



Client Noble Energy
Project: Wells Ranch 20
Location: Gill, Co
Project No.: 0

Issue: 1
Rev: 0
Rev. Date: 15-Jan-14
By: RES
Approved: RES

Wells Ranch 20 PF Lateral Test Report

Wells Ranch 20 Liquid Lateral	CLIENT: Noble Energy
TEST MEDIUM: Nitrogen	xxxxx
TEST PRESSURE: 925 PSIG	DESIGN PRESSURE: 740 PSIG
TEST DURATION: 8 HRs	START TIME:
TEST PERFORMED BY: RES	STOP TIME:

TEST EQUIPMENT				
TYPE	MAKE	MODEL	SER#	CAL DATE
RECORDER	NV	10KPSI	251541	11-May-13
SCALE				
TEMP GAUGE				
PRESS GAUGE				

TIME	TEMP	AMBIENT	PRESSURE	COMMENTS
12/3/13 9:58			0	Started Recorder and Filling
12/3/13 12:19			236	Leveled of to allow for settling
12/3/13 12:29			241	Pressured up
12/3/13 14:17			497	Leveled of to allow for settling
12/3/13 14:29			500	Pressured up
12/3/13 16:10			746	Leveled of to allow for settling
12/3/13 16:29			748	Pressured up
12/3/13 17:55			959	Set Test
12/3/13 19:00			956	
12/3/13 20:00			955	
12/3/13 21:00			954	
12/3/13 22:00			954	
12/3/13 23:00			953	
12/4/13 0:00			953	
12/4/13 1:00			953	
12/4/13 2:00			952	
12/4/13 2:37			952	Broke Test
12/4/13 3:00			0	

DATE

AUTHORIZATION

CRYSTAL

engineering corporation

Certificate of Calibration



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Report number 149662

Calibrations comply with ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994

Module	Serial Number	Calibration Date	Verification Date
10KPSI	251541	09 March 2012	11 May 2012

As Received Condition: New

As Left Condition: In Tolerance

Definitions:	Temperature	Measured temperature of Device Under Test (DUT) during data collection.
	Reference Reading	True value according to our reference standards.
	Indicated Reading	Displayed reading from test unit.
	Condition	Pass or Fail.
	Difference	Indicated reading minus reference reading.
	Relative Difference	(Difference / reference reading) x 100
	Allowable Tolerance	± according to manufacturer's specifications.
	Water column	Referenced at 4° C and 1 atmosphere.
	Pressure Medium	Nitrogen.


Laboratory ambient conditions throughout this calibration were: Temperature 19 to 23° C
Humidity 20 to 60% RH

Reference Standards used in this calibration are traceable to the National Institute of Standards and Technology of the United States (NIST), through the listed report numbers.

System expanded uncertainty evaluation includes the calibration reference used and device under test and is calculated in accordance with ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainties reported represent expanded uncertainties using a coverage factor k=2 to approximate a 95% confidence level. In Tolerance or pass conditions are based on test results falling within specified limits with no reduction by the uncertainty of the measurement. The results contained herein relate only to the item calibrated. Test methods defined by COI-054. The recommended calibration interval for this instrument is 12 months from the date of verification. Your particular quality assurance requirements may supersede this recommendation.

Manufacturer	Calibration Reference Used	Serial Number	Report Number	Due Date	System Expanded Uncertainty
DHI	PG7202 w/ 1 MPa/kg PC	875	1316761880	23 September 2012	0.0035% of Reading + 5.1 kPa

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Laboratory Representative
Jeremy Daniel


Quality Representative
Bruce Hitt

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ILAC (International Laboratory Accreditation Cooperation) - MRA (Multilateral Recognition Arrangement)
CEC is ISO 9001:2000 Quality Management System Certified by Bureau Veritas, Certificate No. 191559



Test Results

Report number 149662

Serial Number 251541

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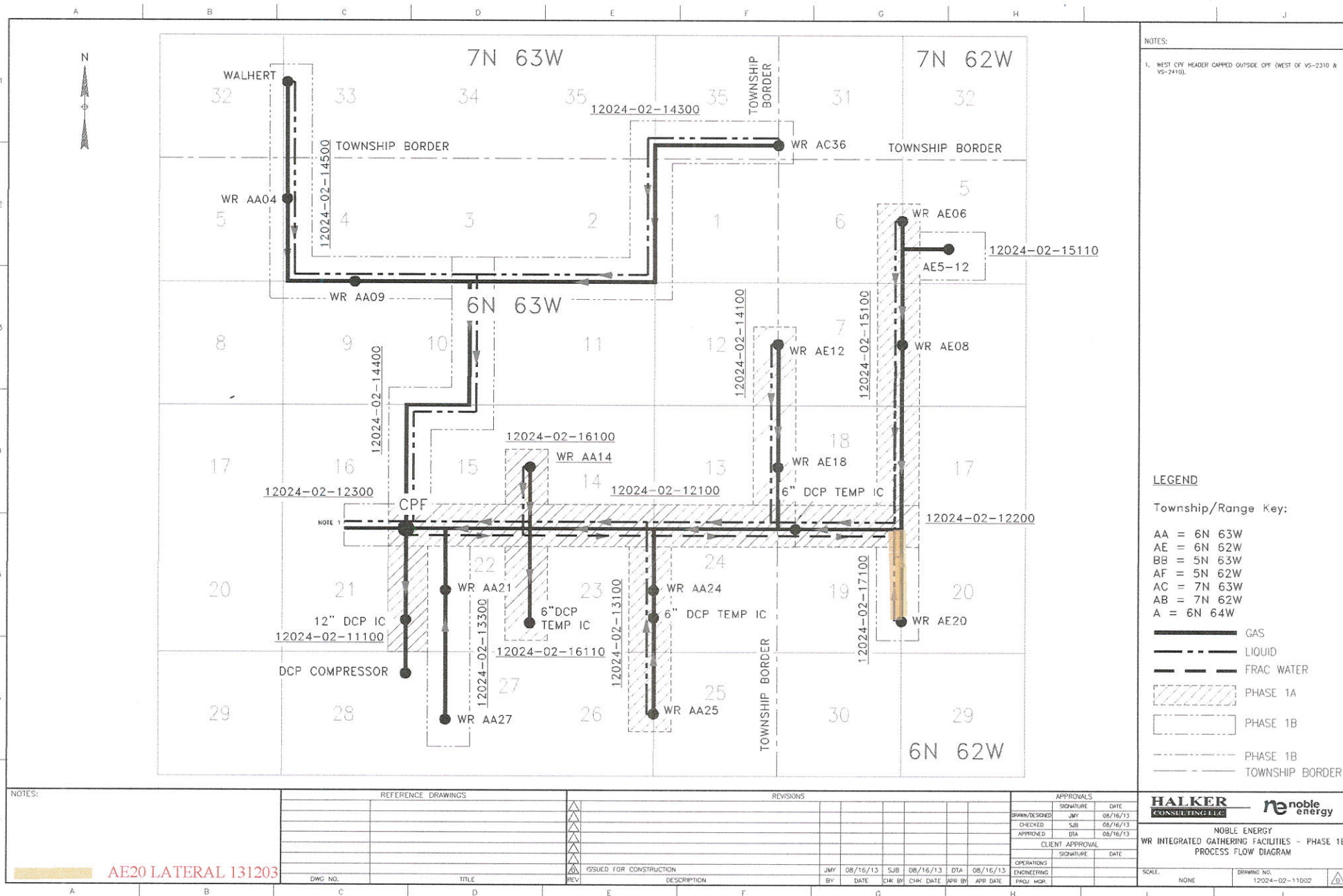
As Left Test Results

From 0 to 10000 psi

Temperature (Celsius)	Reference Reading (psi)	Indicated Reading (psi)	Condition	Difference (psi)	Relative Difference (% of reading)	Allowable Tolerance (psi)
-20	0.0	0	Pass	0.0		3.0
-20	2501.0	2501	Pass	0.0	0.000	3.0
-20	5003.1	5003	Pass	-0.1	-0.002	5.0
-20	7502.5	7503	Pass	0.5	0.007	7.5
-20	9943.7	9944	Pass	0.3	0.003	9.9
-20	10002.2	10003	Pass	0.8	0.008	10.0
-20	10147.6	10149	Pass	1.4	0.014	10.1
-20	7502.6	7503	Pass	0.4	0.005	7.5
10	0.0	0	Pass	0.0		3.0
10	2501.0	2501	Pass	0.0	0.000	3.0
10	5003.1	5004	Pass	0.9	0.018	5.0
10	7502.6	7503	Pass	0.4	0.005	7.5
10	9943.7	9945	Pass	1.3	0.013	9.9
10	10002.3	10003	Pass	0.7	0.007	10.0
10	10147.6	10149	Pass	1.4	0.014	10.1
10	7502.6	7504	Pass	1.4	0.019	7.5
20	0.0	0	Pass	0.0		3.0
20	2501.0	2501	Pass	0.0	0.000	3.0
20	5003.1	5003	Pass	-0.1	-0.002	5.0
20	7502.6	7503	Pass	0.4	0.005	7.5
20	9943.8	9945	Pass	1.2	0.012	9.9
20	10002.3	10003	Pass	0.7	0.007	10.0
20	10147.6	10148	Pass	0.4	0.004	10.1
20	7502.6	7503	Pass	0.4	0.005	7.5
30	0.0	0	Pass	0.0		3.0
30	2501.0	2501	Pass	0.0	0.000	3.0
30	5003.1	5003	Pass	-0.1	-0.002	5.0
30	7502.6	7503	Pass	0.4	0.005	7.5
30	9943.8	9945	Pass	1.2	0.012	9.9
30	10002.3	10003	Pass	0.7	0.007	10.0
30	10147.6	10149	Pass	1.4	0.014	10.1
30	7502.6	7503	Pass	0.4	0.005	7.5
50	0.0	0	Pass	0.0		3.0
50	2501.0	2501	Pass	0.0	0.000	3.0
50	5003.1	5003	Pass	-0.1	-0.002	5.0
50	7502.6	7503	Pass	0.4	0.005	7.5
50	9943.8	9944	Pass	0.2	0.002	9.9
50	10002.3	10003	Pass	0.7	0.007	10.0
50	10147.6	10148	Pass	0.4	0.004	10.1
50	7502.6	7503	Pass	0.4	0.005	7.5

Span multiplier: 1.00000

Manufacturer's specifications: 0-30% of Full Scale: $\pm 0.03\%$ of Full Scale: 30-100% of Full Scale: $\pm 0.10\%$ of Reading



[illegible]