

# **Bison Oil & Gas II, LLC**

**WELD COUNTY, COLORADO (NAD 83)**

**MELODY JOAN 8-59 20B**

**MELODY JOAN 8-59 20B-29-32-3**

**Wellbore #1**

**Plan: Design #1**

## **Standard Survey Report**

**20 May, 2020**



Project: WELD COUNTY, COLORADO (NAD 83)  
Site: MELODY JOAN 8-59 20B  
Well: MELODY JOAN 8-59 20B-29-32-3  
Wellbore: Wellbore #1  
Design: Design #1

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Dep	Annotation
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.0	Start Build 1.50
4124.4	24.57	106.69	3922.0	-300.7	1002.8	422.9	1047.0	Start Drop -1.50
5762.1	0.00	0.00	5510.0	-400.0	1334.0	562.6	1392.7	Start 100.00 hold at 5762.10 MD
5862.1	0.00	0.00	5610.0	-400.0	1334.0	562.6	1392.7	Start Build 10.62
6710.0	90.00	180.26	6149.8	-939.8	1331.5	1097.9	1932.4	Start DLS 0.01 TFO -89.51
16661.9	90.01	179.24	6149.0	-10891.5	1374.7	10977.9	11884.4	Start 99.65 hold at 16661.86 MD
16761.5	90.01	179.24	6149.0	-10991.1	1376.0	11076.9	11984.0	TD at 16761.51

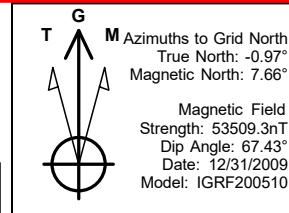
#### PROPOSED LOCAL COORDINATES:

SHL: 660 ft FSL & 2313 ft FWL Sec 20

BPI :300 ft FNL & 1542 ft FEL Sec 29

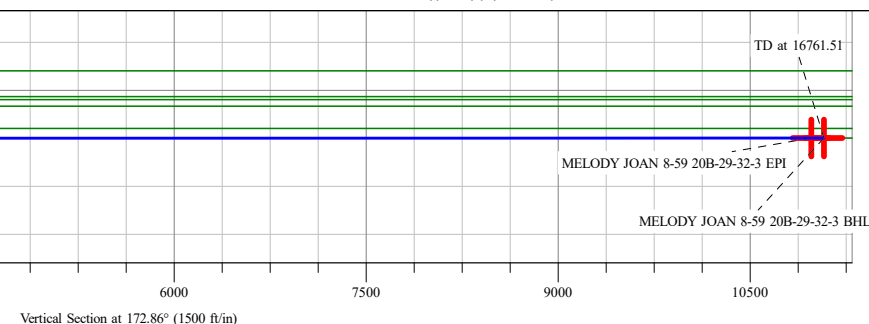
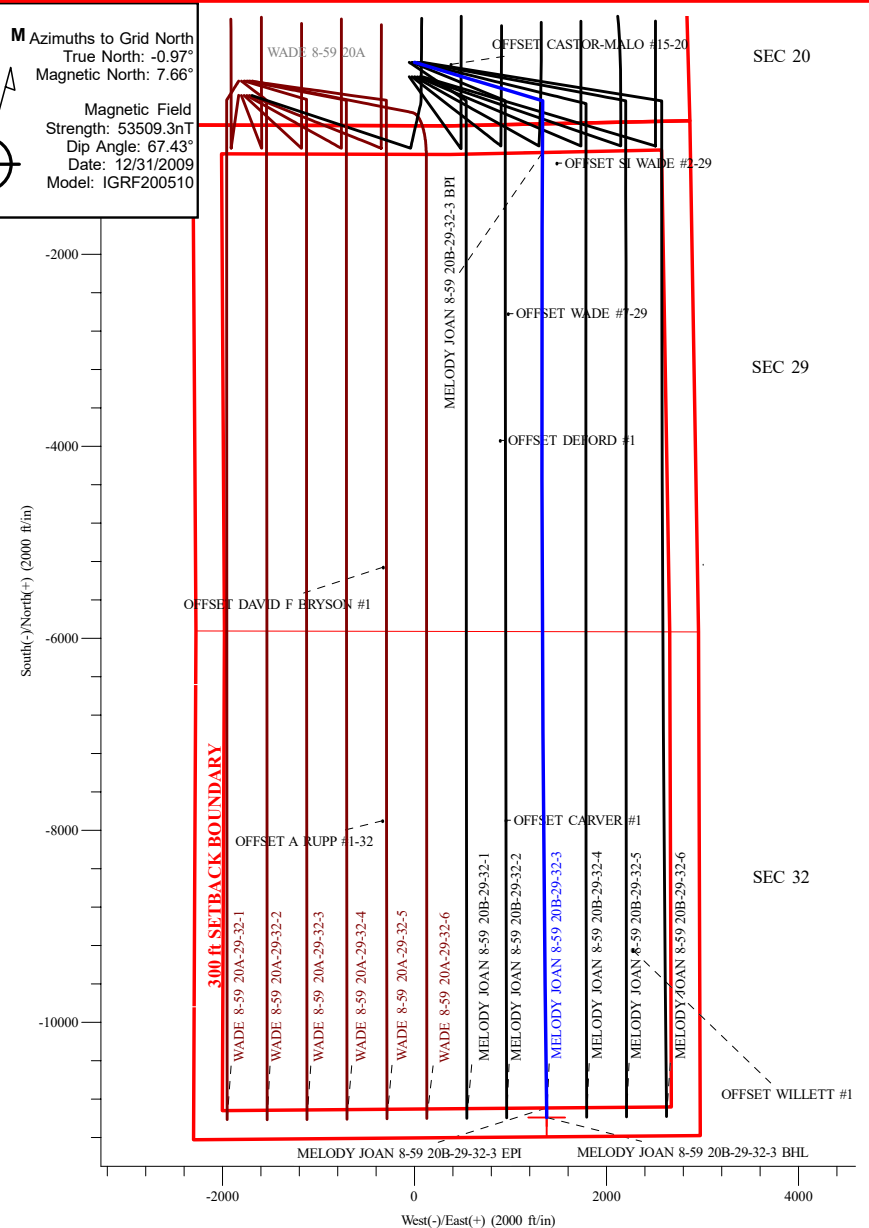
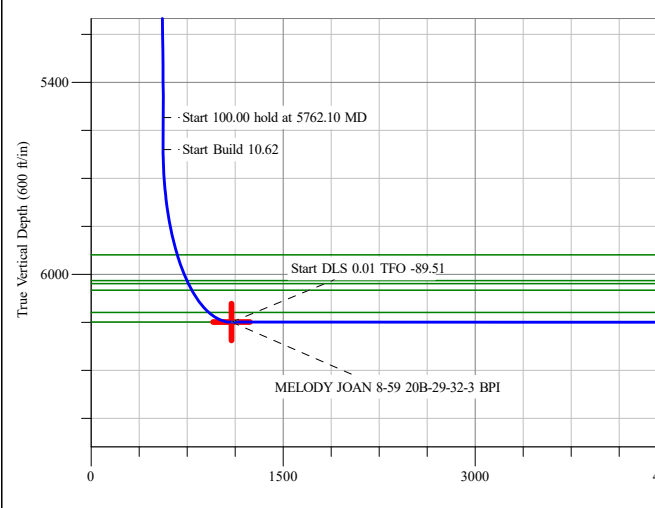
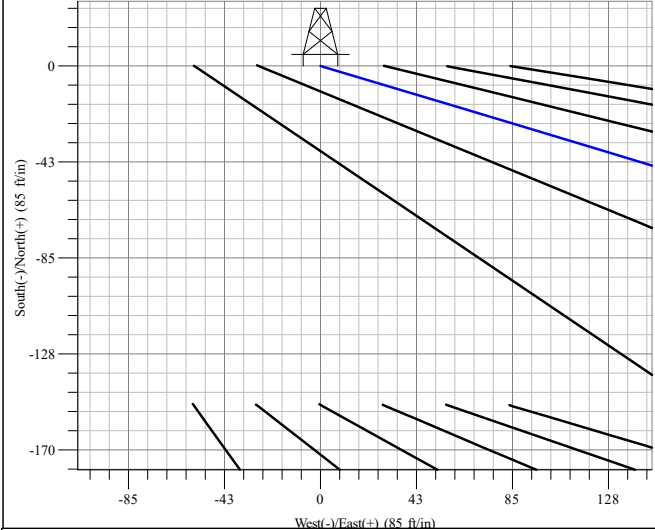
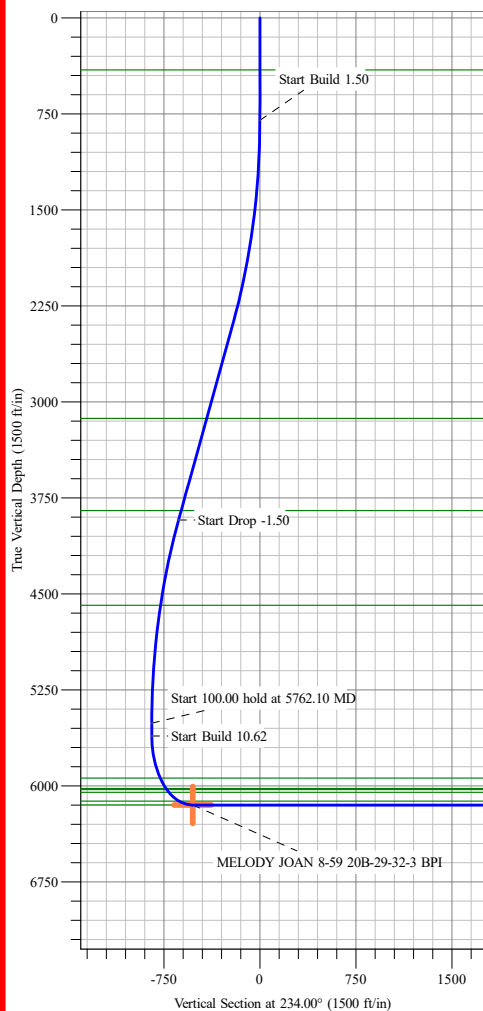
EPI: 300 ft FSL & 1599 ft FEL Sec 32

BHL: 200 ft FSL & 1600 ft FEL Sec 32



#### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
MELODY JOAN 8-59 20B-29-32-3 BPI	6149.0	-939.8	1331.5	450908.28	1041494.02	40° 38' 22.301 N 03° 59' 50.935 W	
MELODY JOAN 8-59 20B-29-32-3 EPI	6149.0	-10891.5	1374.7	447875.00	1041507.16	40° 36' 43.970 N 03° 59' 52.562 W	
MELODY JOAN 8-59 20B-29-32-3 BHL	6149.0	-10991.3	1374.4	447844.57	1041507.09	40° 36' 42.984 N 03° 59' 52.588 W	Point



## Survey Report

<b>Company:</b>	Bison Oil & Gas II, LLC	<b>Local Co-ordinate Reference:</b>	Well MELODY JOAN 8-59 20B-29-32-3
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB 25 @ 4899.1ft
<b>Site:</b>	MELODY JOAN 8-59 20B	<b>MD Reference:</b>	KB 25 @ 4899.1ft
<b>Well:</b>	MELODY JOAN 8-59 20B-29-32-3	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDM 5000.16 Single User Db

<b>Project</b>	WELD COUNTY, COLORADO (NAD 83),		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		MELODY JOAN 8-59 20B			
Site Position:		Northing:	451,194.75 m	Latitude:	40° 38' 31.805 N
From:	Lat/Long	Easting:	1,041,096.71 m	Longitude:	104° 0' 7.636 W
Position Uncertainty:		Slot Radius:	13.200 in		

Well	MELODY JOAN 8-59 20B-29-32-3					
Well Position	+N/-S	0.0 ft	Northing:	451,194.72 m	Latitude:	40° 38' 31.808 N
	+E/-W	0.0 ft	Easting:	1,041,088.17 m	Longitude:	104° 0' 7.999 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,874.1 ft
Grid Convergence:		0.97 °				

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	8.62	67.43	53,509.26976478

<b>Design</b>	Design #1				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	172.86	

<b>Survey Tool Program</b>	<b>Date</b>	4/23/2020			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.0	16,761.5	Design #1 (Wellbore #1)	MWD	Fixed:v2:standard declination	

<b>Planned Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Start Build 1.50</b>										

## Survey Report

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<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB 25 @ 4899.1ft
<b>Site:</b>	MELODY JOAN 8-59 20B	<b>MD Reference:</b>	KB 25 @ 4899.1ft
<b>Well:</b>	MELODY JOAN 8-59 20B-29-32-3	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDM 5000.16 Single User Db

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
900.0	1.50	106.69	900.0	-0.4	1.3	0.5	1.50	1.50	0.00
1,000.0	3.00	106.69	999.9	-1.5	5.0	2.1	1.50	1.50	0.00
1,100.0	4.50	106.69	1,099.7	-3.4	11.3	4.8	1.50	1.50	0.00
1,200.0	6.00	106.69	1,199.3	-6.0	20.0	8.5	1.50	1.50	0.00
1,300.0	7.50	106.69	1,298.6	-9.4	31.3	13.2	1.50	1.50	0.00
1,400.0	9.00	106.69	1,397.5	-13.5	45.0	19.0	1.50	1.50	0.00
1,500.0	10.50	106.69	1,496.1	-18.4	61.3	25.8	1.50	1.50	0.00
1,600.0	12.00	106.69	1,594.2	-24.0	80.0	33.7	1.50	1.50	0.00
1,700.0	13.50	106.69	1,691.7	-30.3	101.1	42.6	1.50	1.50	0.00
1,800.0	15.00	106.69	1,788.6	-37.4	124.7	52.6	1.50	1.50	0.00
1,900.0	16.50	106.69	1,884.9	-45.2	150.7	63.5	1.50	1.50	0.00
2,000.0	18.00	106.69	1,980.4	-53.7	179.1	75.5	1.50	1.50	0.00
2,100.0	19.50	106.69	2,075.0	-62.9	209.9	88.5	1.50	1.50	0.00
2,200.0	21.00	106.69	2,168.9	-72.9	243.0	102.5	1.50	1.50	0.00
2,300.0	22.50	106.69	2,261.7	-83.5	278.5	117.5	1.50	1.50	0.00
2,400.0	24.00	106.69	2,353.6	-94.8	316.3	133.4	1.50	1.50	0.00
2,437.7	24.57	106.69	2,388.0	-99.3	331.2	139.7	1.50	1.50	0.00
2,500.0	24.57	106.69	2,444.6	-106.7	356.0	150.1	0.00	0.00	0.00
2,600.0	24.57	106.69	2,535.6	-118.7	395.8	166.9	0.00	0.00	0.00
2,700.0	24.57	106.69	2,626.5	-130.6	435.6	183.7	0.00	0.00	0.00
2,800.0	24.57	106.69	2,717.5	-142.6	475.4	200.5	0.00	0.00	0.00
2,900.0	24.57	106.69	2,808.4	-154.5	515.3	217.3	0.00	0.00	0.00
3,000.0	24.57	106.69	2,899.4	-166.4	555.1	234.1	0.00	0.00	0.00
3,100.0	24.57	106.69	2,990.3	-178.4	594.9	250.9	0.00	0.00	0.00
3,200.0	24.57	106.69	3,081.3	-190.3	634.7	267.7	0.00	0.00	0.00
3,300.0	24.57	106.69	3,172.2	-202.3	674.5	284.5	0.00	0.00	0.00
3,400.0	24.57	106.69	3,263.2	-214.2	714.4	301.3	0.00	0.00	0.00
3,500.0	24.57	106.69	3,354.1	-226.1	754.2	318.1	0.00	0.00	0.00
3,600.0	24.57	106.69	3,445.1	-238.1	794.0	334.9	0.00	0.00	0.00
3,700.0	24.57	106.69	3,536.0	-250.0	833.8	351.7	0.00	0.00	0.00
3,800.0	24.57	106.69	3,627.0	-262.0	873.7	368.5	0.00	0.00	0.00
3,900.0	24.57	106.69	3,717.9	-273.9	913.5	385.3	0.00	0.00	0.00
4,000.0	24.57	106.69	3,808.9	-285.8	953.3	402.1	0.00	0.00	0.00
4,100.0	24.57	106.69	3,899.8	-297.8	993.1	418.8	0.00	0.00	0.00
4,124.4	24.57	106.69	3,922.0	-300.7	1,002.8	422.9	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
4,200.0	23.43	106.69	3,991.1	-309.5	1,032.3	435.4	1.50	-1.50	0.00
4,300.0	21.93	106.69	4,083.3	-320.6	1,069.2	450.9	1.50	-1.50	0.00
4,400.0	20.43	106.69	4,176.6	-331.0	1,103.8	465.5	1.50	-1.50	0.00
4,500.0	18.93	106.69	4,270.7	-340.7	1,136.1	479.1	1.50	-1.50	0.00
4,600.0	17.43	106.69	4,365.7	-349.6	1,166.0	491.7	1.50	-1.50	0.00
4,700.0	15.93	106.69	4,461.5	-357.9	1,193.5	503.3	1.50	-1.50	0.00
4,800.0	14.43	106.69	4,558.0	-365.4	1,218.6	513.9	1.50	-1.50	0.00

## Survey Report

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<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB 25 @ 4899.1ft
<b>Site:</b>	MELODY JOAN 8-59 20B	<b>MD Reference:</b>	KB 25 @ 4899.1ft
<b>Well:</b>	MELODY JOAN 8-59 20B-29-32-3	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDM 5000.16 Single User Db

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,900.0	12.93	106.69	4,655.2	-372.2	1,241.2	523.5	1.50	-1.50	0.00
5,000.0	11.43	106.69	4,752.9	-378.2	1,261.4	532.0	1.50	-1.50	0.00
5,100.0	9.93	106.69	4,851.2	-383.6	1,279.2	539.5	1.50	-1.50	0.00
5,200.0	8.43	106.69	4,949.9	-388.1	1,294.5	545.9	1.50	-1.50	0.00
5,300.0	6.93	106.69	5,049.0	-392.0	1,307.3	551.3	1.50	-1.50	0.00
5,400.0	5.43	106.69	5,148.4	-395.1	1,317.6	555.7	1.50	-1.50	0.00
5,500.0	3.93	106.69	5,248.1	-397.4	1,325.4	559.0	1.50	-1.50	0.00
5,600.0	2.43	106.69	5,348.0	-399.0	1,330.7	561.2	1.50	-1.50	0.00
5,700.0	0.93	106.69	5,447.9	-399.9	1,333.5	562.4	1.50	-1.50	0.00
5,762.1	0.00	0.00	5,510.0	-400.0	1,334.0	562.6	1.50	-1.50	0.00
<b>Start 100.00 hold at 5762.10 MD</b>									
5,800.0	0.00	0.00	5,547.9	-400.0	1,334.0	562.6	0.00	0.00	0.00
5,862.1	0.00	0.00	5,610.0	-400.0	1,334.0	562.6	0.00	0.00	0.00
<b>Start Build 10.62</b>									
5,900.0	4.02	180.26	5,647.9	-401.3	1,334.0	563.9	10.62	10.62	0.00
6,000.0	14.64	180.26	5,746.4	-417.5	1,333.9	580.0	10.62	10.62	0.00
6,100.0	25.25	180.26	5,840.3	-451.6	1,333.8	613.8	10.62	10.62	0.00
6,200.0	35.87	180.26	5,926.3	-502.4	1,333.5	664.1	10.62	10.62	0.00
6,300.0	46.48	180.26	6,001.4	-568.1	1,333.2	729.3	10.62	10.62	0.00
6,400.0	57.10	180.26	6,063.2	-646.6	1,332.9	807.1	10.62	10.62	0.00
6,500.0	67.71	180.26	6,109.4	-735.1	1,332.5	894.9	10.62	10.62	0.00
6,600.0	78.33	180.26	6,138.6	-830.6	1,332.0	989.6	10.62	10.62	0.00
6,700.0	88.94	180.26	6,149.7	-929.8	1,331.6	1,088.0	10.62	10.62	0.00
6,710.0	90.00	180.26	6,149.8	-939.8	1,331.5	1,097.9	10.61	10.61	0.00
<b>Start DLS 0.01 TFO -89.51</b>									
6,800.0	90.00	180.25	6,149.8	-1,029.8	1,331.1	1,187.2	0.01	0.00	-0.01
6,900.0	90.00	180.24	6,149.8	-1,129.8	1,330.7	1,286.3	0.01	0.00	-0.01
7,000.0	90.00	180.23	6,149.8	-1,229.8	1,330.3	1,385.5	0.01	0.00	-0.01
7,100.0	90.00	180.22	6,149.8	-1,329.8	1,329.9	1,484.7	0.01	0.00	-0.01
7,200.0	90.00	180.21	6,149.8	-1,429.8	1,329.5	1,583.9	0.01	0.00	-0.01
7,300.0	90.00	180.20	6,149.8	-1,529.8	1,329.2	1,683.1	0.01	0.00	-0.01
7,400.0	90.00	180.19	6,149.8	-1,629.8	1,328.8	1,782.2	0.01	0.00	-0.01
7,500.0	90.00	180.18	6,149.8	-1,729.8	1,328.5	1,881.4	0.01	0.00	-0.01
7,600.0	90.00	180.17	6,149.8	-1,829.8	1,328.2	1,980.6	0.01	0.00	-0.01
7,700.0	90.00	180.16	6,149.8	-1,929.8	1,327.9	2,079.8	0.01	0.00	-0.01
7,800.0	90.00	180.15	6,149.8	-2,029.8	1,327.6	2,179.0	0.01	0.00	-0.01
7,900.0	90.00	180.14	6,149.8	-2,129.8	1,327.4	2,278.2	0.01	0.00	-0.01
8,000.0	90.00	180.13	6,149.8	-2,229.8	1,327.1	2,377.4	0.01	0.00	-0.01
8,100.0	90.00	180.12	6,149.7	-2,329.8	1,326.9	2,476.6	0.01	0.00	-0.01
8,200.0	90.00	180.11	6,149.7	-2,429.8	1,326.7	2,575.8	0.01	0.00	-0.01
8,300.0	90.00	180.10	6,149.7	-2,529.8	1,326.5	2,675.0	0.01	0.00	-0.01
8,400.0	90.00	180.09	6,149.7	-2,629.8	1,326.4	2,774.2	0.01	0.00	-0.01
8,500.0	90.00	180.08	6,149.7	-2,729.8	1,326.2	2,873.4	0.01	0.00	-0.01
8,600.0	90.00	180.07	6,149.7	-2,829.8	1,326.1	2,972.6	0.01	0.00	-0.01

## Survey Report

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<b>Well:</b>	MELODY JOAN 8-59 20B-29-32-3	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDM 5000.16 Single User Db

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	90.00	180.06	6,149.7	-2,929.8	1,326.0	3,071.8	0.01	0.00	-0.01
8,800.0	90.00	180.05	6,149.7	-3,029.8	1,325.9	3,171.0	0.01	0.00	-0.01
8,900.0	90.00	180.04	6,149.7	-3,129.8	1,325.8	3,270.2	0.01	0.00	-0.01
9,000.0	90.00	180.03	6,149.7	-3,229.8	1,325.8	3,369.5	0.01	0.00	-0.01
9,100.0	90.00	180.02	6,149.7	-3,329.8	1,325.7	3,468.7	0.01	0.00	-0.01
9,200.0	90.00	180.01	6,149.7	-3,429.8	1,325.7	3,567.9	0.01	0.00	-0.01
9,300.0	90.00	180.00	6,149.7	-3,529.8	1,325.7	3,667.1	0.01	0.00	-0.01
9,400.0	90.00	179.99	6,149.7	-3,629.8	1,325.7	3,766.4	0.01	0.00	-0.01
9,500.0	90.00	179.98	6,149.7	-3,729.8	1,325.8	3,865.6	0.01	0.00	-0.01
9,600.0	90.00	179.97	6,149.7	-3,829.8	1,325.8	3,964.8	0.01	0.00	-0.01
9,700.0	90.00	179.96	6,149.7	-3,929.8	1,325.9	4,064.1	0.01	0.00	-0.01
9,800.0	90.00	179.94	6,149.7	-4,029.8	1,326.0	4,163.3	0.01	0.00	-0.01
9,900.0	90.00	179.93	6,149.7	-4,129.8	1,326.1	4,262.5	0.01	0.00	-0.01
10,000.0	90.00	179.92	6,149.7	-4,229.8	1,326.2	4,361.8	0.01	0.00	-0.01
10,100.0	90.00	179.91	6,149.7	-4,329.8	1,326.3	4,461.0	0.01	0.00	-0.01
10,200.0	90.00	179.90	6,149.7	-4,429.8	1,326.5	4,560.3	0.01	0.00	-0.01
10,300.0	90.00	179.89	6,149.7	-4,529.8	1,326.7	4,659.5	0.01	0.00	-0.01
10,400.0	90.00	179.88	6,149.7	-4,629.8	1,326.9	4,758.8	0.01	0.00	-0.01
10,500.0	90.00	179.87	6,149.7	-4,729.8	1,327.1	4,858.0	0.01	0.00	-0.01
10,600.0	90.00	179.86	6,149.6	-4,829.8	1,327.3	4,957.3	0.01	0.00	-0.01
10,700.0	90.00	179.85	6,149.6	-4,929.8	1,327.6	5,056.5	0.01	0.00	-0.01
10,800.0	90.00	179.84	6,149.6	-5,029.8	1,327.8	5,155.8	0.01	0.00	-0.01
10,900.0	90.00	179.83	6,149.6	-5,129.8	1,328.1	5,255.0	0.01	0.00	-0.01
11,000.0	90.00	179.82	6,149.6	-5,229.8	1,328.4	5,354.3	0.01	0.00	-0.01
11,100.0	90.00	179.81	6,149.6	-5,329.8	1,328.7	5,453.6	0.01	0.00	-0.01
11,200.0	90.00	179.80	6,149.6	-5,429.8	1,329.1	5,552.8	0.01	0.00	-0.01
11,300.0	90.00	179.79	6,149.6	-5,529.8	1,329.4	5,652.1	0.01	0.00	-0.01
11,400.0	90.00	179.78	6,149.6	-5,629.8	1,329.8	5,751.4	0.01	0.00	-0.01
11,500.0	90.00	179.77	6,149.6	-5,729.8	1,330.2	5,850.6	0.01	0.00	-0.01
11,600.0	90.00	179.76	6,149.6	-5,829.8	1,330.6	5,949.9	0.01	0.00	-0.01
11,700.0	90.00	179.75	6,149.6	-5,929.8	1,331.0	6,049.2	0.01	0.00	-0.01
11,800.0	90.00	179.74	6,149.6	-6,029.8	1,331.5	6,148.5	0.01	0.00	-0.01
11,900.0	90.00	179.73	6,149.6	-6,129.8	1,331.9	6,247.8	0.01	0.00	-0.01
12,000.0	90.00	179.72	6,149.6	-6,229.8	1,332.4	6,347.0	0.01	0.00	-0.01
12,100.0	90.00	179.71	6,149.5	-6,329.8	1,332.9	6,446.3	0.01	0.00	-0.01
12,200.0	90.00	179.70	6,149.5	-6,429.8	1,333.4	6,545.6	0.01	0.00	-0.01
12,300.0	90.00	179.69	6,149.5	-6,529.8	1,334.0	6,644.9	0.01	0.00	-0.01
12,400.0	90.00	179.68	6,149.5	-6,629.8	1,334.5	6,744.2	0.01	0.00	-0.01
12,500.0	90.01	179.67	6,149.5	-6,729.8	1,335.1	6,843.5	0.01	0.00	-0.01
12,600.0	90.01	179.66	6,149.5	-6,829.8	1,335.7	6,942.8	0.01	0.00	-0.01
12,700.0	90.01	179.65	6,149.5	-6,929.8	1,336.3	7,042.1	0.01	0.00	-0.01
12,800.0	90.01	179.64	6,149.5	-7,029.8	1,336.9	7,141.4	0.01	0.00	-0.01
12,900.0	90.01	179.63	6,149.5	-7,129.8	1,337.5	7,240.7	0.01	0.00	-0.01

## Survey Report

<b>Company:</b>	Bison Oil & Gas II, LLC	<b>Local Co-ordinate Reference:</b>	Well MELODY JOAN 8-59 20B-29-32-3
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB 25 @ 4899.1ft
<b>Site:</b>	MELODY JOAN 8-59 20B	<b>MD Reference:</b>	KB 25 @ 4899.1ft
<b>Well:</b>	MELODY JOAN 8-59 20B-29-32-3	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDM 5000.16 Single User Db

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,000.0	90.01	179.62	6,149.5	-7,229.8	1,338.2	7,340.0	0.01	0.00	-0.01
13,100.0	90.01	179.61	6,149.5	-7,329.8	1,338.9	7,439.3	0.01	0.00	-0.01
13,200.0	90.01	179.60	6,149.4	-7,429.8	1,339.6	7,538.6	0.01	0.00	-0.01
13,300.0	90.01	179.59	6,149.4	-7,529.8	1,340.3	7,637.9	0.01	0.00	-0.01
13,400.0	90.01	179.58	6,149.4	-7,629.8	1,341.0	7,737.2	0.01	0.00	-0.01
13,500.0	90.01	179.57	6,149.4	-7,729.7	1,341.8	7,836.6	0.01	0.00	-0.01
13,600.0	90.01	179.56	6,149.4	-7,829.7	1,342.5	7,935.9	0.01	0.00	-0.01
13,700.0	90.01	179.55	6,149.4	-7,929.7	1,343.3	8,035.2	0.01	0.00	-0.01
13,800.0	90.01	179.54	6,149.4	-8,029.7	1,344.1	8,134.5	0.01	0.00	-0.01
13,900.0	90.01	179.52	6,149.4	-8,129.7	1,344.9	8,233.8	0.01	0.00	-0.01
14,000.0	90.01	179.51	6,149.4	-8,229.7	1,345.8	8,333.2	0.01	0.00	-0.01
14,100.0	90.01	179.50	6,149.3	-8,329.7	1,346.6	8,432.5	0.01	0.00	-0.01
14,200.0	90.01	179.49	6,149.3	-8,429.7	1,347.5	8,531.8	0.01	0.00	-0.01
14,300.0	90.01	179.48	6,149.3	-8,529.7	1,348.4	8,631.2	0.01	0.00	-0.01
14,400.0	90.01	179.47	6,149.3	-8,629.7	1,349.3	8,730.5	0.01	0.00	-0.01
14,500.0	90.01	179.46	6,149.3	-8,729.7	1,350.2	8,829.8	0.01	0.00	-0.01
14,600.0	90.01	179.45	6,149.3	-8,829.7	1,351.2	8,929.2	0.01	0.00	-0.01
14,700.0	90.01	179.44	6,149.3	-8,929.7	1,352.2	9,028.5	0.01	0.00	-0.01
14,800.0	90.01	179.43	6,149.3	-9,029.7	1,353.1	9,127.8	0.01	0.00	-0.01
14,900.0	90.01	179.42	6,149.3	-9,129.7	1,354.1	9,227.2	0.01	0.00	-0.01
15,000.0	90.01	179.41	6,149.2	-9,229.7	1,355.2	9,326.5	0.01	0.00	-0.01
15,100.0	90.01	179.40	6,149.2	-9,329.7	1,356.2	9,425.9	0.01	0.00	-0.01
15,200.0	90.01	179.39	6,149.2	-9,429.7	1,357.2	9,525.2	0.01	0.00	-0.01
15,300.0	90.01	179.38	6,149.2	-9,529.7	1,358.3	9,624.6	0.01	0.00	-0.01
15,400.0	90.01	179.37	6,149.2	-9,629.7	1,359.4	9,723.9	0.01	0.00	-0.01
15,500.0	90.01	179.36	6,149.2	-9,729.7	1,360.5	9,823.3	0.01	0.00	-0.01
15,600.0	90.01	179.35	6,149.2	-9,829.7	1,361.6	9,922.7	0.01	0.00	-0.01
15,700.0	90.01	179.34	6,149.2	-9,929.6	1,362.8	10,022.0	0.01	0.00	-0.01
15,800.0	90.01	179.33	6,149.1	-10,029.6	1,363.9	10,121.4	0.01	0.00	-0.01
15,900.0	90.01	179.32	6,149.1	-10,129.6	1,365.1	10,220.7	0.01	0.00	-0.01
16,000.0	90.01	179.31	6,149.1	-10,229.6	1,366.3	10,320.1	0.01	0.00	-0.01
16,100.0	90.01	179.30	6,149.1	-10,329.6	1,367.5	10,419.5	0.01	0.00	-0.01
16,200.0	90.01	179.29	6,149.1	-10,429.6	1,368.7	10,518.9	0.01	0.00	-0.01
16,300.0	90.01	179.28	6,149.1	-10,529.6	1,370.0	10,618.2	0.01	0.00	-0.01
16,400.0	90.01	179.27	6,149.1	-10,629.6	1,371.3	10,717.6	0.01	0.00	-0.01
16,500.0	90.01	179.26	6,149.0	-10,729.6	1,372.5	10,817.0	0.01	0.00	-0.01
16,600.0	90.01	179.25	6,149.0	-10,829.6	1,373.9	10,916.4	0.01	0.00	-0.01
16,661.9	90.01	179.24	6,149.0	-10,891.5	1,374.7	10,977.9	0.01	0.00	-0.01
Start 99.65 hold at 16661.86 MD									
16,700.0	90.01	179.24	6,149.0	-10,929.6	1,375.2	11,015.7	0.00	0.00	0.00
16,761.5	90.01	179.24	6,149.0	-10,991.1	1,376.0	11,076.9	0.00	0.00	0.00
TD at 16761.51									

## Survey Report

<b>Company:</b>	Bison Oil & Gas II, LLC	<b>Local Co-ordinate Reference:</b>	Well MELODY JOAN 8-59 20B-29-32-3
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB 25 @ 4899.1ft
<b>Site:</b>	MELODY JOAN 8-59 20B	<b>MD Reference:</b>	KB 25 @ 4899.1ft
<b>Well:</b>	MELODY JOAN 8-59 20B-29-32-3	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	EDM 5000.16 Single User Db

### Design Targets

#### Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (m)	Easting (m)	Latitude	Longitude
MELODY JOAN 8-59 - plan misses target center by 1.6ft at 16761.5ft MD (6149.0 TVD, -10991.1 N, 1376.0 E) - Point	0.00	0.00	6,149.0	-10,991.3	1,374.4	447,844.57	1,041,507.09	40° 36' 42.984 N	103° 59' 52.588 W
MELODY JOAN 8-59 - plan hits target center - Point	0.00	0.00	6,149.0	-10,891.5	1,374.7	447,875.00	1,041,507.17	40° 36' 43.970 N	103° 59' 52.562 W
MELODY JOAN 8-59 - plan misses target center by 0.8ft at 6710.0ft MD (6149.8 TVD, -939.8 N, 1331.5 E) - Point	0.00	0.00	6,149.0	-939.8	1,331.5	450,908.28	1,041,494.02	40° 38' 22.301 N	103° 59' 50.935 W

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
407.0	407.0	Pierre Shale (Base of Fox Hills)			
3,252.5	3,129.0	Parkman			
4,044.1	3,849.0	Sussex			
4,831.9	4,589.0	Shannon			
6,215.9	5,939.0	Sharon Springs Shale			
6,326.2	6,019.0	Niobrara Formation			
6,341.8	6,029.0	Niobrara A Chalk			
6,374.8	6,049.0	Niobrara A Landing Point			
6,526.9	6,119.0	Niobrara B Chalk			
6,681.5	6,149.0	Niobrara B Landing Point			

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800	800	0	0	Start Build 1.50
4124	3922	-301	1003	Start Drop -1.50
5762	5510	-400	1334	Start 100.00 hold at 5762.10 MD
5862	5610	-400	1334	Start Build 10.62
6710	6150	-940	1332	Start DLS 0.01 TFO -89.51
16,662	6149	-10,891	1375	Start 99.65 hold at 16661.86 MD
16,762	6149	-10,991	1376	TD at 16761.51