

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

SW NW SEC. 15 T5N R65W 6th P.M.

VETTING 21

ORIGINAL WELLBORE

09 March, 2016

Plan: PROPOSAL #2

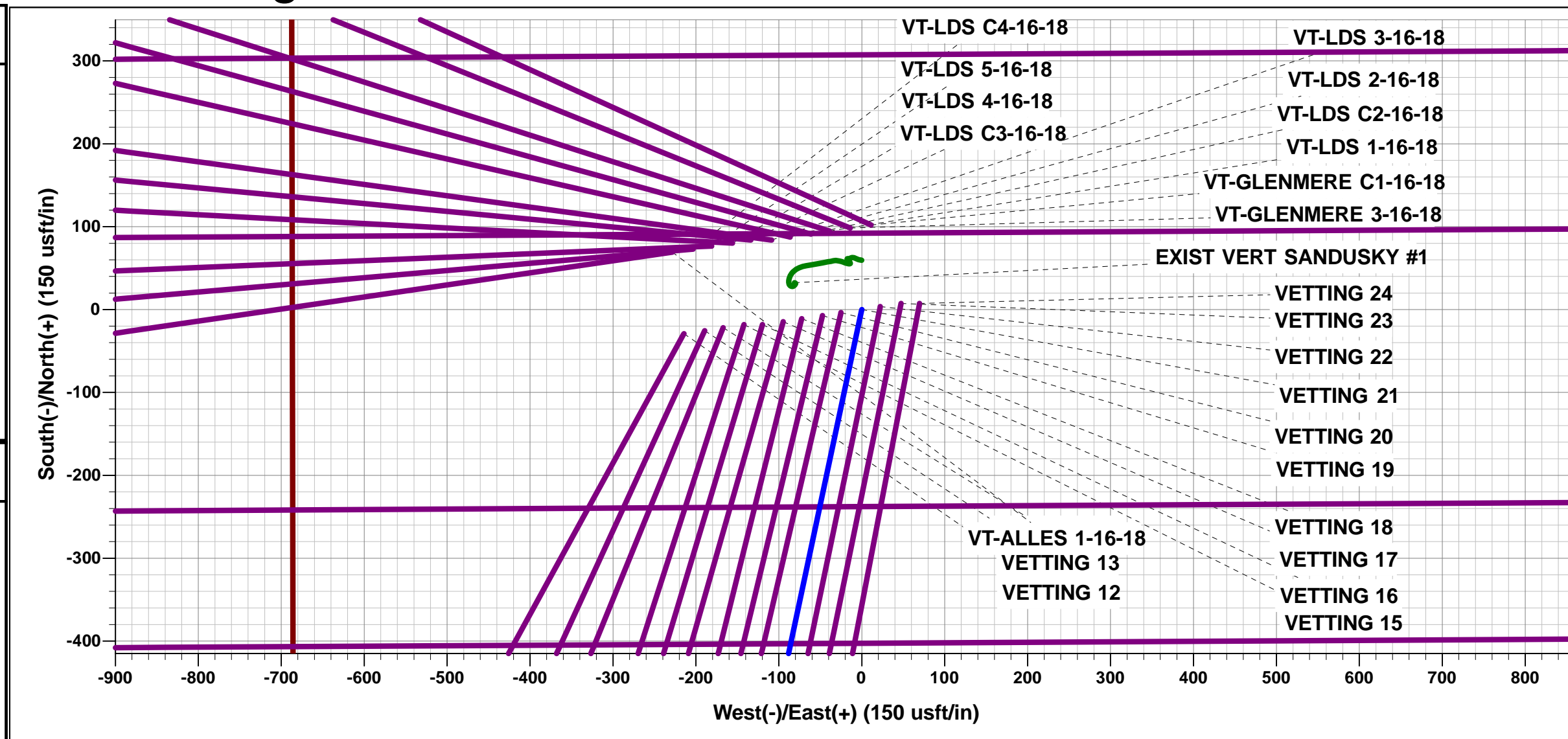




Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW NW SEC. 15 T5N R65W 6th P.M.
Well: VETTING 21
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

| ANNOTATIONS | | | | | | | | | | |
|-------------|---------|-------|--------|---------|---------|--------|---------|----------------------------|--|--|
| TVD | MD | Inc | Azi | +N/-S | +E/-W | VSec | Dep | Annotation | | |
| 1000.0 | 1000.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | START NUDGE (2°/100ft BUR) | | |
| 1600.0 | 1604.5 | 12.09 | 192.00 | -62.2 | -13.2 | 30.5 | 63.5 | 9 5/8" SURFACE CASING | | |
| 1663.6 | 1669.5 | 12.09 | 192.00 | -75.5 | -16.0 | 37.1 | 77.2 | END OF TANGENT | | |
| 3000.4 | 3191.9 | 42.54 | 192.00 | -750.8 | -159.6 | 368.7 | 767.5 | EOB TO 42.54° INC | | |
| 4325.2 | 4989.9 | 42.54 | 192.00 | -1939.8 | -412.3 | 952.6 | 1983.1 | END OF TANGENT | | |
| 6262.0 | 7116.8 | 0.00 | 0.00 | -2677.3 | -569.0 | 1314.8 | 2737.1 | EOD TO VERTICAL | | |
| 6292.0 | 7146.8 | 0.00 | 0.00 | -2677.3 | -569.0 | 1314.8 | 2737.1 | KOP (10°/100ft BUR) | | |
| 6865.0 | 8046.9 | 90.00 | 269.96 | -2677.7 | -1142.1 | 1863.7 | 3310.1 | LANDING POINT - VETTING 21 | | |
| 6865.0 | 15843.4 | 90.00 | 269.96 | -2683.3 | -8938.6 | 9332.7 | 11106.6 | BHL - VETTING 21 | | |

| WELLBORE TARGET DETAILS (LAT/LONG) | | | | | | |
|------------------------------------|--------|---------|---------|-----------|-------------|--|
| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | |
| KOP - VETTING 21 | 6292.0 | -2677.3 | -569.0 | 40.393711 | -104.658453 | |
| LANDING PNT - VETTING 21 | 6865.0 | -2677.7 | -1142.0 | 40.393710 | -104.660510 | |
| BHL - VETTING 21 | 6865.0 | -2683.3 | -8938.6 | 40.393690 | -104.688500 | |



| FORMATION TOP DETAILS | | |
|-----------------------|--------|----------------|
| TVDPath | MDPath | Formation |
| 3583.0 | 3982.6 | PARKMAN |
| 4132.0 | 4727.7 | SUSSEX |
| 4823.0 | 5609.1 | SHANNON |
| 6703.0 | 7605.1 | SHARON SPRINGS |
| 6723.0 | 7634.6 | NIOBRARA |
| 6865.0 | 8046.9 | NIO B TARGET |

| PROPOSED LOCAL COORDINATES | | |
|---------------------------------------|--|--|
| SHL: 1979ft FNL & 687ft FWL of Sec 15 | | |
| LP: 660ft FSL & 460ft FEL of Sec 16 | | |
| BHL: 660ft FNL & 2345ft FWL of Sec 17 | | |

T

M

Azimuths to True North

Magnetic North: 8.32°

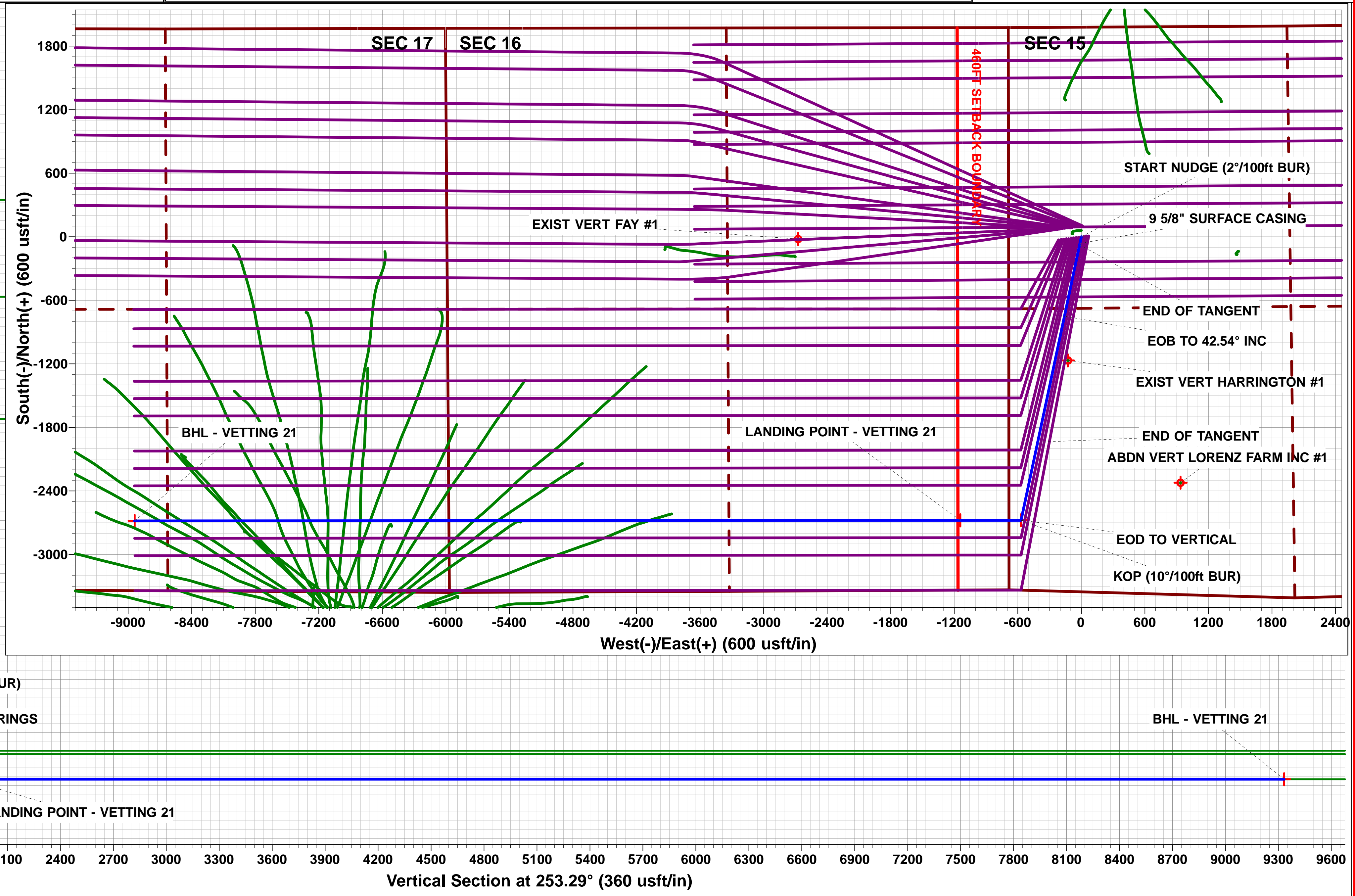
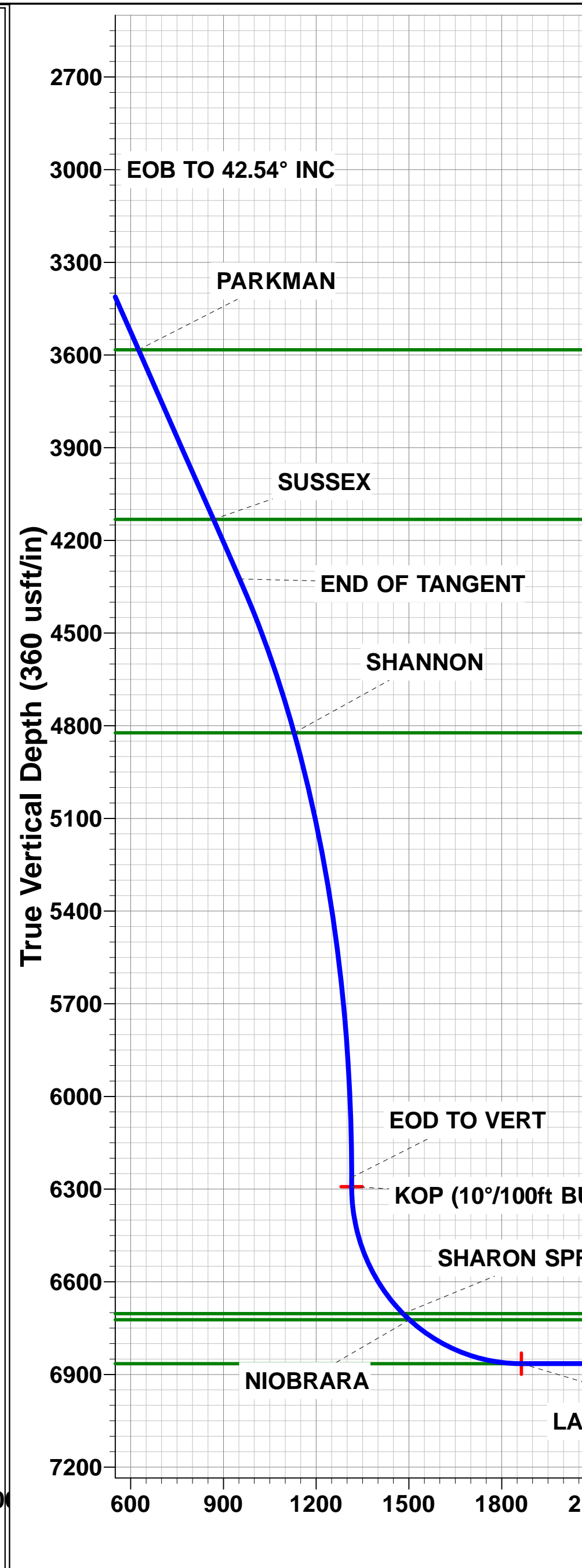
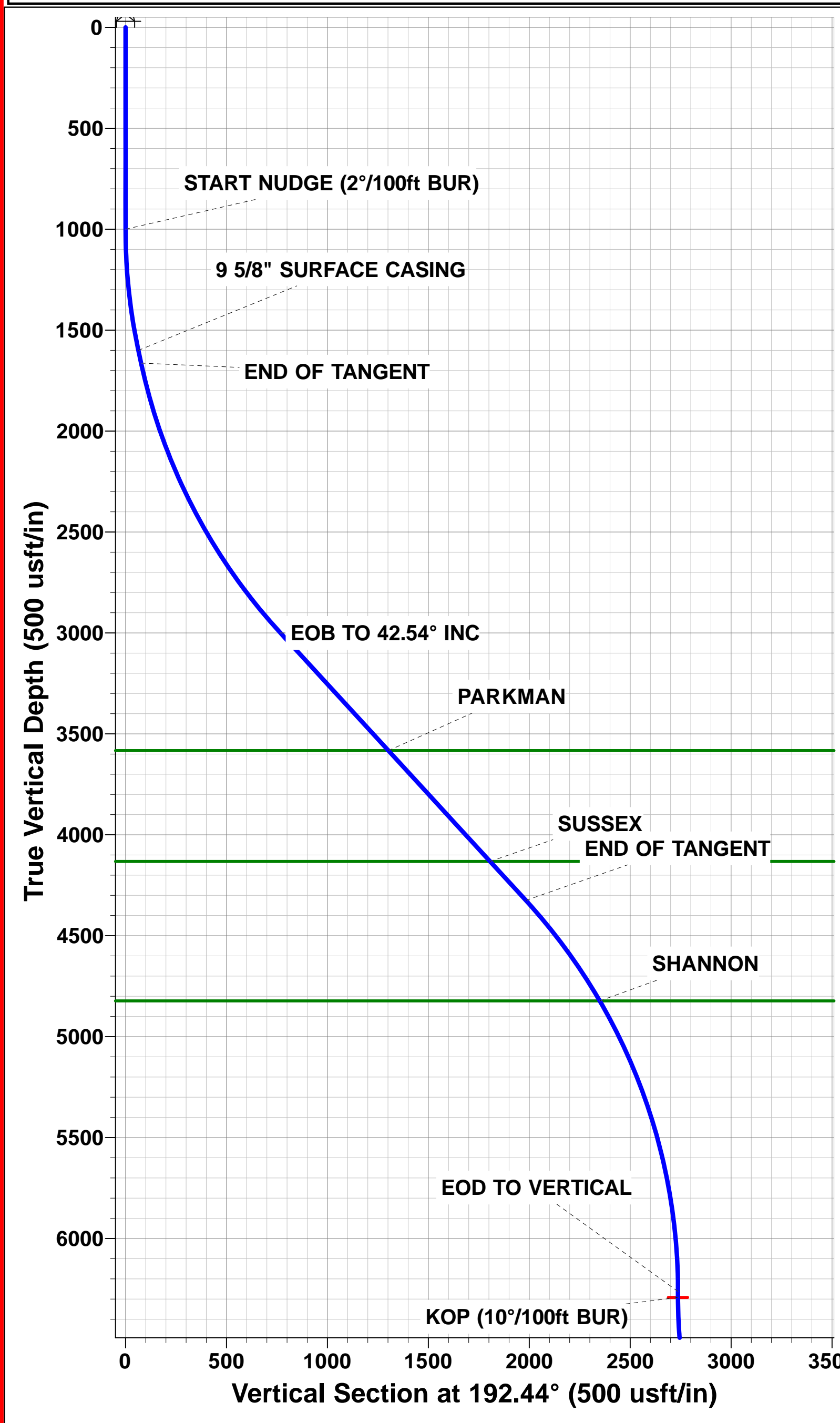
Magnetic Field

Strength: 52584.9snT

Dip Angle: 66.91°

Date: 21/11/2015

Model: IGRF2015



Planning Report



| | | | |
|------------------|---------------------------------|-------------------------------------|--|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well VETTING 21 |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Project: | WELD COUNTY, COLORADO (NAD 83) | MD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Site: | SW NW SEC. 15 T5N R65W 6th P.M. | North Reference: | True |
| Well: | VETTING 21 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL #2 | | |

| | | | |
|--------------------|--------------------------------|----------------------|-----------------------------|
| Project | WELD COUNTY, COLORADO (NAD 83) | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | Using geodetic scale factor |

| | | | |
|------------------------------|---------------------------------|--------------------------|-------------------|
| Site | SW NW SEC. 15 T5N R65W 6th P.M. | | |
| Site Position: | | Northing: | 1,390,032.91 usft |
| From: | Lat/Long | Easting: | 3,234,727.17 usft |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 1.10000ft |
| | | Latitude: | 40.400980 |
| | | Longitude: | -104.657180 |
| | | Grid Convergence: | 0.54 ° |

| | | | |
|-----------------------------|-------------|------------|----------------------------|
| Well | VETTING 21 | | |
| Well Position | +N-S | 29.1 usft | Northing: |
| | +E-W | 214.5 usft | Easting: |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: |
| | | | Latitude: |
| | | | Longitude: |
| | | | Ground Level: |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | ORIGINAL WELLBORE | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 21/11/2015 | 8.32 | 66.91 | 52,585 |

| | | | | |
|--------------------------|--------------------------------|--------------------|----------------------|----------------------|
| Design | PROPOSAL #2 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PROTOTYPE | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (usft) | +N-S (usft) | +E-W (usft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 253.29 |

| Plan Sections | | | | | | | | | | | |
|----------------------|---------|---------|----------------|-----------|-------------|-------------|------------------------|-----------------------|----------------------|---------|------------------|
| MD (usft) | Inc (°) | Azi (°) | Vertical Depth | SS (usft) | +N-S (usft) | +E-W (usft) | Dogleg Rate (°/100usf) | Build Rate (°/100usf) | Turn Rate (°/100usf) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | -4,664.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | -3,664.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,604.5 | 12.09 | 192.00 | 1,600.0 | -3,064.0 | -62.1 | -13.2 | 2.00 | 2.00 | 0.00 | 192.00 | |
| 1,669.5 | 12.09 | 192.00 | 1,663.6 | -3,000.4 | -75.5 | -16.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,191.9 | 42.54 | 192.00 | 3,000.4 | -1,663.6 | -750.8 | -159.6 | 2.00 | 2.00 | 0.00 | 0.00 | |
| 4,989.9 | 42.54 | 192.00 | 4,325.2 | -338.8 | -1,939.8 | -412.3 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,116.8 | 0.00 | 0.00 | 6,262.0 | 1,598.0 | -2,677.3 | -569.0 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 7,146.8 | 0.00 | 0.00 | 6,292.0 | 1,628.0 | -2,677.3 | -569.0 | 0.00 | 0.00 | 0.00 | 0.00 | KOP - VETTING 21 |
| 8,046.9 | 90.00 | 269.96 | 6,865.0 | 2,201.0 | -2,677.7 | -1,142.0 | 10.00 | 10.00 | -10.00 | 269.96 | LANDING PNT - VE |
| 15,843.4 | 90.00 | 269.96 | 6,865.0 | 2,201.0 | -2,683.3 | -8,938.6 | 0.00 | 0.00 | 0.00 | -139.53 | BHL - VETTING 21 |

| | | | |
|------------------|---------------------------------|-------------------------------------|--|
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| Project: | WELD COUNTY, COLORADO (NAD 83) | MD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Site: | SW NW SEC. 15 T5N R65W 6th P.M. | North Reference: | True |
| Well: | VETTING 21 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL #2 | | |

Planned Survey

| MD (usft) | Inc (°) | Azi (°) | TVD (usft) | SS (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------------------|------------|------------|---------------|--------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 0.0 | 0.00 | 0.00 | 0.0 | 4,664.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 100.0 | 0.00 | 0.00 | 100.0 | 4,564.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 4,464.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 300.0 | 0.00 | 0.00 | 300.0 | 4,364.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 400.0 | 0.00 | 0.00 | 400.0 | 4,264.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 500.0 | 0.00 | 0.00 | 500.0 | 4,164.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 0.00 | 0.00 | 600.0 | 4,064.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 700.0 | 0.00 | 0.00 | 700.0 | 3,964.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 800.0 | 0.00 | 0.00 | 800.0 | 3,864.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 900.0 | 0.00 | 0.00 | 900.0 | 3,764.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| START NUDGE (2°/100ft BUR) | | | | | | | | | | |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | 3,664.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,100.0 | 2.00 | 192.00 | 1,100.0 | 3,564.02 | -1.7 | -0.4 | 0.8 | 2.00 | 2.00 | 0.00 |
| 1,200.0 | 4.00 | 192.00 | 1,199.8 | 3,464.16 | -6.8 | -1.5 | 3.4 | 2.00 | 2.00 | 0.00 |
| 1,300.0 | 6.00 | 192.00 | 1,299.5 | 3,364.55 | -15.4 | -3.3 | 7.5 | 2.00 | 2.00 | 0.00 |
| 1,400.0 | 8.00 | 192.00 | 1,398.7 | 3,265.30 | -27.3 | -5.8 | 13.4 | 2.00 | 2.00 | 0.00 |
| 1,500.0 | 10.00 | 192.00 | 1,497.5 | 3,166.53 | -42.6 | -9.0 | 20.9 | 2.00 | 2.00 | 0.00 |
| 1,600.0 | 12.00 | 192.00 | 1,595.6 | 3,068.38 | -61.2 | -13.0 | 30.1 | 2.00 | 2.00 | 0.00 |
| 9 5/8" SURFACE CASING | | | | | | | | | | |
| 1,604.5 | 12.09 | 192.00 | 1,600.0 | 3,063.98 | -62.2 | -13.2 | 30.5 | 1.99 | 1.99 | 0.00 |
| END OF TANGENT | | | | | | | | | | |
| 1,669.5 | 12.09 | 192.00 | 1,663.6 | 3,000.42 | -75.5 | -16.0 | 37.1 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 12.70 | 192.00 | 1,693.4 | 2,970.63 | -81.9 | -17.4 | 40.2 | 2.00 | 2.00 | 0.00 |
| 1,800.0 | 14.70 | 192.00 | 1,790.5 | 2,873.48 | -105.0 | -22.3 | 51.6 | 2.00 | 2.00 | 0.00 |
| 1,900.0 | 16.70 | 192.00 | 1,886.8 | 2,777.21 | -131.5 | -28.0 | 64.6 | 2.00 | 2.00 | 0.00 |
| 2,000.0 | 18.70 | 192.00 | 1,982.0 | 2,681.95 | -161.2 | -34.3 | 79.2 | 2.00 | 2.00 | 0.00 |
| 2,100.0 | 20.70 | 192.00 | 2,076.2 | 2,587.81 | -194.2 | -41.3 | 95.4 | 2.00 | 2.00 | 0.00 |
| 2,200.0 | 22.70 | 192.00 | 2,169.1 | 2,494.90 | -230.4 | -49.0 | 113.1 | 2.00 | 2.00 | 0.00 |
| 2,300.0 | 24.70 | 192.00 | 2,260.7 | 2,403.34 | -269.7 | -57.3 | 132.4 | 2.00 | 2.00 | 0.00 |
| 2,400.0 | 26.70 | 192.00 | 2,350.8 | 2,313.24 | -312.1 | -66.3 | 153.3 | 2.00 | 2.00 | 0.00 |
| 2,500.0 | 28.70 | 192.00 | 2,439.3 | 2,224.70 | -357.6 | -76.0 | 175.6 | 2.00 | 2.00 | 0.00 |
| 2,600.0 | 30.70 | 192.00 | 2,526.2 | 2,137.84 | -406.0 | -86.3 | 199.4 | 2.00 | 2.00 | 0.00 |
| 2,700.0 | 32.70 | 192.00 | 2,611.2 | 2,052.77 | -457.4 | -97.2 | 224.6 | 2.00 | 2.00 | 0.00 |
| 2,800.0 | 34.70 | 192.00 | 2,694.4 | 1,969.58 | -511.7 | -108.8 | 251.3 | 2.00 | 2.00 | 0.00 |
| 2,900.0 | 36.70 | 192.00 | 2,775.6 | 1,888.37 | -568.8 | -120.9 | 279.3 | 2.00 | 2.00 | 0.00 |
| 3,000.0 | 38.70 | 192.00 | 2,854.7 | 1,809.25 | -628.6 | -133.6 | 308.7 | 2.00 | 2.00 | 0.00 |
| 3,100.0 | 40.70 | 192.00 | 2,931.7 | 1,732.32 | -691.1 | -146.9 | 339.4 | 2.00 | 2.00 | 0.00 |
| EOB TO 42.54° INC | | | | | | | | | | |
| 3,191.9 | 42.54 | 192.00 | 3,000.4 | 1,663.62 | -750.8 | -159.6 | 368.7 | 2.00 | 2.00 | 0.00 |
| 3,200.0 | 42.54 | 192.00 | 3,006.4 | 1,657.65 | -756.1 | -160.7 | 371.3 | 0.01 | 0.01 | 0.00 |
| 3,300.0 | 42.54 | 192.00 | 3,080.0 | 1,583.97 | -822.3 | -174.8 | 403.8 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 42.54 | 192.00 | 3,153.7 | 1,510.28 | -888.4 | -188.8 | 436.3 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 42.54 | 192.00 | 3,227.4 | 1,436.60 | -954.5 | -202.9 | 468.8 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 42.54 | 192.00 | 3,301.1 | 1,362.92 | -1,020.7 | -216.9 | 501.2 | 0.00 | 0.00 | 0.00 |
| 3,700.0 | 42.54 | 192.00 | 3,374.8 | 1,289.24 | -1,086.8 | -231.0 | 533.7 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 42.54 | 192.00 | 3,448.4 | 1,215.56 | -1,152.9 | -245.0 | 566.2 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 42.54 | 192.00 | 3,522.1 | 1,141.87 | -1,219.0 | -259.1 | 598.7 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | | |
| 3,982.6 | 42.54 | 192.00 | 3,583.0 | 1,081.00 | -1,273.7 | -270.7 | 625.5 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 42.54 | 192.00 | 3,595.8 | 1,068.19 | -1,285.2 | -273.1 | 631.1 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 42.54 | 192.00 | 3,669.5 | 994.51 | -1,351.3 | -287.2 | 663.6 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 42.54 | 192.00 | 3,743.2 | 920.83 | -1,417.4 | -301.3 | 696.1 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 42.54 | 192.00 | 3,816.9 | 847.14 | -1,483.6 | -315.3 | 728.6 | 0.00 | 0.00 | 0.00 |
| 4,400.0 | 42.54 | 192.00 | 3,890.5 | 773.46 | -1,549.7 | -329.4 | 761.0 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|---------------------------------|-------------------------------------|--|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well VETTING 21 |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Project: | WELD COUNTY, COLORADO (NAD 83) | MD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Site: | SW NW SEC. 15 T5N R65W 6th P.M. | North Reference: | True |
| Well: | VETTING 21 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL #2 | | |

Planned Survey

| MD (usft) | Inc (°) | Azi (°) | TVD (usft) | SS (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|--|--------------|---------------|----------------|------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 4,500.0 | 42.54 | 192.00 | 3,964.2 | 699.78 | -1,615.8 | -343.4 | 793.5 | 0.00 | 0.00 | 0.00 |
| 4,600.0 | 42.54 | 192.00 | 4,037.9 | 626.10 | -1,682.0 | -357.5 | 826.0 | 0.00 | 0.00 | 0.00 |
| 4,700.0 | 42.54 | 192.00 | 4,111.6 | 552.41 | -1,748.1 | -371.5 | 858.5 | 0.00 | 0.00 | 0.00 |
| SUSSEX | | | | | | | | | | |
| 4,727.7 | 42.54 | 192.00 | 4,132.0 | 532.00 | -1,766.4 | -375.4 | 867.5 | 0.00 | 0.00 | 0.00 |
| 4,800.0 | 42.54 | 192.00 | 4,185.3 | 478.73 | -1,814.2 | -385.6 | 890.9 | 0.00 | 0.00 | 0.00 |
| 4,900.0 | 42.54 | 192.00 | 4,259.0 | 405.05 | -1,880.4 | -399.6 | 923.4 | 0.00 | 0.00 | 0.00 |
| END OF TANGENT | | | | | | | | | | |
| 4,989.9 | 42.54 | 192.00 | 4,325.2 | 338.81 | -1,939.8 | -412.3 | 952.6 | 0.00 | 0.00 | 0.00 |
| 5,000.0 | 42.34 | 192.00 | 4,332.6 | 331.35 | -1,946.5 | -413.7 | 955.9 | 2.01 | -2.01 | 0.00 |
| 5,100.0 | 40.34 | 192.00 | 4,407.7 | 256.27 | -2,011.1 | -427.4 | 987.6 | 2.00 | -2.00 | 0.00 |
| 5,200.0 | 38.34 | 192.00 | 4,485.1 | 178.93 | -2,073.1 | -440.6 | 1,018.1 | 2.00 | -2.00 | 0.00 |
| 5,300.0 | 36.34 | 192.00 | 4,564.6 | 99.43 | -2,132.4 | -453.2 | 1,047.2 | 2.00 | -2.00 | 0.00 |
| 5,400.0 | 34.34 | 192.00 | 4,646.1 | 17.85 | -2,189.0 | -465.2 | 1,075.0 | 2.00 | -2.00 | 0.00 |
| 5,500.0 | 32.34 | 192.00 | 4,729.7 | -65.69 | -2,242.7 | -476.7 | 1,101.4 | 2.00 | -2.00 | 0.00 |
| 5,600.0 | 30.34 | 192.00 | 4,815.1 | -151.10 | -2,293.6 | -487.5 | 1,126.3 | 2.00 | -2.00 | 0.00 |
| SHANNON | | | | | | | | | | |
| 5,609.1 | 30.15 | 192.00 | 4,823.0 | -159.00 | -2,298.1 | -488.4 | 1,128.6 | 2.00 | -2.00 | 0.00 |
| 5,700.0 | 28.34 | 192.00 | 4,902.3 | -238.27 | -2,341.5 | -497.7 | 1,149.9 | 2.00 | -2.00 | 0.00 |
| 5,800.0 | 26.34 | 192.00 | 4,991.1 | -327.10 | -2,386.4 | -507.2 | 1,171.9 | 2.00 | -2.00 | 0.00 |
| 5,900.0 | 24.34 | 192.00 | 5,081.5 | -417.48 | -2,428.3 | -516.1 | 1,192.5 | 2.00 | -2.00 | 0.00 |
| 6,000.0 | 22.34 | 192.00 | 5,173.3 | -509.29 | -2,467.0 | -524.3 | 1,211.5 | 2.00 | -2.00 | 0.00 |
| 6,100.0 | 20.34 | 192.00 | 5,266.4 | -602.43 | -2,502.6 | -531.9 | 1,229.0 | 2.00 | -2.00 | 0.00 |
| 6,200.0 | 18.34 | 192.00 | 5,360.8 | -696.79 | -2,535.0 | -538.8 | 1,244.9 | 2.00 | -2.00 | 0.00 |
| 6,300.0 | 16.34 | 192.00 | 5,456.2 | -792.24 | -2,564.1 | -545.0 | 1,259.2 | 2.00 | -2.00 | 0.00 |
| 6,400.0 | 14.34 | 192.00 | 5,552.7 | -888.68 | -2,590.0 | -550.5 | 1,271.9 | 2.00 | -2.00 | 0.00 |
| 6,500.0 | 12.34 | 192.00 | 5,650.0 | -985.97 | -2,612.6 | -555.3 | 1,283.0 | 2.00 | -2.00 | 0.00 |
| 6,600.0 | 10.34 | 192.00 | 5,748.0 | -1,084.02 | -2,631.8 | -559.4 | 1,292.4 | 2.00 | -2.00 | 0.00 |
| 6,700.0 | 8.34 | 192.00 | 5,846.7 | -1,182.69 | -2,647.7 | -562.7 | 1,300.2 | 2.00 | -2.00 | 0.00 |
| 6,800.0 | 6.34 | 192.00 | 5,945.9 | -1,281.87 | -2,660.1 | -565.4 | 1,306.4 | 2.00 | -2.00 | 0.00 |
| 6,900.0 | 4.34 | 192.00 | 6,045.4 | -1,381.43 | -2,669.2 | -567.3 | 1,310.8 | 2.00 | -2.00 | 0.00 |
| 7,000.0 | 2.34 | 192.00 | 6,145.3 | -1,481.25 | -2,674.9 | -568.5 | 1,313.6 | 2.00 | -2.00 | 0.00 |
| 7,100.0 | 0.34 | 192.00 | 6,245.2 | -1,581.22 | -2,677.2 | -569.0 | 1,314.7 | 2.00 | -2.00 | 0.00 |
| EOD TO VERTICAL | | | | | | | | | | |
| 7,116.8 | 0.00 | 0.00 | 6,262.0 | -1,598.02 | -2,677.3 | -569.0 | 1,314.8 | 2.00 | -2.00 | 0.00 |
| KOP (10°/100ft BUR) | | | | | | | | | | |
| 7,146.8 | 0.00 | 0.00 | 6,292.0 | -1,628.02 | -2,677.3 | -569.0 | 1,314.8 | 0.00 | 0.00 | 0.00 |
| 7,200.0 | 5.32 | 269.96 | 6,345.1 | -1,681.14 | -2,677.3 | -571.5 | 1,317.1 | 10.00 | 10.00 | 0.00 |
| 7,300.0 | 15.32 | 269.96 | 6,443.4 | -1,779.40 | -2,677.3 | -589.4 | 1,334.3 | 10.00 | 10.00 | 0.00 |
| 7,400.0 | 25.32 | 269.96 | 6,537.1 | -1,873.06 | -2,677.3 | -624.1 | 1,367.5 | 10.00 | 10.00 | 0.00 |
| 7,500.0 | 35.32 | 269.96 | 6,623.3 | -1,959.27 | -2,677.3 | -674.5 | 1,415.8 | 10.00 | 10.00 | 0.00 |
| 7,600.0 | 45.32 | 269.96 | 6,699.4 | -2,035.42 | -2,677.4 | -739.1 | 1,477.7 | 10.00 | 10.00 | 0.00 |
| SHARON SPRINGS | | | | | | | | | | |
| 7,605.1 | 45.83 | 269.96 | 6,703.0 | -2,039.00 | -2,677.4 | -742.8 | 1,481.2 | 10.00 | 10.00 | 0.00 |
| NIOBRARA | | | | | | | | | | |
| 7,634.6 | 48.78 | 269.96 | 6,723.0 | -2,059.00 | -2,677.4 | -764.4 | 1,502.0 | 10.00 | 10.00 | 0.00 |
| 7,700.0 | 55.32 | 269.96 | 6,763.2 | -2,099.19 | -2,677.4 | -816.0 | 1,551.3 | 10.00 | 10.00 | 0.00 |
| 7,800.0 | 65.32 | 269.96 | 6,812.6 | -2,148.65 | -2,677.5 | -902.7 | 1,634.5 | 10.00 | 10.00 | 0.00 |
| 7,900.0 | 75.32 | 269.96 | 6,846.3 | -2,182.29 | -2,677.6 | -996.8 | 1,724.5 | 10.00 | 10.00 | 0.00 |
| 8,000.0 | 85.32 | 269.96 | 6,863.1 | -2,199.09 | -2,677.6 | -1,095.2 | 1,818.9 | 10.00 | 10.00 | 0.00 |
| LANDING POINT - VETTING 21 - NIO B TARGET | | | | | | | | | | |
| 8,046.9 | 90.00 | 269.96 | 6,865.0 | -2,201.00 | -2,677.7 | -1,142.0 | 1,863.7 | 10.00 | 10.00 | 0.00 |
| 8,100.0 | 90.00 | 269.96 | 6,865.0 | -2,201.00 | -2,677.7 | -1,195.2 | 1,914.6 | 0.00 | 0.00 | 0.00 |

Planning Report



| | | | |
|------------------|---------------------------------|-------------------------------------|--|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well VETTING 21 |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Project: | WELD COUNTY, COLORADO (NAD 83) | MD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Site: | SW NW SEC. 15 T5N R65W 6th P.M. | North Reference: | True |
| Well: | VETTING 21 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL #2 | | |

| Planned Survey | | | | | | | | | | |
|----------------|------------|------------|---------------|--------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| MD (usft) | Inc (°) | Azi (°) | TVD (usft) | SS (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 8,200.0 | 90.00 | 269.96 | 6,865.0 | -2,200.99 | -2,677.8 | -1,295.2 | 2,010.4 | 0.00 | 0.00 | 0.00 |
| 8,300.0 | 90.00 | 269.96 | 6,865.0 | -2,200.99 | -2,677.8 | -1,395.2 | 2,106.2 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 90.00 | 269.96 | 6,865.0 | -2,200.98 | -2,677.9 | -1,495.2 | 2,202.0 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 90.00 | 269.96 | 6,865.0 | -2,200.98 | -2,678.0 | -1,595.2 | 2,297.8 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 90.00 | 269.96 | 6,865.0 | -2,200.98 | -2,678.0 | -1,695.2 | 2,393.6 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 90.00 | 269.96 | 6,865.0 | -2,200.97 | -2,678.1 | -1,795.2 | 2,489.4 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 90.00 | 269.96 | 6,865.0 | -2,200.97 | -2,678.2 | -1,895.2 | 2,585.2 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 90.00 | 269.96 | 6,865.0 | -2,200.96 | -2,678.2 | -1,995.2 | 2,681.0 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 90.00 | 269.96 | 6,865.0 | -2,200.96 | -2,678.3 | -2,095.2 | 2,776.8 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 90.00 | 269.96 | 6,865.0 | -2,200.96 | -2,678.4 | -2,195.2 | 2,872.6 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 90.00 | 269.96 | 6,865.0 | -2,200.95 | -2,678.5 | -2,295.2 | 2,968.4 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 90.00 | 269.96 | 6,864.9 | -2,200.95 | -2,678.5 | -2,395.2 | 3,064.2 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 90.00 | 269.96 | 6,864.9 | -2,200.95 | -2,678.6 | -2,495.2 | 3,160.0 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 90.00 | 269.96 | 6,864.9 | -2,200.94 | -2,678.7 | -2,595.2 | 3,255.8 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 90.00 | 269.96 | 6,864.9 | -2,200.94 | -2,678.7 | -2,695.2 | 3,351.6 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 90.00 | 269.96 | 6,864.9 | -2,200.94 | -2,678.8 | -2,795.2 | 3,447.4 | 0.00 | 0.00 | 0.00 |
| 9,800.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,678.9 | -2,895.2 | 3,543.2 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,678.9 | -2,995.2 | 3,639.0 | 0.00 | 0.00 | 0.00 |
| 10,000.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,679.0 | -3,095.2 | 3,734.8 | 0.00 | 0.00 | 0.00 |
| 10,100.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,679.1 | -3,195.2 | 3,830.5 | 0.00 | 0.00 | 0.00 |
| 10,200.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,679.2 | -3,295.2 | 3,926.3 | 0.00 | 0.00 | 0.00 |
| 10,300.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,679.2 | -3,395.2 | 4,022.1 | 0.00 | 0.00 | 0.00 |
| 10,400.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,679.3 | -3,495.2 | 4,117.9 | 0.00 | 0.00 | 0.00 |
| 10,500.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,679.4 | -3,595.2 | 4,213.7 | 0.00 | 0.00 | 0.00 |
| 10,600.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,679.4 | -3,695.2 | 4,309.5 | 0.00 | 0.00 | 0.00 |
| 10,700.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,679.5 | -3,795.2 | 4,405.3 | 0.00 | 0.00 | 0.00 |
| 10,800.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,679.6 | -3,895.2 | 4,501.1 | 0.00 | 0.00 | 0.00 |
| 10,900.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,679.7 | -3,995.2 | 4,596.9 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,679.7 | -4,095.2 | 4,692.7 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,679.8 | -4,195.2 | 4,788.5 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,679.9 | -4,295.2 | 4,884.3 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.0 | -4,395.2 | 4,980.1 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.0 | -4,495.2 | 5,075.9 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.1 | -4,595.2 | 5,171.7 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.2 | -4,695.2 | 5,267.5 | 0.00 | 0.00 | 0.00 |
| 11,700.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.2 | -4,795.2 | 5,363.3 | 0.00 | 0.00 | 0.00 |
| 11,800.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.3 | -4,895.2 | 5,459.1 | 0.00 | 0.00 | 0.00 |
| 11,900.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.4 | -4,995.2 | 5,554.9 | 0.00 | 0.00 | 0.00 |
| 12,000.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.5 | -5,095.2 | 5,650.7 | 0.00 | 0.00 | 0.00 |
| 12,100.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.5 | -5,195.2 | 5,746.5 | 0.00 | 0.00 | 0.00 |
| 12,200.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.6 | -5,295.2 | 5,842.3 | 0.00 | 0.00 | 0.00 |
| 12,300.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.7 | -5,395.2 | 5,938.1 | 0.00 | 0.00 | 0.00 |
| 12,400.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.8 | -5,495.2 | 6,033.9 | 0.00 | 0.00 | 0.00 |
| 12,500.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.8 | -5,595.2 | 6,129.7 | 0.00 | 0.00 | 0.00 |
| 12,600.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,680.9 | -5,695.2 | 6,225.5 | 0.00 | 0.00 | 0.00 |
| 12,700.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,681.0 | -5,795.2 | 6,321.3 | 0.00 | 0.00 | 0.00 |
| 12,800.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,681.0 | -5,895.2 | 6,417.1 | 0.00 | 0.00 | 0.00 |
| 12,900.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,681.1 | -5,995.2 | 6,512.9 | 0.00 | 0.00 | 0.00 |
| 13,000.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,681.2 | -6,095.2 | 6,608.7 | 0.00 | 0.00 | 0.00 |
| 13,100.0 | 90.00 | 269.96 | 6,864.9 | -2,200.91 | -2,681.3 | -6,195.2 | 6,704.5 | 0.00 | 0.00 | 0.00 |
| 13,200.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,681.3 | -6,295.2 | 6,800.3 | 0.00 | 0.00 | 0.00 |
| 13,300.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,681.4 | -6,395.2 | 6,896.1 | 0.00 | 0.00 | 0.00 |
| 13,400.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,681.5 | -6,495.2 | 6,991.9 | 0.00 | 0.00 | 0.00 |
| 13,500.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,681.6 | -6,595.2 | 7,087.7 | 0.00 | 0.00 | 0.00 |

Planning Report



| | | | |
|------------------|---------------------------------|-------------------------------------|--|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well VETTING 21 |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Project: | WELD COUNTY, COLORADO (NAD 83) | MD Reference: | KB-EST @ 4664.0usft (Original Well Elev) |
| Site: | SW NW SEC. 15 T5N R65W 6th P.M. | North Reference: | True |
| Well: | VETTING 21 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL #2 | | |

| Planned Survey | | | | | | | | | | |
|-------------------------|--------------|---------------|----------------|------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| MD (usft) | Inc (°) | Azi (°) | TVD (usft) | SS (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 13,600.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,681.6 | -6,695.2 | 7,183.5 | 0.00 | 0.00 | 0.00 |
| 13,700.0 | 90.00 | 269.96 | 6,864.9 | -2,200.92 | -2,681.7 | -6,795.2 | 7,279.3 | 0.00 | 0.00 | 0.00 |
| 13,800.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,681.8 | -6,895.2 | 7,375.1 | 0.00 | 0.00 | 0.00 |
| 13,900.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,681.9 | -6,995.2 | 7,470.9 | 0.00 | 0.00 | 0.00 |
| 14,000.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,681.9 | -7,095.2 | 7,566.7 | 0.00 | 0.00 | 0.00 |
| 14,100.0 | 90.00 | 269.96 | 6,864.9 | -2,200.93 | -2,682.0 | -7,195.2 | 7,662.5 | 0.00 | 0.00 | 0.00 |
| 14,200.0 | 90.00 | 269.96 | 6,864.9 | -2,200.94 | -2,682.1 | -7,295.2 | 7,758.3 | 0.00 | 0.00 | 0.00 |
| 14,300.0 | 90.00 | 269.96 | 6,864.9 | -2,200.94 | -2,682.2 | -7,395.2 | 7,854.1 | 0.00 | 0.00 | 0.00 |
| 14,400.0 | 90.00 | 269.96 | 6,864.9 | -2,200.94 | -2,682.2 | -7,495.2 | 7,949.9 | 0.00 | 0.00 | 0.00 |
| 14,500.0 | 90.00 | 269.96 | 6,864.9 | -2,200.95 | -2,682.3 | -7,595.2 | 8,045.7 | 0.00 | 0.00 | 0.00 |
| 14,600.0 | 90.00 | 269.96 | 6,864.9 | -2,200.95 | -2,682.4 | -7,695.2 | 8,141.5 | 0.00 | 0.00 | 0.00 |
| 14,700.0 | 90.00 | 269.96 | 6,865.0 | -2,200.95 | -2,682.5 | -7,795.2 | 8,237.3 | 0.00 | 0.00 | 0.00 |
| 14,800.0 | 90.00 | 269.96 | 6,865.0 | -2,200.96 | -2,682.5 | -7,895.2 | 8,333.1 | 0.00 | 0.00 | 0.00 |
| 14,900.0 | 90.00 | 269.96 | 6,865.0 | -2,200.96 | -2,682.6 | -7,995.2 | 8,428.9 | 0.00 | 0.00 | 0.00 |
| 15,000.0 | 90.00 | 269.96 | 6,865.0 | -2,200.96 | -2,682.7 | -8,095.2 | 8,524.7 | 0.00 | 0.00 | 0.00 |
| 15,100.0 | 90.00 | 269.96 | 6,865.0 | -2,200.97 | -2,682.8 | -8,195.2 | 8,620.5 | 0.00 | 0.00 | 0.00 |
| 15,200.0 | 90.00 | 269.96 | 6,865.0 | -2,200.97 | -2,682.9 | -8,295.2 | 8,716.3 | 0.00 | 0.00 | 0.00 |
| 15,300.0 | 90.00 | 269.96 | 6,865.0 | -2,200.98 | -2,682.9 | -8,395.2 | 8,812.1 | 0.00 | 0.00 | 0.00 |
| 15,400.0 | 90.00 | 269.96 | 6,865.0 | -2,200.98 | -2,683.0 | -8,495.2 | 8,907.9 | 0.00 | 0.00 | 0.00 |
| 15,500.0 | 90.00 | 269.96 | 6,865.0 | -2,200.98 | -2,683.1 | -8,595.2 | 9,003.7 | 0.00 | 0.00 | 0.00 |
| 15,600.0 | 90.00 | 269.96 | 6,865.0 | -2,200.99 | -2,683.2 | -8,695.2 | 9,099.5 | 0.00 | 0.00 | 0.00 |
| 15,700.0 | 90.00 | 269.96 | 6,865.0 | -2,200.99 | -2,683.2 | -8,795.2 | 9,195.3 | 0.00 | 0.00 | 0.00 |
| 15,800.0 | 90.00 | 269.96 | 6,865.0 | -2,201.00 | -2,683.3 | -8,895.2 | 9,291.1 | 0.00 | 0.00 | 0.00 |
| BHL - VETTING 21 | | | | | | | | | | |
| 15,843.4 | 90.00 | 269.96 | 6,865.0 | -2,201.00 | -2,683.3 | -8,938.6 | 9,332.7 | 0.00 | 0.00 | 0.00 |

| Formations | | | | | | |
|--------------|---------------|----------------|-----------|------------|-------------------------|--|
| MD (usft) | TVD (usft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 3,982.6 | 3,583.0 | PARKMAN | | | | |
| 4,727.7 | 4,132.0 | SUSSEX | | | | |
| 5,609.1 | 4,823.0 | SHANNON | | | | |
| 7,605.1 | 6,703.0 | SHARON SPRINGS | | | | |
| 7,634.6 | 6,723.0 | NIOBRARA | | | | |
| 8,046.9 | 6,865.0 | NIO B TARGET | | | | |

| Plan Annotations | | | | |
|------------------|---------------|-------------------|-----------------|----------------------------|
| MD (usft) | TVD (usft) | Local Coordinates | | Comment |
| | | +N/-S (usft) | +E/-W (usft) | |
| 1,000.0 | 1,000.0 | 0.0 | 0.0 | START NUDGE (2°/100ft BUR) |
| 1,604.5 | 1,600.0 | -62.2 | -13.2 | 9 5/8" SURFACE CASING |
| 1,669.5 | 1,663.6 | -75.5 | -16.0 | END OF TANGENT |
| 3,191.9 | 3,000.4 | -750.8 | -159.6 | EOB TO 42.54° INC |
| 4,989.9 | 4,325.2 | -1,939.8 | -412.3 | END OF TANGENT |
| 7,116.8 | 6,262.0 | -2,677.3 | -569.0 | EOD TO VERTICAL |
| 7,146.8 | 6,292.0 | -2,677.3 | -569.0 | KOP (10°/100ft BUR) |
| 8,046.9 | 6,865.0 | -2,677.7 | -1,142.1 | LANDING POINT - VETTING 21 |
| 15,843.4 | 6,865.0 | -2,683.3 | -8,938.6 | BHL - VETTING 21 |