		Pipeline Pressure Test Documentation				
Pressure Test Report		Form :	Revision 3	Revision Date		
Project Name : AE-30 Flexsteel Line						
AFE No. : 5000613						
Contractor / Testing Company : Silverline/1888 Industrial Services		Technician : Nate Lehner				
Test Section No. : 1		From Station No. : 0+00				
Test Description : 8HR BELOW GROUND CL300/750# FLEXSTEEL LINE		To Station No. : 90+52				
Test Type : HYDRO		Start of Test Period : Date : 1/8/21		Time : 4:00PM		
Min. Test Duration : 8HR		End of Test Period : Date : 1/9/21		Time : 7:53 PM		
Class Location : 1						
Low Strength Pipe : O.D. : 8.625		W.T. :		SMYS :		
Grade : Flexsteel		Station Piping : NA				
Test Medium : WATER		Source of Medium : CITY OF GREELEY				
Corrosion Inhibitor : No		Inhibitor Type : NA		Rate : NA		
Leak Detection : No		Material Type : NA		Rate : NA		
Deadweight Tester : Mfg. :		Serial # :		Calibration Date :		
Deadweight Tester Location :		Station No. (ESN) :		Elevation (ft) :		
Pressure Recorder : Mfg. : Nvision/Crystal Engineering		Serial # : 569512		Calibration Date : 4/27/20		
Pipe Temp. Recorder : Mfg. : Nvision/Crystal Engineering		Serial # : 461167		Calibration Date : 4/27/20		
Pre-approved Target Test Pressure : 1,025.0 psig		Target Test Pressure Range				
Max Elevation Change :		Maximum Test Pressure : 1,125.0 psig		Minimum Test Pressure : 925.0 psig		
Time	Pressure (psig)	Pipe Temp.	Amb. Temp.	Weather	Visual Inspection	Comments
4:00 PM	0	52	46	Clear/Light Breeze	Yes	Hold 0 PSI 15 Min.
4:15 PM	1	48	43	"	"	Build to 25%
4:16 PM	255	48	43	"	"	Hold 25% 15 Min.
4:31 PM	256	48	40	"	"	Build to 50%
4:35 PM	498	48	40	"	"	Hold 50% 15 Min.
4:50 PM	485	48	35	"	"	Build to 75%
4:54 PM	751	49	34	Clear/Light Breeze	Yes	Hold for 1 Hr
5:09 PM	729	50	34	"	"	
5:24 PM	722	51	34	"	"	
5:39 PM	718	52	34	"	"	
5:54 PM	715	52	33	Clear/Light Breeze	Yes	Build to 100%
6:18 PM	1,025	54	33	"	"	Hold overnight for conditioning
6:33 PM	1,008	55	36	"	"	Leave 1 crew member of
6:48 PM	1,001	55	36	"	"	1888 to monitor heaters
7:03 PM	996	55	35	"	"	and pressure.
7:18 PM	992	55	34	Clear/Light Breeze	Yes	
				1/9/21		
5:52 AM	960	63	29	Light snow	Yes	Build to 100%
5:59 AM	1,025	63	29	"	"	Hold 5 Min or until stabile
6:04 AM	1,023	63	30	"	"	Build to 100%
6:07 AM	1,025	63	31	"	"	Hold 5 Min or until stabile
6:12 AM	1,025	63	32	Light snow	Yes	PSI Stabile
Project Name : AE-30 Flexsteel Line AFE No. : 5000613 Test Section No. : 1						
Time	Pressure (psig)	Pipe Temp.	Amb. Temp.	Weather	Visual Inspection	Comments
6:27 AM	1,023	63	35	Light snow	Yes	Build back to 100%
6:31 AM	1,025	64	36	"	"	Hold 15 Min
6:46 AM	1,024	64	36	"	"	PSI stabile
7:01 AM	1,024	63	33	"	"	PSI stabile
7:16 AM	1,023	63	33	"	"	Lose PSI
7:31 AM	1,022	64	34	Light snow	Yes	Hold 15 Min

[illegible]

SILVERLINE SERVICES
CERTIFICATE
OF COURSE COMPLETION

THIS CERTIFICATE IS AWARDED TO

Nate Lehner

Completion of Operator Qualification courses, in compliance with ANSI Class 150, 300, 600 & 900 Hydrostatic and Pneumatic testing. Personnel has been approved to test fire extinguishing cylinders, storage tanks, gas cylinders and chemical/oil/water/gas pipelines.

03.08.2020

DATE



Neil Vaughn

FIELD FOREMAN



7200 E. Dry Creek Rd, STE C-102, Centennial, CO 80112
Ph. 303-804-0667 Cal.Lab@Apex-Instruments.com

Calibration Certificate

Certificate Number: 202099

Customer:

Silverline Services
Windsor, CO

Manufacturer: Crystal Engineering
Model Number: nVision RTD100
Serial Number: 461167
Description: Temperature Module (RTD)
Procedure: CRY_R_RTD100p
Calibrated To: Manufacturer's Specifications
Technician: Ben Campbell

Calibration Date: 4/27/2020
Due Date: 4/27/2021
As Found: In Tolerance
As Left: As Found
Temperature: 72.6 F
Humidity: 25.7 %
Issue Date: 4/27/2020

Tolerance Specs:

Range: 0 to 400 ohms ; -328 to 1562 degF (PT100 0.00385)

Resistance 0 to 100% of FS: +/- (0.015% of Rdg + 0.02 ohms)
Class B Probe Temperature Deviation: +/- (0.3 + 0.005*T) degC

Technician Notes:

As Left Userspan: 1.00000
R0: 100.000

Approved Signatory: _____

Apex Instruments certifies that the instrument listed above meets the specifications of the manufacturer at the completion of its calibration. The calibrations within the certificate are traceable through NIST or another National Metrology Institute to the International System of Units (SI).

Methods used are in accordance with the procedure listed above. This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

Unless otherwise contractually specified, a binary decision rule, utilizing simple acceptance, and simple rejection criteria will be used for the determination of compliance. When compliance statements are present, they are reported without factoring in the effects of uncertainty and the limits are defined by the manufacturer's stated accuracy.

This certificate does not guarantee the continued performance of the instrument listed above. Any modifications or services performed hereafter may void this certificate.

This certificate applies only to the item listed above and is not to be reproduced other than in full, except with prior written approval from Apex Instruments Inc.



APX01593

Standards Used

Description	Model Number	Serial Number	Calibration Date	Due Date	ID
Decade Resistor	1433-28	E1-17295164	7/25/2019	7/25/2020	APX02856
Temp / RH Datalogger	UX100-011	20250011	1/30/2020	1/30/2021	APX04796

Crystal nVision RTD100

Manual Template

Test Description	Nominal	Test Results	Tolerance (+/-)	UUT Error	Status
Measure Resistance					
5 Ohms	5.00 Ω	5.00 Ω	0.02 Ω	0.00 Ω	Pass
100 Ohms	100.00 Ω	100.00 Ω	0.03 Ω	0.00 Ω	Pass
200 Ohms	200.00 Ω	200.00 Ω	0.04 Ω	0.00 Ω	Pass
300 Ohms	300.00 Ω	300.01 Ω	0.06 Ω	0.01 Ω	Pass
400 Ohms	400.00 Ω	400.02 Ω	0.08 Ω	0.02 Ω	Pass

— End of measurement results—





7200 E. Dry Creek Rd, STE C-102, Centennial, CO 80112
Ph. 303-804-0667 Cal.Lab@Apex-Instruments.com

Calibration Certificate

Certificate Number: 202100

Customer:

Silverline Services
Windsor, CO

Manufacturer: Crystal Engineering
Model Number: nVision 10,000 psi
Serial Number: 569512
Description: Pressure Module
Procedure: CI-001
Calibrated To: Manufacturer's Specifications
Technician: Bradley Golackson

Calibration Date: 4/27/2020
Due Date: 4/27/2021
As Found: In Tolerance
As Left: In Tolerance
Temperature: 70.8 F
Humidity: 20.2 %
Issue Date: 4/27/2020

Tolerance Specs:

0 to 30% of FS: +/- 0.015% of FS
30% to 110% of FS: +/- 0.05% of Rdg

Technician Notes:

As Left Userspan: 1.00020

Approved Signatory: 

Apex Instruments certifies that the instrument listed above meets the specifications of the manufacturer at the completion of its calibration. The calibrations within the certificate are traceable through NIST or another National Metrology Institute to the International System of Units (SI).

Methods used are in accordance with the procedure listed above. This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

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APX01594

Standards Used

Description	Model Number	Serial Number	Calibration Date	Due Date	ID
Electronic Deadweight Tester	RPM4-E-DWT A100M/A10M	1709	12/4/2019	12/4/2020	APX00024
Temp / RH Datalogger	UX100-011	20369499	9/17/2019	9/17/2020	APX04795

Compass Import					
Gauge Pressure					
Test Description	Nominal	Test Results	As Found		Pass
			Tolerance (+/-)	UUT Error	
0	0.00 psi	0.0 psi	1.5 psi	0.0 psi	Pass
2000	2000.07 psi	1999.0 psi	1.5 psi	-1.1 psi	Pass
4000	4000.04 psi	3998.9 psi	2.0 psi	-1.1 psi	Pass
6000	6000.17 psi	5998.9 psi	3.0 psi	-1.3 psi	Pass
8000	8000.32 psi	7998.8 psi	4.0 psi	-1.5 psi	Pass
10000	9999.79 psi	9998.3 psi	5.0 psi	-1.5 psi	Pass
8000	8000.00 psi	7998.4 psi	4.0 psi	-1.6 psi	Pass
6000	5999.98 psi	5999.0 psi	3.0 psi	-1.0 psi	Pass
4000	3999.98 psi	3999.0 psi	2.0 psi	-1.0 psi	Pass
2000	1999.88 psi	1999.2 psi	1.5 psi	-0.7 psi	Pass
0	-0.02 psi	0.0 psi	1.5 psi	0.0 psi	Pass

Compass Import					
Gauge Pressure					
Test Description	Nominal	Test Results	As Left		Pass
			Tolerance (+/-)	UUT Error	
0	-0.02 psi	0.0 psi	1.5 psi	0.0 psi	Pass
2000	2000.06 psi	1999.3 psi	1.5 psi	-0.8 psi	Pass
4000	4000.10 psi	3999.6 psi	2.0 psi	-0.5 psi	Pass
6000	5999.72 psi	5999.4 psi	3.0 psi	-0.3 psi	Pass
8000	7999.97 psi	7999.7 psi	4.0 psi	-0.3 psi	Pass
10000	9999.30 psi	9999.4 psi	5.0 psi	0.1 psi	Pass
8000	7999.77 psi	7999.7 psi	4.0 psi	-0.1 psi	Pass
6000	5999.97 psi	5999.6 psi	3.0 psi	-0.4 psi	Pass
4000	4000.01 psi	3999.8 psi	2.0 psi	-0.2 psi	Pass
2000	2000.08 psi	1999.4 psi	1.5 psi	-0.7 psi	Pass
0	-0.02 psi	0.0 psi	1.5 psi	0.0 psi	Pass

- End of measurement results -





7200 E. Dry Creek Rd, STE C-102, Centennial, CO 80112
Ph. 303-804-0667 Cal.Lab@Apex-Instruments.com

Calibration Certificate

Certificate Number: 200979

Customer:

Silverline Services
Windsor, CO

Manufacturer: Crystal Engineering
Model Number: nVision RTD100
Serial Number: 464059
Description: Temperature Module (RTD)
Procedure: CRY_R_RTD100p
Calibrated To: Manufacturer's Specifications
Technician: Steven Laupan

Calibration Date: 2/26/2020
Due Date: 2/26/2021
As Found: Inoperable
As Left: In Tolerance
Temperature: 69.9 F
Humidity: 18.4 %
Issue Date: 2/26/2020

Tolerance Specs:

Range: 0 to 400 ohms ; -328 to 1562 degF (PT100 0.00385)

Resistance 0 to 100% of FS: +/- (0.015% of R_{dg} + 0.02 ohms)

Class B Probe Temperature Deviation: +/- (0.3 + 0.005*T) degC

Technician Notes:

Upon receipt, the RTD module would intermittently display "No RTD" with a probe connected and/or display unstable temperature indications. This is a result of a worn out RTD terminal connector. As a result, no "As Found" data was able to be recorded. The connector was replaced and "As Left" data was recorded. However, no adjustments were required to achieve the "As Left" results.

As Left Userspan: 1.00000

As Left R0: 100.000

Approved Signatory: 

Apex Instruments certifies that the instrument listed above meets the specifications of the manufacturer at the completion of its calibration. The calibrations within the certificate are traceable through NIST or another National Metrology Institute to the International System of Units (SI).

Methods used are in accordance with the procedure listed above. This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

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APX01573

Standards Used

Description	Model Number	Serial Number	Calibration Date	Due Date	ID
Reference Thermometer Readout / PRT	1502A / 5628-12-D	B64070 / 3526	9/19/2019	9/19/2020	APX00014
Reference Thermometer Readout / PRT	1502A / 5628-12-D	B0B641 / 3780	7/22/2019	7/22/2020	APX00015
Decade Resistor	1433-28	E1-17295164	7/25/2019	7/25/2020	APX02856
Temp / RH Datalogger	UX100-011	20369499	9/17/2019	9/17/2020	APX04795

Crystal nVision RTD100 w/Probe

Manual Template

Test Description	Nominal	Test Results	As Left Tolerance (+/-)	UUT Error	Status	Pass
Measure Resistance						
5 Ohms	5.00 Ω	5.00 Ω	0.02 Ω	0.00 Ω	Pass	
100 Ohms	100.00 Ω	100.00 Ω	0.03 Ω	0.00 Ω	Pass	
200 Ohms	200.00 Ω	200.00 Ω	0.04 Ω	0.00 Ω	Pass	
300 Ohms	300.00 Ω	300.00 Ω	0.06 Ω	0.00 Ω	Pass	
400 Ohms	400.00 Ω	400.01 Ω	0.08 Ω	0.01 Ω	Pass	

RTD Probe Verification

Class B / 3-Wire / PT100 0.00385

Serial Number					2002261
32 F	31.96 °F	32.30 °F	0.56 °F	0.34 °F	Pass
250 F	250.15 °F	250.60 °F	1.64 °F	0.45 °F	Pass

— End of measurement results—



Data Collection Report

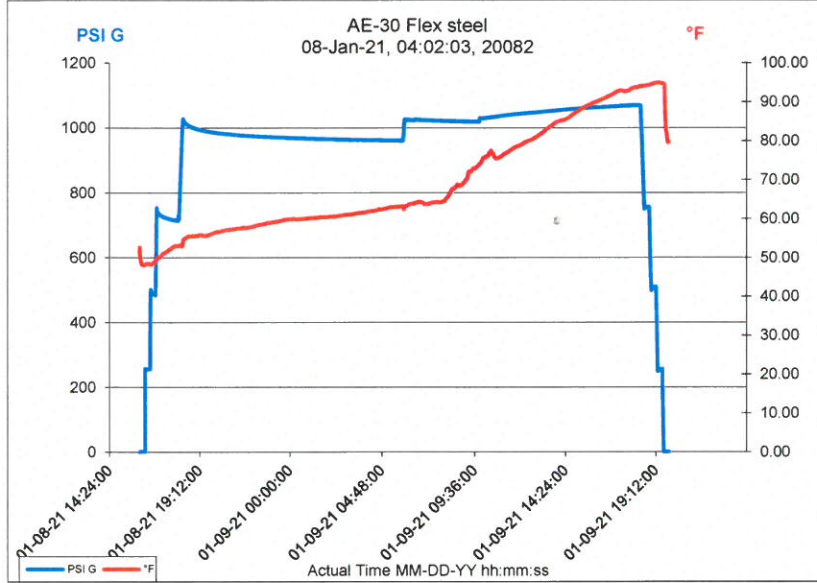
	Chassis	Left Scale	Right Scale
Serial Number	462237	569512	461167
Datatype		Lower	Upper
Units		PSI G	°F

Lower

Tested By: Nate Lehner

Test Passed

Upper

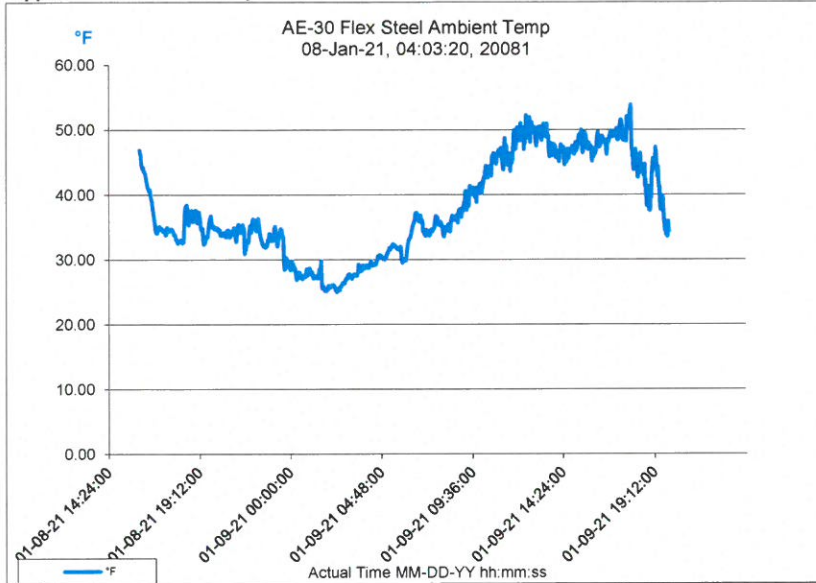


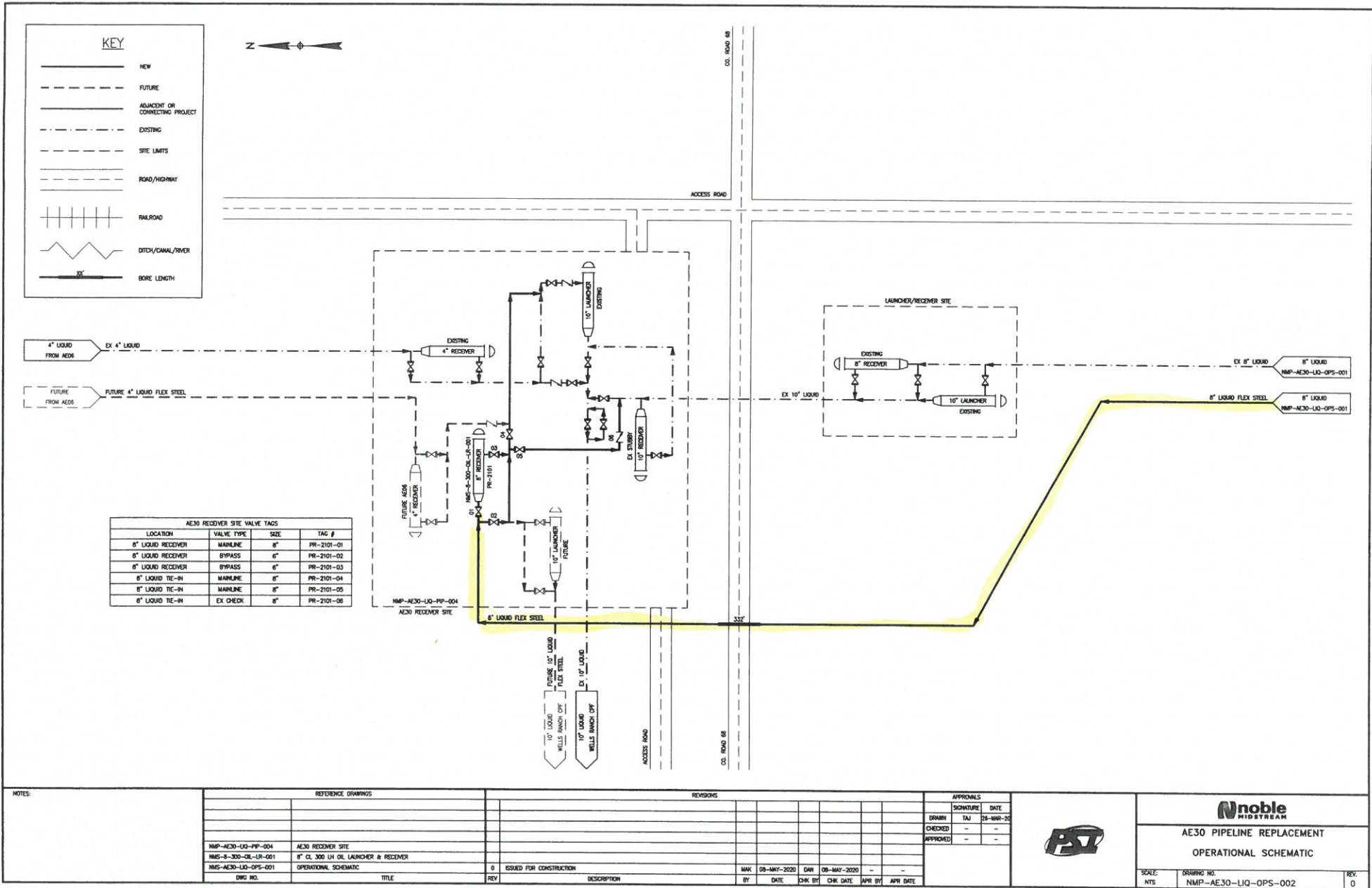
Data Collection Report

	Chassis	Left Scale	Right Scale
Serial Number	255774	464059	
Datatype		Upper	
Units		°F	

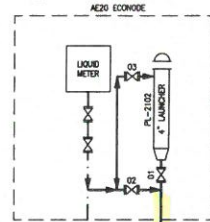
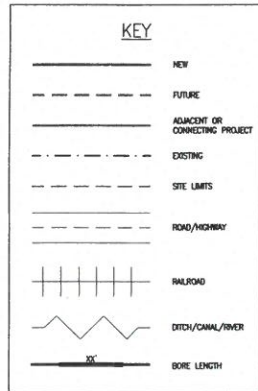
Upper

Tested By: Nate Lehner



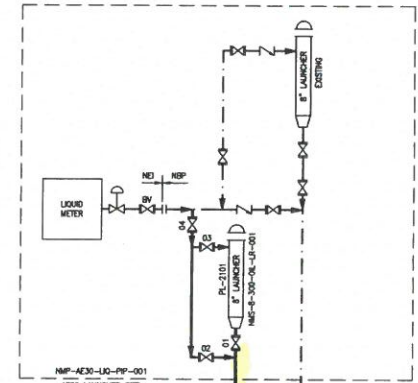


FILE PATH: \\J:\ENGINEERING\PROJECTS\AE30 AE30 PIPELINE REPLACEMENT\PROJECT DRAWINGS\OPERATIONAL SCHEMATIC\AE30-LQ-OPS-001.DWG DATE: 26-MAR-2020



AE30 LAUNCHER SITE VALVE TAGS			
LOCATION	VALVE TYPE	SIZE	TAG #
4" LIQUID LAUNCHER	MAINLINE	4"	PL-2102-01
4" LIQUID LAUNCHER	BYPASS	2"	PL-2102-02
4" LIQUID LAUNCHER	BYPASS	2"	PL-2102-03

AE30 LAUNCHER SITE VALVE TAGS			
LOCATION	VALVE TYPE	SIZE	TAG #
8" LIQUID LAUNCHER	MAINLINE	8"	PL-2101-01
8" LIQUID LAUNCHER	BYPASS	8"	PL-2101-02
8" LIQUID LAUNCHER	BYPASS	8"	PL-2101-03
8" LIQUID LAUNCHER	MAINLINE	8"	PL-2101-04



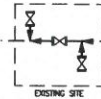
8" LIQUID
NMP-AE30-LQ-OPS-002

8" LIQUID
NMP-AE30-LQ-OPS-002

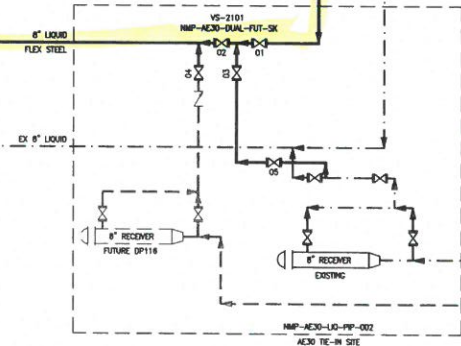
AE30 TE-IN SITE VALVE TAGS			
LOCATION	VALVE TYPE	SIZE	TAG #
4" LIQUID RECEIVER	MAINLINE	4"	PR-2102-01
4" LIQUID RECEIVER	BYPASS	2"	PR-2102-02
4" LIQUID RECEIVER	BYPASS	2"	PR-2102-03
4" TE-IN	CHECK	4"	PR-2102-04
4" TE-IN	MAINLINE	4"	PR-2102-05
8" MAINLINE BLOCK	MAINLINE	8"	VS-2100-01

NMP-AE30-LQ-PP-003
AE30 TE-IN SITE

ACCESS ROAD



ACCESS ROAD



AE30 TE-IN SITE VALVE TAGS			
LOCATION	VALVE TYPE	SIZE	TAG #
8" VALVE SKID	MAINLINE	8"	VS-2101-01
8" VALVE SKID	MAINLINE	8"	VS-2101-02
8" VALVE SKID	FUTURE	8"	VS-2101-03
8" VALVE SKID	FUTURE	8"	VS-2101-04
8" TE-IN	MAINLINE	8"	VS-2101-05

8" LIQUID
FROM DP106 & DP116

FUTURE 8" LIQUID
FROM DP106 & DP116

NOTES:

REFERENCE DRAWINGS	
NMP-AE30-LQ-PP-003	AE30 TE-IN SITE
NMP-AE30-LQ-PP-002	AE30 TE-IN SITE
NMP-AE30-LQ-PP-001	AE30 LAUNCHER SITE
NMS-AE30-DUAL-FUT-SK	8" LIQUID MAINLINE BLOCK VALVE W/ DUAL 8" FUTURE TE-IN
NMS-B-300-OL-LR-001	8" CL 300 LH OIL LAUNCHER & RECEIVER
NMS-AE30-LQ-OPS-002	OPERATIONAL SCHEMATIC
DWG NO.	TITLE

REVISIONS	
REV	DESCRIPTION
0	ISSUED FOR CONSTRUCTION
BY	DATE
CHK BY	CHK DATE
APR BY	APR DATE

APPROVALS	
SIGNATURE	DATE
DRWN	26-MAR-20
CHECKED	-
APPROVED	-



Noble
MIDSTREAM

AE30 PIPELINE REPLACEMENT
OPERATIONAL SCHEMATIC

SCALE: NTS
DRAWING NO: NMP-AE30-LQ-OPS-001

REV: 0