RELIANCE
OILFIELD SERVICES

# Pulsed Neutron Gamma Ray Casing Collar Log

| | |
|---|---|
| Company | TEP Rocky Mountain LLC |
| Well | Federal SG 11-22 |
| Field | Grand Valley |
| County | Garfield |
| State | Colorado |

Company TEP Rocky Mountain LLC
Well Federal SG 11-22
Field Grand Valley
County Garfield State Colorado
Location: API # : 05-045-24128
SEC 22 TWP 7S RGE 96W

Other Services
RBL

| | | | |
|---|---|---|---|
| Permanent Datum | Ground Level | Elevation | 6090.8' |
| Log Measured From | Kelly Bushing | 24 FT | |
| Drilling Measured From | Kelly Bushing | | |

Elevation
K.B. 6114.8'
D.F. ---
G.L. 6090.8'

| | | |
|---|---|---|
| Date | 14-MAR-2019 | |
| Run Number | Two | |
| Depth Driller | 6169 FT | |
| Depth Logger | 6119 FT | |
| Bottom Logged Interval | 6112 FT | |
| Top Log Interval | 2774 FT | |
| Open Hole Size | --- | |
| Type Fluid | Water | |
| Density / Viscosity | 8.34 lb/gal | |
| Max. Recorded Temp. | --- | |
| Estimated Cement Top | --- | |
| Time Well Ready | ROA | |
| Time Logger on Bottom | 22:15 | |
| Equipment Number | HD-0359 | |
| Location | Grand Junction, CO | |
| Recorded By | Z. Fisher | |
| Witnessed By | D.Welsh | |

| Borehole Record | | | | Tubing Record | | | |
|---|---|---|---|---|---|---|---|
| Run Number | Bit | From | To | Size | Weight | From | To |
| | | | | | | | |

| Casing Record | Size (in) | Wgt (lbs/Ft) | Grade | Top | Bottom |
|---|---|---|---|---|---|
| Surface Casing | 9 5/8 | 32.3 | H-40 | Surface | 1024 FT |
| Intermediate #1 | 4 1/2 | 11.6 | P-110 | Surface | 6130 FT |
| Intermediate #2 | | | | | |
| Liner | | | | | |

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

## Comments

Log ran as per customer request
Depth referenced to Reliance Bond Log dated 14-MAR-2019
Log ran from 6112 FT to 2774 FT
Pulsed Neutron Data logged with the Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!

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# Main Pass

| | |
|---|---|
| Database File | f:\data\tep\federal sg 11-22\pn\tep_federal sg 11-22_pn_03-14-19.db |
| Dataset Pathname | runSHIFTED/merge1 |
| Presentation Format | ros_pdn_hunter |
| Dataset Creation | Mon Mar 18 10:11:40 2019 |
| Charted by | Depth in Feet scaled 1:240 |

0 GR (GAPI) 150
Casing Collar Locator
-100 Line Speed (ft/min) 100
0 NIRS (cps) 400000
0 BKGN (cps) 4000
0 BKGF (cps) 2000

4 RNF2 0
60 SIGMA (cu) 0
4.5 RNFI 0
FIS2
0 (cps) 45000
NIS2
0 (cps100000

0 GR (GAPI) 150
Casing Collar Locator
-100 Line Speed (ft/min) 100
0 NIRS (cps) 400000
0 BKGN (cps) 4000
0 BKGF (cps) 2000

4 RNF2 0
60 SIGMA (cu) 0
4.5 RNFI 0
FIS2
0 (cps) 45000
NIS2
0 (cps100000

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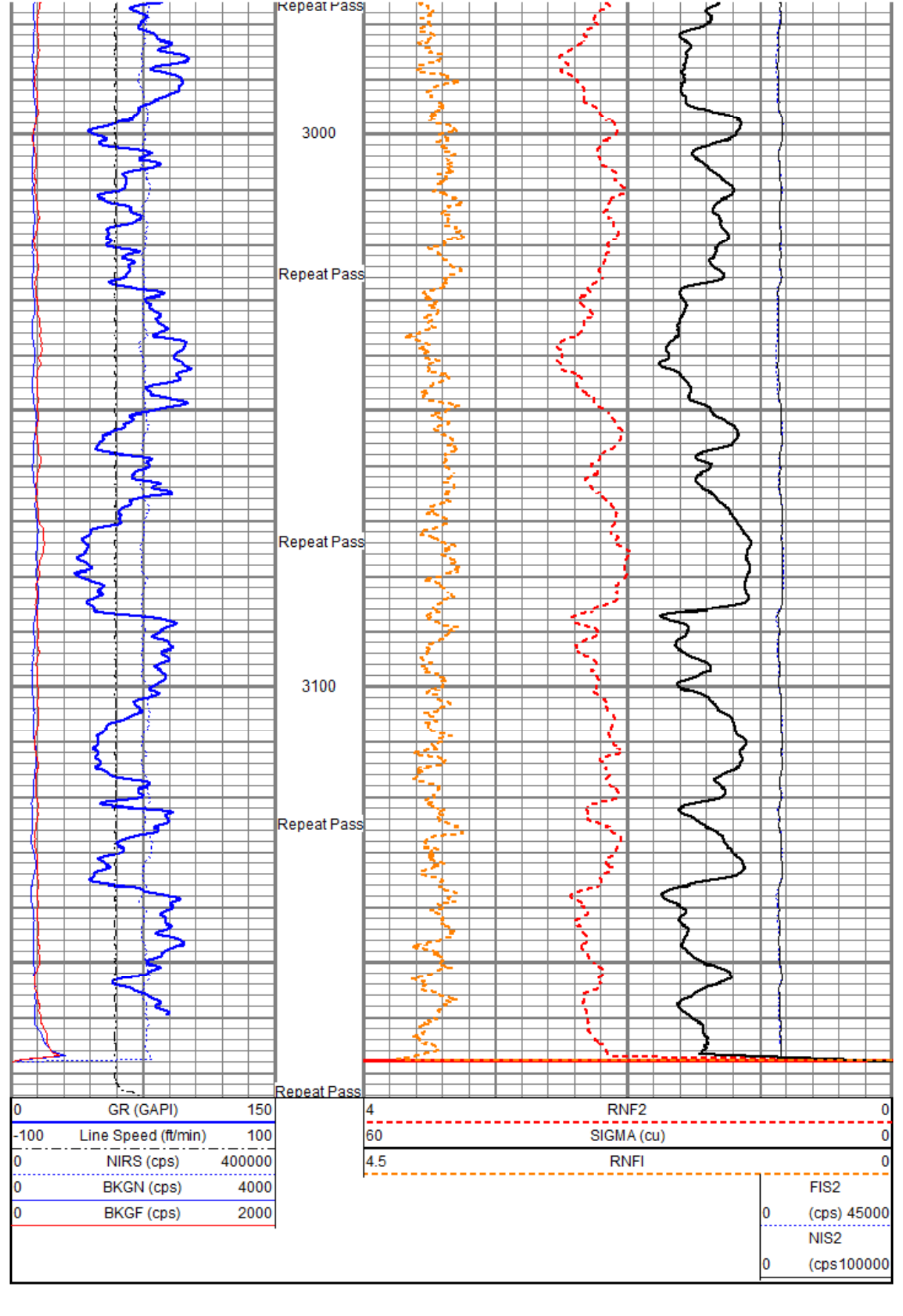
# Repeat Pass

| | |
|---|---|
| Database File | f:\data\tep\federal sg 11-22\pn\tep_federal sg 11-22_pn_03-14-19.db |
| Dataset Pathname | repeat1.2 |
| Presentation Format | ros_pdn_hunter |
| Dataset Creation | Fri Mar 15 02:42:01 2019 |
| Charted by | Depth in Feet scaled 1:240 |

0 GR (GAPI) 150
-100 Line Speed (ft/min) 100
0 NIRS (cps) 400000
0 BKGN (cps) 4000
0 BKGF (cps) 2000

4 RNF2 0
60 SIGMA (cu) 0
4.5 RNFI 0
FIS2
0 (cps) 45000
NIS2
0 (cps100000

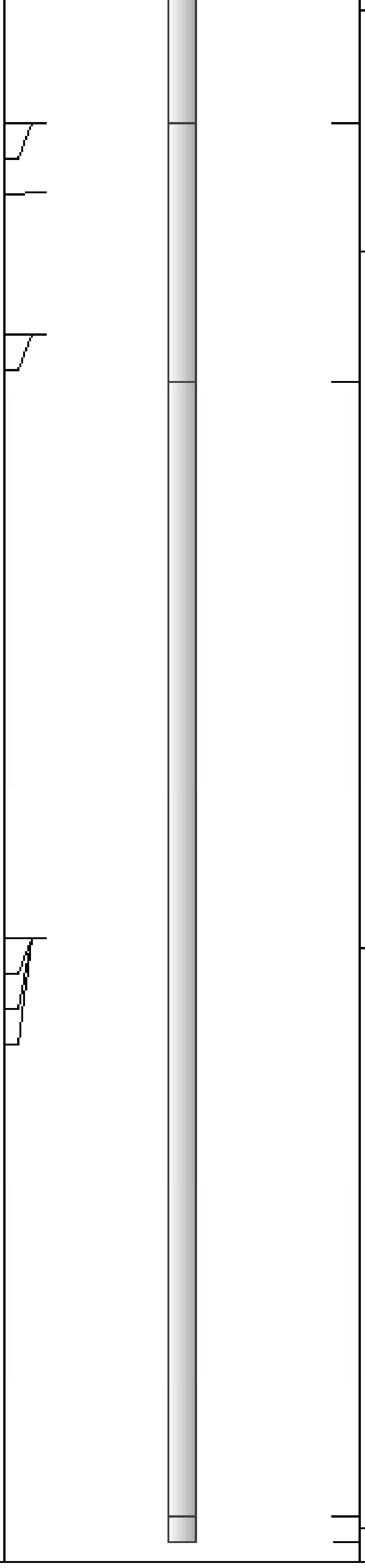


0 GR (GAPI) 150
-100 Line Speed (ft/min) 100
0 NIRS (cps) 400000
0 BKGN (cps) 4000
0 BKGF (cps) 2000

4 RNF2 0
60 SIGMA (cu) 0
4.5 RNFI 0
FIS2
0 (cps) 45000
NIS2
0 (cps100000

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb |
|---|---|---|---|---|---|---|
| | | | Titan CHD-16875 GO<br>Titan 1-11/16" Assembled Electric Cable Head w/ 1" Fishing Neck | 1.03 | 1.69 | 5.40 |

| | |
|---|---|
| TCUTEMP | 14.69 |
| TCUVOLT | 14.69 |
| GCL_CCL | 13.97 |
| GCL_GR | 12.50 |
| GCL_GR | 12.50 |
| Long | 6.25 |
| Far | 6.25 |
| Near | 6.25 |
| Anci | 6.25 |



| | | | |
|---|---|---|---|
| HWS_TCU-002 (001705)<br>HWS Telemetry Control Unit (TCU002) | 2.30 | 1.69 | 10.87 |
| HWS_GCL-001 (001475)<br>HWS Gamma Ray Collar Locator (1.6875") | 2.69 | 1.69 | 13.40 |
| HWS_RAS-RAS002 (003040)<br>Hunter Well Science Pulsed Neutron Tool | 11.75 | 1.69 | 55.82 |
| HWS_TBN-001 (001725)<br>HWS Terminator Bull Nose (1.6875") | 0.25 | 1.69 | 0.99 |

| | |
|---|---|
| Dataset: | tep_federal sg 11-22_pn_03-14-19.db: field/well/run1/main1.2 |
| Total length: | 18.02 ft |
| Total weight: | 86.48 lb |
| O.D.: | 1.69 in |

## Calibration Report

| | |
|---|---|
| Database File | f:\data\tep\federal sg 11-22\pn\tep_federal sg 11-22_pn_03-14-19.db |
| Dataset Pathname | main1.2 |
| Dataset Creation | Fri Mar 15 02:40:46 2019 |

## Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | 001475 | |
| Tool Model: | 001 | |
| Performed: | Fri Oct 19 14:55:00 2018 | |
| Calibrator Value: | 1.0 | GAPI |
| Background Reading: | 0.0 | |
| Calibrator Reading: | 1.0 | |
| Sensitivity: | 1.0000 | GAPI/ |

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