

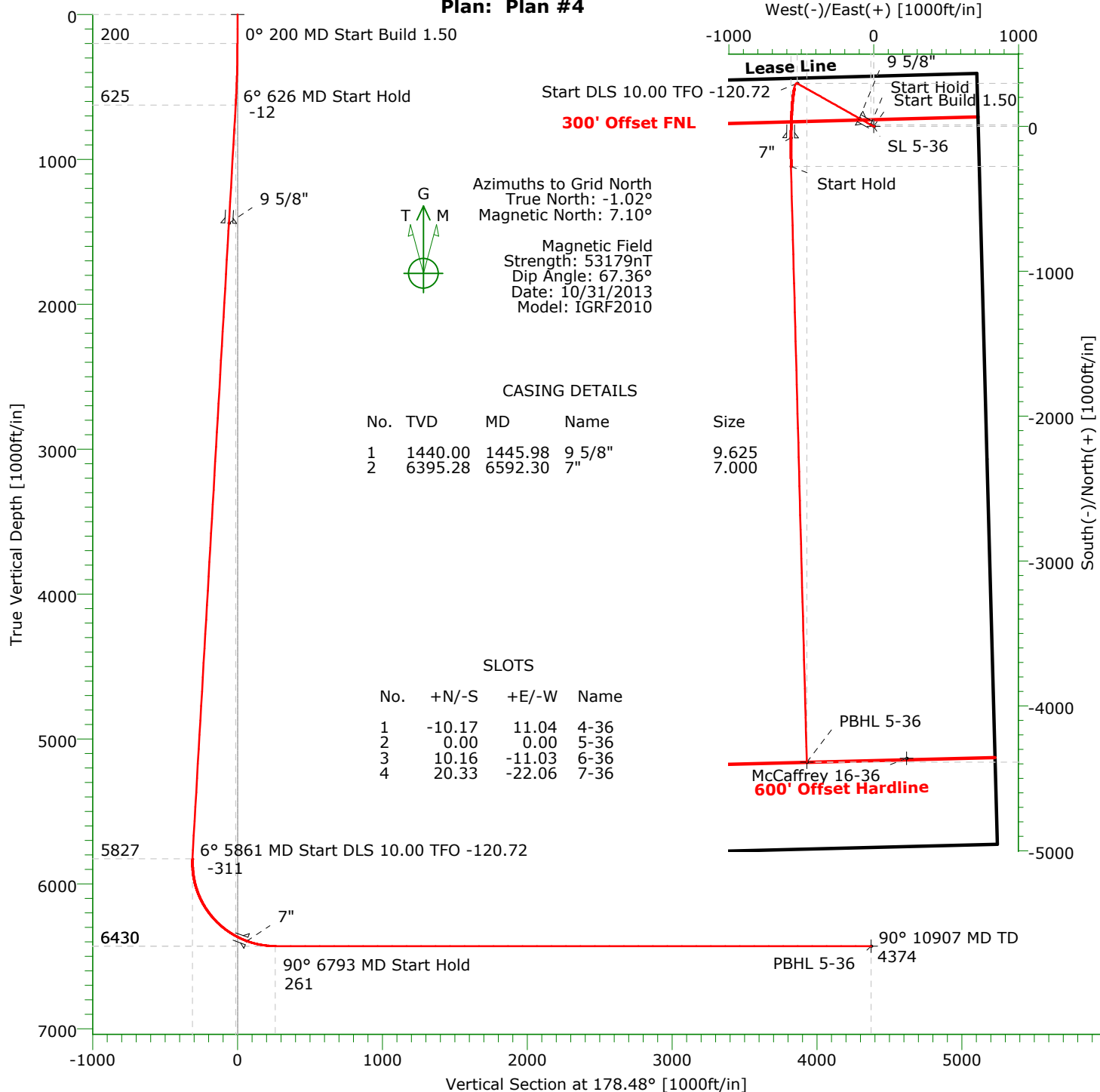


CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83
Site: Castor 4-36-9-59 Pad
Well: 5-36-9-59
Wellpath: Original Hole
Plan: Plan #4



Precision
Directional Services



CASING DETAILS

No.	TVD	MD	Name	Size
1	1440.00	1445.98	9 5/8"	9.625
2	6395.28	6592.30	7"	7.000

SLOTS

No.	+N/-S	+E/-W	Name
1	-10.17	11.04	4-36
2	0.00	0.00	5-36
3	10.16	-11.03	6-36
4	20.33	-22.06	7-36

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
McCaffrey 16-36	-100.00	-4360.56	227.24	1502332.03	3438492.29	40°42'05.585N103°55'06.550W		Point
SL 5-36	0.00	0.00	0.00	1506692.59	3438265.05	40°42'48.706N103°55'08.491W		Point
PBHL 5-36	6430.00	-4388.09	-462.29	1502304.50	3437802.76	40°42'05.434N103°55'15.508W		Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	626.13	6.39	299.36	625.24	11.64	-20.69	1.50	0.00	-12.19	
4	5860.51	6.39	299.36	5827.08	297.36	-528.58	0.00	0.00	-311.27	
5	6793.26	90.00	178.48	6430.00	-276.00	-571.36	10.00	-120.72	260.75	
6	10906.80	90.00	178.48	6430.00	-4388.09	-462.29	0.00	0.00	4374.28	PBHL 5-36

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Castor 4-36-9-59 Pad Well: 5-36-9-59 Wellpath: Original Hole	Date: 10/31/2013 Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North Vertical (TVD) Reference: 4890'PE+17'KB 4907.0 Section (VS) Reference: Well (0.00N,0.00E,178.48Azi) Plan: Plan #4	Time: 09:47:00 Page: 1
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Field: Niobrara CONZ'83	
Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level	Map Zone: Colorado, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010

Site: Castor 4-36-9-59 Pad Weld County, CO renamed 9-9-13	
Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 4890.00 ft	Northing: 1506682.42 ft Easting: 3438276.09 ft Latitude: 40 42 48.603 N Longitude: 103 55 8.350 W North Reference: Grid Grid Convergence: 1.02 deg

Well: 5-36-9-59 adjusted from site 9-9-13	
Well Position: +N/-S 10.17 ft +E/-W -11.04 ft Position Uncertainty: 0.00 ft	Slot Name: Northing: 1506692.59 ft Easting: 3438265.05 ft Latitude: 40 42 48.706 N Longitude: 103 55 8.491 W

Wellpath: Original Hole	
Current Datum: 4890'PE+17'KB Magnetic Data: 10/31/2013 Field Strength: 53179 nT Vertical Section: Depth From (TVD) ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.12 deg Mag Dip Angle: 67.36 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00 0.00 178.48

Plan: Plan #4 Principal: No	Date Composed: 10/31/2013 Version: 1 Tied-to: From Surface
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Plan Section Information										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
626.13	6.39	299.36	625.24	11.64	-20.69	1.50	1.50	0.00	0.00	
5860.51	6.39	299.36	5827.08	297.36	-528.58	0.00	0.00	0.00	0.00	
6793.26	90.00	178.48	6430.00	-276.00	-571.36	10.00	8.96	-12.96	-120.72	
10906.80	90.00	178.48	6430.00	-4388.09	-462.29	0.00	0.00	0.00	0.00	PBHL 5-36

Survey										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	1.50	299.36	299.99	0.64	-1.14	-0.67	1.50	1.50	0.00	
400.00	3.00	299.36	399.91	2.57	-4.56	-2.69	1.50	1.50	0.00	
500.00	4.50	299.36	499.69	5.77	-10.26	-6.04	1.50	1.50	0.00	
600.00	6.00	299.36	599.27	10.26	-18.24	-10.74	1.50	1.50	0.00	
626.13	6.39	299.36	625.24	11.64	-20.69	-12.19	1.50	1.50	0.00	
700.00	6.39	299.36	698.66	15.67	-27.86	-16.41	0.00	0.00	0.00	
800.00	6.39	299.36	798.04	21.13	-37.57	-22.12	0.00	0.00	0.00	
900.00	6.39	299.36	897.41	26.59	-47.27	-27.84	0.00	0.00	0.00	
1000.00	6.39	299.36	996.79	32.05	-56.97	-33.55	0.00	0.00	0.00	
1100.00	6.39	299.36	1096.17	37.51	-66.67	-39.26	0.00	0.00	0.00	
1200.00	6.39	299.36	1195.55	42.97	-76.38	-44.98	0.00	0.00	0.00	
1300.00	6.39	299.36	1294.93	48.42	-86.08	-50.69	0.00	0.00	0.00	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Castor 4-36-9-59 Pad
Well: 5-36-9-59
Wellpath: Original Hole

Date: 10/31/2013
Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North
Vertical (TVD) Reference: 4890'PE+17'KB 4907.0
Section (VS) Reference: Well (0.00N,0.00E,178.48Azi)
Plan: Plan #4

Page: 2

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1400.00	6.39	299.36	1394.31	53.88	-95.78	-56.41	0.00	0.00	0.00	9 5/8"
1445.98	6.39	299.36	1440.00	56.39	-100.24	-59.03	0.00	0.00	0.00	
1500.00	6.39	299.36	1493.68	59.34	-105.49	-62.12	0.00	0.00	0.00	
1600.00	6.39	299.36	1593.06	64.80	-115.19	-67.83	0.00	0.00	0.00	
1700.00	6.39	299.36	1692.44	70.26	-124.89	-73.55	0.00	0.00	0.00	
1800.00	6.39	299.36	1791.82	75.72	-134.59	-79.26	0.00	0.00	0.00	
1900.00	6.39	299.36	1891.20	81.18	-144.30	-84.97	0.00	0.00	0.00	
2000.00	6.39	299.36	1990.58	86.63	-154.00	-90.69	0.00	0.00	0.00	
2100.00	6.39	299.36	2089.95	92.09	-163.70	-96.40	0.00	0.00	0.00	
2200.00	6.39	299.36	2189.33	97.55	-173.41	-102.12	0.00	0.00	0.00	
2300.00	6.39	299.36	2288.71	103.01	-183.11	-107.83	0.00	0.00	0.00	
2400.00	6.39	299.36	2388.09	108.47	-192.81	-113.54	0.00	0.00	0.00	
2500.00	6.39	299.36	2487.47	113.93	-202.51	-119.26	0.00	0.00	0.00	
2600.00	6.39	299.36	2586.85	119.38	-212.22	-124.97	0.00	0.00	0.00	
2700.00	6.39	299.36	2686.22	124.84	-221.92	-130.69	0.00	0.00	0.00	
2800.00	6.39	299.36	2785.60	130.30	-231.62	-136.40	0.00	0.00	0.00	
2900.00	6.39	299.36	2884.98	135.76	-241.33	-142.11	0.00	0.00	0.00	
3000.00	6.39	299.36	2984.36	141.22	-251.03	-147.83	0.00	0.00	0.00	
3100.00	6.39	299.36	3083.74	146.68	-260.73	-153.54	0.00	0.00	0.00	
3200.00	6.39	299.36	3183.12	152.14	-270.43	-159.26	0.00	0.00	0.00	
3300.00	6.39	299.36	3282.49	157.59	-280.14	-164.97	0.00	0.00	0.00	
3400.00	6.39	299.36	3381.87	163.05	-289.84	-170.68	0.00	0.00	0.00	
3500.00	6.39	299.36	3481.25	168.51	-299.54	-176.40	0.00	0.00	0.00	
3600.00	6.39	299.36	3580.63	173.97	-309.25	-182.11	0.00	0.00	0.00	
3700.00	6.39	299.36	3680.01	179.43	-318.95	-187.82	0.00	0.00	0.00	
3800.00	6.39	299.36	3779.39	184.89	-328.65	-193.54	0.00	0.00	0.00	
3900.00	6.39	299.36	3878.77	190.34	-338.35	-199.25	0.00	0.00	0.00	
4000.00	6.39	299.36	3978.14	195.80	-348.06	-204.97	0.00	0.00	0.00	
4100.00	6.39	299.36	4077.52	201.26	-357.76	-210.68	0.00	0.00	0.00	
4200.00	6.39	299.36	4176.90	206.72	-367.46	-216.39	0.00	0.00	0.00	
4300.00	6.39	299.36	4276.28	212.18	-377.17	-222.11	0.00	0.00	0.00	
4400.00	6.39	299.36	4375.66	217.64	-386.87	-227.82	0.00	0.00	0.00	
4500.00	6.39	299.36	4475.04	223.10	-396.57	-233.54	0.00	0.00	0.00	
4600.00	6.39	299.36	4574.41	228.55	-406.27	-239.25	0.00	0.00	0.00	
4700.00	6.39	299.36	4673.79	234.01	-415.98	-244.96	0.00	0.00	0.00	
4800.00	6.39	299.36	4773.17	239.47	-425.68	-250.68	0.00	0.00	0.00	
4900.00	6.39	299.36	4872.55	244.93	-435.38	-256.39	0.00	0.00	0.00	
5000.00	6.39	299.36	4971.93	250.39	-445.09	-262.11	0.00	0.00	0.00	
5100.00	6.39	299.36	5071.31	255.85	-454.79	-267.82	0.00	0.00	0.00	
5200.00	6.39	299.36	5170.68	261.30	-464.49	-273.53	0.00	0.00	0.00	
5300.00	6.39	299.36	5270.06	266.76	-474.20	-279.25	0.00	0.00	0.00	
5400.00	6.39	299.36	5369.44	272.22	-483.90	-284.96	0.00	0.00	0.00	
5500.00	6.39	299.36	5468.82	277.68	-493.60	-290.68	0.00	0.00	0.00	
5600.00	6.39	299.36	5568.20	283.14	-503.30	-296.39	0.00	0.00	0.00	
5700.00	6.39	299.36	5667.58	288.60	-513.01	-302.10	0.00	0.00	0.00	
5800.00	6.39	299.36	5766.95	294.05	-522.71	-307.82	0.00	0.00	0.00	
5860.51	6.39	299.36	5827.08	297.36	-528.58	-311.27	0.00	0.00	0.00	
5900.00	5.53	261.48	5866.38	298.15	-532.38	-312.17	10.00	-2.18	-95.93	
6000.00	11.99	205.40	5965.31	288.03	-541.63	-302.30	10.00	6.46	-56.07	
6100.00	21.36	192.71	6061.02	260.81	-550.11	-275.32	10.00	9.37	-12.69	
6200.00	31.11	187.65	6150.62	217.33	-557.58	-232.05	10.00	9.75	-5.07	
6300.00	40.98	184.84	6231.38	158.90	-563.79	-173.80	10.00	9.86	-2.81	
6400.00	50.89	182.96	6300.85	87.31	-568.57	-102.36	10.00	9.91	-1.87	
6500.00	60.82	181.56	6356.91	4.71	-571.78	-19.88	10.00	9.93	-1.41	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Castor 4-36-9-59 Pad
Well: 5-36-9-59
Wellpath: Original Hole

Date: 10/31/2013
Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North
Vertical (TVD) Reference: 4890'PE+17'KB 4907.0
Section (VS) Reference: Well (0.00N,0.00E,178.48Azi)
Plan: Plan #4

Page: 3

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6592.30	70.00	180.49	6395.28	-79.11	-573.24	63.88	10.00	9.94	-1.16	7"
6600.00	70.77	180.40	6397.86	-86.37	-573.30	71.13	10.00	9.95	-1.08	
6700.00	80.72	179.38	6422.46	-183.16	-573.10	167.90	10.00	9.95	-1.02	
6793.26	90.00	178.48	6430.00	-276.00	-571.36	260.75	10.00	9.95	-0.97	
6800.00	90.00	178.48	6430.00	-282.74	-571.18	267.48	0.00	0.00	0.00	
6900.00	90.00	178.48	6430.00	-382.70	-568.53	367.48	0.00	0.00	0.00	
7000.00	90.00	178.48	6430.00	-482.66	-565.88	467.48	0.00	0.00	0.00	
7100.00	90.00	178.48	6430.00	-582.63	-563.23	567.48	0.00	0.00	0.00	
7200.00	90.00	178.48	6430.00	-682.59	-560.58	667.48	0.00	0.00	0.00	
7300.00	90.00	178.48	6430.00	-782.56	-557.92	767.48	0.00	0.00	0.00	
7400.00	90.00	178.48	6430.00	-882.52	-555.27	867.48	0.00	0.00	0.00	
7500.00	90.00	178.48	6430.00	-982.49	-552.62	967.48	0.00	0.00	0.00	
7600.00	90.00	178.48	6430.00	-1082.45	-549.97	1067.48	0.00	0.00	0.00	
7700.00	90.00	178.48	6430.00	-1182.42	-547.32	1167.48	0.00	0.00	0.00	
7800.00	90.00	178.48	6430.00	-1282.38	-544.67	1267.48	0.00	0.00	0.00	
7900.00	90.00	178.48	6430.00	-1382.35	-542.01	1367.48	0.00	0.00	0.00	
8000.00	90.00	178.48	6430.00	-1482.31	-539.36	1467.48	0.00	0.00	0.00	
8100.00	90.00	178.48	6430.00	-1582.28	-536.71	1567.48	0.00	0.00	0.00	
8200.00	90.00	178.48	6430.00	-1682.24	-534.06	1667.48	0.00	0.00	0.00	
8300.00	90.00	178.48	6430.00	-1782.21	-531.41	1767.48	0.00	0.00	0.00	
8400.00	90.00	178.48	6430.00	-1882.17	-528.76	1867.48	0.00	0.00	0.00	
8500.00	90.00	178.48	6430.00	-1982.14	-526.11	1967.48	0.00	0.00	0.00	
8600.00	90.00	178.48	6430.00	-2082.10	-523.45	2067.48	0.00	0.00	0.00	
8700.00	90.00	178.48	6430.00	-2182.07	-520.80	2167.48	0.00	0.00	0.00	
8800.00	90.00	178.48	6430.00	-2282.03	-518.15	2267.48	0.00	0.00	0.00	
8900.00	90.00	178.48	6430.00	-2382.00	-515.50	2367.48	0.00	0.00	0.00	
9000.00	90.00	178.48	6430.00	-2481.96	-512.85	2467.48	0.00	0.00	0.00	
9100.00	90.00	178.48	6430.00	-2581.93	-510.20	2567.48	0.00	0.00	0.00	
9200.00	90.00	178.48	6430.00	-2681.89	-507.54	2667.48	0.00	0.00	0.00	
9300.00	90.00	178.48	6430.00	-2781.86	-504.89	2767.48	0.00	0.00	0.00	
9400.00	90.00	178.48	6430.00	-2881.82	-502.24	2867.48	0.00	0.00	0.00	
9500.00	90.00	178.48	6430.00	-2981.79	-499.59	2967.48	0.00	0.00	0.00	
9600.00	90.00	178.48	6430.00	-3081.75	-496.94	3067.48	0.00	0.00	0.00	
9700.00	90.00	178.48	6430.00	-3181.72	-494.29	3167.48	0.00	0.00	0.00	
9800.00	90.00	178.48	6430.00	-3281.68	-491.64	3267.48	0.00	0.00	0.00	
9900.00	90.00	178.48	6430.00	-3381.65	-488.98	3367.48	0.00	0.00	0.00	
10000.00	90.00	178.48	6430.00	-3481.61	-486.33	3467.48	0.00	0.00	0.00	
10100.00	90.00	178.48	6430.00	-3581.58	-483.68	3567.48	0.00	0.00	0.00	
10200.00	90.00	178.48	6430.00	-3681.54	-481.03	3667.48	0.00	0.00	0.00	
10300.00	90.00	178.48	6430.00	-3781.50	-478.38	3767.48	0.00	0.00	0.00	
10400.00	90.00	178.48	6430.00	-3881.47	-475.73	3867.48	0.00	0.00	0.00	
10500.00	90.00	178.48	6430.00	-3981.43	-473.07	3967.48	0.00	0.00	0.00	
10600.00	90.00	178.48	6430.00	-4081.40	-470.42	4067.48	0.00	0.00	0.00	
10700.00	90.00	178.48	6430.00	-4181.36	-467.77	4167.48	0.00	0.00	0.00	
10800.00	90.00	178.48	6430.00	-4281.33	-465.12	4267.48	0.00	0.00	0.00	
10900.00	90.00	178.48	6430.00	-4381.29	-462.47	4367.48	0.00	0.00	0.00	
10906.80	90.00	178.48	6430.00	-4388.09	-462.29	4374.28	0.00	0.00	0.00	PBHL 5-36

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Castor 4-36-9-59 Pad
Well: 5-36-9-59
Wellpath: Original Hole

Date: 10/31/2013
Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North
Vertical (TVD) Reference: 4890'PE+17'KB 4907.0
Section (VS) Reference: Well (0.00N,0.00E,178.48Azi)
Plan: Plan #4

Page: 4

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
McCaffrey 16-36			-100.00	-4360.56	227.24	1502332.03	3438492.29	40	42	5.585 N	103	55	6.550 W
SL 5-36			0.00	0.00	0.00	1506692.59	3438265.05	40	42	48.706 N	103	55	8.491 W
PBHL 5-36			6430.00	-4388.09	-462.29	1502304.50	3437802.76	40	42	5.434 N	103	55	15.508 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1445.98	1440.00	9.625	12.250	9 5/8"
6592.30	6395.28	7.000	8.500	7"