RELIANCE
OILFIELD SERVICES

# Pulsed Neutron Gamma Ray Casing Collar Log

Company TEP Rocky Mountain LLC
Well Clough NR 12-3
Field Rulison
County Garfield
State Colorado

| | |
|---|---|
| Company | TEP Rocky Mountain LLC |
| Well | Clough NR 12-3 |
| Field | Rulison |
| County | Garfield |
| State | Colorado |
| Location: | API # : 05-045-23921 |
| | SEC 3 TWP 6S RGE 94W |
| Other Services | RBL |
| Permanent Datum | Ground Level |
| Elevation | 6719.1' |
| Log Measured From | Kelly Bushing 24 FT |
| Drilling Measured From | Kelly Bushing |
| Elevation | K.B. 6743.1'<br>D.F. 6742.1'<br>G.L. 6719.1' |

| | |
|---|---|
| Date | 03-OCT-2018 |
| Run Number | One |
| Depth Driller | 10299 FT |
| Depth Logger | 10256 FT |
| Bottom Logged Interval | 10251 FT |
| Top Log Interval | 5875 FT |
| Open Hole Size | 8.750" |
| Type Fluid | Fresh Water |
| Density / Viscosity | 8.34 lb/gal |
| Max. Recorded Temp. | -- |
| Estimated Cement Top | -- |
| Time Well Ready | -- |
| Time Logger on Bottom | -- |
| Equipment Number | -- |
| Location | Grand Junction, CO |
| Recorded By | J.Donnelly |
| Witnessed By | -- |

| 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 | 36 | J-55 | Surface | 1128 FT |
| Intermediate #1 | 4 1/2 | 11.6 | P-110 | Surface | 10257 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 03-OCT-2018
Log ran from 10251 FT to 5875 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:\warrior data\tep\clough nr 12-3\pn\tep_clough nr 12-3_pn_10-03-18.db
Dataset Pathname merge1
Presentation Format ros_pdn_hunter
Dataset Creation Mon Oct 08 11:13:00 2018
Charted by Depth in Feet scaled 1:240

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

| | | |
|---|---|---|
| 4 | RNF2 | 0 |
| 60 | SIGMA (cu) | 0 |
| 4.5 | RNFI | 0 |
| 0 | FIS2 | 45000 |
| 0 | NIS2 | I00000 |

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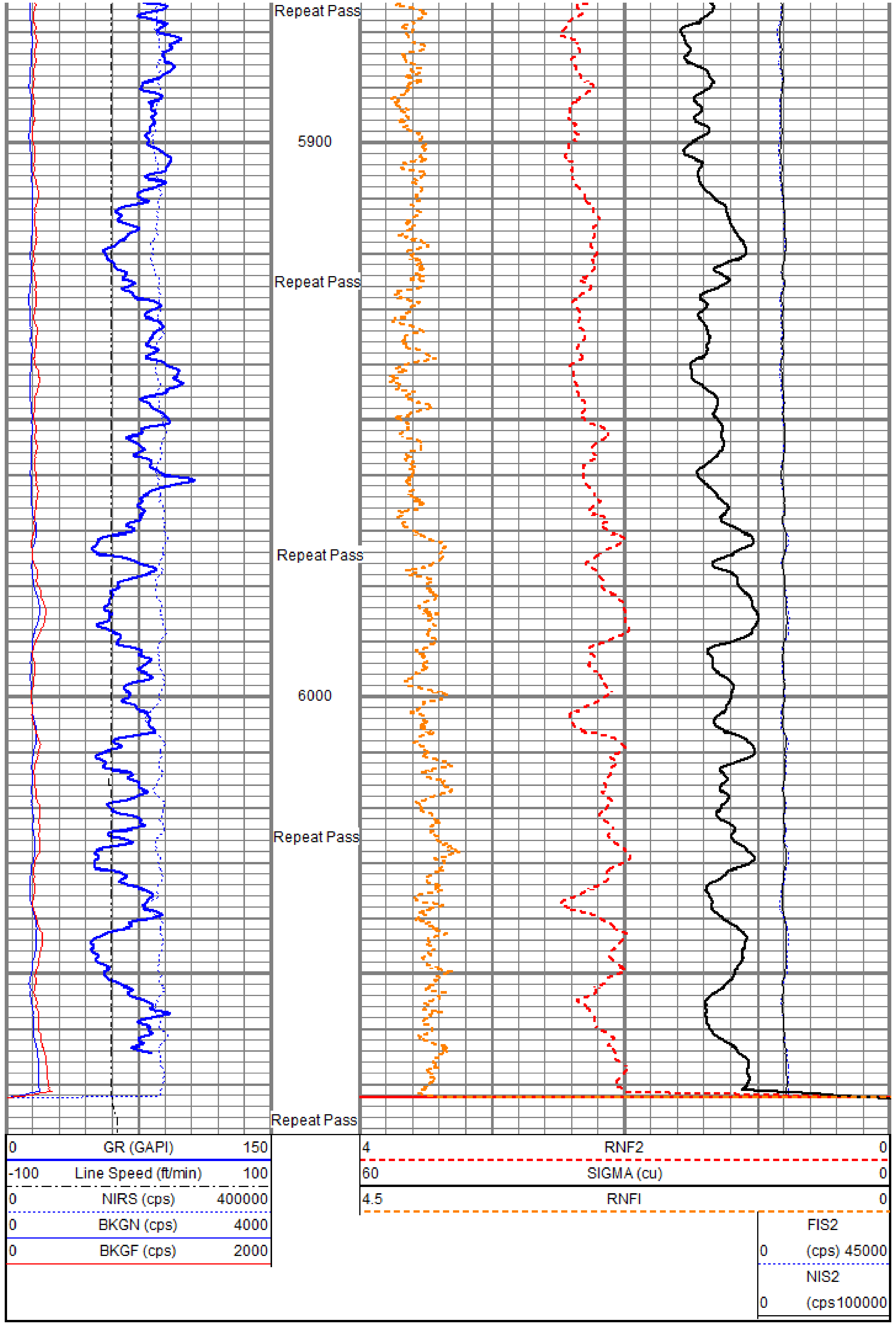
# Repeat Pass

Database File f:\warrior data\tep\clough nr 12-3\pn\tep_clough nr 12-3_pn_10-03-18.db
Dataset Pathname Repeat.2
Presentation Format ros_pdn_hunter
Dataset Creation Wed Oct 03 19:41:14 2018
Charted by Depth in Feet scaled 1:240

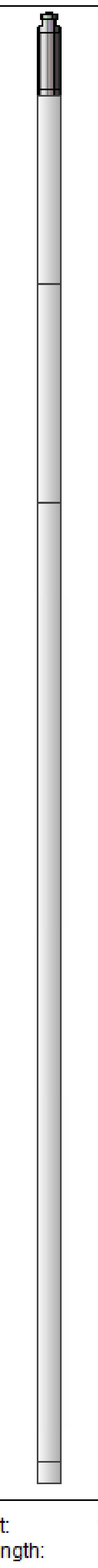
| | | |
|---|---|---|
| 0 | GR (GAPI) | 150 |
| -100 | Line Speed (ft/min) | 100 |
| 0 | NIRS (cps) | 400000 |
| 0 | BKGN (cps) | 4000 |
| 0 | BKGF (cps) | 2000 |

| | | |
|---|---|---|
| 4 | RNF2 | 0 |
| 60 | SIGMA (cu) | 0 |
| 4.5 | RNFI | 0 |
| 0 | FIS2 (cps) | 45000 |
| 0 | NIS2 (cps | 100000 |



| | | |
|---|---|---|
| 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 |
| 0 | FIS2 (cps) | 45000 |
| 0 | NIS2 (cps | 100000 |



| 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<br>TCUVOLT<br>GCL_CCL | 14.69<br>14.69<br>13.97 | | HWS_TCU-002 (001704)<br>HWS Telemetry Control Unit (TCU002) | 2.30 | 1.69 | 10.87 |
| GCL_GR<br>GCL_GR | 12.50<br>12.50 | | HWS_GCL-001 (001475)<br>HWS Gamma Ray Collar Locator (1.6875") | 2.69 | 1.69 | 13.40 |
| Long<br>Far<br>Near<br>Anci | 6.25<br>6.25<br>6.25<br>6.25 | | 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_clough nr 12-3_pn_10-03-18.db: field/well/run1/main.2
Total length: 18.02 ft
Total weight: 86.48 lb
O.D.: 1.69 in

## Calibration Report

Database File f:\warrior data\tep\clough nr 12-3\pn\tep_clough nr 12-3_pn_10-03-18.db
Dataset Pathname main.2
Dataset Creation Wed Oct 03 19:59:19 2018

### Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | 001475 | |
| Tool Model: | 001 | |
| Performed: | (Not Performed) | |
| Calibrator Value: | 1.0 | GAPI |
| Background Reading: | 0.0 | |
| Calibrator Reading: | 1.0 | |
| Sensitivity: | 1.0000 | GAPI/ |

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