

Oilfield Services, Central U.S. Land  
Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
Midland, Texas 79706  
Phone : (432) 742-5400 (Main)  
Fax : (432) 742-5606 (Shared)

# Schlumberger

February 18, 2020

Chevron USA Incorporated  
6301 Deauville Blvd  
Midland, TX 79706

Re:

CLIENT: Chevron USA Incorporated  
WELL: SD EA 29 32 Fed Com P10 20H  
FIELD: Upper Wolfcamp

S29, T26S, R33E Lea, NM  
N 32.021432 W -103.59416

RIG: Nabors M1206  
COUNTY: Lea  
API NO: 30-025-44488  
JOB NO: 19MLG0009

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).  
Other information required by your office is as follows.

| <u>Name &amp; Title of<br/>Surveyor</u> | <u>Drainhole Number</u>                         | <u>Surveyed Depths</u>      | <u>Dates Performed</u>               | <u>Type of Survey</u>  |
|-----------------------------------------|-------------------------------------------------|-----------------------------|--------------------------------------|------------------------|
| Michael Nguyen<br>FE                    | SD EA 29 32 Fed Com<br>P10 20H<br>Original Hole | 917.00 Ft to<br>20208.00 Ft | December 29, 2018 to<br>May 20, 2019 | TelePacer<br>SlimPulse |

**HOBBS OCD**  
**FEB 24 2020**  
**RECEIVED**

Schlumberger-Private

Oilfield Services, Central U.S. Land  
Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
Midland, Texas 79706  
Phone : (432) 742-5400 (Main)  
N 32.021432 W -103.59416

# Schlumberger

Well Reference:  
S29, T26S, R33E Lea, NM  
32.021432 -103.592211

I, Michael Nguyen certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 29, 2018 through May 20, 2019, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 917.00 feet to a depth of 20208.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Chevron USA Incorporated for the SD EA 29 32 Fed Com P10 20H Well (Original Hole) API No. 30-025-44488 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

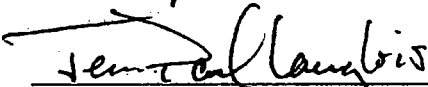
By  
Michael Nguyen  
FE



Subscribed and Sworn to before me this 18 day of February (month) 2020 (yr)

My Commission expires:

6/14/23

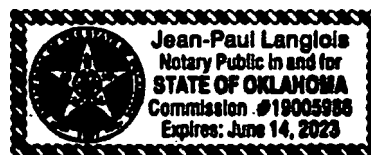


(signature)

Notary Public

Comanche, Oklahoma

(County State)



# Chevron SD EA 29 32 Fed Com P10 20H MWD to 20249ft Survey Geodetic Report (Def Survey)



Report Date: May 20, 2019 - 11:33 AM  
Client: Chevron  
Field: NM Lea County (NAD 27)  
Structure / Slot: Chevron SD EA 29 32 Fed Com P10 Pad / 20H  
Well: SD EA 29 32 Fed Com P10 20H  
Borehole: SD EA 29 32 Fed Com P10 20H  
UWI / API#: Unknown / Unknown  
Survey Name: Chevron SD EA 29 32 Fed Com P10 20H MWD to 20249ft  
Survey Date: May 20, 2019  
Tort / AHD / DDI / ERD Ratio: 246.796' / 8546.718 ft / 6.523 / 0.668  
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet  
Location Lat / Long: N 32° 1' 16.70018", W 103° 35' 37.29879"  
Location Grid N/E Y/X: N 372262.000 NUS, E 729234.000 NUS  
CRS Grid Convergence Angle: 0.3922°  
Grid Scale Factor: 0.99996928  
Version / Patch: 2.10.760.0

Survey / DLS Computation: Minimum Curvature / Lubinski  
Vertical Section Azimuth: 179.530° (Grid North)  
Vertical Section Origin: 0.000 ft, 0.000 ft  
TVD Reference Datum: RKB = 31.5ft  
TVD Reference Elevation: 3269.500 ft above  
Seabed / Ground Elevation: 3238.000 ft above  
Magnetic Declination: 6.672°  
Total Gravity Field Strength: 998.4326mg (9.80665 Based)  
Gravity Model: GARM  
Total Magnetic Field Strength: 47675.277 nT  
Magnetic Dip Angle: 59.627°  
Declination Date: May 20, 2019  
Magnetic Declination Model: HDGM 2019  
North Reference: Grid North  
Grid Convergence Used: 0.3922°  
Total Corr Mag North-Grid North: 6.2793°  
Local Coord Referenced To: Well Head

| Comments               | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(ft/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ° °)           | Longitude<br>(E/W ° ° °) |
|------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|-------------------|--------------------|-------------------|-----------------------------------|--------------------------|
| Surface                | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | 0.00              | 372262.00          | 729234.00         | N 32° 1' 16.70° W 103° 35' 37.30" |                          |
| Adjusted KB            | 24.50      | 0.00        | 0.00             | 24.50       | 0.00         | 0.00       | 0.00       | 0.00              | 372262.00          | 729234.00         | N 32° 1' 16.70° W 103° 35' 37.30" |                          |
| First 3rd Party Survey | 156.50     | 0.40        | 296.10           | 156.50      | -0.21        | 0.20       | -0.41      | 0.30              | 372262.20          | 729233.59         | N 32° 1' 16.70° W 103° 35' 37.30" |                          |
|                        | 243.50     | 0.88        | 61.79            | 243.50      | -0.65        | 0.65       | -0.10      | 1.33              | 372262.65          | 729233.90         | N 32° 1' 16.71° W 103° 35' 37.30" |                          |
|                        | 333.50     | 0.62        | 146.34           | 333.49      | -0.57        | 0.57       | 0.78       | 1.14              | 372262.57          | 729234.78         | N 32° 1' 16.71° W 103° 35' 37.29" |                          |
|                        | 435.50     | 0.79        | 88.33            | 435.48      | -0.12        | 0.13       | 1.79       | 0.69              | 372262.13          | 729235.79         | N 32° 1' 16.70° W 103° 35' 37.28" |                          |
|                        | 520.50     | 0.97        | 113.20           | 520.47      | 0.16         | -0.13      | 3.04       | 0.49              | 372261.87          | 729237.04         | N 32° 1' 16.70° W 103° 35' 37.26" |                          |
|                        | 604.50     | 0.79        | 125.51           | 604.46      | 0.78         | -0.75      | 4.16       | 0.31              | 372261.25          | 729238.16         | N 32° 1' 16.69° W 103° 35' 37.25" |                          |
|                        | 689.50     | 0.44        | 53.61            | 689.46      | 0.94         | -0.89      | 4.90       | 0.91              | 372261.11          | 729238.90         | N 32° 1' 16.69° W 103° 35' 37.24" |                          |
|                        | 773.50     | 1.32        | 76.29            | 773.45      | 0.52         | -0.47      | 6.10       | 1.11              | 372261.53          | 729240.10         | N 32° 1' 16.70° W 103° 35' 37.23" |                          |
| Last 3rd Party Survey  | 832.50     | 0.60        | 9.14             | 832.44      | 0.06         | -0.01      | 6.81       | 2.07              | 372261.99          | 729240.81         | N 32° 1' 16.70° W 103° 35' 37.22" |                          |
| First SLB MWD Survey   | 917.00     | 0.64        | 98.91            | 916.94      | -0.30        | 0.36       | 7.35       | 1.04              | 372262.36          | 729241.35         | N 32° 1' 16.70° W 103° 35' 37.21" |                          |
|                        | 980.00     | 1.14        | 83.82            | 979.93      | -0.30        | 0.37       | 8.32       | 0.87              | 372262.37          | 729242.32         | N 32° 1' 16.70° W 103° 35' 37.20" |                          |
|                        | 1075.00    | 2.59        | 69.96            | 1074.88     | -1.11        | 1.21       | 11.27      | 1.59              | 372263.21          | 729245.27         | N 32° 1' 16.71° W 103° 35' 37.17" |                          |
|                        | 1170.00    | 3.93        | 76.12            | 1169.72     | -2.59        | 2.72       | 16.45      | 1.46              | 372264.72          | 729250.45         | N 32° 1' 16.73° W 103° 35' 37.11" |                          |
|                        | 1265.00    | 4.95        | 79.56            | 1264.44     | -4.05        | 4.25       | 23.64      | 1.11              | 372266.25          | 729257.64         | N 32° 1' 16.74° W 103° 35' 37.02" |                          |
|                        | 1359.00    | 6.62        | 78.05            | 1357.95     | -5.83        | 6.10       | 32.93      | 1.78              | 372268.10          | 729266.93         | N 32° 1' 16.78° W 103° 35' 36.92" |                          |
|                        | 1454.00    | 7.59        | 81.55            | 1452.22     | -7.79        | 8.16       | 44.50      | 1.12              | 372270.16          | 729278.49         | N 32° 1' 16.78° W 103° 35' 36.78" |                          |
|                        | 1549.00    | 8.16        | 93.91            | 1546.34     | -8.15        | 8.62       | 57.43      | 1.88              | 372270.62          | 729281.43         | N 32° 1' 16.78° W 103° 35' 36.63" |                          |
|                        | 1644.00    | 7.55        | 100.72           | 1640.45     | -6.42        | 7.00       | 70.29      | 1.17              | 372269.00          | 729304.29         | N 32° 1' 16.76° W 103° 35' 36.48" |                          |
|                        | 1739.00    | 7.76        | 92.37            | 1734.60     | -4.89        | 5.57       | 82.83      | 1.19              | 372267.57          | 729316.83         | N 32° 1' 16.75° W 103° 35' 36.34" |                          |
|                        | 1835.00    | 8.55        | 84.50            | 1829.63     | -5.20        | 5.99       | 96.41      | 1.42              | 372267.99          | 729330.41         | N 32° 1' 16.75° W 103° 35' 36.18" |                          |
|                        | 1930.00    | 8.34        | 79.38            | 1923.60     | -7.03        | 7.94       | 110.21     | 0.82              | 372269.94          | 729344.21         | N 32° 1' 16.77° W 103° 35' 36.02" |                          |
|                        | 2025.00    | 8.06        | 76.00            | 2017.63     | -9.80        | 10.82      | 123.44     | 0.59              | 372272.82          | 729357.44         | N 32° 1' 16.80° W 103° 35' 35.86" |                          |
|                        | 2120.00    | 7.83        | 77.32            | 2111.72     | -12.73       | 13.85      | 138.22     | 0.31              | 372275.85          | 729370.21         | N 32° 1' 16.83° W 103° 35' 35.72" |                          |
|                        | 2215.00    | 7.49        | 76.71            | 2205.87     | -15.47       | 16.69      | 148.56     | 0.37              | 372278.69          | 729382.55         | N 32° 1' 16.86° W 103° 35' 35.57" |                          |
|                        | 2309.00    | 8.58        | 76.62            | 2298.95     | -18.40       | 19.72      | 161.34     | 1.16              | 372281.72          | 729395.34         | N 32° 1' 16.88° W 103° 35' 35.42" |                          |
|                        | 2403.00    | 9.48        | 77.25            | 2391.78     | -21.61       | 23.06      | 175.72     | 0.96              | 372285.05          | 729409.71         | N 32° 1' 16.92° W 103° 35' 35.26" |                          |
|                        | 2498.00    | 9.35        | 78.69            | 2485.50     | -24.73       | 26.30      | 190.91     | 0.28              | 372288.29          | 729424.91         | N 32° 1' 16.95° W 103° 35' 35.08" |                          |
|                        | 2593.00    | 9.00        | 78.72            | 2579.29     | -27.57       | 29.26      | 205.77     | 0.37              | 372291.26          | 729439.76         | N 32° 1' 16.98° W 103° 35' 34.91" |                          |
|                        | 2689.00    | 8.62        | 79.87            | 2674.16     | -30.18       | 31.98      | 220.22     | 0.44              | 372293.98          | 729454.21         | N 32° 1' 17.00° W 103° 35' 34.74" |                          |
|                        | 2783.00    | 8.56        | 80.02            | 2767.10     | -32.50       | 34.42      | 234.04     | 0.06              | 372296.42          | 729468.03         | N 32° 1' 17.02° W 103° 35' 34.58" |                          |
|                        | 2878.00    | 8.03        | 80.42            | 2861.11     | -34.72       | 36.75      | 247.55     | 0.56              | 372298.75          | 729481.54         | N 32° 1' 17.05° W 103° 35' 34.42" |                          |
|                        | 2973.00    | 8.17        | 82.69            | 2955.16     | -36.58       | 38.72      | 260.79     | 0.37              | 372300.72          | 729494.78         | N 32° 1' 17.07° W 103° 35' 34.27" |                          |
|                        | 3067.00    | 7.78        | 84.81            | 3048.25     | -37.89       | 40.14      | 273.75     | 0.52              | 372302.14          | 729507.74         | N 32° 1' 17.08° W 103° 35' 34.12" |                          |
|                        | 3161.00    | 7.31        | 81.94            | 3141.44     | -39.21       | 41.56      | 286.01     | 0.64              | 372303.55          | 729520.00         | N 32° 1' 17.09° W 103° 35' 33.97" |                          |
|                        | 3256.00    | 8.76        | 80.83            | 3235.50     | -41.09       | 43.54      | 299.13     | 1.53              | 372305.54          | 729533.12         | N 32° 1' 17.11° W 103° 35' 33.82" |                          |
|                        | 3351.00    | 8.91        | 83.24            | 3329.37     | -42.98       | 45.55      | 313.58     | 0.41              | 372307.55          | 729547.57         | N 32° 1' 17.13° W 103° 35' 33.65" |                          |
|                        | 3446.00    | 8.36        | 82.62            | 3423.30     | -44.61       | 47.30      | 327.74     | 0.59              | 372309.30          | 729561.73         | N 32° 1' 17.15° W 103° 35' 33.49" |                          |
|                        | 3541.00    | 8.43        | 84.85            | 3517.28     | -46.00       | 48.80      | 341.52     | 0.37              | 372310.80          | 729575.51         | N 32° 1' 17.16° W 103° 35' 33.33" |                          |
|                        | 3637.00    | 9.14        | 79.96            | 3612.15     | -47.83       | 50.75      | 356.04     | 1.08              | 372312.75          | 729589.03         | N 32° 1' 17.18° W 103° 35' 33.16" |                          |
|                        | 3731.00    | 9.18        | 76.44            | 3704.96     | -50.77       | 53.81      | 370.68     | 0.60              | 372315.81          | 729604.67         | N 32° 1' 17.21° W 103° 35' 32.99" |                          |
|                        | 3826.00    | 9.05        | 78.09            | 3798.76     | -53.97       | 57.13      | 385.36     | 0.31              | 372319.13          | 729619.35         | N 32° 1' 17.24° W 103° 35' 32.82" |                          |
|                        | 3921.00    | 8.71        | 78.03            | 3892.62     | -56.88       | 60.16      | 399.71     | 0.36              | 372322.16          | 729633.69         | N 32° 1' 17.27° W 103° 35' 32.65" |                          |
|                        | 4015.00    | 8.08        | 78.51            | 3985.61     | -59.57       | 62.96      | 413.14     | 0.67              | 372324.95          | 729647.13         | N 32° 1' 17.30° W 103° 35' 32.50" |                          |
|                        | 4109.00    | 7.98        | 79.36            | 4078.69     | -61.98       | 65.48      | 428.03     | 0.17              | 372327.47          | 729660.02         | N 32° 1' 17.32° W 103° 35' 32.35" |                          |
|                        | 4205.00    | 8.82        | 81.17            | 4173.66     | -64.23       | 67.84      | 439.85     | 0.92              | 372329.83          | 729673.84         | N 32° 1' 17.34° W 103° 35' 32.18" |                          |
|                        | 4299.00    | 9.21        | 83.94            | 4266.50     | -66.01       | 69.74      | 454.45     | 0.62              | 372331.74          | 729688.44         | N 32° 1' 17.36° W 103° 35' 32.02" |                          |
|                        | 4394.00    | 8.95        | 86.49            | 4360.31     | -67.14       | 70.99      | 469.39     | 0.50              | 372332.99          | 729703.37         | N 32° 1' 17.37° W 103° 35' 31.84" |                          |
|                        | 4489.00    | 8.65        | 88.50            | 4454.19     | -67.66       | 71.63      | 483.91     | 0.45              | 372333.83          | 729717.89         | N 32° 1' 17.38° W 103° 35' 31.67" |                          |
|                        | 4584.00    | 8.59        | 92.76            | 4548.12     | -67.39       | 71.48      | 498.14     | 0.67              | 372333.47          | 729732.12         | N 32° 1' 17.37° W 103° 35' 31.51" |                          |
|                        | 4679.00    | 8.23        | 86.92            | 4642.10     | -67.30       | 71.50      | 512.01     | 0.98              | 372333.50          | 729745.99         | N 32° 1' 17.37° W 103° 35' 31.35" |                          |
|                        | 4774.00    | 7.89        | 80.29            | 4736.16     | -68.66       | 72.97      | 525.23     | 1.04              | 372334.96          | 729759.21         | N 32° 1' 17.39° W 103° 35' 31.19" |                          |
|                        | 4868.00    | 8.61        | 71.01            | 4829.19     | -71.93       | 76.34      | 538.24     | 1.61              | 372338.34          | 729772.22         | N 32° 1' 17.42° W 103° 35' 31.04" |                          |
|                        | 4962.00    | 8.23        | 68.84            | 4922.18     | -76.54       | 81.06      | 551.17     | 0.53              | 372343.06          | 729785.15         | N 32° 1' 17.46° W 103° 35' 30.89" |                          |
|                        | 5058.00    | 8.74        | 75.30            | 5017.13     | -80.76       | 85.39      | 564.63     | 1.13              | 372347.39          | 729798.61         | N 32° 1' 17.51° W 103° 35' 30.73" |                          |
|                        | 5152.00    | 9.08        | 82.45            | 5110.00     | -83.43       | 88.18      | 578.89     | 1.23              | 372350.18          | 729812.88         | N 32° 1' 17.53° W 103° 35' 30.57" |                          |
|                        | 5247.00    | 8.69        | 87.34            | 5203.86     | -84.63       | 89.50      | 593.49     | 0.89              | 372351.50          | 729827.48         | N 32° 1' 17.55° W 103° 35' 30.40" |                          |
|                        | 5342.00    | 7.77        | 92.50            | 5297.88     | -84.57       | 89.55      | 607.08     | 1.24              | 372351.55          | 729841.06         | N 32° 1' 17.55° W 103° 35' 30.24" |                          |
|                        | 5436.00    | 7.23        | 96.28            | 5391.08     | -83.54       | 88.63      | 619.31     | 0.78              | 372350.62          | 729853.29         | N 32° 1' 17.54° W 103° 35' 30.10" |                          |
|                        | 5531.00    | 6.11        | 104.74           | 5485.43     | -81.51       | 86.69      | 630.14     | 1.57              | 372348.68          | 729864.12         | N 32° 1' 17.52° W 103° 35' 29.97" |                          |
|                        | 5626.00    | 4.58        | 105.00           | 5580.02     | -79.18       | 84.42      | 638.69     | 1.61              | 372346.42          | 729872.67         | N 32° 1' 17.49° W 103° 35' 29.87" |                          |
|                        | 5721.00    | 3.07        | 105.36           | 5674.80     | -77.47       | 82.76      | 644.81     | 1.59              | 372344.76          | 729878.79         | N 32° 1' 17.48° W 103° 35' 29.80" |                          |
|                        | 5815.00    | 1.69        | 100.35           | 5768.72     | -76.52       | 81.85      | 648.60     | 1.48              | 372343.84          | 729882.58         | N 32° 1' 17.47° W 103° 35' 29.76" |                          |
|                        | 5910.00    | 0.29        | 97.60            | 5863.70     | -76.23       | 81.56      | 650.22     | 1.47              | 372343.56          | 729884.20         | N 32° 1' 17.46° W 103° 35' 29.74" |                          |
|                        | 6005.00    | 0.28        | 68.69            | 5958.70     | -76.28       | 81.62      | 650.67     | 0.15              | 372343.61          | 729884.65         | N 32° 1' 17.46° W 103° 35' 29.74" |                          |
|                        | 6100.00    | 0.35        | 100.96           | 6053.70     | -76.30       | 81.64      | 651.17     | 0.20              | 372343.64          | 729885.15         | N 32° 1' 17.46° W 103° 35' 29.73" |                          |
|                        | 6195.00    | 0.60        | 211.04           | 6148.70     | -75.82       | 81.16      | 651.20     | 0.83              | 372343.16          | 729885.18         | N 32° 1' 17.46° W 103° 35' 29.73" |                          |
|                        | 6290.00    | 1.23        | 219.43           | 6243.69     | -74.61       | 79.95      | 650.30     | 0.68              | 372341.95          | 729884.28         | N 32° 1' 17.45° W 103° 35' 29.74" |                          |
|                        | 6385.00    | 1.16        | 222.48           | 6338.67     | -73.13       | 78.45      | 649.00     | 0.10              | 372340.45          | 729882.98         | N 32° 1' 17.43° W 103° 35' 29.75" |                          |
|                        | 6479.00    | 1.83        | 241.00           | 6432.64     | -71.71       | 77.02      | 647.05     | 0.87              | 372339.02          | 7                 |                                   |                          |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(ft/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|-------------------|--------------------|-------------------|--------------------------|---------------------------|
|          | 7428.00    | 0.79        | 268.05           | 7381.22     | -73.31       | 78.42      | 622.58     | 0.04              | 372340.42          | 729856.56         | N 32° 1' 43.3"           | W 103° 35' 30.06"         |
|          | 7523.00    | 0.85        | 268.77           | 7476.21     | -73.24       | 78.34      | 621.22     | 0.06              | 372340.33          | 729855.20         | N 32° 1' 47.3"           | W 103° 35' 30.08"         |
|          | 7618.00    | 0.96        | 278.87           | 7571.20     | -73.33       | 78.42      | 619.73     | 0.23              | 372340.42          | 729853.71         | N 32° 1' 47.3"           | W 103° 35' 30.09"         |
|          | 7712.00    | 1.16        | 277.64           | 7665.18     | -73.59       | 78.67      | 618.01     | 0.21              | 372340.66          | 729851.99         | N 32° 1' 47.4"           | W 103° 35' 30.11"         |
|          | 7807.00    | 0.91        | 268.04           | 7760.16     | -73.68       | 78.74      | 616.31     | 0.34              | 372340.74          | 729850.29         | N 32° 1' 47.4"           | W 103° 35' 30.13"         |
|          | 7902.00    | 1.01        | 298.44           | 7855.15     | -74.04       | 79.09      | 614.82     | 0.57              | 372341.09          | 729848.80         | N 32° 1' 47.4"           | W 103° 35' 30.15"         |
|          | 7997.00    | 1.21        | 308.74           | 7950.13     | -75.08       | 80.11      | 613.30     | 0.30              | 372342.11          | 729847.28         | N 32° 1' 47.5"           | W 103° 35' 30.17"         |
|          | 8091.00    | 0.52        | 336.65           | 8044.12     | -76.10       | 81.13      | 612.36     | 0.84              | 372343.12          | 729846.34         | N 32° 1' 47.6"           | W 103° 35' 30.18"         |
|          | 8186.00    | 0.52        | 26.86            | 8139.12     | -76.96       | 81.98      | 612.42     | 0.52              | 372343.98          | 729846.40         | N 32° 1' 47.7"           | W 103° 35' 30.18"         |
|          | 8280.00    | 0.13        | 178.76           | 8233.12     | -77.30       | 82.33      | 612.65     | 0.78              | 372344.33          | 729846.63         | N 32° 1' 47.7"           | W 103° 35' 30.18"         |
|          | 8375.00    | 0.30        | 146.24           | 8328.12     | -76.98       | 82.01      | 612.79     | 0.21              | 372344.01          | 729846.77         | N 32° 1' 47.7"           | W 103° 35' 30.18"         |
|          | 8470.00    | 0.68        | 195.88           | 8423.11     | -76.24       | 81.27      | 612.77     | 0.57              | 372343.26          | 729846.75         | N 32° 1' 47.6"           | W 103° 35' 30.18"         |
|          | 8565.00    | 0.93        | 181.77           | 8518.10     | -74.92       | 79.95      | 612.60     | 0.33              | 372341.95          | 729846.58         | N 32° 1' 47.5"           | W 103° 35' 30.18"         |
|          | 8660.00    | 0.82        | 196.59           | 8613.09     | -73.50       | 78.53      | 612.38     | 0.26              | 372340.53          | 729846.35         | N 32° 1' 47.4"           | W 103° 35' 30.18"         |
|          | 8755.00    | 0.69        | 207.84           | 8708.08     | -72.35       | 77.37      | 611.92     | 0.21              | 372339.37          | 729845.90         | N 32° 1' 47.4"           | W 103° 35' 30.19"         |
|          | 8855.00    | 0.69        | 202.50           | 8808.08     | -71.27       | 76.28      | 611.41     | 0.06              | 372338.28          | 729845.38         | N 32° 1' 47.4"           | W 103° 35' 30.19"         |
|          | 8951.00    | 0.76        | 203.12           | 8904.07     | -70.15       | 75.16      | 610.93     | 0.07              | 372337.16          | 729844.91         | N 32° 1' 47.4"           | W 103° 35' 30.20"         |
|          | 9046.00    | 0.69        | 245.74           | 8999.06     | -69.34       | 74.35      | 610.16     | 0.56              | 372336.35          | 729844.14         | N 32° 1' 47.3"           | W 103° 35' 30.21"         |
|          | 9141.00    | 0.57        | 299.18           | 9094.06     | -69.35       | 74.35      | 609.23     | 0.61              | 372336.34          | 729843.21         | N 32° 1' 47.3"           | W 103° 35' 30.22"         |
|          | 9235.00    | 0.99        | 340.24           | 9188.05     | -70.34       | 75.34      | 608.55     | 0.72              | 372337.34          | 729842.53         | N 32° 1' 47.4"           | W 103° 35' 30.22"         |
|          | 9329.00    | 0.99        | 349.89           | 9282.04     | -71.91       | 76.90      | 608.13     | 0.18              | 372338.90          | 729842.11         | N 32° 1' 47.2"           | W 103° 35' 30.23"         |
|          | 9424.00    | 0.52        | 317.49           | 9377.03     | -73.04       | 78.03      | 607.70     | 0.65              | 372340.02          | 729841.68         | N 32° 1' 47.3"           | W 103° 35' 30.23"         |
|          | 9519.00    | 0.45        | 326.05           | 9472.02     | -73.67       | 78.65      | 607.20     | 0.11              | 372340.65          | 729841.18         | N 32° 1' 47.4"           | W 103° 35' 30.24"         |
|          | 9606.00    | 0.40        | 283.89           | 9559.02     | -74.03       | 79.01      | 606.71     | 0.36              | 372341.01          | 729840.69         | N 32° 1' 47.4"           | W 103° 35' 30.25"         |
|          | 9701.00    | 0.60        | 192.31           | 9654.02     | -73.63       | 78.60      | 606.28     | 0.77              | 372340.60          | 729840.26         | N 32° 1' 47.4"           | W 103° 35' 30.25"         |
|          | 9795.00    | 0.48        | 132.94           | 9748.02     | -72.88       | 77.86      | 606.47     | 0.58              | 372339.85          | 729840.45         | N 32° 1' 47.3"           | W 103° 35' 30.25"         |
|          | 9891.00    | 0.75        | 220.33           | 9844.01     | -72.13       | 77.10      | 606.35     | 0.91              | 372339.10          | 729840.33         | N 32° 1' 47.2"           | W 103° 35' 30.25"         |
|          | 9988.00    | 1.42        | 218.73           | 9938.99     | -70.74       | 75.71      | 605.21     | 0.71              | 372337.71          | 729839.19         | N 32° 1' 47.1"           | W 103° 35' 30.26"         |
|          | 10081.00   | 1.39        | 222.52           | 10033.97    | -68.99       | 73.94      | 603.70     | 0.10              | 372335.94          | 729837.68         | N 32° 1' 47.3"           | W 103° 35' 30.28"         |
|          | 10176.00   | 2.07        | 259.95           | 10128.92    | -67.86       | 72.79      | 601.23     | 1.35              | 372334.79          | 729835.21         | N 32° 1' 47.3"           | W 103° 35' 30.31"         |
|          | 10270.00   | 2.56        | 275.49           | 10222.85    | -67.80       | 72.70      | 597.47     | 0.84              | 372334.70          | 729831.45         | N 32° 1' 47.3"           | W 103° 35' 30.35"         |
|          | 10365.00   | 2.71        | 287.98           | 10317.75    | -68.73       | 73.59      | 593.22     | 0.62              | 372335.59          | 729827.20         | N 32° 1' 47.3"           | W 103° 35' 30.40"         |
|          | 10459.00   | 2.63        | 297.60           | 10411.65    | -70.44       | 75.28      | 589.20     | 0.48              | 372337.28          | 729823.18         | N 32° 1' 47.1"           | W 103° 35' 30.45"         |
|          | 10555.00   | 2.42        | 303.42           | 10507.55    | -72.61       | 77.42      | 585.55     | 0.34              | 372339.41          | 729819.53         | N 32° 1' 47.3"           | W 103° 35' 30.49"         |
|          | 10650.00   | 1.92        | 338.45           | 10602.49    | -75.21       | 80.00      | 583.29     | 1.46              | 372342.00          | 729817.28         | N 32° 1' 47.5"           | W 103° 35' 30.52"         |
|          | 10745.00   | 1.95        | 23.72            | 10697.44    | -76.17       | 82.96      | 583.36     | 1.57              | 372344.96          | 729817.34         | N 32° 1' 47.8"           | W 103° 35' 30.52"         |
|          | 10840.00   | 1.36        | 42.79            | 10792.40    | -80.47       | 85.78      | 584.78     | 0.84              | 372347.27          | 729818.76         | N 32° 1' 47.5"           | W 103° 35' 30.50"         |
|          | 10934.00   | 1.57        | 90.57            | 10886.37    | -81.26       | 86.07      | 586.82     | 1.28              | 372348.07          | 729820.80         | N 32° 1' 47.5"           | W 103° 35' 30.48"         |
|          | 11029.00   | 1.52        | 119.70           | 10981.34    | -80.60       | 85.44      | 589.22     | 0.82              | 372347.43          | 729823.20         | N 32° 1' 47.5"           | W 103° 35' 30.45"         |
|          | 11124.00   | 1.63        | 141.61           | 11076.31    | -78.90       | 83.75      | 591.15     | 0.64              | 372345.75          | 729825.13         | N 32° 1' 47.4"           | W 103° 35' 30.43"         |
|          | 11219.00   | 1.91        | 155.79           | 11171.26    | -76.39       | 81.25      | 592.64     | 0.54              | 372343.25          | 729826.62         | N 32° 1' 47.6"           | W 103° 35' 30.41"         |
|          | 11314.00   | 0.13        | 162.90           | 11266.24    | -74.83       | 79.70      | 593.32     | 1.87              | 372341.70          | 729827.30         | N 32° 1' 47.5"           | W 103° 35' 30.40"         |
|          | 11409.00   | 0.91        | 8.06             | 11361.24    | -75.48       | 80.35      | 590.46     | 1.08              | 372342.35          | 729827.44         | N 32° 1' 47.6"           | W 103° 35' 30.40"         |
|          | 11504.00   | 0.68        | 85.91            | 11456.23    | -76.26       | 81.14      | 594.13     | 1.07              | 372343.13          | 729828.11         | N 32° 1' 47.6"           | W 103° 35' 30.39"         |
|          | 11572.00   | 0.68        | 130.57           | 11524.23    | -76.02       | 80.90      | 594.83     | 0.76              | 372342.90          | 729828.82         | N 32° 1' 47.6"           | W 103° 35' 30.38"         |
|          | 11667.00   | 0.97        | 151.79           | 11639.22    | -74.71       | 79.60      | 595.81     | 0.36              | 372341.60          | 729829.79         | N 32° 1' 47.5"           | W 103° 35' 30.37"         |
|          | 11762.00   | 0.90        | 147.85           | 11734.20    | -73.36       | 78.26      | 596.59     | 0.10              | 372340.26          | 729830.57         | N 32° 1' 47.3"           | W 103° 35' 30.36"         |
|          | 11876.00   | 1.35        | 152.20           | 11828.18    | -71.75       | 76.66      | 597.50     | 0.49              | 372338.65          | 729831.48         | N 32° 1' 47.2"           | W 103° 35' 30.35"         |
|          | 11970.00   | 1.20        | 157.31           | 11922.16    | -69.86       | 74.77      | 598.40     | 0.20              | 372336.77          | 729832.38         | N 32° 1' 47.0"           | W 103° 35' 30.34"         |
|          | 12065.00   | 1.45        | 142.00           | 12017.14    | -67.98       | 72.90      | 599.52     | 0.45              | 372334.90          | 729833.50         | N 32° 1' 47.3"           | W 103° 35' 30.33"         |
|          | 12160.00   | 4.73        | 125.98           | 12111.99    | -64.70       | 69.65      | 603.43     | 3.54              | 372331.65          | 729837.41         | N 32° 1' 47.3"           | W 103° 35' 30.28"         |
|          | 12207.00   | 10.06       | 133.22           | 12158.58    | -60.71       | 65.70      | 607.99     | 11.49             | 372327.70          | 729841.97         | N 32° 1' 47.3"           | W 103° 35' 30.23"         |
|          | 12255.00   | 10.68       | 142.90           | 12205.80    | -54.25       | 59.28      | 613.73     | 3.85              | 372321.28          | 729847.71         | N 32° 1' 47.2"           | W 103° 35' 30.17"         |
|          | 12302.00   | 15.54       | 151.00           | 12251.56    | -45.21       | 50.30      | 619.42     | 11.03             | 372312.29          | 729853.39         | N 32° 1' 47.1"           | W 103° 35' 30.10"         |
|          | 12350.00   | 21.39       | 145.78           | 12297.08    | -32.27       | 37.42      | 627.46     | 12.65             | 372299.42          | 729861.44         | N 32° 1' 47.0"           | W 103° 35' 30.01"         |
|          | 12390.00   | 25.26       | 145.80           | 12333.80    | -19.10       | 24.32      | 636.35     | 9.68              | 372286.32          | 729870.33         | N 32° 1' 46.9"           | W 103° 35' 29.91"         |
|          | 12419.00   | 28.07       | 145.96           | 12359.71    | -8.26        | 13.54      | 643.64     | 9.68              | 372275.54          | 729877.62         | N 32° 1' 46.9"           | W 103° 35' 29.82"         |
|          | 12444.00   | 30.01       | 148.81           | 12381.57    | 2.02         | 3.31       | 650.18     | 9.53              | 372265.31          | 729884.15         | N 32° 1' 46.9"           | W 103° 35' 29.75"         |
|          | 12491.00   | 30.63       | 160.16           | 12422.17    | 23.44        | -18.02     | 660.33     | 12.25             | 372243.98          | 729894.31         | N 32° 1' 46.8"           | W 103° 35' 29.63"         |
|          | 12538.00   | 30.92       | 173.44           | 12462.60    | 46.77        | -41.31     | 665.78     | 14.45             | 372220.70          | 729899.76         | N 32° 1' 46.5"           | W 103° 35' 29.57"         |
|          | 12585.00   | 34.84       | 184.05           | 12502.10    | 72.19        | -66.73     | 666.22     | 14.80             | 372195.28          | 729900.19         | N 32° 1' 46.5"           | W 103° 35' 29.57"         |
|          | 12632.00   | 40.81       | 190.69           | 12539.22    | 100.68       | -95.25     | 662.41     | 15.36             | 372166.76          | 729896.39         | N 32° 1' 46.5"           | W 103° 35' 29.61"         |
|          | 12679.00   | 47.28       | 195.77           | 12573.00    | 132.36       | -127.00    | 654.86     | 15.87             | 372135.01          | 729888.84         | N 32° 1' 46.4"           | W 103° 35' 29.70"         |
|          | 12728.00   | 54.47       | 197.33           | 12603.90    | 168.68       | -163.40    | 644.02     | 14.88             | 372098.60          | 729878.00         | N 32° 1' 46.4"           | W 103° 35' 29.83"         |
|          | 12775.00   | 62.31       | 197.97           | 12628.52    | 206.69       | -201.51    | 631.88     | 16.72             | 372060.50          | 729865.86         | N 32° 1' 46.6"           | W 103° 35' 29.98"         |
|          | 12822.00   | 69.00       | 196.46           | 12647.88    | 247.46       | -242.39    | 619.23     | 14.53             | 372019.61          | 729853.21         | N 32° 1' 46.2"           | W 103° 35' 30.13"         |
|          | 12869.00   | 73.44       | 191.67           | 12663.02    | 290.52       | -285.54    | 608.45     | 13.50             | 371976.47          | 729842.43         | N 32° 1' 46.3"           | W 103° 35' 30.25"         |
|          | 12917.00   | 81.61       | 193.17           | 12673.38    | 336.16       | -331.26    | 598.37     | 17.29             | 371930.75          | 729832.35         | N 32° 1' 46.3"           | W 103° 35' 30.38"         |
|          | 12964.00   | 84.66       | 186.01           | 12679.00    | 382.07       | -377.24    | 590.61     | 16.46             | 371884.77          | 729824.59         | N 32° 1' 46.2"           | W 103° 35' 30.47"         |
|          | 13011.00   | 87.46       | 183.94           | 12682.23    | 428.74       | -423.95    | 586.54     | 7.40              | 371838.07          | 729820.52         | N 32° 1' 46.2"           | W 103° 35' 30.52"         |
|          | 13058.00   | 86.80       | 184.28           | 12684.58    | 475.53       | -470.77    | 583.18     | 1.58              | 371791.25          | 729817.16         | N 32° 1' 46.2"           | W 103° 35' 30.56"         |
|          | 13106.00   | 86.32       | 182.34           | 12687.46    | 523.34       | -518.60    | 580.41     | 4.16              | 371743.42          | 729814.39         | N 32° 1' 46.1"           | W 103° 35' 30.60"         |
|          | 13166.00   | 84.52       | 180.17           | 12692.25    | 583.12       | -578.39    | 579.10     | 4.69              | 371683.63          | 729813.08         | N 32° 1' 46.1"           | W 103° 35' 30.62"         |
|          | 13240.00   | 85.18       | 179.09           | 12698.80    | 656.82       | -652.08    | 579.58     | 1.71              | 371609.94          | 729813.56         | N 32° 1' 46.1"           | W 103° 35' 30.62"         |
|          | 13333.00   | 87.28       | 179.19           | 12705.01    | 749.61       | -744.87    | 580.97     | 2.26              | 371517.16          | 729814.95         | N 32° 1' 46.1"           | W 103° 35' 30.61"         |
|          | 13428.00   | 88.07       | 180.56           | 12708.87    | 844.52       | -839.79    | 581.18     | 1.68              | 371422.24          | 729815.16         | N 32° 1'                 |                           |

| Comments            | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ° °) | Longitude<br>(E/W ° ° °) |
|---------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|                     | 17211.00   | 88.49       | 179.25           | 12745.70    | 4626.25      | -4621.34   | 617.82     | 0.41             | 367640.81          | 729851.80         | N 32                    | 0 30.93 W 103 35 30.49   |
|                     | 17401.00   | 88.52       | 179.28           | 12750.66    | 4816.18      | -4811.26   | 620.25     | 0.02             | 367450.90          | 729854.23         | N 32                    | 0 29.05 W 103 35 30.48   |
|                     | 17495.00   | 88.49       | 179.08           | 12753.11    | 4910.15      | -4905.22   | 621.60     | 0.22             | 367356.94          | 729855.58         | N 32                    | 0 28.12 W 103 35 30.47   |
|                     | 17590.00   | 88.73       | 179.30           | 12755.42    | 5005.12      | -5000.18   | 622.94     | 0.34             | 367261.98          | 729856.92         | N 32                    | 0 27.18 W 103 35 30.46   |
|                     | 17685.00   | 88.83       | 179.44           | 12757.44    | 5100.10      | -5095.15   | 623.99     | 0.18             | 367167.02          | 729857.97         | N 32                    | 0 26.24 W 103 35 30.46   |
|                     | 17779.00   | 89.00       | 179.75           | 12759.22    | 5194.08      | -5189.13   | 624.65     | 0.38             | 367073.04          | 729858.63         | N 32                    | 0 25.31 W 103 35 30.46   |
|                     | 17874.00   | 89.76       | 179.20           | 12760.25    | 5289.08      | -5284.12   | 625.52     | 0.99             | 366978.05          | 729859.50         | N 32                    | 0 24.37 W 103 35 30.45   |
|                     | 17968.00   | 89.00       | 178.47           | 12761.27    | 5383.06      | -5378.10   | 627.43     | 1.12             | 366884.08          | 729861.41         | N 32                    | 0 23.44 W 103 35 30.44   |
|                     | 18063.00   | 89.11       | 178.76           | 12762.83    | 5478.04      | -5473.05   | 629.73     | 0.33             | 366789.12          | 729863.71         | N 32                    | 0 22.50 W 103 35 30.42   |
|                     | 18140.00   | 89.42       | 178.69           | 12763.82    | 5555.02      | -5550.03   | 631.44     | 0.41             | 366712.15          | 729865.42         | N 32                    | 0 21.74 W 103 35 30.41   |
|                     | 18233.00   | 88.97       | 180.14           | 12765.41    | 5658.01      | -5663.01   | 632.59     | 1.34             | 366599.18          | 729866.57         | N 32                    | 0 20.62 W 103 35 30.40   |
|                     | 18348.00   | 88.90       | 180.40           | 12767.17    | 5762.98      | -5757.99   | 632.15     | 0.28             | 366504.20          | 729868.13         | N 32                    | 0 19.68 W 103 35 30.42   |
|                     | 18443.00   | 88.83       | 180.02           | 12768.97    | 5857.96      | -5852.97   | 631.80     | 0.40             | 366409.22          | 729869.78         | N 32                    | 0 18.74 W 103 35 30.43   |
|                     | 18632.00   | 89.00       | 178.69           | 12772.39    | 6046.92      | -6041.94   | 632.28     | 0.18             | 366220.26          | 729868.26         | N 32                    | 0 16.87 W 103 35 30.44   |
|                     | 18822.00   | 89.45       | 178.03           | 12774.96    | 6236.91      | -6231.91   | 634.40     | 0.42             | 366030.29          | 729868.38         | N 32                    | 0 14.99 W 103 35 30.43   |
|                     | 19012.00   | 89.24       | 178.24           | 12777.13    | 6426.89      | -6421.88   | 637.27     | 0.16             | 365840.33          | 729871.25         | N 32                    | 0 13.11 W 103 35 30.41   |
|                     | 19201.00   | 89.28       | 178.12           | 12779.57    | 6615.87      | -6610.84   | 639.97     | 0.07             | 365651.37          | 729873.95         | N 32                    | 0 11.24 W 103 35 30.39   |
|                     | 19296.00   | 89.55       | 178.12           | 12780.54    | 6710.86      | -6705.83   | 641.43     | 0.28             | 365556.39          | 729875.41         | N 32                    | 0 10.30 W 103 35 30.38   |
|                     | 19391.00   | 89.42       | 178.25           | 12781.39    | 6805.86      | -6800.81   | 642.78     | 0.19             | 365461.41          | 729876.76         | N 32                    | 0 9.36 W 103 35 30.38    |
|                     | 19485.00   | 89.45       | 178.84           | 12782.32    | 6899.85      | -6894.79   | 644.35     | 0.44             | 365367.43          | 729878.33         | N 32                    | 0 8.43 W 103 35 30.36    |
|                     | 19674.00   | 88.63       | 178.59           | 12785.49    | 7088.80      | -7083.72   | 648.59     | 0.45             | 365178.51          | 729882.57         | N 32                    | 0 6.56 W 103 35 30.33    |
|                     | 19864.00   | 88.59       | 178.24           | 12790.10    | 7278.73      | -7273.63   | 652.16     | 0.34             | 364988.61          | 729886.16         | N 32                    | 0 4.68 W 103 35 30.30    |
|                     | 19958.00   | 89.04       | 178.41           | 12792.04    | 7372.71      | -7367.60   | 653.29     | 0.51             | 364894.64          | 729887.27         | N 32                    | 0 3.75 W 103 35 30.30    |
| Toe HL Cross        | 20113.00   | 88.67       | 178.74           | 12795.14    | 7527.67      | -7522.55   | 655.79     | 0.49             | 364739.70          | 729889.77         | N 32                    | 0 2.22 W 103 35 30.28    |
|                     | 20146.00   | 88.59       | 178.60           | 12795.93    | 7560.66      | -7555.53   | 656.55     | 0.49             | 364706.72          | 729890.53         | N 32                    | 0 1.89 W 103 35 30.28    |
| Last SLB MWD Survey | 20208.00   | 87.80       | 178.67           | 12797.88    | 7622.62      | -7617.48   | 658.03     | 1.28             | 364644.77          | 729892.01         | N 32                    | 0 1.28 W 103 35 30.26    |
| Projection to Bt    | 20249.00   | 87.80       | 178.67           | 12799.45    | 7663.59      | -7658.44   | 658.98     | 0.00             | 364603.81          | 729892.96         | N 32                    | 0 0.87 W 103 35 30.26    |

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 3 \*\*\* 3-D 97.071% Confidence 3.0000 sigma  
Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size<br>(in) | Casing Diameter<br>(in) | Survey Tool Type      | Borehole / Survey                                            |
|-------------|------|-----------------|---------------|------------------|-------------------|-------------------------|-----------------------|--------------------------------------------------------------|
|             | 1    | 0.000           | 24.500        | 1/98.425         | 30.000            | 30.000                  | A001Ma_MWD-Depth Only | SD EA 29 32 Fed Com P10 20H /<br>Chevron SD EA 29 32 Fed Com |
|             | 1    | 24.500          | 31.500        | Act Stns         | 30.000            | 30.000                  | A001Ma_MWD-Depth Only | SD EA 29 32 Fed Com P10 20H /<br>Chevron SD EA 29 32 Fed Com |
|             | 1    | 31.500          | 832.500       | Act Stns         | 30.000            | 30.000                  | A001Ma_MWD            | SD EA 29 32 Fed Com P10 20H /<br>Chevron SD EA 29 32 Fed Com |
|             | 1    | 832.500         | 20249.000     | Act Stns         | 30.000            | 30.000                  | B001Ma_MWD+HDGM       | SD EA 29 32 Fed Com P10 20H /<br>Chevron SD EA 29 32 Fed Com |