

Elm Ridge Exploration Company.

La Plata County, Co (Flat Earth)

Sec 8 T-33N, R-8W

IGE 103

DD

UWI:

WL:

Plan: #1

Standard Planning Report

14 November, 2013



Elm Ridge Exploration Company.

Project: La Plata County, Co (Flat Earth)

Site: Sec 8 T-33N, R-8W

Well: IGE 103

Wellbore: DD

Plan: #1

Reference Details - WELL CENTRE

Geodetic System: Flat Earth

Ellipsoid: WGS 1984

Zone: No Conversions

Northing: 0.00

Easting: 0.00

Latitude: 33° 29' 20.500 N

Longitude: 115° 19' 49.008 W

Grid Convergence: 0.00° West

Ground Elevation: 6678.0

KB Elevation: Est RKB @ 6692.0ft

T/M

Azimuths to True North
Magnetic North: 0.00°

Magnetic Field
Strength: 0.0snT

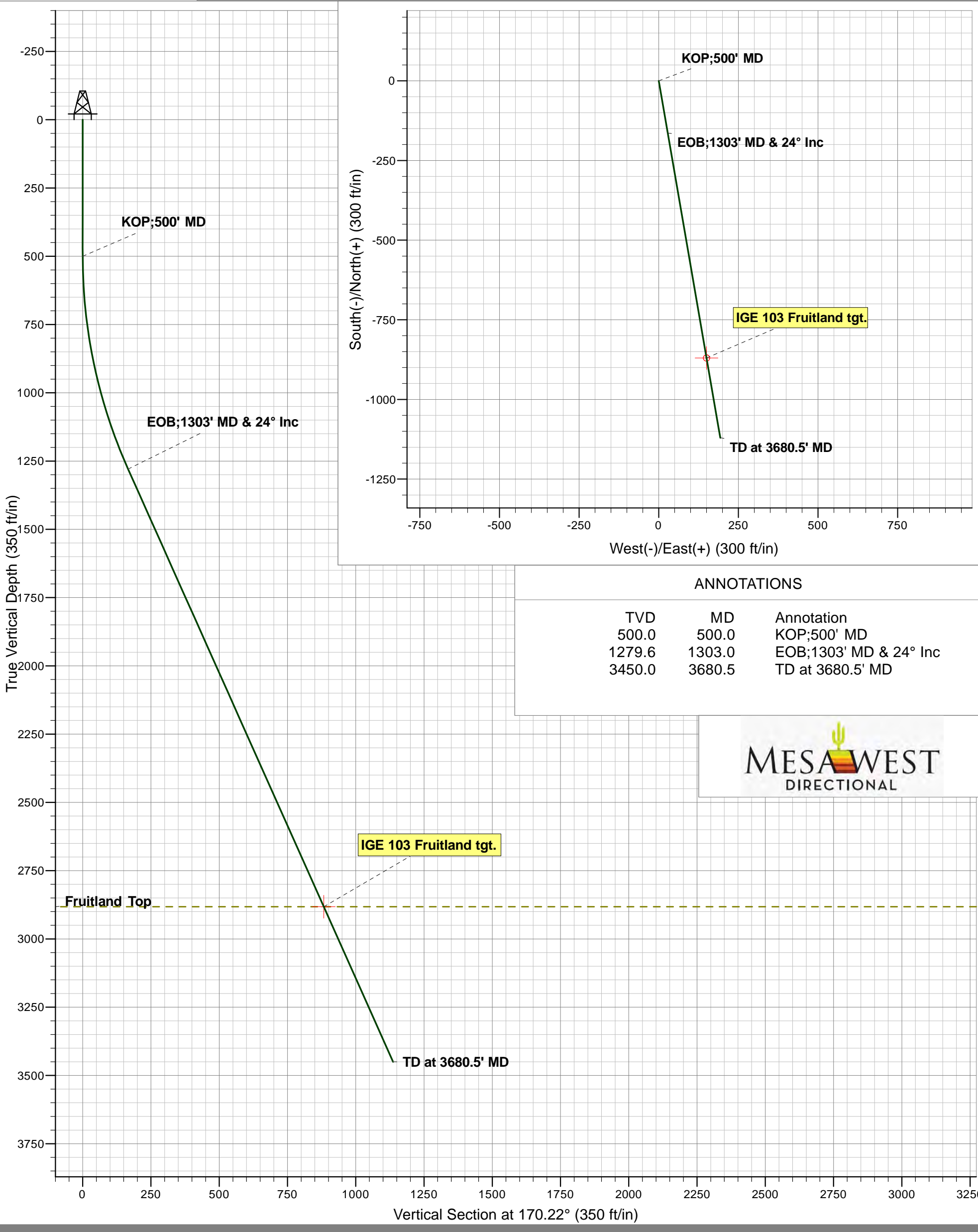
Dip Angle: 0.00°

Date: 11/14/2013

Model: USER DEFINED

PLAN DETAILS

| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
|--------|-------|--------|--------|---------|-------|------|--------|--------|------------------------|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 1303.0 | 24.09 | 170.22 | 1279.6 | -163.9 | 28.3 | 3.00 | 170.22 | 166.3 | |
| 3058.3 | 24.09 | 170.22 | 2882.0 | -870.0 | 150.0 | 0.00 | 0.00 | 882.8 | IGE 103 Fruitland tgt. |
| 3680.5 | 24.09 | 170.22 | 3450.0 | -1120.3 | 193.2 | 0.00 | 0.00 | 1136.8 | |



Mesa West Directional

Planning Report



| | | | |
|------------------|----------------------------------|-------------------------------------|--------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well IGE 103 |
| Company: | Elm Ridge Exploration Company. | TVD Reference: | Est RKB @ 6692.0ft |
| Project: | La Plata County, Co (Flat Earth) | MD Reference: | Est RKB @ 6692.0ft |
| Site: | Sec 8 T-33N, R-8W | North Reference: | True |
| Well: | IGE 103 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | #1 | | |

| | | | |
|--------------------|----------------------------------|----------------------|----------------|
| Project | La Plata County, Co (Flat Earth) | | |
| Map System: | Flat Earth | System Datum: | Mean Sea Level |
| Geo Datum: | WGS 1984 | | |
| Map Zone: | No Conversions | | |

| | | | |
|------------------------------|-------------------|--------------------------|---------------|
| Site | Sec 8 T-33N, R-8W | | |
| Site Position: | | Northing: | 0.00 m |
| From: | None | Easting: | 0.00 m |
| Position Uncertainty: | 0.0 ft | Slot Radius: | 13.200 in |
| | | Latitude: | 0° 0' 0.000 N |
| | | Longitude: | 0° 0' 0.000 E |
| | | Grid Convergence: | 0.00 ° |

| | | | |
|-----------------------------|--------------|----------------------------|-------------------|
| Well | IGE 103 | | |
| Well Position | +N/-S | 0.0 ft | Northing: |
| | +E/-W | 0.0 ft | Easting: |
| Position Uncertainty | 0.0 ft | Wellhead Elevation: | |
| | | Latitude: | 33° 29' 20.500 N |
| | | Longitude: | 115° 19' 49.008 W |
| | | Ground Level: | 6,678.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | DD | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | User Defined | 11/14/2013 | 0.00 | 0.00 | 0 |

| | | | | |
|--------------------------|-------------------------|--------------|----------------------|------------------|
| Design | #1 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) | +N/-S | +E/-W | Direction |
| | (ft) | (ft) | (ft) | (°) |
| | 0.0 | 0.0 | 0.0 | 170.22 |

| | | | | | | | | | | |
|-----------------------|--------------------|----------------|-----------------------|--------------|--------------|--------------------|-------------------|------------------|------------|------------------------|
| Plan Sections | | | | | | | | | | |
| Measured Depth | Inclination | Azimuth | Vertical Depth | +N/-S | +E/-W | Dogleg Rate | Build Rate | Turn Rate | TFO | Target |
| (ft) | (°) | (°) | (ft) | (ft) | (ft) | (°/100ft) | (°/100ft) | (°/100ft) | (°) | |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,303.0 | 24.09 | 170.22 | 1,279.6 | -163.9 | 28.3 | 3.00 | 3.00 | 21.20 | 170.22 | |
| 3,058.3 | 24.09 | 170.22 | 2,882.0 | -870.0 | 150.0 | 0.00 | 0.00 | 0.00 | 0.00 | IGE 103 Fruitland tgt. |
| 3,680.5 | 24.09 | 170.22 | 3,450.0 | -1,120.3 | 193.2 | 0.00 | 0.00 | 0.00 | 0.00 | |

Mesa West Directional

Planning Report



| | | | |
|------------------|----------------------------------|-------------------------------------|--------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well IGE 103 |
| Company: | Elm Ridge Exploration Company. | TVD Reference: | Est RKB @ 6692.0ft |
| Project: | La Plata County, Co (Flat Earth) | MD Reference: | Est RKB @ 6692.0ft |
| Site: | Sec 8 T-33N, R-8W | North Reference: | True |
| Well: | IGE 103 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | #1 | | |

| Planned Survey | | | | | | | | | | |
|---|-----------------|-------------|---------------------|-------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | Subsea (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.0 | 0.00 | 0.00 | 0.0 | -6,692.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP;500' MD | | | | | | | | | | |
| 500.0 | 0.00 | 0.00 | 500.0 | -6,192.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 3.00 | 170.22 | 600.0 | -6,092.0 | -2.6 | 0.4 | 2.6 | 3.00 | 3.00 | 0.00 |
| 700.0 | 6.00 | 170.22 | 699.6 | -5,992.4 | -10.3 | 1.8 | 10.5 | 3.00 | 3.00 | 0.00 |
| 800.0 | 9.00 | 170.22 | 798.8 | -5,893.2 | -23.2 | 4.0 | 23.5 | 3.00 | 3.00 | 0.00 |
| 900.0 | 12.00 | 170.22 | 897.1 | -5,794.9 | -41.1 | 7.1 | 41.7 | 3.00 | 3.00 | 0.00 |
| 1,000.0 | 15.00 | 170.22 | 994.3 | -5,697.7 | -64.1 | 11.1 | 65.1 | 3.00 | 3.00 | 0.00 |
| 1,100.0 | 18.00 | 170.22 | 1,090.2 | -5,601.8 | -92.1 | 15.9 | 93.5 | 3.00 | 3.00 | 0.00 |
| 1,200.0 | 21.00 | 170.22 | 1,184.4 | -5,507.6 | -125.0 | 21.6 | 126.9 | 3.00 | 3.00 | 0.00 |
| 1,300.0 | 24.00 | 170.22 | 1,276.8 | -5,415.2 | -162.7 | 28.1 | 165.1 | 3.00 | 3.00 | 0.00 |
| EOB;1303' MD & 24° Inc | | | | | | | | | | |
| 1,303.0 | 24.09 | 170.22 | 1,279.6 | -5,412.4 | -163.9 | 28.3 | 166.3 | 3.00 | 3.00 | 0.00 |
| 1,400.0 | 24.09 | 170.22 | 1,368.1 | -5,323.9 | -202.9 | 35.0 | 205.9 | 0.00 | 0.00 | 0.00 |
| 1,500.0 | 24.09 | 170.22 | 1,459.4 | -5,232.6 | -243.2 | 41.9 | 246.8 | 0.00 | 0.00 | 0.00 |
| 1,600.0 | 24.09 | 170.22 | 1,550.7 | -5,141.3 | -283.4 | 48.9 | 287.6 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 24.09 | 170.22 | 1,642.0 | -5,050.0 | -323.6 | 55.8 | 328.4 | 0.00 | 0.00 | 0.00 |
| 1,800.0 | 24.09 | 170.22 | 1,733.3 | -4,958.7 | -363.8 | 62.7 | 369.2 | 0.00 | 0.00 | 0.00 |
| 1,900.0 | 24.09 | 170.22 | 1,824.6 | -4,867.4 | -404.1 | 69.7 | 410.0 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 24.09 | 170.22 | 1,915.8 | -4,776.2 | -444.3 | 76.6 | 450.8 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 24.09 | 170.22 | 2,007.1 | -4,684.9 | -484.5 | 83.5 | 491.7 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 24.09 | 170.22 | 2,098.4 | -4,593.6 | -524.7 | 90.5 | 532.5 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 24.09 | 170.22 | 2,189.7 | -4,502.3 | -565.0 | 97.4 | 573.3 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 24.09 | 170.22 | 2,281.0 | -4,411.0 | -605.2 | 104.3 | 614.1 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 24.09 | 170.22 | 2,372.3 | -4,319.7 | -645.4 | 111.3 | 654.9 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 24.09 | 170.22 | 2,463.6 | -4,228.4 | -685.6 | 118.2 | 695.8 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 24.09 | 170.22 | 2,554.9 | -4,137.1 | -725.9 | 125.1 | 736.6 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 24.09 | 170.22 | 2,646.2 | -4,045.8 | -766.1 | 132.1 | 777.4 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 24.09 | 170.22 | 2,737.5 | -3,954.5 | -806.3 | 139.0 | 818.2 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 24.09 | 170.22 | 2,828.7 | -3,863.3 | -846.5 | 146.0 | 859.0 | 0.00 | 0.00 | 0.00 |
| Fruitland Top - IGE 103 Fruitland tgt. | | | | | | | | | | |
| 3,058.3 | 24.09 | 170.22 | 2,882.0 | -3,810.0 | -870.0 | 150.0 | 882.8 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 24.09 | 170.22 | 2,920.0 | -3,772.0 | -886.8 | 152.9 | 899.8 | 0.00 | 0.00 | 0.00 |
| 3,200.0 | 24.09 | 170.22 | 3,011.3 | -3,680.7 | -927.0 | 159.8 | 940.7 | 0.00 | 0.00 | 0.00 |
| 3,300.0 | 24.09 | 170.22 | 3,102.6 | -3,589.4 | -967.2 | 166.8 | 981.5 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 24.09 | 170.22 | 3,193.9 | -3,498.1 | -1,007.4 | 173.7 | 1,022.3 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 24.09 | 170.22 | 3,285.2 | -3,406.8 | -1,047.7 | 180.6 | 1,063.1 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 24.09 | 170.22 | 3,376.5 | -3,315.5 | -1,087.9 | 187.6 | 1,103.9 | 0.00 | 0.00 | 0.00 |
| TD at 3680.5' MD | | | | | | | | | | |
| 3,680.5 | 24.09 | 170.22 | 3,450.0 | -3,242.0 | -1,120.3 | 193.1 | 1,136.8 | 0.00 | 0.00 | 0.00 |

Mesa West Directional

Planning Report



| | | | |
|------------------|----------------------------------|-------------------------------------|--------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well IGE 103 |
| Company: | Elm Ridge Exploration Company. | TVD Reference: | Est RKB @ 6692.0ft |
| Project: | La Plata County, Co (Flat Earth) | MD Reference: | Est RKB @ 6692.0ft |
| Site: | Sec 8 T-33N, R-8W | North Reference: | True |
| Well: | IGE 103 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | #1 | | |

| Design Targets | | | | | | | | | |
|---------------------------|-----------|----------|---------|--------|-------|----------|---------|------------------|-------------------|
| Target Name | Dip Angle | Dip Dir. | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| - hit/miss target | (°) | (°) | (ft) | (ft) | (ft) | (m) | (m) | | |
| - Shape | | | | | | | | | |
| IGE 103 Fruitland tgt. | 0.00 | 0.00 | 2,882.0 | -870.0 | 150.0 | -265.18 | 45.72 | 33° 29' 12.119 N | 115° 19' 46.175 W |
| - plan hits target center | | | | | | | | | |
| - Circle (radius 10.0) | | | | | | | | | |

| Formations | | | | | | |
|----------------|----------------|--------------|---------------|-----------|------|---------------|
| Measured Depth | Vertical Depth | Subsea Depth | Name | Lithology | Dip | Dip Direction |
| (ft) | (ft) | (ft) | | | (°) | (°) |
| 3,058.3 | 2,882.0 | 3,810.0 | Fruitland Top | | 0.00 | |

| Plan Annotations | | | | |
|------------------|----------------|-------------------|------------|------------------------|
| Measured Depth | Vertical Depth | Local Coordinates | | Comment |
| (ft) | (ft) | +N/-S (ft) | +E/-W (ft) | |
| 500.0 | 500.0 | 0.0 | 0.0 | KOP;500' MD |
| 1,303.0 | 1,279.6 | -163.9 | 28.3 | EOB;1303' MD & 24° Inc |
| 3,680.5 | 3,450.0 | -870.0 | 150.0 | TD at 3680.5' MD |