



Project: Weld County, CO
Site: Sec 7-T10N-R57W
Well: Horsetail #07F-1808
Wellbore: Hz
Design: Design #1

PROJECT DETAILS: Weld County, CO
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level



Azimuths to True North
Magnetic North: 7.88°
Magnetic Field
Strength: 53087.5nT
Dip Angle: 67.44°
Date: 1/5/2015
Model: IGRF2010

WELL DETAILS: Horsetail #07F-1808

| | | | | | | |
|-------|-------|------------|---------------|------------|------------------|-------------------|
| +N/-S | +E/-W | Northing | Ground Level: | 4925.70 | Longitude | Slot |
| 0.00 | 0.00 | 1558396.18 | Easting | 3471481.39 | 40° 51' 13.450 N | 103° 47' 44.230 W |

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSec | Target |
|-----|----------|-------|--------|---------|----------|--------|-------|--------|---------|------------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 600.00 | 6.00 | 42.00 | 599.45 | 11.66 | 10.50 | 2.00 | 42.00 | -11.38 | |
| 4 | 3500.00 | 6.00 | 42.00 | 3483.56 | 236.93 | 213.34 | 0.00 | 0.00 | -231.20 | |
| 6 | 3800.00 | 0.00 | 0.00 | 3783.02 | 248.60 | 223.84 | 2.00 | 180.00 | -242.58 | |
| 6 | 5333.11 | 0.00 | 0.00 | 5316.13 | 248.60 | 223.84 | 0.00 | 0.00 | -242.58 | |
| 7 | 6151.29 | 90.00 | 180.09 | 5837.00 | -272.27 | 223.02 | 11.00 | 180.09 | 278.08 | PBHL 1808B |
| 8 | 13841.93 | 90.00 | 180.09 | 5837.00 | -7962.91 | 211.00 | 0.00 | 0.00 | 7965.70 | PBHL 1808B |

FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|---------|----------------|
| 1550.00 | 1555.78 | Upper Pierre |
| 3500.00 | 3516.52 | Hygiene |
| 3650.00 | 3666.93 | Lower Pierre |
| 5515.00 | 5537.16 | P200 Marker |
| 5530.00 | 5553.50 | P300 Marker |
| 5550.00 | 5575.65 | P350 Marker |
| 5702.00 | 5767.67 | Sharon Springs |
| 5707.00 | 5775.17 | Niobrara |
| 5727.00 | 5806.52 | Top A Chalk |
| 5764.00 | 5872.20 | Top A Marl |
| 5783.00 | 5912.02 | A Marl |
| 5792.00 | 5933.19 | Top Upper B |
| 5820.00 | 6017.86 | Base Upper B |
| 5837.00 | 6151.29 | Top Lower B |

ANNOTATIONS

| TVD | MD | Inc | Azi | +N/-S | +E/-W | VSec | Departure | Annotation |
|---------|----------|-------|--------|----------|--------|---------|-----------|---------------------|
| 300.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Build 2°/100' |
| 599.45 | 600.00 | 6.00 | 42.00 | 11.66 | 10.50 | -11.38 | 15.69 | Hold 6° Inc |
| 3483.56 | 3500.00 | 6.00 | 42.00 | 236.93 | 213.34 | -231.20 | 318.83 | Drop 2°/100' |
| 3783.02 | 3800.00 | 0.00 | 0.00 | 248.60 | 223.84 | -242.58 | 334.52 | Hold Vertical |
| 5316.13 | 5333.11 | 0.00 | 0.00 | 248.60 | 223.84 | -242.58 | 334.52 | KOP, Build 11°/100' |
| 5837.00 | 6151.29 | 90.00 | 180.09 | -272.27 | 223.02 | 278.08 | 855.39 | LP @ 90° Inc, Hold |
| 5837.00 | 13841.93 | 90.00 | 180.09 | -7962.91 | 211.00 | 7965.70 | 8546.03 | TD at 13841.97' MD |

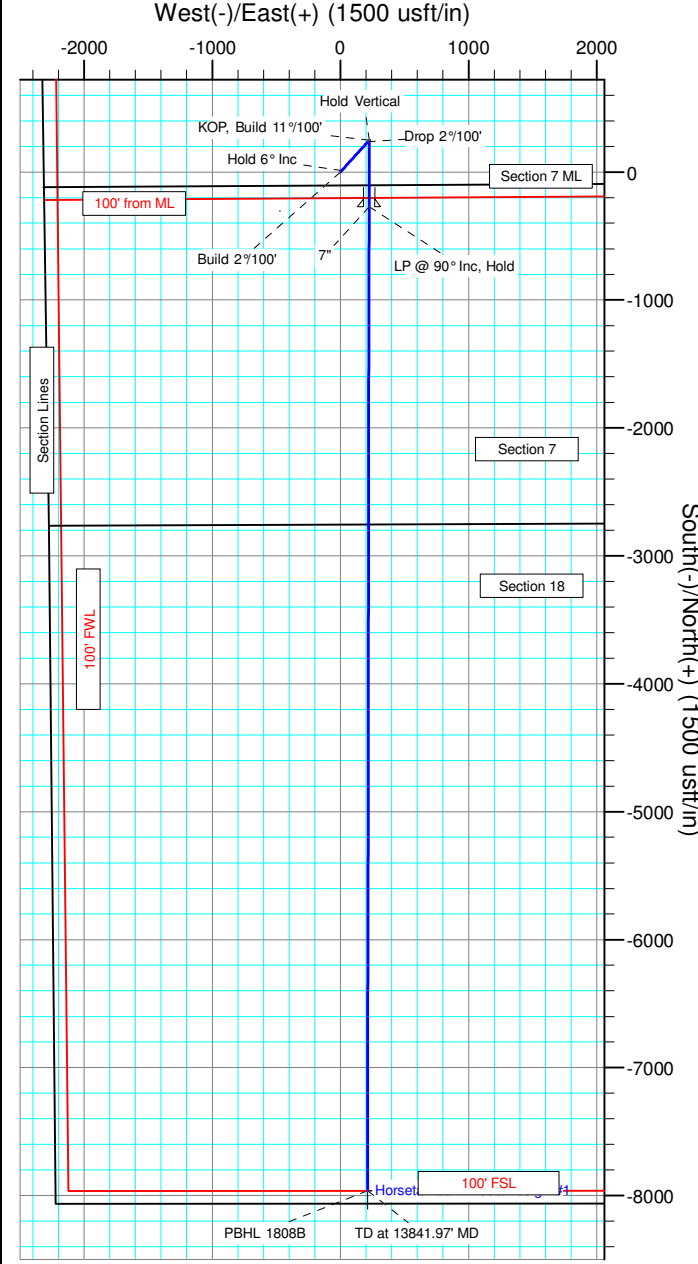
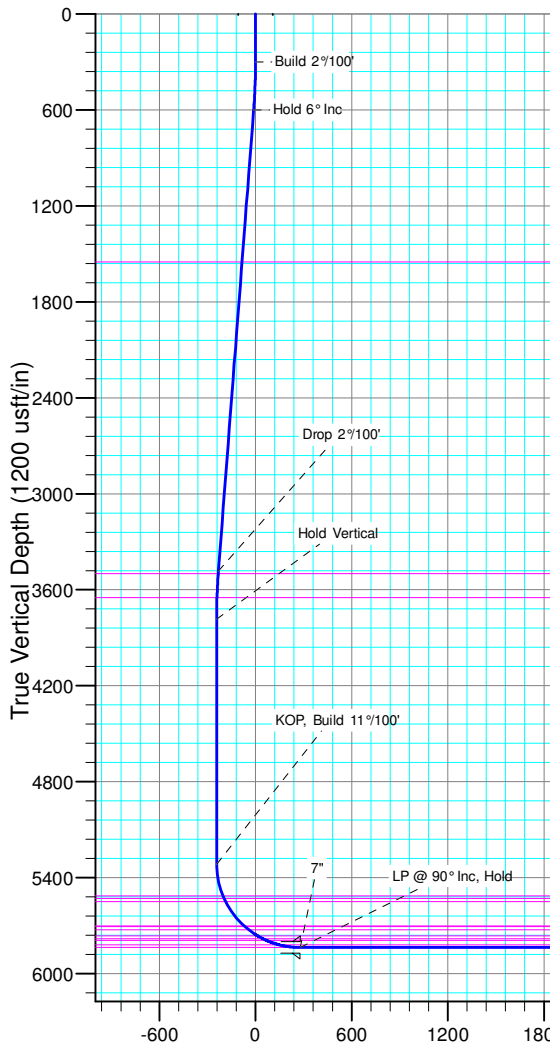
DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|------------|---------|----------|--------|------------|------------|------------------|-------------------|
| PBHL 1808B | 5837.00 | -7962.91 | 211.00 | 1550438.80 | 3471845.39 | 40° 49' 54.770 N | 103° 47' 41.485 W |

SHL:
2550' FNL, 2329' FWL
Sec7-T10N-R57W

BHL:
100' FSL, 2435' FWL
Sec18-T10N-R57W

7":
2479' FSL, 2542' FWL
Sec7-T10N-R57W



West(-)/East(+) (1500 usft/in)

South(-)/North(+) (1500 usft/in)

Vertical Section at 178.48° (1200 usft/in)