

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: November 30, 2000



WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other

b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

2. Name of Operator **DEVON ENERGY PRODUCTION CO L P** Contact: **KAREN COTTOM**
E-Mail: **karen.cottom@dvn.com**

3. Address **20 NORTH BROADWAY SUITE 1500** 3a. Phone No. (include area code)
OKLAHOMA CITY, OK 73102 Ph: **405.228.7512**

4. Location of Well (Report location clearly and in accordance with Federal requirements)*
At surface **NWSW 1520FSL 1065FWL**
At top prod interval reported below **NWSW 1520FSL 1065FWL**
At total depth **NWSW 1520FSL 1065FWL**

5. Lease Serial No.
NMNM81219

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.

8. Lease Name and Well No.
OLD RANCH CANYON 7 FEDERAL 8

9. API Well No.
30-015-33064-00-X1

10. Field and Pool, or Exploratory
INDIAN BASIN UPPER PENN ASSOC

11. Sec., T., R., M., or Block and Survey
or Area **Sec 8 T22S R24E Mer NMP**

12. County or Parish
EDDY

13. State
NM

14. Date Spudded
10/24/2003

15. Date T.D. Reached
12/03/2003

16. Date Completed
☐ D & A ☒ Ready to Prod.
12/24/2003

17. Elevations (DF, KB, RT, GL)*
4137 GL

18. Total Depth: **MD 8750** 19. Plug Back T.D.: **MD 8658** 20. Depth Bridge Plug Set: **MD**
TVD **TVD** **TVD**

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21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
CBLPEXCNLHRLANG

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☒ No ☐ Yes (Submit analysis)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
14.750	9.625 J55	36.0	0	1620		850		0	
8.750	7.000 J55	23.0	0	8750		565		4840	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	8468							

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) CISCO	8332	8552	8332 TO 8552		304	PRODUCING
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
8332 TO 8467	14,800 GAL 20% HCL
8476 TO 8552	15,000 GAL 20% HCL ACID

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
12/24/2003	01/30/2004	24	→	0.0	170.0	236.0			FEB - 9 FLOWS FROM WELL
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
	230	120.0	→	0	170	236		POW	LES BABYAK

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
	SI		→						

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #27665 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top
					Meas. Depth
CISCO	8323	8750		GLORIETA	2467
				BONE SPRING LIME	3297
				WOLFCAMP	7550
				CISCO	8174

32. Additional remarks (include plugging procedure):

12/19/03 - Drig out DV Tool
 12/21/03 - RIH logged TOC @4840', TIH w/4" csg gun perf Cisco 2 SPF 8476' - 8552 total
 153 holes
 12/22/03 - Acidized w/15,000 gal 20% HCl
 12/23/03 - RBP @ 8475 TIH w/4" csg gun perf'd 8437' - 67, Shot 8410' - 22, 8386' - 8402',
 8369' - 78', 8332' - 38' 2SPF, total 151 holes, acidized w/14,600 gal 20% HCL
 12/24/03 - RIH w/2 7/8" tbg set @ 8468

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7 Other: | |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #27665 Verified by the BLM Well Information System.
For DEVON ENERGY PRODUCTION CO L P, sent to the Carlsbad
Committed to AFMSS for processing by LINDA ASKWIG on 02/09/2004 (04LA0134SE)

Name (please print) KAREN COTTOM

Title ENGINEERING TECHNICIAN

Signature _____ (Electronic Submission)

Date 02/06/2004

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ****

WELL NAME AND NUMBER Old Ranch Canyon 7 Federal No. 8
Surface Hole: 1520' FSL & 1065' FWL, Section 8, T22S, R24E, Eddy County NM
LOCATION Bottom Hole: 660' FSL & 66' FEL, Section 7, T22S, R24E, Eddy County NM
OPERATOR Devon Energy Production Co., L.P.
DRILLING CONTRACTOR United Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling contractor who drilled the above described well and had conducted deviation tests and obtained the following results:

<u>Degrees @ Depth</u>	<u>Degrees @ Depth</u>	<u>Degrees @ Depth</u>
<u>1/2° 463'</u>	<u> </u>	<u> </u>
<u>3/4° 965'</u>	<u> </u>	<u> </u>
<u>3/4° 1610'</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
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FEB 09 2004

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Drilling Contractor United Drilling, Inc.

By: George A. Aho

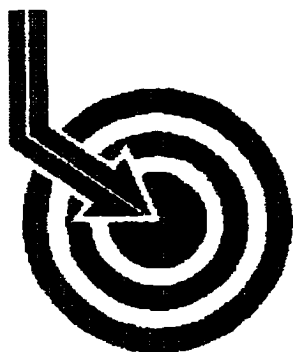
Title: Business Manager

Subscribed and sworn to before me this 4th day of November,
2003.

Carlene Martin
Notary Public

My Commission Expires: 10-04-04

Chaves New Mexico
County State

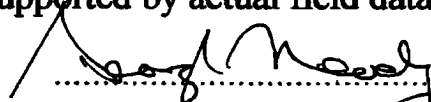


Scientific Drilling

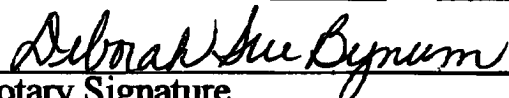
DEVON ENERGY

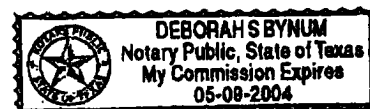
Field: Indian Basin
Site: Eddy County, NM
Well: Old Ranch Canyon 7 Fed. #8
Wellpath: VH - Job #32K1103597
Survey: 11/18/03

This survey is correct to the best of my knowledge
and is supported by actual field data.

.....Company Representative

Notorized this date 16th of December, 2003.


Notary Signature
County of Midland
State of Texas



Scientific Drilling Survey Report

Company: DEVON ENERGY Field: Indian Basin Site: Eddy County, NM Well: Old Ranch Canyon 7 Fed. #8 Wellpath: VH - Job #32K1103597	Date: 12/15/2003 Time: 17:54:10 Page: 1 Co-ordinate(NE) Reference: Site: Eddy County, NM, True North Vertical (TVD) Reference: SITE 0.0 Section (VS) Reference: Well (0.00N,0.00E,247.39Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: 11/18/03 KSRG 0'-2630' Company: Scientific Drilling Tool: Keeper, Keeper Gyro	Start Date: 11/18/2003 Engineer: Angel Guebara Tied-to: From Surface
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Survey

MD ft	Incl deg	Azima deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.0	0.00	0.03	0.0	0.0	0.0	0.0	0.00	0.0	0.00
100.0	0.48	153.38	100.0	0.0	-0.4	0.2	0.48	0.4	153.38
200.0	0.57	145.45	200.0	-0.2	-1.2	0.7	0.12	1.3	150.43
300.0	0.44	166.34	300.0	-0.2	-1.9	1.0	0.22	2.2	152.05
400.0	0.43	149.53	400.0	-0.2	-2.6	1.3	0.13	2.9	153.57
500.0	0.33	186.60	500.0	-0.1	-3.2	1.5	0.26	3.6	155.67
600.0	0.18	209.54	600.0	0.2	-3.7	1.4	0.18	3.9	159.70
700.0	0.49	339.55	700.0	0.3	-3.4	1.1	0.62	3.6	161.63
800.0	1.01	311.89	800.0	0.6	-2.4	0.3	0.62	2.4	172.33
900.0	1.35	297.59	900.0	1.8	-1.3	-1.4	0.45	1.9	226.96
1000.0	1.36	301.43	999.9	3.2	-0.1	-3.4	0.09	3.4	268.02
1100.0	1.38	301.81	1099.9	4.6	1.1	-5.5	0.01	5.6	281.67
1200.0	1.07	301.08	1199.9	5.8	2.2	-7.3	0.29	7.6	287.10
1300.0	1.12	331.80	1299.9	6.5	3.6	-8.5	0.58	9.2	292.77
1400.0	1.19	336.15	1399.8	6.6	5.4	-9.4	0.11	10.8	299.81
1500.0	1.22	341.86	1499.8	6.5	7.3	-10.2	0.12	12.5	305.89
1600.0	1.13	336.58	1599.8	6.5	9.3	-10.9	0.14	14.3	310.42
1700.0	1.23	334.03	1699.8	6.6	11.1	-11.7	0.11	16.2	313.48
1800.0	0.94	334.15	1799.8	6.7	12.8	-12.6	0.29	18.0	315.61
1900.0	1.09	340.22	1899.7	6.7	14.5	-13.2	0.18	19.8	317.53
2000.0	0.87	323.66	1999.7	6.8	16.0	-14.0	0.36	21.3	318.74
2100.0	0.80	331.31	2099.7	7.1	17.2	-14.8	0.13	22.7	319.28
2200.0	0.63	314.49	2199.7	7.3	18.2	-15.5	0.27	23.9	319.52
2300.0	0.66	314.53	2299.7	7.8	19.0	-16.3	0.03	25.0	319.30
2400.0	0.53	321.60	2399.7	8.1	19.8	-17.0	0.15	26.1	319.23
2500.0	0.71	321.67	2499.7	8.4	20.6	-17.7	0.18	27.2	319.33
2600.0	0.77	316.29	2599.7	8.8	21.6	-18.6	0.09	28.5	319.31
2630.0	0.72	310.60	2629.7	9.0	21.8	-18.8	0.30	28.8	319.23

**Scientific
Drilling**

Field: Indian Basin

Site: Eddy County, NM

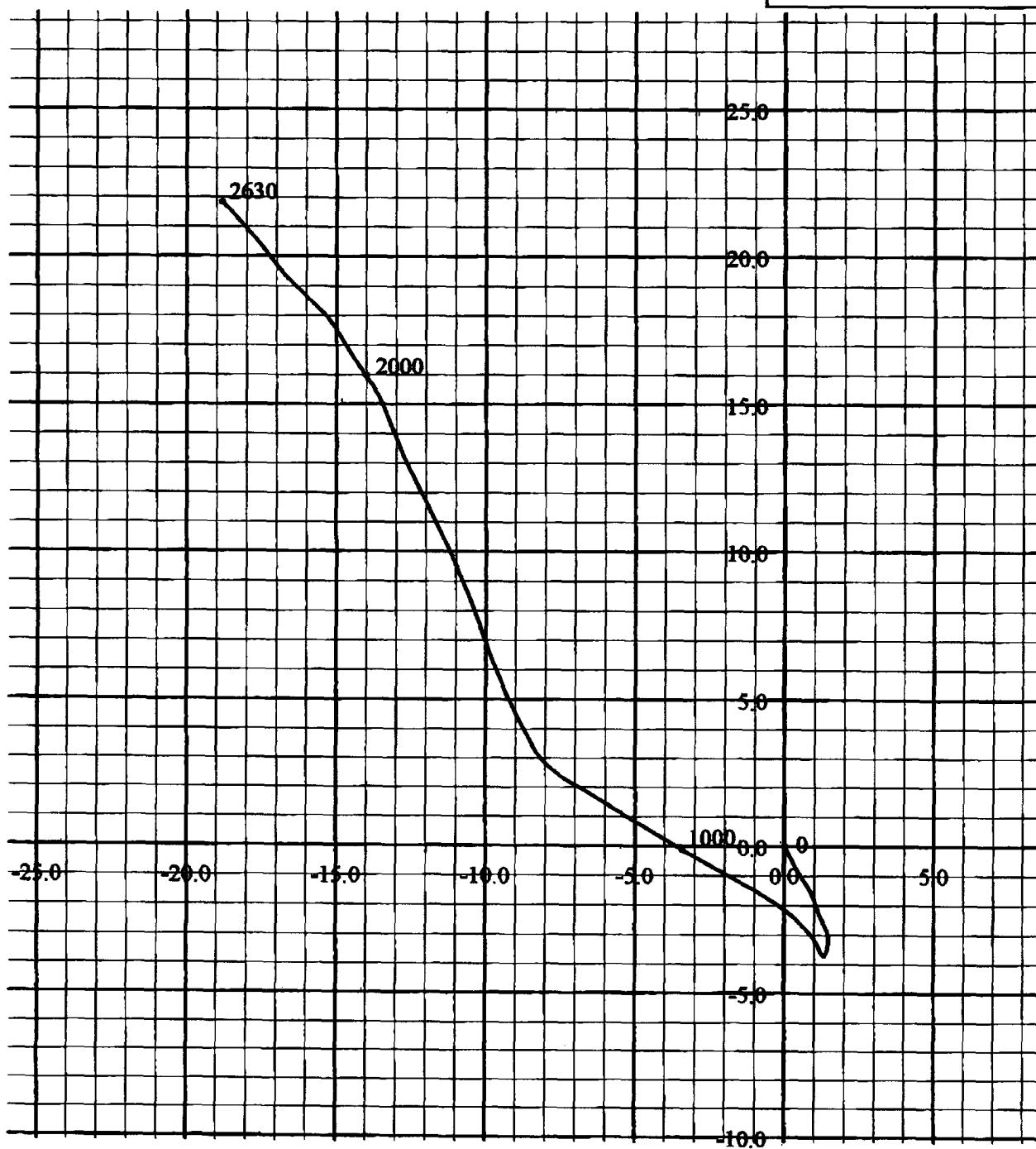
Well: Old Ranch Canyon 7 Fed. #8

Wellpath: VH - Job #32K1103597

Survey: 11/18/03

Azimuths to True North
Magnetic North: 0.00°Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 12/15/2003
Model: Wmm_95

South(-)/North(+) [5ft/in]



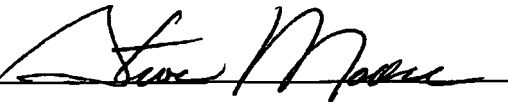
West(-)/East(+) [5ft/in]

OPERATOR: DEVON ENERGY PROD. CO. LP
WELL/LEASE: OLD RANCH CANYON 7 FED. 8
COUNTY: EDDY

005-0027

STATE OF NEW MEXICO
DEVIATION REPORT

1,860	1
2,096	1
2,330	1/4
2,568	1/2

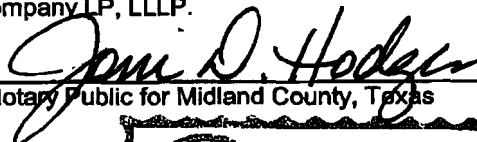
By: 

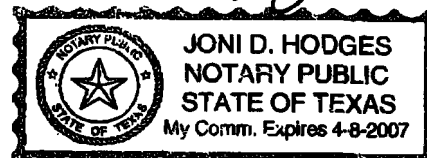
STATE OF TEXAS

COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me on this 16th day of December, 2003, by
Steve Moore on behalf of Patterson-UTI Drilling Company LP, LLLP.

My Commission Expires: 4/08/2007


Notary Public for Midland County, Texas



Find

Field: Indian Basin Eddy County, New Mexico USA Map System: US State Plane Geo Datum: NAD27 (Clarke 1866) Sys Datum: Mean Sea Level Coordinate System: 1927 Map Zone: New Mexico, Eastern Zone Coordinate System: Site Centre Geomagnetic Model: igr2000																																																																																																																																																																																																																																																																																																								
Site: Old Ranch Canyon "7" Site Position: Northing: 510167.31 ft Latitude: 32 24 9.183 N From: Map Easting: 482047.55 ft Longitude: 104 23 29.404 W Position Uncertainty: 0.00 ft North Reference: True Ground Level: 0.00 ft Grid Convergence: -0.03 deg																																																																																																																																																																																																																																																																																																								
Well: Federal #8 Slot Name: Well Position: +N-S 0.00 ft Northing: 510167.31 ft Latitude: 32 24 9.183 N + E-W 0.00 ft Easting: 482047.55 ft Longitude: 104 23 29.404 W Position Uncertainty: 0.00 ft																																																																																																																																																																																																																																																																																																								
Wellpath: 1 Current Datum: SITE Magnetic Data: 10/29/2003 Field Strength: 49544 nT Vertical Section: Depth From (TVD) +N-S ft ft 0.00 0.00 0.00 247.39 Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 9.03 deg Mag Dip Angle: 60.45 deg +E-W Direction ft deg																																																																																																																																																																																																																																																																																																								
Survey: Survey #1 Start Date: 11/20/2003 Company: Quantum Drilling Motors Engineer: Jeff Shoop Tool: MWD, Tied-to: User Defined																																																																																																																																																																																																																																																																																																								
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<table border="1"> <thead> <tr> <th>MWD</th> <th>Inc</th> <th>Angle</th> <th>Angle</th> <th>Angle</th> <th>Angle</th> <th>Angle</th> <th>Angle</th> <th>Angle</th> <th>Angle</th> <th>Tool/Comment</th> </tr> <tr> <th>ft</th> <th>deg</th> <th>deg</th> <th>deg</th> <th>deg</th> <th>deg</th> <th>deg</th> <th>deg</th> <th>deg</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr><td>2630.00</td><td>0.72</td><td>310.60</td><td>2629.68</td><td>21.84</td><td>-18.84</td><td>9.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>MWD</td></tr> <tr><td>2717.83</td><td>0.90</td><td>309.62</td><td>2717.50</td><td>22.64</td><td>-19.79</td><td>9.56</td><td>0.20</td><td>0.20</td><td>-1.12</td><td>Begin Build @ 1.5"/100'</td></tr> <tr><td>2720.00</td><td>0.90</td><td>309.60</td><td>2719.67</td><td>22.66</td><td>-19.81</td><td>9.58</td><td>0.20</td><td>0.20</td><td>-0.89</td><td>MWD</td></tr> <tr><td>2782.00</td><td>2.20</td><td>258.90</td><td>2781.65</td><td>22.74</td><td>-21.36</td><td>10.97</td><td>2.86</td><td>2.10</td><td>-81.77</td><td>MWD</td></tr> <tr><td>2845.00</td><td>2.40</td><td>258.60</td><td>2844.60</td><td>22.25</td><td>-23.84</td><td>13.45</td><td>0.32</td><td>0.32</td><td>-0.48</td><td>MWD</td></tr> <tr><td>2908.00</td><td>2.40</td><td>259.50</td><td>2907.54</td><td>21.75</td><td>-26.43</td><td>16.04</td><td>0.06</td><td>0.00</td><td>1.43</td><td>MWD</td></tr> <tr><td>3002.00</td><td>4.50</td><td>250.30</td><td>3001.37</td><td>20.14</td><td>-31.83</td><td>21.64</td><td>2.30</td><td>2.23</td><td>-9.79</td><td>MWD</td></tr> <tr><td>3065.00</td><td>4.20</td><td>246.70</td><td>3064.19</td><td>18.40</td><td>-36.28</td><td>26.42</td><td>0.64</td><td>-0.48</td><td>-5.71</td><td>MWD</td></tr> <tr><td>3159.00</td><td>6.30</td><td>251.30</td><td>3157.79</td><td>15.38</td><td>-44.33</td><td>35.01</td><td>2.28</td><td>2.23</td><td>4.89</td><td>MWD</td></tr> <tr><td>3222.00</td><td>7.30</td><td>246.80</td><td>3220.34</td><td>12.70</td><td>-51.28</td><td>42.46</td><td>1.80</td><td>1.59</td><td>-7.14</td><td>MWD</td></tr> <tr><td>3316.00</td><td>9.00</td><td>249.30</td><td>3313.39</td><td>7.75</td><td>-63.65</td><td>55.78</td><td>1.85</td><td>1.81</td><td>2.66</td><td>MWD</td></tr> <tr><td>3412.00</td><td>10.80</td><td>250.50</td><td>3407.96</td><td>2.09</td><td>-79.15</td><td>72.27</td><td>1.89</td><td>1.87</td><td>1.25</td><td>MWD</td></tr> <tr><td>3507.00</td><td>12.20</td><td>246.90</td><td>3501.05</td><td>-4.82</td><td>-96.78</td><td>91.19</td><td>1.66</td><td>1.47</td><td>-3.79</td><td>MWD</td></tr> <tr><td>3601.00</td><td>13.60</td><td>244.70</td><td>3592.68</td><td>-13.44</td><td>-115.91</td><td>112.17</td><td>1.58</td><td>1.49</td><td>-2.34</td><td>MWD</td></tr> <tr><td>3696.00</td><td>14.90</td><td>244.10</td><td>3684.75</td><td>-23.55</td><td>-136.99</td><td>135.52</td><td>1.38</td><td>1.37</td><td>-0.63</td><td>MWD</td></tr> <tr><td>3790.00</td><td>16.10</td><td>243.10</td><td>3775.33</td><td>-34.73</td><td>-159.49</td><td>160.58</td><td>1.31</td><td>1.28</td><td>-1.06</td><td>MWD</td></tr> <tr><td>3885.00</td><td>17.20</td><td>247.80</td><td>3866.35</td><td>-46.04</td><td>-184.22</td><td>187.76</td><td>1.78</td><td>1.16</td><td>4.74</td><td>MWD</td></tr> <tr><td>3978.00</td><td>18.70</td><td>246.50</td><td>3954.82</td><td>-57.23</td><td>-210.61</td><td>216.42</td><td>1.65</td><td>1.61</td><td>-1.18</td><td>MWD</td></tr> <tr><td>4104.00</td><td>19.70</td><td>245.60</td><td>4073.81</td><td>-74.05</td><td>-248.47</td><td>257.85</td><td>0.83</td><td>0.79</td><td>-0.71</td><td>MWD</td></tr> <tr><td>4197.00</td><td>20.60</td><td>245.20</td><td>4161.12</td><td>-87.39</td><td>-277.60</td><td>289.86</td><td>0.98</td><td>0.97</td><td>-0.43</td><td>MWD</td></tr> <tr><td>4261.00</td><td>22.20</td><td>245.30</td><td>4220.70</td><td>-97.17</td><td>-298.81</td><td>313.20</td><td>2.50</td><td>2.50</td><td>0.16</td><td>MWD</td></tr> <tr><td>4324.00</td><td>24.10</td><td>246.40</td><td>4278.63</td><td>-107.29</td><td>-321.41</td><td>337.96</td><td>3.09</td><td>3.02</td><td>1.75</td><td>MWD</td></tr> <tr><td>4382.72</td><td>25.44</td><td>245.81</td><td>4331.95</td><td>-117.26</td><td>-343.90</td><td>362.55</td><td>2.32</td><td>2.28</td><td>-1.01</td><td>End of Build</td></tr> <tr><td>4416.00</td><td>26.20</td><td>245.50</td><td>4361.90</td><td>-123.23</td><td>-357.11</td><td>377.04</td><td>2.32</td><td>2.28</td><td>-0.93</td><td>MWD</td></tr> </tbody> </table>											MWD	Inc	Angle	Angle	Angle	Angle	Angle	Angle	Angle	Angle	Tool/Comment	ft	deg	deg	deg	deg	deg	deg	deg	deg	deg		2630.00	0.72	310.60	2629.68	21.84	-18.84	9.00	0.00	0.00	0.00	MWD	2717.83	0.90	309.62	2717.50	22.64	-19.79	9.56	0.20	0.20	-1.12	Begin Build @ 1.5"/100'	2720.00	0.90	309.60	2719.67	22.66	-19.81	9.58	0.20	0.20	-0.89	MWD	2782.00	2.20	258.90	2781.65	22.74	-21.36	10.97	2.86	2.10	-81.77	MWD	2845.00	2.40	258.60	2844.60	22.25	-23.84	13.45	0.32	0.32	-0.48	MWD	2908.00	2.40	259.50	2907.54	21.75	-26.43	16.04	0.06	0.00	1.43	MWD	3002.00	4.50	250.30	3001.37	20.14	-31.83	21.64	2.30	2.23	-9.79	MWD	3065.00	4.20	246.70	3064.19	18.40	-36.28	26.42	0.64	-0.48	-5.71	MWD	3159.00	6.30	251.30	3157.79	15.38	-44.33	35.01	2.28	2.23	4.89	MWD	3222.00	7.30	246.80	3220.34	12.70	-51.28	42.46	1.80	1.59	-7.14	MWD	3316.00	9.00	249.30	3313.39	7.75	-63.65	55.78	1.85	1.81	2.66	MWD	3412.00	10.80	250.50	3407.96	2.09	-79.15	72.27	1.89	1.87	1.25	MWD	3507.00	12.20	246.90	3501.05	-4.82	-96.78	91.19	1.66	1.47	-3.79	MWD	3601.00	13.60	244.70	3592.68	-13.44	-115.91	112.17	1.58	1.49	-2.34	MWD	3696.00	14.90	244.10	3684.75	-23.55	-136.99	135.52	1.38	1.37	-0.63	MWD	3790.00	16.10	243.10	3775.33	-34.73	-159.49	160.58	1.31	1.28	-1.06	MWD	3885.00	17.20	247.80	3866.35	-46.04	-184.22	187.76	1.78	1.16	4.74	MWD	3978.00	18.70	246.50	3954.82	-57.23	-210.61	216.42	1.65	1.61	-1.18	MWD	4104.00	19.70	245.60	4073.81	-74.05	-248.47	257.85	0.83	0.79	-0.71	MWD	4197.00	20.60	245.20	4161.12	-87.39	-277.60	289.86	0.98	0.97	-0.43	MWD	4261.00	22.20	245.30	4220.70	-97.17	-298.81	313.20	2.50	2.50	0.16	MWD	4324.00	24.10	246.40	4278.63	-107.29	-321.41	337.96	3.09	3.02	1.75	MWD	4382.72	25.44	245.81	4331.95	-117.26	-343.90	362.55	2.32	2.28	-1.01	End of Build	4416.00	26.20	245.50	4361.90	-123.23	-357.11	377.04	2.32	2.28	-0.93	MWD
MWD	Inc	Angle	Angle	Angle	Angle	Angle	Angle	Angle	Angle	Tool/Comment																																																																																																																																																																																																																																																																																														
ft	deg	deg	deg	deg	deg	deg	deg	deg	deg																																																																																																																																																																																																																																																																																															
2630.00	0.72	310.60	2629.68	21.84	-18.84	9.00	0.00	0.00	0.00	MWD																																																																																																																																																																																																																																																																																														
2717.83	0.90	309.62	2717.50	22.64	-19.79	9.56	0.20	0.20	-1.12	Begin Build @ 1.5"/100'																																																																																																																																																																																																																																																																																														
2720.00	0.90	309.60	2719.67	22.66	-19.81	9.58	0.20	0.20	-0.89	MWD																																																																																																																																																																																																																																																																																														
2782.00	2.20	258.90	2781.65	22.74	-21.36	10.97	2.86	2.10	-81.77	MWD																																																																																																																																																																																																																																																																																														
2845.00	2.40	258.60	2844.60	22.25	-23.84	13.45	0.32	0.32	-0.48	MWD																																																																																																																																																																																																																																																																																														
2908.00	2.40	259.50	2907.54	21.75	-26.43	16.04	0.06	0.00	1.43	MWD																																																																																																																																																																																																																																																																																														
3002.00	4.50	250.30	3001.37	20.14	-31.83	21.64	2.30	2.23	-9.79	MWD																																																																																																																																																																																																																																																																																														
3065.00	4.20	246.70	3064.19	18.40	-36.28	26.42	0.64	-0.48	-5.71	MWD																																																																																																																																																																																																																																																																																														
3159.00	6.30	251.30	3157.79	15.38	-44.33	35.01	2.28	2.23	4.89	MWD																																																																																																																																																																																																																																																																																														
3222.00	7.30	246.80	3220.34	12.70	-51.28	42.46	1.80	1.59	-7.14	MWD																																																																																																																																																																																																																																																																																														
3316.00	9.00	249.30	3313.39	7.75	-63.65	55.78	1.85	1.81	2.66	MWD																																																																																																																																																																																																																																																																																														
3412.00	10.80	250.50	3407.96	2.09	-79.15	72.27	1.89	1.87	1.25	MWD																																																																																																																																																																																																																																																																																														
3507.00	12.20	246.90	3501.05	-4.82	-96.78	91.19	1.66	1.47	-3.79	MWD																																																																																																																																																																																																																																																																																														
3601.00	13.60	244.70	3592.68	-13.44	-115.91	112.17	1.58	1.49	-2.34	MWD																																																																																																																																																																																																																																																																																														
3696.00	14.90	244.10	3684.75	-23.55	-136.99	135.52	1.38	1.37	-0.63	MWD																																																																																																																																																																																																																																																																																														
3790.00	16.10	243.10	3775.33	-34.73	-159.49	160.58	1.31	1.28	-1.06	MWD																																																																																																																																																																																																																																																																																														
3885.00	17.20	247.80	3866.35	-46.04	-184.22	187.76	1.78	1.16	4.74	MWD																																																																																																																																																																																																																																																																																														
3978.00	18.70	246.50	3954.82	-57.23	-210.61	216.42	1.65	1.61	-1.18	MWD																																																																																																																																																																																																																																																																																														
4104.00	19.70	245.60	4073.81	-74.05	-248.47	257.85	0.83	0.79	-0.71	MWD																																																																																																																																																																																																																																																																																														
4197.00	20.60	245.20	4161.12	-87.39	-277.60	289.86	0.98	0.97	-0.43	MWD																																																																																																																																																																																																																																																																																														
4261.00	22.20	245.30	4220.70	-97.17	-298.81	313.20	2.50	2.50	0.16	MWD																																																																																																																																																																																																																																																																																														
4324.00	24.10	246.40	4278.63	-107.29	-321.41	337.96	3.09	3.02	1.75	MWD																																																																																																																																																																																																																																																																																														
4382.72	25.44	245.81	4331.95	-117.26	-343.90	362.55	2.32	2.28	-1.01	End of Build																																																																																																																																																																																																																																																																																														
4416.00	26.20	245.50	4361.90	-123.23	-357.11	377.04	2.32	2.28	-0.93	MWD																																																																																																																																																																																																																																																																																														

Quantum Drilling Motors

Survey Report

Survey: Survey #1										
MD	DBP	ASST	WOB	WOB	WOB	WOB	WOB	WOB	WOB	WOB
4479.00	26.00	248.90	4418.48	-135.08	-382.16	404.72	1.16	-0.32	-2.54	MWD
4573.00	25.90	248.60	4503.00	-152.30	-419.51	445.82	1.26	-0.11	2.87	MWD
4667.00	26.90	245.50	4587.20	-169.27	-457.70	487.60	1.18	1.06	-1.17	MWD
4800.00	27.40	245.20	4705.55	-194.58	-512.88	548.25	0.39	0.38	-0.23	MWD
4895.00	26.50	244.20	4790.23	-212.97	-551.79	591.26	1.06	-0.95	-1.05	MWD
5021.00	26.60	245.30	4902.94	-237.00	-602.72	647.51	0.40	0.08	0.87	MWD
5115.00	25.50	245.10	4987.39	-254.31	-640.20	688.76	1.17	-1.17	-0.21	MWD
5208.00	25.60	247.30	5071.30	-270.49	-676.89	728.86	1.03	0.11	2.37	MWD
5303.00	27.30	245.70	5156.35	-287.03	-715.84	771.17	1.81	1.79	-0.63	MWD
5335.00	26.90	245.40	5184.84	-292.83	-729.21	785.75	1.32	-1.25	-0.94	MWD
5461.00	26.40	248.00	5297.45	-315.64	-780.92	842.25	0.42	-0.40	-0.32	MWD
5555.00	25.50	246.60	5381.97	-332.17	-818.58	883.37	1.00	-0.96	0.64	MWD
5617.00	25.20	248.20	5438.00	-342.38	-843.09	909.92	1.21	-0.48	2.58	MWD
5680.00	25.90	249.60	5494.84	-352.15	-868.43	937.08	1.47	1.11	2.22	MWD
5744.00	25.90	249.80	5552.42	-361.85	-894.65	965.01	0.14	0.00	0.31	MWD
5807.00	27.70	248.10	5608.65	-372.07	-921.16	993.40	3.11	2.86	-2.70	MWD
5838.00	27.60	248.10	5636.11	-377.43	-934.50	1007.79	0.32	-0.32	0.00	MWD
5902.00	27.90	246.90	5692.75	-388.84	-962.03	1037.58	0.99	0.47	-1.87	MWD
5964.00	28.50	247.60	5747.39	-400.16	-989.05	1066.88	1.11	0.97	1.13	MWD
6028.00	27.10	247.50	5804.00	-411.56	-1016.64	1096.73	2.19	-2.19	-0.16	MWD
6091.00	26.40	248.50	5860.26	-422.19	-1042.93	1125.08	1.32	-1.11	1.59	MWD
6182.00	26.00	248.30	5941.91	-436.98	-1080.28	1165.25	0.45	-0.44	-0.22	MWD
6245.00	27.10	249.00	5998.26	-447.22	-1106.51	1193.41	1.82	1.75	1.11	MWD
6276.00	27.00	249.10	6025.87	-452.27	-1119.68	1207.50	0.35	-0.32	0.32	MWD
6308.00	26.70	250.10	6054.42	-457.30	-1133.22	1221.94	1.69	-0.94	3.12	MWD
6359.24	27.68	250.18	6100.00	-465.26	-1155.24	1245.32	1.91	1.90	0.16	Average Angle 25°
6371.00	27.90	250.20	6110.40	-467.11	-1160.40	1250.80	1.91	1.90	0.15	MWD
6403.00	27.80	249.00	6138.70	-472.33	-1174.41	1265.74	1.78	-0.31	-3.75	MWD
6497.00	27.40	249.10	6222.00	-487.90	-1215.08	1309.27	0.43	-0.43	0.11	MWD
6527.00	26.90	249.30	6248.69	-492.76	-1227.88	1322.95	1.69	-1.67	0.67	MWD
6591.00	27.30	250.00	6305.67	-502.90	-1255.21	1352.08	0.80	0.62	1.09	MWD
6623.00	26.90	249.20	6334.16	-507.98	-1268.88	1366.65	1.69	-1.25	-2.50	MWD
6684.00	27.20	250.00	6388.48	-517.64	-1294.88	1394.37	0.77	0.49	1.31	MWD
6748.00	28.50	251.20	6445.07	-527.57	-1323.08	1424.22	2.21	2.03	1.87	MWD
6811.00	28.20	249.10	6500.51	-537.72	-1351.21	1454.10	1.65	-0.48	-3.33	MWD
6872.00	26.90	249.00	6554.80	-547.81	-1377.56	1482.30	2.13	-2.13	-0.16	MWD
6936.00	25.30	249.00	6612.07	-557.90	-1403.85	1510.44	2.50	-2.50	0.00	MWD
6998.00	26.20	248.80	6667.91	-567.60	-1428.98	1537.37	1.46	1.45	-0.32	MWD
7060.00	25.30	249.20	6723.75	-577.25	-1454.12	1564.29	1.48	-1.45	0.65	MWD
7124.00	25.70	250.50	6781.52	-586.74	-1479.99	1591.82	1.07	0.62	2.03	MWD
7187.00	27.20	251.80	6837.92	-595.80	-1506.54	1619.81	2.55	2.38	2.06	MWD
7250.00	28.30	248.60	6893.88	-605.74	-1534.13	1649.10	2.94	1.75	-5.08	MWD
7311.00	28.30	248.30	6947.39	-616.37	-1561.03	1678.02	0.23	0.00	-0.49	MWD
7375.00	28.20	247.80	7003.77	-627.69	-1589.12	1708.31	0.40	-0.16	-0.78	MWD
7438.00	27.70	247.70	7059.42	-638.87	-1616.45	1737.84	0.80	-0.79	-0.16	MWD
7502.00	27.20	246.60	7116.21	-650.32	-1643.64	1767.34	1.11	-0.78	-1.72	MWD
7565.00	24.90	248.00	7172.81	-661.01	-1669.15	1795.00	3.78	-3.65	2.22	MWD
7680.00	19.80	249.40	7280.64	-674.17	-1702.78	1831.10	5.40	-5.37	1.47	MWD
7722.00	16.80	250.10	7319.50	-680.92	-1721.04	1850.55	4.85	-4.84	1.13	MWD
7786.00	14.90	248.30	7381.07	-687.11	-1737.38	1868.02	3.07	-2.97	-2.81	MWD
7881.00	13.00	244.70	7473.26	-696.19	-1758.39	1890.91	2.20	-2.00	-3.79	MWD
7975.00	11.40	245.30	7565.14	-704.60	-1776.39	1910.75	1.71	-1.70	0.64	MWD
8068.00	9.90	240.60	7656.53	-712.36	-1791.71	1927.88	1.86	-1.61	-5.05	MWD

Quantum Drilling Motors Survey Report

MD ft	TD ft	Formation	Angle deg	Depth ft	MD ft	TD ft	Formation	Angle deg	Depth ft
8163.00	7.80	236.10	7750.40	-719.97	-1804.18	1942.31	2.33	-2.21	-4.74
8217.03	6.59	238.91	7804.00	-723.84	-1809.73	1948.92	2.30	-2.24	-4.05
8257.00	5.70	231.70	7843.74	-726.42	-1813.14	1953.06	2.30	-2.22	-5.53
8351.00	4.40	226.50	7937.38	-731.79	-1819.42	1960.92	1.46	-1.38	-5.53
8417.84	4.81	235.57	8004.00	-735.14	-1823.58	1966.06	1.24	0.61	13.57
8445.00	5.00	238.80	8031.06	-738.40	-1825.53	1968.34	1.24	0.72	11.90
8540.00	5.30	238.30	8125.68	-741.17	-1832.59	1976.69	0.61	0.32	-5.79
8569.50	5.08	232.53	8155.06	-742.77	-1834.72	1979.28	0.78	-0.75	-2.60
8634.00	4.60	230.60	8219.33	-746.15	-1838.99	1984.51	0.78	-0.74	-3.00
8685.00	4.70	234.60	8270.16	-748.66	-1842.27	1988.51	0.67	0.20	7.84

MD ft	TD ft	Formation	Angle deg	Depth ft
8217.03	7804.00	Top Dolomite	0.00	0.00
8417.84	8004.00	Base Dolomite	0.00	0.00

MD ft	TD ft	Annotation
2717.83	2717.50	KOP @ 2717.50' MD
2717.83	2717.50	Begin Build @ 1.5"/100'
4382.72	4331.95	End of Build
6359.24	6100.00	Average Angle 25°
8569.50	8155.06	Total Depth