-1594/L1	392/L2	3873.2/L2	-4588.1/L2	1452.4/L2

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
170		TYPE=Rigid +Y;					
	1(HYD)	437	-1754	-9	0.0	0.0	0.0
	2(OPE)	248	-883	94	0.0	0.0	0.0
	4(OPE)	262	-916	85	0.0	0.0	0.0
	6(OPE)	247	-960	0	0.0	0.0	0.0
	8(SUS)	243	-960	-2	0.0	0.0	0.0
	9(SUS)	243	-959	-2	0.0	0.0	0.0
	MAX	437/L1	-1754/L1	94/L2			
280		TYPE=Rigid +Y;					
	1(HYD)	-230	-1074	-36	0.0	0.0	0.0
	2(OPE)	46	-895	38	0.0	0.0	0.0
	4(OPE)	-47	-842	-6	0.0	0.0	0.0
	6(OPE)	-143	-764	-23	0.0	0.0	0.0
	8(SUS)	-142	-764	-23	0.0	0.0	0.0
	9(SUS)	-142	-764	-23	0.0	0.0	0.0
	MAX	-230/L1	-1074/L1	38/L2			
290		TYPE=Rigid +Y;					
	1(HYD)	-75	-553	51	0.0	0.0	0.0
	2(OPE)	40	-298	-23	0.0	0.0	0.0
	4(OPE)	0	-340	15	0.0	0.0	0.0
	6(OPE)	-43	-400	36	0.0	0.0	0.0
	8(SUS)	-43	-399	36	0.0	0.0	0.0
	9(SUS)	-43	-399	36	0.0	0.0	0.0
	MAX	-75/L1	-553/L1	51/L1			
340		TYPE=Rigid ANC;					
	1(HYD)	-33	-453	-39	-35.4	94.7	-86.4
	2(OPE)	5	-423	10	55.8	17.4	-57.4
	4(OPE)	-11	-406	-12	-7.0	33.9	-34.6
	6(OPE)	-24	-384	-28	-23.8	68.9	-65.3
	8(SUS)	-24	-384	-28	-23.5	68.9	-65.4
	9(SUS)	-24	-384	-28	-23.5	68.9	-65.4
	MAX	-33/L1	-453/L1	-39/L1	55.8/L2	94.7/L1	-86.4/L1
360		TYPE=Rigid ANC;					
	1(HYD)	-33	-508	-39	-72.9	94.7	-54.8
	2(OPE)	5	-467	10	65.3	17.4	-61.9
	4(OPE)	-11	-449	-12	-18.5	33.9	-24.0
	6(OPE)	-24	-428	-28	-50.8	68.9	-42.8
	8(SUS)	-24	-428	-28	-50.5	68.9	-43.0
	9(SUS)	-24	-428	-28	-50.5	68.9	-43.0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.
	MAX	-33/L1	-508/L1	-39/L1	-72.9/L1	94.7/L1	-61.9/L2
390		TYPE=Rigid +Y; Rigid Z w/gap;					
	1(HYD)	-26	-750	30	0.0	0.0	0.0
	2(OPE)	-107165	-357216	1	0.0	0.0	0.0
	4(OPE)	-66143	-220478	2	0.0	0.0	0.0
	6(OPE)	-215	-720	16	0.0	0.0	0.0
	8(SUS)	-19	-578	20	0.0	0.0	0.0
	9(SUS)	-19	-578	20	0.0	0.0	0.0
	MAX	-107165/L2	- 357216/L2	30/L1			
410		TYPE=Rigid ANC;					
	1(HYD)	-313	-1385	-53	-7063.1	1161.1	2342.3
	2(OPE)	101624	355556	23	-4734.3	-773.4	-6690752.5
	4(OPE)	62586	218846	-5	-5021.4	253.9	-4124305.3
	6(OPE)	-15	-872	-30	-5025.5	796.4	-889.4
	8(SUS)	-190	-1014	-35	-5018.5	685.9	1615.5
	9(SUS)	-190	-1013	-35	-5015.4	685.3	1614.4
	MAX	101624/L2	355556/L2	-53/L1	-7063.1/L1	1161.1/L1	- 6690752.5/L2

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP
2 (OPE) W+T1+P1
3 (Alt-SUS) W+P1
4 (OPE) W+T2+P1
5 (Alt-SUS) W+P1
6 (OPE) W+T3+P1
7 (Alt-SUS) W+P1
8 (SUS) W+P1
9 (SUS) WNC
10 (OPE) W+T2+P1+U1
11 (OPE) W+T2+P1-U1
12 (OPE) W+T2+P1+U2
13 (OPE) W+T2+P1+U3
14 (OPE) W+T2+P1-U3
15 (OCC) L15=L10-L4
16 (OCC) L16=L11-L4
17 (OCC) L17=L12-L4
18 (OCC) L18=L13-L4
19 (OCC) L19=L14-L4
20 (OCC) L20=L15+L8
21 (OCC) L21=L16+L8
22 (OCC) L22=L17+L8
23 (OCC) L23=L18+L8
24 (OCC) L24=L19+L8
25 (EXP) L25=L2-L8
26 (EXP) L26=L4-L8
27 (EXP) L27=L2-L4

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP
 CASE 8 (SUS) W+P1
 CASE 9 (SUS) WNC
 CASE 20 (OCC) L20=L15+L8
 CASE 21 (OCC) L21=L16+L8
 CASE 22 (OCC) L22=L17+L8
 CASE 23 (OCC) L23=L18+L8
 CASE 24 (OCC) L24=L19+L8
 CASE 25 (EXP) L25=L2-L8
 CASE 26 (EXP) L26=L4-L8
 CASE 27 (EXP) L27=L2-L4

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP

Highest Stresses: (lb./sq.in.) LOADCASE 1 (HYD) WW+HP			
Ratio (%):	46.8	@Node	90
Code Stress:	16367.6	Allowable Stress:	35000.0
Axial Stress:	791.9	@Node	80
Bending Stress:	21821.5	@Node	90
Torsion Stress:	420.1	@Node	60
Hoop Stress:	1642.4	@Node	30
Max Stress Intensity:	21823.0	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 8 (SUS) W+P1

Highest Stresses: (lb./sq.in.) LOADCASE 8 (SUS) W+P1			
Ratio (%):	44.8	@Node	90
Code Stress:	8952.4	Allowable Stress:	20000.0
Axial Stress:	1604.4	@Node	80
Bending Stress:	11936.0	@Node	90
Torsion Stress:	622.9	@Node	60
Hoop Stress:	3249.8	@Node	30
Max Stress Intensity:	11936.4	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 9 (SUS) WNC

Highest Stresses: (lb./sq.in.) LOADCASE 9 (SUS) WNC			
Ratio (%):	44.7	@Node	90
Code Stress:	8941.4	Allowable Stress:	20000.0
Axial Stress:	196.6	@Node	120
Bending Stress:	11921.3	@Node	90
Torsion Stress:	622.1	@Node	60
Hoop Stress:	0.0	@Node	20
Max Stress Intensity:	11921.7	@Node	90

CODE STRESS CHECK PASSED : LOADCASE 20 (OCC) L20=L15+L8

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Highest Stresses: (lb./sq.in.) LOADCASE 20 (OCC) L20=L15+L8

Ratio (%) :	40.6	@Node	180	
Code Stress:	9843.2	Allowable Stress:		24217.3
Axial Stress:	1635.6	@Node	50	
Bending Stress:	12346.5	@Node	180	
Torsion Stress:	679.3	@Node	60	
Hoop Stress:	3249.8	@Node	30	
Max Stress Intensity:	13118.3	@Node	180	

CODE STRESS CHECK PASSED : LOADCASE 21 (OCC) L21=L16+L8

Highest Stresses: (lb./sq.in.) LOADCASE 21 (OCC) L21=L16+L8

Ratio (%) :	40.5	@Node	180	
Code Stress:	9815.5	Allowable Stress:		24217.3
Axial Stress:	1598.0	@Node	80	
Bending Stress:	12300.0	@Node	180	
Torsion Stress:	651.1	@Node	180	
Hoop Stress:	3249.8	@Node	30	
Max Stress Intensity:	13085.6	@Node	180	

CODE STRESS CHECK PASSED : LOADCASE 22 (OCC) L22=L17+L8

Highest Stresses: (lb./sq.in.) LOADCASE 22 (OCC) L22=L17+L8

Ratio (%) :	37.6	@Node	90	
Code Stress:	10002.3	Allowable Stress:		26600.0
Axial Stress:	1604.6	@Node	80	
Bending Stress:	13335.3	@Node	90	
Torsion Stress:	546.3	@Node	60	
Hoop Stress:	3249.8	@Node	30	
Max Stress Intensity:	13336.1	@Node	90	

CODE STRESS CHECK PASSED : LOADCASE 23 (OCC) L23=L18+L8

Highest Stresses: (lb./sq.in.) LOADCASE 23 (OCC) L23=L18+L8

Ratio (%) :	36.4	@Node	180	
Code Stress:	8819.7	Allowable Stress:		24217.3
Axial Stress:	1676.4	@Node	80	
Bending Stress:	12185.0	@Node	90	
Torsion Stress:	707.1	@Node	60	
Hoop Stress:	3249.8	@Node	30	
Max Stress Intensity:	12191.5	@Node	90	

CODE STRESS CHECK PASSED : LOADCASE 24 (OCC) L24=L19+L8

Highest Stresses: (lb./sq.in.) LOADCASE 24 (OCC) L24=L19+L8

Ratio (%) :	37.5	@Node	180	
Code Stress:	9083.0	Allowable Stress:		24217.3
Axial Stress:	1557.6	@Node	70	
Bending Stress:	12261.3	@Node	90	
Torsion Stress:	593.4	@Node	60	
Hoop Stress:	3249.8	@Node	30	
Max Stress Intensity:	12262.6	@Node	90	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 25 (EXP) L25=L2-L8

Highest Stresses: (lb./sq.in.) LOADCASE 25 (EXP) L25=L2-L8
 Ratio (%): 9.0 @Node 50
 Code Stress: 4003.1 Allowable Stress: 44266.1
 Axial Stress: 42.7 @Node 80
 Bending Stress: 3968.5 @Node 50
 Torsion Stress: 1296.5 @Node 20
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 10620.2 @Node 50

CODE STRESS CHECK PASSED : LOADCASE 26 (EXP) L26=L4-L8

Highest Stresses: (lb./sq.in.) LOADCASE 26 (EXP) L26=L4-L8
 Ratio (%): 4.9 @Node 50
 Code Stress: 2274.3 Allowable Stress: 46390.5
 Axial Stress: 25.6 @Node 80
 Bending Stress: 2254.8 @Node 50
 Torsion Stress: 720.0 @Node 20
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 6033.7 @Node 50

CODE STRESS CHECK PASSED : LOADCASE 27 (EXP) L27=L2-L4

Highest Stresses: (lb./sq.in.) LOADCASE 27 (EXP) L27=L2-L4
 Ratio (%): 3.9 @Node 50
 Code Stress: 1732.3 Allowable Stress: 44151.1
 Axial Stress: 17.7 @Node 68
 Bending Stress: 1717.2 @Node 50
 Torsion Stress: 576.5 @Node 20
 Hoop Stress: 0.0 @Node 20
 Max Stress Intensity: 4595.8 @Node 50

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Stress summary

Nozzle load Table

LINE NO.:

1.GAS-111-0031A-AN05-8"-ET

2.GAS-111-0036A-CN05-6"-PT

3.GAS-111-0032A-CN05-2"-PT

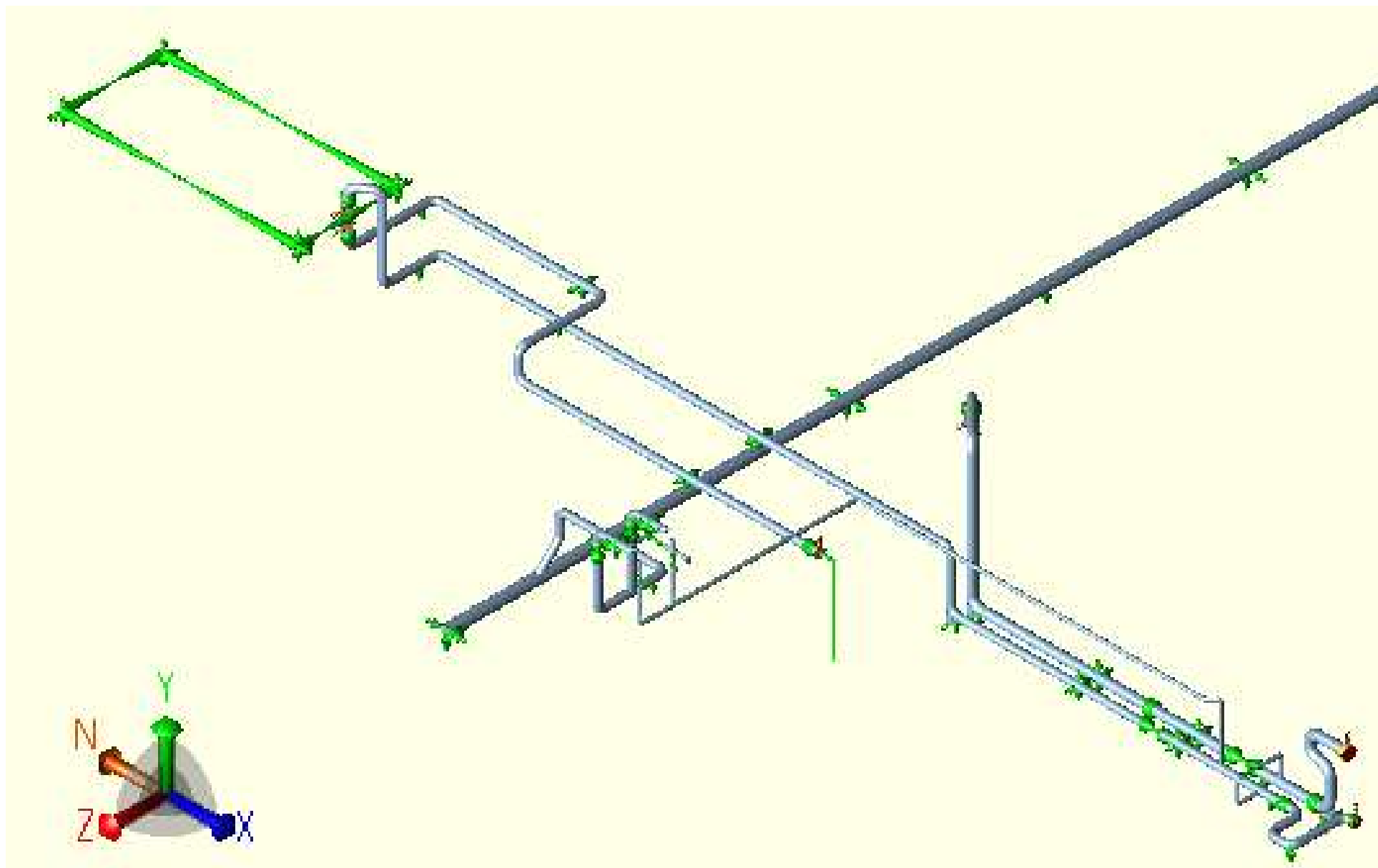
4.GAS-111-0033A-CN05-2"-PT

5.FL-112-0015A-AN07-2"-PT

6.FL-112-0014A-AN07-6"-PT

7.FL-112-0016A-AN07-6"-PT

8.GAS-111-0037A-CS00-6"-NP



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

From 20 To 40 DX= -.105 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm. Cor= .3000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 20 C T2= 85 C T3= 21 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 203,452,944 KPa

EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000058 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 177.93 N.

RESTRAINTS

Node 20 ANC

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 20 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.

FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.

MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 40 To 60 DX= -1.065 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59

Angle/Node @2= .00 58

From 60 To 80 DY= -.610 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

From 80 To 100 DX= .610 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99

From 100 To 120 DY= -.871 m.

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INPUT LISTING

From 120 To 140 DY= -.305 m.

RIGID Weight= .00 N.

From 140 To 160 DY= -.200 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 160 -X Mu = .30

Node 160 Z

Node 121 +Y Mu = .10

Node 160 X Cnode 121

HANGERS

Hanger Node = 160 Hanger Connecting Node = 121

Available Space = -100.0000 cm. Allowed Load Variation = 25.0000

No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N.

Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./cm.

Theoretical Cold Load = .00 N.

SIF's & TEE's

Node 140 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 120 To 180 DY= -.305 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm.

GENERAL

T1= 36 C T2= 85 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Fluid Den= .0000058 kg./cu.cm. Insul Thk= .000 cm.

DOUBLE FLANGED BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 180 To 200 DX= -.305 m.

From 200 To 220 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 220 To 240 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 240 To 260 DX= -.700 m.

From 260 To 280 DX= -.248 m.

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INPUT LISTING

SIF's & TEE's

Node 280 Weldolet

From 280 To 300 DX= -.500 m.

RESTRAINTS

Node 300 +Y Mu = .30

From 300 To 320 DX= -.200 m.

From 320 To 340 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 340 To 360 DX= -.573 m.

Element Name= GATE_NOFLG_300

RIGID Weight= 1,023.41 N.

From 360 To 380 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 380 To 400 DX= -1.000 m.

RESTRAINTS

Node 400 Y Mu = .30

Node 400 Z

From 400 To 420 DX= -1.288 m.

From 420 To 440 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 440 To 460 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 460 To 480 DX= -1.500 m.

RESTRAINTS

Node 480 Y Mu = .30

Node 480 Z

From 480 To 500 DX= -3.805 m.

SINGLE FLANGED BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

From 500 To 520 DY= .305 m.

From 520 To 540 DY= -.305 m.

RIGID Weight= .00 N.

From 540 To 560 DY= -.300 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

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INPUT LISTING

Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 560 +Y Mu = .30

Node 560 Z

SIF's & TEE's

Node 540 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 520 To 580 DY= 3.935 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm.

GENERAL

T1= 36 C T2= 85 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Fluid Den= .0000058 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 579

Angle/Node @2= .00 578

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 580 To 600 DX= -.354 m. DZ= -.354 m.

From 600 To 620 DX= -.354 m. DZ= -.354 m.

From 620 To 640 DY= -.084 m.

RIGID Weight= .00 N.

From 640 To 660 DY= -.300 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 660 +Y Cnode 800 Mu = .30

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 620 To 680 DX= -.543 m. DZ= -.543 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm.

GENERAL

T1= 36 C T2= 85 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Fluid Den= .0000058 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 679

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INPUT LISTING

Angle/Node @2= .00 678

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 680 To 700 DY= -.305 m.

 From 700 To 720 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

RESTRAINTS

Node 720 ANC Cnode 740

 From 740 To 760 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 760 To 780 DY= -.181 m.

RESTRAINTS

Node 780 ANC Cnode 820

EQUIPMENT LIMITS

Nozzle Node = 780 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.
 FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.
 MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute

 From 780 To 800 DX= .543 m. DY= .313 m. DZ= .543 m.

RIGID Weight= .00 N.

 From 820 To 840 DY= -3.065 m.

PIPE

Dia= 91.440 cm. Wall= 1.500 cm.

GENERAL

Mat= (383)A516 70 E= 203,401,232 KPa EH1= 202,155,536 KPa
 EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= .00 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 160,648 KPa
 Sh1= 160,648 KPa Sh2= 160,062 KPa Sh3= 160,648 KPa Sh4= 160,648 KPa
 Sh5= 160,648 KPa Sh6= 160,648 KPa Sh7= 160,648 KPa Sh8= 160,648 KPa
 Sh9= 160,648 KPa Sy= 262,001 KPa

 From 840 To 860 DY= -1.200 m.

PIPE

Dia= 91.440 cm. Wall= 1.200 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

RESTRAINTS

Node 860 ANC

 From 280 To 880 DY= .743 m.

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PIPE

Dia= 6.032 cm. Wall= .874 cm.

GENERAL

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 202,155,536 KPa

EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879

Angle/Node @2= .00 878

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 880 To 900 DZ= .510 m.

From 900 To 910 DZ= .067 m.

Element Name= BALL_FLG_600

GENERAL

T1= 125 C T2= 155 C P1= 1,900.0433 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000430 kg./cu.cm.

RIGID Weight= 31.14 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 910 To 920 DZ= .301 m.

RIGID Weight= 66.72 N.

From 920 To 930 DZ= .275 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm. Element Name= CHECK_FLG_150

GENERAL

P1= 2,200.0500 KPa Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= 355.86 N.

From 930 To 940 DZ= .073 m.

RIGID Weight= 44.48 N.

From 940 To 960 DZ= .077 m.

SINGLE FLANGED BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 959

Angle/Node @2= .00 958

From 960 To 980 DY= -.652 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979

Angle/Node @2= .00 978

From 980 To 1000 DZ= -.077 m.

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From 1000 To 1020 DZ= -.621 m.
  Element Name= CHECK_FLG_600
-----
From 1020 To 1040 DX= .300 m.
PIPE
  Dia= 16.827 cm. Wall= .711 cm.
GENERAL
  Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.
RESTRAINTS
  Node 1040 +Y Mu = .30
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 1040 To 1060 DX= .318 m.
-----
From 1060 To 1080 DX= .102 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 191.27 N.
-----
From 1080 To 1100 DX= .102 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 191.27 N.
-----
From 1100 To 1120 DX= .390 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1119
  Angle/Node @2= .00 1118
-----
From 1120 To 1140 DZ= 1.000 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1139
  Angle/Node @2= .00 1138
-----
From 1140 To 1160 DX= .466 m.
-----
From 1160 To 1180 DX= .233 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1179
  Angle/Node @2= .00 1178
RESTRAINTS
  Node 1180 -X Mu = .30
  Node 1180 +Y Mu = .30
-----
From 1180 To 1200 DZ= -1.600 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1199
  Angle/Node @2= .00 1198
-----
From 1200 To 1220 DX= .229 m.
-----
From 1220 To 1240 DX= .102 m.
  Element Name= FLANGE_FLG_600
RIGID Weight= 191.27 N.

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RESTRAINTS

Node 1240 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 1240
 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 7,200.36 N. FB= 7,200.36 N.
 FC= 5,400.27 N. MA= 3,240.14 N.m. MB= 2,160.09 N.m. MC= 2,810.12 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

 From 1020 To 1260 DX= -1.208 m.

SIF's & TEE's

Node 1260 Weldolet

 From 1260 To 1280 DX= -1.275 m.

RESTRAINTS

Node 1280 Y Mu = .30

Node 1280 Z

 From 1280 To 1300 DX= -.368 m.

 From 1300 To 1320 DX= -.102 m.

Element Name= FLANGE_FLG_600

RIGID Weight= 191.27 N.

 From 1320 To 1340 DX= -.453 m.

Element Name= CHECK_NOFLG_600

RIGID Weight= 1,850.46 N.

 From 1340 To 1360 DX= -.102 m.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 191.27 N.

 From 1360 To 1380 DX= -1.973 m.

RESTRAINTS

Node 1380 Y Mu = .30

Node 1380 Z

 From 1380 To 1400 DX= -3.826 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399

Angle/Node @2= .00 1398

 From 1400 To 1420 DY= .229 m.

 From 1420 To 1440 DY= -.229 m.

RIGID Weight= .00 N.

 From 1440 To 1460 DY= -.300 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

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T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa
 Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 1460 +Y Mu = .30
 Node 1460 Z

SIF's & TEE's

Node 1440 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1420 To 1480 DY= 1.455 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

GENERAL

T1= 125 C T2= 155 C P1= 1,900.0433 KPa PHyd= 3,300.0752 KPa
 Fluid Den= .0000154 kg./cu.cm. Insul Thk= 4.000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479
 Angle/Node @2= .00 1478

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1480 To 1500 DX= -5.760 m.

RESTRAINTS

Node 1500 +Y
 Node 1500 Z

 From 1500 To 1520 DX= -6.000 m.

RESTRAINTS

Node 1520 +Y Mu = .30

 From 1520 To 1540 DX= -3.570 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1539
 Angle/Node @2= .00 1538

 From 1540 To 1560 DZ= .600 m.

RESTRAINTS

Node 1560 +Y Mu = .30

 From 1560 To 1580 DZ= 1.117 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1579
 Angle/Node @2= .00 1578

 From 1580 To 1600 DY= 2.487 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599
 Angle/Node @2= .00 1598

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From 1600 To 1620 DX= -.618 m. DZ= .432 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619
  Angle/Node @2= .00 1618
-----
From 1620 To 1640 DY= -.229 m.
-----
From 1640 To 1660 DY= -.102 m.
  Element Name= FLANGE_NOFLG_600
RIGID Weight= 191.27 N.
-----
From 1660 To 1680 DY= -.102 m.
  Element Name= FLANGE_NOFLG_600
RIGID Weight= 191.27 N.
-----
From 1680 To 1700 DY= -.127 m.
RESTRAINTS
  Node 1700 ANC Cnode 1720
EQUIPMENT LIMITS
  Nozzle Node = 1700
  Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
  FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
  Equipment Major Direction Vector= .0000 .0000 1.0000
  Interact. Mtd= Absolute
-----
From 1720 To 1740 DY= -.240 m.
GENERAL
  P1= 2,200.0500 KPa
RIGID Weight= .00 N.
-----
From 1740 To 1760 DY= -.240 m.
RIGID Weight= .00 N.
-----
From 1780 To 1800 DY= -.127 m.
GENERAL
  T1= 60 C
RESTRAINTS
  Node 1780 ANC Cnode 1760
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
EQUIPMENT LIMITS
  Nozzle Node = 1780
  Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
  FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
  Equipment Major Direction Vector= .0000 .0000 1.0000
  Interact. Mtd= Absolute
-----
From 1800 To 1820 DY= -.102 m.
  Element Name= FLANGE_NOFLG_150
RIGID Weight= 191.27 N.
-----
From 1740 To 1840 DZ= 1.500 m.
GENERAL

```

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T1= 142 C    T2= 175 C
RIGID Weight= 2,250.11 N.
RESTRAINTS
  Node 1840 Y Mu = .10
  Node 1840 X Mu = .30
  Node 1840 Z Gap= .600 cm.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,571 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 1840 To 1860 DX= -7.035 m.
RIGID Weight=10,500.52 N.
RESTRAINTS
  Node 1860 Y Mu = .10
  Node 1860 Z Gap= .600 cm. Mu = .30
-----
From 1860 To 1880 DZ= -3.000 m.
RIGID Weight= 4,500.22 N.
RESTRAINTS
  Node 1880 Y Mu = .10
  Node 1880 Z Gap= .600 cm.
-----
From 1880 To 1900 DX= 7.035 m.
RIGID Weight=10,500.52 N.
RESTRAINTS
  Node 1900 Y Mu = .10
  Node 1900 X
  Node 1900 Z Gap= .600 cm.
-----
From 1900 To 1740 DZ= 1.500 m.
RIGID Weight= 2,250.11 N.
-----
From 1820 To 1920 DY= -.102 m.
PIPE
  Dia= 16.827 cm. Wall= .340 cm. Cor= .0000 cm.
  Element Name= FLANGE_NOFLG_150
GENERAL
  T1= 60 C    T2= 155 C    Mat= (165)A312 TP316L    E= 195,127,520 KPa
  EH1= 192,364,096 KPa  EH2= 185,780,080 KPa  EH3= 195,127,520 KPa
  EH4= 195,127,520 KPa  EH5= 195,127,520 KPa  EH6= 195,127,520 KPa
  EH7= 195,127,520 KPa  EH8= 195,127,520 KPa  EH9= 195,127,520 KPa
  v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.
  Insul Thk= .000 cm.
RIGID Weight= 191.27 N.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = --- Sc= 115,142 KPa
  Sh1= 115,142 KPa  Sh2= 114,386 KPa  Sh3= 115,142 KPa  Sh4= 115,142 KPa
  Sh5= 115,142 KPa  Sh6= 115,142 KPa  Sh7= 115,142 KPa  Sh8= 115,142 KPa
  Sh9= 115,142 KPa  Sy= 172,369 KPa
-----
From 1920 To 1940 DY= -.229 m.
GENERAL
  P1= 2,200.0500 KPa Fluid Den= .0000183 kg./cu.cm.
SINGLE FLANGED BEND at "TO" end

```

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      Radius= 22.860 cm. (LONG)      Bend Angle= 89.714      Angle/Node @1= 44.86 1939
-----
From 1940 To 1960 DY= -.011 m.  DZ= -2.257 m.
RESTRAINTS
      Node 1960 +Y      Mu = .30
-----
From 1960 To 1980 DY= -.002 m.  DZ= -.350 m.
BEND at "TO" end
      Radius= 22.860 cm. (LONG)      Bend Angle= 90.000      Angle/Node @1= 45.00 1979
      Angle/Node @2= .00 1978
-----
From 1980 To 2000 DX= 4.441 m.
RESTRAINTS
      Node 2000 +Y      Mu = .30
      Node 2000 Z      Gap= .300 cm.      Mu = .30
-----
From 2020 To 2030 DZ= -1.560 m.
PIPE
      Dia= 27.305 cm.      Wall= .927 cm.      Cor= .6000 cm.
GENERAL
      T1= 30 C      T2= 85 C      T4= 200 C      P1= 550.0125 KPa      PHyd= 825.0188 KPa
      Mat= (106)A106 Grade B      E= 203,401,232 KPa      EH1= 202,660,192 KPa
      EH2= 199,086,608 KPa      EH3= 203,401,232 KPa      EH4= 191,317,008 KPa
      EH5= 203,401,232 KPa      EH6= 203,401,232 KPa      EH7= 203,401,232 KPa
      EH8= 203,401,232 KPa      EH9= 203,401,232 KPa      v = .292
      Pipe Den= .0078334 kg./cu.cm.      Fluid Den= .0000015 kg./cu.cm.
      Insul Thk= .000 cm.
SIF's & TEE's
      Node 2020 <No Type Specified>      SIF(in)= 2.080      SIF(out)= 2.460
ALLOWABLE STRESSES
      B31.3 (2016)      Cycle Max Switch = ---      Sc= 137,895 KPa
      Sh1= 137,895 KPa      Sh2= 137,895 KPa      Sh3= 137,895 KPa      Sh4= 137,261 KPa
      Sh5= 137,895 KPa      Sh6= 137,895 KPa      Sh7= 137,895 KPa      Sh8= 137,895 KPa
      Sh9= 137,895 KPa      Sy= 241,316 KPa
-----
From 2030 To 2040 DZ= -3.313 m.
RESTRAINTS
      Node 2040 +Y      Mu = .30
-----
From 2020 To 2060 DZ= 1.126 m.
RESTRAINTS
      Node 2060 +Y      Mu = .30
      Node 2060 X      Gap= .300 cm.      Mu = .30
      Node 2060 Z
SIF's & TEE's
      Node 2020 <No Type Specified>      SIF(in)= 2.080      SIF(out)= 2.460
-----
From 1260 To 2140 DY= 1.780 m.
PIPE
      Dia= 6.032 cm.      Wall= .874 cm.      Cor= .3000 cm.
GENERAL
      T1= 125 C      T2= 155 C      T4= 21 C      P1= 2,200.0500 KPa      PHyd= 3,300.0752 KPa
      Fluid Den= .0000154 kg./cu.cm.      Insul Thk= .000 cm.
BEND at "TO" end
      Radius= 7.620 cm. (LONG)      Bend Angle= 90.000      Angle/Node @1= 45.00 2139
      Angle/Node @2= .00 2138

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ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 2140 To 2160 DX= -.240 m. DZ= .240 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 2159
 Angle/Node @2= .00 2158

 From 2160 To 2180 DX= -4.032 m.

RESTRAINTS

Node 2180 +Y
 Node 2180 Z Gap= .300 cm.

 From 2180 To 2190 DX= -6.000 m.

RESTRAINTS

Node 2190 +Y Mu = .30

 From 2190 To 2200 DX= -.388 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2199
 Angle/Node @2= .00 2198

 From 2200 To 2220 DZ= 2.350 m.

RESTRAINTS

Node 2220 +Y Mu = .30
 Node 2220 X Gap= .300 cm.

 From 2220 To 2280 DZ= 3.176 m.

SIF's & TEE's

Node 2280 Welding Tee

 From 2280 To 2290 DX= .000 m. DZ= .500 m.

 From 2280 To 2320 DY= .190 m.

RESTRAINTS

Node 2320 +Y

 From 2320 To 2330 DY= .738 m.

SIF's & TEE's

Node 2330 Welding Tee

 From 2330 To 2340 DY= .086 m.

 From 2340 To 2346 DY= .073 m.

Element Name= GATE_FLG_600

RIGID Weight= 44.48 N.

 From 2346 To 2352 DY= .212 m.

RIGID Weight= 258.00 N.

 From 2352 To 2360 DY= .073 m.

RIGID Weight= 44.48 N.

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From 2360 To 2380 DY= .250 m.

From 2380 To 2400 DY= .090 m.

REDUCER

Diam2= 4.826 cm. Wall2= .714 cm.

From 2400 To 2410 DY= .071 m.

PIPE

Dia= 4.826 cm. Wall= .714 cm.

Insul Thk= .000 cm.

RIGID Weight= 40.03 N.

From 2410 To 2420 DY= .067 m.

RIGID Weight= 50.00 N.

FORCES & MOMENTS

Node 2420 FY1= 1,000.05 N. FZ1= -2,000.10 N.

From 2420 To 2430 DX= -.046 m. DZ= .000 m.

PIPE

Dia= 8.890 cm. Wall= .762 cm.

Insul Thk= .000 cm.

RIGID Weight= 71.17 N.

From 2430 To 2440 DX= -.082 m. DZ= .000 m.

RIGID Weight= 71.17 N.

From 2440 To 2460 DX= -.073 m.

PIPE

Cor= .6000 cm. Element Name= FLANGE_FLG_150

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 750.0171 KPa

Phyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm.

RIGID Weight= 54.49 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 2460 To 2480 DX= -.140 m. DY= -.040 m.

REDUCER

Diam2= 16.827 cm. Wall2= 1.097 cm.

From 2480 To 2500 DX= -.354 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 2500 +Y Mu = .30

Node 2500 Z

Node 2500 X

From 2500 To 2520 DX= -.583 m. DZ= .000 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2519

Angle/Node @2= .00 2518

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INPUT LISTING

 From 2520 To 2540 DY= -.229 m.

From 2540 To 2546 DY= -.092 m.
 Element Name= BALL_FLG_150
 RIGID Weight= 111.21 N.

From 2546 To 2552 DY= -.276 m.
 RIGID Weight= 1,005.30 N.

From 2552 To 2560 DY= -.092 m.
 RIGID Weight= 111.21 N.

From 2560 To 2570 DY= -.194 m.

From 2570 To 2580 DY= -1.208 m.
 SIF's & TEE's
 Node 2580 Welding Tee

From 2580 To 2600 DX= .000 m. DZ= -.680 m.
 RESTRAINTS
 Node 2600 +Y Mu = .30

From 2290 To 2300 DZ= .500 m.
 PIPE

Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.
 GENERAL

T1= 125 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
 Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2301
 Angle/Node @2= .00 2302

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

From 2300 To 2620 DY= .190 m.
 PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .3000 cm.
 GENERAL

T1= 125 C T2= 155 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
 Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 2620 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

From 2620 To 2640 DY= .823 m.

From 2640 To 2646 DY= .073 m.
 Element Name= GATE_FLG_600

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INPUT LISTING

RIGID Weight= 44.48 N.

 From 2646 To 2652 DY= .212 m.

RIGID Weight= 258.00 N.

 From 2652 To 2660 DY= .073 m.

RIGID Weight= 44.48 N.

 From 2660 To 2680 DY= .250 m.

 From 2680 To 2700 DY= .059 m.

REDUCER

Diam2= 4.826 cm. Wall2= .714 cm.

 From 2700 To 2710 DY= .071 m.

PIPE

Dia= 4.826 cm. Wall= .714 cm.

Insul Thk= .000 cm.

RIGID Weight= 40.03 N.

 From 2710 To 2720 DY= .064 m.

RIGID Weight= 80.07 N.

FORCES & MOMENTS

Node 2720 FX2= 2,000.10 N. FY2= 1,000.05 N. FZ2= .00 N.

 From 2720 To 2730 DX= -.046 m.

PIPE

Dia= 8.890 cm. Wall= .549 cm.

Insul Thk= .000 cm.

RIGID Weight= 71.17 N.

 From 2730 To 2740 DX= -.083 m.

RIGID Weight= 71.17 N.

 From 2740 To 2760 DX= -.073 m. DZ= .000 m.

PIPE

Dia= 8.890 cm. Wall= .762 cm. Cor= .6000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 550.0125 KPa

PHyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= 54.49 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 2760 To 2780 DX= -.140 m. DY= -.040 m.

REDUCER

Diam2= 16.827 cm. Wall2= 1.097 cm.

 From 2780 To 2800 DX= -.354 m. DZ= .000 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

Insul Thk= .000 cm.

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INPUT LISTING

RESTRAINTS

Node 2800 +Y
 Node 2800 Z
 Node 2800 X

 From 2800 To 2820 DX= -.583 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2819
 Angle/Node @2= .00 2818

 From 2820 To 2840 DY= -.229 m.

 From 2840 To 2846 DY= -.092 m.

Element Name= BALL_FLG_150

RIGID Weight= 111.21 N.

 From 2846 To 2852 DY= -.276 m.

RIGID Weight= 1,005.30 N.

 From 2852 To 2860 DY= -.092 m.

RIGID Weight= 111.21 N.

 From 2860 To 2880 DY= -1.402 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 92.005 Angle/Node @1= 46.00 2879
 Angle/Node @2= .00 2878

 From 2880 To 2580 DX= .001 m. DY= .035 m. DZ= -1.000 m.

 From 2600 To 2920 DZ= -.379 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2919
 Angle/Node @2= .00 2918

 From 2920 To 2940 DX= -3.185 m. DY= -.006 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 2939
 Angle/Node @2= .00 2938

 From 2940 To 2980 DY= -.723 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 45.040 Angle/Node @1= 22.52 2979
 Angle/Node @2= .00 2978

 From 2980 To 2030 DY= -.710 m. DZ= .711 m.

SIF's & TEE's

Node 2030 <No Type Specified> SIF(in)= 2.660 SIF(out)= 3.160

 From 2330 To 3000 DX= .000 m. DZ= -.077 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.

GENERAL

T1= 125 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

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INPUT LISTING

Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 3000 To 3020 DZ= -.073 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm.

Insul Thk= .000 cm.

RIGID Weight= 44.48 N.

 From 3020 To 3040 DY= .000 m. DZ= -.187 m.

RIGID Weight= 209.07 N.

 From 3040 To 3060 DY= .000 m. DZ= -.073 m.

RIGID Weight= 44.48 N.

 From 3060 To 3080 DY= .000 m. DZ= -.077 m.

Element Name= BALL_FLG_600

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 3079

Angle/Node @2= .00 3078

 From 3080 To 3100 DX= -.377 m. DY= .000 m.

RESTRAINTS

Node 3100 +Y Mu = .30

 From 3100 To 3120 DX= -.100 m. DZ= .000 m.

RESTRAINTS

Node 3120 X

Node 3120 Z

 From 3120 To 3140 DX= -.307 m.

 From 3140 To 3146 DX= -.073 m. DZ= .000 m.

Element Name= GLOBE_FLG_600

RIGID Weight= 44.48 N.

 From 3146 To 3152 DX= -.276 m. DZ= .000 m.

RIGID Weight= 458.17 N.

 From 3152 To 3160 DX= -.067 m. DZ= .000 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .6000 cm.

GENERAL

T1= 30 C T2= 85 C T4= 200 C Fluid Den= .0000015 kg./cu.cm.

Insul Thk= .000 cm.

RIGID Weight= 31.14 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 3160 To 3180 DX= -.077 m. DZ= .000 m.

PIPE

Cor= .6000 cm.

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INPUT LISTING

GENERAL

T1= 30 C T2= 85 C P1= 750.0171 KPa PHyd= 825.0188 KPa

Fluid Den= .0000015 kg./cu.cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 3179

Angle/Node @2= .00 3178

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

 From 3180 To 2570 DZ= .487 m.

SIF's & TEE's

Node 2570 Welding Tee

 From 2040 To 3960 DZ= -6.000 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 3960 +Y Mu = .30

Node 3960 X Gap= .300 cm.

 From 3960 To 3980 DZ= -6.000 m.

RESTRAINTS

Node 3980 +Y Mu = .30

 From 3980 To 4000 DZ= -6.000 m.

RESTRAINTS

Node 4000 +Y Mu = .30

Node 4000 X Gap= .300 cm.

 From 4000 To 4020 DZ= -6.000 m.

RESTRAINTS

Node 4020 +Y Mu = .30

 From 4020 To 4040 DZ= -6.000 m.

RESTRAINTS

Node 4040 +Y Mu = .30

Node 4040 X Gap= .300 cm.

 From 4040 To 4060 DZ= -6.000 m.

RESTRAINTS

Node 4060 +Y Mu = .30

 From 4060 To 4080 DZ= -6.000 m.

RESTRAINTS

Node 4080 +Y Mu = .30

Node 4080 X Gap= .300 cm.

 From 2000 To 4100 DX= .695 m.

PIPE

Dia= 16.827 cm. Wall= .340 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

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INPUT LISTING

Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 192,364,096 KPa
 EH2= 185,780,080 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.
 Insul Thk= .000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4099
 Angle/Node @2= .00 4098

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 114,386 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

 From 4100 To 4120 DY= -.013 m. DZ= 2.602 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 89.714 Angle/Node @1= 44.86 4119
 Angle/Node @2= .00 4118

RESTRAINTS

Node 4120 +Y Mu = .30

 From 4120 To 4140 DY= -.830 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4139
 Angle/Node @2= .00 4138

 From 4140 To 4160 DX= 5.050 m.

RESTRAINTS

Node 4160 +Y Mu = .30

Node 4160 Z Mu = .30

 From 4160 To 4180 DX= 3.596 m.

 From 4180 To 4200 DX= .102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

RESTRAINTS

Node 4200 ANC Cnode 4220

 From 4220 To 4240 DX= .102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

 From 4240 To 4260 DX= .150 m.

RESTRAINTS

Node 4260 ANC Cnode 4261

EQUIPMENT LIMITS

Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.

FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 4261 To 4280 DX= .459 m.

PIPE

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INPUT LISTING

Dia= 91.948 cm. Wall= 1.200 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

 From 4280 To 4300 DY= -1.300 m.

RIGID Weight= .00 N.

 From 4300 To 4310 DY= -1.000 m.

RIGID Weight= .00 N.

 From 4310 To 4320 DY= -.300 m.

GENERAL

T1= 21 C T2= 21 C

RIGID Weight= .00 N.

RESTRAINTS

Node 4320 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa

Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa

Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa

Sh9= 115,142 KPa Sy= 172,369 KPa

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MATERIAL Changes:

20	40	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
820	840	Mat= (383)A516 70 E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
280	880	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1820	1920	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
2020	2030	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
2000	4100	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.

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ALLOWABLE STRESS Changes

20	40	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa
140	160	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa Sh9= 137,895 KPa Sy= 241,316 KPa

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INPUT LISTING

120	180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
540	560	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
520	580	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
640	660	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
620	680	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
820	840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 160,648 KPa	Sh1= 160,648 KPa
		Sh2= 160,062 KPa	Sh3= 160,648 KPa
		Sh4= 160,648 KPa	Sh5= 160,648 KPa
		Sh6= 160,648 KPa	Sh7= 160,648 KPa
		Sh8= 160,648 KPa	Sh9= 160,648 KPa
		Sy= 262,001 KPa	
280	880	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
900	910	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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INPUT LISTING

1020	1040	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1220	1240	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1440	1460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1420	1480	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1780	1800	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1740	1840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1820	1920	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 114,386 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
2020	2030	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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INPUT LISTING

1260	2140	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2440	2460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2290	2300	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2300	2620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2740	2760	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2330	3000	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3152	3160	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3160	3180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	

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INPUT LISTING

2000	4100	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 114,386 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
4310	4320	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	

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BEND ELEMENTS

40	60	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 59
		Angle/Node @2= .00 58
60	80	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
80	100	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 99
120	180	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179
480	500	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		499 Angle/Node @2= .00 498
520	580	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
620	680	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		679 Angle/Node @2= .00 678
280	880	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		879 Angle/Node @2= .00 878
940	960	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		959 Angle/Node @2= .00 958
960	980	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		979 Angle/Node @2= .00 978
1100	1120	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1119 Angle/Node @2= .00 1118
1120	1140	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1139 Angle/Node @2= .00 1138
1160	1180	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1179 Angle/Node @2= .00 1178

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INPUT LISTING

1180	1200	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1199 Angle/Node @2= .00 1198
1380	1400	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1399 Angle/Node @2= .00 1398
1420	1480	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1479 Angle/Node @2= .00 1478
1520	1540	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1539 Angle/Node @2= .00 1538
1560	1580	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1579 Angle/Node @2= .00 1578
1580	1600	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1599 Angle/Node @2= .00 1598
1600	1620	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1619 Angle/Node @2= .00 1618
1920	1940	Radius= 22.860 cm. (LONG)
		Bend Angle= 89.714 Angle/Node @1= 44.86
		1939
1960	1980	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1979 Angle/Node @2= .00 1978
1260	2140	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2139 Angle/Node @2= .00 2138
2140	2160	Radius= 7.620 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		2159 Angle/Node @2= .00 2158
2190	2200	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2199 Angle/Node @2= .00 2198
2500	2520	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2519 Angle/Node @2= .00 2518
2290	2300	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2301 Angle/Node @2= .00 2302
2800	2820	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2819 Angle/Node @2= .00 2818
2860	2880	Radius= 22.860 cm. (LONG)
		Bend Angle= 92.005 Angle/Node @1= 46.00
		2879 Angle/Node @2= .00 2878
2600	2920	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2919 Angle/Node @2= .00 2918
2920	2940	Radius= 22.860 cm. (LONG)
		Bend Angle= 89.885 Angle/Node @1= 44.94
		2939 Angle/Node @2= .00 2938
2940	2980	Radius= 22.860 cm. (LONG)
		Bend Angle= 45.040 Angle/Node @1= 22.52

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INPUT LISTING

3060	3080	2979 Angle/Node @2= .00 2978 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
3160	3180	3079 Angle/Node @2= .00 3078 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2000	4100	3179 Angle/Node @2= .00 3178 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4100	4120	4099 Angle/Node @2= .00 4098 Radius= 22.860 cm. (LONG) Bend Angle= 89.714 Angle/Node @1= 44.86
4120	4140	4119 Angle/Node @2= .00 4118 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
		4139 Angle/Node @2= .00 4138

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RIGIDS

20	40	RIGID Weight= 177.93 N.
120	140	RIGID Weight= .00 N.
200	220	RIGID Weight= 177.93 N.
220	240	RIGID Weight= 177.93 N.
320	340	RIGID Weight= 177.93 N.
340	360	RIGID Weight= 1,023.41 N.
360	380	RIGID Weight= 177.93 N.
420	440	RIGID Weight= 177.93 N.
440	460	RIGID Weight= 177.93 N.
520	540	RIGID Weight= .00 N.
620	640	RIGID Weight= .00 N.
700	720	RIGID Weight= 177.93 N.
740	760	RIGID Weight= 177.93 N.
780	800	RIGID Weight= .00 N.
820	840	RIGID Weight= .00 N.
840	860	RIGID Weight= .00 N.
900	910	RIGID Weight= 31.14 N.
910	920	RIGID Weight= 66.72 N.
920	930	RIGID Weight= 355.86 N.
930	940	RIGID Weight= 44.48 N.
1060	1080	RIGID Weight= 191.27 N.
1080	1100	RIGID Weight= 191.27 N.
1220	1240	RIGID Weight= 191.27 N.
1300	1320	RIGID Weight= 191.27 N.
1320	1340	RIGID Weight= 1,850.46 N.
1340	1360	RIGID Weight= 191.27 N.
1420	1440	RIGID Weight= .00 N.
1640	1660	RIGID Weight= 191.27 N.
1660	1680	RIGID Weight= 191.27 N.
1720	1740	RIGID Weight= .00 N.
1740	1760	RIGID Weight= .00 N.
1800	1820	RIGID Weight= 191.27 N.
1740	1840	RIGID Weight= 2,250.11 N.
1840	1860	RIGID Weight=10,500.52 N.
1860	1880	RIGID Weight= 4,500.22 N.

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INPUT LISTING

1880	1900	RIGID	Weight=10,500.52 N.
1900	1740	RIGID	Weight= 2,250.11 N.
1820	1920	RIGID	Weight= 191.27 N.
2340	2346	RIGID	Weight= 44.48 N.
2346	2352	RIGID	Weight= 258.00 N.
2352	2360	RIGID	Weight= 44.48 N.
2400	2410	RIGID	Weight= 40.03 N.
2410	2420	RIGID	Weight= 50.00 N.
2420	2430	RIGID	Weight= 71.17 N.
2430	2440	RIGID	Weight= 71.17 N.
2440	2460	RIGID	Weight= 54.49 N.
2540	2546	RIGID	Weight= 111.21 N.
2546	2552	RIGID	Weight= 1,005.30 N.
2552	2560	RIGID	Weight= 111.21 N.
2640	2646	RIGID	Weight= 44.48 N.
2646	2652	RIGID	Weight= 258.00 N.
2652	2660	RIGID	Weight= 44.48 N.
2700	2710	RIGID	Weight= 40.03 N.
2710	2720	RIGID	Weight= 80.07 N.
2720	2730	RIGID	Weight= 71.17 N.
2730	2740	RIGID	Weight= 71.17 N.
2740	2760	RIGID	Weight= 54.49 N.
2840	2846	RIGID	Weight= 111.21 N.
2846	2852	RIGID	Weight= 1,005.30 N.
2852	2860	RIGID	Weight= 111.21 N.
3000	3020	RIGID	Weight= 44.48 N.
3020	3040	RIGID	Weight= 209.07 N.
3040	3060	RIGID	Weight= 44.48 N.
3140	3146	RIGID	Weight= 44.48 N.
3146	3152	RIGID	Weight= 458.17 N.
3152	3160	RIGID	Weight= 31.14 N.
4180	4200	RIGID	Weight= 191.27 N.
4220	4240	RIGID	Weight= 191.27 N.
4261	4280	RIGID	Weight= .00 N.
4280	4300	RIGID	Weight= .00 N.
4300	4310	RIGID	Weight= .00 N.
4310	4320	RIGID	Weight= .00 N.

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SIF's & TEE's

140	160	Node 140	Unreinforced Tee
260	280	Node 280	Weldolet
540	560	Node 540	Unreinforced Tee
1020	1260	Node 1260	Weldolet
1440	1460	Node 1440	Unreinforced Tee
2020	2030	Node 2020	<No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460
2020	2060	Node 2020	<No Type Specified> SIF(in)= 2.080 SIF(out)= 2.460
2220	2280	Node 2280	Welding Tee
2320	2330	Node 2330	Welding Tee
2570	2580	Node 2580	Welding Tee
2980	2030	Node 2030	<No Type Specified> SIF(in)= 2.660 SIF(out)= 3.160

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INPUT LISTING

3180 2570 Node 2570 Welding Tee
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REDUCERS

2380 2400 Diam2= 4.826 cm. Wall2= .714 cm.
2460 2480 Diam2= 16.827 cm. Wall2= 1.097 cm.
2680 2700 Diam2= 4.826 cm. Wall2= .714 cm.
2760 2780 Diam2= 16.827 cm. Wall2= 1.097 cm.
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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
20	ANC					.000 .000 .000
160	-X				.30	1.000 .000 .000
160	Z					.000 .000 1.000
121	+Y				.10	.000 1.000 .000
160	X	121				1.000 .000 .000
300	+Y				.30	.000 1.000 .000
400	Y				.30	.000 1.000 .000
400	Z					.000 .000 1.000
480	Y				.30	.000 1.000 .000
480	Z					.000 .000 1.000
560	+Y				.30	.000 1.000 .000
560	Z					.000 .000 1.000
660	+Y	800			.30	.000 1.000 .000
720	ANC	740				.000 .000 .000
780	ANC	820				.000 .000 .000
860	ANC					.000 .000 .000
1040	+Y				.30	.000 1.000 .000
1180	-X				.30	1.000 .000 .000
1180	+Y				.30	.000 1.000 .000
1240	ANC					.000 .000 .000
1280	Y				.30	.000 1.000 .000
1280	Z					.000 .000 1.000
1380	Y				.30	.000 1.000 .000
1380	Z					.000 .000 1.000
1460	+Y				.30	.000 1.000 .000
1460	Z					.000 .000 1.000
1500	+Y					.000 1.000 .000
1500	Z					.000 .000 1.000
1520	+Y				.30	.000 1.000 .000
1560	+Y				.30	.000 1.000 .000
1700	ANC	1720				.000 .000 .000
1780	ANC	1760				.000 .000 .000
1840	Y				.10	.000 1.000 .000
1840	X				.30	1.000 .000 .000
1840	Z			.60		.000 .000 1.000
1860	Y				.10	.000 1.000 .000
1860	Z			.60	.30	.000 .000 1.000
1880	Y				.10	.000 1.000 .000
1880	Z			.60		.000 .000 1.000
1900	Y				.10	.000 1.000 .000

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INPUT LISTING

1900	X			1.000	.000	.000
1900	Z	.60		.000	.000	1.000
1960	+Y		.30	.000	1.000	.000
2000	+Y		.30	.000	1.000	.000
2000	Z	.30	.30	.000	.000	1.000
2040	+Y		.30	.000	1.000	.000
2060	+Y		.30	.000	1.000	.000
2060	X	.30	.30	1.000	.000	.000
2060	Z			.000	.000	1.000
2180	+Y			.000	1.000	.000
2180	Z	.30		.000	.000	1.000
2190	+Y		.30	.000	1.000	.000
2220	+Y		.30	.000	1.000	.000
2220	X	.30		1.000	.000	.000
2320	+Y			.000	1.000	.000
2500	+Y		.30	.000	1.000	.000
2500	Z			.000	.000	1.000
2500	X			1.000	.000	.000
2600	+Y		.30	.000	1.000	.000
2620	+Y			.000	1.000	.000
2800	+Y			.000	1.000	.000
2800	Z			.000	.000	1.000
2800	X			1.000	.000	.000
3100	+Y		.30	.000	1.000	.000
3120	X			1.000	.000	.000
3120	Z			.000	.000	1.000
3960	+Y		.30	.000	1.000	.000
3960	X	.30		1.000	.000	.000
3980	+Y		.30	.000	1.000	.000
4000	+Y		.30	.000	1.000	.000
4000	X	.30		1.000	.000	.000
4020	+Y		.30	.000	1.000	.000
4040	+Y		.30	.000	1.000	.000
4040	X	.30		1.000	.000	.000
4060	+Y		.30	.000	1.000	.000
4080	+Y		.30	.000	1.000	.000
4080	X	.30		1.000	.000	.000
4120	+Y		.30	.000	1.000	.000
4160	+Y		.30	.000	1.000	.000
4160	Z		.30	.000	.000	1.000
4200	ANC	4220		.000	.000	.000
4260	ANC	4261		.000	.000	.000
4320	ANC			.000	.000	.000

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HANGER CONTROL AND LOCATION DATA

No. of Hanger Design Load Cases = 1
 Actual Cold Load Flag = 0.0
 Short Range Spring Flag = 1
 Allowed Load Variation (%) = 25.0000
 Default Hanger Table = 5

140

160

Hanger Node = 160
 Hanger Connecting Node = 121
 Available Space = -100.0000 cm.

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INPUT LISTING

Allowed Load Variation = 25.0000
 No. Hangers = 0.0 Short Range Flag = -1
 User Operating Load = .00 N. Free Node = 0
 Free Node = 0 Free Code = 0.0
 Spring Rate = .00 N./cm.
 Theoretical Cold Load = .00 N.

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EQUIPMENT LIMITS

20 40 Nozzle Node = 20

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.
 FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute
 760 780 Nozzle Node = 780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.
 FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 1220 1240 Nozzle Node = 1240

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 7,200.36 N. FB= 7,200.36 N.
 FC= 5,400.27 N. MA= 3,240.14 N.m. MB= 2,160.09 N.m. MC= 2,810.12 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute
 1680 1700 Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 1780 1800 Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 4240 4260 Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.
 FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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INPUT LISTING

FORCES AND MOMENTS

2410	2420	Node 2420	FY1= 1,000.05 N.
			FZ1= -2,000.10 N.
2710	2720	Node 2720	FX2= 2,000.10 N.
			FY2= 1,000.05 N. FZ2= .00 N.

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UNIFORM LOAD Changes

20	40	Vector1 in G-s
		X1 Dir = .26 g's Y1 Dir = .00 g's
		Z1 Dir = .00 g's
		Vector2 in G-s
		X2 Dir = .00 g's Y2 Dir = .12 g's
		Z2 Dir = .00 g's
		Vector3 in G-s
		X3 Dir = .00 g's Y3 Dir = .00 g's
		Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS=	SI	NOM/SCH	INPUT=	ON		
LENGTH		inches	x	2.540	=	cm.
FORCE		pounds	x	4.448	=	N.
MASS (dynamics)		pounds	x	0.454	=	Kg.
MOMENTS (INPUT)		inch-pounds	x	0.113	=	N.m.
MOMENTS (OUTPUT)		inch-pounds	x	0.113	=	N.m.
STRESS		lbs./sq.in.	x	6.895	=	KPa
TEMP. SCALE		degrees F.	x	0.556	=	C
PRESSURE		psig	x	6.895	=	KPa
ELASTIC MODULUS		lbs./sq.in.	x	6.895	=	KPa
PIPE DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.
INSULATION DENS.		lbs./cu.in.	x	0.028	=	kg./cu.cm.
FLUID DENSITY		lbs./cu.in.	x	0.028	=	kg./cu.cm.
TRANSL. STIF		lbs./in.	x	1.751	=	N./cm.
ROTATIONAL STIF		in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD		lb./in.	x	1.751	=	N./cm.
G LOAD		g's	x	1.000	=	g's
WIND LOAD		lbs./sq.in.	x	6.895	=	KPa
ELEVATION		inches	x	0.025	=	m.
COMPOUND LENGTH		inches	x	0.025	=	m.
DIAMETER		inches	x	2.540	=	cm.
WALL THICKNESS		inches	x	2.540	=	cm.

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SETUP FILE PARAMETERS

CONNECT GEOMETRY THRU CNODES =	YES
MIN ALLOWED BEND ANGLE =	5.00000
MAX ALLOWED BEND ANGLE =	95.0000
BEND LENGTH ATTACHMENT PERCENT =	1.00000
MIN ANGLE TO ADJACENT BEND PT =	5.00000

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INPUT LISTING

```

LOOP CLOSURE TOLERANCE =          2.54000      cm.
THERMAL BOWING HORZ TOLERANCE =    0.100000E-03
AUTO NODE NUMBER INCREMENT=        10.0000
Z AXIS UP=                          NO
USE PRESSURE STIFFENING =          DEFAULT
ALPHA TOLERANCE =                  0.500000E-01
RESLD-FORCE =                      NO
HGR DEF RESWGT STIF =              0.175127E+13 N./cm.
DECOMP SNG TOL =                   0.100000E+11
BEND AXIAL SHAPE =                 YES
FRICT STIF =                       0.175127E+07 N./cm.
FRICT NORM FORCE VAR =              0.150000
FRICT ANGLE VAR =                  15.0000
FRICT SLIDE MULT =                 1.00000
ROD TOLERANCE =                   1.00000
ROD INC =                          2.00000
INCORE NUMERICAL CHECK =           NO
OUTCORE NUMERICAL CHECK =          NO
DEFAULT TRANS RESTRAINT STIFF=     0.175127E+13      N./cm.
DEFAULT ROT RESTRAINT STIFF=       0.112985E+12      N.m./deg
IGNORE SPRING HANGER STIFFNESS =   NO
MISSING MASS ZPA =                 EXTRACTED
MIN WALL MILL TOLERANCE =          12.5000
WRC-107 VERSION =                  MAR 79 1B1/2B1
WRC-107 INTERPOLATION =            LAST VALUE
DEFAULT AMBIENT TEMPERATURE=       21.1111      C
BOURDON PRESSURE=                  NONE
COEFFICIENT OF FRICTION (MU) =     0.000000
INCLUDE SPRG STIF IN HGR OPE =     NO
INCLUDE INSULATION IN HYDROTEST =  NO
REDUCED INTERSECTION =             B31.1 (POST1980)
USE WRC329                         NO
NO REDUCED SIF FOR RFT AND WLT     NO
B31.1 REDUCED Z FIX =              YES
CLASS 1 BRANCH FLEX                NO
ALL STRESS CASES CORRODED =        NO
ADD TORSION IN SL STRESS =          DEFAULT
ADD F/A IN STRESS =                DEFAULT
OCCASIONAL LOAD FACTOR =           0.000000
DEFAULT CODE =                     B31.3
B31.3 SUS CASE SIF FACTOR =        0.000000
ALLOW USERS BEND SIF =             NO
USE SCHNEIDER                      NO
YIELD CRITERION STRESS =           MAX 3D SHEAR
USE PD/4T                          NO
BASE HOOP STRESS ON ? =            ID
EN13480 USE IN OUTPLANE SIFS=      NO
LIBERAL EXPANSION ALLOWABLE=       YES
B31.3 SEC 319.2.3C SAXIAL=         Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE=    DEFAULT
IMPLEMENT B313 APP-P               NO
IMPLEMENT B313 CODE CASE 178      YES
IGNORE B31.1/B31.3 Wc FACTOR=     YES
USE FRP SIF =                      YES
USE FRP FLEX =                     YES

```

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INPUT LISTING

BS 7159 Pressure Stiffening= Design Strain
 FRP Property Data File= CAESAR.FRP
 FRP Emod (axial) = 0.220632E+08 KPa
 FRP Ratio Gmod/Emod (axial) = 0.250000
 FRP Ea/Eh*Vh/a = 0.152730
 FRP Laminate Type = THREE
 FRP Alpha = 21.6000 C
 FRP Density = 0.166079E-02 kg./cu.cm.
 EXCLUDE f2 FROM UKOOA BENDING = NO
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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag 1.000
 Bourdon Option 000
 Loop Closure Flag 2.000
 Thermal Bowing Delta Temp .. .000 C
 Liberal Allowable Flag 1.000
 Uniform Load Option 1.000

 Ambient Temperature 20.997 C
 Plastic (FRP) Alpha 21.600
 Plastic (FRP) GMOD/EMODa 250
 Plastic (FRP) Laminate Type. 3.000
 Eqn Optimizer 000
 Node Selection 000
 Eqn Ordering 000
 Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X
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COORDINATE REPORT

/----- (cm.) -----/			
NODE	X	Y	Z
20	655.300	-532.935	706.010
40	644.823	-532.935	706.010
60	538.344	-532.935	706.010
80	538.344	-593.935	706.010
100	599.344	-593.935	706.010
120	599.344	-681.025	706.010
140	599.344	-711.525	706.010
160	599.344	-731.525	706.010
120	599.344	-681.025	706.010
180	599.344	-711.525	706.010
200	568.844	-711.525	706.010
220	558.367	-711.525	706.010
240	547.890	-711.525	706.010
260	477.890	-711.525	706.010
280	453.100	-711.525	706.010
300	403.100	-711.525	706.010
320	383.100	-711.525	706.010
340	372.622	-711.525	706.010

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INPUT LISTING

360	315.322	-711.525	706.010
380	304.845	-711.525	706.010
400	204.845	-711.525	706.010
420	76.065	-711.525	706.010
440	65.587	-711.525	706.010
460	55.110	-711.525	706.010
480	-94.890	-711.525	706.010
500	-475.370	-711.525	706.010
520	-475.370	-681.025	706.010
540	-475.370	-711.525	706.010
560	-475.370	-741.525	706.010
520	-475.370	-681.025	706.010
580	-475.370	-287.525	706.010
600	-510.726	-287.525	670.655
620	-546.081	-287.525	635.299
640	-546.081	-295.925	635.299
660	-546.081	-325.925	635.299
620	-546.081	-287.525	635.299
680	-600.387	-287.525	580.994
700	-600.387	-318.025	580.994
720	-600.387	-328.503	580.994
760	-600.387	-338.980	580.994
780	-600.387	-357.120	580.994
780	-600.387	-357.220	580.994
660	-546.081	-325.925	635.299
780	-600.387	-357.120	580.994
840	-600.387	-663.620	580.994
860	-600.387	-783.620	580.994
280	453.100	-711.525	706.010
880	453.100	-637.235	706.010
900	453.100	-637.235	757.010
910	453.100	-637.235	763.677
920	453.100	-637.235	793.777
930	453.100	-637.235	821.277
940	453.100	-637.235	828.580
960	453.100	-637.235	836.280
980	453.100	-702.475	836.280
1000	453.100	-702.475	828.580
1020	453.100	-702.475	766.480
1040	483.100	-702.475	766.480
1060	514.900	-702.475	766.480
1080	525.060	-702.475	766.480
1100	535.219	-702.475	766.480
1120	574.259	-702.475	766.480
1140	574.259	-702.475	866.480
1160	620.833	-702.475	866.480
1180	644.120	-702.475	866.480
1200	644.120	-702.475	706.480
1220	667.020	-702.475	706.480
1240	677.180	-702.475	706.480
1020	453.100	-702.475	766.480
1260	332.306	-702.475	766.480
1280	204.845	-702.475	766.480
1300	168.045	-702.475	766.480
1320	157.885	-702.475	766.480
1340	112.585	-702.475	766.480

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1360	102.425	-702.475	766.480
1380	-94.875	-702.475	766.480
1400	-477.475	-702.475	766.480
1420	-477.475	-679.575	766.480
1440	-477.475	-702.475	766.480
1460	-477.475	-732.475	766.480
1420	-477.475	-679.575	766.480
1480	-477.475	-534.075	766.480
1500	-1053.475	-534.075	766.480
1520	-1653.475	-534.075	766.480
1540	-2010.475	-534.075	766.480
1560	-2010.475	-534.075	826.480
1580	-2010.475	-534.075	938.180
1600	-2010.475	-285.325	938.180
1620	-2072.275	-285.325	981.380
1640	-2072.275	-308.225	981.380
1660	-2072.275	-318.385	981.380
1680	-2072.275	-328.545	981.380
1700	-2072.275	-341.245	981.380
1740	-2072.275	-365.245	981.380
1780	-2072.275	-389.245	981.380
1800	-2072.275	-401.945	981.380
1820	-2072.275	-412.105	981.380
1740	-2072.275	-365.245	981.380
1840	-2072.275	-365.245	1131.380
1860	-2775.775	-365.245	1131.380
1880	-2775.775	-365.245	831.380
1900	-2072.275	-365.245	831.380
1740	-2072.275	-365.245	981.380
1820	-2072.275	-412.105	981.380
1920	-2072.275	-422.265	981.380
1940	-2072.275	-445.165	981.380
1960	-2072.275	-446.290	755.680
1980	-2072.275	-446.465	720.680
2000	-1628.175	-446.465	720.680
2020	-1180.097	-696.486	1464.280
2030	-1180.097	-696.486	1308.280
2040	-1180.097	-696.486	976.980
2020	-1180.097	-696.486	1464.280
2060	-1180.097	-696.486	1576.880
1260	332.306	-702.475	766.480
2140	332.306	-524.475	766.480
2160	308.306	-524.475	790.480
2180	-94.894	-524.475	790.480
2190	-694.894	-524.475	790.480
2200	-733.694	-524.475	790.480
2220	-733.694	-524.475	1025.480
2280	-733.694	-524.475	1343.080
2290	-733.694	-524.475	1393.080
2280	-733.694	-524.475	1343.080
2320	-733.694	-505.475	1343.080
2330	-733.694	-431.675	1343.080
2340	-733.694	-423.075	1343.080
2346	-733.694	-415.773	1343.080
2352	-733.694	-394.573	1343.080
2360	-733.694	-387.270	1343.080

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2380	-733.694	-362.270	1343.080
2400	-733.694	-353.270	1343.080
2410	-733.694	-346.126	1343.080
2420	-733.694	-339.426	1343.080
2430	-738.294	-339.426	1343.080
2440	-746.494	-339.426	1343.080
2460	-753.797	-339.426	1343.080
2480	-767.797	-343.396	1343.080
2500	-803.247	-343.396	1343.080
2520	-861.597	-343.396	1343.080
2540	-861.597	-366.296	1343.080
2546	-861.597	-375.504	1343.080
2552	-861.597	-403.104	1343.080
2560	-861.597	-412.311	1343.080
2570	-861.597	-431.711	1343.080
2580	-861.597	-552.511	1343.080
2600	-861.597	-552.511	1275.080
2290	-733.694	-524.475	1393.080
2300	-733.694	-524.475	1443.080
2620	-733.694	-505.475	1443.080
2640	-733.694	-423.175	1443.080
2646	-733.694	-415.873	1443.080
2652	-733.694	-394.673	1443.080
2660	-733.694	-387.370	1443.080
2680	-733.694	-362.370	1443.080
2700	-733.694	-356.470	1443.080
2710	-733.694	-349.326	1443.080
2720	-733.694	-342.926	1443.080
2730	-738.294	-342.926	1443.080
2740	-746.549	-342.926	1443.080
2760	-753.852	-342.926	1443.080
2780	-767.852	-346.896	1443.080
2800	-803.302	-346.896	1443.080
2820	-861.652	-346.896	1443.080
2840	-861.652	-369.796	1443.080
2846	-861.652	-379.004	1443.080
2852	-861.652	-406.604	1443.080
2860	-861.652	-415.811	1443.080
2880	-861.652	-556.011	1443.080
2880	-861.652	-556.011	1443.080
2580	-861.597	-552.511	1343.080
2600	-861.597	-552.511	1275.080
2920	-861.597	-552.511	1237.180
2940	-1180.097	-553.148	1237.180
2980	-1180.097	-625.486	1237.180
2030	-1180.097	-696.486	1308.280
2330	-733.694	-431.675	1343.080
3000	-733.694	-431.675	1335.380
3020	-733.694	-431.675	1328.078
3040	-733.694	-431.675	1309.378
3060	-733.694	-431.675	1302.075
3080	-733.694	-431.675	1294.375
3100	-771.394	-431.675	1294.375
3120	-781.394	-431.675	1294.375
3140	-812.094	-431.675	1294.375
3146	-819.397	-431.675	1294.375

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INPUT LISTING

3152	-846.997	-431.675	1294.375
3160	-853.664	-431.675	1294.375
3180	-861.364	-431.675	1294.375
3180	-861.597	-431.711	1294.380
2570	-861.597	-431.711	1343.080
2040	-1180.097	-696.486	976.980
3960	-1180.097	-696.486	376.980
3980	-1180.097	-696.486	-223.020
4000	-1180.097	-696.486	-823.020
4020	-1180.097	-696.486	-1423.020
4040	-1180.097	-696.486	-2023.020
4060	-1180.097	-696.486	-2623.020
4080	-1180.097	-696.486	-3223.020
2000	-1628.175	-446.465	720.680
4100	-1558.645	-446.465	720.680
4120	-1558.645	-447.765	980.880
4140	-1558.645	-530.765	980.880
4160	-1053.645	-530.765	980.880
4180	-694.045	-530.765	980.880
4200	-683.885	-530.765	980.880
4240	-673.725	-530.765	980.880
4260	-658.725	-530.765	980.880
4280	-612.825	-530.765	980.880
4300	-612.825	-660.765	980.880
4310	-612.825	-760.765	980.880
4320	-612.825	-790.765	980.880

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
CASE 4 (OPE) W+T1+P1+H
CASE 6 (OPE) W+T2+P1+H
CASE 8 (OPE) W+T3+P1+H
CASE 10 (OPE) W+T4+P1+H
CASE 12 (SUS) W+P1+H
CASE 13 (SUS) WNC+H

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
20		TYPE=Rigid ANC;					
	3(HYD)	-286	-950	79	-31	66	427
	4(OPE)	375	-802	-73	32	-76	649
	6(OPE)	677	2731	-69	33	-81	-2375
	8(OPE)	-148	-560	72	-28	60	227
	10(OPE)	-148	-560	73	-28	60	227
	12(SUS)	-148	-560	72	-28	60	227
	13(SUS)	-149	-553	72	-28	60	221
	MAX	677/L6	2731/L6	79/L3	33/L6	-81/L6	-2375/L6
121		TYPE=Rigid +Y;					
	3(HYD)	-156	-2118	0	0	0	0
	4(OPE)	0	-1170	0	0	0	0
	6(OPE)	0	-1183	0	0	0	0
	8(OPE)	-79	-1170	0	0	0	0
	10(OPE)	-79	-1170	0	0	0	0
	12(SUS)	-79	-1170	0	0	0	0
	13(SUS)	-79	-1170	0	0	0	0
	MAX	-156/L3	-2118/L3				
160		TYPE=Rigid Z; Rigid -X; Rigid X; Prog Design VSH;					
	3(HYD)	-156	-2118	-35	0	0	0
	4(OPE)	2106	-715	-140	0	0	0
	6(OPE)	3921	-2359	-246	0	0	0
	8(OPE)	-79	-1170	-32	0	0	0
	10(OPE)	-79	-1170	-32	0	0	0
	12(SUS)	-79	-1170	-32	0	0	0
	13(SUS)	-79	-1170	-32	0	0	0
	MAX	3921/L6	-2359/L6	-246/L6			
300		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	188	-2443	148	0	0	0
	4(OPE)	-610	-2048	-70	0	0	0
	6(OPE)	-1573	-5246	-57	0	0	0
	8(OPE)	97	-1780	135	0	0	0
	10(OPE)	97	-1781	135	0	0	0
	12(SUS)	97	-1780	135	0	0	0
	13(SUS)	97	-1774	135	0	0	0
	MAX	-1573/L6	-5246/L6	148/L3			
400		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	124	-1971	-12	0	0	0
	4(OPE)	-302	-1006	-125	0	0	0
	6(OPE)	-236	785	-260	0	0	0
	8(OPE)	64	-1245	-12	0	0	0
	10(OPE)	64	-1245	-12	0	0	0
	12(SUS)	64	-1245	-12	0	0	0
	13(SUS)	64	-1241	-12	0	0	0
	MAX	-302/L4	-1971/L3	-260/L6			
480		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	51	-2688	-5	0	0	0
	4(OPE)	-507	-1690	76	0	0	0
	6(OPE)	-829	-2763	236	0	0	0
	8(OPE)	27	-1403	-2	0	0	0
	10(OPE)	27	-1403	-2	0	0	0
	12(SUS)	27	-1403	-2	0	0	0
	13(SUS)	27	-1395	-2	0	0	0
	MAX	-829/L6	-2763/L6	236/L6			
560		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	8	-3989	-2	0	0	0
	4(OPE)	-660	-2198	-5	0	0	0
	6(OPE)	-631	-2102	-36	0	0	0
	8(OPE)	5	-2008	-4	0	0	0
	10(OPE)	5	-2008	-4	0	0	0
	12(SUS)	5	-2008	-4	0	0	0
	13(SUS)	5	-1996	-4	0	0	0
	MAX	-660/L4	-3989/L3	-36/L6			
660		TYPE=Rigid +Y;					
	3(HYD)	37	-961	-78	0	0	0
	4(OPE)	0	0	0	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	14	-496	-35	0	0	0
	10(OPE)	14	-496	-35	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	14	-496	-35	0	0	0
	13(SUS)	14	-493	-35	0	0	0
	MAX	37/L3	-961/L3	-78/L3			
720		TYPE=Rigid ANC;					
	3(HYD)	31	-423	85	31	3	-13
	4(OPE)	-260	-390	-29	-141	-213	-157
	6(OPE)	-1068	200	-92	-733	-903	-605
	8(OPE)	19	-283	41	15	1	-7
	10(OPE)	19	-283	41	15	1	-7
	12(SUS)	19	-283	41	15	1	-7
	13(SUS)	19	-282	41	15	1	-7
	MAX	-1068/L6	-423/L3	-92/L6	-733/L6	-903/L6	-605/L6
780		TYPE=Rigid ANC;					
	3(HYD)	68	-1714	6	553	65	-556
	4(OPE)	-260	-628	-29	-149	-213	-82
	6(OPE)	-1068	-38	-92	-759	-903	-300
	8(OPE)	34	-1016	6	286	28	-287
	10(OPE)	34	-1016	6	286	28	-287
	12(SUS)	34	-1016	6	286	28	-287
	13(SUS)	33	-1012	6	284	28	-285
	MAX	-1068/L6	-1714/L3	-92/L6	-759/L6	-903/L6	-556/L3
860		TYPE=Rigid ANC;					
	3(HYD)	68	-1714	6	580	65	-846
	4(OPE)	-260	-628	-29	-271	-213	1026
	6(OPE)	-1068	-38	-92	-1153	-903	4256
	8(OPE)	34	-1016	6	312	28	-430
	10(OPE)	34	-1016	6	312	28	-430
	12(SUS)	34	-1016	6	312	28	-430
	13(SUS)	33	-1012	6	310	28	-427
	MAX	-1068/L6	-1714/L3	-92/L6	-1153/L6	-903/L6	4256/L6
1040		TYPE=Rigid +Y;					
	3(HYD)	108	-1928	-178	0	0	0
	4(OPE)	356	-1389	-217	0	0	0
	6(OPE)	342	-1346	-215	0	0	0
	8(OPE)	100	-1385	-163	0	0	0
	10(OPE)	100	-1384	-163	0	0	0
	12(SUS)	100	-1385	-163	0	0	0
	13(SUS)	100	-1376	-162	0	0	0
	MAX	356/L4	-1928/L3	-217/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1180		TYPE=Rigid +Y; Rigid - X;					
	3(HYD)	10	-1203	7	0	0	0
	4(OPE)	8271	-1284	2866	0	0	0
	6(OPE)	9868	-1468	3401	0	0	0
	8(OPE)	10	-819	6	0	0	0
	10(OPE)	10	-821	6	0	0	0
	12(SUS)	10	-819	6	0	0	0
	13(SUS)	10	-813	6	0	0	0
	MAX	9868/L6	-1468/L6	3401/L6			
1240		TYPE=Rigid ANC;					
	3(HYD)	-6	-369	10	-72	2	228
	4(OPE)	642	7	-795	-174	178	234
	6(OPE)	819	105	-1172	-218	197	265
	8(OPE)	-5	-255	10	-61	2	159
	10(OPE)	-5	-254	10	-62	2	159
	12(SUS)	-5	-255	10	-61	2	159
	13(SUS)	-5	-253	9	-61	2	158
	MAX	819/L6	-369/L3	-1172/L6	-218/L6	197/L6	265/L6
1280		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	168	-3329	-36	0	0	0
	4(OPE)	-658	-2195	-2469	0	0	0
	6(OPE)	-611	-2036	-2908	0	0	0
	8(OPE)	157	-2809	-32	0	0	0
	10(OPE)	157	-2809	-32	0	0	0
	12(SUS)	157	-2809	-32	0	0	0
	13(SUS)	157	-2801	-32	0	0	0
	MAX	-658/L4	-3329/L3	-2908/L6			
1380		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	303	-2209	34	0	0	0
	4(OPE)	-1074	-3579	1096	0	0	0
	6(OPE)	-1231	-4105	1335	0	0	0
	8(OPE)	284	-1529	29	0	0	0
	10(OPE)	284	-1529	29	0	0	0
	12(SUS)	284	-1529	29	0	0	0
	13(SUS)	283	-1518	29	0	0	0
	MAX	-1231/L6	-4105/L6	1335/L6			
1460		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-115	-3119	-38	0	0	0
	4(OPE)	-652	-2173	-256	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	-644	-2148	-301	0	0	0
	8(OPE)	-119	-2314	-31	0	0	0
	10(OPE)	-119	-2314	-32	0	0	0
	12(SUS)	-119	-2314	-31	0	0	0
	13(SUS)	-119	-2299	-31	0	0	0
	MAX	-652/L4	-3119/L3	-301/L6			
1500		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-3721	35	0	0	0
	4(OPE)	0	-1141	-433	0	0	0
	6(OPE)	0	-642	-680	0	0	0
	8(OPE)	0	-2982	29	0	0	0
	10(OPE)	0	-2982	29	0	0	0
	12(SUS)	0	-2982	29	0	0	0
	13(SUS)	0	-2966	29	0	0	0
	MAX		-3721/L3	-680/L6			
1520		TYPE=Rigid +Y;					
	3(HYD)	-153	-3023	-26	0	0	0
	4(OPE)	-1203	-4345	-502	0	0	0
	6(OPE)	-1366	-4968	-596	0	0	0
	8(OPE)	-175	-2425	-22	0	0	0
	10(OPE)	-175	-2425	-22	0	0	0
	12(SUS)	-175	-2425	-22	0	0	0
	13(SUS)	-175	-2412	-22	0	0	0
	MAX	-1366/L6	-4968/L6	-596/L6			
1560		TYPE=Rigid +Y;					
	3(HYD)	-421	-1865	40	0	0	0
	4(OPE)	-775	-2607	-103	0	0	0
	6(OPE)	-828	-2788	-116	0	0	0
	8(OPE)	-330	-1485	40	0	0	0
	10(OPE)	-330	-1485	40	0	0	0
	12(SUS)	-330	-1485	40	0	0	0
	13(SUS)	-328	-1476	40	0	0	0
	MAX	-828/L6	-2788/L6	-116/L6			
1700		TYPE=Rigid ANC;					
	3(HYD)	149	-2106	-29	-354	-65	-635
	4(OPE)	-4448	804	1075	2171	4212	-3393
	6(OPE)	-5996	1473	1310	2985	5781	-4471
	8(OPE)	117	-1767	-30	-287	-47	-525
	10(OPE)	117	-1767	-30	-287	-47	-525
	12(SUS)	117	-1767	-30	-287	-47	-525
	13(SUS)	116	-1759	-30	-285	-46	-523

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-5996/L6	-2106/L3	1310/L6	2985/L6	5781/L6	-4471/L6
1780		TYPE=Rigid ANC;					
	3(HYD)	10	-864	-209	58	-38	-154
	4(OPE)	-249	-536	-92	125	533	-124
	6(OPE)	-1121	-418	-28	246	2146	-381
	8(OPE)	-11	-605	-81	23	-3	-82
	10(OPE)	-11	-605	-81	23	-3	-82
	12(SUS)	-11	-605	-81	23	-3	-82
	13(SUS)	-12	-600	-79	22	-2	-80
	MAX	-1121/L6	-864/L3	-209/L3	246/L6	2146/L6	-381/L6
1840		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	52	-9785	-125	0	0	0
	4(OPE)	51	-8850	900	0	0	0
	6(OPE)	-491	-8872	1034	0	0	0
	8(OPE)	39	-9074	-61	0	0	0
	10(OPE)	39	-9074	-61	0	0	0
	12(SUS)	39	-9074	-61	0	0	0
	13(SUS)	39	-9055	-60	0	0	0
	MAX	-491/L6	-9785/L3	1034/L6			
1860		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	0	-8271	-2	0	0	0
	4(OPE)	-711	-7731	303	0	0	0
	6(OPE)	-703	-7641	298	0	0	0
	8(OPE)	0	-7885	-1	0	0	0
	10(OPE)	0	-7885	-1	0	0	0
	12(SUS)	0	-7885	-1	0	0	0
	13(SUS)	0	-7872	-1	0	0	0
	MAX	-711/L4	-8271/L3	303/L4			
1880		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	-0	-8267	-2	0	0	0
	4(OPE)	-777	-7769	-1	0	0	0
	6(OPE)	-769	-7692	-2	0	0	0
	8(OPE)	-0	-7881	-1	0	0	0
	10(OPE)	-0	-7881	-1	0	0	0
	12(SUS)	-0	-7881	-1	0	0	0
	13(SUS)	-0	-7869	-1	0	0	0
	MAX	-777/L4	-8267/L3	-2/L6			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1900		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	107	-9957	-110	0	0	0
	4(OPE)	-3120	-7095	88	0	0	0
	6(OPE)	-5065	-6453	124	0	0	0
	8(OPE)	66	-9245	-50	0	0	0
	10(OPE)	66	-9245	-50	0	0	0
	12(SUS)	66	-9245	-50	0	0	0
	13(SUS)	65	-9226	-49	0	0	0
	MAX	-5065/L6	-9957/L3	124/L6			
1960		TYPE=Rigid +Y;					
	3(HYD)	27	-1225	217	0	0	0
	4(OPE)	-146	-520	55	0	0	0
	6(OPE)	-147	-505	-37	0	0	0
	8(OPE)	94	-517	84	0	0	0
	10(OPE)	94	-517	84	0	0	0
	12(SUS)	94	-517	84	0	0	0
	13(SUS)	95	-504	82	0	0	0
	MAX	-147/L6	-1225/L3	217/L3			
2000		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-43	-1467	-71	0	0	0
	4(OPE)	22	-618	-184	0	0	0
	6(OPE)	-116	-619	-543	0	0	0
	8(OPE)	-85	-614	-28	0	0	0
	10(OPE)	-85	-614	-28	0	0	0
	12(SUS)	-85	-614	-28	0	0	0
	13(SUS)	-86	-598	-28	0	0	0
	MAX	-116/L6	-1467/L3	-543/L6			
2040		TYPE=Rigid +Y;					
	3(HYD)	125	-8630	34	0	0	0
	4(OPE)	-5	-4984	-1495	0	0	0
	6(OPE)	-340	-5370	-1575	0	0	0
	8(OPE)	69	-4917	24	0	0	0
	10(OPE)	-597	-5843	-1648	0	0	0
	12(SUS)	69	-4917	24	0	0	0
	13(SUS)	69	-4912	24	0	0	0
	MAX	-597/L10	-8630/L3	-1648/L10			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2060		TYPE=Rigid X w/gap; Rigid Z; Rigid +Y;					
	3(HYD)	29	-3244	188	0	0	0
	4(OPE)	-84	-2137	8788	0	0	0
	6(OPE)	-699	-2329	8495	0	0	0
	8(OPE)	12	-1887	135	0	0	0
	10(OPE)	-1186	-2503	7781	0	0	0
	12(SUS)	12	-1887	135	0	0	0
	13(SUS)	12	-1885	135	0	0	0
	MAX	-1186/L10	-3244/L3	8788/L4			
2180		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-759	0	0	0	0
	4(OPE)	0	-625	-7	0	0	0
	6(OPE)	0	-609	-25	0	0	0
	8(OPE)	0	-673	0	0	0	0
	10(OPE)	0	-673	0	0	0	0
	12(SUS)	0	-673	0	0	0	0
	13(SUS)	0	-672	0	0	0	0
	MAX		-759/L3	-25/L6			
2190		TYPE=Rigid +Y;					
	3(HYD)	-40	-486	22	0	0	0
	4(OPE)	-106	-438	-78	0	0	0
	6(OPE)	-108	-438	-76	0	0	0
	8(OPE)	-35	-431	18	0	0	0
	10(OPE)	-20	-469	-3	0	0	0
	12(SUS)	-35	-431	18	0	0	0
	13(SUS)	-35	-431	18	0	0	0
	MAX	-108/L6	-486/L3	-78/L4			
2220		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-11	-351	-5	0	0	0
	4(OPE)	-178	-311	-75	0	0	0
	6(OPE)	-300	-315	-79	0	0	0
	8(OPE)	-9	-310	9	0	0	0
	10(OPE)	-50	-181	21	0	0	0
	12(SUS)	-9	-310	9	0	0	0
	13(SUS)	-9	-309	9	0	0	0
	MAX	-300/L6	-351/L3	-79/L6			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2320		TYPE=Rigid +Y;					
	3(HYD)	0	0	0	0	0	0
	4(OPE)	0	-4490	0	0	0	0
	6(OPE)	0	-3838	0	0	0	0
	8(OPE)	0	0	0	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	0	0	0	0	0	0
	13(SUS)	0	0	0	0	0	0
	MAX		-4490/L4				
2500		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	-456	-4033	248	0	0	0
	4(OPE)	-4305	0	1630	0	0	0
	6(OPE)	-3706	0	1816	0	0	0
	8(OPE)	-326	-3512	181	0	0	0
	10(OPE)	2122	0	2605	0	0	0
	12(SUS)	-326	-3512	181	0	0	0
	13(SUS)	-326	-3510	181	0	0	0
	MAX	-4305/L4	-4033/L3	2605/L10			
2600		TYPE=Rigid +Y;					
	3(HYD)	723	-2573	-271	0	0	0
	4(OPE)	544	-1854	116	0	0	0
	6(OPE)	525	-2404	-494	0	0	0
	8(OPE)	525	-1844	-174	0	0	0
	10(OPE)	-106	-7554	-2264	0	0	0
	12(SUS)	525	-1844	-174	0	0	0
	13(SUS)	525	-1843	-174	0	0	0
	MAX	723/L3	-7554/L10	-2264/L10			
2620		TYPE=Rigid +Y;					
	3(HYD)	0	0	0	0	0	0
	4(OPE)	0	-2139	0	0	0	0
	6(OPE)	0	-1910	0	0	0	0
	8(OPE)	0	0	0	0	0	0
	10(OPE)	0	-120	0	0	0	0
	12(SUS)	0	0	0	0	0	0
	13(SUS)	0	0	0	0	0	0
	MAX		-2139/L4				
2800		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	-265	-3638	67	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-527	0	498	0	0	0
	6(OPE)	-629	0	793	0	0	0
	8(OPE)	-205	-3110	49	0	0	0
	10(OPE)	-19	0	1558	0	0	0
	12(SUS)	-205	-3110	49	0	0	0
	13(SUS)	-205	-3109	49	0	0	0
	MAX	-629/L6	-3638/L3	1558/L10			
3100		TYPE=Rigid +Y;					
	3(HYD)	-0	-497	-149	0	0	0
	4(OPE)	33	-182	-44	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	-0	-491	-147	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	-0	-491	-147	0	0	0
	13(SUS)	-0	-491	-147	0	0	0
	MAX	33/L4	-497/L3	-149/L3			
3120		TYPE=Rigid Z; Rigid X;					
	3(HYD)	-41	0	-205	0	0	0
	4(OPE)	4442	0	-2666	0	0	0
	6(OPE)	4939	0	-2674	0	0	0
	8(OPE)	-2	0	-124	0	0	0
	10(OPE)	76	0	-1601	0	0	0
	12(SUS)	-2	0	-124	0	0	0
	13(SUS)	-2	0	-124	0	0	0
	MAX	4939/L6		-2674/L6			
3960		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-25	-6031	15	0	0	0
	4(OPE)	3	-3194	-958	0	0	0
	6(OPE)	-46	-3110	-932	0	0	0
	8(OPE)	-14	-3221	11	0	0	0
	10(OPE)	-351	-3010	-898	0	0	0
	12(SUS)	-14	-3221	11	0	0	0
	13(SUS)	-14	-3217	11	0	0	0
	MAX	-351/L10	-6031/L3	-958/L4			
3980		TYPE=Rigid +Y;					
	3(HYD)	6	-6670	7	0	0	0
	4(OPE)	0	-3641	-1092	0	0	0
	6(OPE)	-7	-3663	-1099	0	0	0
	8(OPE)	3	-3634	5	0	0	0
	10(OPE)	-31	-3689	-1106	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	3	-3634	5	0	0	0
	13(SUS)	3	-3629	5	0	0	0
	MAX	-31/L10	-6670/L3	-1106/L10			
4000		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-2	-6482	3	0	0	0
	4(OPE)	-0	-3512	-1054	0	0	0
	6(OPE)	3	-3506	-1052	0	0	0
	8(OPE)	-1	-3514	2	0	0	0
	10(OPE)	-2	-3499	-1050	0	0	0
	12(SUS)	-1	-3514	2	0	0	0
	13(SUS)	-1	-3510	2	0	0	0
	MAX	3/L6	-6482/L3	-1054/L4			
4020		TYPE=Rigid +Y;					
	3(HYD)	0	-6603	1	0	0	0
	4(OPE)	-0	-3585	-1076	0	0	0
	6(OPE)	3	-3587	-1076	0	0	0
	8(OPE)	0	-3585	1	0	0	0
	10(OPE)	6	-3589	-1077	0	0	0
	12(SUS)	0	-3585	1	0	0	0
	13(SUS)	0	-3580	1	0	0	0
	MAX	6/L10	-6603/L3	-1077/L10			
4040		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-0	-6300	1	0	0	0
	4(OPE)	-0	-3419	-1026	0	0	0
	6(OPE)	2	-3419	-1026	0	0	0
	8(OPE)	-0	-3419	0	0	0	0
	10(OPE)	6	-3418	-1025	0	0	0
	12(SUS)	-0	-3419	0	0	0	0
	13(SUS)	-0	-3415	0	0	0	0
	MAX	6/L10	-6300/L3	-1026/L4			
4060		TYPE=Rigid +Y;					
	3(HYD)	0	-7404	0	0	0	0
	4(OPE)	0	-4018	-1206	0	0	0
	6(OPE)	1	-4019	-1206	0	0	0
	8(OPE)	0	-4018	0	0	0	0
	10(OPE)	6	-4019	-1206	0	0	0
	12(SUS)	0	-4018	0	0	0	0
	13(SUS)	0	-4013	0	0	0	0
	MAX	6/L10	-7404/L3	-1206/L10			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
4080		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-0	-2578	0	0	0	0
	4(OPE)	0	-1399	-420	0	0	0
	6(OPE)	-0	-1399	-420	0	0	0
	8(OPE)	-0	-1399	0	0	0	0
	10(OPE)	2	-1399	-420	0	0	0
	12(SUS)	-0	-1399	0	0	0	0
	13(SUS)	-0	-1397	0	0	0	0
	MAX	2/L10	-2578/L3	-420/L4			
4120		TYPE=Rigid +Y;					
	3(HYD)	422	-1405	2	0	0	0
	4(OPE)	-179	-618	47	0	0	0
	6(OPE)	-224	-768	56	0	0	0
	8(OPE)	177	-589	0	0	0	0
	10(OPE)	177	-589	0	0	0	0
	12(SUS)	177	-589	0	0	0	0
	13(SUS)	172	-574	0	0	0	0
	MAX	422/L3	-1405/L3	56/L6			
4160		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-294	-1735	6	0	0	0
	4(OPE)	-266	-626	262	0	0	0
	6(OPE)	-342	-192	948	0	0	0
	8(OPE)	-126	-730	2	0	0	0
	10(OPE)	-126	-730	2	0	0	0
	12(SUS)	-126	-730	2	0	0	0
	13(SUS)	-123	-711	2	0	0	0
	MAX	-342/L6	-1735/L3	948/L6			
4200		TYPE=Rigid ANC;					
	3(HYD)	-118	-649	-3	-10	-4	184
	4(OPE)	823	-511	-109	51	-127	469
	6(OPE)	1842	-927	-394	202	-458	1565
	8(OPE)	-47	-373	-1	-4	-2	77
	10(OPE)	-47	-373	-1	-4	-2	77
	12(SUS)	-47	-373	-1	-4	-2	77
	13(SUS)	-45	-368	-1	-4	-2	75
	MAX	1842/L6	-927/L6	-394/L6	202/L6	-458/L6	1565/L6
4260		TYPE=Rigid ANC;					
	3(HYD)	-118	-912	-3	-10	-5	394

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	823	-724	-109	51	-154	638
	6(OPE)	1842	-1140	-394	202	-557	1838
	8(OPE)	-47	-587	-1	-4	-2	211
	10(OPE)	-47	-587	-1	-4	-2	211
	12(SUS)	-47	-587	-1	-4	-2	211
	13(SUS)	-45	-580	-1	-4	-2	208
	MAX	1842/L6	-1140/L6	-394/L6	202/L6	-557/L6	1838/L6
4320		TYPE=Rigid ANC;					
	3(HYD)	-118	-912	-3	-18	-6	1120
	4(OPE)	823	-724	-109	-233	-204	-1171
	6(OPE)	1842	-1140	-394	-823	-738	-2427
	8(OPE)	-47	-587	-1	-8	-3	602
	10(OPE)	-47	-587	-1	-8	-3	602
	12(SUS)	-47	-587	-1	-8	-3	602
	13(SUS)	-45	-580	-1	-8	-2	593
	MAX	1842/L6	-1140/L6	-394/L6	-823/L6	-738/L6	-2427/L6

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC+H
 CASE 28 (OCC) L28=L21+L11
 CASE 29 (OCC) L29=L22+L11
 CASE 30 (OCC) L30=L23+L11
 CASE 31 (OCC) L31=L24+L11
 CASE 32 (OCC) L32=L25+L11
 CASE 33 (OCC) L33=L26+L11
 CASE 34 (OCC) L34=L27+L11
 CASE 35 (EXP) L35=L4-L11
 CASE 36 (EXP) L36=L6-L11
 CASE 37 (EXP) L37=L8-L11
 CASE 38 (EXP) L38=L6-L8

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (KPa)	LOADCASE 3 (HYD) WW+HP+H	
Ratio (%):	28.5 @Node 4160	
Code Stress:	49101.3	Allowable Stress: 172368.9
Axial Stress:	38860.8 @Node 4120	
Bending Stress:	29449.1 @Node 280	
Torsion Stress:	1901.1 @Node 2200	
Hoop Stress:	78278.3 @Node 1939	
Max Stress Intensity:	83292.6 @Node 1978	

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (KPa)	LOADCASE 12 (SUS) W+P1+H	
Ratio (%):	31.8 @Node 1020	
Code Stress:	43809.0	Allowable Stress: 137819.5
Axial Stress:	25776.1 @Node 4120	
Bending Stress:	50949.9 @Node 280	
Torsion Stress:	4165.2 @Node 2460	
Hoop Stress:	52185.5 @Node 1939	
Max Stress Intensity:	55518.2 @Node 1978	

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC+H

Highest Stresses: (KPa)	LOADCASE 13 (SUS) WNC+H	
Ratio (%):	27.9 @Node 280	
Code Stress:	38427.8	Allowable Stress: 137895.1
Axial Stress:	2177.4 @Node 1460	
Bending Stress:	50868.9 @Node 280	
Torsion Stress:	4166.0 @Node 2460	
Hoop Stress:	0.0 @Node 40	
Max Stress Intensity:	51145.1 @Node 280	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L11

Highest Stresses: (	KPa	)	LOADCASE 28 (OCC) L28=L21+L11	
Ratio (%):	55.1	@Node	2400	
Code Stress:	101012.9	Allowable Stress:	183299.9	
Axial Stress:	25761.3	@Node	4120	
Bending Stress:	97999.1	@Node	1260	
Torsion Stress:	28622.1	@Node	2460	
Hoop Stress:	52185.5	@Node	1939	
Max Stress Intensity:	103195.4	@Node	1260	

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L11

Highest Stresses: (	KPa	)	LOADCASE 29 (OCC) L29=L22+L11	
Ratio (%):	54.0	@Node	2400	
Code Stress:	98930.5	Allowable Stress:	183299.9	
Axial Stress:	25904.7	@Node	4260	
Bending Stress:	111643.6	@Node	280	
Torsion Stress:	23707.0	@Node	2460	
Hoop Stress:	52185.5	@Node	1939	
Max Stress Intensity:	115527.4	@Node	280	

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L11

Highest Stresses: (	KPa	)	LOADCASE 30 (OCC) L30=L23+L11	
Ratio (%):	51.1	@Node	2400	
Code Stress:	93751.6	Allowable Stress:	183299.9	
Axial Stress:	25742.1	@Node	4120	
Bending Stress:	87015.6	@Node	2400	
Torsion Stress:	22496.2	@Node	2460	
Hoop Stress:	52185.5	@Node	1939	
Max Stress Intensity:	93642.6	@Node	2400	

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L11

Highest Stresses: (	KPa	)	LOADCASE 31 (OCC) L31=L24+L11	
Ratio (%):	51.8	@Node	2400	
Code Stress:	94984.4	Allowable Stress:	183299.9	
Axial Stress:	25766.5	@Node	4120	
Bending Stress:	92753.6	@Node	280	
Torsion Stress:	25500.4	@Node	2460	
Hoop Stress:	52185.5	@Node	1939	
Max Stress Intensity:	94875.5	@Node	2400	

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L11

Highest Stresses: (	KPa	)	LOADCASE 32 (OCC) L32=L25+L11	
Ratio (%):	51.8	@Node	2400	
Code Stress:	94863.7	Allowable Stress:	183299.9	
Axial Stress:	25772.0	@Node	4120	
Bending Stress:	85827.6	@Node	2400	
Torsion Stress:	25330.7	@Node	2460	

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Hoop Stress: 52185.5 @Node 1939
 Max Stress Intensity: 94754.7 @Node 2400

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L11

Highest Stresses: (KPa) LOADCASE 33 (OCC) L33=L26+L11
 Ratio (%): 71.1 @Node 2400
 Code Stress: 130240.5 Allowable Stress: 183299.9
 Axial Stress: 25766.2 @Node 4120
 Bending Stress: 119518.5 @Node 2400
 Torsion Stress: 36432.7 @Node 2460
 Hoop Stress: 52185.5 @Node 1939
 Max Stress Intensity: 130131.5 @Node 2400

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L11

Highest Stresses: (KPa) LOADCASE 34 (OCC) L34=L27+L11
 Ratio (%): 47.8 @Node 2400
 Code Stress: 87542.2 Allowable Stress: 183299.9
 Axial Stress: 25766.2 @Node 4120
 Bending Stress: 81059.2 @Node 2400
 Torsion Stress: 25032.3 @Node 2460
 Hoop Stress: 52185.5 @Node 1939
 Max Stress Intensity: 87433.2 @Node 2400

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L11

Highest Stresses: (KPa) LOADCASE 35 (EXP) L35=L4-L11
 Ratio (%): 31.9 @Node 2570
 Code Stress: 92877.8 Allowable Stress: 290890.4
 Axial Stress: 4635.7 @Node 3140
 Bending Stress: 91267.0 @Node 2570
 Torsion Stress: 15261.3 @Node 1619
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 204089.0 @Node 2570

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L11

Highest Stresses: (KPa) LOADCASE 36 (EXP) L36=L6-L11
 Ratio (%): 34.6 @Node 2570
 Code Stress: 100607.0 Allowable Stress: 290890.4
 Axial Stress: 5035.2 @Node 3140
 Bending Stress: 99077.4 @Node 2570
 Torsion Stress: 20821.4 @Node 1619
 Hoop Stress: 0.0 @Node 40
 Max Stress Intensity: 221295.4 @Node 2570

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L8-L11

Highest Stresses: (KPa) LOADCASE 37 (EXP) L37=L8-L11
 Ratio (%): 18.7 @Node 2400
 Code Stress: 48334.0 Allowable Stress: 258165.3
 Axial Stress: 2897.1 @Node 2700

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases

Bending Stress:	48134.0	@Node	2400
Torsion Stress:	5554.2	@Node	2460
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	68947.1	@Node	2400

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L6-L8

Highest Stresses: (KPa)	LOADCASE 38 (EXP) L38=L6-L8	
Ratio (%):	29.7	@Node 2570
Code Stress:	86492.3	Allowable Stress: 290890.4
Axial Stress:	4913.4	@Node 3140
Bending Stress:	84420.1	@Node 2570
Torsion Stress:	20821.4	@Node 1619
Hoop Stress:	0.0	@Node 40
Max Stress Intensity:	189940.2	@Node 2570

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

CAESAR II 2018 Ver.10.00.00.7700, (Build 170726) Date: AUG 26, 2023 Time: 15:48
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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC+H
 CASE 28 (OCC) L28=L21+L11
 CASE 29 (OCC) L29=L22+L11
 CASE 30 (OCC) L30=L23+L11
 CASE 31 (OCC) L31=L24+L11
 CASE 32 (OCC) L32=L25+L11
 CASE 33 (OCC) L33=L26+L11
 CASE 34 (OCC) L34=L27+L11
 CASE 35 (EXP) L35=L4-L11
 CASE 36 (EXP) L36=L6-L11
 CASE 37 (EXP) L37=L8-L11
 CASE 38 (EXP) L38=L6-L8

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (KPa)	LOADCASE 3 (HYD) WW+HP+H	
Ratio (%):	28.5	@Node 4160
Code Stress:	49101.3	Allowable Stress: 172368.9
Axial Stress:	38860.8	@Node 4120
Bending Stress:	29449.1	@Node 280
Torsion Stress:	1901.1	@Node 2200
Hoop Stress:	78278.3	@Node 1939
Max Stress Intensity:	83292.6	@Node 1978

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (KPa)	LOADCASE 12 (SUS) W+P1+H	
Ratio (%):	31.8	@Node 1020
Code Stress:	43809.0	Allowable Stress: 137819.5
Axial Stress:	25776.1	@Node 4120
Bending Stress:	50949.9	@Node 280
Torsion Stress:	4165.2	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	55518.2	@Node 1978

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC+H

Highest Stresses: (KPa)	LOADCASE 13 (SUS) WNC+H	
Ratio (%):	27.9	@Node 280
Code Stress:	38427.8	Allowable Stress: 137895.1
Axial Stress:	2177.4	@Node 1460
Bending Stress:	50868.9	@Node 280
Torsion Stress:	4166.0	@Node 2460
Hoop Stress:	0.0	@Node 40
Max Stress Intensity:	51145.1	@Node 280

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L11

Highest Stresses: (KPa)	LOADCASE 28 (OCC)	L28=L21+L11
Ratio (%):	55.1	@Node 2400
Code Stress:	101012.9	Allowable Stress: 183299.9
Axial Stress:	25761.3	@Node 4120
Bending Stress:	97999.1	@Node 1260
Torsion Stress:	28622.1	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	103195.4	@Node 1260

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L11

Highest Stresses: (KPa)	LOADCASE 29 (OCC)	L29=L22+L11
Ratio (%):	54.0	@Node 2400
Code Stress:	98930.5	Allowable Stress: 183299.9
Axial Stress:	25904.7	@Node 4260
Bending Stress:	111643.6	@Node 280
Torsion Stress:	23707.0	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	115527.4	@Node 280

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L11

Highest Stresses: (KPa)	LOADCASE 30 (OCC)	L30=L23+L11
Ratio (%):	51.1	@Node 2400
Code Stress:	93751.6	Allowable Stress: 183299.9
Axial Stress:	25742.1	@Node 4120
Bending Stress:	87015.6	@Node 2400
Torsion Stress:	22496.2	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	93642.6	@Node 2400

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L11

Highest Stresses: (KPa)	LOADCASE 31 (OCC)	L31=L24+L11
Ratio (%):	51.8	@Node 2400
Code Stress:	94984.4	Allowable Stress: 183299.9
Axial Stress:	25766.5	@Node 4120
Bending Stress:	92753.6	@Node 280
Torsion Stress:	25500.4	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	94875.5	@Node 2400

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L11

Highest Stresses: (KPa)	LOADCASE 32 (OCC)	L32=L25+L11
Ratio (%):	51.8	@Node 2400
Code Stress:	94863.7	Allowable Stress: 183299.9
Axial Stress:	25772.0	@Node 4120
Bending Stress:	85827.6	@Node 2400
Torsion Stress:	25330.7	@Node 2460

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	94754.7	@Node	2400

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L11

Highest Stresses: (KPa)	LOADCASE 33 (OCC)	L33=L26+L11	
Ratio (%):	71.1	@Node	2400
Code Stress:	130240.5	Allowable Stress:	183299.9
Axial Stress:	25766.2	@Node	4120
Bending Stress:	119518.5	@Node	2400
Torsion Stress:	36432.7	@Node	2460
Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	130131.5	@Node	2400

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L11

Highest Stresses: (KPa)	LOADCASE 34 (OCC)	L34=L27+L11	
Ratio (%):	47.8	@Node	2400
Code Stress:	87542.2	Allowable Stress:	183299.9
Axial Stress:	25766.2	@Node	4120
Bending Stress:	81059.2	@Node	2400
Torsion Stress:	25032.3	@Node	2460
Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	87433.2	@Node	2400

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L11

Highest Stresses: (KPa)	LOADCASE 35 (EXP)	L35=L4-L11	
Ratio (%):	31.9	@Node	2570
Code Stress:	92877.8	Allowable Stress:	290890.4
Axial Stress:	4635.7	@Node	3140
Bending Stress:	91267.0	@Node	2570
Torsion Stress:	15261.3	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	204089.0	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L11

Highest Stresses: (KPa)	LOADCASE 36 (EXP)	L36=L6-L11	
Ratio (%):	34.6	@Node	2570
Code Stress:	100607.0	Allowable Stress:	290890.4
Axial Stress:	5035.2	@Node	3140
Bending Stress:	99077.4	@Node	2570
Torsion Stress:	20821.4	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	221295.4	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L8-L11

Highest Stresses: (KPa)	LOADCASE 37 (EXP)	L37=L8-L11	
Ratio (%):	18.7	@Node	2400
Code Stress:	48334.0	Allowable Stress:	258165.3
Axial Stress:	2897.1	@Node	2700

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Bending Stress:	48134.0	@Node	2400
Torsion Stress:	5554.2	@Node	2460
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	68947.1	@Node	2400

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L6-L8

Highest Stresses: (KPa)	LOADCASE 38 (EXP) L38=L6-L8	
Ratio (%):	29.7	@Node 2570
Code Stress:	86492.3	Allowable Stress: 290890.4
Axial Stress:	4913.4	@Node 3140
Bending Stress:	84420.1	@Node 2570
Torsion Stress:	20821.4	@Node 1619
Hoop Stress:	0.0	@Node 40
Max Stress Intensity:	189940.2	@Node 2570

BNK-GCS-CN-036

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Line no.

Stress sketch

Input echo

Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1.GAS-111-0031B-AN05-8"-ET

2.GAS-111-0036B-CN05-6"-PT

3.GAS-111-0032B-CN05-2"-PT

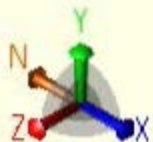
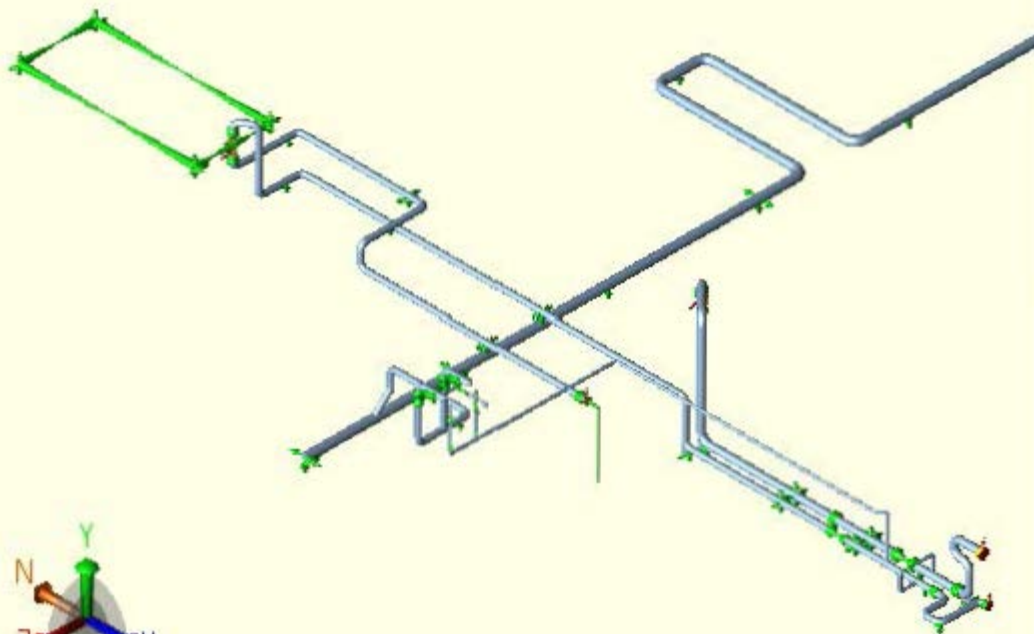
4.GAS-111-0033B-CN05-2"-PT

5.FL-112-0015B-AN07-2"-PT

6.FL-112-0014B-AN07-6"-PT

7.FL-112-0016B-AN07-6"-PT

8.GAS-111-0037B-CS00-6"-NP



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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 20 To 40 DX= -.105 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm. Cor= .3000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 20 C T2= 85 C T3= 21 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 203,452,944 KPa

EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000058 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 177.93 N.

RESTRAINTS

Node 20 ANC

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 20 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.

FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.

MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 40 To 60 DX= -1.065 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59

Angle/Node @2= .00 58

 From 60 To 80 DY= -.610 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

 From 80 To 100 DX= .610 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99

 From 100 To 120 DY= -.871 m.

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INPUT LISTING

From 120 To 140 DY= -.305 m.

RIGID Weight= .00 N.

From 140 To 160 DY= -.200 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 160 -X Mu = .30

Node 160 Z

Node 121 +Y Mu = .10

Node 160 X Cnode 121

HANGERS

Hanger Node = 160 Hanger Connecting Node = 121

Available Space = -100.0000 cm. Allowed Load Variation = 25.0000

No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N.

Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./cm.

Theoretical Cold Load = .00 N.

SIF's & TEE's

Node 140 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 120 To 180 DY= -.305 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm.

GENERAL

T1= 36 C T2= 85 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Fluid Den= .0000058 kg./cu.cm. Insul Thk= .000 cm.

DOUBLE FLANGED BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 180 To 200 DX= -.305 m.

From 200 To 220 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 220 To 240 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 240 To 260 DX= -.700 m.

From 260 To 280 DX= -.248 m.

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INPUT LISTING

SIF's & TEE's

Node 280 Weldolet

 From 280 To 300 DX= -.500 m.

RESTRAINTS

Node 300 +Y Mu = .30

 From 300 To 320 DX= -.200 m.

 From 320 To 340 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 340 To 360 DX= -.573 m.

Element Name= GATE_NOFLG_300

RIGID Weight= 1,023.41 N.

 From 360 To 380 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 380 To 400 DX= -1.000 m.

RESTRAINTS

Node 400 Y Mu = .30

Node 400 Z

 From 400 To 420 DX= -1.288 m.

 From 420 To 440 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 440 To 460 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 460 To 480 DX= -1.500 m.

RESTRAINTS

Node 480 Y Mu = .30

Node 480 Z

 From 480 To 500 DX= -3.805 m.

SINGLE FLANGED BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

 From 500 To 520 DY= .305 m.

 From 520 To 540 DY= -.305 m.

RIGID Weight= .00 N.

 From 540 To 560 DY= -.300 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

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INPUT LISTING

```

Fluid Den= .0000000 kg./cu.cm.    Insul Thk= .000 cm.
RESTRAINTS
  Node 560 +Y    Mu = .30
  Node 560 Z
SIF's & TEE's
  Node 540 Unreinforced Tee
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 520 To 580 DY= 3.935 m.
PIPE
  Dia= 21.907 cm.    Wall= .635 cm.
GENERAL
  T1= 36 C    T2= 85 C    P1= 900.0205 KPa    PHyd= 1,350.0308 KPa
  Fluid Den= .0000058 kg./cu.cm.    Insul Thk= .000 cm.
BEND at "TO" end
  Radius= 30.480 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 579
  Angle/Node @2= .00 578
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 580 To 600 DX= -.354 m.    DZ= -.354 m.
-----
From 600 To 620 DX= -.354 m.    DZ= -.354 m.
-----
From 620 To 640 DY= -.084 m.
RIGID Weight= .00 N.
-----
From 640 To 660 DY= -.300 m.
PIPE
  Dia= 11.430 cm.    Wall= .602 cm.
GENERAL
  T1= 21 C    T2= 21 C    P1= .0000 KPa    PHyd= .0000 KPa
  Fluid Den= .0000000 kg./cu.cm.    Insul Thk= .000 cm.
RESTRAINTS
  Node 660 +Y    Cnode 800    Mu = .30
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 620 To 680 DX= -.543 m.    DZ= -.543 m.
PIPE
  Dia= 21.907 cm.    Wall= .635 cm.
GENERAL
  T1= 36 C    T2= 85 C    P1= 900.0205 KPa    PHyd= 1,350.0308 KPa
  Fluid Den= .0000058 kg./cu.cm.    Insul Thk= .000 cm.
BEND at "TO" end
  Radius= 30.480 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 679

```

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Angle/Node @2= .00 678

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 680 To 700 DY= -.305 m.

 From 700 To 720 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

RESTRAINTS

Node 720 ANC Cnode 740

 From 740 To 760 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 760 To 780 DY= -.181 m.

RESTRAINTS

Node 780 ANC Cnode 820

EQUIPMENT LIMITS

Nozzle Node = 780 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.
 FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.
 MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute

 From 780 To 800 DX= .543 m. DY= .313 m. DZ= .543 m.

RIGID Weight= .00 N.

 From 820 To 840 DY= -3.065 m.

PIPE

Dia= 91.440 cm. Wall= 1.500 cm.

GENERAL

Mat= (383)A516 70 E= 203,401,232 KPa EH1= 202,155,536 KPa
 EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= .00 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 160,648 KPa
 Sh1= 160,648 KPa Sh2= 160,062 KPa Sh3= 160,648 KPa Sh4= 160,648 KPa
 Sh5= 160,648 KPa Sh6= 160,648 KPa Sh7= 160,648 KPa Sh8= 160,648 KPa
 Sh9= 160,648 KPa Sy= 262,001 KPa

 From 840 To 860 DY= -1.200 m.

PIPE

Dia= 91.440 cm. Wall= 1.200 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

RESTRAINTS

Node 860 ANC

 From 280 To 880 DY= .743 m.

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PIPE

Dia= 6.032 cm. Wall= .874 cm.

GENERAL

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 202,155,536 KPa
 EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879
 Angle/Node @2= .00 878

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 880 To 900 DZ= .510 m.

 From 900 To 910 DZ= .067 m.

Element Name= BALL_FLG_600

GENERAL

T1= 125 C T2= 155 C P1= 1,900.0433 KPa PHyd= 3,300.0752 KPa
 Fluid Den= .0000430 kg./cu.cm.

RIGID Weight= 31.14 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 910 To 920 DZ= .301 m.

RIGID Weight= 66.72 N.

 From 920 To 930 DZ= .275 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm. Element Name= CHECK_FLG_150

GENERAL

P1= 2,200.0500 KPa Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= 355.86 N.

 From 930 To 940 DZ= .073 m.

RIGID Weight= 44.48 N.

 From 940 To 960 DZ= .077 m.

SINGLE FLANGED BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 959
 Angle/Node @2= .00 958

 From 960 To 980 DY= -.652 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979
 Angle/Node @2= .00 978

 From 980 To 1000 DZ= -.077 m.

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From 1000 To 1020 DZ= -.621 m.
  Element Name= CHECK_FLG_600
-----
From 1020 To 1040 DX= .300 m.
PIPE
  Dia= 16.827 cm. Wall= .711 cm.
GENERAL
  Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.
RESTRAINTS
  Node 1040 +Y Mu = .30
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 1040 To 1060 DX= .318 m.
-----
From 1060 To 1080 DX= .102 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 191.27 N.
-----
From 1080 To 1100 DX= .102 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 191.27 N.
-----
From 1100 To 1120 DX= .390 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1119
  Angle/Node @2= .00 1118
-----
From 1120 To 1140 DZ= 1.000 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1139
  Angle/Node @2= .00 1138
-----
From 1140 To 1160 DX= .466 m.
-----
From 1160 To 1180 DX= .233 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1179
  Angle/Node @2= .00 1178
RESTRAINTS
  Node 1180 -X Mu = .30
  Node 1180 +Y Mu = .30
-----
From 1180 To 1200 DZ= -1.600 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1199
  Angle/Node @2= .00 1198
-----
From 1200 To 1220 DX= .229 m.
-----
From 1220 To 1240 DX= .102 m.
  Element Name= FLANGE_FLG_600
RIGID Weight= 191.27 N.

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RESTRAINTS

Node 1240 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 1240
 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 7,200.36 N. FB= 7,200.36 N.
 FC= 5,400.27 N. MA= 3,240.14 N.m. MB= 2,160.09 N.m. MC= 2,810.12 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

 From 1020 To 1260 DX= -1.208 m.

SIF's & TEE's

Node 1260 Weldolet

 From 1260 To 1280 DX= -1.275 m.

RESTRAINTS

Node 1280 Y Mu = .30

Node 1280 Z

 From 1280 To 1300 DX= -.368 m.

 From 1300 To 1320 DX= -.102 m.

Element Name= FLANGE_FLG_600

RIGID Weight= 191.27 N.

 From 1320 To 1340 DX= -.453 m.

Element Name= CHECK_NOFLG_600

RIGID Weight= 1,850.46 N.

 From 1340 To 1360 DX= -.102 m.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 191.27 N.

 From 1360 To 1380 DX= -1.973 m.

RESTRAINTS

Node 1380 Y Mu = .30

Node 1380 Z

 From 1380 To 1400 DX= -3.826 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399

Angle/Node @2= .00 1398

 From 1400 To 1420 DY= .229 m.

 From 1420 To 1440 DY= -.229 m.

RIGID Weight= .00 N.

 From 1440 To 1460 DY= -.300 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

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T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa
 Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 1460 +Y Mu = .30
 Node 1460 Z

SIF's & TEE's

Node 1440 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1420 To 1480 DY= 1.455 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

GENERAL

T1= 125 C T2= 155 C P1= 1,900.0433 KPa PHyd= 3,300.0752 KPa
 Fluid Den= .0000154 kg./cu.cm. Insul Thk= 4.000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479
 Angle/Node @2= .00 1478

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1480 To 1500 DX= -5.760 m.

RESTRAINTS

Node 1500 +Y
 Node 1500 Z

 From 1500 To 1520 DX= -6.000 m.

RESTRAINTS

Node 1520 +Y Mu = .30

 From 1520 To 1540 DX= -3.570 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1539
 Angle/Node @2= .00 1538

 From 1540 To 1560 DZ= .600 m.

RESTRAINTS

Node 1560 +Y Mu = .30

 From 1560 To 1580 DZ= 1.117 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1579
 Angle/Node @2= .00 1578

 From 1580 To 1600 DY= 2.487 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599
 Angle/Node @2= .00 1598

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From 1600 To 1620 DX= -.618 m. DZ= .432 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619
  Angle/Node @2= .00 1618
-----
From 1620 To 1640 DY= -.229 m.
-----
From 1640 To 1660 DY= -.102 m.
  Element Name= FLANGE_NOFLG_600
RIGID Weight= 191.27 N.
-----
From 1660 To 1680 DY= -.102 m.
  Element Name= FLANGE_NOFLG_600
RIGID Weight= 191.27 N.
-----
From 1680 To 1700 DY= -.127 m.
RESTRAINTS
  Node 1700 ANC Cnode 1720
EQUIPMENT LIMITS
  Nozzle Node = 1700
  Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
  FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
  Equipment Major Direction Vector= .0000 .0000 1.0000
  Interact. Mtd= Absolute
-----
From 1720 To 1740 DY= -.240 m.
GENERAL
  P1= 2,200.0500 KPa
RIGID Weight= .00 N.
-----
From 1740 To 1760 DY= -.240 m.
RIGID Weight= .00 N.
-----
From 1780 To 1800 DY= -.127 m.
GENERAL
  T1= 60 C
RESTRAINTS
  Node 1780 ANC Cnode 1760
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
EQUIPMENT LIMITS
  Nozzle Node = 1780
  Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
  FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
  Equipment Major Direction Vector= .0000 .0000 1.0000
  Interact. Mtd= Absolute
-----
From 1800 To 1820 DY= -.102 m.
  Element Name= FLANGE_NOFLG_150
RIGID Weight= 191.27 N.
-----
From 1740 To 1840 DZ= 1.500 m.
GENERAL

```

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T1= 142 C    T2= 175 C
RIGID Weight= 2,250.11 N.
RESTRAINTS
  Node 1840 Y Mu = .10
  Node 1840 X Mu = .30
  Node 1840 Z Gap= .600 cm.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,571 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 1840 To 1860 DX= -7.035 m.
RIGID Weight=10,500.52 N.
RESTRAINTS
  Node 1860 Y Mu = .10
  Node 1860 Z Gap= .600 cm. Mu = .30
-----
From 1860 To 1880 DZ= -3.000 m.
RIGID Weight= 4,500.22 N.
RESTRAINTS
  Node 1880 Y Mu = .10
  Node 1880 Z Gap= .600 cm.
-----
From 1880 To 1900 DX= 7.035 m.
RIGID Weight=10,500.52 N.
RESTRAINTS
  Node 1900 Y Mu = .10
  Node 1900 X
  Node 1900 Z Gap= .600 cm.
-----
From 1900 To 1740 DZ= 1.500 m.
RIGID Weight= 2,250.11 N.
-----
From 1820 To 1920 DY= -.102 m.
PIPE
  Dia= 16.827 cm. Wall= .340 cm. Cor= .0000 cm.
  Element Name= FLANGE_NOFLG_150
GENERAL
  T1= 60 C T2= 155 C Mat= (165)A312 TP316L E= 195,127,520 KPa
  EH1= 192,364,096 KPa EH2= 185,780,080 KPa EH3= 195,127,520 KPa
  EH4= 195,127,520 KPa EH5= 195,127,520 KPa EH6= 195,127,520 KPa
  EH7= 195,127,520 KPa EH8= 195,127,520 KPa EH9= 195,127,520 KPa
  v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.
  Insul Thk= .000 cm.
RIGID Weight= 191.27 N.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = --- Sc= 115,142 KPa
  Sh1= 115,142 KPa  Sh2= 114,386 KPa  Sh3= 115,142 KPa  Sh4= 115,142 KPa
  Sh5= 115,142 KPa  Sh6= 115,142 KPa  Sh7= 115,142 KPa  Sh8= 115,142 KPa
  Sh9= 115,142 KPa  Sy= 172,369 KPa
-----
From 1920 To 1940 DY= -.229 m.
GENERAL
  P1= 2,200.0500 KPa Fluid Den= .0000183 kg./cu.cm.
SINGLE FLANGED BEND at "TO" end

```

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    Radius= 22.860 cm. (LONG)    Bend Angle= 89.714    Angle/Node @1= 44.86 1939
-----
From 1940 To 1960 DY= -.011 m.  DZ= -2.257 m.
RESTRAINTS
    Node 1960 +Y    Mu = .30
-----
From 1960 To 1980 DY= -.002 m.  DZ= -.350 m.
BEND at "TO" end
    Radius= 22.860 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 1979
    Angle/Node @2= .00 1978
-----
From 1980 To 2000 DX= 4.441 m.
RESTRAINTS
    Node 2000 +Y    Mu = .30
    Node 2000 Z    Gap= .300 cm.    Mu = .30
-----
From 2020 To 2030 DZ= -1.687 m.
PIPE
    Dia= 27.305 cm.    Wall= .927 cm.    Cor= .6000 cm.
GENERAL
    T1= 30 C    T2= 85 C    T4= 200 C    P1= 550.0125 KPa    PHyd= 825.0188 KPa
    Mat= (106)A106 Grade B    E= 203,401,232 KPa    EH1= 202,660,192 KPa
    EH2= 199,086,608 KPa    EH3= 203,401,232 KPa    EH4= 191,317,008 KPa
    EH5= 203,401,232 KPa    EH6= 203,401,232 KPa    EH7= 203,401,232 KPa
    EH8= 203,401,232 KPa    EH9= 203,401,232 KPa    v = .292
    Pipe Den= .0078334 kg./cu.cm.    Fluid Den= .0000015 kg./cu.cm.
    Insul Thk= .000 cm.
SIF's & TEE's
    Node 2020 <No Type Specified>    SIF(in)= 2.080    SIF(out)= 2.460
ALLOWABLE STRESSES
    B31.3 (2016)    Cycle Max Switch = ---    Sc= 137,895 KPa
    Sh1= 137,895 KPa    Sh2= 137,895 KPa    Sh3= 137,895 KPa    Sh4= 137,261 KPa
    Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
    Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 2030 To 2040 DZ= -3.313 m.
RESTRAINTS
    Node 2040 +Y    Mu = .30
    Node 2040 X    Gap= .300 cm.
-----
From 2020 To 2060 DZ= 1.000 m.
RESTRAINTS
    Node 2060 +Y    Mu = .30
    Node 2060 X    Gap= .300 cm.    Mu = .30
    Node 2060 Z
SIF's & TEE's
    Node 2020 <No Type Specified>    SIF(in)= 2.080    SIF(out)= 2.460
-----
From 1260 To 2140 DY= 1.780 m.
PIPE
    Dia= 6.032 cm.    Wall= .874 cm.    Cor= .3000 cm.
GENERAL
    T1= 125 C    T2= 155 C    T4= 21 C    P1= 2,200.0500 KPa    PHyd= 3,300.0752 KPa
    Fluid Den= .0000154 kg./cu.cm.    Insul Thk= .000 cm.
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 2139
  
```

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Angle/Node @2= .00 2138
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,819 KPa   Sh3= 137,895 KPa   Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa   Sh7= 137,895 KPa   Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa

-----
From 2140 To 2160 DX= -.240 m.  DZ= .240 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG)   Bend Angle= 45.000   Angle/Node @1= 22.50 2159
  Angle/Node @2= .00 2158

-----
From 2160 To 2180 DX= -4.032 m.
RESTRAINTS
  Node 2180 +Y
  Node 2180 Z   Gap= .300 cm.

-----
From 2180 To 2190 DX= -6.000 m.
RESTRAINTS
  Node 2190 +Y   Mu = .30

-----
From 2190 To 2200 DX= -.388 m.
BEND at "TO" end
  Radius= 7.620 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 2199
  Angle/Node @2= .00 2198

-----
From 2200 To 2220 DZ= 2.350 m.
RESTRAINTS
  Node 2220 +Y   Mu = .30
  Node 2220 X   Gap= .300 cm.

-----
From 2220 To 2280 DZ= 3.176 m.
SIF's & TEE's
  Node 2280 Welding Tee

-----
From 2280 To 2290 DX= .000 m.  DZ= .500 m.

-----
From 2280 To 2320 DY= .190 m.
RESTRAINTS
  Node 2320 +Y

-----
From 2320 To 2330 DY= .738 m.
SIF's & TEE's
  Node 2330 Welding Tee

-----
From 2330 To 2340 DY= .086 m.

-----
From 2340 To 2346 DY= .073 m.
  Element Name= GATE_FLG_600
RIGID Weight= 44.48 N.

-----
From 2346 To 2352 DY= .212 m.
RIGID Weight= 258.00 N.

-----
From 2352 To 2360 DY= .073 m.
RIGID Weight= 44.48 N.

```

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INPUT LISTING

 From 2360 To 2380 DY= .250 m.

From 2380 To 2400 DY= .090 m.

REDUCER

Diam2= 4.826 cm. Wall2= .714 cm.

From 2400 To 2410 DY= .071 m.

PIPE

Dia= 4.826 cm. Wall= .714 cm.

Insul Thk= .000 cm.

RIGID Weight= 40.03 N.

From 2410 To 2420 DY= .067 m.

RIGID Weight= 50.00 N.

FORCES & MOMENTS

Node 2420 FY1= 1,000.05 N. FZ1= -2,000.10 N.

From 2420 To 2430 DX= -.046 m. DZ= .000 m.

PIPE

Dia= 8.890 cm. Wall= .762 cm.

Insul Thk= .000 cm.

RIGID Weight= 71.17 N.

From 2430 To 2440 DX= -.082 m. DZ= .000 m.

RIGID Weight= 71.17 N.

From 2440 To 2460 DX= -.073 m.

PIPE

Cor= .6000 cm. Element Name= FLANGE_FLG_150

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 750.0171 KPa

Phyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm.

RIGID Weight= 54.49 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 2460 To 2480 DX= -.140 m. DY= -.040 m.

REDUCER

Diam2= 16.827 cm. Wall2= 1.097 cm.

From 2480 To 2500 DX= -.354 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 2500 +Y Mu = .30

Node 2500 Z

Node 2500 X

From 2500 To 2520 DX= -.583 m. DZ= .000 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2519

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INPUT LISTING

Angle/Node @2= .00 2518

 From 2520 To 2540 DY= -.229 m.

From 2540 To 2546 DY= -.092 m.

Element Name= BALL_FLG_150

RIGID Weight= 111.21 N.

From 2546 To 2552 DY= -.276 m.

RIGID Weight= 1,005.30 N.

From 2552 To 2560 DY= -.092 m.

RIGID Weight= 111.21 N.

From 2560 To 2570 DY= -.194 m.

From 2570 To 2580 DY= -1.208 m.

SIF's & TEE's

Node 2580 Welding Tee

From 2580 To 2600 DX= .000 m. DZ= -.680 m.

RESTRAINTS

Node 2600 +Y Mu = .30

From 2290 To 2300 DZ= .500 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.

GENERAL

T1= 125 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2301

Angle/Node @2= .00 2302

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 2300 To 2620 DY= .190 m.

PIPE

Dia= 6.032 cm. Wall= .874 cm. Cor= .3000 cm.

GENERAL

T1= 125 C T2= 155 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 2620 +Y

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 2620 To 2640 DY= .823 m.

From 2640 To 2646 DY= .073 m.

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INPUT LISTING

```

    Element Name= GATE_FLG_600
RIGID Weight= 44.48 N.
-----
From 2646 To 2652 DY= .212 m.
RIGID Weight= 258.00 N.
-----
From 2652 To 2660 DY= .073 m.
RIGID Weight= 44.48 N.
-----
From 2660 To 2680 DY= .250 m.
-----
From 2680 To 2700 DY= .059 m.
REDUCER
    Diam2= 4.826 cm.    Wall2= .714 cm.
-----
From 2700 To 2710 DY= .071 m.
PIPE
    Dia= 4.826 cm.    Wall= .714 cm.
    Insul Thk= .000 cm.
RIGID Weight= 40.03 N.
-----
From 2710 To 2720 DY= .064 m.
RIGID Weight= 80.07 N.
FORCES & MOMENTS
    Node 2720    FX2= 2,000.10 N.    FY2= 1,000.05 N.    FZ2= .00 N.
-----
From 2720 To 2730 DX= -.046 m.
PIPE
    Dia= 8.890 cm.    Wall= .549 cm.
    Insul Thk= .000 cm.
RIGID Weight= 71.17 N.
-----
From 2730 To 2740 DX= -.083 m.
RIGID Weight= 71.17 N.
-----
From 2740 To 2760 DX= -.073 m.    DZ= .000 m.
PIPE
    Dia= 8.890 cm.    Wall= .762 cm.    Cor= .6000 cm.
    Element Name= FLANGE_FLG_150
GENERAL
    T1= 30 C    T2= 85 C    T3= 21 C    T4= 200 C    P1= 550.0125 KPa
    PHyd= 825.0188 KPa    Fluid Den= .0000015 kg./cu.cm.    Insul Thk= .000 cm.
RIGID Weight= 54.49 N.
ALLOWABLE STRESSES
    B31.3 (2016)          Cycle Max Switch = ---    Sc= 137,895 KPa
    Sh1= 137,895 KPa    Sh2= 137,895 KPa    Sh3= 137,895 KPa    Sh4= 137,261 KPa
    Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
    Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 2760 To 2780 DX= -.140 m.    DY= -.040 m.
REDUCER
    Diam2= 16.827 cm.    Wall2= 1.097 cm.
-----
From 2780 To 2800 DX= -.354 m.    DZ= .000 m.
PIPE
    Dia= 16.827 cm.    Wall= 1.097 cm.

```

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INPUT LISTING

```

Insul Thk= .000 cm.
RESTRAINTS
  Node 2800 +Y
  Node 2800 Z
  Node 2800 X
-----
From 2800 To 2820 DX= -.583 m.
SINGLE FLANGED BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2819
  Angle/Node @2= .00 2818
-----
From 2820 To 2840 DY= -.229 m.
-----
From 2840 To 2846 DY= -.092 m.
  Element Name= BALL_FLG_150
RIGID Weight= 111.21 N.
-----
From 2846 To 2852 DY= -.276 m.
RIGID Weight= 1,005.30 N.
-----
From 2852 To 2860 DY= -.092 m.
RIGID Weight= 111.21 N.
-----
From 2860 To 2880 DY= -1.402 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 92.005 Angle/Node @1= 46.00 2879
  Angle/Node @2= .00 2878
-----
From 2880 To 2580 DX= .001 m. DY= .035 m. DZ= -1.000 m.
-----
From 2600 To 2920 DZ= -.379 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2919
  Angle/Node @2= .00 2918
-----
From 2920 To 2940 DX= -3.185 m. DY= -.006 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 2939
  Angle/Node @2= .00 2938
-----
From 2940 To 2980 DY= -.723 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 45.040 Angle/Node @1= 22.52 2979
  Angle/Node @2= .00 2978
-----
From 2980 To 2030 DY= -.710 m. DZ= .711 m.
SIF's & TEE's
  Node 2030 <No Type Specified> SIF(in)= 2.660 SIF(out)= 3.160
-----
From 2330 To 3000 DX= .000 m. DZ= -.077 m.
PIPE
  Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.
GENERAL
  T1= 125 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
  Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.
ALLOWABLE STRESSES

```

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INPUT LISTING

```

    B31.3 (2016)          Cycle Max Switch = ---    Sc= 137,895 KPa
    Sh1= 137,895 KPa    Sh2= 137,819 KPa    Sh3= 137,895 KPa    Sh4= 137,895 KPa
    Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
    Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 3000 To 3020 DZ= -.073 m.
PIPE
    Dia= 6.032 cm.    Wall= .554 cm.
    Insul Thk= .000 cm.
RIGID Weight= 44.48 N.
-----
From 3020 To 3040 DY= .000 m.    DZ= -.187 m.
RIGID Weight= 209.07 N.
-----
From 3040 To 3060 DY= .000 m.    DZ= -.073 m.
RIGID Weight= 44.48 N.
-----
From 3060 To 3080 DY= .000 m.    DZ= -.077 m.
    Element Name= BALL_FLG_600
BEND at "TO" end
    Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 3079
    Angle/Node @2= .00 3078
-----
From 3080 To 3100 DX= -.377 m.    DY= .000 m.
RESTRAINTS
    Node 3100 +Y    Mu = .30
-----
From 3100 To 3120 DX= -.100 m.    DZ= .000 m.
RESTRAINTS
    Node 3120 X
    Node 3120 Z
-----
From 3120 To 3140 DX= -.307 m.
-----
From 3140 To 3146 DX= -.073 m.    DZ= .000 m.
    Element Name= GLOBE_FLG_600
RIGID Weight= 44.48 N.
-----
From 3146 To 3152 DX= -.276 m.    DZ= .000 m.
RIGID Weight= 458.17 N.
-----
From 3152 To 3160 DX= -.067 m.    DZ= .000 m.
PIPE
    Dia= 6.032 cm.    Wall= .874 cm.    Cor= .6000 cm.
GENERAL
    T1= 30 C    T2= 85 C    T4= 200 C    Fluid Den= .0000015 kg./cu.cm.
    Insul Thk= .000 cm.
RIGID Weight= 31.14 N.
ALLOWABLE STRESSES
    B31.3 (2016)          Cycle Max Switch = ---    Sc= 137,895 KPa
    Sh1= 137,895 KPa    Sh2= 137,895 KPa    Sh3= 137,895 KPa    Sh4= 137,261 KPa
    Sh5= 137,895 KPa    Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
    Sh9= 137,895 KPa    Sy= 241,316 KPa
-----
From 3160 To 3180 DX= -.077 m.    DZ= .000 m.
PIPE

```

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INPUT LISTING

```

Cor= .6000 cm.
GENERAL
  T1= 30 C   T2= 85 C   P1= 750.0171 KPa   PHyd= 825.0188 KPa
  Fluid Den= .0000015 kg./cu.cm.
BEND at "TO" end
  Radius= 7.620 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 3179
  Angle/Node @2= .00 3178
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---   Sc= 137,895 KPa
  Sh1= 137,895 KPa   Sh2= 137,895 KPa   Sh3= 137,895 KPa   Sh4= 137,261 KPa
  Sh5= 137,895 KPa   Sh6= 137,895 KPa   Sh7= 137,895 KPa   Sh8= 137,895 KPa
  Sh9= 137,895 KPa   Sy= 241,316 KPa
-----
From 3180 To 2570 DZ= .487 m.
SIF's & TEE's
  Node 2570   Welding Tee
-----
From 2040 To 3960 DZ= -6.000 m.
PIPE
  Dia= 27.305 cm.   Wall= .927 cm.
  Insul Thk= .000 cm.
RESTRAINTS
  Node 3960   +Y   Mu = .30
-----
From 3960 To 3980 DZ= -6.000 m.
RESTRAINTS
  Node 3980   +Y   Mu = .30
  Node 3980   X   Gap= .300 cm.
-----
From 3980 To 4000 DZ= -1.825 m.
BEND at "TO" end
  Radius= 38.100 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 3999
  Angle/Node @2= .00 3998
-----
From 4000 To 4020 DX= -6.000 m.   DZ= .000 m.
BEND at "TO" end
  Radius= 38.100 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4019
  Angle/Node @2= .00 4018
-----
From 4020 To 4040 DZ= -1.000 m.
RESTRAINTS
  Node 4040   +Y   Mu = .30
-----
From 4040 To 4060 DZ= -1.000 m.
BEND at "TO" end
  Radius= 38.100 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4059
  Angle/Node @2= .00 4058
-----
From 4060 To 4066 DX= 6.000 m.   DY= .000 m.   DZ= .000 m.
BEND at "TO" end
  Radius= 38.100 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 4065
  Angle/Node @2= .00 4064
-----
From 4066 To 4072 DZ= -2.174 m.
RESTRAINTS
  Node 4072   +Y   Mu = .30

```

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INPUT LISTING

 From 4072 To 4080 DZ= -6.000 m.

RESTRAINTS

Node 4080 +Y Mu = .30
 Node 4080 X Gap= .300 cm.
 Node 4080 Z Gap= .300 cm.

From 2000 To 4100 DX= .695 m.

PIPE

Dia= 16.827 cm. Wall= .340 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
 Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 192,364,096 KPa
 EH2= 185,780,080 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.
 Insul Thk= .000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4099
 Angle/Node @2= .00 4098

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 114,386 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

From 4100 To 4120 DY= -.013 m. DZ= 2.602 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 89.714 Angle/Node @1= 44.86 4119
 Angle/Node @2= .00 4118

RESTRAINTS

Node 4120 +Y Mu = .30

From 4120 To 4140 DY= -.830 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4139
 Angle/Node @2= .00 4138

From 4140 To 4160 DX= 5.050 m.

RESTRAINTS

Node 4160 +Y Mu = .30
 Node 4160 Z Mu = .30

From 4160 To 4180 DX= 3.596 m.

From 4180 To 4200 DX= .102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

RESTRAINTS

Node 4200 ANC Cnode 4220

From 4220 To 4240 DX= .102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

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INPUT LISTING

From 4240 To 4260 DX= .150 m.

RESTRAINTS

Node 4260 ANC Cnode 4261

EQUIPMENT LIMITS

Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.
 FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

 From 4261 To 4280 DX= .459 m.

PIPE

Dia= 91.948 cm. Wall= 1.200 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

 From 4280 To 4300 DY= -1.300 m.

RIGID Weight= .00 N.

 From 4300 To 4310 DY= -1.000 m.

RIGID Weight= .00 N.

 From 4310 To 4320 DY= -.300 m.

GENERAL

T1= 21 C T2= 21 C

RIGID Weight= .00 N.

RESTRAINTS

Node 4320 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

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MATERIAL Changes:

20	40	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
820	840	Mat= (383)A516 70 E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
280	880	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1820	1920	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
2020	2030	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
2000	4100	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.

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ALLOWABLE STRESS Changes

20	40	B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa Sh1= 137,895 KPa

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		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
140	160	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
120	180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
540	560	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
520	580	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
640	660	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
620	680	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
820	840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 160,648 KPa	Sh1= 160,648 KPa
		Sh2= 160,062 KPa	Sh3= 160,648 KPa
		Sh4= 160,648 KPa	Sh5= 160,648 KPa
		Sh6= 160,648 KPa	Sh7= 160,648 KPa
		Sh8= 160,648 KPa	Sh9= 160,648 KPa
		Sy= 262,001 KPa	
280	880	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa

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INPUT LISTING

		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
900	910	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1020	1040	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1220	1240	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1440	1460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1420	1480	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1780	1800	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1740	1840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1820	1920	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa

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INPUT LISTING

		Sh2= 114,386 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
2020	2030	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1260	2140	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2440	2460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2290	2300	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2300	2620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2740	2760	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2330	3000	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3152	3160	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa

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INPUT LISTING

		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3160	3180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2000	4100	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 114,386 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
4310	4320	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	

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BEND ELEMENTS

40	60	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 59
		Angle/Node @2= .00 58
60	80	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
80	100	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 99
120	180	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179
480	500	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		499 Angle/Node @2= .00 498
520	580	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
620	680	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		679 Angle/Node @2= .00 678
280	880	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		879 Angle/Node @2= .00 878
940	960	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		959 Angle/Node @2= .00 958

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INPUT LISTING

960	980	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		979 Angle/Node @2= .00 978
1100	1120	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1119 Angle/Node @2= .00 1118
1120	1140	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1139 Angle/Node @2= .00 1138
1160	1180	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1179 Angle/Node @2= .00 1178
1180	1200	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1199 Angle/Node @2= .00 1198
1380	1400	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1399 Angle/Node @2= .00 1398
1420	1480	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1479 Angle/Node @2= .00 1478
1520	1540	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1539 Angle/Node @2= .00 1538
1560	1580	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1579 Angle/Node @2= .00 1578
1580	1600	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1599 Angle/Node @2= .00 1598
1600	1620	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1619 Angle/Node @2= .00 1618
1920	1940	Radius= 22.860 cm. (LONG)
		Bend Angle= 89.714 Angle/Node @1= 44.86
		1939
1960	1980	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		1979 Angle/Node @2= .00 1978
1260	2140	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2139 Angle/Node @2= .00 2138
2140	2160	Radius= 7.620 cm. (LONG)
		Bend Angle= 45.000 Angle/Node @1= 22.50
		2159 Angle/Node @2= .00 2158
2190	2200	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2199 Angle/Node @2= .00 2198
2500	2520	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2519 Angle/Node @2= .00 2518
2290	2300	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2301 Angle/Node @2= .00 2302
2800	2820	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00

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INPUT LISTING

2860	2880	2819 Angle/Node @2= .00 2818 Radius= 22.860 cm. (LONG) Bend Angle= 92.005 Angle/Node @1= 46.00
2600	2920	2879 Angle/Node @2= .00 2878 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2920	2940	2919 Angle/Node @2= .00 2918 Radius= 22.860 cm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94
2940	2980	2939 Angle/Node @2= .00 2938 Radius= 22.860 cm. (LONG) Bend Angle= 45.040 Angle/Node @1= 22.52
3060	3080	2979 Angle/Node @2= .00 2978 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
3160	3180	3079 Angle/Node @2= .00 3078 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
3980	4000	3179 Angle/Node @2= .00 3178 Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4000	4020	3999 Angle/Node @2= .00 3998 Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4040	4060	4019 Angle/Node @2= .00 4018 Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4060	4066	4059 Angle/Node @2= .00 4058 Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2000	4100	4065 Angle/Node @2= .00 4064 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
4100	4120	4099 Angle/Node @2= .00 4098 Radius= 22.860 cm. (LONG) Bend Angle= 89.714 Angle/Node @1= 44.86
4120	4140	4119 Angle/Node @2= .00 4118 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
		4139 Angle/Node @2= .00 4138

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RIGIDS

20	40	RIGID Weight= 177.93 N.
120	140	RIGID Weight= .00 N.
200	220	RIGID Weight= 177.93 N.
220	240	RIGID Weight= 177.93 N.
320	340	RIGID Weight= 177.93 N.
340	360	RIGID Weight= 1,023.41 N.
360	380	RIGID Weight= 177.93 N.
420	440	RIGID Weight= 177.93 N.
440	460	RIGID Weight= 177.93 N.
520	540	RIGID Weight= .00 N.
620	640	RIGID Weight= .00 N.

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INPUT LISTING

700	720	RIGID	Weight= 177.93 N.
740	760	RIGID	Weight= 177.93 N.
780	800	RIGID	Weight= .00 N.
820	840	RIGID	Weight= .00 N.
840	860	RIGID	Weight= .00 N.
900	910	RIGID	Weight= 31.14 N.
910	920	RIGID	Weight= 66.72 N.
920	930	RIGID	Weight= 355.86 N.
930	940	RIGID	Weight= 44.48 N.
1060	1080	RIGID	Weight= 191.27 N.
1080	1100	RIGID	Weight= 191.27 N.
1220	1240	RIGID	Weight= 191.27 N.
1300	1320	RIGID	Weight= 191.27 N.
1320	1340	RIGID	Weight= 1,850.46 N.
1340	1360	RIGID	Weight= 191.27 N.
1420	1440	RIGID	Weight= .00 N.
1640	1660	RIGID	Weight= 191.27 N.
1660	1680	RIGID	Weight= 191.27 N.
1720	1740	RIGID	Weight= .00 N.
1740	1760	RIGID	Weight= .00 N.
1800	1820	RIGID	Weight= 191.27 N.
1740	1840	RIGID	Weight= 2,250.11 N.
1840	1860	RIGID	Weight=10,500.52 N.
1860	1880	RIGID	Weight= 4,500.22 N.
1880	1900	RIGID	Weight=10,500.52 N.
1900	1740	RIGID	Weight= 2,250.11 N.
1820	1920	RIGID	Weight= 191.27 N.
2340	2346	RIGID	Weight= 44.48 N.
2346	2352	RIGID	Weight= 258.00 N.
2352	2360	RIGID	Weight= 44.48 N.
2400	2410	RIGID	Weight= 40.03 N.
2410	2420	RIGID	Weight= 50.00 N.
2420	2430	RIGID	Weight= 71.17 N.
2430	2440	RIGID	Weight= 71.17 N.
2440	2460	RIGID	Weight= 54.49 N.
2540	2546	RIGID	Weight= 111.21 N.
2546	2552	RIGID	Weight= 1,005.30 N.
2552	2560	RIGID	Weight= 111.21 N.
2640	2646	RIGID	Weight= 44.48 N.
2646	2652	RIGID	Weight= 258.00 N.
2652	2660	RIGID	Weight= 44.48 N.
2700	2710	RIGID	Weight= 40.03 N.
2710	2720	RIGID	Weight= 80.07 N.
2720	2730	RIGID	Weight= 71.17 N.
2730	2740	RIGID	Weight= 71.17 N.
2740	2760	RIGID	Weight= 54.49 N.
2840	2846	RIGID	Weight= 111.21 N.
2846	2852	RIGID	Weight= 1,005.30 N.
2852	2860	RIGID	Weight= 111.21 N.
3000	3020	RIGID	Weight= 44.48 N.
3020	3040	RIGID	Weight= 209.07 N.
3040	3060	RIGID	Weight= 44.48 N.
3140	3146	RIGID	Weight= 44.48 N.
3146	3152	RIGID	Weight= 458.17 N.
3152	3160	RIGID	Weight= 31.14 N.
4180	4200	RIGID	Weight= 191.27 N.

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INPUT LISTING

4220	4240	RIGID	Weight= 191.27 N.
4261	4280	RIGID	Weight= .00 N.
4280	4300	RIGID	Weight= .00 N.
4300	4310	RIGID	Weight= .00 N.
4310	4320	RIGID	Weight= .00 N.

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SIF's & TEE's

140	160	Node 140	Unreinforced Tee
260	280	Node 280	Weldolet
540	560	Node 540	Unreinforced Tee
1020	1260	Node 1260	Weldolet
1440	1460	Node 1440	Unreinforced Tee
2020	2030	Node 2020	<No Type Specified>
		SIF(in)= 2.080	SIF(out)= 2.460
2020	2060	Node 2020	<No Type Specified>
		SIF(in)= 2.080	SIF(out)= 2.460
2220	2280	Node 2280	Welding Tee
2320	2330	Node 2330	Welding Tee
2570	2580	Node 2580	Welding Tee
2980	2030	Node 2030	<No Type Specified>
		SIF(in)= 2.660	SIF(out)= 3.160
3180	2570	Node 2570	Welding Tee

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REDUCERS

2380	2400	Diam2= 4.826 cm.	Wall2= .714 cm.
2460	2480	Diam2= 16.827 cm.	Wall2= 1.097 cm.
2680	2700	Diam2= 4.826 cm.	Wall2= .714 cm.
2760	2780	Diam2= 16.827 cm.	Wall2= 1.097 cm.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
20	ANC					.000 .000 .000
160	-X				.30	1.000 .000 .000
160	Z					.000 .000 1.000
121	+Y				.10	.000 1.000 .000
160	X	121				1.000 .000 .000
300	+Y				.30	.000 1.000 .000
400	Y				.30	.000 1.000 .000
400	Z					.000 .000 1.000
480	Y				.30	.000 1.000 .000
480	Z					.000 .000 1.000
560	+Y				.30	.000 1.000 .000
560	Z					.000 .000 1.000
660	+Y	800			.30	.000 1.000 .000
720	ANC	740				.000 .000 .000
780	ANC	820				.000 .000 .000
860	ANC					.000 .000 .000

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1040	+Y		.30	.000	1.000	.000
1180	-X		.30	1.000	.000	.000
1180	+Y		.30	.000	1.000	.000
1240	ANC			.000	.000	.000
1280	Y		.30	.000	1.000	.000
1280	Z			.000	.000	1.000
1380	Y		.30	.000	1.000	.000
1380	Z			.000	.000	1.000
1460	+Y		.30	.000	1.000	.000
1460	Z			.000	.000	1.000
1500	+Y			.000	1.000	.000
1500	Z			.000	.000	1.000
1520	+Y		.30	.000	1.000	.000
1560	+Y		.30	.000	1.000	.000
1700	ANC	1720		.000	.000	.000
1780	ANC	1760		.000	.000	.000
1840	Y		.10	.000	1.000	.000
1840	X		.30	1.000	.000	.000
1840	Z	.60		.000	.000	1.000
1860	Y		.10	.000	1.000	.000
1860	Z	.60	.30	.000	.000	1.000
1880	Y		.10	.000	1.000	.000
1880	Z	.60		.000	.000	1.000
1900	Y		.10	.000	1.000	.000
1900	X			1.000	.000	.000
1900	Z	.60		.000	.000	1.000
1960	+Y		.30	.000	1.000	.000
2000	+Y		.30	.000	1.000	.000
2000	Z	.30	.30	.000	.000	1.000
2040	+Y		.30	.000	1.000	.000
2040	X	.30		1.000	.000	.000
2060	+Y		.30	.000	1.000	.000
2060	X	.30	.30	1.000	.000	.000
2060	Z			.000	.000	1.000
2180	+Y			.000	1.000	.000
2180	Z	.30		.000	.000	1.000
2190	+Y		.30	.000	1.000	.000
2220	+Y		.30	.000	1.000	.000
2220	X	.30		1.000	.000	.000
2320	+Y			.000	1.000	.000
2500	+Y		.30	.000	1.000	.000
2500	Z			.000	.000	1.000
2500	X			1.000	.000	.000
2600	+Y		.30	.000	1.000	.000
2620	+Y			.000	1.000	.000
2800	+Y			.000	1.000	.000
2800	Z			.000	.000	1.000
2800	X			1.000	.000	.000
3100	+Y		.30	.000	1.000	.000
3120	X			1.000	.000	.000
3120	Z			.000	.000	1.000
3960	+Y		.30	.000	1.000	.000
3980	+Y		.30	.000	1.000	.000
3980	X	.30		1.000	.000	.000
4040	+Y		.30	.000	1.000	.000
4072	+Y		.30	.000	1.000	.000

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INPUT LISTING

4080	+Y			.30	.000	1.000	.000
4080	X		.30		1.000	.000	.000
4080	Z		.30		.000	.000	1.000
4120	+Y			.30	.000	1.000	.000
4160	+Y			.30	.000	1.000	.000
4160	Z			.30	.000	.000	1.000
4200	ANC	4220			.000	.000	.000
4260	ANC	4261			.000	.000	.000
4320	ANC				.000	.000	.000

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HANGER CONTROL AND LOCATION DATA

No. of Hanger Design Load Cases = 1
 Actual Cold Load Flag = 0.0
 Short Range Spring Flag = 1
 Allowed Load Variation (%) = 25.0000
 Default Hanger Table = 5

140	160	Hanger Node = 160
		Hanger Connecting Node = 121
		Available Space = -100.0000 cm.
		Allowed Load Variation = 25.0000
		No. Hangers = 0.0 Short Range Flag = -1
		User Operating Load = .00 N. Free Node = 0
		Free Node = 0 Free Code = 0.0
		Spring Rate = .00 N./cm.
		Theoretical Cold Load = .00 N.

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EQUIPMENT LIMITS

20	40	Nozzle Node = 20
Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.		
FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.		
Equipment Major Direction Vector= .0000 1.0000 .0000		
Interact. Mtd= Absolute		
760	780	Nozzle Node = 780
Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.		
FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.		
Equipment Major Direction Vector= .0000 .0000 1.0000		
Interact. Mtd= Absolute		
1220	1240	Nozzle Node = 1240
Limiting Loads: A=pipe; B=ref; C=AxB; FA= 7,200.36 N. FB= 7,200.36 N.		
FC= 5,400.27 N. MA= 3,240.14 N.m. MB= 2,160.09 N.m. MC= 2,810.12 N.m.		
Equipment Major Direction Vector= .0000 1.0000 .0000		
Interact. Mtd= Absolute		
1680	1700	Nozzle Node = 1700

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Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 1780 1800 Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 4240 4260 Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.
 FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute
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FORCES AND MOMENTS

2410 2420 Node 2420 FY1= 1,000.05 N.
 FZ1= -2,000.10 N.
 2710 2720 Node 2720 FX2= 2,000.10 N.
 FY2= 1,000.05 N. FZ2= .00 N.
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UNIFORM LOAD Changes

20 40 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's
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INPUT UNITS USED...

UNITS= SI NOM/SCH INPUT= ON
 LENGTH inches x 2.540 = cm.
 FORCE pounds x 4.448 = N.
 MASS (dynamics) pounds x 0.454 = Kg.
 MOMENTS (INPUT) inch-pounds x 0.113 = N.m.
 MOMENTS (OUTPUT) inch-pounds x 0.113 = N.m.
 STRESS lbs./sq.in. x 6.895 = KPa
 TEMP. SCALE degrees F. x 0.556 = C
 PRESSURE psig x 6.895 = KPa

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INPUT LISTING

ELASTIC MODULUS	lbs./sq.in.	x	6.895	=	KPa
PIPE DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
INSULATION DENS.	lbs./cu.in.	x	0.028	=	kg./cu.cm.
FLUID DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
TRANSL. STIF	lbs./in.	x	1.751	=	N./cm.
ROTATIONAL STIF	in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD	lb./in.	x	1.751	=	N./cm.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	6.895	=	KPa
ELEVATION	inches	x	0.025	=	m.
COMPOUND LENGTH	inches	x	0.025	=	m.
DIAMETER	inches	x	2.540	=	cm.
WALL THICKNESS	inches	x	2.540	=	cm.

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SETUP FILE PARAMETERS

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CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =              5.00000
MAX ALLOWED BEND ANGLE =              95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =       5.00000
LOOP CLOSURE TOLERANCE =              2.54000      cm.
THERMAL BOWING HORZ TOLERANCE =       0.100000E-03
AUTO NODE NUMBER INCREMENT=          10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =             DEFAULT
ALPHA TOLERANCE =                     0.500000E-01
RESLD-FORCE =                         NO
HGR DEF RESWGT STIF =                  0.175127E+13 N./cm.
DECOMP SNG TOL =                       0.100000E+11
BEND AXIAL SHAPE =                     YES
FRICT STIF =                           0.175127E+07 N./cm.
FRICT NORM FORCE VAR =                  0.150000
FRICT ANGLE VAR =                      15.0000
FRICT SLIDE MULT =                     1.00000
ROD TOLERANCE =                        1.00000
ROD INC =                              2.00000
INCORE NUMERICAL CHECK =               NO
OUTCORE NUMERICAL CHECK =              NO
DEFAULT TRANS RESTRAINT STIFF=         0.175127E+13      N./cm.
DEFAULT ROT RESTRAINT STIFF=           0.112985E+12      N.m./deg
IGNORE SPRING HANGER STIFFNESS =       NO
MISSING MASS ZPA =                     EXTRACTED
MIN WALL MILL TOLERANCE =              12.5000
WRC-107 VERSION =                      MAR 79 1B1/2B1
WRC-107 INTERPOLATION =                LAST VALUE
DEFAULT AMBIENT TEMPERATURE=           21.1111      C
BOURDON PRESSURE=                      NONE
COEFFICIENT OF FRICTION (MU) =          0.000000
INCLUDE SPRG STIF IN HGR OPE =         NO
INCLUDE INSULATION IN HYDROTEST =      NO
REDUCED INTERSECTION =                 B31.1 (POST1980)
USE WRC329                             NO
NO REDUCED SIF FOR RFT AND WLT         NO
B31.1 REDUCED Z FIX =                  YES

```

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INPUT LISTING

CLASS 1 BRANCH FLEX	NO	
ALL STRESS CASES CORRODED =	NO	
ADD TORSION IN SL STRESS =	DEFAULT	
ADD F/A IN STRESS =	DEFAULT	
OCCASIONAL LOAD FACTOR =	0.000000	
DEFAULT CODE =	B31.3	
B31.3 SUS CASE SIF FACTOR =	0.000000	
ALLOW USERS BEND SIF =	NO	
USE SCHNEIDER	NO	
YIELD CRITERION STRESS =	MAX 3D SHEAR	
USE PD/4T	NO	
BASE HOOP STRESS ON ? =	ID	
EN13480 USE IN OUTPLANE SIFS=	NO	
LIBERAL EXPANSION ALLOWABLE=	YES	
B31.3 SEC 319.2.3C SAXIAL=	Default	
B31.3 WELDING/CONTOUR TEE ISB16.9	FALSE	
PRESSURE VARIATION IN EXP CASE=	DEFAULT	
IMPLEMENT B313 APP-P	NO	
IMPLEMENT B313 CODE CASE 178	YES	
IGNORE B31.1/B31.3 Wc FACTOR=	YES	
USE FRP SIF =	YES	
USE FRP FLEX =	YES	
BS 7159 Pressure Stiffening=	Design Strain	
FRP Property Data File=	CAESAR.FRP	
FRP Emod (axial) =	0.220632E+08	KPa
FRP Ratio Gmod/Emod (axial) =	0.250000	
FRP Ea/Eh*Vh/a =	0.152730	
FRP Laminate Type =	THREE	
FRP Alpha =	21.6000	C
FRP Density =	0.166079E-02	kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING =	NO	

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EXECUTION CONTROL PARAMETERS

Rigid/ExpJt Print Flag	1.000
Bourdon Option	.000
Loop Closure Flag	2.000
Thermal Bowing Delta Temp ..	.000 C
Liberal Allowable Flag	1.000
Uniform Load Option	1.000
Ambient Temperature	20.997 C
Plastic (FRP) Alpha	21.600
Plastic (FRP) GMOD/EMODa ...	.250
Plastic (FRP) Laminate Type.	3.000
Eqn Optimizer	.000
Node Selection	.000
Eqn Ordering	.000
Collins	.000
Degree Determination	.000
User Eqn Control	.000
North Direction	-X

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INPUT LISTING

COORDINATE REPORT

```

/----- (cm.) -----/
NODE      X      Y      Z
  20      655.300    -532.935    706.010
  40      644.823    -532.935    706.010
  60      538.344    -532.935    706.010
  80      538.344    -593.935    706.010
 100      599.344    -593.935    706.010
 120      599.344    -681.025    706.010
 140      599.344    -711.525    706.010
 160      599.344    -731.525    706.010
 120      599.344    -681.025    706.010
 180      599.344    -711.525    706.010
 200      568.844    -711.525    706.010
 220      558.367    -711.525    706.010
 240      547.890    -711.525    706.010
 260      477.890    -711.525    706.010
 280      453.100    -711.525    706.010
 300      403.100    -711.525    706.010
 320      383.100    -711.525    706.010
 340      372.622    -711.525    706.010
 360      315.322    -711.525    706.010
 380      304.845    -711.525    706.010
 400      204.845    -711.525    706.010
 420       76.065    -711.525    706.010
 440       65.587    -711.525    706.010
 460       55.110    -711.525    706.010
 480      -94.890    -711.525    706.010
 500     -475.370    -711.525    706.010
 520     -475.370    -681.025    706.010
 540     -475.370    -711.525    706.010
 560     -475.370    -741.525    706.010
 520     -475.370    -681.025    706.010
 580     -475.370    -287.525    706.010
 600     -510.726    -287.525    670.655
 620     -546.081    -287.525    635.299
 640     -546.081    -295.925    635.299
 660     -546.081    -325.925    635.299
 620     -546.081    -287.525    635.299
 680     -600.387    -287.525    580.994
 700     -600.387    -318.025    580.994
 720     -600.387    -328.503    580.994
 760     -600.387    -338.980    580.994
 780     -600.387    -357.120    580.994
 780     -600.387    -357.220    580.994
 660     -546.081    -325.925    635.299
 780     -600.387    -357.120    580.994
 840     -600.387    -663.620    580.994
 860     -600.387    -783.620    580.994
 280      453.100    -711.525    706.010
 880      453.100    -637.235    706.010
 900      453.100    -637.235    757.010
 910      453.100    -637.235    763.677
 920      453.100    -637.235    793.777
 930      453.100    -637.235    821.277

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INPUT LISTING

940	453.100	-637.235	828.580
960	453.100	-637.235	836.280
980	453.100	-702.475	836.280
1000	453.100	-702.475	828.580
1020	453.100	-702.475	766.480
1040	483.100	-702.475	766.480
1060	514.900	-702.475	766.480
1080	525.060	-702.475	766.480
1100	535.219	-702.475	766.480
1120	574.259	-702.475	766.480
1140	574.259	-702.475	866.480
1160	620.833	-702.475	866.480
1180	644.120	-702.475	866.480
1200	644.120	-702.475	706.480
1220	667.020	-702.475	706.480
1240	677.180	-702.475	706.480
1020	453.100	-702.475	766.480
1260	332.306	-702.475	766.480
1280	204.845	-702.475	766.480
1300	168.045	-702.475	766.480
1320	157.885	-702.475	766.480
1340	112.585	-702.475	766.480
1360	102.425	-702.475	766.480
1380	-94.875	-702.475	766.480
1400	-477.475	-702.475	766.480
1420	-477.475	-679.575	766.480
1440	-477.475	-702.475	766.480
1460	-477.475	-732.475	766.480
1420	-477.475	-679.575	766.480
1480	-477.475	-534.075	766.480
1500	-1053.475	-534.075	766.480
1520	-1653.475	-534.075	766.480
1540	-2010.475	-534.075	766.480
1560	-2010.475	-534.075	826.480
1580	-2010.475	-534.075	938.180
1600	-2010.475	-285.325	938.180
1620	-2072.275	-285.325	981.380
1640	-2072.275	-308.225	981.380
1660	-2072.275	-318.385	981.380
1680	-2072.275	-328.545	981.380
1700	-2072.275	-341.245	981.380
1740	-2072.275	-365.245	981.380
1780	-2072.275	-389.245	981.380
1800	-2072.275	-401.945	981.380
1820	-2072.275	-412.105	981.380
1740	-2072.275	-365.245	981.380
1840	-2072.275	-365.245	1131.380
1860	-2775.775	-365.245	1131.380
1880	-2775.775	-365.245	831.380
1900	-2072.275	-365.245	831.380
1740	-2072.275	-365.245	981.380
1820	-2072.275	-412.105	981.380
1920	-2072.275	-422.265	981.380
1940	-2072.275	-445.165	981.380
1960	-2072.275	-446.290	755.680
1980	-2072.275	-446.465	720.680

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INPUT LISTING

2000	-1628.175	-446.465	720.680
2020	-1180.097	-696.486	1476.980
2030	-1180.097	-696.486	1308.280
2040	-1180.097	-696.486	976.980
2020	-1180.097	-696.486	1476.980
2060	-1180.097	-696.486	1576.980
1260	332.306	-702.475	766.480
2140	332.306	-524.475	766.480
2160	308.306	-524.475	790.480
2180	-94.894	-524.475	790.480
2190	-694.894	-524.475	790.480
2200	-733.694	-524.475	790.480
2220	-733.694	-524.475	1025.480
2280	-733.694	-524.475	1343.080
2290	-733.694	-524.475	1393.080
2280	-733.694	-524.475	1343.080
2320	-733.694	-505.475	1343.080
2330	-733.694	-431.675	1343.080
2340	-733.694	-423.075	1343.080
2346	-733.694	-415.773	1343.080
2352	-733.694	-394.573	1343.080
2360	-733.694	-387.270	1343.080
2380	-733.694	-362.270	1343.080
2400	-733.694	-353.270	1343.080
2410	-733.694	-346.126	1343.080
2420	-733.694	-339.426	1343.080
2430	-738.294	-339.426	1343.080
2440	-746.494	-339.426	1343.080
2460	-753.797	-339.426	1343.080
2480	-767.797	-343.396	1343.080
2500	-803.247	-343.396	1343.080
2520	-861.597	-343.396	1343.080
2540	-861.597	-366.296	1343.080
2546	-861.597	-375.504	1343.080
2552	-861.597	-403.104	1343.080
2560	-861.597	-412.311	1343.080
2570	-861.597	-431.711	1343.080
2580	-861.597	-552.511	1343.080
2600	-861.597	-552.511	1275.080
2290	-733.694	-524.475	1393.080
2300	-733.694	-524.475	1443.080
2620	-733.694	-505.475	1443.080
2640	-733.694	-423.175	1443.080
2646	-733.694	-415.873	1443.080
2652	-733.694	-394.673	1443.080
2660	-733.694	-387.370	1443.080
2680	-733.694	-362.370	1443.080
2700	-733.694	-356.470	1443.080
2710	-733.694	-349.326	1443.080
2720	-733.694	-342.926	1443.080
2730	-738.294	-342.926	1443.080
2740	-746.549	-342.926	1443.080
2760	-753.852	-342.926	1443.080
2780	-767.852	-346.896	1443.080
2800	-803.302	-346.896	1443.080
2820	-861.652	-346.896	1443.080

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2840	-861.652	-369.796	1443.080
2846	-861.652	-379.004	1443.080
2852	-861.652	-406.604	1443.080
2860	-861.652	-415.811	1443.080
2880	-861.652	-556.011	1443.080
2880	-861.652	-556.011	1443.080
2580	-861.597	-552.511	1343.080
2600	-861.597	-552.511	1275.080
2920	-861.597	-552.511	1237.180
2940	-1180.097	-553.148	1237.180
2980	-1180.097	-625.486	1237.180
2030	-1180.097	-696.486	1308.280
2330	-733.694	-431.675	1343.080
3000	-733.694	-431.675	1335.380
3020	-733.694	-431.675	1328.078
3040	-733.694	-431.675	1309.378
3060	-733.694	-431.675	1302.075
3080	-733.694	-431.675	1294.375
3100	-771.394	-431.675	1294.375
3120	-781.394	-431.675	1294.375
3140	-812.094	-431.675	1294.375
3146	-819.397	-431.675	1294.375
3152	-846.997	-431.675	1294.375
3160	-853.664	-431.675	1294.375
3180	-861.364	-431.675	1294.375
3180	-861.597	-431.711	1294.380
2570	-861.597	-431.711	1343.080
2040	-1180.097	-696.486	976.980
3960	-1180.097	-696.486	376.980
3980	-1180.097	-696.486	-223.020
4000	-1180.097	-696.486	-405.520
4020	-1780.097	-696.486	-405.520
4040	-1780.097	-696.486	-505.520
4060	-1780.097	-696.486	-605.520
4066	-1180.097	-696.486	-605.520
4072	-1180.097	-696.486	-822.920
4080	-1180.097	-696.486	-1422.920
2000	-1628.175	-446.465	720.680
4100	-1558.645	-446.465	720.680
4120	-1558.645	-447.765	980.880
4140	-1558.645	-530.765	980.880
4160	-1053.645	-530.765	980.880
4180	-694.045	-530.765	980.880
4200	-683.885	-530.765	980.880
4240	-673.725	-530.765	980.880
4260	-658.725	-530.765	980.880
4280	-612.825	-530.765	980.880
4300	-612.825	-660.765	980.880
4310	-612.825	-760.765	980.880
4320	-612.825	-790.765	980.880

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC+H
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H+U3
18 (OPE) W+T1+P1+H-U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L11
29 (OCC) L29=L22+L11
30 (OCC) L30=L23+L11
31 (OCC) L31=L24+L11
32 (OCC) L32=L25+L11
33 (OCC) L33=L26+L11
34 (OCC) L34=L27+L11
35 (EXP) L35=L4-L11
36 (EXP) L36=L6-L11
37 (EXP) L37=L8-L11
38 (EXP) L38=L6-L8
39 (OPE) L39=L4, L6, L8
40 (OCC) L40=L21, L22, L23, L24

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
CASE 4 (OPE) W+T1+P1+H
CASE 6 (OPE) W+T2+P1+H
CASE 8 (OPE) W+T3+P1+H
CASE 10 (OPE) W+T4+P1+H
CASE 12 (SUS) W+P1+H
CASE 13 (SUS) WNC+H

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
20		TYPE=Rigid ANC;					
	3(HYD)	-286	-950	79	-31	66	427
	4(OPE)	375	-802	-73	32	-76	649
	6(OPE)	677	2731	-69	33	-81	-2375
	8(OPE)	-148	-560	72	-28	60	227
	10(OPE)	-148	-560	73	-28	60	227
	12(SUS)	-148	-560	72	-28	60	227
	13(SUS)	-149	-553	72	-28	60	221
	MAX	677/L6	2731/L6	79/L3	33/L6	-81/L6	-2375/L6
121		TYPE=Rigid +Y;					
	3(HYD)	-156	-2118	0	0	0	0
	4(OPE)	0	-1170	0	0	0	0
	6(OPE)	0	-1183	0	0	0	0
	8(OPE)	-79	-1170	0	0	0	0
	10(OPE)	-79	-1170	0	0	0	0
	12(SUS)	-79	-1170	0	0	0	0
	13(SUS)	-79	-1170	0	0	0	0
	MAX	-156/L3	-2118/L3				
160		TYPE=Rigid Z; Rigid -X; Rigid X; Prog Design VSH;					
	3(HYD)	-156	-2118	-35	0	0	0
	4(OPE)	2106	-715	-140	0	0	0
	6(OPE)	3921	-2359	-246	0	0	0
	8(OPE)	-79	-1170	-32	0	0	0
	10(OPE)	-79	-1170	-32	0	0	0
	12(SUS)	-79	-1170	-32	0	0	0
	13(SUS)	-79	-1170	-32	0	0	0
	MAX	3921/L6	-2359/L6	-246/L6			
300		TYPE=Rigid +Y;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	188	-2443	148	0	0	0
	4(OPE)	-610	-2048	-70	0	0	0
	6(OPE)	-1573	-5246	-57	0	0	0
	8(OPE)	97	-1780	135	0	0	0
	10(OPE)	97	-1781	135	0	0	0
	12(SUS)	97	-1780	135	0	0	0
	13(SUS)	97	-1774	135	0	0	0
	MAX	-1573/L6	-5246/L6	148/L3			
400		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	124	-1971	-12	0	0	0
	4(OPE)	-302	-1006	-125	0	0	0
	6(OPE)	-236	785	-260	0	0	0
	8(OPE)	64	-1245	-12	0	0	0
	10(OPE)	64	-1245	-12	0	0	0
	12(SUS)	64	-1245	-12	0	0	0
	13(SUS)	64	-1241	-12	0	0	0
	MAX	-302/L4	-1971/L3	-260/L6			
480		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	51	-2688	-5	0	0	0
	4(OPE)	-507	-1690	76	0	0	0
	6(OPE)	-829	-2763	236	0	0	0
	8(OPE)	27	-1403	-2	0	0	0
	10(OPE)	27	-1403	-2	0	0	0
	12(SUS)	27	-1403	-2	0	0	0
	13(SUS)	27	-1395	-2	0	0	0
	MAX	-829/L6	-2763/L6	236/L6			
560		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	8	-3989	-2	0	0	0
	4(OPE)	-660	-2198	-5	0	0	0
	6(OPE)	-631	-2102	-36	0	0	0
	8(OPE)	5	-2008	-4	0	0	0
	10(OPE)	5	-2008	-4	0	0	0
	12(SUS)	5	-2008	-4	0	0	0
	13(SUS)	5	-1996	-4	0	0	0
	MAX	-660/L4	-3989/L3	-36/L6			
660		TYPE=Rigid +Y;					
	3(HYD)	37	-961	-78	0	0	0
	4(OPE)	0	0	0	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	14	-496	-35	0	0	0
	10(OPE)	14	-496	-35	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	14	-496	-35	0	0	0
	13(SUS)	14	-493	-35	0	0	0
	MAX	37/L3	-961/L3	-78/L3			
720		TYPE=Rigid ANC;					
	3(HYD)	31	-423	85	31	3	-13
	4(OPE)	-260	-390	-29	-141	-213	-157
	6(OPE)	-1068	200	-92	-733	-903	-605
	8(OPE)	19	-283	41	15	1	-7
	10(OPE)	19	-283	41	15	1	-7
	12(SUS)	19	-283	41	15	1	-7
	13(SUS)	19	-282	41	15	1	-7
	MAX	-1068/L6	-423/L3	-92/L6	-733/L6	-903/L6	-605/L6
780		TYPE=Rigid ANC;					
	3(HYD)	68	-1714	6	553	65	-556
	4(OPE)	-260	-628	-29	-149	-213	-82
	6(OPE)	-1068	-38	-92	-759	-903	-300
	8(OPE)	34	-1016	6	286	28	-287
	10(OPE)	34	-1016	6	286	28	-287
	12(SUS)	34	-1016	6	286	28	-287
	13(SUS)	33	-1012	6	284	28	-285
	MAX	-1068/L6	-1714/L3	-92/L6	-759/L6	-903/L6	-556/L3
860		TYPE=Rigid ANC;					
	3(HYD)	68	-1714	6	580	65	-846
	4(OPE)	-260	-628	-29	-271	-213	1026
	6(OPE)	-1068	-38	-92	-1153	-903	4256
	8(OPE)	34	-1016	6	312	28	-430
	10(OPE)	34	-1016	6	312	28	-430
	12(SUS)	34	-1016	6	312	28	-430
	13(SUS)	33	-1012	6	310	28	-427
	MAX	-1068/L6	-1714/L3	-92/L6	-1153/L6	-903/L6	4256/L6
1040		TYPE=Rigid +Y;					
	3(HYD)	108	-1928	-178	0	0	0
	4(OPE)	356	-1389	-217	0	0	0
	6(OPE)	342	-1345	-215	0	0	0
	8(OPE)	100	-1385	-163	0	0	0
	10(OPE)	100	-1384	-163	0	0	0
	12(SUS)	100	-1385	-163	0	0	0
	13(SUS)	100	-1376	-162	0	0	0
	MAX	356/L4	-1928/L3	-217/L4			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1180		TYPE=Rigid +Y; Rigid - X;					
	3(HYD)	10	-1203	7	0	0	0
	4(OPE)	8271	-1284	2867	0	0	0
	6(OPE)	9867	-1469	3401	0	0	0
	8(OPE)	10	-819	6	0	0	0
	10(OPE)	10	-820	6	0	0	0
	12(SUS)	10	-819	6	0	0	0
	13(SUS)	10	-813	6	0	0	0
	MAX	9867/L6	-1469/L6	3401/L6			
1240		TYPE=Rigid ANC;					
	3(HYD)	-6	-369	10	-72	2	228
	4(OPE)	642	7	-795	-174	178	234
	6(OPE)	819	105	-1172	-218	197	265
	8(OPE)	-5	-255	10	-61	2	159
	10(OPE)	-5	-254	10	-62	2	159
	12(SUS)	-5	-255	10	-61	2	159
	13(SUS)	-5	-253	9	-61	2	158
	MAX	819/L6	-369/L3	-1172/L6	-218/L6	197/L6	265/L6
1280		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	168	-3329	-36	0	0	0
	4(OPE)	-658	-2194	-2469	0	0	0
	6(OPE)	-611	-2037	-2908	0	0	0
	8(OPE)	157	-2809	-32	0	0	0
	10(OPE)	157	-2809	-32	0	0	0
	12(SUS)	157	-2809	-32	0	0	0
	13(SUS)	157	-2801	-32	0	0	0
	MAX	-658/L4	-3329/L3	-2908/L6			
1380		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	303	-2209	34	0	0	0
	4(OPE)	-1074	-3579	1096	0	0	0
	6(OPE)	-1231	-4105	1335	0	0	0
	8(OPE)	284	-1529	29	0	0	0
	10(OPE)	284	-1529	29	0	0	0
	12(SUS)	284	-1529	29	0	0	0
	13(SUS)	283	-1518	29	0	0	0
	MAX	-1231/L6	-4105/L6	1335/L6			
1460		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-115	-3119	-38	0	0	0
	4(OPE)	-652	-2173	-256	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	-644	-2148	-301	0	0	0
	8(OPE)	-119	-2314	-31	0	0	0
	10(OPE)	-119	-2314	-32	0	0	0
	12(SUS)	-119	-2314	-31	0	0	0
	13(SUS)	-119	-2299	-31	0	0	0
	MAX	-652/L4	-3119/L3	-301/L6			
1500		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-3721	35	0	0	0
	4(OPE)	0	-1141	-433	0	0	0
	6(OPE)	0	-642	-680	0	0	0
	8(OPE)	0	-2982	29	0	0	0
	10(OPE)	0	-2982	29	0	0	0
	12(SUS)	0	-2982	29	0	0	0
	13(SUS)	0	-2966	29	0	0	0
	MAX		-3721/L3	-680/L6			
1520		TYPE=Rigid +Y;					
	3(HYD)	-153	-3023	-26	0	0	0
	4(OPE)	-1203	-4345	-502	0	0	0
	6(OPE)	-1366	-4968	-596	0	0	0
	8(OPE)	-175	-2425	-22	0	0	0
	10(OPE)	-175	-2425	-22	0	0	0
	12(SUS)	-175	-2425	-22	0	0	0
	13(SUS)	-175	-2412	-22	0	0	0
	MAX	-1366/L6	-4968/L6	-596/L6			
1560		TYPE=Rigid +Y;					
	3(HYD)	-421	-1865	40	0	0	0
	4(OPE)	-775	-2607	-103	0	0	0
	6(OPE)	-828	-2788	-116	0	0	0
	8(OPE)	-330	-1485	40	0	0	0
	10(OPE)	-330	-1485	40	0	0	0
	12(SUS)	-330	-1485	40	0	0	0
	13(SUS)	-328	-1476	40	0	0	0
	MAX	-828/L6	-2788/L6	-116/L6			
1700		TYPE=Rigid ANC;					
	3(HYD)	149	-2106	-29	-354	-65	-635
	4(OPE)	-4448	804	1075	2171	4212	-3393
	6(OPE)	-5996	1473	1310	2985	5781	-4471
	8(OPE)	117	-1767	-30	-287	-47	-525
	10(OPE)	117	-1767	-30	-287	-47	-525
	12(SUS)	117	-1767	-30	-287	-47	-525
	13(SUS)	116	-1759	-30	-285	-46	-523

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-5996/L6	-2106/L3	1310/L6	2985/L6	5781/L6	-4471/L6
1780		TYPE=Rigid ANC;					
	3(HYD)	10	-864	-209	58	-38	-154
	4(OPE)	-249	-536	-92	125	533	-124
	6(OPE)	-1121	-418	-28	246	2146	-381
	8(OPE)	-11	-605	-81	23	-3	-82
	10(OPE)	-11	-605	-81	23	-3	-82
	12(SUS)	-11	-605	-81	23	-3	-82
	13(SUS)	-12	-600	-79	22	-2	-80
	MAX	-1121/L6	-864/L3	-209/L3	246/L6	2146/L6	-381/L6
1840		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	52	-9785	-125	0	0	0
	4(OPE)	51	-8850	900	0	0	0
	6(OPE)	-491	-8872	1034	0	0	0
	8(OPE)	39	-9074	-61	0	0	0
	10(OPE)	39	-9074	-61	0	0	0
	12(SUS)	39	-9074	-61	0	0	0
	13(SUS)	39	-9055	-60	0	0	0
	MAX	-491/L6	-9785/L3	1034/L6			
1860		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	0	-8271	-2	0	0	0
	4(OPE)	-711	-7731	303	0	0	0
	6(OPE)	-703	-7641	298	0	0	0
	8(OPE)	0	-7885	-1	0	0	0
	10(OPE)	0	-7885	-1	0	0	0
	12(SUS)	0	-7885	-1	0	0	0
	13(SUS)	0	-7872	-1	0	0	0
	MAX	-711/L4	-8271/L3	303/L4			
1880		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	-0	-8267	-2	0	0	0
	4(OPE)	-777	-7769	-1	0	0	0
	6(OPE)	-769	-7692	-2	0	0	0
	8(OPE)	-0	-7881	-1	0	0	0
	10(OPE)	-0	-7881	-1	0	0	0
	12(SUS)	-0	-7881	-1	0	0	0
	13(SUS)	-0	-7869	-1	0	0	0
	MAX	-777/L4	-8267/L3	-2/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1900		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	107	-9957	-110	0	0	0
	4(OPE)	-3120	-7095	88	0	0	0
	6(OPE)	-5065	-6453	124	0	0	0
	8(OPE)	66	-9245	-50	0	0	0
	10(OPE)	66	-9245	-50	0	0	0
	12(SUS)	66	-9245	-50	0	0	0
	13(SUS)	65	-9226	-49	0	0	0
	MAX	-5065/L6	-9957/L3	124/L6			
1960		TYPE=Rigid +Y;					
	3(HYD)	27	-1225	217	0	0	0
	4(OPE)	-146	-520	55	0	0	0
	6(OPE)	-147	-505	-37	0	0	0
	8(OPE)	94	-517	84	0	0	0
	10(OPE)	94	-517	84	0	0	0
	12(SUS)	94	-517	84	0	0	0
	13(SUS)	95	-504	82	0	0	0
	MAX	-147/L6	-1225/L3	217/L3			
2000		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-43	-1467	-71	0	0	0
	4(OPE)	22	-618	-184	0	0	0
	6(OPE)	-116	-619	-543	0	0	0
	8(OPE)	-85	-614	-28	0	0	0
	10(OPE)	-85	-614	-28	0	0	0
	12(SUS)	-85	-614	-28	0	0	0
	13(SUS)	-86	-598	-28	0	0	0
	MAX	-116/L6	-1467/L3	-543/L6			
2040		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	221	-8847	37	0	0	0
	4(OPE)	-1	-5100	-1530	0	0	0
	6(OPE)	-160	-5424	-1619	0	0	0
	8(OPE)	131	-5034	26	0	0	0
	10(OPE)	-338	-6133	-1808	0	0	0
	12(SUS)	131	-5034	26	0	0	0
	13(SUS)	131	-5029	26	0	0	0
	MAX	-338/L10	-8847/L3	-1808/L10			

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2060		TYPE=Rigid X w/gap; Rigid Z; Rigid +Y;					
	3(HYD)	66	-3220	202	0	0	0
	4(OPE)	-68	-2124	4713	0	0	0
	6(OPE)	-680	-2266	5709	0	0	0
	8(OPE)	38	-1873	141	0	0	0
	10(OPE)	-1590	-2532	7642	0	0	0
	12(SUS)	38	-1873	141	0	0	0
	13(SUS)	38	-1871	141	0	0	0
	MAX	-1590/L10	-3220/L3	7642/L10			
2180		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-759	0	0	0	0
	4(OPE)	0	-625	-7	0	0	0
	6(OPE)	0	-609	-25	0	0	0
	8(OPE)	0	-673	0	0	0	0
	10(OPE)	0	-673	0	0	0	0
	12(SUS)	0	-673	0	0	0	0
	13(SUS)	0	-672	0	0	0	0
	MAX		-759/L3	-25/L6			
2190		TYPE=Rigid +Y;					
	3(HYD)	-40	-486	21	0	0	0
	4(OPE)	-106	-438	-78	0	0	0
	6(OPE)	-108	-438	-76	0	0	0
	8(OPE)	-35	-431	18	0	0	0
	10(OPE)	-25	-472	25	0	0	0
	12(SUS)	-35	-431	18	0	0	0
	13(SUS)	-35	-431	18	0	0	0
	MAX	-108/L6	-486/L3	-78/L4			
2220		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-11	-350	-11	0	0	0
	4(OPE)	-178	-311	-75	0	0	0
	6(OPE)	-304	-315	-79	0	0	0
	8(OPE)	-9	-310	6	0	0	0
	10(OPE)	-41	-174	32	0	0	0
	12(SUS)	-9	-310	6	0	0	0
	13(SUS)	-9	-309	6	0	0	0
	MAX	-304/L6	-350/L3	-79/L6			

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2320		TYPE=Rigid +Y;					
	3(HYD)	0	0	0	0	0	0
	4(OPE)	0	-4516	0	0	0	0
	6(OPE)	0	-3837	0	0	0	0
	8(OPE)	0	0	0	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	0	0	0	0	0	0
	13(SUS)	0	0	0	0	0	0
	MAX		-4516/L4				
2500		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	-378	-4108	225	0	0	0
	4(OPE)	-4293	0	1613	0	0	0
	6(OPE)	-3635	0	1780	0	0	0
	8(OPE)	-298	-3546	171	0	0	0
	10(OPE)	1879	0	2641	0	0	0
	12(SUS)	-298	-3546	171	0	0	0
	13(SUS)	-298	-3543	171	0	0	0
	MAX	-4293/L4	-4108/L3	2641/L10			
2600		TYPE=Rigid +Y;					
	3(HYD)	645	-2522	-328	0	0	0
	4(OPE)	529	-1805	116	0	0	0
	6(OPE)	573	-2533	-499	0	0	0
	8(OPE)	503	-1811	-206	0	0	0
	10(OPE)	151	-7464	-2234	0	0	0
	12(SUS)	503	-1811	-206	0	0	0
	13(SUS)	502	-1810	-206	0	0	0
	MAX	645/L3	-7464/L10	-2234/L10			
2620		TYPE=Rigid +Y;					
	3(HYD)	0	0	0	0	0	0
	4(OPE)	0	-2152	0	0	0	0
	6(OPE)	0	-1867	0	0	0	0
	8(OPE)	0	0	0	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	0	0	0	0	0	0
	13(SUS)	0	0	0	0	0	0
	MAX		-2152/L4				
2800		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	-242	-3574	72	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	-530	0	492	0	0	0
	6(OPE)	-596	0	795	0	0	0
	8(OPE)	-196	-3092	50	0	0	0
	10(OPE)	36	0	1607	0	0	0
	12(SUS)	-196	-3092	50	0	0	0
	13(SUS)	-196	-3091	50	0	0	0
	MAX	-596/L6	-3574/L3	1607/L10			
3100		TYPE=Rigid +Y;					
	3(HYD)	-0	-516	-155	0	0	0
	4(OPE)	32	-180	-43	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	-0	-497	-149	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	-0	-497	-149	0	0	0
	13(SUS)	-0	-497	-149	0	0	0
	MAX	32/L4	-516/L3	-155/L3			
3120		TYPE=Rigid Z; Rigid X;					
	3(HYD)	-267	0	-80	0	0	0
	4(OPE)	4374	0	-2646	0	0	0
	6(OPE)	4759	0	-2581	0	0	0
	8(OPE)	-85	0	-93	0	0	0
	10(OPE)	761	0	-1518	0	0	0
	12(SUS)	-85	0	-93	0	0	0
	13(SUS)	-85	0	-93	0	0	0
	MAX	4759/L6		-2646/L4			
3960		TYPE=Rigid +Y;					
	3(HYD)	-45	-5215	18	0	0	0
	4(OPE)	83	-2758	-823	0	0	0
	6(OPE)	196	-2715	-791	0	0	0
	8(OPE)	-27	-2781	12	0	0	0
	10(OPE)	78	-2623	-783	0	0	0
	12(SUS)	-27	-2781	12	0	0	0
	13(SUS)	-27	-2777	12	0	0	0
	MAX	196/L6	-5215/L3	-823/L4			
3980		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	16	-9175	11	0	0	0
	4(OPE)	485	-4985	-1415	0	0	0
	6(OPE)	282	-4933	-1453	0	0	0
	8(OPE)	10	-4990	8	0	0	0
	10(OPE)	-12	-4822	-1446	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	10	-4990	8	0	0	0
	13(SUS)	10	-4984	8	0	0	0
	MAX	485/L4	-9175/L3	-1453/L6			
4040		TYPE=Rigid +Y;					
	3(HYD)	-8	-8309	-1	0	0	0
	4(OPE)	-1353	-4515	-50	0	0	0
	6(OPE)	-1292	-4559	-449	0	0	0
	8(OPE)	-5	-4508	-0	0	0	0
	10(OPE)	-1284	-4656	-550	0	0	0
	12(SUS)	-5	-4508	-0	0	0	0
	13(SUS)	-5	-4502	-0	0	0	0
	MAX	-1353/L4	-8309/L3	-550/L10			
4072		TYPE=Rigid +Y;					
	3(HYD)	2	-10013	0	0	0	0
	4(OPE)	766	-5434	83	0	0	0
	6(OPE)	465	-5441	1565	0	0	0
	8(OPE)	1	-5434	0	0	0	0
	10(OPE)	-371	-5455	1594	0	0	0
	12(SUS)	1	-5434	0	0	0	0
	13(SUS)	1	-5427	0	0	0	0
	MAX	766/L4	-10013/L3	1594/L10			
4080		TYPE=Rigid X w/gap; Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-0	-1940	0	0	0	0
	4(OPE)	-113	-1052	-295	0	0	0
	6(OPE)	130	-1045	-2367	0	0	0
	8(OPE)	-0	-1053	0	0	0	0
	10(OPE)	924	-1031	-4760	0	0	0
	12(SUS)	-0	-1053	0	0	0	0
	13(SUS)	-0	-1052	0	0	0	0
	MAX	924/L10	-1940/L3	-4760/L10			
4120		TYPE=Rigid +Y;					
	3(HYD)	422	-1405	2	0	0	0
	4(OPE)	-179	-618	47	0	0	0
	6(OPE)	-224	-768	56	0	0	0
	8(OPE)	177	-589	0	0	0	0
	10(OPE)	177	-589	0	0	0	0
	12(SUS)	177	-589	0	0	0	0
	13(SUS)	172	-574	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	422/L3	-1405/L3	56/L6			
4160		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-294	-1735	6	0	0	0
	4(OPE)	-266	-626	262	0	0	0
	6(OPE)	-342	-192	948	0	0	0
	8(OPE)	-126	-730	2	0	0	0
	10(OPE)	-126	-730	2	0	0	0
	12(SUS)	-126	-730	2	0	0	0
	13(SUS)	-123	-711	2	0	0	0
	MAX	-342/L6	-1735/L3	948/L6			
4200		TYPE=Rigid ANC;					
	3(HYD)	-118	-649	-3	-10	-4	184
	4(OPE)	823	-511	-109	51	-127	469
	6(OPE)	1842	-927	-394	202	-458	1565
	8(OPE)	-47	-373	-1	-4	-2	77
	10(OPE)	-47	-373	-1	-4	-2	77
	12(SUS)	-47	-373	-1	-4	-2	77
	13(SUS)	-45	-368	-1	-4	-2	75
	MAX	1842/L6	-927/L6	-394/L6	202/L6	-458/L6	1565/L6
4260		TYPE=Rigid ANC;					
	3(HYD)	-118	-912	-3	-10	-5	394
	4(OPE)	823	-724	-109	51	-154	638
	6(OPE)	1842	-1140	-394	202	-557	1838
	8(OPE)	-47	-587	-1	-4	-2	211
	10(OPE)	-47	-587	-1	-4	-2	211
	12(SUS)	-47	-587	-1	-4	-2	211
	13(SUS)	-45	-580	-1	-4	-2	208
	MAX	1842/L6	-1140/L6	-394/L6	202/L6	-557/L6	1838/L6
4320		TYPE=Rigid ANC;					
	3(HYD)	-118	-912	-3	-18	-6	1120
	4(OPE)	823	-724	-109	-233	-204	-1171
	6(OPE)	1842	-1140	-394	-823	-738	-2427
	8(OPE)	-47	-587	-1	-8	-3	602
	10(OPE)	-47	-587	-1	-8	-3	602
	12(SUS)	-47	-587	-1	-8	-3	602
	13(SUS)	-45	-580	-1	-8	-2	593
	MAX	1842/L6	-1140/L6	-394/L6	-823/L6	-738/L6	-2427/L6

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS 2
Stress Summary : Multiple 3

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC+H
 CASE 28 (OCC) L28=L21+L11
 CASE 29 (OCC) L29=L22+L11
 CASE 30 (OCC) L30=L23+L11
 CASE 31 (OCC) L31=L24+L11
 CASE 32 (OCC) L32=L25+L11
 CASE 33 (OCC) L33=L26+L11
 CASE 34 (OCC) L34=L27+L11
 CASE 35 (EXP) L35=L4-L11
 CASE 36 (EXP) L36=L6-L11
 CASE 37 (EXP) L37=L8-L11
 CASE 38 (EXP) L38=L6-L8

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (KPa)	LOADCASE 3 (HYD) WW+HP+H	
Ratio (%):	28.5	@Node 4160
Code Stress:	49101.3	Allowable Stress: 172368.9
Axial Stress:	38860.8	@Node 4120
Bending Stress:	29449.1	@Node 280
Torsion Stress:	1891.7	@Node 2200
Hoop Stress:	78278.3	@Node 1939
Max Stress Intensity:	83292.6	@Node 1978

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (KPa)	LOADCASE 12 (SUS) W+P1+H	
Ratio (%):	31.8	@Node 1020
Code Stress:	43809.0	Allowable Stress: 137819.5
Axial Stress:	25776.1	@Node 4120
Bending Stress:	50949.9	@Node 280
Torsion Stress:	4046.4	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	55518.2	@Node 1978

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC+H

Highest Stresses: (KPa)	LOADCASE 13 (SUS) WNC+H	
Ratio (%):	27.9	@Node 280
Code Stress:	38427.7	Allowable Stress: 137895.1
Axial Stress:	2177.4	@Node 1460
Bending Stress:	50868.9	@Node 280
Torsion Stress:	4047.2	@Node 2460
Hoop Stress:	0.0	@Node 40
Max Stress Intensity:	51145.1	@Node 280

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L11

Highest Stresses: (KPa)	LOADCASE 28 (OCC)	L28=L21+L11
Ratio (%):	68.5	@Node 2400
Code Stress:	125495.4	Allowable Stress: 183299.9
Axial Stress:	25761.3	@Node 4120
Bending Stress:	145817.4	@Node 2570
Torsion Stress:	36930.3	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	152179.5	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L11

Highest Stresses: (KPa)	LOADCASE 29 (OCC)	L29=L22+L11
Ratio (%):	67.3	@Node 2400
Code Stress:	123399.9	Allowable Stress: 183299.9
Axial Stress:	25904.7	@Node 4260
Bending Stress:	134363.4	@Node 2570
Torsion Stress:	31699.9	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	140502.3	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L11

Highest Stresses: (KPa)	LOADCASE 30 (OCC)	L30=L23+L11
Ratio (%):	64.4	@Node 2400
Code Stress:	117986.3	Allowable Stress: 183299.9
Axial Stress:	25742.1	@Node 4120
Bending Stress:	115019.2	@Node 2570
Torsion Stress:	30841.7	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	120885.6	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L11

Highest Stresses: (KPa)	LOADCASE 31 (OCC)	L31=L24+L11
Ratio (%):	65.2	@Node 2400
Code Stress:	119511.1	Allowable Stress: 183299.9
Axial Stress:	25766.5	@Node 4120
Bending Stress:	119668.7	@Node 2570
Torsion Stress:	33741.3	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	125941.4	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L11

Highest Stresses: (KPa)	LOADCASE 32 (OCC)	L32=L25+L11
Ratio (%):	65.2	@Node 2400
Code Stress:	119518.6	Allowable Stress: 183299.9
Axial Stress:	25772.0	@Node 4120
Bending Stress:	124704.5	@Node 2570
Torsion Stress:	34078.6	@Node 2460

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	131040.5	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L11

Highest Stresses: (KPa)	LOADCASE 33 (OCC)	L33=L26+L11	
Ratio (%):	84.4	@Node	2400
Code Stress:	154681.4	Allowable Stress:	183299.9
Axial Stress:	25766.2	@Node	4120
Bending Stress:	148973.2	@Node	2570
Torsion Stress:	44721.3	@Node	2460
Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	154834.8	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L11

Highest Stresses: (KPa)	LOADCASE 34 (OCC)	L34=L27+L11	
Ratio (%):	61.0	@Node	2400
Code Stress:	111748.3	Allowable Stress:	183299.9
Axial Stress:	25766.2	@Node	4120
Bending Stress:	112902.3	@Node	2570
Torsion Stress:	33369.1	@Node	2460
Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	118599.0	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L11

Highest Stresses: (KPa)	LOADCASE 35 (EXP)	L35=L4-L11	
Ratio (%):	47.3	@Node	2570
Code Stress:	119794.7	Allowable Stress:	253211.4
Axial Stress:	5992.5	@Node	3140
Bending Stress:	117635.1	@Node	2570
Torsion Stress:	15261.1	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	263169.6	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L11

Highest Stresses: (KPa)	LOADCASE 36 (EXP)	L36=L6-L11	
Ratio (%):	49.8	@Node	2570
Code Stress:	125993.8	Allowable Stress:	253211.4
Axial Stress:	6279.6	@Node	3140
Bending Stress:	123988.8	@Node	2570
Torsion Stress:	20821.6	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	277037.3	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L8-L11

Highest Stresses: (KPa)	LOADCASE 37 (EXP)	L37=L8-L11	
Ratio (%):	28.0	@Node	2400
Code Stress:	65404.7	Allowable Stress:	233752.2
Axial Stress:	1460.8	@Node	3140

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement
Various Load Cases

Bending Stress:	63197.6	@Node	2400
Torsion Stress:	7747.0	@Node	2460
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	99622.3	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L6-L8

Highest Stresses: (KPa)	LOADCASE 38 (EXP) L38=L6-L8	
Ratio (%):	33.6	@Node 2570
Code Stress:	85165.3	Allowable Stress: 253211.4
Axial Stress:	4818.8	@Node 3140
Bending Stress:	83142.9	@Node 2570
Torsion Stress:	20821.6	@Node 1619
Hoop Stress:	0.0	@Node 40
Max Stress Intensity:	187032.3	@Node 2570

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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NOZZLE CHECK REPORT: Nozzle Loads Screening
Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T1+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC+H

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
20		Absolute Method								
	Limits	9600	9600	7200		5760	3840	4990		
	4(OPE)	-375	-802	73	0.084	-32	-76	-649	0.130	
	12(SUS)	148	-560	-72	0.058	28	60	-227	0.045	
	13(SUS)	149	-553	-72	0.058	28	60	-221	0.044	
780		Absolute Method								
	Limits	9600	9600	7200		5760	3840	4990		
	4(OPE)	628	-29	260	0.065	213	-82	149	0.037	
	12(SUS)	1016	6	-34	0.106	-28	-287	-286	0.075	
	13(SUS)	1012	6	-33	0.105	-28	-285	-284	0.074	
1240		Absolute Method								
	Limits	7200	7200	5400		3240	2160	2810		
	4(OPE)	642	7	-795	0.147	-174	178	234	0.083	
	12(SUS)	-5	-255	10	0.035	-61	2	159	0.057	
	13(SUS)	-5	-253	9	0.035	-61	2	158	0.056	
1700		Absolute Method								
	Limits	15091	15091	12001		9150	4890	6420		
	4(OPE)	-804	1075	4448	0.371	-4212	-3393	-2171	0.694	
	12(SUS)	1767	-30	-117	0.117	47	-525	287	0.107	
	13(SUS)	1759	-30	-116	0.117	46	-523	285	0.107	

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
1780		Absolute Method								
	Limits	15091	15091	12001		9150	4890	6420		
	4(OPE)	536	-92	249	0.035	-533	-124	-125	0.058	
	12(SUS)	605	-81	11	0.040	3	-82	-23	0.017	
	13(SUS)	600	-79	12	0.040	2	-80	-22	0.016	
4260		Absolute Method								
	Limits	8400	8400	6300		3780	2520	3280		
	4(OPE)	823	-724	-109	0.098	51	-154	638	0.194	
	12(SUS)	-47	-587	-1	0.070	-4	-2	211	0.064	
	13(SUS)	-45	-580	-1	0.069	-4	-2	208	0.063	

BNK-GCS-CN-037

Table of contents:

Line no.

Stress sketch

Input echo

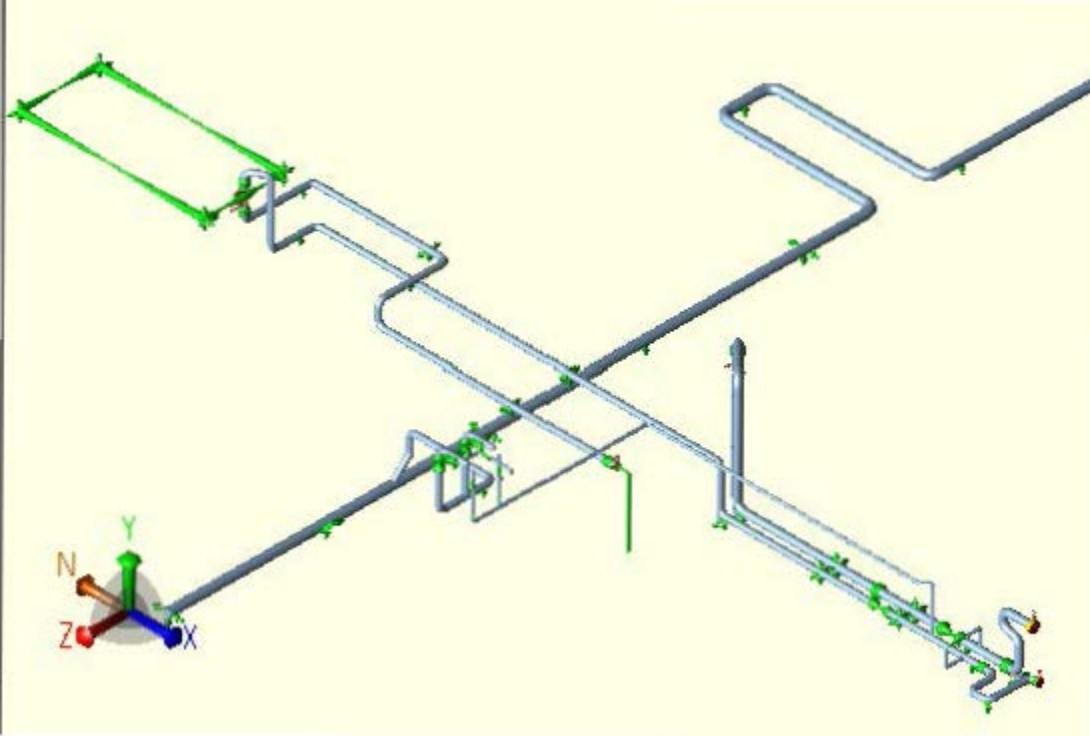
Restraint summary

Stress summary

Nozzle load Table

LINE NO.:

1. GAS-111-0031C-AN05-8"-ET
2. GAS-111-0036C-CN05-6"-PT
3. GAS-111-0032C-CN05-2"-PT
4. GAS-111-0033C-CN05-2"-PT
5. FL-112-0015C-AN07-2"-PT
6. FL-112-0014C-AN07-6"-PT
7. FL-112-0016C-AN07-6"-PT
8. GAS-111-0037C-CS00-6"-NP



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1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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INPUT LISTING

Job Description:

PROJECT:

CLIENT :

ANALYST:

NOTES :

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INPUT LISTING

File created by FEATools

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PIPE DATA

 From 20 To 40 DX= -.105 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm. Cor= .3000 cm.

Element Name= FLANGE_FLG_150

GENERAL

T1= 20 C T2= 85 C T3= 21 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 203,452,944 KPa

EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Fluid Den= .0000058 kg./cu.cm.

Insul Thk= .000 cm. Insul Den= .0000000 kg./cu.cm.

RIGID Weight= 177.93 N.

RESTRAINTS

Node 20 ANC

UNIFORM LOAD

Vector1 in G-s X1 Dir = .26 g's Y1 Dir = .00 g's Z1 Dir = .00 g's

Vector2 in G-s X2 Dir = .00 g's Y2 Dir = .12 g's Z2 Dir = .00 g's

Vector3 in G-s X3 Dir = .00 g's Y3 Dir = .00 g's Z3 Dir = .26 g's

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 20 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.

FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.

MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

 From 40 To 60 DX= -1.065 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 59

Angle/Node @2= .00 58

 From 60 To 80 DY= -.610 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 79

 From 80 To 100 DX= .610 m.

BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 99

 From 100 To 120 DY= -.871 m.

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INPUT LISTING

From 120 To 140 DY= -.305 m.

RIGID Weight= .00 N.

From 140 To 160 DY= -.200 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 160 -X Mu = .30

Node 160 Z

Node 121 +Y Mu = .10

Node 160 X Cnode 121

HANGERS

Hanger Node = 160 Hanger Connecting Node = 121

Available Space = -100.0000 cm. Allowed Load Variation = 25.0000

No. Hangers = 0.0 Short Range Flag = -1 User Operating Load = .00 N.

Free Node = 0 Free Node = 0 Free Code = 0.0 Spring Rate = .00 N./cm.

Theoretical Cold Load = .00 N.

SIF's & TEE's

Node 140 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 120 To 180 DY= -.305 m.

PIPE

Dia= 21.907 cm. Wall= .635 cm.

GENERAL

T1= 36 C T2= 85 C P1= 900.0205 KPa PHyd= 1,350.0308 KPa

Fluid Den= .0000058 kg./cu.cm. Insul Thk= .000 cm.

DOUBLE FLANGED BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 179

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 180 To 200 DX= -.305 m.

From 200 To 220 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 220 To 240 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

From 240 To 260 DX= -.700 m.

From 260 To 280 DX= -.248 m.

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INPUT LISTING

SIF's & TEE's

Node 280 Weldolet

 From 280 To 300 DX= -.500 m.

RESTRAINTS

Node 300 +Y Mu = .30

 From 300 To 320 DX= -.200 m.

 From 320 To 340 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 340 To 360 DX= -.573 m.

Element Name= GATE_NOFLG_300

RIGID Weight= 1,023.41 N.

 From 360 To 380 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 380 To 400 DX= -1.000 m.

RESTRAINTS

Node 400 Y Mu = .30

Node 400 Z

 From 400 To 420 DX= -1.288 m.

 From 420 To 440 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 440 To 460 DX= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 460 To 480 DX= -1.500 m.

RESTRAINTS

Node 480 Y Mu = .30

Node 480 Z

 From 480 To 500 DX= -3.805 m.

SINGLE FLANGED BEND at "TO" end

Radius= 30.480 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 499

Angle/Node @2= .00 498

 From 500 To 520 DY= .305 m.

 From 520 To 540 DY= -.305 m.

RIGID Weight= .00 N.

 From 540 To 560 DY= -.300 m.

PIPE

Dia= 16.827 cm. Wall= .711 cm.

GENERAL

T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa

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INPUT LISTING

```

Fluid Den= .0000000 kg./cu.cm.    Insul Thk= .000 cm.
RESTRAINTS
  Node 560 +Y    Mu = .30
  Node 560 Z
SIF's & TEE's
  Node 540 Unreinforced Tee
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 520 To 580 DY= 3.935 m.
PIPE
  Dia= 21.907 cm.    Wall= .635 cm.
GENERAL
  T1= 36 C    T2= 85 C    P1= 900.0205 KPa    PHyd= 1,350.0308 KPa
  Fluid Den= .0000058 kg./cu.cm.    Insul Thk= .000 cm.
BEND at "TO" end
  Radius= 30.480 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 579
  Angle/Node @2= .00 578
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 580 To 600 DX= -.354 m.    DZ= -.354 m.
-----
From 600 To 620 DX= -.354 m.    DZ= -.354 m.
-----
From 620 To 640 DY= -.084 m.
RIGID Weight= .00 N.
-----
From 640 To 660 DY= -.300 m.
PIPE
  Dia= 11.430 cm.    Wall= .602 cm.
GENERAL
  T1= 21 C    T2= 21 C    P1= .0000 KPa    PHyd= .0000 KPa
  Fluid Den= .0000000 kg./cu.cm.    Insul Thk= .000 cm.
RESTRAINTS
  Node 660 +Y    Cnode 800    Mu = .30
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 620 To 680 DX= -.543 m.    DZ= -.543 m.
PIPE
  Dia= 21.907 cm.    Wall= .635 cm.
GENERAL
  T1= 36 C    T2= 85 C    P1= 900.0205 KPa    PHyd= 1,350.0308 KPa
  Fluid Den= .0000058 kg./cu.cm.    Insul Thk= .000 cm.
BEND at "TO" end
  Radius= 30.480 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 679

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INPUT LISTING

Angle/Node @2= .00 678

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 680 To 700 DY= -.305 m.

 From 700 To 720 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

RESTRAINTS

Node 720 ANC Cnode 740

 From 740 To 760 DY= -.105 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 177.93 N.

 From 760 To 780 DY= -.181 m.

RESTRAINTS

Node 780 ANC Cnode 820

EQUIPMENT LIMITS

Nozzle Node = 780 Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N.
 FB= 9,600.48 N. FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m.
 MC= 4,990.21 N.m. Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute

 From 780 To 800 DX= .543 m. DY= .313 m. DZ= .543 m.

RIGID Weight= .00 N.

 From 820 To 840 DY= -3.065 m.

PIPE

Dia= 91.440 cm. Wall= 1.500 cm.

GENERAL

Mat= (383)A516 70 E= 203,401,232 KPa EH1= 202,155,536 KPa
 EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa
 EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa
 EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292
 Pipe Den= .0078334 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= .00 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 160,648 KPa
 Sh1= 160,648 KPa Sh2= 160,062 KPa Sh3= 160,648 KPa Sh4= 160,648 KPa
 Sh5= 160,648 KPa Sh6= 160,648 KPa Sh7= 160,648 KPa Sh8= 160,648 KPa
 Sh9= 160,648 KPa Sy= 262,001 KPa

 From 840 To 860 DY= -1.200 m.

PIPE

Dia= 91.440 cm. Wall= 1.200 cm.

Insul Thk= .000 cm.

RIGID Weight= .00 N.

RESTRAINTS

Node 860 ANC

 From 280 To 880 DY= .743 m.

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INPUT LISTING

PIPE

Dia= 6.032 cm. Wall= .874 cm.

GENERAL

Mat= (106)A106 Grade B E= 203,401,232 KPa EH1= 202,155,536 KPa

EH2= 199,086,608 KPa EH3= 203,401,232 KPa EH4= 203,401,232 KPa

EH5= 203,401,232 KPa EH6= 203,401,232 KPa EH7= 203,401,232 KPa

EH8= 203,401,232 KPa EH9= 203,401,232 KPa v = .292

Pipe Den= .0078334 kg./cu.cm. Insul Thk= .000 cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 879

Angle/Node @2= .00 878

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 880 To 900 DZ= .510 m.

From 900 To 910 DZ= .067 m.

Element Name= BALL_FLG_600

GENERAL

T1= 125 C T2= 155 C P1= 1,900.0433 KPa PHyd= 3,300.0752 KPa

Fluid Den= .0000430 kg./cu.cm.

RIGID Weight= 31.14 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 910 To 920 DZ= .301 m.

RIGID Weight= 66.72 N.

From 920 To 930 DZ= .275 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm. Element Name= CHECK_FLG_150

GENERAL

P1= 2,200.0500 KPa Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.

RIGID Weight= 355.86 N.

From 930 To 940 DZ= .073 m.

RIGID Weight= 44.48 N.

From 940 To 960 DZ= .077 m.

SINGLE FLANGED BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 959

Angle/Node @2= .00 958

From 960 To 980 DY= -.652 m.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 979

Angle/Node @2= .00 978

From 980 To 1000 DZ= -.077 m.

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From 1000 To 1020 DZ= -.621 m.
  Element Name= CHECK_FLG_600
-----
From 1020 To 1040 DX= .300 m.
PIPE
  Dia= 16.827 cm. Wall= .711 cm.
GENERAL
  Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.
RESTRAINTS
  Node 1040 +Y Mu = .30
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 1040 To 1060 DX= .318 m.
-----
From 1060 To 1080 DX= .102 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 191.27 N.
-----
From 1080 To 1100 DX= .102 m.
  Element Name= FLG.PR_FLG_150
RIGID Weight= 191.27 N.
-----
From 1100 To 1120 DX= .390 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1119
  Angle/Node @2= .00 1118
-----
From 1120 To 1140 DZ= 1.000 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1139
  Angle/Node @2= .00 1138
-----
From 1140 To 1160 DX= .466 m.
-----
From 1160 To 1180 DX= .233 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1179
  Angle/Node @2= .00 1178
RESTRAINTS
  Node 1180 -X Mu = .30
  Node 1180 +Y Mu = .30
-----
From 1180 To 1200 DZ= -1.600 m.
BEND at "TO" end
  Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1199
  Angle/Node @2= .00 1198
-----
From 1200 To 1220 DX= .229 m.
-----
From 1220 To 1240 DX= .102 m.
  Element Name= FLANGE_FLG_600
RIGID Weight= 191.27 N.

```

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RESTRAINTS

Node 1240 ANC

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

EQUIPMENT LIMITS

Nozzle Node = 1240

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 7,200.36 N. FB= 7,200.36 N.

FC= 5,400.27 N. MA= 3,240.14 N.m. MB= 2,160.09 N.m. MC= 2,810.12 N.m.

Equipment Major Direction Vector= .0000 1.0000 .0000

Interact. Mtd= Absolute

From 1020 To 1260 DX= -1.208 m.

SIF's & TEE's

Node 1260 Weldolet

From 1260 To 1280 DX= -1.275 m.

RESTRAINTS

Node 1280 Y Mu = .30

Node 1280 Z

From 1280 To 1300 DX= -.368 m.

From 1300 To 1320 DX= -.102 m.

Element Name= FLANGE_FLG_600

RIGID Weight= 191.27 N.

From 1320 To 1340 DX= -.453 m.

Element Name= CHECK_NOFLG_600

RIGID Weight= 1,850.46 N.

From 1340 To 1360 DX= -.102 m.

Element Name= FLANGE_NOFLG_600

RIGID Weight= 191.27 N.

From 1360 To 1380 DX= -1.973 m.

RESTRAINTS

Node 1380 Y Mu = .30

Node 1380 Z

From 1380 To 1400 DX= -3.826 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1399

Angle/Node @2= .00 1398

From 1400 To 1420 DY= .229 m.

From 1420 To 1440 DY= -.229 m.

RIGID Weight= .00 N.

From 1440 To 1460 DY= -.300 m.

PIPE

Dia= 11.430 cm. Wall= .602 cm.

GENERAL

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T1= 21 C T2= 21 C P1= .0000 KPa PHyd= .0000 KPa
 Fluid Den= .0000000 kg./cu.cm. Insul Thk= .000 cm.

RESTRAINTS

Node 1460 +Y Mu = .30
 Node 1460 Z

SIF's & TEE's

Node 1440 Unreinforced Tee

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1420 To 1480 DY= 1.455 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

GENERAL

T1= 125 C T2= 155 C P1= 1,900.0433 KPa PHyd= 3,300.0752 KPa
 Fluid Den= .0000154 kg./cu.cm. Insul Thk= 4.000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1479
 Angle/Node @2= .00 1478

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 1480 To 1500 DX= -5.760 m.

RESTRAINTS

Node 1500 +Y
 Node 1500 Z

 From 1500 To 1520 DX= -6.000 m.

RESTRAINTS

Node 1520 +Y Mu = .30

 From 1520 To 1540 DX= -3.570 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1539
 Angle/Node @2= .00 1538

 From 1540 To 1560 DZ= .600 m.

RESTRAINTS

Node 1560 +Y Mu = .30

 From 1560 To 1580 DZ= 1.117 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1579
 Angle/Node @2= .00 1578

 From 1580 To 1600 DY= 2.487 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1599
 Angle/Node @2= .00 1598

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From 1600 To 1620 DX= -.618 m. DZ= .432 m.
BEND at "TO" end
    Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 1619
    Angle/Node @2= .00 1618
-----
From 1620 To 1640 DY= -.229 m.
-----
From 1640 To 1660 DY= -.102 m.
    Element Name= FLANGE_NOFLG_600
RIGID Weight= 191.27 N.
-----
From 1660 To 1680 DY= -.102 m.
    Element Name= FLANGE_NOFLG_600
RIGID Weight= 191.27 N.
-----
From 1680 To 1700 DY= -.127 m.
RESTRAINTS
    Node 1700 ANC Cnode 1720
EQUIPMENT LIMITS
    Nozzle Node = 1700
    Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
    FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
    Equipment Major Direction Vector= .0000 .0000 1.0000
    Interact. Mtd= Absolute
-----
From 1720 To 1740 DY= -.240 m.
GENERAL
    P1= 2,200.0500 KPa
RIGID Weight= .00 N.
-----
From 1740 To 1760 DY= -.240 m.
RIGID Weight= .00 N.
-----
From 1780 To 1800 DY= -.127 m.
GENERAL
    T1= 60 C
RESTRAINTS
    Node 1780 ANC Cnode 1760
ALLOWABLE STRESSES
    B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
    Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
    Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
    Sh9= 137,895 KPa Sy= 241,316 KPa
EQUIPMENT LIMITS
    Nozzle Node = 1780
    Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
    FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
    Equipment Major Direction Vector= .0000 .0000 1.0000
    Interact. Mtd= Absolute
-----
From 1800 To 1820 DY= -.102 m.
    Element Name= FLANGE_NOFLG_150
RIGID Weight= 191.27 N.
-----
From 1740 To 1840 DZ= 1.500 m.
GENERAL

```

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T1= 142 C    T2= 175 C
RIGID Weight= 2,250.11 N.
RESTRAINTS
  Node 1840 Y Mu = .10
  Node 1840 X Mu = .30
  Node 1840 Z Gap= .600 cm.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,571 KPa  Sh3= 137,895 KPa  Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa  Sh7= 137,895 KPa  Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 1840 To 1860 DX= -7.035 m.
RIGID Weight=10,500.52 N.
RESTRAINTS
  Node 1860 Y Mu = .10
  Node 1860 Z Gap= .600 cm. Mu = .30
-----
From 1860 To 1880 DZ= -3.000 m.
RIGID Weight= 4,500.22 N.
RESTRAINTS
  Node 1880 Y Mu = .10
  Node 1880 Z Gap= .600 cm.
-----
From 1880 To 1900 DX= 7.035 m.
RIGID Weight=10,500.52 N.
RESTRAINTS
  Node 1900 Y Mu = .10
  Node 1900 X
  Node 1900 Z Gap= .600 cm.
-----
From 1900 To 1740 DZ= 1.500 m.
RIGID Weight= 2,250.11 N.
-----
From 1820 To 1920 DY= -.102 m.
PIPE
  Dia= 16.827 cm. Wall= .340 cm. Cor= .0000 cm.
  Element Name= FLANGE_NOFLG_150
GENERAL
  T1= 60 C    T2= 155 C    Mat= (165)A312 TP316L    E= 195,127,520 KPa
  EH1= 192,364,096 KPa  EH2= 185,780,080 KPa  EH3= 195,127,520 KPa
  EH4= 195,127,520 KPa  EH5= 195,127,520 KPa  EH6= 195,127,520 KPa
  EH7= 195,127,520 KPa  EH8= 195,127,520 KPa  EH9= 195,127,520 KPa
  v = .292 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.
  Insul Thk= .000 cm.
RIGID Weight= 191.27 N.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = --- Sc= 115,142 KPa
  Sh1= 115,142 KPa  Sh2= 114,386 KPa  Sh3= 115,142 KPa  Sh4= 115,142 KPa
  Sh5= 115,142 KPa  Sh6= 115,142 KPa  Sh7= 115,142 KPa  Sh8= 115,142 KPa
  Sh9= 115,142 KPa  Sy= 172,369 KPa
-----
From 1920 To 1940 DY= -.229 m.
GENERAL
  P1= 2,200.0500 KPa Fluid Den= .0000183 kg./cu.cm.
SINGLE FLANGED BEND at "TO" end

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      Radius= 22.860 cm. (LONG)      Bend Angle= 89.714      Angle/Node @1= 44.86 1939
-----
From 1940 To 1960 DY= -.011 m.  DZ= -2.257 m.
RESTRAINTS
      Node 1960 +Y      Mu = .30
-----
From 1960 To 1980 DY= -.002 m.  DZ= -.350 m.
BEND at "TO" end
      Radius= 22.860 cm. (LONG)      Bend Angle= 90.000      Angle/Node @1= 45.00 1979
      Angle/Node @2= .00 1978
-----
From 1980 To 2000 DX= 4.441 m.
RESTRAINTS
      Node 2000 +Y      Mu = .30
      Node 2000 Z      Gap= .300 cm.      Mu = .30
-----
From 2020 To 2030 DZ= -2.452 m.
PIPE
      Dia= 27.305 cm.      Wall= .927 cm.      Cor= .6000 cm.
GENERAL
      T1= 30 C      T2= 85 C      T4= 200 C      P1= 550.0125 KPa      PHyd= 825.0188 KPa
      Mat= (106)A106 Grade B      E= 203,401,232 KPa      EH1= 202,660,192 KPa
      EH2= 199,086,608 KPa      EH3= 203,401,232 KPa      EH4= 191,317,008 KPa
      EH5= 203,401,232 KPa      EH6= 203,401,232 KPa      EH7= 203,401,232 KPa
      EH8= 203,401,232 KPa      EH9= 203,401,232 KPa      v = .292
      Pipe Den= .0078334 kg./cu.cm.      Fluid Den= .0000015 kg./cu.cm.
      Insul Thk= .000 cm.
RESTRAINTS
      Node 2020 +Y
      Node 2020 Z      Gap= .300 cm.
SIF's & TEE's
      Node 2020 <No Type Specified>      SIF(in)= 2.080      SIF(out)= 2.460
ALLOWABLE STRESSES
      B31.3 (2016)      Cycle Max Switch = ---      Sc= 137,895 KPa
      Sh1= 137,895 KPa      Sh2= 137,895 KPa      Sh3= 137,895 KPa      Sh4= 137,261 KPa
      Sh5= 137,895 KPa      Sh6= 137,895 KPa      Sh7= 137,895 KPa      Sh8= 137,895 KPa
      Sh9= 137,895 KPa      Sy= 241,316 KPa
-----
From 2030 To 2040 DZ= -3.548 m.
RESTRAINTS
      Node 2040 +Y      Mu = .30
      Node 2040 X      Gap= .300 cm.
-----
From 2020 To 2060 DZ= 6.000 m.
RESTRAINTS
      Node 2060 +Y      Mu = .30
      Node 2060 X      Gap= .300 cm.
SIF's & TEE's
      Node 2020 <No Type Specified>      SIF(in)= 2.080      SIF(out)= 2.460
-----
From 1260 To 2140 DY= 1.780 m.
PIPE
      Dia= 6.032 cm.      Wall= .874 cm.      Cor= .3000 cm.
GENERAL
      T1= 125 C      T2= 155 C      T4= 21 C      P1= 2,200.0500 KPa      PHyd= 3,300.0752 KPa
      Fluid Den= .0000154 kg./cu.cm.      Insul Thk= .000 cm.

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BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2139
 Angle/Node @2= .00 2138

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
 Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
 Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
 Sh9= 137,895 KPa Sy= 241,316 KPa

 From 2140 To 2160 DX= -.240 m. DZ= .240 m.

BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50 2159
 Angle/Node @2= .00 2158

 From 2160 To 2180 DX= -4.032 m.

RESTRAINTS

Node 2180 +Y
 Node 2180 Z Gap= .300 cm.

 From 2180 To 2190 DX= -6.000 m.

RESTRAINTS

Node 2190 +Y Mu = .30

 From 2190 To 2200 DX= -.388 m.

BEND at "TO" end
 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2199
 Angle/Node @2= .00 2198

 From 2200 To 2220 DZ= 2.350 m.

RESTRAINTS

Node 2220 +Y Mu = .30
 Node 2220 X Gap= .300 cm.

 From 2220 To 2280 DZ= 3.176 m.

SIF's & TEE's

Node 2280 Welding Tee

 From 2280 To 2290 DX= .000 m. DZ= .500 m.

 From 2280 To 2320 DY= .190 m.

RESTRAINTS

Node 2320 +Y

 From 2320 To 2330 DY= .738 m.

SIF's & TEE's

Node 2330 Welding Tee

 From 2330 To 2340 DY= .086 m.

 From 2340 To 2346 DY= .073 m.

Element Name= GATE_FLG_600

RIGID Weight= 44.48 N.

 From 2346 To 2352 DY= .212 m.

RIGID Weight= 258.00 N.

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From 2352 To 2360 DY= .073 m.
 RIGID Weight= 44.48 N.

 From 2360 To 2380 DY= .250 m.

From 2380 To 2400 DY= .090 m.
 REDUCER

Diam2= 4.826 cm. Wall2= .714 cm.

From 2400 To 2410 DY= .071 m.

PIPE

Dia= 4.826 cm. Wall= .714 cm.

Insul Thk= .000 cm.

RIGID Weight= 40.03 N.

From 2410 To 2420 DY= .067 m.

RIGID Weight= 50.00 N.

FORCES & MOMENTS

Node 2420 FY1= 1,000.05 N. FZ1= -2,000.10 N.

From 2420 To 2430 DX= -.046 m. DZ= .000 m.

PIPE

Dia= 8.890 cm. Wall= .762 cm.

Insul Thk= .000 cm.

RIGID Weight= 71.17 N.

From 2430 To 2440 DX= -.082 m. DZ= .000 m.

RIGID Weight= 71.17 N.

From 2440 To 2460 DX= -.073 m.

PIPE

Cor= .6000 cm. Element Name= FLANGE_FLG_150

GENERAL

T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 750.0171 KPa

Phyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm.

RIGID Weight= 54.49 N.

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 2460 To 2480 DX= -.140 m. DY= -.040 m.

REDUCER

Diam2= 16.827 cm. Wall2= 1.097 cm.

From 2480 To 2500 DX= -.354 m.

PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 2500 +Y Mu = .30

Node 2500 Z

Node 2500 X

From 2500 To 2520 DX= -.583 m. DZ= .000 m.

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INPUT LISTING

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SINGLE FLANGED BEND at "TO" end
  Radius= 22.860 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 2519
  Angle/Node @2= .00 2518
-----
From 2520 To 2540 DY= -.229 m.
-----
From 2540 To 2546 DY= -.092 m.
  Element Name= BALL_FLG_150
RIGID Weight= 111.21 N.
-----
From 2546 To 2552 DY= -.276 m.
RIGID Weight= 1,005.30 N.
-----
From 2552 To 2560 DY= -.092 m.
RIGID Weight= 111.21 N.
-----
From 2560 To 2570 DY= -.194 m.
-----
From 2570 To 2580 DY= -1.208 m.
SIF's & TEE's
  Node 2580 Welding Tee
-----
From 2580 To 2600 DX= .000 m. DZ= -.680 m.
RESTRAINTS
  Node 2600 +Y Mu = .30
-----
From 2290 To 2300 DZ= .500 m.
PIPE
  Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.
GENERAL
  T1= 125 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
  Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.
BEND at "TO" end
  Radius= 7.620 cm. (LONG)   Bend Angle= 90.000   Angle/Node @1= 45.00 2301
  Angle/Node @2= .00 2302
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 2300 To 2620 DY= .190 m.
PIPE
  Dia= 6.032 cm. Wall= .874 cm. Cor= .3000 cm.
GENERAL
  T1= 125 C T2= 155 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
  Fluid Den= .0000154 kg./cu.cm. Insul Thk= .000 cm.
RESTRAINTS
  Node 2620 +Y
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,819 KPa Sh3= 137,895 KPa Sh4= 137,895 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 2620 To 2640 DY= .823 m.

```

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```

-----
From 2640 To 2646 DY= .073 m.
  Element Name= GATE_FLG_600
RIGID Weight= 44.48 N.
-----
From 2646 To 2652 DY= .212 m.
RIGID Weight= 258.00 N.
-----
From 2652 To 2660 DY= .073 m.
RIGID Weight= 44.48 N.
-----
From 2660 To 2680 DY= .250 m.
-----
From 2680 To 2700 DY= .059 m.
REDUCER
  Diam2= 4.826 cm. Wall2= .714 cm.
-----
From 2700 To 2710 DY= .071 m.
PIPE
  Dia= 4.826 cm. Wall= .714 cm.
  Insul Thk= .000 cm.
RIGID Weight= 40.03 N.
-----
From 2710 To 2720 DY= .064 m.
RIGID Weight= 80.07 N.
FORCES & MOMENTS
  Node 2720 FX2= 2,000.10 N. FY2= 1,000.05 N. FZ2= .00 N.
-----
From 2720 To 2730 DX= -.046 m.
PIPE
  Dia= 8.890 cm. Wall= .549 cm.
  Insul Thk= .000 cm.
RIGID Weight= 71.17 N.
-----
From 2730 To 2740 DX= -.083 m.
RIGID Weight= 71.17 N.
-----
From 2740 To 2760 DX= -.073 m. DZ= .000 m.
PIPE
  Dia= 8.890 cm. Wall= .762 cm. Cor= .6000 cm.
  Element Name= FLANGE_FLG_150
GENERAL
  T1= 30 C T2= 85 C T3= 21 C T4= 200 C P1= 550.0125 KPa
  Phyd= 825.0188 KPa Fluid Den= .0000015 kg./cu.cm. Insul Thk= .000 cm.
RIGID Weight= 54.49 N.
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa
  Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa
  Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa
  Sh9= 137,895 KPa Sy= 241,316 KPa
-----
From 2760 To 2780 DX= -.140 m. DY= -.040 m.
REDUCER
  Diam2= 16.827 cm. Wall2= 1.097 cm.
-----
From 2780 To 2800 DX= -.354 m. DZ= .000 m.

```

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PIPE

Dia= 16.827 cm. Wall= 1.097 cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 2800 +Y

Node 2800 Z

Node 2800 X

 From 2800 To 2820 DX= -.583 m.

SINGLE FLANGED BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2819

Angle/Node @2= .00 2818

 From 2820 To 2840 DY= -.229 m.

 From 2840 To 2846 DY= -.092 m.

Element Name= BALL_FLG_150

RIGID Weight= 111.21 N.

 From 2846 To 2852 DY= -.276 m.

RIGID Weight= 1,005.30 N.

 From 2852 To 2860 DY= -.092 m.

RIGID Weight= 111.21 N.

 From 2860 To 2880 DY= -1.402 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 92.005 Angle/Node @1= 46.00 2879

Angle/Node @2= .00 2878

 From 2880 To 2580 DX= .001 m. DY= .035 m. DZ= -1.000 m.

 From 2600 To 2920 DZ= -.379 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 2919

Angle/Node @2= .00 2918

 From 2920 To 2940 DX= -3.185 m. DY= -.006 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 89.885 Angle/Node @1= 44.94 2939

Angle/Node @2= .00 2938

 From 2940 To 2980 DY= -.723 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 45.040 Angle/Node @1= 22.52 2979

Angle/Node @2= .00 2978

 From 2980 To 2030 DY= -.710 m. DZ= .711 m.

SIF's & TEE's

Node 2030 <No Type Specified> SIF(in)= 2.660 SIF(out)= 3.160

 From 2330 To 3000 DX= .000 m. DZ= -.077 m.

PIPE

Dia= 6.032 cm. Wall= .554 cm. Cor= .3000 cm.

GENERAL

T1= 125 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa

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```

Fluid Den= .0000154 kg./cu.cm.    Insul Thk= .000 cm.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,819 KPa    Sh3= 137,895 KPa    Sh4= 137,895 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----
From 3000 To 3020 DZ= -.073 m.
PIPE
  Dia= 6.032 cm.    Wall= .554 cm.
  Insul Thk= .000 cm.
RIGID Weight= 44.48 N.
-----
From 3020 To 3040 DY= .000 m.    DZ= -.187 m.
RIGID Weight= 209.07 N.
-----
From 3040 To 3060 DY= .000 m.    DZ= -.073 m.
RIGID Weight= 44.48 N.
-----
From 3060 To 3080 DY= .000 m.    DZ= -.077 m.
  Element Name= BALL_FLG_600
BEND at "TO" end
  Radius= 7.620 cm. (LONG)    Bend Angle= 90.000    Angle/Node @1= 45.00 3079
  Angle/Node @2= .00 3078
-----
From 3080 To 3100 DX= -.377 m.    DY= .000 m.
RESTRAINTS
  Node 3100 +Y    Mu = .30
-----
From 3100 To 3120 DX= -.100 m.    DZ= .000 m.
RESTRAINTS
  Node 3120 X
  Node 3120 Z
-----
From 3120 To 3140 DX= -.307 m.
-----
From 3140 To 3146 DX= -.073 m.    DZ= .000 m.
  Element Name= GLOBE_FLG_600
RIGID Weight= 44.48 N.
-----
From 3146 To 3152 DX= -.276 m.    DZ= .000 m.
RIGID Weight= 458.17 N.
-----
From 3152 To 3160 DX= -.067 m.    DZ= .000 m.
PIPE
  Dia= 6.032 cm.    Wall= .874 cm.    Cor= .6000 cm.
GENERAL
  T1= 30 C    T2= 85 C    T4= 200 C    Fluid Den= .0000015 kg./cu.cm.
  Insul Thk= .000 cm.
RIGID Weight= 31.14 N.
ALLOWABLE STRESSES
  B31.3 (2016)      Cycle Max Switch = ---    Sc= 137,895 KPa
  Sh1= 137,895 KPa  Sh2= 137,895 KPa    Sh3= 137,895 KPa    Sh4= 137,261 KPa
  Sh5= 137,895 KPa  Sh6= 137,895 KPa    Sh7= 137,895 KPa    Sh8= 137,895 KPa
  Sh9= 137,895 KPa  Sy= 241,316 KPa
-----

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From 3160 To 3180 DX= -.077 m. DZ= .000 m.

PIPE

Cor= .6000 cm.

GENERAL

T1= 30 C T2= 85 C P1= 750.0171 KPa PHyd= 825.0188 KPa

Fluid Den= .0000015 kg./cu.cm.

BEND at "TO" end

Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 3179

Angle/Node @2= .00 3178

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 137,895 KPa

Sh1= 137,895 KPa Sh2= 137,895 KPa Sh3= 137,895 KPa Sh4= 137,261 KPa

Sh5= 137,895 KPa Sh6= 137,895 KPa Sh7= 137,895 KPa Sh8= 137,895 KPa

Sh9= 137,895 KPa Sy= 241,316 KPa

From 3180 To 2570 DZ= .487 m.

SIF's & TEE's

Node 2570 Welding Tee

From 2040 To 3960 DZ= -6.000 m.

PIPE

Dia= 27.305 cm. Wall= .927 cm.

Insul Thk= .000 cm.

RESTRAINTS

Node 3960 +Y Mu = .30

From 3960 To 3970 DZ= -3.000 m.

From 3970 To 3980 DZ= -3.000 m.

RESTRAINTS

Node 3980 +Y Mu = .30

Node 3980 X Gap= .300 cm.

From 3980 To 4000 DZ= -2.750 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 3999

Angle/Node @2= .00 3998

From 4000 To 4020 DX= -6.000 m. DZ= .000 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4019

Angle/Node @2= .00 4018

From 4020 To 4040 DZ= -1.000 m.

RESTRAINTS

Node 4040 +Y Mu = .30

From 4040 To 4060 DZ= -1.000 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4059

Angle/Node @2= .00 4058

From 4060 To 4066 DX= 6.000 m. DY= .000 m. DZ= .000 m.

BEND at "TO" end

Radius= 38.100 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4065

Angle/Node @2= .00 4064

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 From 4066 To 4072 DZ= -1.250 m.

RESTRAINTS

Node 4072 +Y Mu = .30

From 4072 To 4080 DZ= -6.000 m.

RESTRAINTS

Node 4080 +Y Mu = .30
 Node 4080 X Gap= .300 cm.
 Node 4080 Z Gap= .300 cm.

From 2000 To 4100 DX= .695 m.

PIPE

Dia= 16.827 cm. Wall= .340 cm. Cor= .0000 cm.

GENERAL

T1= 60 C T2= 155 C T4= 21 C P1= 2,200.0500 KPa PHyd= 3,300.0752 KPa
 Mat= (165)A312 TP316L E= 195,127,520 KPa EH1= 192,364,096 KPa
 EH2= 185,780,080 KPa EH3= 195,127,520 KPa EH4= 195,127,520 KPa
 EH5= 195,127,520 KPa EH6= 195,127,520 KPa EH7= 195,127,520 KPa
 EH8= 195,127,520 KPa EH9= 195,127,520 KPa v = .292
 Pipe Den= .0080272 kg./cu.cm. Fluid Den= .0000183 kg./cu.cm.
 Insul Thk= .000 cm.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4099
 Angle/Node @2= .00 4098

ALLOWABLE STRESSES

B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
 Sh1= 115,142 KPa Sh2= 114,386 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
 Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
 Sh9= 115,142 KPa Sy= 172,369 KPa

From 4100 To 4120 DY= -.013 m. DZ= 2.602 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 89.714 Angle/Node @1= 44.86 4119
 Angle/Node @2= .00 4118

RESTRAINTS

Node 4120 +Y Mu = .30

From 4120 To 4140 DY= -.830 m.

BEND at "TO" end

Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00 4139
 Angle/Node @2= .00 4138

From 4140 To 4160 DX= 5.050 m.

RESTRAINTS

Node 4160 +Y Mu = .30
 Node 4160 Z Mu = .30

From 4160 To 4180 DX= 3.596 m.

From 4180 To 4200 DX= .102 m.

Element Name= FLANGE_FLG_300

RIGID Weight= 191.27 N.

RESTRAINTS

Node 4200 ANC Cnode 4220

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INPUT LISTING

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From 4220 To 4240 DX= .102 m.
  Element Name= FLANGE_FLG_300
RIGID Weight= 191.27 N.
-----
From 4240 To 4260 DX= .150 m.
RESTRAINTS
  Node 4260 ANC Cnode 4261
EQUIPMENT LIMITS
  Nozzle Node = 4260
  Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.
  FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.
  Equipment Major Direction Vector= .0000 1.0000 .0000
  Interact. Mtd= Absolute
-----
From 4261 To 4280 DX= .459 m.
PIPE
  Dia= 91.948 cm. Wall= 1.200 cm.
  Insul Thk= .000 cm.
RIGID Weight= .00 N.
-----
From 4280 To 4300 DY= -1.300 m.
RIGID Weight= .00 N.
-----
From 4300 To 4310 DY= -1.000 m.
RIGID Weight= .00 N.
-----
From 4310 To 4320 DY= -.300 m.
GENERAL
  T1= 21 C T2= 21 C
RIGID Weight= .00 N.
RESTRAINTS
  Node 4320 ANC
ALLOWABLE STRESSES
  B31.3 (2016) Cycle Max Switch = --- Sc= 115,142 KPa
  Sh1= 115,142 KPa Sh2= 115,142 KPa Sh3= 115,142 KPa Sh4= 115,142 KPa
  Sh5= 115,142 KPa Sh6= 115,142 KPa Sh7= 115,142 KPa Sh8= 115,142 KPa
  Sh9= 115,142 KPa Sy= 172,369 KPa
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MATERIAL Changes:

20	40	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
820	840	Mat= (383)A516 70 E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
280	880	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
1820	1920	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.
2020	2030	Mat= (106)A106 Grade B E= 203,401,232 KPa v = .292 Density= .0078 kg./cu.cm.
2000	4100	Mat= (165)A312 TP316L E= 195,127,520 KPa v = .292 Density= .0080 kg./cu.cm.

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ALLOWABLE STRESS Changes

20	40	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
140	160	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
120	180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
540	560	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
520	580	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
640	660	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
620	680	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
820	840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 160,648 KPa	Sh1= 160,648 KPa
		Sh2= 160,062 KPa	Sh3= 160,648 KPa
		Sh4= 160,648 KPa	Sh5= 160,648 KPa
		Sh6= 160,648 KPa	Sh7= 160,648 KPa

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		Sh8= 160,648 KPa	Sh9= 160,648 KPa
		Sy= 262,001 KPa	
280	880	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
900	910	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1020	1040	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1220	1240	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1440	1460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1420	1480	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1780	1800	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1740	1840	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,571 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa

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		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1820	1920	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 114,386 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
2020	2030	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
1260	2140	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2440	2460	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2290	2300	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2300	2620	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2740	2760	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2330	3000	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,819 KPa	Sh3= 137,895 KPa
		Sh4= 137,895 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa

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INPUT LISTING

		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3152	3160	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
3160	3180	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 137,895 KPa	Sh1= 137,895 KPa
		Sh2= 137,895 KPa	Sh3= 137,895 KPa
		Sh4= 137,261 KPa	Sh5= 137,895 KPa
		Sh6= 137,895 KPa	Sh7= 137,895 KPa
		Sh8= 137,895 KPa	Sh9= 137,895 KPa
		Sy= 241,316 KPa	
2000	4100	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 114,386 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	
4310	4320	B31.3 (2016)	Cycle Max Switch = ---
		Sc= 115,142 KPa	Sh1= 115,142 KPa
		Sh2= 115,142 KPa	Sh3= 115,142 KPa
		Sh4= 115,142 KPa	Sh5= 115,142 KPa
		Sh6= 115,142 KPa	Sh7= 115,142 KPa
		Sh8= 115,142 KPa	Sh9= 115,142 KPa
		Sy= 172,369 KPa	

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BEND ELEMENTS

40	60	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 59
		Angle/Node @2= .00 58
60	80	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 79
80	100	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00 99
120	180	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		179
480	500	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		499 Angle/Node @2= .00 498
520	580	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		579 Angle/Node @2= .00 578
620	680	Radius= 30.480 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		679 Angle/Node @2= .00 678
280	880	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00

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940	960	879 Angle/Node @2= .00 878 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
960	980	959 Angle/Node @2= .00 958 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1100	1120	979 Angle/Node @2= .00 978 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1120	1140	1119 Angle/Node @2= .00 1118 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1160	1180	1139 Angle/Node @2= .00 1138 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1180	1200	1179 Angle/Node @2= .00 1178 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1380	1400	1199 Angle/Node @2= .00 1198 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1420	1480	1399 Angle/Node @2= .00 1398 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1520	1540	1479 Angle/Node @2= .00 1478 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1560	1580	1539 Angle/Node @2= .00 1538 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1580	1600	1579 Angle/Node @2= .00 1578 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1600	1620	1599 Angle/Node @2= .00 1598 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1920	1940	1619 Angle/Node @2= .00 1618 Radius= 22.860 cm. (LONG) Bend Angle= 89.714 Angle/Node @1= 44.86
1960	1980	1939 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
1260	2140	1979 Angle/Node @2= .00 1978 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2140	2160	2139 Angle/Node @2= .00 2138 Radius= 7.620 cm. (LONG) Bend Angle= 45.000 Angle/Node @1= 22.50
2190	2200	2159 Angle/Node @2= .00 2158 Radius= 7.620 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2500	2520	2199 Angle/Node @2= .00 2198 Radius= 22.860 cm. (LONG) Bend Angle= 90.000 Angle/Node @1= 45.00
2290	2300	2519 Angle/Node @2= .00 2518 Radius= 7.620 cm. (LONG)

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		Bend Angle= 90.000 Angle/Node @1= 45.00
		2301 Angle/Node @2= .00 2302
2800	2820	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2819 Angle/Node @2= .00 2818
2860	2880	Radius= 22.860 cm. (LONG)
		Bend Angle= 92.005 Angle/Node @1= 46.00
		2879 Angle/Node @2= .00 2878
2600	2920	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		2919 Angle/Node @2= .00 2918
2920	2940	Radius= 22.860 cm. (LONG)
		Bend Angle= 89.885 Angle/Node @1= 44.94
		2939 Angle/Node @2= .00 2938
2940	2980	Radius= 22.860 cm. (LONG)
		Bend Angle= 45.040 Angle/Node @1= 22.52
		2979 Angle/Node @2= .00 2978
3060	3080	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		3079 Angle/Node @2= .00 3078
3160	3180	Radius= 7.620 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		3179 Angle/Node @2= .00 3178
3980	4000	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		3999 Angle/Node @2= .00 3998
4000	4020	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4019 Angle/Node @2= .00 4018
4040	4060	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4059 Angle/Node @2= .00 4058
4060	4066	Radius= 38.100 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4065 Angle/Node @2= .00 4064
2000	4100	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4099 Angle/Node @2= .00 4098
4100	4120	Radius= 22.860 cm. (LONG)
		Bend Angle= 89.714 Angle/Node @1= 44.86
		4119 Angle/Node @2= .00 4118
4120	4140	Radius= 22.860 cm. (LONG)
		Bend Angle= 90.000 Angle/Node @1= 45.00
		4139 Angle/Node @2= .00 4138

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RIGIDS

20	40	RIGID Weight= 177.93 N.
120	140	RIGID Weight= .00 N.
200	220	RIGID Weight= 177.93 N.
220	240	RIGID Weight= 177.93 N.
320	340	RIGID Weight= 177.93 N.
340	360	RIGID Weight= 1,023.41 N.
360	380	RIGID Weight= 177.93 N.

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420	440	RIGID	Weight= 177.93 N.
440	460	RIGID	Weight= 177.93 N.
520	540	RIGID	Weight= .00 N.
620	640	RIGID	Weight= .00 N.
700	720	RIGID	Weight= 177.93 N.
740	760	RIGID	Weight= 177.93 N.
780	800	RIGID	Weight= .00 N.
820	840	RIGID	Weight= .00 N.
840	860	RIGID	Weight= .00 N.
900	910	RIGID	Weight= 31.14 N.
910	920	RIGID	Weight= 66.72 N.
920	930	RIGID	Weight= 355.86 N.
930	940	RIGID	Weight= 44.48 N.
1060	1080	RIGID	Weight= 191.27 N.
1080	1100	RIGID	Weight= 191.27 N.
1220	1240	RIGID	Weight= 191.27 N.
1300	1320	RIGID	Weight= 191.27 N.
1320	1340	RIGID	Weight= 1,850.46 N.
1340	1360	RIGID	Weight= 191.27 N.
1420	1440	RIGID	Weight= .00 N.
1640	1660	RIGID	Weight= 191.27 N.
1660	1680	RIGID	Weight= 191.27 N.
1720	1740	RIGID	Weight= .00 N.
1740	1760	RIGID	Weight= .00 N.
1800	1820	RIGID	Weight= 191.27 N.
1740	1840	RIGID	Weight= 2,250.11 N.
1840	1860	RIGID	Weight=10,500.52 N.
1860	1880	RIGID	Weight= 4,500.22 N.
1880	1900	RIGID	Weight=10,500.52 N.
1900	1740	RIGID	Weight= 2,250.11 N.
1820	1920	RIGID	Weight= 191.27 N.
2340	2346	RIGID	Weight= 44.48 N.
2346	2352	RIGID	Weight= 258.00 N.
2352	2360	RIGID	Weight= 44.48 N.
2400	2410	RIGID	Weight= 40.03 N.
2410	2420	RIGID	Weight= 50.00 N.
2420	2430	RIGID	Weight= 71.17 N.
2430	2440	RIGID	Weight= 71.17 N.
2440	2460	RIGID	Weight= 54.49 N.
2540	2546	RIGID	Weight= 111.21 N.
2546	2552	RIGID	Weight= 1,005.30 N.
2552	2560	RIGID	Weight= 111.21 N.
2640	2646	RIGID	Weight= 44.48 N.
2646	2652	RIGID	Weight= 258.00 N.
2652	2660	RIGID	Weight= 44.48 N.
2700	2710	RIGID	Weight= 40.03 N.
2710	2720	RIGID	Weight= 80.07 N.
2720	2730	RIGID	Weight= 71.17 N.
2730	2740	RIGID	Weight= 71.17 N.
2740	2760	RIGID	Weight= 54.49 N.
2840	2846	RIGID	Weight= 111.21 N.
2846	2852	RIGID	Weight= 1,005.30 N.
2852	2860	RIGID	Weight= 111.21 N.
3000	3020	RIGID	Weight= 44.48 N.
3020	3040	RIGID	Weight= 209.07 N.
3040	3060	RIGID	Weight= 44.48 N.

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3140	3146	RIGID	Weight= 44.48 N.
3146	3152	RIGID	Weight= 458.17 N.
3152	3160	RIGID	Weight= 31.14 N.
4180	4200	RIGID	Weight= 191.27 N.
4220	4240	RIGID	Weight= 191.27 N.
4261	4280	RIGID	Weight= .00 N.
4280	4300	RIGID	Weight= .00 N.
4300	4310	RIGID	Weight= .00 N.
4310	4320	RIGID	Weight= .00 N.

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SIF's & TEE's

140	160	Node 140	Unreinforced Tee
260	280	Node 280	Weldolet
540	560	Node 540	Unreinforced Tee
1020	1260	Node 1260	Weldolet
1440	1460	Node 1440	Unreinforced Tee
2020	2030	Node 2020	<No Type Specified>
		SIF(in)= 2.080	SIF(out)= 2.460
2020	2060	Node 2020	<No Type Specified>
		SIF(in)= 2.080	SIF(out)= 2.460
2220	2280	Node 2280	Welding Tee
2320	2330	Node 2330	Welding Tee
2570	2580	Node 2580	Welding Tee
2980	2030	Node 2030	<No Type Specified>
		SIF(in)= 2.660	SIF(out)= 3.160
3180	2570	Node 2570	Welding Tee

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REDUCERS

2380	2400	Diam2= 4.826 cm.	Wall2= .714 cm.
2460	2480	Diam2= 16.827 cm.	Wall2= 1.097 cm.
2680	2700	Diam2= 4.826 cm.	Wall2= .714 cm.
2760	2780	Diam2= 16.827 cm.	Wall2= 1.097 cm.

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RESTRAINTS

NODE	TYPE	CNODE	STIF1	Len GAP STIF2	MU YIELD FORCE	Dir Vectors
20	ANC					.000 .000 .000
160	-X				.30	1.000 .000 .000
160	Z					.000 .000 1.000
121	+Y				.10	.000 1.000 .000
160	X	121				1.000 .000 .000
300	+Y				.30	.000 1.000 .000
400	Y				.30	.000 1.000 .000
400	Z					.000 .000 1.000
480	Y				.30	.000 1.000 .000
480	Z					.000 .000 1.000
560	+Y				.30	.000 1.000 .000
560	Z					.000 .000 1.000

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660	+Y	800		.30	.000	1.000	.000
720	ANC	740			.000	.000	.000
780	ANC	820			.000	.000	.000
860	ANC				.000	.000	.000
1040	+Y			.30	.000	1.000	.000
1180	-X			.30	1.000	.000	.000
1180	+Y			.30	.000	1.000	.000
1240	ANC				.000	.000	.000
1280	Y			.30	.000	1.000	.000
1280	Z				.000	.000	1.000
1380	Y			.30	.000	1.000	.000
1380	Z				.000	.000	1.000
1460	+Y			.30	.000	1.000	.000
1460	Z				.000	.000	1.000
1500	+Y				.000	1.000	.000
1500	Z				.000	.000	1.000
1520	+Y			.30	.000	1.000	.000
1560	+Y			.30	.000	1.000	.000
1700	ANC	1720			.000	.000	.000
1780	ANC	1760			.000	.000	.000
1840	Y			.10	.000	1.000	.000
1840	X			.30	1.000	.000	.000
1840	Z		.60		.000	.000	1.000
1860	Y			.10	.000	1.000	.000
1860	Z		.60	.30	.000	.000	1.000
1880	Y			.10	.000	1.000	.000
1880	Z		.60		.000	.000	1.000
1900	Y			.10	.000	1.000	.000
1900	X				1.000	.000	.000
1900	Z		.60		.000	.000	1.000
1960	+Y			.30	.000	1.000	.000
2000	+Y			.30	.000	1.000	.000
2000	Z		.30	.30	.000	.000	1.000
2020	+Y				.000	1.000	.000
2020	Z		.30		.000	.000	1.000
2040	+Y			.30	.000	1.000	.000
2040	X		.30		1.000	.000	.000
2060	+Y			.30	.000	1.000	.000
2060	X		.30		1.000	.000	.000
2180	+Y				.000	1.000	.000
2180	Z		.30		.000	.000	1.000
2190	+Y			.30	.000	1.000	.000
2220	+Y			.30	.000	1.000	.000
2220	X		.30		1.000	.000	.000
2320	+Y				.000	1.000	.000
2500	+Y			.30	.000	1.000	.000
2500	Z				.000	.000	1.000
2500	X				1.000	.000	.000
2600	+Y			.30	.000	1.000	.000
2620	+Y				.000	1.000	.000
2800	+Y				.000	1.000	.000
2800	Z				.000	.000	1.000
2800	X				1.000	.000	.000
3100	+Y			.30	.000	1.000	.000
3120	X				1.000	.000	.000
3120	Z				.000	.000	1.000

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3960	+Y		.30	.000	1.000	.000
3980	+Y		.30	.000	1.000	.000
3980	X		.30	1.000	.000	.000
4040	+Y		.30	.000	1.000	.000
4072	+Y		.30	.000	1.000	.000
4080	+Y		.30	.000	1.000	.000
4080	X		.30	1.000	.000	.000
4080	Z		.30	.000	.000	1.000
4120	+Y		.30	.000	1.000	.000
4160	+Y		.30	.000	1.000	.000
4160	Z		.30	.000	.000	1.000
4200	ANC	4220		.000	.000	.000
4260	ANC	4261		.000	.000	.000
4320	ANC			.000	.000	.000

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HANGER CONTROL AND LOCATION DATA

No. of Hanger Design Load Cases = 1
 Actual Cold Load Flag = 0.0
 Short Range Spring Flag = 1
 Allowed Load Variation (%) = 25.0000
 Default Hanger Table = 5

140	160	Hanger Node = 160
		Hanger Connecting Node = 121
		Available Space = -100.0000 cm.
		Allowed Load Variation = 25.0000
		No. Hangers = 0.0 Short Range Flag = -1
		User Operating Load = .00 N. Free Node = 0
		Free Node = 0 Free Code = 0.0
		Spring Rate = .00 N./cm.
		Theoretical Cold Load = .00 N.

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EQUIPMENT LIMITS

20	40	Nozzle Node = 20

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.
 FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

760	780	Nozzle Node = 780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 9,600.48 N. FB= 9,600.48 N.
 FC= 7,200.36 N. MA= 5,760.24 N.m. MB= 3,840.16 N.m. MC= 4,990.21 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute

1220	1240	Nozzle Node = 1240

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INPUT LISTING

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 7,200.36 N. FB= 7,200.36 N.
 FC= 5,400.27 N. MA= 3,240.14 N.m. MB= 2,160.09 N.m. MC= 2,810.12 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute
 1680 1700 Nozzle Node = 1700

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 1780 1800 Nozzle Node = 1780

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 15,090.75 N. FB= 15,090.75 N.
 FC= 12,000.60 N. MA= 9,150.39 N.m. MB= 4,890.21 N.m. MC= 6,420.27 N.m.
 Equipment Major Direction Vector= .0000 .0000 1.0000
 Interact. Mtd= Absolute
 4240 4260 Nozzle Node = 4260

Limiting Loads: A=pipe; B=ref; C=AxB; FA= 8,400.42 N. FB= 8,400.42 N.
 FC= 6,300.31 N. MA= 3,780.16 N.m. MB= 2,520.11 N.m. MC= 3,280.14 N.m.
 Equipment Major Direction Vector= .0000 1.0000 .0000
 Interact. Mtd= Absolute

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FORCES AND MOMENTS

2410 2420 Node 2420 FY1= 1,000.05 N.
 FZ1= -2,000.10 N.
 2710 2720 Node 2720 FX2= 2,000.10 N.
 FY2= 1,000.05 N. FZ2= .00 N.

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UNIFORM LOAD Changes

20 40 Vector1 in G-s
 X1 Dir = .26 g's Y1 Dir = .00 g's
 Z1 Dir = .00 g's
 Vector2 in G-s
 X2 Dir = .00 g's Y2 Dir = .12 g's
 Z2 Dir = .00 g's
 Vector3 in G-s
 X3 Dir = .00 g's Y3 Dir = .00 g's
 Z3 Dir = .26 g's

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INPUT UNITS USED...

UNITS= SI NOM/SCH INPUT= ON
 LENGTH inches x 2.540 = cm.
 FORCE pounds x 4.448 = N.
 MASS (dynamics) pounds x 0.454 = Kg.

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INPUT LISTING

MOMENTS (INPUT)	inch-pounds	x	0.113	=	N.m.
MOMENTS (OUTPUT)	inch-pounds	x	0.113	=	N.m.
STRESS	lbs./sq.in.	x	6.895	=	KPa
TEMP. SCALE	degrees F.	x	0.556	=	C
PRESSURE	psig	x	6.895	=	KPa
ELASTIC MODULUS	lbs./sq.in.	x	6.895	=	KPa
PIPE DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
INSULATION DENS.	lbs./cu.in.	x	0.028	=	kg./cu.cm.
FLUID DENSITY	lbs./cu.in.	x	0.028	=	kg./cu.cm.
TRANSL. STIF	lbs./in.	x	1.751	=	N./cm.
ROTATIONAL STIF	in.lb./deg.	x	0.113	=	N.m./deg
UNIFORM LOAD	lb./in.	x	1.751	=	N./cm.
G LOAD	g's	x	1.000	=	g's
WIND LOAD	lbs./sq.in.	x	6.895	=	KPa
ELEVATION	inches	x	0.025	=	m.
COMPOUND LENGTH	inches	x	0.025	=	m.
DIAMETER	inches	x	2.540	=	cm.
WALL THICKNESS	inches	x	2.540	=	cm.

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SETUP FILE PARAMETERS

```

-----
CONNECT GEOMETRY THRU CNODES =      YES
MIN ALLOWED BEND ANGLE =              5.00000
MAX ALLOWED BEND ANGLE =              95.0000
BEND LENGTH ATTACHMENT PERCENT =      1.00000
MIN ANGLE TO ADJACENT BEND PT =        5.00000
LOOP CLOSURE TOLERANCE =              2.54000      cm.
THERMAL BOWING HORZ TOLERANCE =        0.100000E-03
AUTO NODE NUMBER INCREMENT=          10.0000
Z AXIS UP=                           NO
USE PRESSURE STIFFENING =              DEFAULT
ALPHA TOLERANCE =                     0.500000E-01
RESLD-FORCE =                          NO
HGR DEF RESWGT STIF =                  0.175127E+13 N./cm.
DECOMP SNG TOL =                       0.100000E+11
BEND AXIAL SHAPE =                     YES
FRICT STIF =                           0.175127E+07 N./cm.
FRICT NORM FORCE VAR =                  0.150000
FRICT ANGLE VAR =                      15.0000
FRICT SLIDE MULT =                     1.00000
ROD TOLERANCE =                        1.00000
ROD INC =                              2.00000
INCORE NUMERICAL CHECK =               NO
OUTCORE NUMERICAL CHECK =              NO
DEFAULT TRANS RESTRAINT STIFF=          0.175127E+13      N./cm.
DEFAULT ROT RESTRAINT STIFF=            0.112985E+12      N.m./deg
IGNORE SPRING HANGER STIFFNESS =        NO
MISSING MASS ZPA =                     EXTRACTED
MIN WALL MILL TOLERANCE =               12.5000
WRC-107 VERSION =                      MAR 79 1B1/2B1
WRC-107 INTERPOLATION =                 LAST VALUE
DEFAULT AMBIENT TEMPERATURE=            21.1111      C
BOURDON PRESSURE=                       NONE
COEFFICIENT OF FRICTION (MU) =           0.000000
INCLUDE SPRG STIF IN HGR OPE =          NO

```

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INPUT LISTING

```

INCLUDE INSULATION IN HYDROTEST = NO
REDUCED INTERSECTION = B31.1 (POST1980)
USE WRC329 NO
NO REDUCED SIF FOR RFT AND WLT NO
B31.1 REDUCED Z FIX = YES
CLASS 1 BRANCH FLEX NO
ALL STRESS CASES CORRODED = NO
ADD TORSION IN SL STRESS = DEFAULT
ADD F/A IN STRESS = DEFAULT
OCCASIONAL LOAD FACTOR = 0.000000
DEFAULT CODE = B31.3
B31.3 SUS CASE SIF FACTOR = 0.000000
ALLOW USERS BEND SIF = NO
USE SCHNEIDER NO
YIELD CRITERION STRESS = MAX 3D SHEAR
USE PD/4T NO
BASE HOOP STRESS ON ? = ID
EN13480 USE IN OUTPLANE SIFS= NO
LIBERAL EXPANSION ALLOWABLE= YES
B31.3 SEC 319.2.3C SAXIAL= Default
B31.3 WELDING/CONTOUR TEE ISB16.9 FALSE
PRESSURE VARIATION IN EXP CASE= DEFAULT
IMPLEMENT B313 APP-P NO
IMPLEMENT B313 CODE CASE 178 YES
IGNORE B31.1/B31.3 Wc FACTOR= YES
USE FRP SIF = YES
USE FRP FLEX = YES
BS 7159 Pressure Stiffening= Design Strain
FRP Property Data File= CAESAR.FRP
FRP Emod (axial) = 0.220632E+08 KPa
FRP Ratio Gmod/Emod (axial) = 0.250000
FRP Ea/Eh*Vh/a = 0.152730
FRP Laminate Type = THREE
FRP Alpha = 21.6000 C
FRP Density = 0.166079E-02 kg./cu.cm.
EXCLUDE f2 FROM UKOOA BENDING = NO
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```

EXECUTION CONTROL PARAMETERS

```

Rigid/ExpJt Print Flag ..... 1.000
Bourdon Option ..... .000
Loop Closure Flag ..... 2.000
Thermal Bowing Delta Temp .. .000 C
Liberal Allowable Flag ..... 1.000
Uniform Load Option ..... 1.000

Ambient Temperature ..... 20.997 C
Plastic (FRP) Alpha ..... 21.600
Plastic (FRP) GMOD/EMODa ... .250
Plastic (FRP) Laminate Type. 3.000
Eqn Optimizer ..... .000
Node Selection ..... .000
Eqn Ordering ..... .000

```

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INPUT LISTING

Collins 000
 Degree Determination 000
 User Eqn Control 000
 North Direction -X
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COORDINATE REPORT

```

/----- (cm.) -----/
NODE      X      Y      Z
  20      655.300    -532.935    706.010
  40      644.823    -532.935    706.010
  60      538.344    -532.935    706.010
  80      538.344    -593.935    706.010
 100      599.344    -593.935    706.010
 120      599.344    -681.025    706.010
 140      599.344    -711.525    706.010
 160      599.344    -731.525    706.010
 120      599.344    -681.025    706.010
 180      599.344    -711.525    706.010
 200      568.844    -711.525    706.010
 220      558.367    -711.525    706.010
 240      547.890    -711.525    706.010
 260      477.890    -711.525    706.010
 280      453.100    -711.525    706.010
 300      403.100    -711.525    706.010
 320      383.100    -711.525    706.010
 340      372.622    -711.525    706.010
 360      315.322    -711.525    706.010
 380      304.845    -711.525    706.010
 400      204.845    -711.525    706.010
 420       76.065    -711.525    706.010
 440       65.587    -711.525    706.010
 460       55.110    -711.525    706.010
 480      -94.890    -711.525    706.010
 500     -475.370    -711.525    706.010
 520     -475.370    -681.025    706.010
 540     -475.370    -711.525    706.010
 560     -475.370    -741.525    706.010
 520     -475.370    -681.025    706.010
 580     -475.370    -287.525    706.010
 600     -510.726    -287.525    670.655
 620     -546.081    -287.525    635.299
 640     -546.081    -295.925    635.299
 660     -546.081    -325.925    635.299
 620     -546.081    -287.525    635.299
 680     -600.387    -287.525    580.994
 700     -600.387    -318.025    580.994
 720     -600.387    -328.503    580.994
 760     -600.387    -338.980    580.994
 780     -600.387    -357.120    580.994
 780     -600.387    -357.220    580.994
 660     -546.081    -325.925    635.299
 780     -600.387    -357.120    580.994
 840     -600.387    -663.620    580.994
 860     -600.387    -783.620    580.994
 280      453.100    -711.525    706.010

```


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INPUT LISTING

880	453.100	-637.235	706.010
900	453.100	-637.235	757.010
910	453.100	-637.235	763.677
920	453.100	-637.235	793.777
930	453.100	-637.235	821.277
940	453.100	-637.235	828.580
960	453.100	-637.235	836.280
980	453.100	-702.475	836.280
1000	453.100	-702.475	828.580
1020	453.100	-702.475	766.480
1040	483.100	-702.475	766.480
1060	514.900	-702.475	766.480
1080	525.060	-702.475	766.480
1100	535.219	-702.475	766.480
1120	574.259	-702.475	766.480
1140	574.259	-702.475	866.480
1160	620.833	-702.475	866.480
1180	644.120	-702.475	866.480
1200	644.120	-702.475	706.480
1220	667.020	-702.475	706.480
1240	677.180	-702.475	706.480
1020	453.100	-702.475	766.480
1260	332.306	-702.475	766.480
1280	204.845	-702.475	766.480
1300	168.045	-702.475	766.480
1320	157.885	-702.475	766.480
1340	112.585	-702.475	766.480
1360	102.425	-702.475	766.480
1380	-94.875	-702.475	766.480
1400	-477.475	-702.475	766.480
1420	-477.475	-679.575	766.480
1440	-477.475	-702.475	766.480
1460	-477.475	-732.475	766.480
1420	-477.475	-679.575	766.480
1480	-477.475	-534.075	766.480
1500	-1053.475	-534.075	766.480
1520	-1653.475	-534.075	766.480
1540	-2010.475	-534.075	766.480
1560	-2010.475	-534.075	826.480
1580	-2010.475	-534.075	938.180
1600	-2010.475	-285.325	938.180
1620	-2072.275	-285.325	981.380
1640	-2072.275	-308.225	981.380
1660	-2072.275	-318.385	981.380
1680	-2072.275	-328.545	981.380
1700	-2072.275	-341.245	981.380
1740	-2072.275	-365.245	981.380
1780	-2072.275	-389.245	981.380
1800	-2072.275	-401.945	981.380
1820	-2072.275	-412.105	981.380
1740	-2072.275	-365.245	981.380
1840	-2072.275	-365.245	1131.380
1860	-2775.775	-365.245	1131.380
1880	-2775.775	-365.245	831.380
1900	-2072.275	-365.245	831.380
1740	-2072.275	-365.245	981.380

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INPUT LISTING

1820	-2072.275	-412.105	981.380
1920	-2072.275	-422.265	981.380
1940	-2072.275	-445.165	981.380
1960	-2072.275	-446.290	755.680
1980	-2072.275	-446.465	720.680
2000	-1628.175	-446.465	720.680
2020	-1180.097	-696.486	1553.480
2030	-1180.097	-696.486	1308.280
2040	-1180.097	-696.486	953.480
2020	-1180.097	-696.486	1553.480
2060	-1180.097	-696.486	2153.480
1260	332.306	-702.475	766.480
2140	332.306	-524.475	766.480
2160	308.306	-524.475	790.480
2180	-94.894	-524.475	790.480
2190	-694.894	-524.475	790.480
2200	-733.694	-524.475	790.480
2220	-733.694	-524.475	1025.480
2280	-733.694	-524.475	1343.080
2290	-733.694	-524.475	1393.080
2280	-733.694	-524.475	1343.080
2320	-733.694	-505.475	1343.080
2330	-733.694	-431.675	1343.080
2340	-733.694	-423.075	1343.080
2346	-733.694	-415.773	1343.080
2352	-733.694	-394.573	1343.080
2360	-733.694	-387.270	1343.080
2380	-733.694	-362.270	1343.080
2400	-733.694	-353.270	1343.080
2410	-733.694	-346.126	1343.080
2420	-733.694	-339.426	1343.080
2430	-738.294	-339.426	1343.080
2440	-746.494	-339.426	1343.080
2460	-753.797	-339.426	1343.080
2480	-767.797	-343.396	1343.080
2500	-803.247	-343.396	1343.080
2520	-861.597	-343.396	1343.080
2540	-861.597	-366.296	1343.080
2546	-861.597	-375.504	1343.080
2552	-861.597	-403.104	1343.080
2560	-861.597	-412.311	1343.080
2570	-861.597	-431.711	1343.080
2580	-861.597	-552.511	1343.080
2600	-861.597	-552.511	1275.080
2290	-733.694	-524.475	1393.080
2300	-733.694	-524.475	1443.080
2620	-733.694	-505.475	1443.080
2640	-733.694	-423.175	1443.080
2646	-733.694	-415.873	1443.080
2652	-733.694	-394.673	1443.080
2660	-733.694	-387.370	1443.080
2680	-733.694	-362.370	1443.080
2700	-733.694	-356.470	1443.080
2710	-733.694	-349.326	1443.080
2720	-733.694	-342.926	1443.080
2730	-738.294	-342.926	1443.080

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INPUT LISTING

2740	-746.549	-342.926	1443.080
2760	-753.852	-342.926	1443.080
2780	-767.852	-346.896	1443.080
2800	-803.302	-346.896	1443.080
2820	-861.652	-346.896	1443.080
2840	-861.652	-369.796	1443.080
2846	-861.652	-379.004	1443.080
2852	-861.652	-406.604	1443.080
2860	-861.652	-415.811	1443.080
2880	-861.652	-556.011	1443.080
2880	-861.652	-556.011	1443.080
2580	-861.597	-552.511	1343.080
2600	-861.597	-552.511	1275.080
2920	-861.597	-552.511	1237.180
2940	-1180.097	-553.148	1237.180
2980	-1180.097	-625.486	1237.180
2030	-1180.097	-696.486	1308.280
2330	-733.694	-431.675	1343.080
3000	-733.694	-431.675	1335.380
3020	-733.694	-431.675	1328.078
3040	-733.694	-431.675	1309.378
3060	-733.694	-431.675	1302.075
3080	-733.694	-431.675	1294.375
3100	-771.394	-431.675	1294.375
3120	-781.394	-431.675	1294.375
3140	-812.094	-431.675	1294.375
3146	-819.397	-431.675	1294.375
3152	-846.997	-431.675	1294.375
3160	-853.664	-431.675	1294.375
3180	-861.364	-431.675	1294.375
3180	-861.597	-431.711	1294.380
2570	-861.597	-431.711	1343.080
2040	-1180.097	-696.486	953.480
3960	-1180.097	-696.486	353.480
3970	-1180.097	-696.486	53.480
3980	-1180.097	-696.486	-246.520
4000	-1180.097	-696.486	-521.520
4020	-1780.097	-696.486	-521.520
4040	-1780.097	-696.486	-621.520
4060	-1780.097	-696.486	-721.520
4066	-1180.097	-696.486	-721.520
4072	-1180.097	-696.486	-846.520
4080	-1180.097	-696.486	-1446.520
2000	-1628.175	-446.465	720.680
4100	-1558.645	-446.465	720.680
4120	-1558.645	-447.765	980.880
4140	-1558.645	-530.765	980.880
4160	-1053.645	-530.765	980.880
4180	-694.045	-530.765	980.880
4200	-683.885	-530.765	980.880
4240	-673.725	-530.765	980.880
4260	-658.725	-530.765	980.880
4280	-612.825	-530.765	980.880
4300	-612.825	-660.765	980.880
4310	-612.825	-760.765	980.880
4320	-612.825	-790.765	980.880

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INPUT LISTING

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC+H
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H+U3
18 (OPE) W+T1+P1+H-U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L11
29 (OCC) L29=L22+L11
30 (OCC) L30=L23+L11
31 (OCC) L31=L24+L11
32 (OCC) L32=L25+L11
33 (OCC) L33=L26+L11
34 (OCC) L34=L27+L11
35 (EXP) L35=L4-L11
36 (EXP) L36=L6-L11
37 (EXP) L37=L8-L11
38 (EXP) L38=L6-L8
39 (OPE) L39=L4, L6, L8
40 (OCC) L40=L21, L22, L23, L24

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RESTRAINT SUMMARY REPORT: Loads On Restraints

Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H

CASE 4 (OPE) W+T1+P1+H

CASE 6 (OPE) W+T2+P1+H

CASE 8 (OPE) W+T3+P1+H

CASE 10 (OPE) W+T4+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC+H

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
20		TYPE=Rigid ANC;					
	3(HYD)	-286	-950	79	-31	66	427
	4(OPE)	375	-802	-73	32	-76	649
	6(OPE)	677	2731	-69	33	-81	-2375
	8(OPE)	-148	-560	72	-28	60	227
	10(OPE)	-148	-560	72	-28	60	227
	12(SUS)	-148	-560	72	-28	60	227
	13(SUS)	-149	-553	72	-28	60	221
	MAX	677/L6	2731/L6	79/L3	33/L6	-81/L6	-2375/L6
121		TYPE=Rigid +Y;					
	3(HYD)	-156	-2118	0	0	0	0
	4(OPE)	0	-1170	0	0	0	0
	6(OPE)	0	-1183	0	0	0	0
	8(OPE)	-79	-1170	0	0	0	0
	10(OPE)	-79	-1170	0	0	0	0
	12(SUS)	-79	-1170	0	0	0	0
	13(SUS)	-79	-1170	0	0	0	0
	MAX	-156/L3	-2118/L3				
160		TYPE=Rigid Z; Rigid -X; Rigid X; Prog Design VSH;					
	3(HYD)	-156	-2118	-35	0	0	0
	4(OPE)	2107	-715	-140	0	0	0
	6(OPE)	3921	-2359	-246	0	0	0
	8(OPE)	-79	-1170	-32	0	0	0
	10(OPE)	-79	-1170	-32	0	0	0
	12(SUS)	-79	-1170	-32	0	0	0
	13(SUS)	-79	-1170	-32	0	0	0
	MAX	3921/L6	-2359/L6	-246/L6			
300		TYPE=Rigid +Y;					

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	188	-2443	148	0	0	0
	4(OPE)	-610	-2048	-70	0	0	0
	6(OPE)	-1573	-5246	-57	0	0	0
	8(OPE)	97	-1780	135	0	0	0
	10(OPE)	97	-1781	135	0	0	0
	12(SUS)	97	-1780	135	0	0	0
	13(SUS)	97	-1774	135	0	0	0
	MAX	-1573/L6	-5246/L6	148/L3			
400		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	124	-1971	-12	0	0	0
	4(OPE)	-302	-1006	-126	0	0	0
	6(OPE)	-236	785	-261	0	0	0
	8(OPE)	64	-1245	-12	0	0	0
	10(OPE)	64	-1245	-12	0	0	0
	12(SUS)	64	-1245	-12	0	0	0
	13(SUS)	64	-1241	-12	0	0	0
	MAX	-302/L4	-1971/L3	-261/L6			
480		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	51	-2688	-5	0	0	0
	4(OPE)	-507	-1690	76	0	0	0
	6(OPE)	-829	-2763	236	0	0	0
	8(OPE)	27	-1403	-2	0	0	0
	10(OPE)	27	-1403	-2	0	0	0
	12(SUS)	27	-1403	-2	0	0	0
	13(SUS)	27	-1395	-2	0	0	0
	MAX	-829/L6	-2763/L6	236/L6			
560		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	8	-3989	-2	0	0	0
	4(OPE)	-660	-2198	-5	0	0	0
	6(OPE)	-631	-2102	-36	0	0	0
	8(OPE)	5	-2008	-4	0	0	0
	10(OPE)	5	-2008	-4	0	0	0
	12(SUS)	5	-2008	-4	0	0	0
	13(SUS)	5	-1996	-4	0	0	0
	MAX	-660/L4	-3989/L3	-36/L6			
660		TYPE=Rigid +Y;					
	3(HYD)	37	-961	-78	0	0	0
	4(OPE)	0	0	0	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	14	-496	-35	0	0	0
	10(OPE)	14	-496	-35	0	0	0

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	12(SUS)	14	-496	-35	0	0	0
	13(SUS)	14	-493	-35	0	0	0
	MAX	37/L3	-961/L3	-78/L3			
720		TYPE=Rigid ANC;					
	3(HYD)	31	-423	85	31	3	-13
	4(OPE)	-260	-390	-29	-141	-213	-157
	6(OPE)	-1068	200	-92	-733	-902	-605
	8(OPE)	19	-283	41	15	1	-7
	10(OPE)	19	-283	41	15	1	-7
	12(SUS)	19	-283	41	15	1	-7
	13(SUS)	19	-282	41	15	1	-7
	MAX	-1068/L6	-423/L3	-92/L6	-733/L6	-902/L6	-605/L6
780		TYPE=Rigid ANC;					
	3(HYD)	68	-1714	6	553	65	-556
	4(OPE)	-260	-628	-29	-149	-213	-82
	6(OPE)	-1068	-38	-92	-759	-902	-300
	8(OPE)	34	-1016	6	286	28	-287
	10(OPE)	34	-1016	6	286	28	-287
	12(SUS)	34	-1016	6	286	28	-287
	13(SUS)	33	-1012	6	284	28	-285
	MAX	-1068/L6	-1714/L3	-92/L6	-759/L6	-902/L6	-556/L3
860		TYPE=Rigid ANC;					
	3(HYD)	68	-1714	6	580	65	-846
	4(OPE)	-260	-628	-29	-271	-213	1026
	6(OPE)	-1068	-38	-92	-1153	-902	4256
	8(OPE)	34	-1016	6	312	28	-430
	10(OPE)	34	-1016	6	312	28	-430
	12(SUS)	34	-1016	6	312	28	-430
	13(SUS)	33	-1012	6	310	28	-427
	MAX	-1068/L6	-1714/L3	-92/L6	-1153/L6	-902/L6	4256/L6
1040		TYPE=Rigid +Y;					
	3(HYD)	108	-1928	-178	0	0	0
	4(OPE)	357	-1395	-218	0	0	0
	6(OPE)	343	-1349	-215	0	0	0
	8(OPE)	100	-1385	-163	0	0	0
	10(OPE)	100	-1385	-162	0	0	0
	12(SUS)	100	-1385	-163	0	0	0
	13(SUS)	100	-1376	-162	0	0	0
	MAX	357/L4	-1928/L3	-218/L4			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1180		TYPE=Rigid +Y; Rigid - X;					
	3(HYD)	10	-1203	7	0	0	0
	4(OPE)	8276	-1283	2868	0	0	0
	6(OPE)	9876	-1468	3403	0	0	0
	8(OPE)	10	-819	6	0	0	0
	10(OPE)	10	-820	6	0	0	0
	12(SUS)	10	-819	6	0	0	0
	13(SUS)	10	-813	6	0	0	0
	MAX	9876/L6	-1468/L6	3403/L6			
1240		TYPE=Rigid ANC;					
	3(HYD)	-6	-369	10	-72	2	228
	4(OPE)	642	7	-793	-174	179	234
	6(OPE)	820	106	-1176	-218	196	265
	8(OPE)	-5	-255	10	-61	2	159
	10(OPE)	-5	-254	9	-61	2	159
	12(SUS)	-5	-255	10	-61	2	159
	13(SUS)	-5	-253	9	-61	2	158
	MAX	820/L6	-369/L3	-1176/L6	-218/L6	196/L6	265/L6
1280		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	168	-3329	-36	0	0	0
	4(OPE)	-657	-2191	-2470	0	0	0
	6(OPE)	-610	-2034	-2913	0	0	0
	8(OPE)	157	-2809	-32	0	0	0
	10(OPE)	158	-2809	-33	0	0	0
	12(SUS)	157	-2809	-32	0	0	0
	13(SUS)	157	-2801	-32	0	0	0
	MAX	-657/L4	-3329/L3	-2913/L6			
1380		TYPE=Rigid Z; Rigid Y;					
	3(HYD)	303	-2209	34	0	0	0
	4(OPE)	-1074	-3579	1096	0	0	0
	6(OPE)	-1231	-4104	1336	0	0	0
	8(OPE)	284	-1529	29	0	0	0
	10(OPE)	285	-1529	29	0	0	0
	12(SUS)	284	-1529	29	0	0	0
	13(SUS)	283	-1518	29	0	0	0
	MAX	-1231/L6	-4104/L6	1336/L6			
1460		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-115	-3119	-38	0	0	0
	4(OPE)	-652	-2173	-256	0	0	0

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Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	6(OPE)	-644	-2148	-302	0	0	0
	8(OPE)	-119	-2314	-31	0	0	0
	10(OPE)	-119	-2314	-32	0	0	0
	12(SUS)	-119	-2314	-31	0	0	0
	13(SUS)	-119	-2299	-31	0	0	0
	MAX	-652/L4	-3119/L3	-302/L6			
1500		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	0	-3721	35	0	0	0
	4(OPE)	0	-1141	-433	0	0	0
	6(OPE)	0	-642	-680	0	0	0
	8(OPE)	0	-2982	29	0	0	0
	10(OPE)	0	-2982	29	0	0	0
	12(SUS)	0	-2982	29	0	0	0
	13(SUS)	0	-2966	29	0	0	0
	MAX		-3721/L3	-680/L6			
1520		TYPE=Rigid +Y;					
	3(HYD)	-153	-3023	-26	0	0	0
	4(OPE)	-1203	-4345	-502	0	0	0
	6(OPE)	-1366	-4967	-596	0	0	0
	8(OPE)	-175	-2425	-22	0	0	0
	10(OPE)	-175	-2425	-22	0	0	0
	12(SUS)	-175	-2425	-22	0	0	0
	13(SUS)	-175	-2412	-22	0	0	0
	MAX	-1366/L6	-4967/L6	-596/L6			
1560		TYPE=Rigid +Y;					
	3(HYD)	-421	-1865	40	0	0	0
	4(OPE)	-775	-2608	-103	0	0	0
	6(OPE)	-828	-2788	-116	0	0	0
	8(OPE)	-330	-1485	40	0	0	0
	10(OPE)	-330	-1485	40	0	0	0
	12(SUS)	-330	-1485	40	0	0	0
	13(SUS)	-328	-1476	40	0	0	0
	MAX	-828/L6	-2788/L6	-116/L6			
1700		TYPE=Rigid ANC;					
	3(HYD)	149	-2106	-29	-354	-65	-635
	4(OPE)	-4448	804	1075	2171	4212	-3392
	6(OPE)	-5996	1473	1310	2984	5780	-4471
	8(OPE)	117	-1767	-30	-287	-47	-525
	10(OPE)	117	-1767	-30	-287	-47	-525
	12(SUS)	117	-1767	-30	-287	-47	-525
	13(SUS)	116	-1759	-30	-285	-46	-523

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Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	MAX	-5996/L6	-2106/L3	1310/L6	2984/L6	5780/L6	-4471/L6
1780		TYPE=Rigid ANC;					
	3(HYD)	10	-864	-209	58	-38	-154
	4(OPE)	-249	-536	-92	125	533	-124
	6(OPE)	-1121	-418	-28	245	2146	-381
	8(OPE)	-11	-605	-81	23	-3	-82
	10(OPE)	-11	-605	-81	23	-3	-82
	12(SUS)	-11	-605	-81	23	-3	-82
	13(SUS)	-12	-600	-79	22	-2	-80
	MAX	-1121/L6	-864/L3	-209/L3	245/L6	2146/L6	-381/L6
1840		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	52	-9785	-125	0	0	0
	4(OPE)	51	-8850	900	0	0	0
	6(OPE)	-491	-8872	1034	0	0	0
	8(OPE)	39	-9074	-61	0	0	0
	10(OPE)	39	-9074	-61	0	0	0
	12(SUS)	39	-9074	-61	0	0	0
	13(SUS)	39	-9055	-60	0	0	0
	MAX	-491/L6	-9785/L3	1034/L6			
1860		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	0	-8271	-2	0	0	0
	4(OPE)	-711	-7731	303	0	0	0
	6(OPE)	-703	-7641	298	0	0	0
	8(OPE)	0	-7885	-1	0	0	0
	10(OPE)	0	-7885	-1	0	0	0
	12(SUS)	0	-7885	-1	0	0	0
	13(SUS)	0	-7872	-1	0	0	0
	MAX	-711/L4	-8271/L3	303/L4			
1880		TYPE=Rigid Z w/gap; Rigid Y;					
	3(HYD)	-0	-8267	-2	0	0	0
	4(OPE)	-777	-7769	-1	0	0	0
	6(OPE)	-769	-7692	-2	0	0	0
	8(OPE)	-0	-7881	-1	0	0	0
	10(OPE)	-0	-7881	-1	0	0	0
	12(SUS)	-0	-7881	-1	0	0	0
	13(SUS)	-0	-7869	-1	0	0	0
	MAX	-777/L4	-8267/L3	-2/L6			

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Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
1900		TYPE=Rigid X; Rigid Z w/gap; Rigid Y;					
	3(HYD)	107	-9957	-110	0	0	0
	4(OPE)	-3120	-7095	88	0	0	0
	6(OPE)	-5065	-6453	124	0	0	0
	8(OPE)	66	-9245	-50	0	0	0
	10(OPE)	66	-9245	-50	0	0	0
	12(SUS)	66	-9245	-50	0	0	0
	13(SUS)	65	-9226	-49	0	0	0
	MAX	-5065/L6	-9957/L3	124/L6			
1960		TYPE=Rigid +Y;					
	3(HYD)	27	-1225	217	0	0	0
	4(OPE)	-146	-520	55	0	0	0
	6(OPE)	-147	-505	-37	0	0	0
	8(OPE)	94	-517	84	0	0	0
	10(OPE)	94	-517	84	0	0	0
	12(SUS)	94	-517	84	0	0	0
	13(SUS)	95	-504	82	0	0	0
	MAX	-147/L6	-1225/L3	217/L3			
2000		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	-43	-1467	-71	0	0	0
	4(OPE)	22	-618	-184	0	0	0
	6(OPE)	-116	-619	-543	0	0	0
	8(OPE)	-85	-614	-28	0	0	0
	10(OPE)	-85	-614	-28	0	0	0
	12(SUS)	-85	-614	-28	0	0	0
	13(SUS)	-86	-598	-28	0	0	0
	MAX	-116/L6	-1467/L3	-543/L6			
2020		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-8385	0	0	0	0
	4(OPE)	0	-5038	0	0	0	0
	6(OPE)	0	-5149	4557	0	0	0
	8(OPE)	0	-4749	0	0	0	0
	10(OPE)	0	-5451	6595	0	0	0
	12(SUS)	0	-4749	0	0	0	0
	13(SUS)	0	-4743	0	0	0	0
	MAX		-8385/L3	6595/L10			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2040		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	0	-7831	88	0	0	0
	4(OPE)	-182	-4486	1333	0	0	0
	6(OPE)	-670	-4749	-1257	0	0	0
	8(OPE)	7	-4430	64	0	0	0
	10(OPE)	-845	-5162	-1491	0	0	0
	12(SUS)	7	-4430	64	0	0	0
	13(SUS)	7	-4425	64	0	0	0
	MAX	-845/L10	-7831/L3	-1491/L10			
2060		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-8	-2459	77	0	0	0
	4(OPE)	-20	-1284	385	0	0	0
	6(OPE)	-137	-1261	353	0	0	0
	8(OPE)	-5	-1310	56	0	0	0
	10(OPE)	-466	-1215	359	0	0	0
	12(SUS)	-5	-1310	56	0	0	0
	13(SUS)	-5	-1308	56	0	0	0
	MAX	-466/L10	-2459/L3	385/L4			
2180		TYPE=Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-759	0	0	0	0
	4(OPE)	0	-624	-6	0	0	0
	6(OPE)	0	-608	-25	0	0	0
	8(OPE)	0	-673	0	0	0	0
	10(OPE)	0	-672	0	0	0	0
	12(SUS)	0	-673	0	0	0	0
	13(SUS)	0	-672	0	0	0	0
	MAX		-759/L3	-25/L6			
2190		TYPE=Rigid +Y;					
	3(HYD)	-40	-486	21	0	0	0
	4(OPE)	-105	-438	-79	0	0	0
	6(OPE)	-107	-438	-76	0	0	0
	8(OPE)	-35	-431	18	0	0	0
	10(OPE)	-34	-472	61	0	0	0
	12(SUS)	-35	-431	18	0	0	0
	13(SUS)	-35	-431	18	0	0	0
	MAX	-107/L6	-486/L3	-79/L4			

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Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
2220		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-10	-350	10	0	0	0
	4(OPE)	-175	-311	-75	0	0	0
	6(OPE)	-299	-315	-80	0	0	0
	8(OPE)	-9	-309	17	0	0	0
	10(OPE)	-32	-185	45	0	0	0
	12(SUS)	-9	-309	17	0	0	0
	13(SUS)	-9	-309	17	0	0	0
	MAX	-299/L6	-350/L3	-80/L6			
2320		TYPE=Rigid +Y;					
	3(HYD)	0	0	0	0	0	0
	4(OPE)	0	-4426	0	0	0	0
	6(OPE)	0	-3726	0	0	0	0
	8(OPE)	0	0	0	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	0	0	0	0	0	0
	13(SUS)	0	0	0	0	0	0
	MAX		-4426/L4				
2500		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	-385	-3972	238	0	0	0
	4(OPE)	-4123	0	1670	0	0	0
	6(OPE)	-3185	0	1883	0	0	0
	8(OPE)	-291	-3465	180	0	0	0
	10(OPE)	2442	0	2256	0	0	0
	12(SUS)	-291	-3465	180	0	0	0
	13(SUS)	-291	-3463	180	0	0	0
	MAX	-4123/L4	-3972/L3	2256/L10			
2600		TYPE=Rigid +Y;					
	3(HYD)	698	-2468	-248	0	0	0
	4(OPE)	532	-1927	226	0	0	0
	6(OPE)	316	-3083	-236	0	0	0
	8(OPE)	518	-1797	-151	0	0	0
	10(OPE)	-96	-7743	-2321	0	0	0
	12(SUS)	518	-1797	-151	0	0	0
	13(SUS)	517	-1796	-151	0	0	0
	MAX	698/L3	-7743/L10	-2321/L10			
2620		TYPE=Rigid +Y;					
	3(HYD)	0	0	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	4(OPE)	0	-2012	0	0	0	0
	6(OPE)	0	-1456	0	0	0	0
	8(OPE)	0	0	0	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	0	0	0	0	0	0
	13(SUS)	0	0	0	0	0	0
	MAX		-2012/L4				
2800		TYPE=Rigid Z; Rigid X; Rigid +Y;					
	3(HYD)	-280	-3677	61	0	0	0
	4(OPE)	-389	0	523	0	0	0
	6(OPE)	-176	0	878	0	0	0
	8(OPE)	-213	-3133	47	0	0	0
	10(OPE)	379	0	1557	0	0	0
	12(SUS)	-213	-3133	47	0	0	0
	13(SUS)	-213	-3132	47	0	0	0
	MAX	-389/L4	-3677/L3	1557/L10			
3100		TYPE=Rigid +Y;					
	3(HYD)	-0	-495	-149	0	0	0
	4(OPE)	37	-214	-53	0	0	0
	6(OPE)	0	0	0	0	0	0
	8(OPE)	-0	-489	-147	0	0	0
	10(OPE)	0	0	0	0	0	0
	12(SUS)	-0	-489	-147	0	0	0
	13(SUS)	-0	-488	-146	0	0	0
	MAX	37/L4	-495/L3	-149/L3			
3120		TYPE=Rigid Z; Rigid X;					
	3(HYD)	51	0	-177	0	0	0
	4(OPE)	4186	0	-2614	0	0	0
	6(OPE)	3938	0	-2454	0	0	0
	8(OPE)	71	0	-133	0	0	0
	10(OPE)	-757	0	-819	0	0	0
	12(SUS)	71	0	-133	0	0	0
	13(SUS)	71	0	-133	0	0	0
	MAX	4186/L4		-2614/L4			
3960		TYPE=Rigid +Y;					
	3(HYD)	6	-4440	42	0	0	0
	4(OPE)	-60	-2358	330	0	0	0
	6(OPE)	199	-2324	-668	0	0	0
	8(OPE)	2	-2371	31	0	0	0
	10(OPE)	105	-2270	-673	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	12(SUS)	2	-2371	31	0	0	0
	13(SUS)	2	-2368	31	0	0	0
	MAX	199/L6	-4440/L3	-673/L10			
3980		TYPE=Rigid X w/gap; Rigid +Y;					
	3(HYD)	-2	-10688	25	0	0	0
	4(OPE)	568	-5803	-1646	0	0	0
	6(OPE)	419	-5775	-1681	0	0	0
	8(OPE)	-1	-5809	18	0	0	0
	10(OPE)	106	-5725	-1714	0	0	0
	12(SUS)	-1	-5809	18	0	0	0
	13(SUS)	-1	-5802	18	0	0	0
	MAX	568/L4	-10688/L3	-1714/L10			
4040		TYPE=Rigid +Y;					
	3(HYD)	1	-8353	0	0	0	0
	4(OPE)	-1359	-4539	83	0	0	0
	6(OPE)	-1298	-4563	-433	0	0	0
	8(OPE)	0	-4532	0	0	0	0
	10(OPE)	-1260	-4605	-567	0	0	0
	12(SUS)	0	-4532	0	0	0	0
	13(SUS)	0	-4527	0	0	0	0
	MAX	-1359/L4	-8353/L3	-567/L10			
4072		TYPE=Rigid +Y;					
	3(HYD)	-0	-8605	0	0	0	0
	4(OPE)	1161	-4670	170	0	0	0
	6(OPE)	376	-4673	1351	0	0	0
	8(OPE)	-0	-4669	0	0	0	0
	10(OPE)	-461	-4678	1326	0	0	0
	12(SUS)	-0	-4669	0	0	0	0
	13(SUS)	-0	-4664	0	0	0	0
	MAX	1161/L4	-8605/L3	1351/L6			
4080		TYPE=Rigid X w/gap; Rigid Z w/gap; Rigid +Y;					
	3(HYD)	0	-2602	0	0	0	0
	4(OPE)	-114	-1411	-408	0	0	0
	6(OPE)	170	-1407	-2026	0	0	0
	8(OPE)	0	-1412	0	0	0	0
	10(OPE)	944	-1400	-4235	0	0	0
	12(SUS)	0	-1412	0	0	0	0

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RESTRAINT SUMMARY REPORT: Loads On Restraints
 Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	13(SUS)	0	-1410	0	0	0	0
	MAX	944/L10	-2602/L3	-4235/L10			
4120		TYPE=Rigid +Y;					
	3(HYD)	422	-1405	2	0	0	0
	4(OPE)	-179	-618	47	0	0	0
	6(OPE)	-224	-768	56	0	0	0
	8(OPE)	177	-589	0	0	0	0
	10(OPE)	177	-589	0	0	0	0
	12(SUS)	177	-589	0	0	0	0
	13(SUS)	172	-574	0	0	0	0
	MAX	422/L3	-1405/L3	56/L6			
4160		TYPE=Rigid Z; Rigid +Y;					
	3(HYD)	-294	-1735	6	0	0	0
	4(OPE)	-266	-626	262	0	0	0
	6(OPE)	-342	-192	948	0	0	0
	8(OPE)	-126	-730	2	0	0	0
	10(OPE)	-126	-730	2	0	0	0
	12(SUS)	-126	-730	2	0	0	0
	13(SUS)	-123	-711	2	0	0	0
	MAX	-342/L6	-1735/L3	948/L6			
4200		TYPE=Rigid ANC;					
	3(HYD)	-118	-649	-3	-10	-4	184
	4(OPE)	823	-511	-109	51	-127	469
	6(OPE)	1842	-927	-394	202	-458	1565
	8(OPE)	-47	-373	-1	-4	-2	77
	10(OPE)	-47	-373	-1	-4	-2	77
	12(SUS)	-47	-373	-1	-4	-2	77
	13(SUS)	-45	-368	-1	-4	-2	75
	MAX	1842/L6	-927/L6	-394/L6	202/L6	-458/L6	1565/L6
4260		TYPE=Rigid ANC;					
	3(HYD)	-118	-912	-3	-10	-5	394
	4(OPE)	823	-724	-109	51	-154	638
	6(OPE)	1842	-1140	-394	202	-557	1838
	8(OPE)	-47	-587	-1	-4	-2	211
	10(OPE)	-47	-587	-1	-4	-2	211
	12(SUS)	-47	-587	-1	-4	-2	211
	13(SUS)	-45	-580	-1	-4	-2	208
	MAX	1842/L6	-1140/L6	-394/L6	202/L6	-557/L6	1838/L6
4320		TYPE=Rigid ANC;					

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RESTRAINT SUMMARY REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N.	FY N.	FZ N.	MX N.m.	MY N.m.	MZ N.m.
	3(HYD)	-118	-912	-3	-18	-6	1120
	4(OPE)	823	-724	-109	-233	-204	-1171
	6(OPE)	1842	-1140	-394	-823	-738	-2427
	8(OPE)	-47	-587	-1	-8	-3	602
	10(OPE)	-47	-587	-1	-8	-3	602
	12(SUS)	-47	-587	-1	-8	-3	602
	13(SUS)	-45	-580	-1	-8	-2	593
	MAX	1842/L6	-1140/L6	-394/L6	-823/L6	-738/L6	-2427/L6

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
2 (HGR) CASE NOT ACTIVE
3 (HYD) WW+HP+H
4 (OPE) W+T1+P1+H
5 (Alt-SUS) W+P1+H
6 (OPE) W+T2+P1+H
7 (Alt-SUS) W+P1+H
8 (OPE) W+T3+P1+H
9 (Alt-SUS) W+P1+H
10 (OPE) W+T4+P1+H
11 (Alt-SUS) W+P1+H
12 (SUS) W+P1+H
13 (SUS) WNC+H
14 (OPE) W+T1+P1+H+U1
15 (OPE) W+T1+P1+H-U1
16 (OPE) W+T1+P1+H+U2
17 (OPE) W+T1+P1+H+U3
18 (OPE) W+T1+P1+H-U3
19 (OPE) W+T1+P1+H+F1
20 (OPE) W+T1+P1+H+F2
21 (OCC) L21=L14-L4
22 (OCC) L22=L15-L4
23 (OCC) L23=L16-L4
24 (OCC) L24=L17-L4
25 (OCC) L25=L18-L4
26 (OCC) L26=L19-L4
27 (OCC) L27=L20-L4
28 (OCC) L28=L21+L11
29 (OCC) L29=L22+L11
30 (OCC) L30=L23+L11
31 (OCC) L31=L24+L11
32 (OCC) L32=L25+L11
33 (OCC) L33=L26+L11
34 (OCC) L34=L27+L11
35 (EXP) L35=L4-L11
36 (EXP) L36=L6-L11
37 (EXP) L37=L8-L11
38 (EXP) L38=L6-L8
39 (OPE) L39=L4, L6, L8
40 (OCC) L40=L21, L22, L23, L24

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

LOAD CASE DEFINITION KEY

CASE 3 (HYD) WW+HP+H
 CASE 12 (SUS) W+P1+H
 CASE 13 (SUS) WNC+H
 CASE 28 (OCC) L28=L21+L11
 CASE 29 (OCC) L29=L22+L11
 CASE 30 (OCC) L30=L23+L11
 CASE 31 (OCC) L31=L24+L11
 CASE 32 (OCC) L32=L25+L11
 CASE 33 (OCC) L33=L26+L11
 CASE 34 (OCC) L34=L27+L11
 CASE 35 (EXP) L35=L4-L11
 CASE 36 (EXP) L36=L6-L11
 CASE 37 (EXP) L37=L8-L11
 CASE 38 (EXP) L38=L6-L8

Piping Code: B31.3 = B31.3 -2016, Jan 31, 2017

CODE STRESS CHECK PASSED : LOADCASE 3 (HYD) WW+HP+H

Highest Stresses: (KPa)	LOADCASE 3 (HYD) WW+HP+H	
Ratio (%):	28.5	@Node 4160
Code Stress:	49101.3	Allowable Stress: 172368.9
Axial Stress:	38860.8	@Node 4120
Bending Stress:	29449.2	@Node 280
Torsion Stress:	1889.1	@Node 2200
Hoop Stress:	78278.3	@Node 1939
Max Stress Intensity:	83292.6	@Node 1978

CODE STRESS CHECK PASSED : LOADCASE 12 (SUS) W+P1+H

Highest Stresses: (KPa)	LOADCASE 12 (SUS) W+P1+H	
Ratio (%):	33.6	@Node 3980
Code Stress:	46123.2	Allowable Stress: 137261.0
Axial Stress:	25776.1	@Node 4120
Bending Stress:	50950.0	@Node 280
Torsion Stress:	3802.7	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	55518.2	@Node 1978

CODE STRESS CHECK PASSED : LOADCASE 13 (SUS) WNC+H

Highest Stresses: (KPa)	LOADCASE 13 (SUS) WNC+H	
Ratio (%):	27.9	@Node 280
Code Stress:	38427.8	Allowable Stress: 137895.1
Axial Stress:	2177.4	@Node 1460
Bending Stress:	50869.0	@Node 280
Torsion Stress:	3804.7	@Node 2460
Hoop Stress:	0.0	@Node 40
Max Stress Intensity:	51145.2	@Node 280

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

CODE STRESS CHECK PASSED : LOADCASE 28 (OCC) L28=L21+L11

Highest Stresses: (KPa)	LOADCASE 28 (OCC)	L28=L21+L11
Ratio (%):	72.7	@Node 2570
Code Stress:	132771.1	Allowable Stress: 182557.2
Axial Stress:	25761.3	@Node 4120
Bending Stress:	164153.8	@Node 2570
Torsion Stress:	32751.3	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	170912.8	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 29 (OCC) L29=L22+L11

Highest Stresses: (KPa)	LOADCASE 29 (OCC)	L29=L22+L11
Ratio (%):	64.5	@Node 2570
Code Stress:	117699.8	Allowable Stress: 182557.2
Axial Stress:	25904.7	@Node 4260
Bending Stress:	144664.2	@Node 2570
Torsion Stress:	27566.0	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	151049.1	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 30 (OCC) L30=L23+L11

Highest Stresses: (KPa)	LOADCASE 30 (OCC)	L30=L23+L11
Ratio (%):	58.5	@Node 2400
Code Stress:	107209.7	Allowable Stress: 183299.9
Axial Stress:	25742.1	@Node 4120
Bending Stress:	98794.0	@Node 2570
Torsion Stress:	26224.7	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	106120.0	@Node 2400

CODE STRESS CHECK PASSED : LOADCASE 31 (OCC) L31=L24+L11

Highest Stresses: (KPa)	LOADCASE 31 (OCC)	L31=L24+L11
Ratio (%):	59.0	@Node 2400
Code Stress:	108220.3	Allowable Stress: 183299.9
Axial Stress:	25766.5	@Node 4120
Bending Stress:	116900.5	@Node 2570
Torsion Stress:	30925.2	@Node 2460
Hoop Stress:	52185.5	@Node 1939
Max Stress Intensity:	123190.3	@Node 2570

CODE STRESS CHECK PASSED : LOADCASE 32 (OCC) L32=L25+L11

Highest Stresses: (KPa)	LOADCASE 32 (OCC)	L32=L25+L11
Ratio (%):	65.8	@Node 2570
Code Stress:	120155.0	Allowable Stress: 182557.2
Axial Stress:	25772.0	@Node 4120
Bending Stress:	147512.2	@Node 2570
Torsion Stress:	28587.9	@Node 2460

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STRESS SUMMARY REPORT: Highest Stresses Mini Statement Various Load Cases

Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	154297.6	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 33 (OCC) L33=L26+L11

Highest Stresses: (KPa)	LOADCASE 33 (OCC)	L33=L26+L11	
Ratio (%):	78.2	@Node	2400
Code Stress:	143382.6	Allowable Stress:	183299.9
Axial Stress:	25766.2	@Node	4120
Bending Stress:	135723.1	@Node	2570
Torsion Stress:	40129.8	@Node	2460
Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	142293.0	@Node	2400

CODE STRESS CHECK PASSED : LOADCASE 34 (OCC) L34=L27+L11

Highest Stresses: (KPa)	LOADCASE 34 (OCC)	L34=L27+L11	
Ratio (%):	55.1	@Node	2400
Code Stress:	101021.8	Allowable Stress:	183299.9
Axial Stress:	25766.2	@Node	4120
Bending Stress:	96309.1	@Node	2570
Torsion Stress:	28746.6	@Node	2460
Hoop Stress:	52185.5	@Node	1939
Max Stress Intensity:	101967.4	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 35 (EXP) L35=L4-L11

Highest Stresses: (KPa)	LOADCASE 35 (EXP)	L35=L4-L11	
Ratio (%):	41.2	@Node	2570
Code Stress:	109033.5	Allowable Stress:	264729.5
Axial Stress:	5587.0	@Node	3140
Bending Stress:	106890.8	@Node	2570
Torsion Stress:	15260.2	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	239446.7	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 36 (EXP) L36=L6-L11

Highest Stresses: (KPa)	LOADCASE 36 (EXP)	L36=L6-L11	
Ratio (%):	38.9	@Node	2570
Code Stress:	103060.1	Allowable Stress:	264729.5
Axial Stress:	5268.8	@Node	3140
Bending Stress:	101218.2	@Node	2570
Torsion Stress:	20819.5	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	226507.9	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 37 (EXP) L37=L8-L11

Highest Stresses: (KPa)	LOADCASE 37 (EXP)	L37=L8-L11	
Ratio (%):	23.8	@Node	2400
Code Stress:	58179.3	Allowable Stress:	244867.8
Axial Stress:	1371.1	@Node	3140

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**STRESS SUMMARY REPORT: Highest Stresses Mini Statement
 Various Load Cases**

Bending Stress:	55840.7	@Node	2400
Torsion Stress:	7061.3	@Node	2400
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	89243.3	@Node	2570

CODE STRESS CHECK PASSED : LOADCASE 38 (EXP) L38=L6-L8

Highest Stresses: (KPa)	LOADCASE 38 (EXP) L38=L6-L8		
Ratio (%):	26.7	@Node	1118
Code Stress:	85980.4	Allowable Stress:	322041.3
Axial Stress:	3897.7	@Node	3140
Bending Stress:	82916.7	@Node	1118
Torsion Stress:	20819.5	@Node	1619
Hoop Stress:	0.0	@Node	40
Max Stress Intensity:	146958.7	@Node	2570

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HGR) CASE NOT ACTIVE
 2 (HGR) CASE NOT ACTIVE
 3 (HYD) WW+HP+H
 4 (OPE) W+T1+P1+H
 5 (Alt-SUS) W+P1+H
 6 (OPE) W+T2+P1+H
 7 (Alt-SUS) W+P1+H
 8 (OPE) W+T3+P1+H
 9 (Alt-SUS) W+P1+H
 10 (OPE) W+T4+P1+H
 11 (Alt-SUS) W+P1+H
 12 (SUS) W+P1+H
 13 (SUS) WNC+H
 14 (OPE) W+T1+P1+H+U1
 15 (OPE) W+T1+P1+H-U1
 16 (OPE) W+T1+P1+H+U2
 17 (OPE) W+T1+P1+H+U3
 18 (OPE) W+T1+P1+H-U3
 19 (OPE) W+T1+P1+H+F1
 20 (OPE) W+T1+P1+H+F2
 21 (OCC) L21=L14-L4
 22 (OCC) L22=L15-L4
 23 (OCC) L23=L16-L4
 24 (OCC) L24=L17-L4
 25 (OCC) L25=L18-L4
 26 (OCC) L26=L19-L4
 27 (OCC) L27=L20-L4
 28 (OCC) L28=L21+L11
 29 (OCC) L29=L22+L11
 30 (OCC) L30=L23+L11
 31 (OCC) L31=L24+L11
 32 (OCC) L32=L25+L11
 33 (OCC) L33=L26+L11
 34 (OCC) L34=L27+L11
 35 (EXP) L35=L4-L11
 36 (EXP) L36=L6-L11
 37 (EXP) L37=L8-L11
 38 (EXP) L38=L6-L8
 39 (OPE) L39=L4, L6, L8
 40 (OCC) L40=L21, L22, L23, L24

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NOZZLE CHECK REPORT: Nozzle Loads Screening
Various Load Cases

LOAD CASE DEFINITION KEY

CASE 4 (OPE) W+T1+P1+H

CASE 12 (SUS) W+P1+H

CASE 13 (SUS) WNC+H

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
20		Absolute Method								
	Limits	9600	9600	7200		5760	3840	4990		
	4(OPE)	-375	-802	73	0.084	-32	-76	-649	0.130	
	12(SUS)	148	-560	-72	0.058	28	60	-227	0.045	
	13(SUS)	149	-553	-72	0.058	28	60	-221	0.044	
780		Absolute Method								
	Limits	9600	9600	7200		5760	3840	4990		
	4(OPE)	628	-29	260	0.065	213	-82	149	0.037	
	12(SUS)	1016	6	-34	0.106	-28	-287	-286	0.075	
	13(SUS)	1012	6	-33	0.105	-28	-285	-284	0.074	
1240		Absolute Method								
	Limits	7200	7200	5400		3240	2160	2810		
	4(OPE)	642	7	-793	0.147	-174	179	234	0.083	
	12(SUS)	-5	-255	10	0.035	-61	2	159	0.057	
	13(SUS)	-5	-253	9	0.035	-61	2	158	0.056	
1700		Absolute Method								
	Limits	15091	15091	12001		9150	4890	6420		
	4(OPE)	-804	1075	4448	0.371	-4212	-3392	-2171	0.694	
	12(SUS)	1767	-30	-117	0.117	47	-525	287	0.107	
	13(SUS)	1759	-30	-116	0.117	46	-523	285	0.107	

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NOZZLE CHECK REPORT: Nozzle Loads Screening

Various Load Cases

Node		fa N.	fb N.	fc N.	Forces Check	ma N.m.	mb N.m.	mc N.m.	Moments Check	
1780		Absolute Method								
	Limits	15091	15091	12001		9150	4890	6420		
	4(OPE)	536	-92	249	0.035	-533	-124	-125	0.058	
	12(SUS)	605	-81	11	0.040	3	-82	-23	0.017	
	13(SUS)	600	-79	12	0.040	2	-80	-22	0.016	
4260		Absolute Method								
	Limits	8400	8400	6300		3780	2520	3280		
	4(OPE)	823	-724	-109	0.098	51	-154	638	0.194	
	12(SUS)	-47	-587	-1	0.070	-4	-2	211	0.064	
	13(SUS)	-45	-580	-1	0.069	-4	-2	208	0.063	