



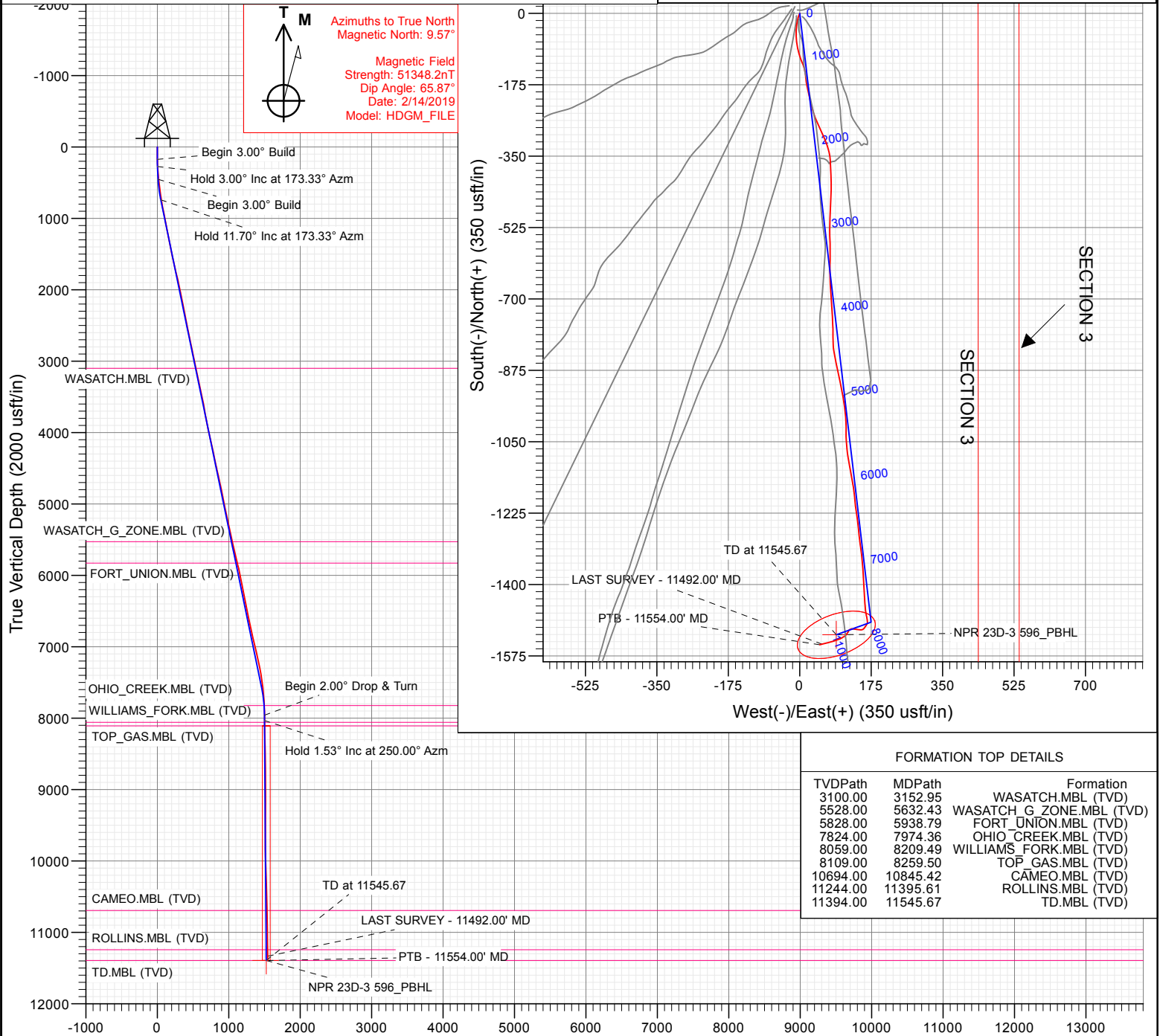
## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	175.00	0.00	0.00	175.00	0.00	0.00	0.00	0.00	0.00	
3	275.00	3.00	173.33	274.95	-2.60	0.30	3.00	173.33	2.61	
4	455.00	3.00	173.33	454.71	-11.96	1.40	0.00	0.00	12.02	
5	744.87	11.70	173.33	741.92	-48.74	5.70	3.00	0.00	48.99	
6	7719.60	11.70	173.33	7571.83	-1453.09	169.92	0.00	0.00	1460.55	
7	8109.47	0.00	0.00	7959.00	-1492.47	174.53	3.00	180.00	1500.14	
8	8185.74	1.53	250.00	8035.26	-1492.82	173.58	2.00	250.00	1500.43	
9	11545.67	1.53	250.00	11394.00	-1523.41	89.53	0.00	0.00	1526.04	NPR 23D-3 596_PBHL

Plan 2 (02-14-19 DS)  
NPR 23D-3 596  
GL+KB @ 8361.00usft (Original Well Elev)  
Ground Level @ 8331.00  
NAD 1927 - Western US  
Well NPR 23D-3 596, True North

Project: Garfield County, CO (UTM 12N)  
Site: S3-T5S R96W NPR A03 596 PAD (H&P330)  
Well: NPR 23D-3 596  
Wellbore: OH  
Design: Plan 2 (02-14-19 DS)

Type	Target	Azimuth	Origin	Type	N/S	E/W	From TVD
TD	No Target (Freehand)	176.64	Slot		0.00	0.00	0.00
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
NPR 23D-3 596_PBHL		11394.00	-1523.41	89.53	39.643408	-108.147092	



## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3100.00	3152.95	WASATCH.MBL (TVD)
5528.00	5632.43	WASATCH_G_ZONE.MBL (TVD)
5828.00	5938.79	FORT_UNION.MBL (TVD)
7824.00	7974.36	OHIO_CREEK.MBL (TVD)
8059.00	8209.49	WILLIAMS_FORK.MBL (TVD)
8109.00	8259.50	TOP_GAS.MBL (TVD)
10694.00	10845.42	CAMEO.MBL (TVD)
11244.00	11395.61	ROLLINS.MBL (TVD)
11394.00	11545.67	TD.MBL (TVD)

Vertical Section at 176.64° (2000 usft/in)

WELL DETAILS: NPR 23D-3 596

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14410484.50	2443462.20	39.647589	-108.147409

CATHEDRAL

CATHEDRAL

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well NPR 23D-3 596
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Site:</b>	S3-T5S R96W NPR A03 596 PAD (H&P330)	<b>MD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Well:</b>	NPR 23D-3 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL (H&P 330)	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Garfield County, CO (UTM 12N)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

Site		S3-T5S R96W NPR A03 596 PAD (H&P330)			
Site Position:		Northing:	14,410,524.00 usft	Latitude:	39.647700
From:	Map	Easting:	2,443,431.60 usft	Longitude:	-108.147513
Position Uncertainty:	3.28 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.82 °

Well	NPR 23D-3 596					
Well Position	+N/-S	0.00 usft	Northing:	14,410,484.50 usft	Latitude:	39.647589
	+E/-W	0.00 usft	Easting:	2,443,462.20 usft	Longitude:	-108.147409
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	8,331.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM_FILE	2/14/2019	9.57	65.87	51,348.20000000

<b>Design</b>	FINAL (H&P 330)				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	178.19	

<b>Survey Program</b>	<b>Date</b>	2/23/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
169.00	11,554.00	CES MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usf)</b>	<b>Build Rate (°/100u)</b>	<b>Formations / Comments</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
169.00	1.45	202.22	168.98	-1.98	-0.81	1.95	0.86	0.86	
200.00	1.72	202.22	199.97	-2.77	-1.13	2.74	0.87	0.87	
230.00	1.98	202.22	229.95	-3.67	-1.50	3.62	0.87	0.87	
292.00	3.56	203.36	291.88	-6.43	-2.67	6.34	2.55	2.55	
384.00	5.01	195.45	383.62	-12.92	-4.87	12.76	1.70	1.58	
476.00	6.15	186.84	475.19	-21.69	-6.53	21.47	1.53	1.24	
569.00	7.38	184.11	567.54	-32.59	-7.55	32.34	1.37	1.32	
663.00	8.48	183.14	660.64	-45.54	-8.36	45.25	1.18	1.17	
757.00	9.19	178.66	753.52	-59.96	-8.57	59.66	1.05	0.76	
851.00	10.99	170.31	846.07	-76.30	-6.88	76.04	2.46	1.91	
945.00	11.73	166.27	938.23	-94.41	-3.11	94.27	1.16	0.79	
1,039.00	12.57	158.27	1,030.13	-113.20	2.95	113.24	2.00	0.89	

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well NPR 23D-3 596
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Site:</b>	S3-T5S R96W NPR A03 596 PAD (H&P330)	<b>MD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Well:</b>	NPR 23D-3 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL (H&P 330)	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,133.00	10.46	160.91	1,122.23	-130.77	9.53	131.00	2.31	-2.24	
1,227.00	10.64	172.16	1,214.65	-147.43	13.50	147.78	2.20	0.19	
1,321.00	10.42	174.62	1,307.07	-164.49	15.48	164.90	0.53	-0.23	
1,415.00	11.47	166.71	1,399.36	-182.05	18.43	182.54	1.95	1.12	
1,509.00	12.35	167.59	1,491.34	-200.96	22.74	201.58	0.96	0.94	
1,603.00	13.27	166.53	1,583.00	-221.27	27.41	222.03	1.01	0.98	
1,698.00	13.58	162.40	1,675.41	-242.51	33.32	243.44	1.06	0.33	
1,792.00	13.93	157.22	1,766.71	-263.46	41.04	264.63	1.36	0.37	
1,886.00	13.80	154.76	1,857.97	-284.03	50.20	285.48	0.64	-0.14	
1,980.00	13.05	156.07	1,949.41	-303.87	59.29	305.60	0.86	-0.80	
2,075.00	12.13	161.70	2,042.12	-323.16	66.77	325.10	1.61	-0.97	
2,169.00	11.25	166.53	2,134.18	-341.45	72.01	343.55	1.40	-0.94	
2,262.00	11.07	176.20	2,225.42	-359.18	74.72	361.36	2.02	-0.19	
2,356.00	11.29	178.05	2,317.64	-377.38	75.63	379.58	0.45	0.23	
2,450.00	11.51	177.70	2,409.79	-395.95	76.32	398.16	0.25	0.23	
2,545.00	11.38	177.78	2,502.90	-414.79	77.06	417.01	0.14	-0.14	
2,639.00	11.03	182.35	2,595.11	-433.04	77.05	435.26	1.02	-0.37	
2,733.00	10.85	183.14	2,687.40	-450.86	76.20	453.04	0.25	-0.19	
2,828.00	11.56	182.97	2,780.59	-469.29	75.22	471.43	0.75	0.75	
2,929.00	11.78	181.56	2,879.50	-489.70	74.41	491.81	0.36	0.22	
3,095.00	12.35	181.56	3,041.83	-524.39	73.47	526.45	0.34	0.34	
3,189.00	12.44	178.49	3,133.64	-544.56	73.46	546.61	0.71	0.10	
3,283.00	12.31	178.05	3,225.46	-564.69	74.07	566.75	0.17	-0.14	
3,378.00	12.26	180.24	3,318.28	-584.90	74.37	586.96	0.49	-0.05	
3,472.00	12.39	181.65	3,410.12	-604.96	74.04	607.00	0.35	0.14	
3,566.00	11.78	178.49	3,502.03	-624.63	74.00	626.66	0.96	-0.65	
3,660.00	11.07	179.28	3,594.17	-643.25	74.37	645.28	0.77	-0.76	
3,755.00	9.67	177.78	3,687.62	-660.34	74.79	662.38	1.50	-1.47	
3,850.00	9.10	178.22	3,781.35	-675.83	75.33	677.87	0.60	-0.60	
3,944.00	11.16	174.27	3,873.88	-692.31	76.47	694.38	2.31	2.19	
4,038.00	12.70	176.03	3,965.84	-711.67	78.09	713.78	1.68	1.64	
4,132.00	12.66	177.08	4,057.55	-732.26	79.33	734.41	0.25	-0.04	
4,227.00	12.88	176.55	4,150.20	-753.23	80.50	755.40	0.26	0.23	
4,321.00	12.13	179.89	4,241.97	-773.56	81.15	775.74	1.11	-0.80	
4,416.00	11.21	179.01	4,335.01	-792.78	81.33	794.95	0.99	-0.97	
4,510.00	11.87	177.87	4,427.11	-811.58	81.85	813.76	0.74	0.70	
4,605.00	13.18	168.47	4,519.85	-831.95	84.38	834.20	2.55	1.38	
4,699.00	12.74	168.03	4,611.46	-852.59	88.67	854.97	0.48	-0.47	
4,794.00	12.88	168.64	4,704.09	-873.22	92.93	875.72	0.20	0.15	
4,888.00	11.87	170.66	4,795.91	-893.03	96.56	895.64	1.17	-1.07	
4,983.00	11.29	168.47	4,888.98	-911.79	100.00	914.49	0.77	-0.61	
5,077.00	11.25	168.73	4,981.16	-929.80	103.63	932.60	0.07	-0.04	
5,172.00	10.64	168.99	5,074.44	-947.49	107.12	950.40	0.64	-0.64	
5,266.00	11.47	171.02	5,166.69	-965.24	110.24	968.24	0.98	0.88	
5,361.00	13.01	177.87	5,259.53	-985.26	112.11	988.31	2.23	1.62	
5,455.00	12.92	177.08	5,351.14	-1,006.33	113.04	1,009.40	0.21	-0.10	
5,549.00	12.52	180.86	5,442.83	-1,027.01	113.42	1,030.08	0.98	-0.43	
5,643.00	12.88	174.97	5,534.54	-1,047.64	114.18	1,050.72	1.43	0.38	
5,738.00	12.88	176.29	5,627.15	-1,068.75	115.80	1,071.87	0.31	0.00	
5,833.00	13.67	169.35	5,719.61	-1,090.35	118.56	1,093.55	1.87	0.83	
5,927.00	13.45	169.17	5,810.99	-1,112.00	122.67	1,115.32	0.24	-0.23	
6,021.00	12.39	170.49	5,902.61	-1,132.69	126.39	1,136.11	1.17	-1.13	
6,116.00	11.95	169.87	5,995.48	-1,152.42	129.80	1,155.95	0.48	-0.46	

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well NPR 23D-3 596
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Site:</b>	S3-T5S R96W NPR A03 596 PAD (H&P330)	<b>MD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Well:</b>	NPR 23D-3 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL (H&P 330)	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
6,210.00	11.34	171.98	6,087.54	-1,171.15	132.80	1,174.76	0.79	-0.65	
6,304.00	10.94	175.41	6,179.77	-1,189.20	134.80	1,192.86	0.82	-0.43	
6,399.00	11.07	173.83	6,273.02	-1,207.25	136.51	1,210.96	0.35	0.14	
6,493.00	11.95	170.31	6,365.13	-1,225.81	139.11	1,229.60	1.20	0.94	
6,587.00	11.43	173.83	6,457.18	-1,244.67	141.75	1,248.52	0.94	-0.55	
6,681.00	10.99	173.39	6,549.39	-1,262.83	143.78	1,266.74	0.48	-0.47	
6,776.00	11.25	174.71	6,642.61	-1,281.05	145.68	1,285.01	0.38	0.27	
6,870.00	12.92	173.12	6,734.52	-1,300.62	147.79	1,304.63	1.81	1.78	
6,965.00	13.27	172.86	6,827.05	-1,321.98	150.41	1,326.07	0.37	0.37	
7,059.00	13.58	172.86	6,918.48	-1,343.63	153.13	1,347.80	0.33	0.33	
7,153.00	12.83	177.78	7,010.00	-1,365.01	154.90	1,369.23	1.44	-0.80	
7,248.00	13.05	176.55	7,102.59	-1,386.26	155.96	1,390.49	0.37	0.23	
7,342.00	11.87	176.99	7,194.37	-1,406.51	157.10	1,410.77	1.26	-1.26	
7,436.00	11.43	177.26	7,286.43	-1,425.47	158.06	1,429.75	0.47	-0.47	
7,531.00	10.46	173.92	7,379.71	-1,443.44	159.42	1,447.76	1.22	-1.02	
7,625.00	8.22	176.20	7,472.45	-1,458.64	160.77	1,462.99	2.41	-2.38	
7,720.00	6.55	168.73	7,566.67	-1,470.73	162.28	1,475.12	2.02	-1.76	
7,814.00	5.19	170.14	7,660.17	-1,480.17	164.05	1,484.62	1.45	-1.45	
7,909.00	3.34	172.51	7,754.90	-1,487.15	165.15	1,491.63	1.96	-1.95	
8,003.00	1.63	172.16	7,848.81	-1,491.19	165.69	1,495.68	1.82	-1.82	
8,192.00	0.66	186.75	8,037.77	-1,494.94	165.93	1,499.43	0.53	-0.51	
8,381.00	1.10	219.27	8,226.75	-1,497.42	164.65	1,501.87	0.34	0.23	
8,569.00	2.02	213.47	8,414.68	-1,501.58	161.68	1,505.94	0.50	0.49	
8,664.00	1.49	219.18	8,509.63	-1,503.94	159.98	1,508.24	0.59	-0.56	
8,758.00	0.97	200.11	8,603.61	-1,505.63	158.93	1,509.90	0.70	-0.55	
8,947.00	1.01	223.75	8,792.58	-1,508.34	157.23	1,512.55	0.22	0.02	
9,135.00	1.85	248.89	8,980.53	-1,510.63	153.25	1,514.71	0.55	0.45	
9,230.00	2.55	260.75	9,075.46	-1,511.52	149.74	1,515.49	0.88	0.74	
9,512.00	1.23	318.06	9,357.32	-1,510.27	141.52	1,513.99	0.76	-0.47	
9,984.00	2.77	258.82	9,829.05	-1,508.72	126.94	1,511.97	0.51	0.33	
10,078.00	2.73	243.96	9,922.95	-1,510.14	122.71	1,513.26	0.76	-0.04	
10,172.00	2.29	207.14	10,016.86	-1,512.79	119.84	1,515.83	1.74	-0.47	
10,266.00	2.37	194.39	10,110.79	-1,516.35	118.50	1,519.34	0.56	0.09	
10,549.00	2.46	234.12	10,393.55	-1,525.58	112.12	1,528.36	0.58	0.03	
10,832.00	3.52	244.23	10,676.17	-1,532.91	99.38	1,535.29	0.42	0.37	
11,114.00	3.74	255.04	10,957.60	-1,539.05	82.69	1,540.90	0.25	0.08	
11,303.00	4.31	255.39	11,146.14	-1,542.43	69.87	1,543.87	0.30	0.30	
11,492.00	5.32	256.01	11,334.47	-1,546.34	54.49	1,547.29	0.54	0.53	LAST SURVEY - 11492.00' MD
11,554.00	5.32	256.01	11,396.20	-1,547.73	48.91	1,548.51	0.00	0.00	PTB - 11554.00' MD

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well NPR 23D-3 596
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Site:</b>	S3-T5S R96W NPR A03 596 PAD (H&P330)	<b>MD Reference:</b>	GL+KB @ 8361.00usft (Original Well Elev)
<b>Well:</b>	NPR 23D-3 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL (H&P 330)	<b>Database:</b>	USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
NPR 23D-3 596_PBHL	0.00	0.00	11,394.00	-1,523.41	89.53	14,408,964.70	2,443,600.10	39.643408	-108.147092
- actual wellpath misses target center by 46.96usft at 11547.61usft MD (11389.84 TVD, -1547.59 N, 49.49 E)									
- Ellipse (radii L100.00 W50.00 on 250.00 azi)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment	
11,492.00	11,334.47	-1,546.34	54.49	LAST SURVEY - 11492.00' MD	
11,554.00	11,396.20	-1,547.73	48.91	PTB - 11554.00' MD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_