





FRU 197-31C9 R1 Geodetic Proposal

Report Date: October 1, 2009
 Client: ExxonMobil
 Field: CO, Rio Blanco County (NAD 27 NZ) ExxonMobil 2008
 Structure / Slot: ExxonMobil 31-1S-97W (FRU 197-31C Pad) / FRU 197-31C09
 Well: FRU 197-31C09
 Borehole: Original Hole (Est RKB)
 UW/API#:
 Survey Name / Date: FRU 197-31C9 i/s 1-Oct-09 / October 1, 2009
 Tort / AHD / DDI / ERD ratio: 29.998° / 765.94 ft / 4.364 / 0.061
 Grid Coordinate System: NAD27 Colorado State Planes, Northern Zone, US Feet
 Location Lat/Long: N 39 55 33.298, W 108 19 31.690
 Location Grid N/E Y/X: N 228480.000 ftUS, E 1207688.000 ftUS
 Grid Convergence Angle: -1.82563037°
 Grid Scale Factor: 0.99997283

Survey / DLS Computation Method: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 251.900°
 Vertical Section Origin: N 0.000 ft, E 0.000 ft
 TVD Reference Datum:
 TVD Reference Elevation: 6562.0 ft relative to MSL
 Sea Bed / Ground Level Elevation: 6562.000 ft relative to MSL
 Magnetic Declination: 10.774°
 Total Field Strength: 52623.944 nT
 Magnetic Dip: 66.109°
 Declination Date: October 01, 2009
 Magnetic Declination Model: BGGM 2008
 North Reference: Grid North
 Total Corr Mag North -> Grid North: +12.600°
 Local Coordinates Referenced To: Well Head

| Comments | Measured Depth (ft) | Inclination (deg) | Azimuth (deg) | Sub-Sea TVD (ft) | TVD (ft) | Vertical Section (ft) | NS (ft) | EW (ft) | DLS (deg/100 ft) | Northing (ftUS) | Easting (ftUS) | Latitude | Longitude |
|---------------------|---------------------|-------------------|---------------|------------------|----------|-----------------------|---------|---------|------------------|-----------------|----------------|----------------|-----------------|
| Tie-In / Surface | 0.00 | 0.00 | 251.90 | -6562.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 228480.00 | 1207688.00 | N 39 55 33.298 | W 108 19 31.690 |
| | 100.00 | 0.00 | 251.90 | -6462.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 228480.00 | 1207688.00 | N 39 55 33.298 | W 108 19 31.690 |
| | 200.00 | 0.00 | 251.90 | -6362.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 228480.00 | 1207688.00 | N 39 55 33.298 | W 108 19 31.690 |
| KOP Build 2° DLS | 300.00 | 0.00 | 251.90 | -6262.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 228480.00 | 1207688.00 | N 39 55 33.298 | W 108 19 31.690 |
| | 400.00 | 2.00 | 251.90 | -6162.02 | 399.98 | 1.75 | -0.54 | -1.66 | 2.00 | 228479.46 | 1207686.34 | N 39 55 33.292 | W 108 19 31.711 |
| | 500.00 | 4.00 | 251.90 | -6062.16 | 499.84 | 6.98 | -2.17 | -6.63 | 2.00 | 228477.83 | 1207681.37 | N 39 55 33.274 | W 108 19 31.774 |
| Minimum Gyro Survey | 500.16 | 4.00 | 251.90 | -6062.00 | 500.00 | 6.99 | -2.17 | -6.64 | 2.00 | 228477.83 | 1207681.36 | N 39 55 33.274 | W 108 19 31.774 |
| | 600.00 | 6.00 | 251.90 | -5962.55 | 599.45 | 15.69 | -4.88 | -14.92 | 2.00 | 228475.12 | 1207673.08 | N 39 55 33.245 | W 108 19 31.879 |
| | 700.00 | 8.00 | 251.90 | -5863.30 | 698.70 | 27.88 | -8.66 | -26.50 | 2.00 | 228471.34 | 1207661.50 | N 39 55 33.204 | W 108 19 32.027 |
| | 800.00 | 10.00 | 251.90 | -5764.53 | 797.47 | 43.52 | -13.52 | -41.37 | 2.00 | 228466.48 | 1207646.63 | N 39 55 33.151 | W 108 19 32.215 |
| | 900.00 | 12.00 | 251.90 | -5666.38 | 895.62 | 62.60 | -19.45 | -59.50 | 2.00 | 228460.55 | 1207628.50 | N 39 55 33.087 | W 108 19 32.446 |
| | 1000.00 | 14.00 | 251.90 | -5568.94 | 993.06 | 85.10 | -26.44 | -80.88 | 2.00 | 228453.56 | 1207607.12 | N 39 55 33.011 | W 108 19 32.717 |
| Begin Tangent 15° | 1049.94 | 15.00 | 251.90 | -5520.59 | 1041.41 | 97.60 | -30.33 | -92.77 | 2.00 | 228449.67 | 1207595.23 | N 39 55 32.969 | W 108 19 32.868 |
| | 1100.00 | 15.00 | 251.90 | -5472.24 | 1089.76 | 110.56 | -34.35 | -105.08 | 0.00 | 228445.65 | 1207582.92 | N 39 55 32.926 | W 108 19 33.024 |
| | 1200.00 | 15.00 | 251.90 | -5375.65 | 1186.35 | 136.44 | -42.40 | -129.68 | 0.00 | 228437.61 | 1207558.32 | N 39 55 32.838 | W 108 19 33.336 |
| A-groove | 1257.61 | 15.00 | 251.90 | -5320.00 | 1242.00 | 151.35 | -47.03 | -143.85 | 0.00 | 228432.97 | 1207544.15 | N 39 55 32.788 | W 108 19 33.516 |
| | 1300.00 | 15.00 | 251.90 | -5279.06 | 1282.94 | 162.32 | -50.44 | -154.28 | 0.00 | 228429.56 | 1207533.72 | N 39 55 32.751 | W 108 19 33.649 |
| | 1400.00 | 15.00 | 251.90 | -5182.46 | 1379.54 | 188.20 | -58.48 | -178.88 | 0.00 | 228421.52 | 1207509.13 | N 39 55 32.664 | W 108 19 33.961 |
| B-groove | 1443.96 | 15.00 | 251.90 | -5140.00 | 1422.00 | 199.57 | -62.01 | -189.69 | 0.00 | 228417.99 | 1207498.31 | N 39 55 32.626 | W 108 19 34.098 |
| | 1500.00 | 15.00 | 251.90 | -5085.87 | 1476.13 | 214.08 | -66.52 | -203.48 | 0.00 | 228413.48 | 1207484.53 | N 39 55 32.577 | W 108 19 34.273 |
| | 1600.00 | 15.00 | 251.90 | -4989.28 | 1572.72 | 239.96 | -74.56 | -228.08 | 0.00 | 228405.44 | 1207459.93 | N 39 55 32.490 | W 108 19 34.586 |
| | 1700.00 | 15.00 | 251.90 | -4892.68 | 1669.32 | 265.84 | -82.61 | -252.68 | 0.00 | 228397.40 | 1207435.33 | N 39 55 32.402 | W 108 19 34.898 |
| | 1800.00 | 15.00 | 251.90 | -4796.09 | 1765.91 | 291.72 | -90.65 | -277.27 | 0.00 | 228389.36 | 1207410.73 | N 39 55 32.315 | W 108 19 35.210 |
| | 1900.00 | 15.00 | 251.90 | -4699.50 | 1862.50 | 317.60 | -98.69 | -301.87 | 0.00 | 228381.31 | 1207386.14 | N 39 55 32.228 | W 108 19 35.522 |
| | 2000.00 | 15.00 | 251.90 | -4602.90 | 1959.10 | 343.48 | -106.73 | -326.47 | 0.00 | 228373.27 | 1207361.54 | N 39 55 32.141 | W 108 19 35.835 |
| | 2100.00 | 15.00 | 251.90 | -4506.31 | 2055.69 | 369.36 | -114.77 | -351.07 | 0.00 | 228365.23 | 1207336.94 | N 39 55 32.054 | W 108 19 36.147 |
| | 2200.00 | 15.00 | 251.90 | -4409.72 | 2152.28 | 395.24 | -122.82 | -375.67 | 0.00 | 228357.19 | 1207312.34 | N 39 55 31.967 | W 108 19 36.459 |
| | 2300.00 | 15.00 | 251.90 | -4313.12 | 2248.88 | 421.12 | -130.86 | -400.27 | 0.00 | 228349.15 | 1207287.74 | N 39 55 31.879 | W 108 19 36.772 |
| | 2400.00 | 15.00 | 251.90 | -4216.53 | 2345.47 | 447.00 | -138.90 | -424.87 | 0.00 | 228341.11 | 1207263.14 | N 39 55 31.792 | W 108 19 37.084 |
| | 2500.00 | 15.00 | 251.90 | -4119.94 | 2442.06 | 472.88 | -146.94 | -449.47 | 0.00 | 228333.06 | 1207238.55 | N 39 55 31.705 | W 108 19 37.396 |
| | 2600.00 | 15.00 | 251.90 | -4023.35 | 2538.65 | 498.76 | -154.98 | -474.07 | 0.00 | 228325.02 | 1207213.95 | N 39 55 31.618 | W 108 19 37.708 |
| | 2700.00 | 15.00 | 251.90 | -3926.75 | 2635.25 | 524.64 | -163.02 | -498.66 | 0.00 | 228316.98 | 1207189.35 | N 39 55 31.531 | W 108 19 38.021 |
| | 2800.00 | 15.00 | 251.90 | -3830.16 | 2731.84 | 550.52 | -171.07 | -523.26 | 0.00 | 228308.94 | 1207164.75 | N 39 55 31.443 | W 108 19 38.333 |
| | 2900.00 | 15.00 | 251.90 | -3733.57 | 2828.43 | 576.40 | -179.11 | -547.86 | 0.00 | 228300.90 | 1207140.15 | N 39 55 31.356 | W 108 19 38.645 |
| Wasatch A | 2986.51 | 15.00 | 251.90 | -3650.00 | 2912.00 | 598.79 | -186.07 | -569.14 | 0.00 | 228293.94 | 1207118.87 | N 39 55 31.281 | W 108 19 38.915 |
| | 3000.00 | 15.00 | 251.90 | -3636.97 | 2925.03 | 602.28 | -187.15 | -572.46 | 0.00 | 228292.85 | 1207115.56 | N 39 55 31.269 | W 108 19 38.958 |
| | 3100.00 | 15.00 | 251.90 | -3540.38 | 3021.62 | 628.16 | -195.19 | -597.06 | 0.00 | 228284.81 | 1207090.96 | N 39 55 31.182 | W 108 19 39.270 |
| | 3200.00 | 15.00 | 251.90 | -3443.79 | 3118.21 | 654.04 | -203.23 | -621.66 | 0.00 | 228276.77 | 1207066.36 | N 39 55 31.095 | W 108 19 39.582 |
| KOP Drop 2° DLS | 3255.26 | 15.00 | 251.90 | -3390.41 | 3171.59 | 668.34 | -207.68 | -635.25 | 0.00 | 228272.33 | 1207052.77 | N 39 55 31.047 | W 108 19 39.755 |
| | 3300.00 | 14.10 | 251.90 | -3347.11 | 3214.89 | 679.58 | -211.17 | -645.94 | 2.00 | 228268.83 | 1207042.08 | N 39 55 31.009 | W 108 19 39.890 |
| | 3400.00 | 12.10 | 251.90 | -3249.71 | 3312.29 | 702.25 | -218.22 | -667.48 | 2.00 | 228261.79 | 1207020.53 | N 39 55 30.932 | W 108 19 40.164 |
| | 3500.00 | 10.10 | 251.90 | -3151.59 | 3410.41 | 721.51 | -224.20 | -685.79 | 2.00 | 228255.81 | 1207002.23 | N 39 55 30.867 | W 108 19 40.396 |
| | 3600.00 | 8.10 | 251.90 | -3052.86 | 3509.14 | 737.33 | -229.12 | -700.83 | 2.00 | 228250.89 | 1206987.19 | N 39 55 30.814 | W 108 19 40.587 |
| | 3700.00 | 6.10 | 251.90 | -2953.63 | 3608.37 | 749.70 | -232.96 | -712.58 | 2.00 | 228247.05 | 1206975.44 | N 39 55 30.772 | W 108 19 40.736 |
| | 3800.00 | 4.10 | 251.90 | -2854.03 | 3707.97 | 758.59 | -235.72 | -721.04 | 2.00 | 228244.28 | 1206966.98 | N 39 55 30.742 | W 108 19 40.844 |
| | 3900.00 | 2.10 | 251.90 | -2754.18 | 3807.82 | 764.01 | -237.41 | -726.19 | 2.00 | 228242.60 | 1206961.84 | N 39 55 30.724 | W 108 19 40.909 |
| | 4000.00 | 0.10 | 251.90 | -2654.21 | 3907.79 | 765.93 | -238.01 | -728.02 | 2.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |

WellDesign Ver SP 2.1 Bld(doc40x_100) FRU 197-31C09\FRU 197-31C09\Original Hole (Est RKB)\FRU 197-31C9 ivs 1-Oct-09Generated 11/20/2009 10:18 AM Page 2 of 3

| | | | | | | | | | | | | | |
|-------------------|----------|------|--------|---------|----------|--------|---------|---------|------|-----------|------------|----------------|-----------------|
| | 10000.00 | 0.00 | 251.90 | 3345.79 | 9907.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10100.00 | 0.00 | 251.90 | 3445.79 | 10007.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10200.00 | 0.00 | 251.90 | 3545.79 | 10107.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10300.00 | 0.00 | 251.90 | 3645.79 | 10207.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10400.00 | 0.00 | 251.90 | 3745.79 | 10307.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10500.00 | 0.00 | 251.90 | 3845.79 | 10407.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10600.00 | 0.00 | 251.90 | 3945.79 | 10507.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10700.00 | 0.00 | 251.90 | 4045.79 | 10607.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10800.00 | 0.00 | 251.90 | 4145.79 | 10707.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 10900.00 | 0.00 | 251.90 | 4245.79 | 10807.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| WF 200 | 10914.21 | 0.00 | 251.90 | 4260.00 | 10822.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11000.00 | 0.00 | 251.90 | 4345.79 | 10907.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11100.00 | 0.00 | 251.90 | 4445.79 | 11007.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| Cameo | 11200.00 | 0.00 | 251.90 | 4545.79 | 11107.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11204.21 | 0.00 | 251.90 | 4550.00 | 11112.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11300.00 | 0.00 | 251.90 | 4645.79 | 11207.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11400.00 | 0.00 | 251.90 | 4745.79 | 11307.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| Rollins | 11454.21 | 0.00 | 251.90 | 4800.00 | 11362.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11500.00 | 0.00 | 251.90 | 4845.79 | 11407.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11600.00 | 0.00 | 251.90 | 4945.79 | 11507.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| Cozzette Coastal | 11634.21 | 0.00 | 251.90 | 4980.00 | 11542.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11700.00 | 0.00 | 251.90 | 5045.79 | 11607.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11800.00 | 0.00 | 251.90 | 5145.79 | 11707.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 11900.00 | 0.00 | 251.90 | 5245.79 | 11807.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| Corcorran Coastal | 11934.21 | 0.00 | 251.90 | 5280.00 | 11842.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12000.00 | 0.00 | 251.90 | 5345.79 | 11907.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12100.00 | 0.00 | 251.90 | 5445.79 | 12007.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12200.00 | 0.00 | 251.90 | 5545.79 | 12107.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12300.00 | 0.00 | 251.90 | 5645.79 | 12207.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12400.00 | 0.00 | 251.90 | 5745.79 | 12307.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| Corcorran Marine | 12484.21 | 0.00 | 251.90 | 5830.00 | 12392.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12500.00 | 0.00 | 251.90 | 5845.79 | 12407.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| | 12600.00 | 0.00 | 251.90 | 5945.79 | 12507.79 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |
| PBHL / TD | 12684.21 | 0.00 | 251.90 | 6030.00 | 12592.00 | 765.94 | -238.01 | -728.02 | 0.00 | 228242.00 | 1206960.00 | N 39 55 30.718 | W 108 19 40.932 |

Survey Type: Non-Def Proposal

Survey Error Model: SLB ISCWSA version 24 *** 3-D 95.00% Confidence 2.7955 sigma

Surveying Prog:

| <u>MD From (ft)</u> | <u>MD To (ft)</u> | <u>EOU Freq</u> | <u>Survey Tool Type</u> |
|-----------------------|---------------------|-----------------|-------------------------|
| 0.00 | 500.16 | 1/100.00 | SLB_NSG+SSHOT |
| 500.16 | 4005.21 | 1/100.00 | SLB_MWD-STD |
| 4005.21 | 12684.21 | 1/100.00 | SLB_INC-ONLY |

Borehole -> Survey

Original Hole (Est RKB) -> FRU 197-31C9 ivs 1-Oct-09
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