Reamann, Craig R.

From: Bob Bachmeier (701-628-9397) <Bob.Bachmeier@AuxSable.com>
Sent: Wednesday, November 16, 2016 1:11 PM
To: Morman, Aaron A.
Cc: Reamann, Craig R.; Kris Nielsen (701-628-9381); Dave Miller
Subject: Aux Sable's Warning Letter Case# GS-16-669
Attachments: 1729_001.pdf

Importance: High

Aaron,

Attached is Aux Sable's response letter and requested documentation in regards to Case# GS-16-669. If you have any questions, please let me know.

Thanks,

Bob Bachmeier
Pipeline Regulatory Coordinator
Aux Sable Liquid Products
(701) 628-9397- Office
(701) 509-1626- Cell
Bob.Bachmeier@AuxSable.com

November 14, 2016

Mr. Aaron Morman, Manager Gas Pipeline Safety
ND Public Service Commission
600 East Boulevard, Dept. 408
Bismarck, ND 58505-0480

Re: Case # GS-16-669 Warning Letter

Dear Mr. Morman:

Thank you for forwarding the October 17, 2016 Warning Letter and Proposed corrective actions in an effort to resolve the above referenced case concerning the discovered probable violation during your August 29, 2016 standard inspection.

Below is Aux Sable's response to the probable violation and proposed corrective actions:

Probable Violation No. 1:

A pressure service valve was found to have insufficient capacity. Upon inspection of the Siemens Safeguarding Concern Action Plan Form dated 7/10/2014, the required capacity of PSV-4302 is 80 MM SCFD. The Protx inspection record dated 9/14/2015, for PSV-4302, indicates the capacity is 46.39 MM SCFD. 192.743(c) States: If a relief device is of insufficient capacity, a new or additional device must be installed to provide the capacity required by paragraph (a) of this section.

Aux Sable's Response:

Aux Sable had conducted a study on 7/10/2014 to see if PSV-4302 was of sufficient capacity, the initial study had shown that the capacity should be 80 MM SCFD, after further review by Aux sable's Engineering Department and Project Palermo PSV Study 150172-01, Aux Sable concluded that the required relief capacity should be 60 MMSCFD. During the 9/14/2015 Protx inspection of PSV-4302, the inspection indicated the capacity was 46.39 MM SCFD. After the inspection showed insufficient capacity, Aux Sable engineering prepared a plan to change the relief device. We were unable to change out PSV-4302 due to not having isolation valves in place and needing to shut down the plant and pipeline to install both new PSV and isolation valves. Aux Sable scheduled the new installation during the plant and pipeline outage. Pressure transmitters are in place that shut down the pipeline before any overpressure situation would occur. The pressure transmitters are tested annually and are monitored in the control room. With this plan in place Aux Sable could safely operate the pipeline until the new PSV was installed.

Proposed Corrective Action for Probable Violation No. 1:

By no later than December 1, 2016 Aux Sable shall install a relief device of sufficient capacity and have the device and associated piping tested in accordance with all applicable standards.
Aux Sable Shall file with the Commission a copy of the completed relief inspection form, as well as the associated design/testing documentation.

AUX SABLE

Aux Sable's Response to the Proposed Corrective Action:

Aux Sable installed a new relief device that has a maximum relief capacity of 93.298 MMSCFD and had the device and associated piping tested in accordance with all applicable standards during the plant and pipeline outage on October 7-25, 2016. Attached in Exhibit A is a copy of the completed relief inspection form, as well as the associated design/testing documentation.

Please let me know if you have any questions regarding this letter or the Exhibit A documentation attached.

Respectfully,

Jeff White,
COO, Engineering and Operations
Aux Sable Midstream LLC

AUX SABLE

EXHIBIT A

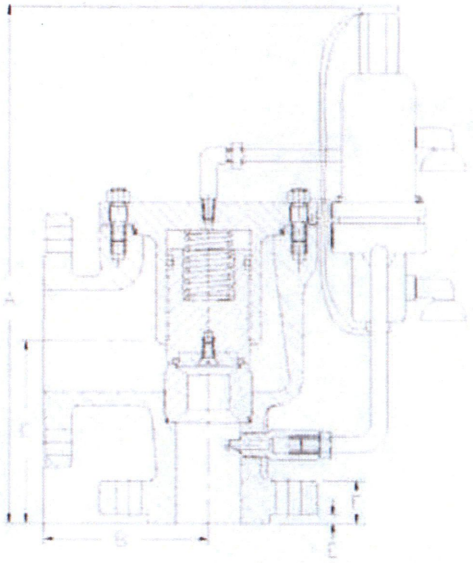
AUX SABLE

Pressure Relief Valve Reference Drawing

Date Prepared: 2016-01-13 08:58

PSV Identification

Customer	Requisition #	Job #	Job Description	
Ambitech	150172004	DGR-42962	RFQ 150172004 PSV's (26)	
Tag #	**Tag Description**		**P / ID**	**NACE**
PSV-4302	Whiting&Plant Dischrge Pipelines		SP-PID-1404	No
ASME Code	**Fluid State**	**Resolved ASME Area**	**Resolved API Area**	**Rupture Disk Coeff.**
ASME Sec. VIII	Gas (Volume)	0.91964 in²	0.82767 in²	No Rupture Disk, 1
Operating Pressure	**Set Pressure**	**Constant Back P.**	**Variable Back P.**	**Cold Diff. Test P.**
1950 PSIG	2120 PSIG	1.5 PSIG	121.5 PSIG	2120 PSIG
Operating Temp.	**Relief Temp.**	**Operating to Set %**	**Over Pressure**	**Percent Over P.**
60 °F	102 °F	91.981 %	212 PSIG	10 %



38JC14X-16V/S4/SP

API Letter	API Area	ASME Area
J	1.287 in²	1.430 in²

	Size	Rating	Facing
Inlet:	3.00 in	900 #	RF
Outlet:	4.00 in	300 #	RF

Valve Design	Pilot Control	Test Gag
Pilot	HPCM High Pressure Modulating	No

Max. Rel. Cap.	React. Force	Noise
93.298 M ft³/day	3039.3 lbs	119.75 dBa

Dimensions

Weight	Dim A	Dim B
195 lb	21 5/8 in	7 1/8 in
Dim C	**Dim E**	**Dim F**
7 1/2 in	1/4 in	2 1/4 in

Name Plate Capacity

Air	Water	Steam
76.091 M Sft³/day	-	-

Materials

Body	316 SS (SA-351 Gr. CF8M)
Cover	316 ss
Nozzle	316 ss
Piston	316 ss
Spring	316 ss
Pilot	316 ss
O-Ring (SP)	Buna N

Tag Notes

1. As agreed with Ambitech, "Built-Up Back Pressure" from the spec sheets was used as "Variable Back Pressure". Total Back Pressure is equal to Constant Back Pressure + Variable Back Pressure.
2. Elastomer selected for Soft O-Ring Seat is standard Teflon material for Main Valve Seat and optional EPDM material for all other O-Rings. This is suitable for complete Design Temperature Range at given Set Pressure. However, it is up to the customer to approve elastomer in terms of chemical compatibility and suitability for the process media and application.
3. Valve quoted with complete 316SS construction as confirmed with Ambitech.

CURTISS-WRIGHT

SO 1SL020571-20 PO No. P2009607

Certificate of Compliance (QC-02)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

Date: 05/03/2016

Sales Order No.: 1SL020571
Customer: NOVASPECT
Customer Order No.: P2009607

Line	Tag Number	Model Number	Serial Number
20	PSV-4302	38JC14X-16V/S4/SP	858249-1-DA

We hereby certify that the valve(s) indicated above have been designed, manufactured and tested in accordance with ASME Section VIII, Division 1 by Curtiss-Wright Flow Control Corp.- Farris Engineering in accordance with the company's Quality Control Program. The Brecksville Facility's Quality Control Program is registered to ISO-9001:2008, Certificate Registration No. UQA 4000278. We hereby certify that they were produced in conformance with the contract and Farris Engineering and Sprague Products Quality Systems Policy Manual Revision K dated 04/13/15.

The representative signing the document states that the above information is correct and true.

Wilma Hills

W. Hills

Certified Individual

Date:05/03/2016

SO 1SL020571-20 PO No. P2009607

CURTISS-WRIGHT

Valve Test Report (QC-03)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

NOVASPECT
1124 TOWER RD
SCHAUMBURG IL 60173
UNITED STATES

PO No.: P2009607
Sales Order No.: 1SL020571
Prod No.: 1SF069817

Serial No.: 858249-1-DA
Line No.: 20
Tag No.: PSV-4302

Model:38JC14X-16V/S4/SP
Size :3 X 4

Rated Capacity:52841 SCFM
Service:Gas

Units:psig
Temperature:60 F

Set Pressure:2120 psig
DTP:2120 psig
CDTP:2120 psig

Constant BP:1.5 psig
Variable BP:121.5 psig

Lot Number Assignment

Component		Item No.	Lot No.	Material Description
GUIDE 3,J,K,L	3800	325526-010	T6900	ASME SA-351 GR CF8M
COVER 900/1500# J,K,L	3800	326074-010	FA90	ASME SA-182 GR F316
BODY 3 X 4 900#	3800	326075X4-010	D1953	ASME SA-351 GR CF8M
BODY HP MOD PILOT CONTROL		326757X3-010	V6479	ASME SA-351 GR CF8M
BONNET MOD PILOT CONTROL	3800	326758X1-010	386F	ASME SA-351 GR CF8M
NOZZLE SEMI 3 J 4	3800	327015-010	N0A7	ASME SA-479 TYPE 316
PISTON 3 X 4	3800	327016-010	W9A1	ASME SA-479 TYPE 316

Certificates/Special Instructions:TS07, NONE, QC02, QC03, QC04, OTHERS, SH

Bellows Subassembly and Test By: N/A

Test Pressure (PSIG):N/A

Performance Test:
The above referenced valve has been tested to demonstrate its set pressure in accordance with the applicable requirements as specified in ASME Section I PG-73.5.2, ASME Section VIII Division I UG-136(d)(4), and Farris Engineering Specification TS-19 REV-2.
Pop Pressure:2141.67 psig
Test Fluid: Air
Gauge:A7-1
Final Blowdown Ring Setting:
Lower Ring:

Seat Tightness test:
The above referenced valve has been set and tested in accordance with the applicable requirements as specified in API-527, ASME Section I PG-73.5.3, ASME Section VIII Division I UG-136(d)(5), and Farris Engineering Specification TS-19 REV-2.
Test pressure: 1908 psig
Test Fluid: Air
Test Type : 90% of set
Result: Bubbles per Minute 0
Performance and Seat Tightness Test Completed By: Russ Erney
Date: 05/03/2016

Outlet Pressure Test:
The above referenced valve has been set and tested in accordance with the applicable requirements as specified in ASME Section I PG-73.5.3(b), ASME Section VIII Division I UG-136(d)(3), and Farris Engineering Specification TS-19 REV-2.
Test pressure: 123 psig
Result: No visible leakage
Back Pressure test Completed By: Russ Erney
Date: 05/03/2016

CURTISS-WRIGHT

SO 1SL020571-20 PO No. P2009607

Valve Test Report (QC-03)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

NOVASPECT
1124 TOWER RD
SCHAUMBURG IL 60173
UNITED STATES

PO No.: P2009607
Sales Order No.: 1SL020571
Prod No.: 1SF069817

Serial No.: 858249-1-DA
Line No.: 20
Tag No.: PSV-4302

Final Inspection:
We hereby certify that the valve indicated above has been inspected by Farris Engineering, a division of Curtiss -Wright Flow Control Company, Brecksville, Ohio in accordance with the applicable requirements as specified in ASME Section I PG-73.7.2 and ASME Section VIII Division I UG-117(a)(2).

Certified Individual: Wilma Hills W. Hills

Date Printed:05/03/2016

Third Party Inspection:

Customer Witnessed By: _____ Date: _____

SO 1SL020571-20 PO No. P2009607

CURTISS-WRIGHT

Hydrostatic Test Report (QC-09)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

NOVASPECT
1124 TOWER RD
SCHAUMBURG IL 60173
UNITED STATES

PO No.: P2009607
Sales Order No.: 1SL020571
Prod No.: 1SF069817

Serial No.: 858249-1-DA
Line No.: 20
Tag No.: PSV-4302

Model: 38JC14X-16V/S4/SP

Size: 3 X 4

Component	Item No.	Performance Media	Hydro Pressure(PSIG)
Main Body	326075X4-010	Water	3250
Nozzle	327015-010	Water	5575
Cover	326074-010	Exempt	
Cover/Guide	325526-010	Water	5575
Piston	327016-010	Exempt	
Pilot Control Body	-010	Water	3350

Hydrostatic Pressure test:
The applicable pressure containing parts of the above referenced valve have been hydrostatically tested at a minimum of 1.5 times (or pneumatically tested at 1.25 times) the design pressure of the parts in accordance with the applicable requirements as specified in ASME Section I PG-73.5.1(a) (or PG-73.5.1(b)), ASME Section VIII, Division I UG-136(d)(2)(a) or Division I UG-136(d)(2)(b), and Farris Engineering Specification TS-07 Rev 8.
Result: No Visible Leakage
Hydrostatic Test Verified By: Moats, Steve

Date Verified: 05/02/2016

Final Inspection:
We hereby certify that the valve indicated above has been inspected by Farris Engineering, a division of Curtiss -Wright Flow Control Company, Brecksville, Ohio in accordance with the applicable requirements as specified in ASME Section I PG-73.7.2 and ASME Section VIII Division I UG-117(a)(2).

Certified Individual: Wilma Hills W. Hills

Date Printed: 05/03/2016

Third Party Inspection:

Customer Witnessed By:_____

Date:_____

CURTISS-WRIGHT

SO 1SL020571-20 PO No. P2009607

Material Test Reports (QC-04)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

Sales Order No.: 1SL020571 Line No.: 20 Qty: 1
Customer: NOVASPECT
Customer Order No.: P2009607
Model No.: 38JC14X-16V/S4/SP
Serial No.: 858249-1-DA
Tag No.: PSV-4302

Serial No.	Component		Item Number	Lot Number	Material Description
858249-1-DA	GUIDE 3,J,K,L	3800	325526-010	T6900	ASME SA-351 GR CF8M
858249-1-DA	COVER 900/1500# J,K,L	3800	326076-010	FA90	ASME SA-182 GR F316
858249-1-DA	BODY 3 X 4 900#	3800	326075X4-010	D1953	ASME SA-351 GR CF8M
858249-1-DA	BODY HP MOD PILOT CONTROL		326757X3-010	V6479	ASME SA-351 GR CF8M
858249-1-DA	BONNET MOD PILOT CONTROL	3800	326758X1-010	386F	ASME SA-351 GR CF8M
858249-1-DA	NOZZLE SEMI 3 J 4	3800	327015-010	H0A7	ASME SA-479 TYPE 316
858249-1-DA	PISTON 3 X 4	3800	327016-010	W9A1	ASME SA-479 TYPE 316

Note: Traceability of individual parts to their NDE and special process reports is maintained through Lot Codes created by serializing the lot number shown on the material manufacturer's Material Test Report.

GENERAL	1	Tag Number			PSV-4302			
	2	Service			Whiting and Plant Discharge Pipelines			
	3	Line Number	P&ID Number		3"-P-40007-D2A		SP-PID-1404	
	4	Equipment Number			n/a			
	5	Nozzle (Full, Semi)			Full			
	6	Design Safety, Relief, Safety-Relief			Relief			
	7	Type Conventional, Bellow, Pilot Operated			Pilot Operated (Modulating)			
	8	Bonnet Type			N/A (Main Valve), Vented (Pilot Valve)			
	9							
PROCESS CONDITIONS	10	Fluid	State		Hydrocarbon Gas		Vapor	
	11	Required Capacity	Actual Capacity		60	MMSCFD	93.298	MMSCFD
	12	Molecular Mass	Liquid Operating SG		23.16		n/a	
	13	Oper. Pressure	Set Pressure		1950	psi-g	2120	psi-g
	14	Oper. Temperature	Relieving Temperature		60	°F	102	°F
	15	Back Pressure	Variable	Constant	-	psi-g	1.5	psi-g
	16		Built-Up		121.5	psi-g		
	17		Total		123	psi-g		
	18	% Allowable Overpressure			10			
	19	Overpressure Factor			1.1			
	20	Compressibility Factor			0.656			
	21	Latent Heat of Vaporization			n/a			
	22	Ratio of Specific Heats			1.116			
	23	Relief Density			n/a			
	24	Relief Viscosity			n/a	cP		
	25	Barometric Pressure	Design Pressure Max		13.65	psi-a	2120	psi-g
	26	Design Temp Min	Design Temp Max		-40	°F	150	°F
BASIS AND SELECTION	27	Design Code			ASME Section VIII			
	28	Sizing Basis			API 520			
	29	Selection Case			Blocked Outlet			
	30	Calculated Area			0.82767	in²		
	31	Selected Area			1.287	in²		
	32	Orifice Designation			J			
	33							
CONNECTIONS	34	Rating / Facing	Rating / Facing		900#/Raised Face		300#/Raised Face	
	35	Size: Inlet	Outlet		3	in	4	in
MATERIALS	36	Body / Base	Pilot Body		316 SS SA-351 CF8M		316 SS	
	37	Cover	Pilot Bonnet		316 SS		316 SS	
	38	Nozzle	Pilot Nozzle		316 SS		316 SS	
	39	Piston	Pilot Disc		316 SS		316 SS	
	40	Seat	Pilot Seat		Teflon		Buna-N	
	41	Spindle	Pilot Spindle		N/A		316 SS	
	42	Guide	Pilot Guide		316 SS		316 SS	
	43	Spring	Pilot Spring		316 SS		316 SS	
	44	Gasket	Pilot Gasket		Buna-N		Buna-N	
	45	Bellows	Pilot Tubing		n/a		316 SS	
	46	Cap: Screwed or Bolted	Pilot Cap		Bolted		Screwed	
	47	NACE			No			
	48							
PURCHASE	49	Vendor	Price					
	50	Manufacturer			FARRIS			
	51	Model			38JC14X-16V/S4/SP			
	52	Purchase Order Number						
	53	Serial Number						
	54							

Notes: 1 Vendor to Provide SS tag stamped or engraved with size, set pressure, tag number and PO No affixed to each valve.
2. Vendor to provide the following: pressure test report, material test report (CMTR's), and certificate of conformance.
3. Vendor to complete and/or verify all fields indicated with (*).
4. Outlet 300# RF acceptable with high set pressure PSV
5 Pilot valve discharge is tubed to main valve body outlet (option V)

No	By	Chkd	Appr	Date	Revision
0	JSU	TPJ	CMB	1/18/2016	Issued for Purchase
B	EML	JSU	CMB	10/23/2015	Issued for Bid
A	JSU	TPJ	CMB	8/20/2015	Issued for Approval

INSTRUMENT SPECIFICATION

Pressure Relief Valve

AUX SABLE liquid products inc

Sheet 1 of 1

Code | Dwg No : PSV-4302 | Rev : 0

PSV Summary
for
AUX SABLE MIDSTREAM
Palermo, North Dakota

Prepared by: SG
Checked by: AML
RevB
8/11/2015

Ambitech Engineering

Service: **Whiting and plant discharge pipelines**
Equipment Protected: **Whiting pipe line 10"-GH-870-ECA and 12"-GH-220-ECA**
PSV No(s).: **PSV-4302** PID: SP-PID-1404
PSV Type Conventional
MAWP: 2220 psig for -20 to 100F
P(Set): 2120 psig
P(Op.): 1950 psig
T(Op): 50 - 102 °F

Summary of Relief Loads

Scenarios	Relief Load Required (MMSCFD)	Temp (°F)	MW	Comp Factor	k	Sp Gr	Area Required (sq. in.)	Selected Area (sq. in.)	Governing Case	
1. Fire										
2. Power Failure										
3. Thermal Expansion										
4. Cooling Failure										
5. Reboiler Heat Failure										
6. Tube Rupture										
7. Volatile Material Into Hot Fluid										
8. Liquid Overfill										
9. Blocked Outlet	60	102	23.16	0.6563	1.116	---	0.812	1.287	X	Note 1
10. Control Failure										
11. Excess Process Heat Input										
12. Chemical Reaction										
13. Reflux Failure										
14. Accumulation of non-condensables										

PSV Hydraulics

Piping Basis

Inlet: 3" inlet line of 5.33 feet of length with 1 ball valve, 1 straight tee and 1 branch tee.
Outlet: 6"X4" reducer at the PSV outlet flange. 47' of 6" piping with 2 elbows, 2 branch tee and 2 straight tee to flare subheader **Note 2, 3**
6" pipe of 280 feet of length with 6 elbows, 1 straight tee and 8"X 16" reducer. 16" pipe 50 feet of length with 5 straight tees, 1 branch tee and 16"X24" reducer. 24" pipe to V-8405 (Flare Separator) 520 feet of length with 5 elbows and 4 straight tees.

Inlet Pressure Summary

PSV Inlet	Line Size (Inch)	Press Drop (psi)	Press Drop (% of Pset)	
	3"	33.6	1.58% < 3.0 %	Note 1, 2, 5

Discharge Pressure Summary

Outlet Pipe Line Size	6"			
Superimposed Back Pressure		1.5		
Built-up Back Pressure		121.5		
		123.0	5.8% < 10%	Note 1, 2, 3, 5, 6

Notes
1- **PSV-4302 2H3 will be replaced with 3J4** Pilot Operated **PSV.**
2- **Hydraulics performed with estimated capacity rate for "J" sized valve**
3- **Sonic Velocity reached in 8" diameter outlet piping.**
4- **Replace inlet line with 3" piping to meet hydraulic criteria.**
5- **Replace outlet piping with 8" piping to meet hydraulic criteria. Remove 4" section of subheader and replace with 8"**
6- **PSV piping lengths and fittings estimated from Aux Sable drawings and isos.**

ISSUED FOR
☒ APPROVAL ☐ BID
DATE: August 11, 2015
☑ APPROVED - NO COMMENTS
☐ APPROVED AS NOTED
☐ NOT APPROVED - REVISE & RESUBMIT
By: CA Date: 08/11/15
NOTE: NOT FOR CONSTRUCTION

Company: Aux Sable Midstream
Location: Palermo, ND

Equipment Protected: pipe line 10"-GH-670-ECA and 12"-GH-220-ECA PSV: **4302**

Service: **Prairie Rose pipeline** Engineer: BVN
Chk: NPS

P & I D: **SP-PID-1404**

RELIEF VALVE SCENARIOS		
NUMBER	CONDITION	APPLICABLE
1	Fire	NA
2	Power Failure	NA
3	Thermal Expansion	N/A
4	Cooling Failure	N/A
5	Reboiler Heat Failure	N/A
6	Tube Rupture	N/A
7	Volatile Material into hot fluid	N/A
8	Liquid overfill	NA
9	Blocked outlet	Yes
10	Control Failure	NA
11	Excess process heat input	N/A
12	Chemical Reaction	N/A
13	Reflux Failure	N/A
14	Accumulation of non-condensables	N/A

NOTES:

1 Fire
Not a case. Asset protected is a pipeline

2 Power Failure: Not a case. Loss of power will only cause the pressure to go down.

3. Thermal relief: Not a case.

6. Tube rubture: Not a case. There are no heat exchangers.

8 Liquid Overfill
Not possible. There are no liquids in the system or vessels to be protected.

9 Blocked Outlet
Yes. This is considered

10 Control Failure
RV already sized for max flow possible.

11. Excess process heat input : Not a case. There is no process heat

Aux Sable Midstream

6/9/2015

Project Palermo PSV Study. 150172-01

Relief Valve - Gas relief - Known flow

Tag number PSV-4302

By SG
App AML
Rev B

Input data

ASME code	Sect 8 single valve
Design	Conventional
Rupture disk	Not required
Fluid	Nat Gas Plus
Normal gas flow	60000000 sft3/d
Relief temperature	102 degF
Valve set pressure	2120 psig
Total back pressure	123 psig
Molecular weight	23.16
Ratio of specific heats @ FTP	1.116
Compressibility factor @ FTP	.8563
Critical pressure	psia
Critical temperature	degR
Percent overpressure	10
Valve discharge coefficient	.975
Selected valve area	1.287 in2

Output data

Calculated valve area	.8115 in2
Relief pressure	2332 psig
Valve capacity	9.516E+07 sft3/d
Max back pressure	230 psig
Valve orifice designation	3J4
Relieving noise level	146 dbA
Reaction force	31675 lb

Notes

Physical prop from HYSYS for gas at 102 and relieving pr.

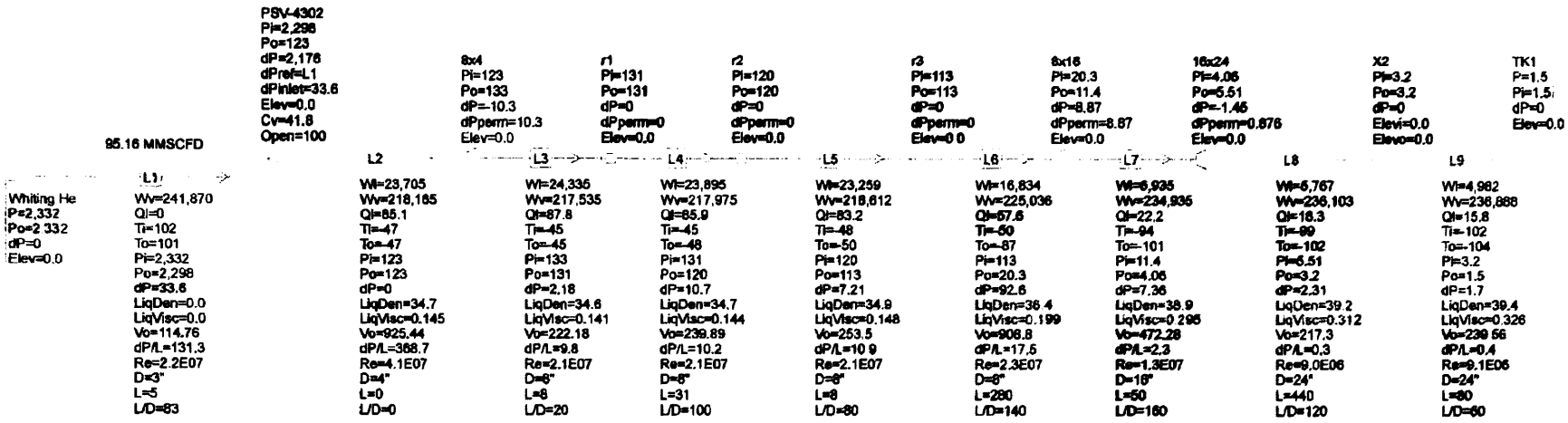
Required relief capacity is 60 MMSCFD

PSV-4302 Hydraulics based on July capacity

Inlet Pressure Drop is 1.58%

PSV outlet piping DP is 5.8% of Rv SP.

Sonic velocity in 8 inch piping



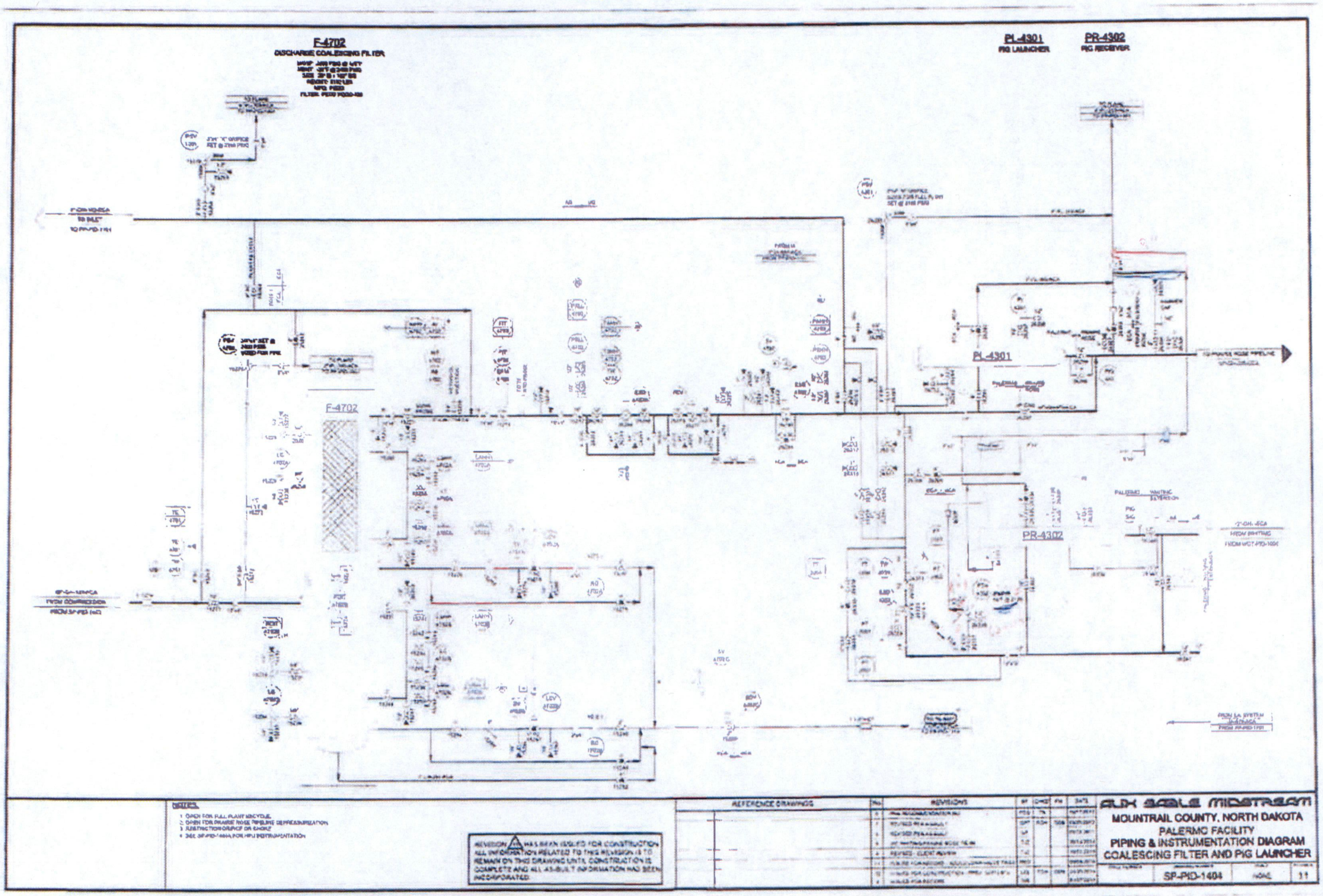
Ambitech Engineering Corporation
Downers Grove, IL

Aux Sable Midstream
Palermo, North Dakota
Palermo RV Study

Eng	Chkd	Apvd	Date	Project	Rev
SG	AML		08/11/2015	150172-01	8

Korf File: PSV-4302 KORF July change 4 piping.kdf

Units: British;W=lb/h; P=psig, L=ft; dP/L=psi/100ft; V=ft/s


F-4702
DISCHARGE COALESCING FILTER
PL-4301
PIG LAUNCHER
PR-4302
PIG RECEIVER
PL-4301
PR-4302
F-4702
REFERENCE DRAWINGS
REVISIONS
NOTES:
REVISION HAS BEEN ISSUED FOR CONSTRUCTION ALL INFORMATION RELATED TO THIS REVISION IS TO REMAIN ON THIS DRAWING UNTIL CONSTRUCTION IS COMPLETE AND ALL AS-BUILT INFORMATION HAS BEEN INCORPORATED.
AUX SABLE MIDSTREAM
MOUNTRAIL COUNTY, NORTH DAKOTA
PALERMO FACILITY
PIPING & INSTRUMENTATION DIAGRAM
COALESCING FILTER AND PIG LAUNCHER
SP-PID-1404
NONE
11

PIPE FABRICATING & SUPPLY COMPANY
2389 SOUTH 1100 WEST
WOODS CROSS, UTAH 84087
TEL: 801-292-4471

HYDRO TEST INSPECTION REPORT

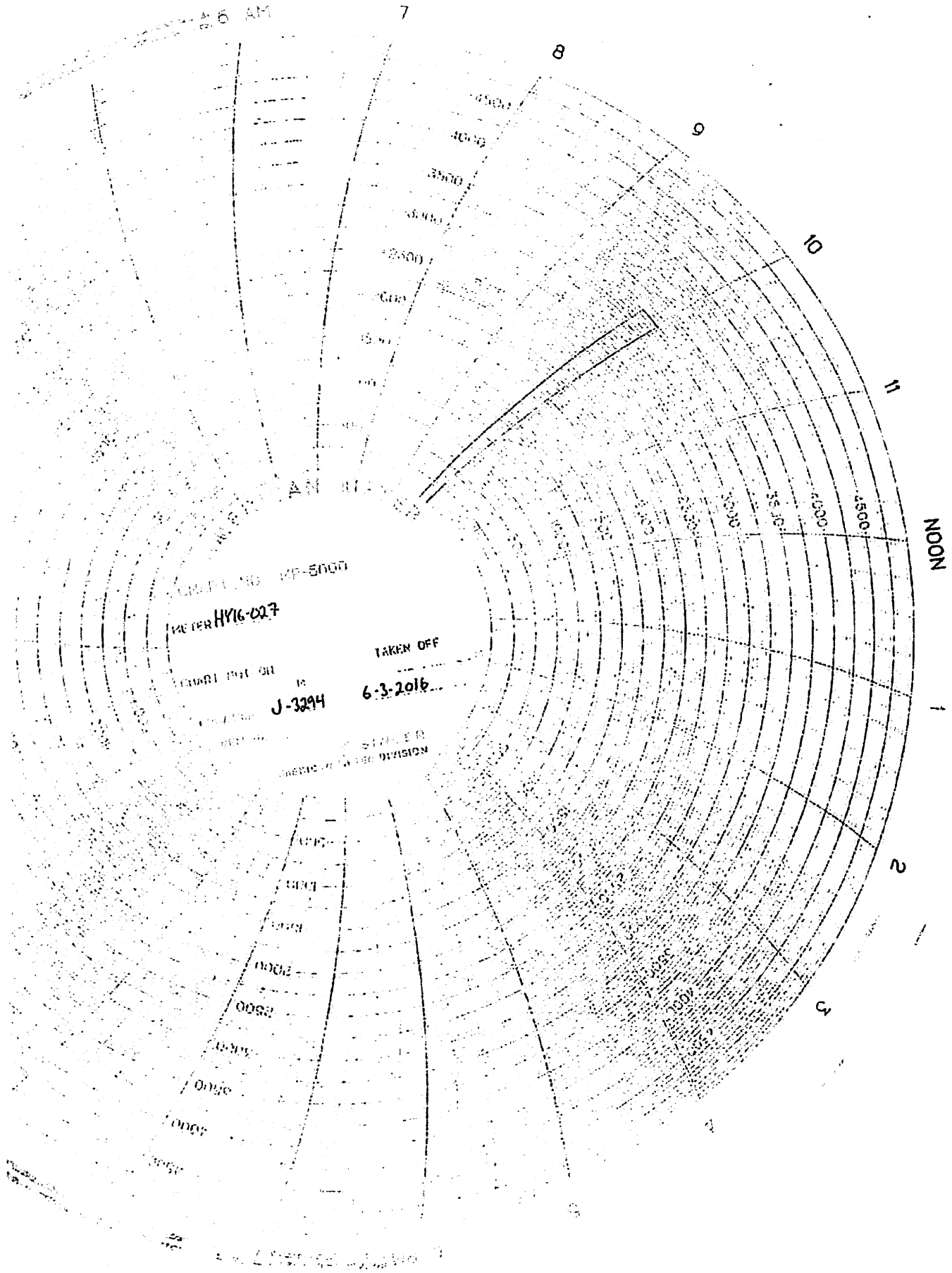
JOB ID:	3294	ACCEPTANCE CRITERIA :	B31.3 NORMAL
CUSTOMER:	AUX SABLE	PROCEDURE:	PF-53
PROJECT:	PSV UPGRADE TAR PIPING		
PO NUMBER:	PO-00010465-1	REPORT ID:	HY16-027-3294

DESCRIPTION OF TEST: THE FOLLOWING SPOOLS, LISTED BY SHOP DRAWING NUMBER, HAVE BEEN HYDROSTATICALLY TESTED WITH WATER, AT A PRESSURE NOT LESS THAN INDICATED BELOW.

SPOOL	MARK	REQUIRED PRESSURE	GAUGE #	HOLD TIME	DATE OF INSPECTION
27	GH-970-2A	3240 PSIG	G-13A	10 MINS	6/3/2016

Pressure Gage Information:
Gage Description: **Pressure Gauge 0-10000 psi**
Serial ID #: **G-13A**
Calibration Exp: **4/7/2017**
Hydro Reference: **HY16-027**

Report By: Kris E. Moyer
PIPE FABRICATING & SUPPLY


6 AM
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METER HY16-027
TAKEN OFF
6-3-2016
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