

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-12N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

07 December, 2017



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-12N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1

PROJECT DETAILS: Broomfield County

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: 8.27°

Magnetic Field
Strength: 52086.2snT
Dip Angle: 66.46°
Date: 12/4/2017
Model: IGRF2015

WELL DETAILS: LIVINGSTON S19-25-12N

| +N/-S | +E/-W | Northing | Easting | 5311.00 | Latitude | Longitude | Slot |
|-------|-------|------------|------------|---------|------------------|------------------|------|
| 0.00 | 0.00 | 1235372.37 | 3129074.25 | | 39° 58' 42.819 N | 105° 2' 21.898 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 | 1200.00 | 0.00 | 0.00 | 1200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 1560.76 | 7.22 | 16.49 | 1559.81 | 21.75 | 6.44 | 2.00 | 16.49 | -21.67 | |
| 4 | 7140.33 | 7.22 | 16.49 | 7095.19 | 693.69 | 205.41 | 0.00 | 0.00 | -690.96 | |
| 5 | 7501.09 | 0.00 | 0.00 | 7455.00 | 715.44 | 211.85 | 2.00 | 180.00 | -712.63 | |
| 6 | 7531.09 | 0.00 | 0.00 | 7485.00 | 715.44 | 211.85 | 0.00 | 0.00 | -712.63 | |
| 7 | 8431.16 | 90.00 | 180.22 | 8058.00 | 142.44 | 209.62 | 10.00 | 180.22 | -139.71 | LIVINGSTON S19 12N - LP |
| 8 | 14731.16 | 90.00 | 180.22 | 8057.95 | -6157.51 | 185.10 | 0.00 | 0.00 | 6159.40 | |
| 9 | 15070.01 | 90.00 | 187.00 | 8057.95 | -6495.49 | 163.76 | 2.00 | 90.00 | 6497.07 | |
| 10 | 15220.01 | 90.00 | 187.00 | 8057.95 | -6644.37 | 145.48 | 0.00 | 0.00 | 6645.70 | |
| 11 | 15589.63 | 90.00 | 179.61 | 8057.95 | -7013.13 | 124.20 | 2.00 | -90.00 | 7014.15 | LIVINGSTON S19 12N - PBHL |
| 12 | 20992.85 | 90.00 | 179.61 | 8058.00 | -12416.22 | 161.22 | 0.00 | 0.00 | 12417.27 | LIVINGSTON S19 12N - PBHL |

FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|---------|--------------|
| 4646.00 | 4671.59 | PARKMAN |
| 5127.00 | 5156.43 | SUSSEX |
| 6047.00 | 6083.77 | SHANNON |
| 7880.00 | 7966.91 | NIOBRARA |
| 8048.00 | 8323.95 | NIO B TARGET |

ANNOTATIONS

| MD | Inc | Azi | TVD | +N/-S | +E/-W | VSec | Departure | Annotation |
|----------|-------|--------|---------|-----------|--------|----------|-----------|---------------------------|
| 1200.00 | 0.00 | 0.00 | 1200.00 | 0.00 | 0.00 | 0.00 | 0.00 | BUILD 2°/100' |
| 1560.76 | 7.22 | 16.49 | 1559.81 | 21.75 | 6.44 | -21.67 | 22.69 | HOLD 7.22° INC |
| 7140.33 | 7.22 | 16.49 | 7095.19 | 693.69 | 205.41 | -690.96 | 723.46 | DROP 2°/100' |
| 7501.09 | 0.00 | 0.00 | 7455.00 | 715.44 | 211.85 | -712.63 | 746.15 | HOLD VERTICAL |
| 7531.09 | 0.00 | 0.00 | 7485.00 | 715.44 | 211.85 | -712.63 | 746.15 | KOP, BUILD 10°/100' |
| 8431.16 | 90.00 | 180.22 | 8058.00 | 142.44 | 209.62 | -139.71 | 1319.15 | LP @ 90° INC, 180.22° AZM |
| 14731.16 | 90.00 | 180.22 | 8057.95 | -6157.51 | 185.10 | 6159.40 | 7619.15 | NUDGE 2°/100' |
| 15070.01 | 90.00 | 187.00 | 8057.95 | -6495.49 | 163.76 | 6497.07 | 7958.00 | HOLD |
| 15220.01 | 90.00 | 187.00 | 8057.95 | -6644.37 | 145.48 | 6645.70 | 8108.00 | TURN 2°/100' |
| 15589.63 | 90.00 | 179.61 | 8057.95 | -7013.13 | 124.20 | 7014.15 | 8477.63 | HOLD 179.61° AZM |
| 20992.85 | 90.00 | 179.61 | 8058.00 | -12416.22 | 161.22 | 12417.27 | 13880.85 | TD at 20992.85' MD |

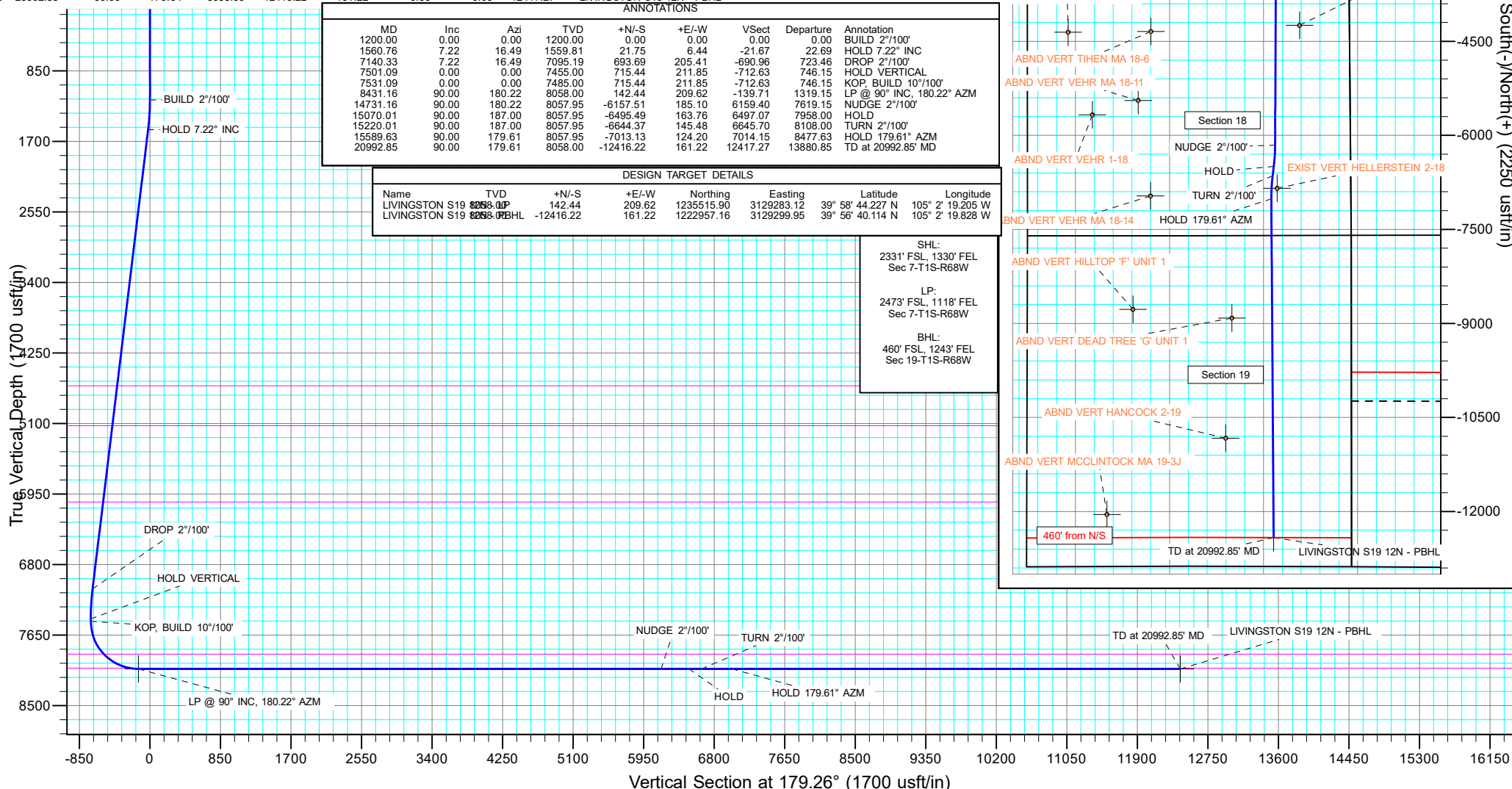
DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---------------------------|---------|-----------|--------|------------|------------|------------------|------------------|
| LIVINGSTON S19 12N - LP | 8058.00 | 142.44 | 209.62 | 1235515.90 | 3129283.12 | 39° 58' 44.227 N | 105° 2' 19.205 W |
| LIVINGSTON S19 12N - PBHL | 8058.00 | -12416.22 | 161.22 | 1222957.16 | 3129299.95 | 39° 56' 40.114 N | 105° 2' 19.828 W |

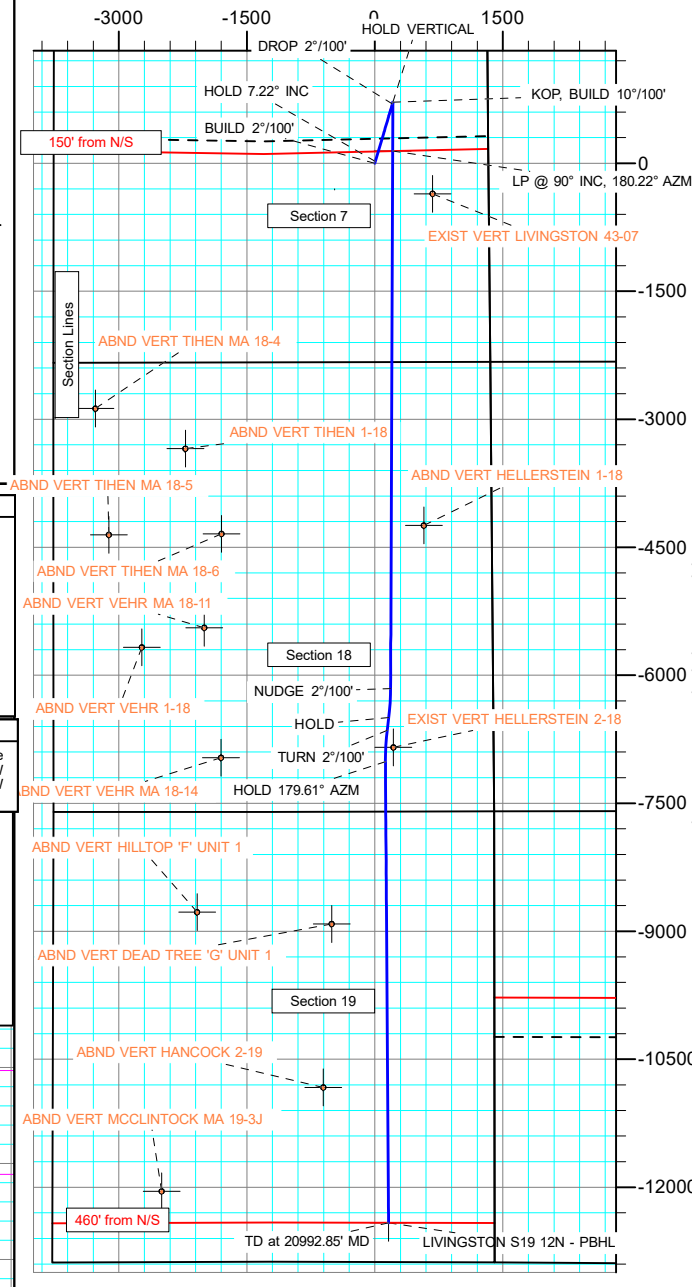
SHL:
2331' FSL, 1330' FEL
Sec 7-T1S-R68W

LP:
2473' FSL, 1118' FEL
Sec 7-T1S-R68W

BHL:
460' FSL, 1243' FEL
Sec 19-T1S-R68W



West(-)/East(+) (2250 usft/in)



South(-)/North(+) (2250 usft/in)

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well LIVINGSTON S19-25-12N |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| | | | |
|--------------------|---------------------------|----------------------|----------------|
| Project | Broomfield County | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | |

| | | | | | |
|-----------------------|-----------|----------------|-------------------|-------------------|------------------|
| Site | | Sec 7-T1S-R68W | | | |
| Site Position: | | Northing: | 1,238,329.25 usft | Latitude: | 39° 59' 11.974 N |
| From: | Lat/Long | Easting: | 3,130,366.41 usft | Longitude: | 105° 2' 5.099 W |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13.200 in | Grid Convergence: | 0.30 ° |

| Well | | LIVINGSTON S19-25-12N | | | | |
|----------------------|-----------|-----------------------|---------------------|-------------------|---------------|------------------|
| Well Position | +N/-S | -2,950.06 usft | Northing: | 1,235,372.37 usft | Latitude: | 39° 58' 42.819 N |
| | +E/-W | -1,307.66 usft | Easting: | 3,129,074.25 usft | Longitude: | 105° 2' 21.898 W |
| Position Uncertainty | 0.00 usft | | Wellhead Elevation: | | Ground Level: | 5,311.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | ORIGINAL WELLBORE | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 12/4/2017 | 8.27 | 66.46 | 52,086.16233012 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| Design | PROPOSAL 1 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PROTOTYPE | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 179.26 |

| | | | | |
|---------------------------------|------------------------|--------------------------|---------------------------|----------------|
| Plan Survey Tool Program | Date | 12/7/2017 | | |
| Depth From (usft) | Depth To (usft) | Survey (Wellbore) | Tool Name | Remarks |
| 1 | 0.00 | 20,992.85 | PROPOSAL 1 (ORIGINAL WELL | MWD OWSG |
| | | | OWSG MWD - Standard | |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
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| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-----------------------|----------------------|---------------------|---------|--------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,560.76 | 7.22 | 16.49 | 1,559.81 | 21.75 | 6.44 | 2.00 | 2.00 | 0.00 | 16.49 | |
| 7,140.33 | 7.22 | 16.49 | 7,095.19 | 693.69 | 205.41 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,501.09 | 0.00 | 0.00 | 7,455.00 | 715.44 | 211.85 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 7,531.09 | 0.00 | 0.00 | 7,485.00 | 715.44 | 211.85 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 8,431.16 | 90.00 | 180.22 | 8,058.00 | 142.44 | 209.62 | 10.00 | 10.00 | -19.97 | 180.22 | LIVINGSTON S19 12N |
| 14,731.16 | 90.00 | 180.22 | 8,057.95 | -6,157.51 | 185.10 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 15,070.01 | 90.00 | 187.00 | 8,057.95 | -6,495.49 | 163.76 | 2.00 | 0.00 | 2.00 | 90.00 | |
| 15,220.01 | 90.00 | 187.00 | 8,057.95 | -6,644.37 | 145.48 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 15,589.64 | 90.00 | 179.61 | 8,057.95 | -7,013.13 | 124.20 | 2.00 | 0.00 | -2.00 | -90.00 | LIVINGSTON S19 12N |
| 20,992.85 | 90.00 | 179.61 | 8,058.00 | -12,416.22 | 161.22 | 0.00 | 0.00 | 0.00 | 0.00 | LIVINGSTON S19 12N |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
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| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BUILD 2°/100' | | | | | | | | | |
| 1,300.00 | 2.00 | 16.49 | 1,299.98 | 1.67 | 0.50 | -1.67 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 4.00 | 16.49 | 1,399.84 | 6.69 | 1.98 | -6.67 | 2.00 | 2.00 | 0.00 |
| 1,500.00 | 6.00 | 16.49 | 1,499.45 | 15.05 | 4.46 | -14.99 | 2.00 | 2.00 | 0.00 |
| 1,560.76 | 7.22 | 16.49 | 1,559.81 | 21.75 | 6.44 | -21.67 | 2.00 | 2.00 | 0.00 |
| HOLD 7.22° INC | | | | | | | | | |
| 1,600.00 | 7.22 | 16.49 | 1,598.74 | 26.48 | 7.84 | -26.37 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 7.22 | 16.49 | 1,697.94 | 38.52 | 11.41 | -38.37 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 7.22 | 16.49 | 1,797.15 | 50.56 | 14.97 | -50.36 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 7.22 | 16.49 | 1,896.36 | 62.61 | 18.54 | -62.36 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 7.22 | 16.49 | 1,995.57 | 74.65 | 22.10 | -74.36 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 7.22 | 16.49 | 2,094.78 | 86.69 | 25.67 | -86.35 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 7.22 | 16.49 | 2,193.99 | 98.73 | 29.24 | -98.35 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 7.22 | 16.49 | 2,293.19 | 110.78 | 32.80 | -110.34 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 7.22 | 16.49 | 2,392.40 | 122.82 | 36.37 | -122.34 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 7.22 | 16.49 | 2,491.61 | 134.86 | 39.93 | -134.33 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 7.22 | 16.49 | 2,590.82 | 146.91 | 43.50 | -146.33 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 7.22 | 16.49 | 2,690.03 | 158.95 | 47.07 | -158.32 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 7.22 | 16.49 | 2,789.23 | 170.99 | 50.63 | -170.32 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 7.22 | 16.49 | 2,888.44 | 183.03 | 54.20 | -182.31 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 7.22 | 16.49 | 2,987.65 | 195.08 | 57.76 | -194.31 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 7.22 | 16.49 | 3,086.86 | 207.12 | 61.33 | -206.31 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 7.22 | 16.49 | 3,186.07 | 219.16 | 64.90 | -218.30 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 7.22 | 16.49 | 3,285.27 | 231.20 | 68.46 | -230.30 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 7.22 | 16.49 | 3,384.48 | 243.25 | 72.03 | -242.29 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 7.22 | 16.49 | 3,483.69 | 255.29 | 75.59 | -254.29 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 7.22 | 16.49 | 3,582.90 | 267.33 | 79.16 | -266.28 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 7.22 | 16.49 | 3,682.11 | 279.38 | 82.73 | -278.28 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 7.22 | 16.49 | 3,781.32 | 291.42 | 86.29 | -290.27 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 7.22 | 16.49 | 3,880.52 | 303.46 | 89.86 | -302.27 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 7.22 | 16.49 | 3,979.73 | 315.50 | 93.42 | -314.27 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 7.22 | 16.49 | 4,078.94 | 327.55 | 96.99 | -326.26 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 7.22 | 16.49 | 4,178.15 | 339.59 | 100.56 | -338.26 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 7.22 | 16.49 | 4,277.36 | 351.63 | 104.12 | -350.25 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 7.22 | 16.49 | 4,376.56 | 363.68 | 107.69 | -362.25 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 7.22 | 16.49 | 4,475.77 | 375.72 | 111.25 | -374.24 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 7.22 | 16.49 | 4,574.98 | 387.76 | 114.82 | -386.24 | 0.00 | 0.00 | 0.00 |
| 4,671.59 | 7.22 | 16.49 | 4,646.00 | 396.38 | 117.37 | -394.83 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 4,700.00 | 7.22 | 16.49 | 4,674.19 | 399.80 | 118.39 | -398.23 | 0.00 | 0.00 | 0.00 |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well LIVINGSTON S19-25-12N |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 4,800.00 | 7.22 | 16.49 | 4,773.40 | 411.85 | 121.95 | -410.23 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 7.22 | 16.49 | 4,872.61 | 423.89 | 125.52 | -422.22 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 7.22 | 16.49 | 4,971.81 | 435.93 | 129.08 | -434.22 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 7.22 | 16.49 | 5,071.02 | 447.98 | 132.65 | -446.22 | 0.00 | 0.00 | 0.00 |
| 5,156.43 | 7.22 | 16.49 | 5,127.00 | 454.77 | 134.66 | -452.98 | 0.00 | 0.00 | 0.00 |
| SUSSEX | | | | | | | | | |
| 5,200.00 | 7.22 | 16.49 | 5,170.23 | 460.02 | 136.22 | -458.21 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 7.22 | 16.49 | 5,269.44 | 472.06 | 139.78 | -470.21 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 7.22 | 16.49 | 5,368.65 | 484.10 | 143.35 | -482.20 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 7.22 | 16.49 | 5,467.85 | 496.15 | 146.91 | -494.20 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 7.22 | 16.49 | 5,567.06 | 508.19 | 150.48 | -506.19 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 7.22 | 16.49 | 5,666.27 | 520.23 | 154.05 | -518.19 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 7.22 | 16.49 | 5,765.48 | 532.28 | 157.61 | -530.18 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 7.22 | 16.49 | 5,864.69 | 544.32 | 161.18 | -542.18 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 7.22 | 16.49 | 5,963.89 | 556.36 | 164.74 | -554.18 | 0.00 | 0.00 | 0.00 |
| 6,083.77 | 7.22 | 16.49 | 6,047.00 | 566.45 | 167.73 | -564.22 | 0.00 | 0.00 | 0.00 |
| SHANNON | | | | | | | | | |
| 6,100.00 | 7.22 | 16.49 | 6,063.10 | 568.40 | 168.31 | -566.17 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 7.22 | 16.49 | 6,162.31 | 580.45 | 171.88 | -578.17 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 7.22 | 16.49 | 6,261.52 | 592.49 | 175.44 | -590.16 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 7.22 | 16.49 | 6,360.73 | 604.53 | 179.01 | -602.16 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 7.22 | 16.49 | 6,459.94 | 616.57 | 182.57 | -614.15 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 7.22 | 16.49 | 6,559.14 | 628.62 | 186.14 | -626.15 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 7.22 | 16.49 | 6,658.35 | 640.66 | 189.71 | -638.14 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 7.22 | 16.49 | 6,757.56 | 652.70 | 193.27 | -650.14 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 7.22 | 16.49 | 6,856.77 | 664.75 | 196.84 | -662.13 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 7.22 | 16.49 | 6,955.98 | 676.79 | 200.41 | -674.13 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 7.22 | 16.49 | 7,055.18 | 688.83 | 203.97 | -686.13 | 0.00 | 0.00 | 0.00 |
| 7,140.33 | 7.22 | 16.49 | 7,095.19 | 693.69 | 205.41 | -690.96 | 0.00 | 0.00 | 0.00 |
| DROP 2°/100' | | | | | | | | | |
| 7,200.00 | 6.02 | 16.49 | 7,154.47 | 700.28 | 207.36 | -697.53 | 2.00 | -2.00 | 0.00 |
| 7,300.00 | 4.02 | 16.49 | 7,254.08 | 708.68 | 209.85 | -705.89 | 2.00 | -2.00 | 0.00 |
| 7,400.00 | 2.02 | 16.49 | 7,353.93 | 713.73 | 211.34 | -710.93 | 2.00 | -2.00 | 0.00 |
| 7,501.09 | 0.00 | 0.00 | 7,455.00 | 715.44 | 211.85 | -712.63 | 2.00 | -2.00 | 0.00 |
| HOLD VERTICAL | | | | | | | | | |
| 7,531.09 | 0.00 | 0.00 | 7,485.00 | 715.44 | 211.85 | -712.63 | 0.00 | 0.00 | 0.00 |
| KOP, BUILD 10°/100' | | | | | | | | | |
| 7,550.00 | 1.89 | 180.22 | 7,503.91 | 715.13 | 211.85 | -712.32 | 10.00 | 10.00 | 0.00 |
| 7,600.00 | 6.89 | 180.22 | 7,553.75 | 711.30 | 211.83 | -708.49 | 10.00 | 10.00 | 0.00 |
| 7,650.00 | 11.89 | 180.22 | 7,603.06 | 703.15 | 211.80 | -700.34 | 10.00 | 10.00 | 0.00 |
| 7,700.00 | 16.89 | 180.22 | 7,651.48 | 690.72 | 211.75 | -687.92 | 10.00 | 10.00 | 0.00 |
| 7,750.00 | 21.89 | 180.22 | 7,698.63 | 674.13 | 211.69 | -671.32 | 10.00 | 10.00 | 0.00 |
| 7,800.00 | 26.89 | 180.22 | 7,744.15 | 653.49 | 211.61 | -650.69 | 10.00 | 10.00 | 0.00 |
| 7,850.00 | 31.89 | 180.22 | 7,787.70 | 628.96 | 211.51 | -626.16 | 10.00 | 10.00 | 0.00 |
| 7,900.00 | 36.89 | 180.22 | 7,828.95 | 600.73 | 211.40 | -597.93 | 10.00 | 10.00 | 0.00 |
| 7,950.00 | 41.89 | 180.22 | 7,867.58 | 569.01 | 211.28 | -566.22 | 10.00 | 10.00 | 0.00 |
| 7,966.91 | 43.58 | 180.22 | 7,880.00 | 557.54 | 211.24 | -554.75 | 10.00 | 10.00 | 0.00 |
| NIOBRARA | | | | | | | | | |
| 8,000.00 | 46.89 | 180.22 | 7,903.30 | 534.05 | 211.14 | -531.26 | 10.00 | 10.00 | 0.00 |
| 8,050.00 | 51.89 | 180.22 | 7,935.84 | 496.10 | 211.00 | -493.32 | 10.00 | 10.00 | 0.00 |
| 8,100.00 | 56.89 | 180.22 | 7,964.94 | 455.47 | 210.84 | -452.69 | 10.00 | 10.00 | 0.00 |
| 8,150.00 | 61.89 | 180.22 | 7,990.40 | 412.45 | 210.67 | -409.68 | 10.00 | 10.00 | 0.00 |
| 8,200.00 | 66.89 | 180.22 | 8,012.00 | 367.38 | 210.50 | -364.61 | 10.00 | 10.00 | 0.00 |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well LIVINGSTON S19-25-12N |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Planned Survey | | | | | | | | | | |
|---------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 8,250.00 | 71.89 | 180.22 | 8,029.60 | 320.59 | 210.31 | -317.84 | 10.00 | 10.00 | 0.00 | |
| 8,300.00 | 76.89 | 180.22 | 8,043.06 | 272.46 | 210.13 | -269.70 | 10.00 | 10.00 | 0.00 | |
| 8,323.95 | 79.28 | 180.22 | 8,048.00 | 249.03 | 210.03 | -246.28 | 10.00 | 10.00 | 0.00 | |
| NIO B TARGET | | | | | | | | | | |
| 8,350.00 | 81.89 | 180.22 | 8,052.26 | 223.33 | 209.93 | -220.58 | 10.00 | 10.00 | 0.00 | |
| 8,400.00 | 86.88 | 180.22 | 8,057.15 | 173.58 | 209.74 | -170.85 | 10.00 | 10.00 | 0.00 | |
| 8,431.16 | 90.00 | 180.22 | 8,058.00 | 142.44 | 209.62 | -139.71 | 10.00 | 10.00 | 0.00 | |
| LP @ 90° INC, 180.22° AZM | | | | | | | | | | |
| 8,500.00 | 90.00 | 180.22 | 8,058.00 | 73.60 | 209.35 | -70.87 | 0.00 | 0.00 | 0.00 | |
| 8,600.00 | 90.00 | 180.22 | 8,058.00 | -26.40 | 208.96 | 29.11 | 0.00 | 0.00 | 0.00 | |
| 8,700.00 | 90.00 | 180.22 | 8,058.00 | -126.40 | 208.57 | 129.10 | 0.00 | 0.00 | 0.00 | |
| 8,800.00 | 90.00 | 180.22 | 8,058.00 | -226.40 | 208.18 | 229.08 | 0.00 | 0.00 | 0.00 | |
| 8,900.00 | 90.00 | 180.22 | 8,058.00 | -326.40 | 207.79 | 329.07 | 0.00 | 0.00 | 0.00 | |
| 9,000.00 | 90.00 | 180.22 | 8,058.00 | -426.40 | 207.41 | 429.05 | 0.00 | 0.00 | 0.00 | |
| 9,100.00 | 90.00 | 180.22 | 8,058.00 | -526.40 | 207.02 | 529.04 | 0.00 | 0.00 | 0.00 | |
| 9,200.00 | 90.00 | 180.22 | 8,057.99 | -626.40 | 206.63 | 629.03 | 0.00 | 0.00 | 0.00 | |
| 9,300.00 | 90.00 | 180.22 | 8,057.99 | -726.39 | 206.24 | 729.01 | 0.00 | 0.00 | 0.00 | |
| 9,400.00 | 90.00 | 180.22 | 8,057.99 | -826.39 | 205.85 | 829.00 | 0.00 | 0.00 | 0.00 | |
| 9,500.00 | 90.00 | 180.22 | 8,057.99 | -926.39 | 205.46 | 928.98 | 0.00 | 0.00 | 0.00 | |
| 9,600.00 | 90.00 | 180.22 | 8,057.99 | -1,026.39 | 205.07 | 1,028.97 | 0.00 | 0.00 | 0.00 | |
| 9,700.00 | 90.00 | 180.22 | 8,057.99 | -1,126.39 | 204.68 | 1,128.95 | 0.00 | 0.00 | 0.00 | |
| 9,800.00 | 90.00 | 180.22 | 8,057.99 | -1,226.39 | 204.29 | 1,228.94 | 0.00 | 0.00 | 0.00 | |
| 9,900.00 | 90.00 | 180.22 | 8,057.99 | -1,326.39 | 203.90 | 1,328.93 | 0.00 | 0.00 | 0.00 | |
| 10,000.00 | 90.00 | 180.22 | 8,057.99 | -1,426.39 | 203.51 | 1,428.91 | 0.00 | 0.00 | 0.00 | |
| 10,100.00 | 90.00 | 180.22 | 8,057.99 | -1,526.39 | 203.12 | 1,528.90 | 0.00 | 0.00 | 0.00 | |
| 10,200.00 | 90.00 | 180.22 | 8,057.99 | -1,626.39 | 202.73 | 1,628.88 | 0.00 | 0.00 | 0.00 | |
| 10,300.00 | 90.00 | 180.22 | 8,057.99 | -1,726.39 | 202.35 | 1,728.87 | 0.00 | 0.00 | 0.00 | |
| 10,400.00 | 90.00 | 180.22 | 8,057.99 | -1,826.39 | 201.96 | 1,828.85 | 0.00 | 0.00 | 0.00 | |
| 10,500.00 | 90.00 | 180.22 | 8,057.99 | -1,926.39 | 201.57 | 1,928.84 | 0.00 | 0.00 | 0.00 | |
| 10,600.00 | 90.00 | 180.22 | 8,057.98 | -2,026.38 | 201.18 | 2,028.83 | 0.00 | 0.00 | 0.00 | |
| 10,700.00 | 90.00 | 180.22 | 8,057.98 | -2,126.38 | 200.79 | 2,128.81 | 0.00 | 0.00 | 0.00 | |
| 10,800.00 | 90.00 | 180.22 | 8,057.98 | -2,226.38 | 200.40 | 2,228.80 | 0.00 | 0.00 | 0.00 | |
| 10,900.00 | 90.00 | 180.22 | 8,057.98 | -2,326.38 | 200.01 | 2,328.78 | 0.00 | 0.00 | 0.00 | |
| 11,000.00 | 90.00 | 180.22 | 8,057.98 | -2,426.38 | 199.62 | 2,428.77 | 0.00 | 0.00 | 0.00 | |
| 11,100.00 | 90.00 | 180.22 | 8,057.98 | -2,526.38 | 199.23 | 2,528.75 | 0.00 | 0.00 | 0.00 | |
| 11,200.00 | 90.00 | 180.22 | 8,057.98 | -2,626.38 | 198.84 | 2,628.74 | 0.00 | 0.00 | 0.00 | |
| 11,300.00 | 90.00 | 180.22 | 8,057.98 | -2,726.38 | 198.45 | 2,728.73 | 0.00 | 0.00 | 0.00 | |
| 11,400.00 | 90.00 | 180.22 | 8,057.98 | -2,826.38 | 198.06 | 2,828.71 | 0.00 | 0.00 | 0.00 | |
| 11,500.00 | 90.00 | 180.22 | 8,057.98 | -2,926.38 | 197.67 | 2,928.70 | 0.00 | 0.00 | 0.00 | |
| 11,600.00 | 90.00 | 180.22 | 8,057.98 | -3,026.38 | 197.28 | 3,028.68 | 0.00 | 0.00 | 0.00 | |
| 11,700.00 | 90.00 | 180.22 | 8,057.98 | -3,126.38 | 196.90 | 3,128.67 | 0.00 | 0.00 | 0.00 | |
| 11,800.00 | 90.00 | 180.22 | 8,057.98 | -3,226.38 | 196.51 | 3,228.66 | 0.00 | 0.00 | 0.00 | |
| 11,900.00 | 90.00 | 180.22 | 8,057.97 | -3,326.38 | 196.12 | 3,328.64 | 0.00 | 0.00 | 0.00 | |
| 12,000.00 | 90.00 | 180.22 | 8,057.97 | -3,426.37 | 195.73 | 3,428.63 | 0.00 | 0.00 | 0.00 | |
| 12,100.00 | 90.00 | 180.22 | 8,057.97 | -3,526.37 | 195.34 | 3,528.61 | 0.00 | 0.00 | 0.00 | |
| 12,200.00 | 90.00 | 180.22 | 8,057.97 | -3,626.37 | 194.95 | 3,628.60 | 0.00 | 0.00 | 0.00 | |
| 12,300.00 | 90.00 | 180.22 | 8,057.97 | -3,726.37 | 194.56 | 3,728.58 | 0.00 | 0.00 | 0.00 | |
| 12,400.00 | 90.00 | 180.22 | 8,057.97 | -3,826.37 | 194.17 | 3,828.57 | 0.00 | 0.00 | 0.00 | |
| 12,500.00 | 90.00 | 180.22 | 8,057.97 | -3,926.37 | 193.78 | 3,928.56 | 0.00 | 0.00 | 0.00 | |
| 12,600.00 | 90.00 | 180.22 | 8,057.97 | -4,026.37 | 193.39 | 4,028.54 | 0.00 | 0.00 | 0.00 | |
| 12,700.00 | 90.00 | 180.22 | 8,057.97 | -4,126.37 | 193.00 | 4,128.53 | 0.00 | 0.00 | 0.00 | |
| 12,800.00 | 90.00 | 180.22 | 8,057.97 | -4,226.37 | 192.61 | 4,228.51 | 0.00 | 0.00 | 0.00 | |
| 12,900.00 | 90.00 | 180.22 | 8,057.97 | -4,326.37 | 192.22 | 4,328.50 | 0.00 | 0.00 | 0.00 | |
| 13,000.00 | 90.00 | 180.22 | 8,057.97 | -4,426.37 | 191.84 | 4,428.48 | 0.00 | 0.00 | 0.00 | |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well LIVINGSTON S19-25-12N |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Planned Survey | | | | | | | | | |
|-------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 13,100.00 | 90.00 | 180.22 | 8,057.97 | -4,526.37 | 191.45 | 4,528.47 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 90.00 | 180.22 | 8,057.97 | -4,626.37 | 191.06 | 4,628.46 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 90.00 | 180.22 | 8,057.96 | -4,726.36 | 190.67 | 4,728.44 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 90.00 | 180.22 | 8,057.96 | -4,826.36 | 190.28 | 4,828.43 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 90.00 | 180.22 | 8,057.96 | -4,926.36 | 189.89 | 4,928.41 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 90.00 | 180.22 | 8,057.96 | -5,026.36 | 189.50 | 5,028.40 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 90.00 | 180.22 | 8,057.96 | -5,126.36 | 189.11 | 5,128.38 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 90.00 | 180.22 | 8,057.96 | -5,226.36 | 188.72 | 5,228.37 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 90.00 | 180.22 | 8,057.96 | -5,326.36 | 188.33 | 5,328.36 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 90.00 | 180.22 | 8,057.96 | -5,426.36 | 187.94 | 5,428.34 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 90.00 | 180.22 | 8,057.96 | -5,526.36 | 187.55 | 5,528.33 | 0.00 | 0.00 | 0.00 |
| 14,200.00 | 90.00 | 180.22 | 8,057.96 | -5,626.36 | 187.16 | 5,628.31 | 0.00 | 0.00 | 0.00 |
| 14,300.00 | 90.00 | 180.22 | 8,057.96 | -5,726.36 | 186.77 | 5,728.30 | 0.00 | 0.00 | 0.00 |
| 14,400.00 | 90.00 | 180.22 | 8,057.96 | -5,826.36 | 186.39 | 5,828.29 | 0.00 | 0.00 | 0.00 |
| 14,500.00 | 90.00 | 180.22 | 8,057.96 | -5,926.36 | 186.00 | 5,928.27 | 0.00 | 0.00 | 0.00 |
| 14,600.00 | 90.00 | 180.22 | 8,057.95 | -6,026.35 | 185.61 | 6,028.26 | 0.00 | 0.00 | 0.00 |
| 14,700.00 | 90.00 | 180.22 | 8,057.95 | -6,126.35 | 185.22 | 6,128.24 | 0.00 | 0.00 | 0.00 |
| 14,731.16 | 90.00 | 180.22 | 8,057.95 | -6,157.51 | 185.10 | 6,159.40 | 0.00 | 0.00 | 0.00 |
| NUDGE 2°/100' | | | | | | | | | |
| 14,800.00 | 90.00 | 181.60 | 8,057.95 | -6,226.34 | 184.00 | 6,228.21 | 2.00 | 0.00 | 2.00 |
| 14,900.00 | 90.00 | 183.60 | 8,057.95 | -6,326.24 | 179.47 | 6,328.03 | 2.00 | 0.00 | 2.00 |
| 15,000.00 | 90.00 | 185.60 | 8,057.95 | -6,425.91 | 171.45 | 6,427.59 | 2.00 | 0.00 | 2.00 |
| 15,070.01 | 90.00 | 187.00 | 8,057.95 | -6,495.49 | 163.76 | 6,497.07 | 2.00 | 0.00 | 2.00 |
| HOLD | | | | | | | | | |
| 15,100.00 | 90.00 | 187.00 | 8,057.95 | -6,525.26 | 160.11 | 6,526.79 | 0.00 | 0.00 | 0.00 |
| 15,200.00 | 90.00 | 187.00 | 8,057.95 | -6,624.51 | 147.92 | 6,625.88 | 0.00 | 0.00 | 0.00 |
| 15,220.01 | 90.00 | 187.00 | 8,057.95 | -6,644.37 | 145.48 | 6,645.70 | 0.00 | 0.00 | 0.00 |
| TURN 2°/100' | | | | | | | | | |
| 15,300.00 | 90.00 | 185.40 | 8,057.95 | -6,723.90 | 136.85 | 6,725.11 | 2.00 | 0.00 | -2.00 |
| 15,400.00 | 90.00 | 183.40 | 8,057.95 | -6,823.60 | 129.17 | 6,824.70 | 2.00 | 0.00 | -2.00 |
| 15,500.00 | 90.00 | 181.40 | 8,057.95 | -6,923.50 | 124.99 | 6,924.54 | 2.00 | 0.00 | -2.00 |
| 15,589.64 | 90.00 | 179.61 | 8,057.95 | -7,013.13 | 124.20 | 7,014.15 | 2.00 | 0.00 | -2.00 |
| HOLD 179.61° AZM | | | | | | | | | |
| 15,600.00 | 90.00 | 179.61 | 8,057.95 | -7,023.50 | 124.27 | 7,024.52 | 0.00 | 0.00 | 0.00 |
| 15,700.00 | 90.00 | 179.61 | 8,057.95 | -7,123.49 | 124.95 | 7,124.51 | 0.00 | 0.00 | 0.00 |
| 15,800.00 | 90.00 | 179.61 | 8,057.95 | -7,223.49 | 125.64 | 7,224.51 | 0.00 | 0.00 | 0.00 |
| 15,900.00 | 90.00 | 179.61 | 8,057.95 | -7,323.49 | 126.32 | 7,324.51 | 0.00 | 0.00 | 0.00 |
| 16,000.00 | 90.00 | 179.61 | 8,057.95 | -7,423.49 | 127.01 | 7,424.51 | 0.00 | 0.00 | 0.00 |
| 16,100.00 | 90.00 | 179.61 | 8,057.95 | -7,523.48 | 127.69 | 7,524.51 | 0.00 | 0.00 | 0.00 |
| 16,200.00 | 90.00 | 179.61 | 8,057.95 | -7,623.48 | 128.38 | 7,624.51 | 0.00 | 0.00 | 0.00 |
| 16,300.00 | 90.00 | 179.61 | 8,057.95 | -7,723.48 | 129.07 | 7,724.50 | 0.00 | 0.00 | 0.00 |
| 16,400.00 | 90.00 | 179.61 | 8,057.95 | -7,823.48 | 129.75 | 7,824.50 | 0.00 | 0.00 | 0.00 |
| 16,500.00 | 90.00 | 179.61 | 8,057.95 | -7,923.47 | 130.44 | 7,924.50 | 0.00 | 0.00 | 0.00 |
| 16,600.00 | 90.00 | 179.61 | 8,057.95 | -8,023.47 | 131.12 | 8,024.50 | 0.00 | 0.00 | 0.00 |
| 16,700.00 | 90.00 | 179.61 | 8,057.95 | -8,123.47 | 131.81 | 8,124.50 | 0.00 | 0.00 | 0.00 |
| 16,800.00 | 90.00 | 179.61 | 8,057.95 | -8,223.47 | 132.49 | 8,224.49 | 0.00 | 0.00 | 0.00 |
| 16,900.00 | 90.00 | 179.61 | 8,057.95 | -8,323.46 | 133.18 | 8,324.49 | 0.00 | 0.00 | 0.00 |
| 17,000.00 | 90.00 | 179.61 | 8,057.95 | -8,423.46 | 133.86 | 8,424.49 | 0.00 | 0.00 | 0.00 |
| 17,100.00 | 90.00 | 179.61 | 8,057.95 | -8,523.46 | 134.55 | 8,524.49 | 0.00 | 0.00 | 0.00 |
| 17,200.00 | 90.00 | 179.61 | 8,057.95 | -8,623.46 | 135.23 | 8,624.49 | 0.00 | 0.00 | 0.00 |
| 17,300.00 | 90.00 | 179.61 | 8,057.95 | -8,723.46 | 135.92 | 8,724.48 | 0.00 | 0.00 | 0.00 |
| 17,400.00 | 90.00 | 179.61 | 8,057.95 | -8,823.45 | 136.60 | 8,824.48 | 0.00 | 0.00 | 0.00 |
| 17,500.00 | 90.00 | 179.61 | 8,057.95 | -8,923.45 | 137.29 | 8,924.48 | 0.00 | 0.00 | 0.00 |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well LIVINGSTON S19-25-12N |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Planned Survey | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-----------------------------|----------------------------|---------------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 17,600.00 | 90.00 | 179.61 | 8,057.95 | -9,023.45 | 137.97 | 9,024.48 | 0.00 | 0.00 | 0.00 | |
| 17,700.00 | 90.00 | 179.61 | 8,057.95 | -9,123.45 | 138.66 | 9,124.48 | 0.00 | 0.00 | 0.00 | |
| 17,800.00 | 90.00 | 179.61 | 8,057.95 | -9,223.44 | 139.34 | 9,224.48 | 0.00 | 0.00 | 0.00 | |
| 17,900.00 | 90.00 | 179.61 | 8,057.95 | -9,323.44 | 140.03 | 9,324.47 | 0.00 | 0.00 | 0.00 | |
| 18,000.00 | 90.00 | 179.61 | 8,057.95 | -9,423.44 | 140.71 | 9,424.47 | 0.00 | 0.00 | 0.00 | |
| 18,100.00 | 90.00 | 179.61 | 8,057.95 | -9,523.44 | 141.40 | 9,524.47 | 0.00 | 0.00 | 0.00 | |
| 18,200.00 | 90.00 | 179.61 | 8,057.95 | -9,623.43 | 142.08 | 9,624.47 | 0.00 | 0.00 | 0.00 | |
| 18,300.00 | 90.00 | 179.61 | 8,057.95 | -9,723.43 | 142.77 | 9,724.47 | 0.00 | 0.00 | 0.00 | |
| 18,400.00 | 90.00 | 179.61 | 8,057.95 | -9,823.43 | 143.45 | 9,824.46 | 0.00 | 0.00 | 0.00 | |
| 18,500.00 | 90.00 | 179.61 | 8,057.95 | -9,923.43 | 144.14 | 9,924.46 | 0.00 | 0.00 | 0.00 | |
| 18,600.00 | 90.00 | 179.61 | 8,057.95 | -10,023.42 | 144.82 | 10,024.46 | 0.00 | 0.00 | 0.00 | |
| 18,700.00 | 90.00 | 179.61 | 8,057.95 | -10,123.42 | 145.51 | 10,124.46 | 0.00 | 0.00 | 0.00 | |
| 18,800.00 | 90.00 | 179.61 | 8,057.95 | -10,223.42 | 146.19 | 10,224.46 | 0.00 | 0.00 | 0.00 | |
| 18,900.00 | 90.00 | 179.61 | 8,057.95 | -10,323.42 | 146.88 | 10,324.45 | 0.00 | 0.00 | 0.00 | |
| 19,000.00 | 90.00 | 179.61 | 8,057.95 | -10,423.42 | 147.56 | 10,424.45 | 0.00 | 0.00 | 0.00 | |
| 19,100.00 | 90.00 | 179.61 | 8,057.95 | -10,523.41 | 148.25 | 10,524.45 | 0.00 | 0.00 | 0.00 | |
| 19,200.00 | 90.00 | 179.61 | 8,057.95 | -10,623.41 | 148.94 | 10,624.45 | 0.00 | 0.00 | 0.00 | |
| 19,300.00 | 90.00 | 179.61 | 8,057.95 | -10,723.41 | 149.62 | 10,724.45 | 0.00 | 0.00 | 0.00 | |
| 19,400.00 | 90.00 | 179.61 | 8,057.95 | -10,823.41 | 150.31 | 10,824.45 | 0.00 | 0.00 | 0.00 | |
| 19,500.00 | 90.00 | 179.61 | 8,057.95 | -10,923.40 | 150.99 | 10,924.44 | 0.00 | 0.00 | 0.00 | |
| 19,600.00 | 90.00 | 179.61 | 8,057.95 | -11,023.40 | 151.68 | 11,024.44 | 0.00 | 0.00 | 0.00 | |
| 19,700.00 | 90.00 | 179.61 | 8,057.95 | -11,123.40 | 152.36 | 11,124.44 | 0.00 | 0.00 | 0.00 | |
| 19,800.00 | 90.00 | 179.61 | 8,057.95 | -11,223.40 | 153.05 | 11,224.44 | 0.00 | 0.00 | 0.00 | |
| 19,900.00 | 90.00 | 179.61 | 8,057.95 | -11,323.39 | 153.73 | 11,324.44 | 0.00 | 0.00 | 0.00 | |
| 20,000.00 | 90.00 | 179.61 | 8,057.95 | -11,423.39 | 154.42 | 11,424.43 | 0.00 | 0.00 | 0.00 | |
| 20,100.00 | 90.00 | 179.61 | 8,057.95 | -11,523.39 | 155.10 | 11,524.43 | 0.00 | 0.00 | 0.00 | |
| 20,200.00 | 90.00 | 179.61 | 8,057.95 | -11,623.39 | 155.79 | 11,624.43 | 0.00 | 0.00 | 0.00 | |
| 20,300.00 | 90.00 | 179.61 | 8,057.95 | -11,723.38 | 156.47 | 11,724.43 | 0.00 | 0.00 | 0.00 | |
| 20,400.00 | 90.00 | 179.61 | 8,057.95 | -11,823.38 | 157.16 | 11,824.43 | 0.00 | 0.00 | 0.00 | |
| 20,500.00 | 90.00 | 179.61 | 8,057.95 | -11,923.38 | 157.84 | 11,924.42 | 0.00 | 0.00 | 0.00 | |
| 20,600.00 | 90.00 | 179.61 | 8,057.95 | -12,023.38 | 158.53 | 12,024.42 | 0.00 | 0.00 | 0.00 | |
| 20,700.00 | 90.00 | 179.61 | 8,057.95 | -12,123.38 | 159.21 | 12,124.42 | 0.00 | 0.00 | 0.00 | |
| 20,800.00 | 90.00 | 179.61 | 8,057.95 | -12,223.37 | 159.90 | 12,224.42 | 0.00 | 0.00 | 0.00 | |
| 20,900.00 | 90.00 | 179.61 | 8,057.95 | -12,323.37 | 160.58 | 12,324.42 | 0.00 | 0.00 | 0.00 | |
| 20,992.85 | 90.00 | 179.61 | 8,058.00 | -12,416.22 | 161.22 | 12,417.27 | 0.00 | 0.00 | 0.00 | |
| TD at 20992.85' MD | | | | | | | | | | |

| Design Targets | | | | | | | | | | |
|---|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|--|------------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | | Longitude |
| LIVINGSTON S19 12N - - hit/miss target - Shape - Point | 0.00 | 0.00 | 8,058.00 | 142.44 | 209.62 | 1,235,515.90 | 3,129,283.12 | 39° 58' 44.227 N | | 105° 2' 19.205 W |
| LIVINGSTON S19 12N - - plan hits target center - Point | 0.00 | 0.00 | 8,058.00 | -12,416.22 | 161.22 | 1,222,957.15 | 3,129,299.95 | 39° 56' 40.114 N | | 105° 2' 19.828 W |

Planning Report

| | | | |
|------------------|-----------------------|-------------------------------------|----------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well LIVINGSTON S19-25-12N |
| Company: | EXTRACTION OIL & GAS | TVD Reference: | KB 25' @ 5336.00usft |
| Project: | Broomfield County | MD Reference: | KB 25' @ 5336.00usft |
| Site: | Sec 7-T1S-R68W | North Reference: | True |
| Well: | LIVINGSTON S19-25-12N | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | ORIGINAL WELLBORE | | |
| Design: | PROPOSAL 1 | | |

| Formations | | | | | | |
|-----------------------|-----------------------|--------------|-----------|---------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 4,671.59 | 4,646.00 | PARKMAN | | | | |
| 5,156.43 | 5,127.00 | SUSSEX | | | | |
| 6,083.77 | 6,047.00 | SHANNON | | | | |
| 7,966.91 | 7,880.00 | NIOBRARA | | | | |
| 8,323.95 | 8,048.00 | NIO B TARGET | | | | |

| Plan Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|---------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | | |
| | | +N/-S (usft) | +E/-W (usft) | Comment | |
| 1,200.00 | 1,200.00 | 0.00 | 0.00 | BUILD 2°/100' | |
| 1,560.76 | 1,559.81 | 21.75 | 6.44 | HOLD 7.22° INC | |
| 7,140.33 | 7,095.19 | 693.69 | 205.41 | DROP 2°/100' | |
| 7,501.09 | 7,455.00 | 715.44 | 211.85 | HOLD VERTICAL | |
| 7,531.09 | 7,485.00 | 715.44 | 211.85 | KOP, BUILD 10°/100' | |
| 8,431.16 | 8,058.00 | 142.44 | 209.62 | LP @ 90° INC, 180.22° AZM | |
| 14,731.16 | 8,057.95 | -6,157.51 | 185.10 | NUDGE 2°/100' | |
| 15,070.01 | 8,057.95 | -6,495.49 | 163.76 | HOLD | |
| 15,220.01 | 8,057.95 | -6,644.37 | 145.48 | TURN 2°/100' | |
| 15,589.64 | 8,057.95 | -7,013.13 | 124.20 | HOLD 179.61° AZM | |
| 20,992.85 | 8,058.00 | -12,416.22 | 161.22 | TD at 20992.85' MD | |