

Elm Ridge Exploration Company.

La Plata County, Co (Nad 83)

Sec 21, T33N, R8W

IGS #419

DD

UWI:

API:

Plan: #1

Mesa West Planning Report

07 May, 2014

Elm Ridge Exploration Company.

Project: La Plata County, Co (Nad 83)
Site: Sec 21, T33N, R8W
Well: IGS #419
Wellbore: DD
Plan: #1

Reference Details - WELL CENTRE

Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Southern Zone
Northing: 1163263.59
Easting: 2350681.94
Latitude: 37° 5' 37.644 N
Longitude: 107° 43' 34.788 W
Grid Convergence: 1.37° East
Ground Elevation: 6776.0
KB Elevation: Est RKB @ 6790.0usft (IGS 419)

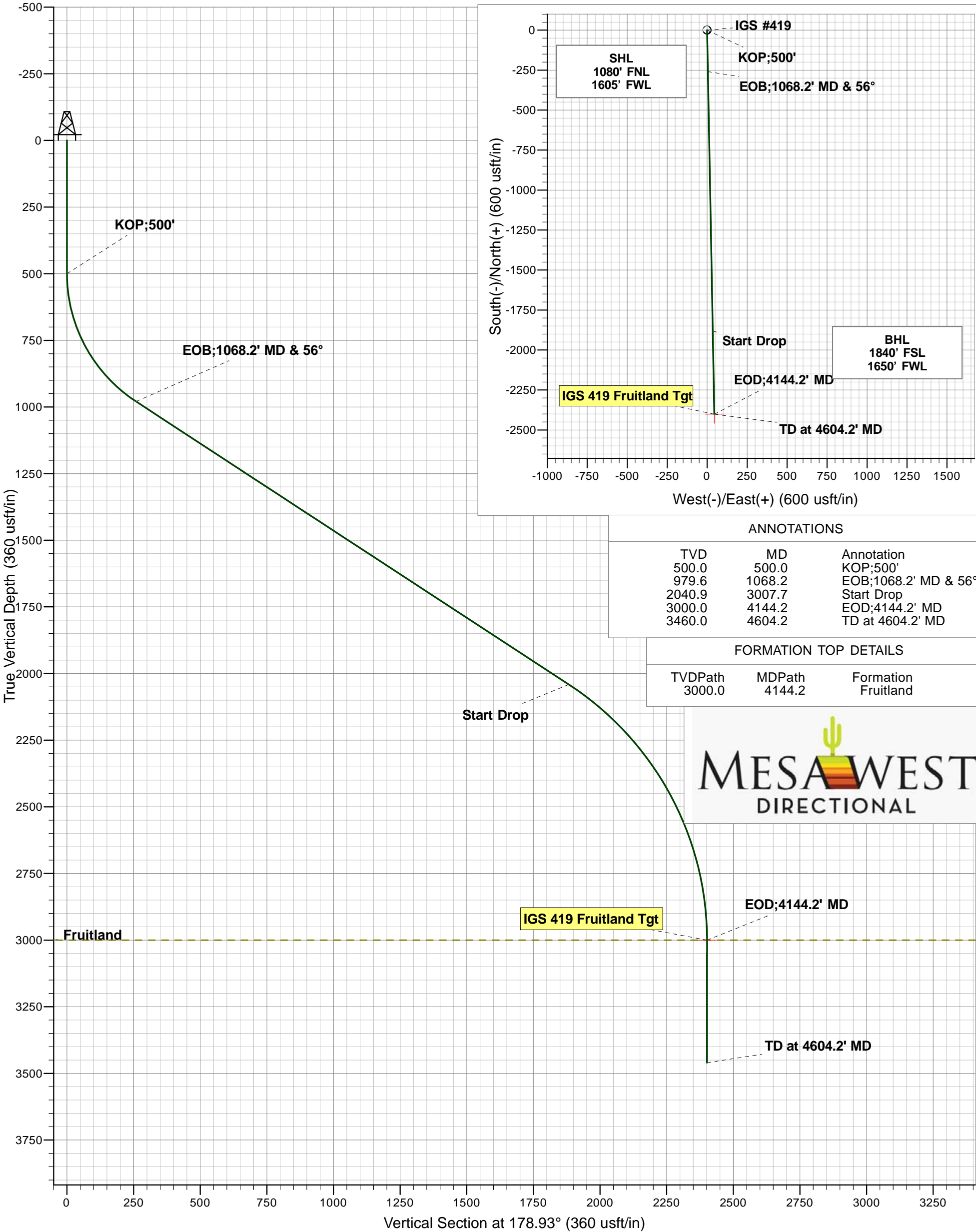


Azimuths to True North
Magnetic North: 9.57°

Magnetic Field
Strength: 50651.9snT
Dip Angle: 63.70°
Date: 5/7/2014
Model: IGRF2010

PLAN DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
|-----|--------|-------|--------|--------|---------|-------|-------|--------|--------|-----------------------|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 1068.2 | 56.82 | 178.93 | 979.6 | -259.4 | 4.9 | 10.00 | 178.93 | 259.4 | |
| 4 | 3007.7 | 56.82 | 178.93 | 2040.9 | -1882.4 | 35.3 | 0.00 | 0.00 | 1882.7 | |
| 5 | 4144.2 | 0.00 | 0.00 | 3000.0 | -2401.1 | 45.0 | 5.00 | 180.00 | 2401.6 | IGS 419 Fruitland Tgt |
| 6 | 4604.2 | 0.00 | 0.00 | 3460.0 | -2401.1 | 45.0 | 0.00 | 0.00 | 2401.6 | |



ANNOTATIONS

| TVD | MD | Annotation |
|--------|--------|----------------------|
| 500.0 | 500.0 | KOP;500' |
| 979.6 | 1068.2 | EOB;1068.2' MD & 56° |
| 2040.9 | 3007.7 | Start Drop |
| 3000.0 | 4144.2 | EOD;4144.2' MD |
| 3460.0 | 4604.2 | TD at 4604.2' MD |

FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|--------|-----------|
| 3000.0 | 4144.2 | Fruitland |

Mesa West Directional

Planning Report

| | | | |
|------------------|--------------------------------|-------------------------------------|--------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well IGS #419 |
| Company: | Elm Ridge Exploration Company. | TVD Reference: | Est RKB @ 6790.0usft (IGS 419) |
| Project: | La Plata County, Co (Nad 83) | MD Reference: | Est RKB @ 6790.0usft (IGS 419) |
| Site: | Sec 21, T33N, R8W | North Reference: | True |
| Well: | IGS #419 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Plan: | #1 | | |

| | | | |
|--------------------|------------------------------|----------------------|----------------|
| Project | La Plata County, Co (Nad 83) | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Southern Zone | | |

| | | | | | |
|-----------------------|----------|-------------------|-------------------|-------------------|-------------------|
| Site | | Sec 21, T33N, R8W | | | |
| Site Position: | | Northing: | 1,163,263.59 usft | Latitude: | 37° 5' 37.644 N |
| From: | Lat/Long | Easting: | 2,350,681.94 usft | Longitude: | 107° 43' 34.788 W |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | -1.37 ° |

| Well | | IGS #419 | | | | |
|----------------------|-------|----------|---------------------|-------------------|---------------|-------------------|
| Well Position | +N/-S | 0.0 usft | Northing: | 1,163,263.59 usft | Latitude: | 37° 5' 37.644 N |
| | +E/-W | 0.0 usft | Easting: | 2,350,681.94 usft | Longitude: | 107° 43' 34.788 W |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: | | Ground Level: | 6,776.0 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | DD | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 5/7/2014 | 9.57 | 63.70 | 50,652 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| Plan | #1 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 178.93 |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
| 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 | |
| 1,068.2 | 56.82 | 178.93 | 979.6 | -259.4 | 4.9 | 10.00 | 10.00 | 0.00 | 178.93 | |
| 3,007.7 | 56.82 | 178.93 | 2,040.9 | -1,882.4 | 35.3 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,144.2 | 0.00 | 0.00 | 3,000.0 | -2,401.1 | 45.0 | 5.00 | -5.00 | 0.00 | 180.00 | IGS 419 Fruitland Tgt |
| 4,604.2 | 0.00 | 0.00 | 3,460.0 | -2,401.1 | 45.0 | 0.00 | 0.00 | 0.00 | 0.00 | |

Mesa West Directional

Planning Report

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|------------------|--------------------------------|-------------------------------------|--------------------------------|
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| Company: | Elm Ridge Exploration Company. | TVD Reference: | Est RKB @ 6790.0usft (IGS 419) |
| Project: | La Plata County, Co (Nad 83) | MD Reference: | Est RKB @ 6790.0usft (IGS 419) |
| Site: | Sec 21, T33N, R8W | North Reference: | True |
| Well: | IGS #419 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Plan: | #1 | | |

| Planned Survey | | | | | | | | | | |
|-----------------------------------|-----------------|-------------|-----------------------|---------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Subsea (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 | 6,790.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP;500' | | | | | | | | | | |
| 500.0 | 0.00 | 0.00 | 500.0 | 6,290.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 10.00 | 178.93 | 599.5 | 6,190.5 | -8.7 | 0.2 | 8.7 | 10.00 | 10.00 | 0.00 |
| 700.0 | 20.00 | 178.93 | 696.0 | 6,094.0 | -34.5 | 0.6 | 34.6 | 10.00 | 10.00 | 0.00 |
| 800.0 | 30.00 | 178.93 | 786.5 | 6,003.5 | -76.7 | 1.4 | 76.8 | 10.00 | 10.00 | 0.00 |
| 900.0 | 40.00 | 178.93 | 868.3 | 5,921.7 | -134.0 | 2.5 | 134.0 | 10.00 | 10.00 | 0.00 |
| 1,000.0 | 50.00 | 178.93 | 938.9 | 5,851.1 | -204.6 | 3.8 | 204.7 | 10.00 | 10.00 | 0.00 |
| EOB;1068.2' MD & 56° | | | | | | | | | | |
| 1,068.2 | 56.82 | 178.93 | 979.6 | 5,810.4 | -259.4 | 4.9 | 259.4 | 10.00 | 10.00 | 0.00 |
| 1,100.0 | 56.82 | 178.93 | 996.9 | 5,793.1 | -286.0 | 5.4 | 286.0 | 0.00 | 0.00 | 0.00 |
| 1,200.0 | 56.82 | 178.93 | 1,051.7 | 5,738.3 | -369.6 | 6.9 | 369.7 | 0.00 | 0.00 | 0.00 |
| 1,300.0 | 56.82 | 178.93 | 1,106.4 | 5,683.6 | -453.3 | 8.5 | 453.4 | 0.00 | 0.00 | 0.00 |
| 1,400.0 | 56.82 | 178.93 | 1,161.1 | 5,628.9 | -537.0 | 10.1 | 537.1 | 0.00 | 0.00 | 0.00 |
| 1,500.0 | 56.82 | 178.93 | 1,215.8 | 5,574.2 | -620.7 | 11.6 | 620.8 | 0.00 | 0.00 | 0.00 |
| 1,600.0 | 56.82 | 178.93 | 1,270.6 | 5,519.4 | -704.4 | 13.2 | 704.5 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 56.82 | 178.93 | 1,325.3 | 5,464.7 | -788.1 | 14.8 | 788.2 | 0.00 | 0.00 | 0.00 |
| 1,800.0 | 56.82 | 178.93 | 1,380.0 | 5,410.0 | -871.7 | 16.3 | 871.9 | 0.00 | 0.00 | 0.00 |
| 1,900.0 | 56.82 | 178.93 | 1,434.7 | 5,355.3 | -955.4 | 17.9 | 955.6 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 56.82 | 178.93 | 1,489.4 | 5,300.6 | -1,039.1 | 19.5 | 1,039.3 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 56.82 | 178.93 | 1,544.2 | 5,245.8 | -1,122.8 | 21.0 | 1,123.0 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 56.82 | 178.93 | 1,598.9 | 5,191.1 | -1,206.5 | 22.6 | 1,206.7 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 56.82 | 178.93 | 1,653.6 | 5,136.4 | -1,290.2 | 24.2 | 1,290.4 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 56.82 | 178.93 | 1,708.3 | 5,081.7 | -1,373.9 | 25.7 | 1,374.1 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 56.82 | 178.93 | 1,763.1 | 5,026.9 | -1,457.5 | 27.3 | 1,457.8 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 56.82 | 178.93 | 1,817.8 | 4,972.2 | -1,541.2 | 28.9 | 1,541.5 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 56.82 | 178.93 | 1,872.5 | 4,917.5 | -1,624.9 | 30.5 | 1,625.2 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 56.82 | 178.93 | 1,927.2 | 4,862.8 | -1,708.6 | 32.0 | 1,708.9 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 56.82 | 178.93 | 1,981.9 | 4,808.1 | -1,792.3 | 33.6 | 1,792.6 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 56.82 | 178.93 | 2,036.7 | 4,753.3 | -1,876.0 | 35.2 | 1,876.3 | 0.00 | 0.00 | 0.00 |
| Start Drop | | | | | | | | | | |
| 3,007.7 | 56.82 | 178.93 | 2,040.9 | 4,749.1 | -1,882.4 | 35.3 | 1,882.7 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 52.21 | 178.93 | 2,094.4 | 4,695.6 | -1,957.5 | 36.7 | 1,957.9 | 5.00 | -5.00 | 0.00 |
| 3,200.0 | 47.21 | 178.93 | 2,159.1 | 4,630.9 | -2,033.8 | 38.1 | 2,034.1 | 5.00 | -5.00 | 0.00 |
| 3,300.0 | 42.21 | 178.93 | 2,230.1 | 4,559.9 | -2,104.1 | 39.4 | 2,104.4 | 5.00 | -5.00 | 0.00 |
| 3,400.0 | 37.21 | 178.93 | 2,307.0 | 4,483.0 | -2,167.9 | 40.6 | 2,168.3 | 5.00 | -5.00 | 0.00 |
| 3,500.0 | 32.21 | 178.93 | 2,389.2 | 4,400.8 | -2,224.8 | 41.7 | 2,225.2 | 5.00 | -5.00 | 0.00 |
| 3,600.0 | 27.21 | 178.93 | 2,476.1 | 4,313.9 | -2,274.4 | 42.6 | 2,274.8 | 5.00 | -5.00 | 0.00 |
| 3,700.0 | 22.21 | 178.93 | 2,566.9 | 4,223.1 | -2,316.2 | 43.4 | 2,316.6 | 5.00 | -5.00 | 0.00 |
| 3,800.0 | 17.21 | 178.93 | 2,661.0 | 4,129.0 | -2,349.9 | 44.0 | 2,350.3 | 5.00 | -5.00 | 0.00 |
| 3,900.0 | 12.21 | 178.93 | 2,757.7 | 4,032.3 | -2,375.2 | 44.5 | 2,375.7 | 5.00 | -5.00 | 0.00 |
| 4,000.0 | 7.21 | 178.93 | 2,856.2 | 3,933.8 | -2,392.1 | 44.8 | 2,392.5 | 5.00 | -5.00 | 0.00 |
| 4,100.0 | 2.21 | 178.93 | 2,955.8 | 3,834.2 | -2,400.3 | 45.0 | 2,400.7 | 5.00 | -5.00 | 0.00 |
| EOD;4144.2' MD - Fruitland | | | | | | | | | | |
| 4,144.2 | 0.00 | 0.00 | 3,000.0 | 3,790.0 | -2,401.1 | 45.0 | 2,401.6 | 5.00 | -5.00 | 0.00 |
| TD at 4604.2' MD | | | | | | | | | | |

Mesa West Directional

Planning Report

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|------------------|--------------------------------|-------------------------------------|--------------------------------|
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| Site: | Sec 21, T33N, R8W | North Reference: | True |
| Well: | IGS #419 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Plan: | #1 | | |

| Planned Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|---------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Subsea (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,604.2 | 0.00 | 0.00 | 3,460.0 | 3,330.0 | -2,401.1 | 45.0 | 2,401.6 | 0.00 | 0.00 | 0.00 |

| Design Targets | | | | | | | | | |
|---------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------------|-------------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| IGS 419 Fruitland Tgt | 0.00 | 0.00 | 3,000.0 | -2,401.1 | 45.0 | 1,160,862.05 | 2,350,669.70 | 37° 5' 13.904 N | 107° 43' 34.233 W |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

| Formations | | | | | | |
|-----------------------|-----------------------|---------------------|-----------|-----------|---------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Subsea Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
| 4,144.2 | 3,000.0 | 3,790.0 | Fruitland | | 0.00 | |

| Plan Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|----------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | | |
| | | +N/-S (usft) | +E/-W (usft) | Comment | |
| 500.0 | 500.0 | 0.0 | 0.0 | KOP;500' | |
| 1,068.2 | 979.6 | -259.4 | 4.9 | EOB;1068.2' MD & 56° | |
| 3,007.7 | 2,040.9 | -1,882.4 | 35.3 | Start Drop | |
| 4,144.2 | 3,000.0 | -2,401.1 | 45.0 | EOD;4144.2' MD | |
| 4,604.2 | 3,460.0 | -2,401.1 | 45.0 | TD at 4604.2' MD | |