WRL-08-TLE-100-L7
WRL-06-TLE-100-L7-2

noble energy

| | | | |
|---|---|---|---|
| **Client** | Noble Energy | **Issue:** | 1 |
| **Project:** | Wells Ranch 20 | **Rev:** | 0 |
| **Location:** | Gill, Co | **Rev. Date:** | 15-Jan-14 |
| **Project No.:** | 0 | **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

708 Fiero Lane, Suite 9, San Luis Obispo, CA, 93401
TEL (805) 595-5477 / FAX (805) 595-5466
www.crystalengineering.net

# Certificate of Calibration

ACCREDITED
CALIBRATION #2601.01

**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 |



Laboratory Representative
Jeremy Daniel

Quality Representative
Bruce Hitt

# Test Results

Report number 149662
Serial Number 251541

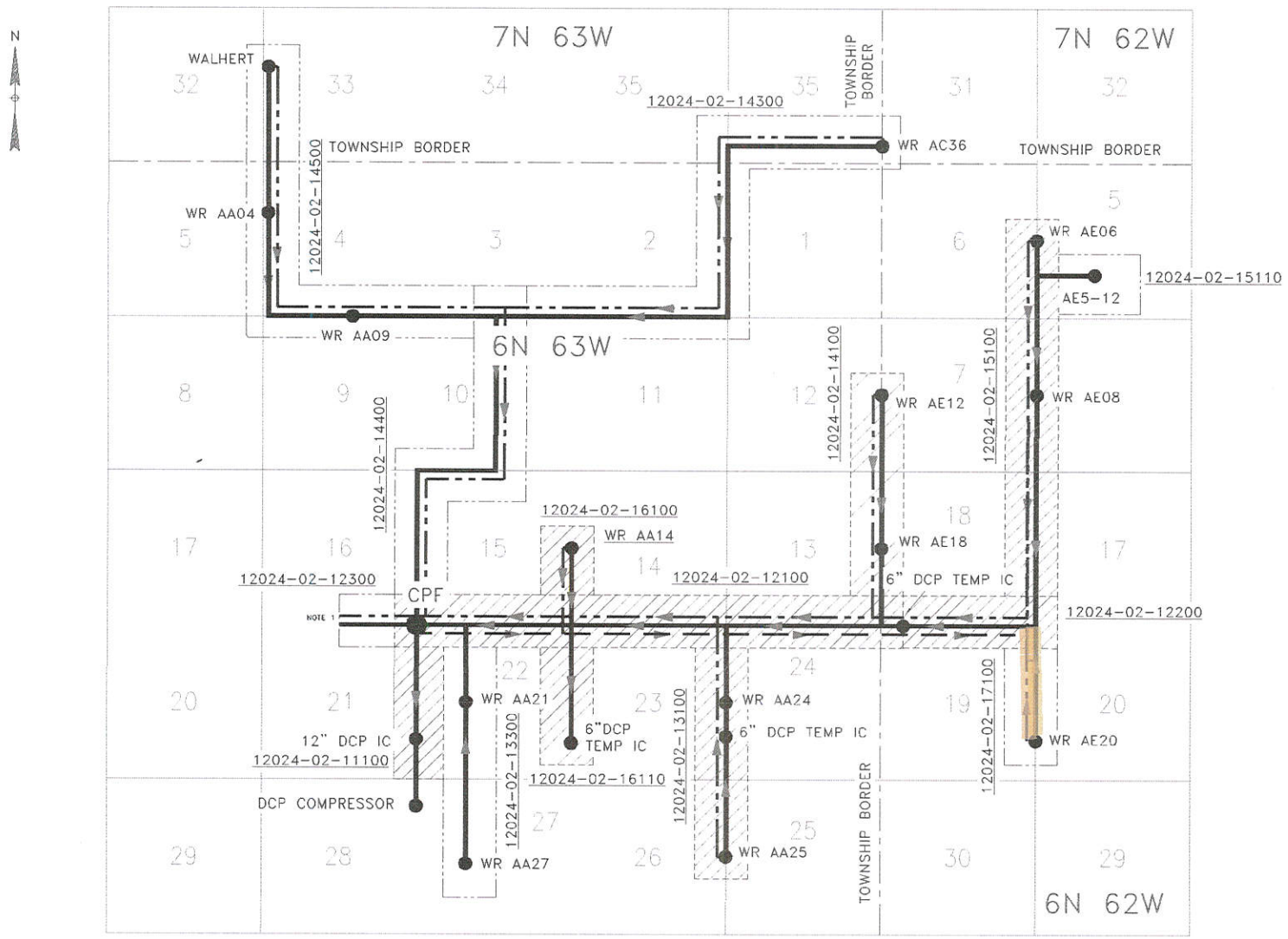
CRYSTAL
engineering corporation

## 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: ±0.03% of Full Scale: 30-100% of Full Scale: ±0.10% of Reading




NOTES:

1. WEST CPF HEADER CAPPED OUTSIDE CPF (WEST OF VS-2310 & VS-2410).

LEGEND

Township/Range Key:

AA = 6N 63W
AE = 6N 62W
BB = 5N 63W
AF = 5N 62W
AC = 7N 63W
AB = 7N 62W
A = 6N 64W

GAS
LIQUID
FRAC WATER
PHASE 1A
PHASE 1B
PHASE 1B
TOWNSHIP BORDER

NOTES:

AE20 LATERAL 131203

REFERENCE DRAWINGS

| DWG NO. | TITLE |
|---|---|

REVISIONS

| REV | DESCRIPTION | BY | DATE | CHK BY | CHK DATE | APR BY | APR DATE |
|---|---|---|---|---|---|---|---|
| 0 | ISSUED FOR CONSTRUCTION | JMY | 08/16/13 | SJB | 08/16/13 | DTA | 08/16/13 |

APPROVALS

| | SIGNATURE | DATE |
|---|---|---|
| DRAWN/DESIGNED | JMY | 08/16/13 |
| CHECKED | SJB | 08/16/13 |
| APPROVED | DTA | 08/16/13 |

CLIENT APPROVAL

| | SIGNATURE | DATE |
|---|---|---|
| OPERATIONS | | |
| ENGINEERING | | |
| PROJ MGR. | | |

HALKER CONSULTING LLC

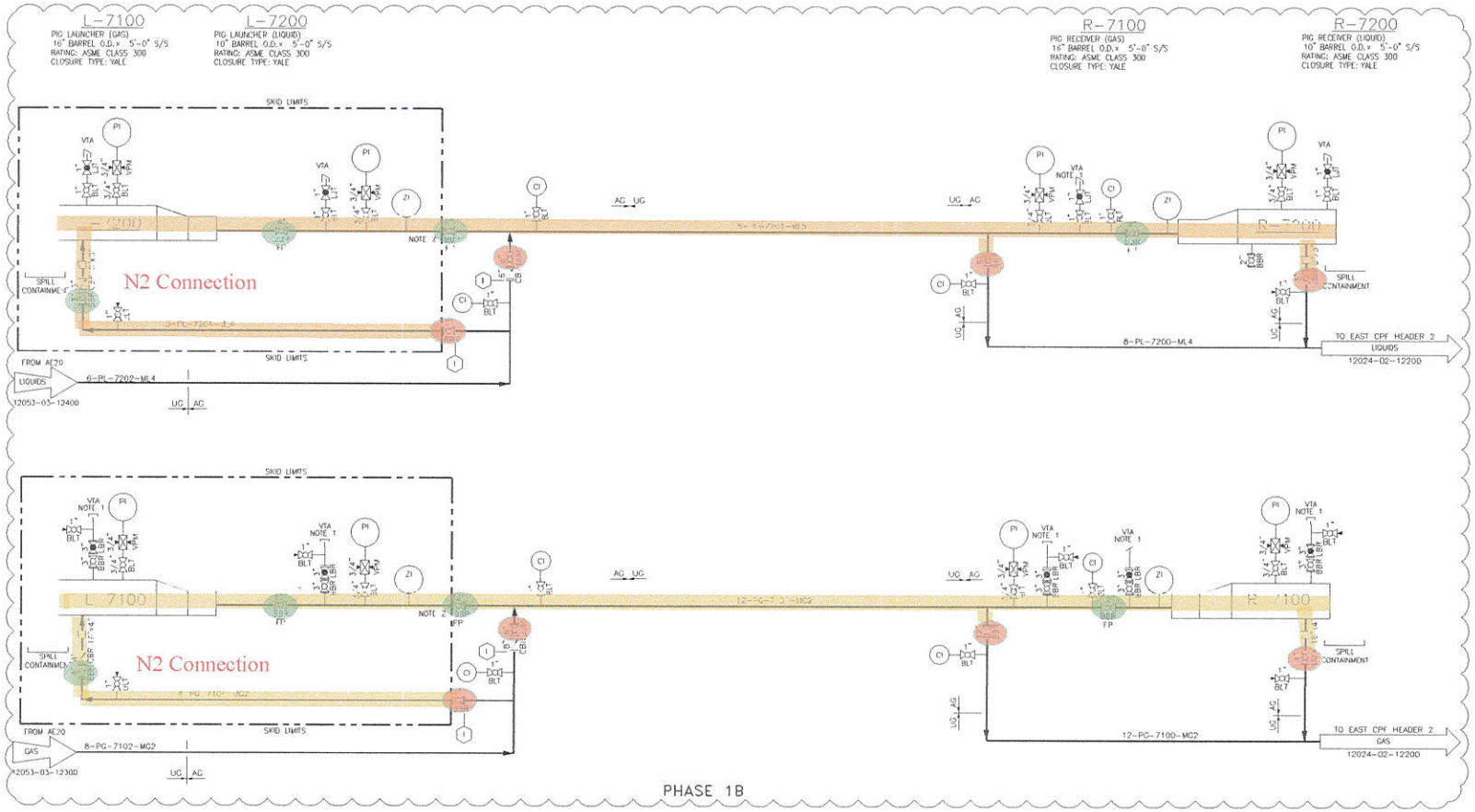
noble energy

NOBLE ENERGY
WR INTEGRATED GATHERING FACILITIES - PHASE 1B
PROCESS FLOW DIAGRAM

SCALE: NONE

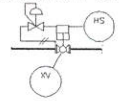
DRAWING NO. 12024-02-11002 0

FILE PATH: L:\NOBLE ENERGY\WELLS RANCH GATHERING SYSTEM PHASE 1B 12024-02\1.0 CAD DESIGN\1.0 PROCESS\12024-02-11002.DWG BY:STEVE.DARE Aug 16, 2013 4:38pm




NOTES:

1. VENT DISCHARGE SHALL BE NO LOWER THAN 8'-0" FROM GRADE.
2. SKID MOUNTED LAUNCHER IS MOBILE UNIT. FLANGE SET IS THE TIE-POINT FOR FUTURE GATHERING SYSTEM EXPANSION.
3. FOR PIGABLE PIPE, ALL ELBOWS SHALL HAVE A RADIUS NO LESS THAN 3 TIMES THE NOMINAL PIPE DIAMETER.
4. ALL INLINE TEES WILL BE BARRED TEES.
5. DELETED.
6. PROVIDE FREEZE PROTECTION FOR ALL ABOVE GROUND FRAC WATER LINES.
7. LOCK CLOSED ALL BALL VALVES THAT ARE BLINDED FOR FUTURE CONNECTION.
8. ALL BLIND FLANGES ARE TO HAVE A ½" NPT WITH ½" PLUGGED BALL VALVE.
9. PIPING SPECIFICATION MG3 SHALL BE USED FOR GAS SERVICE NEAR ROAD CROSSINGS.
10. ALL FP BALL VALVES LARGER THAN 12" SHALL BE ACTUATED. SEE DETAIL BELOW.




11. THE LOCATION AND FLOW DIRECTION OF GATHERING SYSTEM SHALL BE MARKED AT EACH MAIN LINE VALVE STATION AND LATERAL TIE-IN.

LEGEND

PHASE 1A

PHASE 1B

ABANDONED IN PLACE

NOTES:

REFERENCE DRAWINGS

| DWG NO. | TITLE |
|---|---|

REVISIONS

| REV | DESCRIPTION | BY | DATE | CHK BY | CHK DATE | APR BY | APR DATE |
|---|---|---|---|---|---|---|---|
| 0 | ISSUED FOR CONSTRUCTION | JMY | 08/16/13 | SJB | 08/16/13 | DTA | 08/16/13 |

APPROVALS

| | SIGNATURE | DATE |
|---|---|---|
| DRAWN/DESIGNED | JMY | 08/16/13 |
| CHECKED | SJB | 08/16/13 |
| APPROVED | DTA | 08/16/13 |

CLIENT APPROVAL

| | SIGNATURE | DATE |
|---|---|---|
| OPERATIONS | | |
| ENGINEERING | | |
| PROJ. MGR. | | |

HALKER CONSULTING LLC

noble energy

NOBLE ENERGY
WR INTEGRATED GATHERING FACILITIES - PHASE 1B
PIPING & INSTRUMENTATION DIAGRAM
LATERAL 7100

SCALE: NONE

DRAWING NO. 12024-02-17100 0

FILE PATH: L:\NOBLE ENERGY\WELLS RANCH GATHERING SYSTEM PHASE 1B 12024-02\1.0 CAD DESIGN\1.0 PROCESS\12024-02-17100.DWG BY:JVEVEL DATE:Aug 16, 2013 4:38pm