



Mesa West Directional
Telephone: 970.764.4242
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AusCo Petroleum Inc.

Fremont County (NAD 83)

Bird 13-18*

Bird 13-18

DD STk

UWI:

API:

Plan: #1

Mesa West Planning Report

30 September, 2017



AusCo Petroleum Inc.

Site: Bird 13-18*
Well: Bird 13-18
Wellbore: DD STk
Plan: #1


Reference Details - WELL CENTRE

Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Central Zone
Northing: 1172405.18
Easting: 3097531.42
Latitude: 38.3062111
Longitude: -105.1601333
Grid Convergence: 0.21° West
Ground Elevation: 6070.0
KB Elevation: RKB @ 6075.0usft (kb;5')

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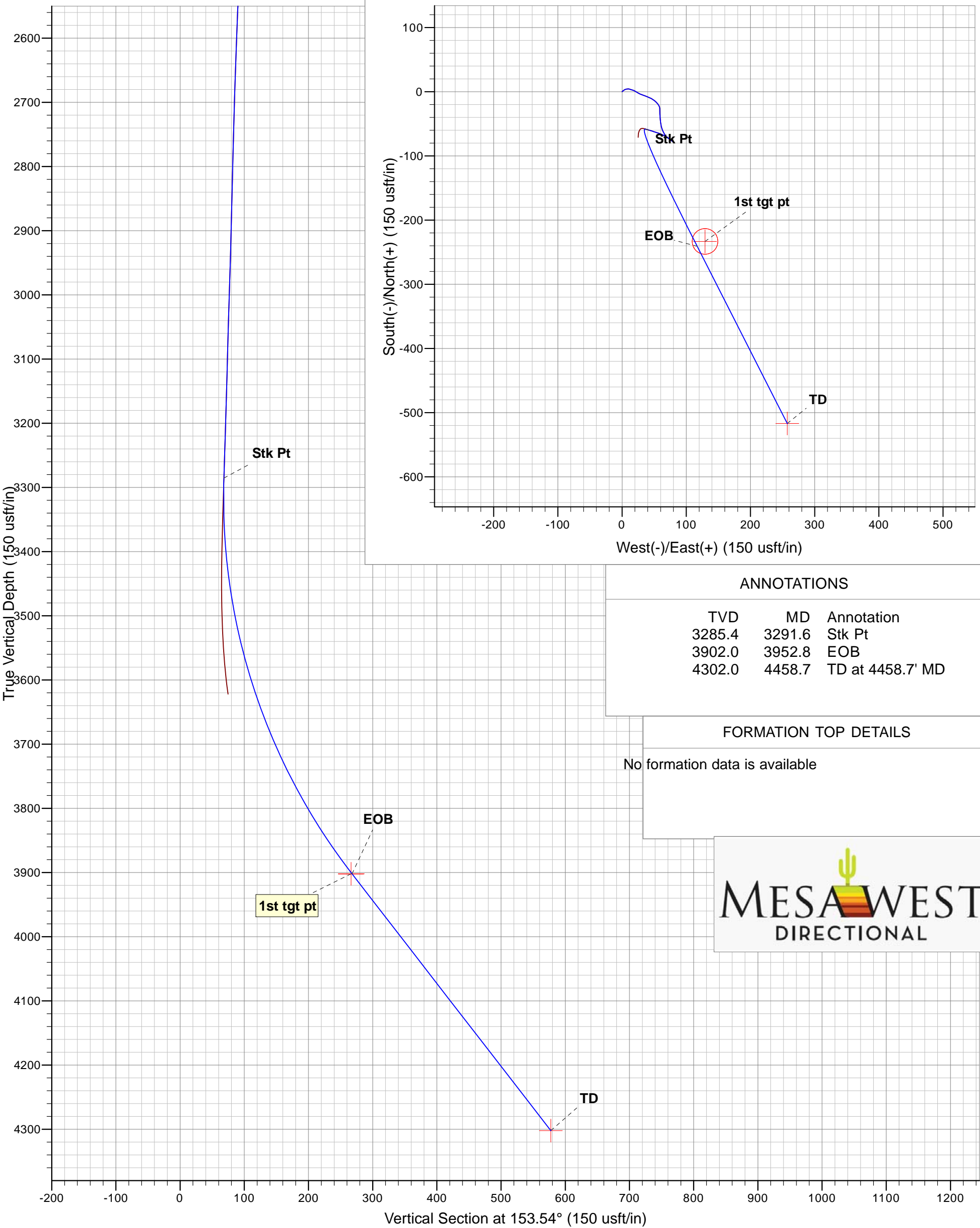


Azimuths to Grid North
True North: -0.21°
Magnetic North: 7.84°

Magnetic Field
Strength: 51297.4snT
Dip Angle: 65.07°
Date: 30/09/2017
Model: IGRF201015

PLAN DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3291.6	2.63	289.35	3285.4	-58.2	36.4	0.00	0.00	68.3	
3952.8	37.74	153.06	3902.0	-240.9	117.0	6.00	-138.51	267.8	
4458.7	37.74	153.06	4302.0	-516.9	257.3	0.00	0.00	577.4	TD



Database:	WellPlan Services	Local Co-ordinate Reference:	Well Bird 13-18
Company:	AusCo Petroleum Inc.	TVD Reference:	RKB @ 6075.0usft (kb;5')
Project:	Fremont County (NAD 83)	MD Reference:	RKB @ 6075.0usft (kb;5')
Site:	Bird 13-18*	North Reference:	Grid
Well:	Bird 13-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD STk		
Plan:	#1		

Project	Fremont County (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	Bird 13-18*				
Site Position:		Northing:	1,172,433.55 usft	Latitude:	38.3062890
From:	Lat/Long	Easting:	3,097,527.97 usft	Longitude:	-105.1601450
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well	Bird 13-18					
Well Position	+N/-S	-28.4 usft	Northing:	1,172,405.18 usft	Latitude:	38.3062110
	+E/-W	3.5 usft	Easting:	3,097,531.42 usft	Longitude:	-105.1601333
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,070.0 usft

Wellbore	DD STk				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF201015	30/09/2017	8.05	65.07	51,297

Plan	#1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	3,291.6
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	153.54

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
3,291.6	2.63	289.35	3,285.4	-58.2	36.4	0.00	0.00	0.00	0.00	
3,952.8	37.74	153.06	3,902.0	-240.9	117.0	6.00	5.31	-20.61	-138.51	
4,458.7	37.74	153.06	4,302.0	-516.9	257.3	0.00	0.00	0.00	0.00	TD

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Site:	Bird 13-18*	North Reference:	Grid
Well:	Bird 13-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD STk		
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)
Stk Pt										
3,291.6	2.63	289.35	3,285.4	-2,789.6	-58.2	36.4	68.3	0.70	0.32	14.00
3,300.0	2.28	280.92	3,293.8	-2,781.2	-58.1	36.0	68.0	6.00	-4.20	-100.35
3,350.0	2.32	199.47	3,343.8	-2,731.2	-58.8	34.7	68.1	6.00	0.08	-162.90
3,400.0	4.86	171.79	3,393.7	-2,681.3	-61.9	34.7	70.9	6.00	5.07	-55.35
3,450.0	7.73	163.76	3,443.3	-2,631.7	-67.2	35.9	76.2	6.00	5.75	-16.07
3,500.0	10.67	160.10	3,492.7	-2,582.3	-74.8	38.5	84.1	6.00	5.89	-7.33
3,550.0	13.64	158.01	3,541.6	-2,533.4	-84.6	42.2	94.6	6.00	5.94	-4.18
3,600.0	16.62	156.66	3,589.8	-2,485.2	-96.6	47.3	107.6	6.00	5.96	-2.70
3,650.0	19.61	155.71	3,637.4	-2,437.6	-110.9	53.6	123.1	6.00	5.97	-1.90
3,700.0	22.60	155.00	3,684.0	-2,391.0	-127.2	61.1	141.1	6.00	5.98	-1.41
3,750.0	25.59	154.45	3,729.6	-2,345.4	-145.7	69.8	161.5	6.00	5.98	-1.10
3,800.0	28.58	154.01	3,774.1	-2,300.9	-166.2	79.7	184.3	6.00	5.99	-0.88
3,850.0	31.58	153.64	3,817.4	-2,257.6	-188.7	90.8	209.3	6.00	5.99	-0.73
3,900.0	34.57	153.34	3,859.3	-2,215.7	-213.1	102.9	236.6	6.00	5.99	-0.61
3,950.0	37.57	153.07	3,899.7	-2,175.3	-239.3	116.2	266.0	6.00	5.99	-0.53
EOB										
3,952.8	37.74	153.06	3,902.0	-2,173.0	-240.9	117.0	267.8	6.00	5.99	-0.49
4,000.0	37.74	153.06	3,939.3	-2,135.7	-266.6	130.1	296.6	0.00	0.00	0.00
4,050.0	37.74	153.06	3,978.8	-2,096.2	-293.9	143.9	327.2	0.00	0.00	0.00
4,100.0	37.74	153.06	4,018.3	-2,056.7	-321.2	157.8	357.8	0.00	0.00	0.00
4,150.0	37.74	153.06	4,057.9	-2,017.1	-348.5	171.7	388.4	0.00	0.00	0.00
4,200.0	37.74	153.06	4,097.4	-1,977.6	-375.7	185.5	419.0	0.00	0.00	0.00
4,250.0	37.74	153.06	4,137.0	-1,938.0	-403.0	199.4	449.6	0.00	0.00	0.00
4,300.0	37.74	153.06	4,176.5	-1,898.5	-430.3	213.3	480.3	0.00	0.00	0.00
4,350.0	37.74	153.06	4,216.0	-1,859.0	-457.6	227.1	510.9	0.00	0.00	0.00
4,400.0	37.74	153.06	4,255.6	-1,819.4	-484.9	241.0	541.5	0.00	0.00	0.00
4,450.0	37.74	153.06	4,295.1	-1,779.9	-512.1	254.9	572.1	0.00	0.00	0.00
TD at 4458.7' MD										
4,458.7	37.74	153.06	4,302.0	-1,773.0	-516.9	257.3	577.4	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									
1st tgt pt	0.00	0.00	3,902.0	-233.2	129.2	1,172,171.99	3,097,660.58	38.3055694	-105.1596863
- plan misses target center by 14.4usft at 3952.0usft MD (3901.3 TVD, -240.5 N, 116.8 E)									
- Circle (radius 20.0)									
TD	0.00	0.00	4,302.0	-516.9	257.3	1,171,888.29	3,097,788.69	38.3047891	-105.1592436
- plan hits target center									
- Point									

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Site:	Bird 13-18*	North Reference:	Grid
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Wellbore:	DD STk		
Plan:	#1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,291.6	3,285.4	-58.2	36.4	Stk Pt
3,952.8	3,902.0	-240.9	117.0	EOB
4,458.7	4,302.0	-516.9	257.3	TD at 4458.7' MD