



# MICRORESISTIVITY LOG

Pioneer Energy Services

|                                                 |                             |
|-------------------------------------------------|-----------------------------|
| Company OUTLAW WELL SERVICE, LLC                |                             |
| Well                                            | LOWRY #5-13                 |
| Field                                           | BRAY                        |
| County                                          | ROOKS                       |
| State                                           | KANSAS                      |
| Location: API #: 15-163-24308-00-00             |                             |
| SEC 20 TWP 8S RGE 19W                           |                             |
| 330' FSL & 890' FWL                             |                             |
| Permanent Datum                                 | GROUND LEVEL Elevation 2001 |
| Log Measured From                               | KELLY BUSHING               |
| Drilling Measured From                          | KELLY BUSHING               |
| Other Services<br>CNL/CDL<br>DIL                |                             |
| Elevation<br>K.B. 2009<br>D.F. N/A<br>G.L. 2001 |                             |
| Date                                            | 10/27/2015                  |
| Run Number                                      | ONE                         |
| Depth Driller                                   | 3530                        |
| Depth Logger                                    | 3532                        |
| Bottom Logged Interval                          | 3531                        |
| Top Log Interval                                | 2850                        |
| Casing Driller                                  | 8.625 @ 221                 |
| Casing Logger                                   | 222                         |
| Bit Size                                        | 7.875                       |
| Type Fluid in Hole                              | CHEMICAL                    |
| Salinity, ppm CL                                | 3200                        |
| Density / Viscosity                             | 9.0 63                      |
| pH / Fluid Loss                                 | 10.5 8.0                    |
| Source of Sample                                | Flowline                    |
| Rm @ Meas. Temp                                 | 0.68 @ 54                   |
| Rmt @ Meas. Temp                                | 0.51 @ 54                   |
| Rmc @ Meas. Temp                                | 0.92 @ 54                   |
| Source of Rmt / Rmc                             | Charts                      |
| Rm @ BHT                                        | 0.33 @ 111                  |
| Operating Rig Time                              | 3 HOURS                     |
| Max Rec. Temp. F                                | 111                         |
| Equipment Number                                | 91                          |
| Location                                        | Hays                        |
| Recorded By                                     | D. SCHMIDT                  |
| Witnessed By                                    | STEVE REED                  |

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

## Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

STOCKTON,  
WEST TO ROAD 258 (WEBSTER DAM),  
6 SOUTH TO Q ROAD, 1 3/4 WEST,  
NORTH INTO

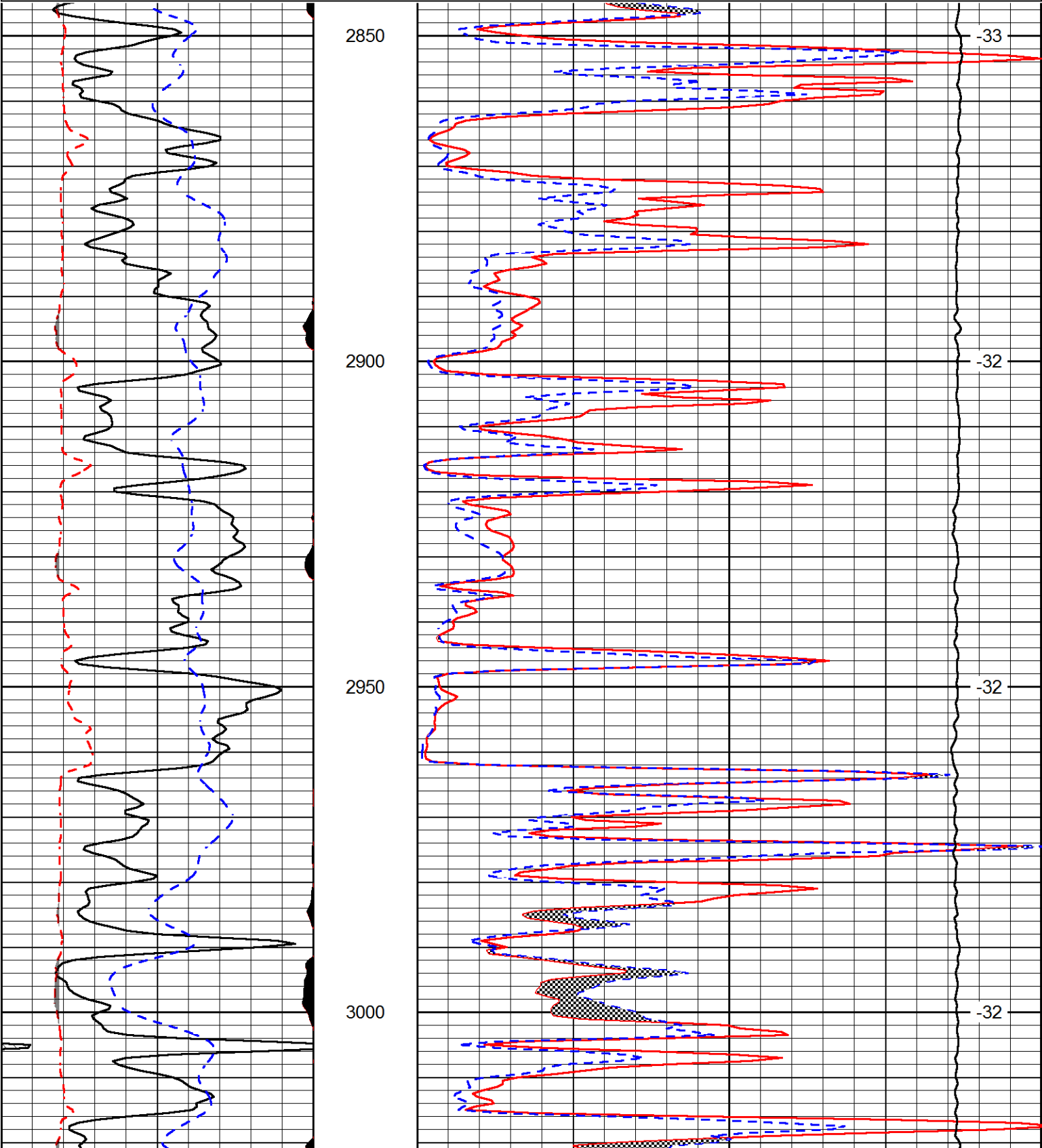
Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

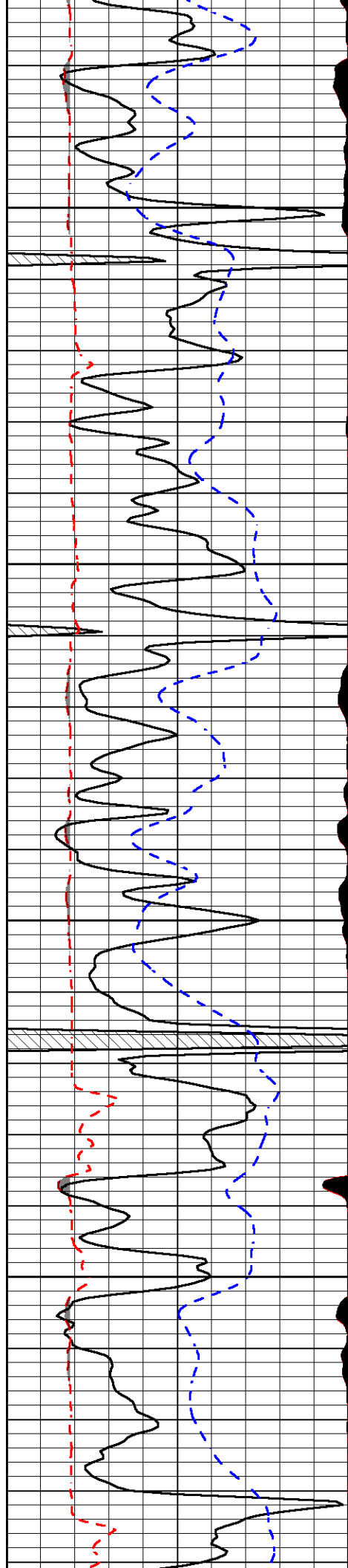
THANK YOU FOR USING PIONEER ENERGY SERVICES  
www.pioneerenergy.com 785-625-3858

|                                   |                                  |
|-----------------------------------|----------------------------------|
| Your Pioneer Energy Services Crew | This Log Record Was Witnessed By |
| Engineer: D. SCHMIDT              | Primary Witness: STEVE REED      |
| Operator:                         | Secondary Witness:               |
| Operator:                         | Secondary Witness:               |
| Operator:                         | Secondary Witness:               |

|                     |                            |
|---------------------|----------------------------|
| Database File       | outlaw_lowry#5_13hd.db     |
| Dataset Pathname    | DIL/oustkml                |
| Presentation Format | micro                      |
| Dataset Creation    | Tue Oct 27 05:11:57 2015   |
| Charted by          | Depth in Feet scaled 1:240 |

|       |                  |       |                  |                              |    |
|-------|------------------|-------|------------------|------------------------------|----|
| 0     | Gamma Ray (GAPI) | 150   | 0                | Micro Inverese 1 X 1 (Ohm-m) | 40 |
| 6     | MCAL (in)        | 16    | 0                | Micro Normal 2" (Ohm-m)      | 40 |
| 2.875 | Mud Cake (in)    | 7.875 | 10000            | Line Weight (lb)             | 0  |
| -200  | SP (mV)          | 0     | LSPD<br>(ft/min) |                              |    |



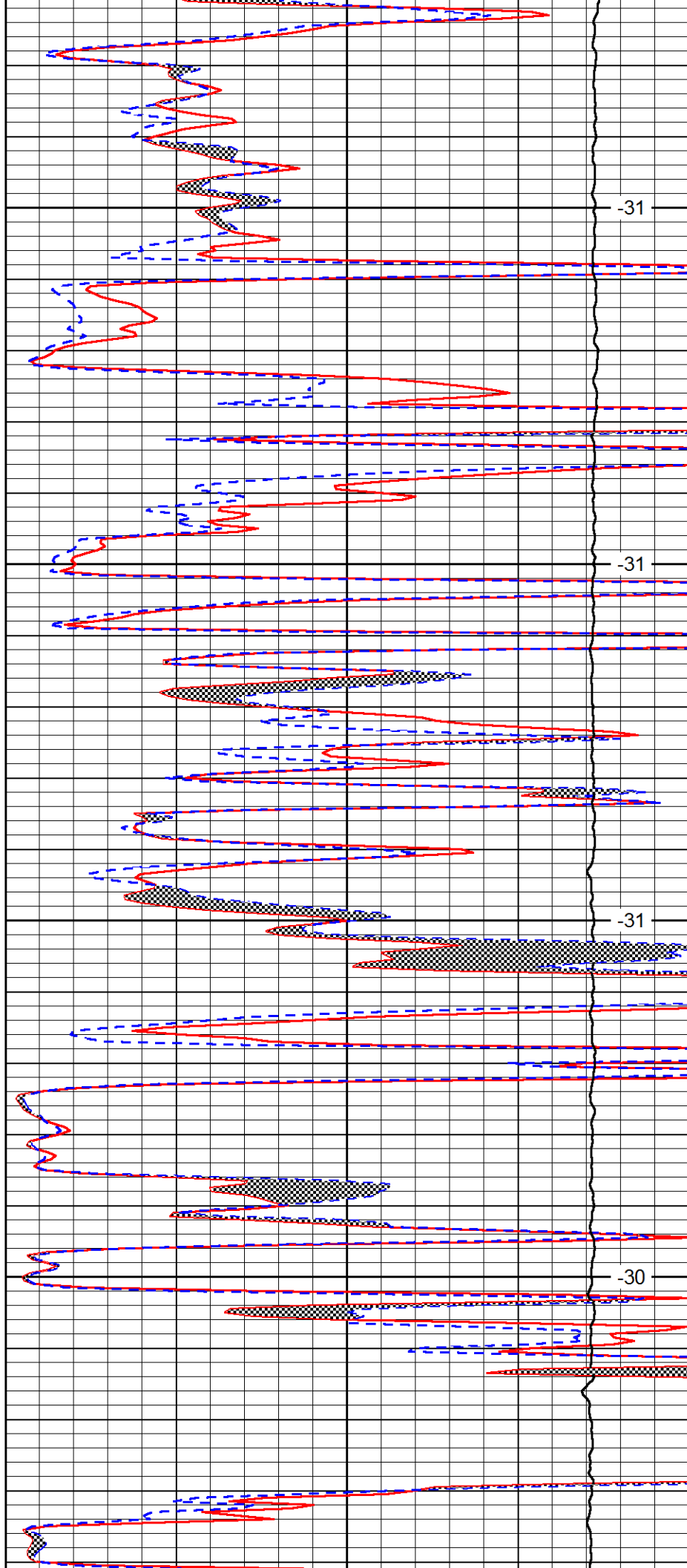


3050

3100

3150

3200

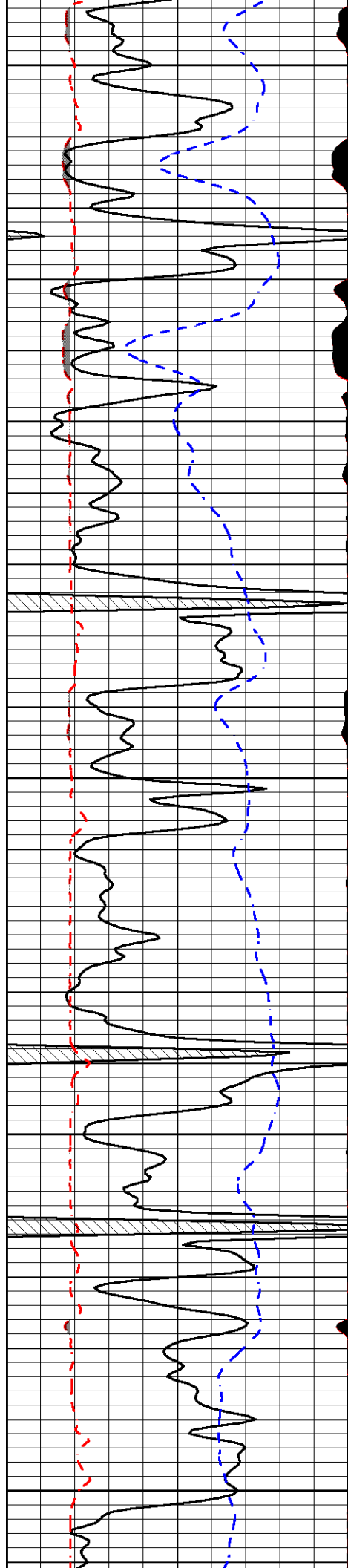


-31

-31

-31

-30



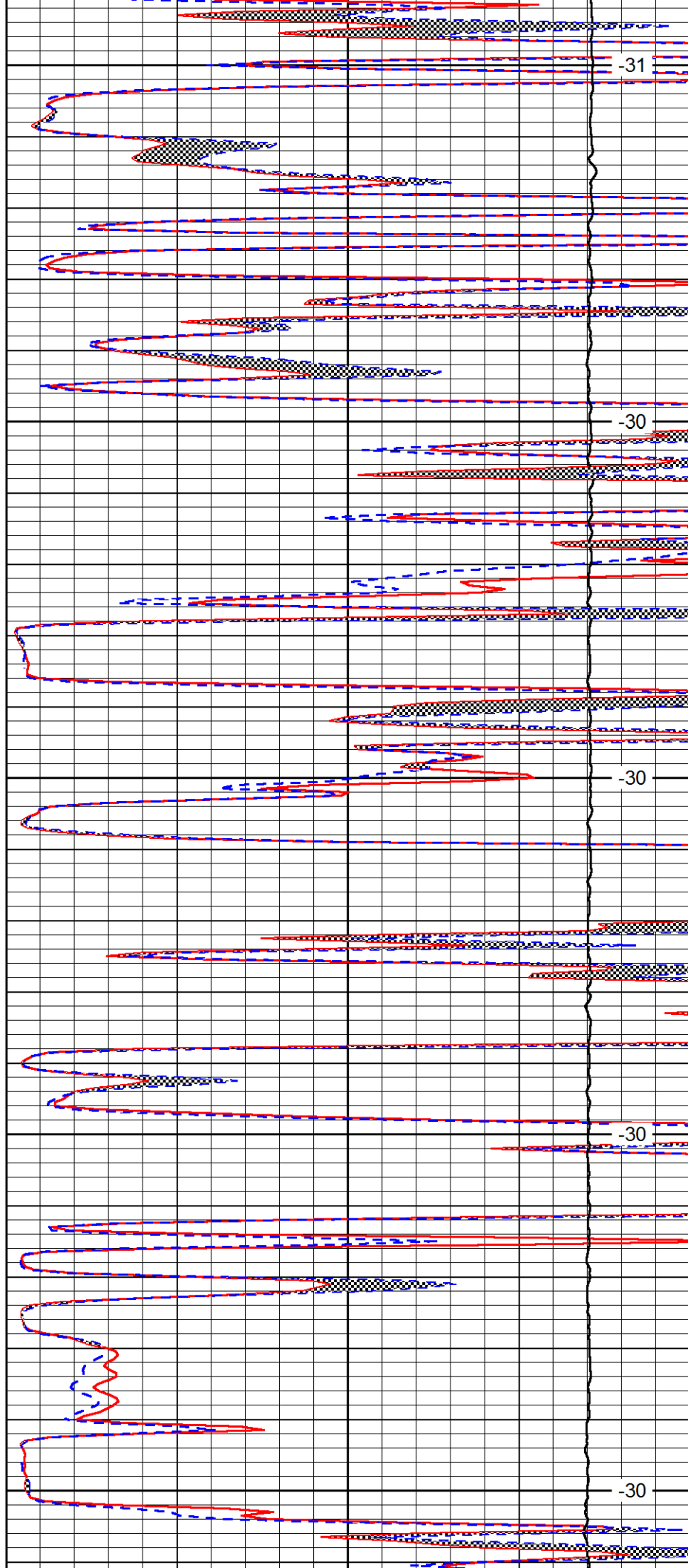
3250

3300

3350

3400

3450



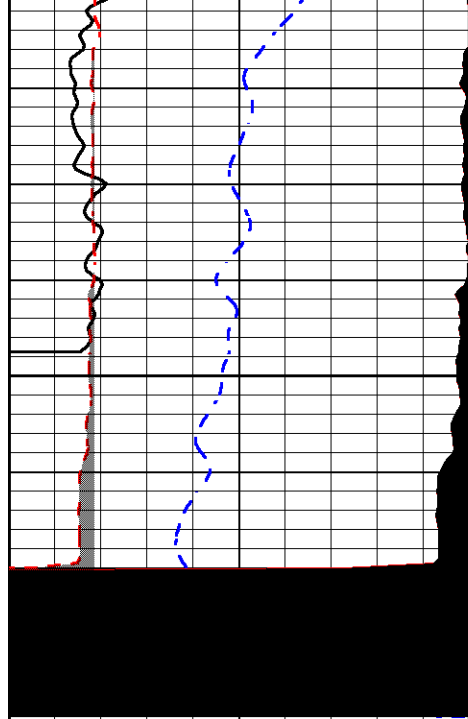
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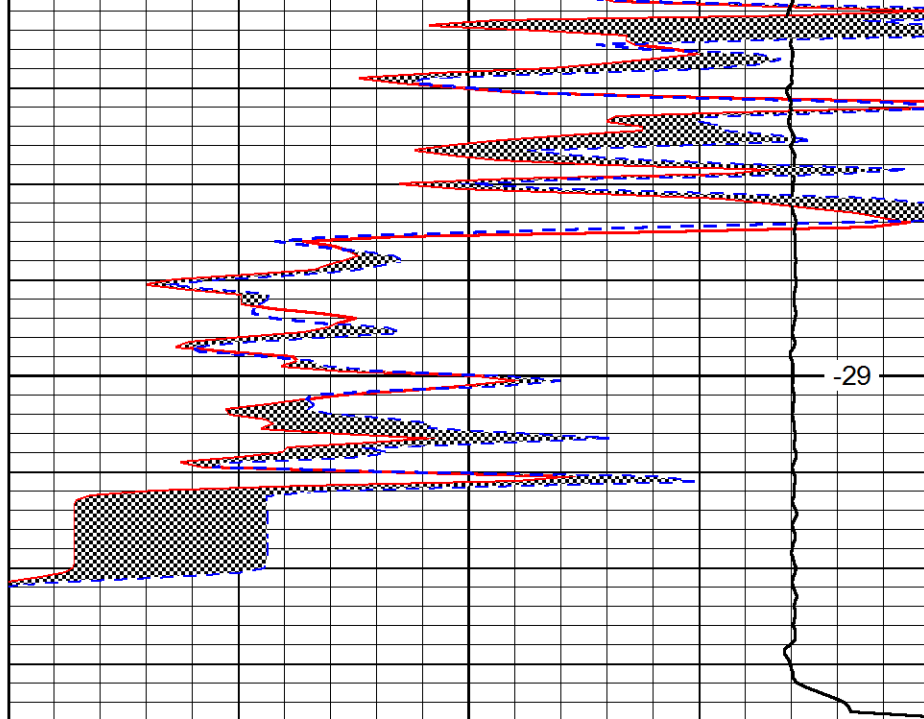
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LSPD  
(ft/min)