

TEST SPECIFICATIONS						Date:		Select Routing:																									
Rangeview Pipeline Well Connect Hydrostatic Test						16-Sep-2015																											
Ledford Well Connect						Test Number: 1		of 1																									
Project Name: Rangeview Pipeline Gathering System			Project I.D. / AFE Number 14CO009			Facility Name or Number Rangeview Pipeline																											
Installation Location (M.P. or S.S.):		State:	County/Parish:	Class Location	1	Selected Design Pressure	1480	Planned MAOP	1480																								
From: 0+00	To: 8+11	CO	Weld	Designation																													
Project Description:																																	
Hydrostatic pressure test of the 4" well connect pipe.																																	
Testing at 1.25*MAOP = 1850 minimum test pressure. 2225 psig Target Test Pressure.																																	
Max Test Pressure for ANSI 600 Valves and Fittings is 2660 psig where they are located.																																	
Test shall be compliant with all test specifications in Exhibit D "Pipeline Construction Specifications" and all other Construction Documents.																																	
LEAK ONLY TEST <input type="checkbox"/> STRENGTH TEST <input checked="" type="checkbox"/> FABRICATION <input type="checkbox"/> NEW CONSTRUCTION <input checked="" type="checkbox"/> REPLACEMENT <input type="checkbox"/> RETEST <input type="checkbox"/> REFERENCE DRAWINGS ATTACHED <input type="checkbox"/>																																	
POST-INSTALLATION TEST <input checked="" type="checkbox"/> PRE-INSTALLATION TEST <input type="checkbox"/>																																	
Test Design Criteria					Test Section - Reference Data																												
Minimum Component Characteristics		Test Pressure Calculations																															
Pipe Information		<input type="text"/> Input minimum and maximum pressure of test <input type="text"/> Input minimum and maximum %SMYS of test			Test Medium Water Test Duration 8 Hours (min) Section Length 811 Ft. Section Fill Volume 670 Gal Max. Elevation Change 1 Ft.																												
Valve/Flange ANSI Class Rating 600# Valves/Fittings		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Pressure (psig)</th> <th>% PIPE SMYS</th> </tr> </thead> <tbody> <tr> <td>Max. Test Pressure (Pipe)</td> <td>2600</td> <td>59.8%</td> </tr> <tr> <td>Max. Test Pressure (Valves and Fittings)</td> <td>2660</td> <td>61.2%</td> </tr> <tr> <td>Min.</td> <td>1850</td> <td>42.6%</td> </tr> </tbody> </table>				Pressure (psig)	% PIPE SMYS	Max. Test Pressure (Pipe)	2600	59.8%	Max. Test Pressure (Valves and Fittings)	2660	61.2%	Min.	1850	42.6%	Station Equations: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>Back</td> <td>0+00</td> <td>0+00</td> <td>0+00</td> </tr> <tr> <td>Ahead</td> <td>0+00</td> <td>0+00</td> <td>0+00</td> </tr> </tbody> </table>						1	2	3	Back	0+00	0+00	0+00	Ahead	0+00	0+00	0+00
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Test Pressures																																	
Location	Station	Elevation (feet)	Max. psig.	% SMYS @ Max.	Min. psig.	% SMYS @ Min.	Variance psig.	Target psig.	% SMYS @Target																								
BEGIN -	0+00	4598	2,600	59.8%	1,850	42.6%	750	2,225	51.2%																								
HIGH ELEVATION	8+11	4599	2,600	59.8%	1,850	42.6%	750	2,224	51.2%																								
LOW ELEVATION	0+00	4598	2,600	59.8%	1,850	42.6%	750	2,225	51.2%																								
END	8+11	4599	2,600	59.8%	1,850	42.6%	750	2,224	51.2%																								
Chart Location (Test Point)	0+00	4598	2,600	59.8%	1,850	42.6%	750	2,225	51.2%																								
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PRE-TEST SPECIFIED / REVIEWED BY:			TEST PERFORMED / ACCEPTED BY:			POST-TEST REVIEWED BY:																											
Originator (Signature)	Date:	Test Performed by (Signature): <i>Janey, Cof</i>			Date:	Compliance (signature)		Date:																									
Designed Reviewed if applicable (Signature)	Date:	Company Name (for Contractor or for Employee): <i>North Winds</i>			Date:	Engineering or Operations (Signature)		Date:																									
Compliance (Signature)	Date:	Witnessed & Accepted by Company Representative: <i>Charles W...</i>			Date:	Actual MAOP																											



April 2006

MOP Establishment and Pressure Testing of Pipelines
TG1601.190

PAGE 1 OF 9

LIQUID PIPELINE
PRESSURE TEST
REPORT

Pressure Test Number 2

MOP of tested facility is PSIG

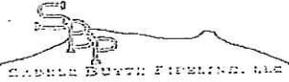
Company: Saddle Butte Operations Area: _____

Project: Rangerview Gathering System AFE: 140009

Pipeline: Rangerview Pipeline leg C line C1

Section: Ledford Well Connect

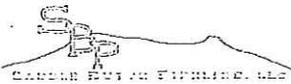
Station or Milepost From: 0+00 To: 8+11



INSTRUCTIONS

In this worksheet, cells containing formulas are protected against input.
Cells with **BLUE** text labels allow or require input.

<i>General Information</i>	<ul style="list-style-type: none"> • Complete this Report and attached necessary exhibits for all SBP installed pipelines or pipeline segments or those re-qualified for service. • Fill in all applicable information. If information is not applicable, write NA in the corresponding space on the Report.
<i>Pipe Data</i>	<ul style="list-style-type: none"> • Record the details for each pipe section tested, including lengths, line fill, pipe fittings, etc. • Add together pipe section lengths and line fill for a total pipe section length and line fill.
<i>Test Water Data</i>	<ul style="list-style-type: none"> • Enter water source information (i.e., from municipal supply, well, river, lake, pond) in the Test Log or notes section of the Report. • Source water temperature compared to ground temperature can assist with understanding the time for the water to stabilize.
<i>Pressure Calculations</i>	<ul style="list-style-type: none"> • Elevation of high and low points and the elevation of the test pressure measure sites is required for calculation of the target test pressures.
<i>Test Log</i>	<ul style="list-style-type: none"> • Fill out the Test Log at the time of the test. This is the actual log of the test. • From the start of filling the test section, record pressure readings from the calibrated test gauge or deadweight tester used in the test. • Record the test pressure and temperatures at intervals of 30 minutes to an hour and as necessary to represent the test pressure during the test period. • The below ground pipe temperature sensor should be placed away from exposed pipe and far enough from the water injection point so that water injected will not affect the readings. • In the Remarks column, enter start of test, end of test, and any remarks concerning unusual events, such as liquid added or withdrawn, weather conditions, etc.
<i>Notes</i>	<ul style="list-style-type: none"> • Enter all pertinent comments about the test, including such things as weather conditions, radical weather changes, equipment malfunctions, or any other noteworthy event that may affect testing.
<i>Profile</i>	<ul style="list-style-type: none"> • An elevation profile is required for any test section where the elevation varies more than 100 feet. The following items should be noted on the profile: <ul style="list-style-type: none"> - Location and elevation where test pressure measurements are taken - High and low points - Stationing or mileposts - Horizontal and vertical scale of the drawing • Elevation data is available in electronic format from the KPL mapping system. • If electronic elevation data is not available, take profile elevations from survey information or from U.S. Geological Service 7 1/2 minute topographical maps.
<i>Failure Log</i>	<ul style="list-style-type: none"> • Record each failure event that causes the line to be taken "off test". • Enter the date, time, and pressure at the time of failure. • List the apparent cause of the failure if the actual cause cannot be determined. Pipe seam failure or leaking flange, for example, could be entered as the cause of test failure. • Describe the repair method (i.e., changed-out pipe or tightened flange).
<i>Supplementary Documentation</i>	<ul style="list-style-type: none"> • Check each supplementary documentation attached as part of this test record (i.e., test charts and/or equipment certifications). • Write the corresponding Exhibit Number on the attached supplementary documentation.
<i>Certification</i>	<ul style="list-style-type: none"> • Signatures of the Company and Contractor representatives in charge of the test are MANDATORY.

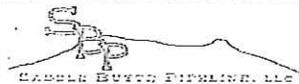


PRESSURE CALCULATIONS

Location of Test Point <u>Hedford Well Pad</u>	Elevation of Test Point <u>4598</u> Ft. (Elevation) <u>0+00</u> Ft. (Station)	High Point <u>4599</u> Ft. (Elevation) <u>8+11</u> Ft. (Station) Location Name	Low Point <u>4598</u> Ft. (Elevation) <u>0+00</u> Ft. (Station) Location Name
Target MOP: Target Test Pressure Range <u>2225</u> 1st Min: Maximum: 2nd Min:	Test Duration: <u>8</u> hr High Point Low Point	Start Point <u>4598</u> Ft. (Elevation) <u>0+00</u> Ft. (Station) Location Name	End Point <u>4599</u> Ft. (Elevation) <u>8+11</u> Ft. (Station) Location Name

TEST LOG

DATE	TIME	PRESSURE	AMBIENT TEMP	BELOW GROUND TEMP	ABOVE GROUND TEMP	REMARKS
10-3-15	6:00 AM	0	45			Cool / Damp
	6:15	0	45			Built to 500#
	6:15	520	45			
	6:30	520	45			Built to 1000#
	6:30	999	45			
	6:45	997	45			Built to 1500#
	6:45	1507	45			
	7:00	1506	45			Built to 2000#
	7:00	2000	45			
	7:15	1999	46			Built to 2225#
*	7:15	2225	46	* Begin Test		Mostly Cloudy
	7:30	2225	46			
	7:45	2225	46			
	8:00	2225	46			
	8:15	2225	46			Mostly Sunny
	8:30	2225	46			
	8:45	2225	47			
	9:00	2225	48			
	9:15	2225	49			Mostly Cloudy
	9:30	2225	50			
	9:45	2225	51			
	10:00	2225	52			
	10:15	2225	52			
	10:30	2225	53			Cloudy
	10:45	2225	54			
	11:00	2225	54			
	11:15	2225	54			
	11:30	2226	54			Cloudy
	11:45	2226	57			
	12:00	2227	57			Partly Sunny
	12:15	2227	57			
	12:30	2228	58			
	12:45	2228	58			cloudy
	1:00	2228	58			
	1:15	2229	59			
	1:30	2229	59			cloudy
	1:45	2229	59			
	2:00	2229	59			
	2:15	2229	60			cloudy



TEST LOG (CONTINUED)

DATE	TIME	PRESSURE	AMBIENT TEMP	BELOW GROUND TEMP	ABOVE GROUND TEMP	REMARKS
10-3-15	2:30P	2229	60			cloudy, breezy
	2:45	2229	61			
	3:00	2229	61			
*	3:15	2228	62	*END	TEST	cloudy
	3:25	2228	62			Bled to 2000#
	3:25	2000	62			
	3:40	2000	62			Bled to 1500#
	3:40	1496	62			
	3:55	1496	62			Bled to 1000#
	3:55	1001	62			
	4:10	1001	61			Bled to 500#
	4:10	502	61			
	4:25	502	60			Bled to 0
	4:25	0	60			



EQUIPMENT CALCULATED MOP SUMMARY WORKSHEET

1. Test Information:

Target MOP
Enter the desired MOP,
if less than pipe
internal design
pressure.

Date 10-3-15 Time 6:00 AM
Test Point Location Ledford Well Pad
Test Medium Water Test Duration 8 hr
Specific Gravity of Test Medium _____
Min. Test Press. at test site 125% of min. MOP + elv. 110% _____
Maximum allowable % of SMYS = 100%

2. Pipe Specifications:

Manufacture Type _____ Pipe (#1) O.D. 4.5" MOP _____
Grade X-52 SMYS _____ Seam Joint Factor _____
Wall thickness .138 Design Factor (F) _____
Length (ft.): 611 Volume _____
Max allowable test pressure, psig _____

3. Pipe Specifications:

Manufacture Type _____ Pipe (#2) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

4. Pipe Specifications:

Manufacture Type _____ Pipe (#3) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

5. Pipe Specifications:

Manufacture Type _____ Pipe (#4) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

6. Pipe Specifications:

Manufacture Type _____ Pipe (#5) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

7. Pipe Specifications:

Manufacture Type _____ Pipe (#6) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

8. Pipe Fittings Specifications:

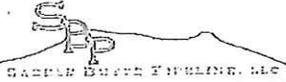
Manufacture Type _____ Pipe Fitting O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Fitting Description _____ Wall thickness _____ Design Factor (F) _____
Max allowable test pressure, psig _____

9. Pipe Fittings Specifications:

Manufacture Type _____ Pipe Fitting O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Fitting Description _____ Wall thickness _____ Design Factor (F) _____
Max allowable test pressure, psig _____

10. Pipe Fittings Specifications:

Manufacture Type _____ Pipe Fitting O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Fitting Description _____ Wall thickness _____ Design Factor (F) _____
Max allowable test pressure, psig _____



EQUIPMENT CALCULATED MOP SUMMARY WORKSHEET
(continued)

11. Manufactured: _____ Weldolet, etc. O.D. _____ Working Pressure _____
Manufacture Type _____ Grade _____
Fitting Description _____
Max allowable test pressure, psig _____

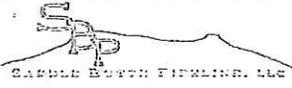
12. Manufactured: _____ Pipe Flanges O.D. _____ Working Pressure _____
Manufacture Type _____ Class _____
Temperature Derating Factor (T) _____
Max allowable test pressure, psig _____

13. Manufactured: _____ Pipe Flanges O.D. _____ Working Pressure _____
Manufacture Type _____ Class _____
Temperature Derating Factor (T) _____
Max allowable test pressure, psig _____

14. Manufactured: _____ Block Valve Size _____ Working Pressure _____
Manufacture Type _____ Class _____
Temperature Derating Factor (T) _____
Max allowable test pressure, psig _____

15. Calculated MOPs (psi):
Test Pressure Range @Test Site, psig 125% to psig 110% to psig
Note: Add psi to min. test range
Maximum test pressure at test site, psig

CALCULATED TARGET MOP OF PIPELINE SECTION **PSIG**



FAILURE LOG

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

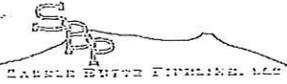
FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____



The following marked exhibits are attached as a part of this Test Report:

- EXHIBIT NO. 1 Sketch of Tested Piping (including how section is isolated), with material list
- EXHIBIT NO. 2 Profile of pipeline section and/or segment
- EXHIBIT NO. 3 Pressure Chart, with pressure test number, date, test section name, Inspector name and signature
- EXHIBIT NO. 4 Temperature Chart, with pressure test number, date, test section name, Inspector name and signature
- EXHIBIT NO. 5 Pressure Recorder Certification Papers
- EXHIBIT NO. 6 Temperature Recorder Certification Papers
- EXHIBIT NO. 7 Deadweight or Calibrated Test Gauge Certification Papers
- EXHIBIT NO. 8 Field test data log, if hand written
- EXHIBIT NO. 9 Pressure Test Procedure, if applicaple, with MOP Area Representative and Engineer signature approval

CERTIFICATION

I certify this pipeline or pipeline section has been tested and successfully met the terms of SBP MOP Establishment and Pressure Testing of Pipelines Technical Guideline and, where applicable, the contract document between SBP and its prime contractor.

MOP Area Representative

By: _____ (Please print) _____ (Signature) Date: _____

Engineer

By: _____ (Please print) _____ (Signature) Date: _____

Inspector

By: Charles Wallace (Please print) Charles Wallh (Signature) Date: 10-3-15

Name of Testing Contractor

North Winds

By: LARRY COX (Please print) Larry Cox (Signature) Date: 10/3/15

PSS COMPANIES



2070 South 4250 West - Salt Lake City, Utah 84104 - Phone (801) 363-1933 - Fax (801) 531-9548

CALIBRATION CERTIFICATE

CERTIFICATE NUMBER: UT 22315-6

Details +/-: 0.05% ACCURACY

DATE CALIBRATED: 02-23-2015
DUE DATE: 02-23-2016
INDICATED TEMPERATURE RANGE: # 0 - 150°F
INDICATED PRESSURE RANGE: # 0 - 3,000 PSI
SERIAL NO: 242 - 122850
MANUFACTURER: BARTON / 12" CHART RECORDER

TYPE OF INSTRUMENT CALIBRATED: TEMPERATURE / PRESSURE RECORDER /

INSTRUMENT FINDINGS/STATUS: UNIT IS IN TOLERANCE/ INSTRUMENT MEETS OR EXCEEDS SPECIFICATIONS.

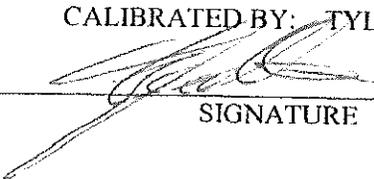
BASED ON INTERNATIONAL STANDARDS OF GRAVITY: (980.665 cm./sq.).
BASED ON CALIBRATED PISTON AREA: (0.3969154 cm./sq.) (0.061522 cm./sq.).

TYPE OF STANDARD USED TO CALIBRATE: CHANDLER DEADWEIGHT TEST UNIT SPT. (55-100-B) SERIAL No. 25985; KESSLER TEST THERMOMETERS; SERIAL NO. 87B2276 & 403751. CALIBRATION DATE: MAY 07, 2014

ALL STANDARD DIRECTLY TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGIES TEST NO: (N.I.S.T.) 2.6/172490 & 6.6/139577.

CALCULATED USING MASS VALUES, AREA, AO, AND STATED GRAVITY.
ROOM TEMPERATURE/HUMIDITY (AT TIME OF TEST): 77°F (25°C) / 40%.

CALIBRATED BY: TYLER HALL


SIGNATURE

Ued

Diq Gauge

PSS - COMPANIES



2070 South 4250 West - Salt Lake City, Utah 84104 - Phone (801) 363-1933 - Fax (801) 531-9548

CALIBRATION CERTIFICATE

CERTIFICATE NUMBER: UT 61015-2

Details+/-: 0.05% ACCURACY

DATE CALIBRATED: 06-10-2015

DUE DATE: 06-10-2016

INDICATED PRESSURE RANGE: # 0 - 5,000 PSI

SERIAL NO: 364359

MANUFACTURER: CRYSTAL / XP2 i

PRESSURE INSTRUMENT: # 0 - 5,000 PSI / DIGITAL GAUGE

INSTRUMENT FINDINGS/STATUS: UNIT IS IN TOLERANCE/ INSTRUMENT MEETS OR EXCEEDS SPECIFICATIONS.

BASED ON INTERNATIONAL STANDARDS OF GRAVITY: (980.665 cm./sq.).

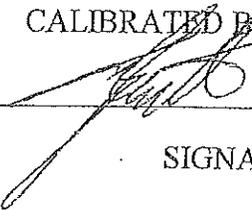
BASED ON CLAIBRATED PISTON AREA: (0.3969154 cm./sq.) (0.061522 cm./sq.)

TYPE OF STANDARD USED TO CALIBRATE: AMERI-WEIGHT DEADWEIGHT TEST UNIT SPT. (50-05-B) SERIAL No. 1031; CALIBRATION DATE: JULY 14, 2014

ALL STANDARD DIRECTLY TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGIES TEST NO: (N.I.S.T.) 2.6/172490 & 6.6/139577.
CALCULATED USING MASS VALUES, AREA, A_o, AND STATED GRAVITY.

ROOM TEMPERATURE/HUMIDITY (AT TIME OF TEST): 77°F (25°C)/ 40%

CALIBRATED BY: TYLER HALL


SIGNATURE

