



CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83
Site: State 16-11-9-60
Well: 4-16-9-60
Wellpath: Original Hole
Plan: Plan #4



CASING DETAILS

No.	TVD	MD	Name	Size
1	1440.00	1447.19	9 5/8"	9.625
2	6378.43	6580.04	7"	7.000

0	200	SL 4-16	0° 200 MD Start Build 2.00
350			3° 350 MD Start DLS 2.00 TFO -72.70
624			7° 625 MD Start Hold
			-22



Azimuths to Grid North
True North: -0.90°
Magnetic North: 7.34°

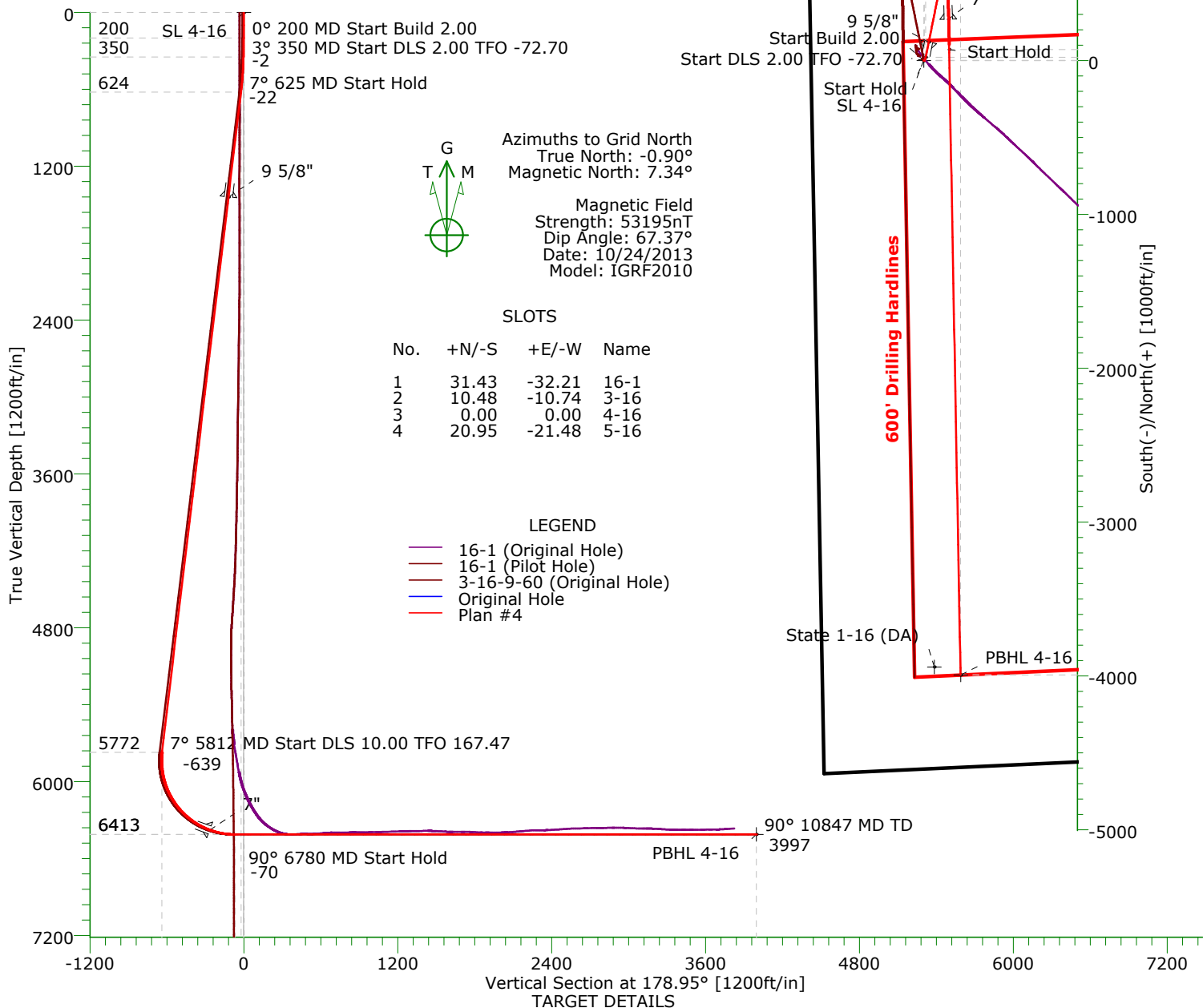
Magnetic Field
Strength: 53195nT
Dip Angle: 67.37°
Date: 10/24/2013
Model: IGRF2010

SLOTS

No.	+N/-S	+E/-W	Name
1	31.43	-32.21	16-1
2	10.48	-10.74	3-16
3	0.00	0.00	4-16
4	20.95	-21.48	5-16

LEGEND

- 16-1 (Original Hole)
- 16-1 (Pilot Hole)
- 3-16-9-60 (Original Hole)
- Original Hole
- Plan #4



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
State 1-16 (DA)	-100.00	-3940.98	69.71	1516973.66	3386643.84	40°44'38.840N	104°06'16.658W	Point
SL 4-16	0.00	0.00	0.00	1520914.64	3386574.13	40°45'17.787N	104°06'16.758W	Point
PBHL 4-16	6413.00	-3993.17	240.54	1516921.47	3386814.67	40°44'38.298N	104°06'14.449W	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	60.00	200.00	0.00	0.00	0.00	60.00	0.00	
3	350.00	3.00	60.00	349.93	1.96	3.40	2.00	60.00	-1.90	
4	624.59	7.00	11.39	623.52	21.96	12.93	2.00	-72.70	-21.72	
5	5811.81	7.00	11.39	5772.12	641.27	137.68	0.00	0.00	-638.64	
6	6780.11	90.00	178.95	6413.00	72.78	165.01	10.00	167.47	-69.74	LP 4-16
7	10846.76	90.00	178.95	6413.00	-3993.19	239.37	0.00	0.00	3996.91	PBHL 4-16

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: State 16-11-9-60 Well: 4-16-9-60 Wellpath: Original Hole	Date: 09/24/2013 Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North Vertical (TVD) Reference: 5011'GL+17'KB 5028.0 Section (VS) Reference: Well (0.00N,0.00E,178.95Azi) Plan: Plan #4	Time: 12:42:03 Page: 1
--	--	---

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: State 16-11-9-60 Weld County, CO Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 5011.00 ft	Northing: 1520935.59 ft Easting: 3386552.65 ft Latitude: 40 45 17.998 N Longitude: 104 6 17.032 W North Reference: Grid Grid Convergence: 0.90 deg
--	---

Well: 4-16-9-60 730'FNL,733'FWL Well Position: +N/-S -20.95 ft +E/-W 21.48 ft Position Uncertainty: 0.00 ft	Slot Name: Northing: 1520914.64 ft Easting : 3386574.13 ft Latitude: 40 45 17.787 N Longitude: 104 6 16.758 W
--	--

Wellpath: Original Hole Current Datum: 5011'GL+17'KB Magnetic Data: 10/24/2013 Field Strength: 53195 nT Vertical Section: Depth From (TVD) ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.24 deg Mag Dip Angle: 67.37 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00

Plan: Plan #4 Principal: No	Date Composed: 09/24/2013 Version: 1 Tied-to: From Surface
--	---

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	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	60.00	200.00	0.00	0.00	0.00	0.00	0.00	60.00	
350.00	3.00	60.00	349.93	1.96	3.40	2.00	2.00	0.00	60.00	
624.59	7.00	11.39	623.52	21.96	12.93	2.00	1.46	-17.70	-72.70	
5811.81	7.00	11.39	5772.12	641.27	137.68	0.00	0.00	0.00	0.00	
6780.11	90.00	178.95	6413.00	72.78	165.01	10.00	8.57	17.30	167.47	
10846.76	90.00	178.95	6413.00	-3993.19	239.37	0.00	0.00	0.00	0.00	PBHL 4-16

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	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	60.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	60.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	2.00	60.00	299.98	0.87	1.51	-0.84	2.00	2.00	0.00	
350.00	3.00	60.00	349.93	1.96	3.40	-1.90	2.00	2.00	0.00	
400.00	3.43	43.84	399.85	3.70	5.57	-3.59	2.00	0.87	-32.32	
500.00	4.83	23.61	499.60	9.72	9.33	-9.54	2.00	1.40	-20.23	
600.00	6.55	13.16	599.10	19.13	12.32	-18.90	2.00	1.72	-10.46	
624.59	7.00	11.39	623.52	21.96	12.93	-21.72	2.00	1.81	-7.19	
700.00	7.00	11.39	698.37	30.97	14.75	-30.69	0.00	0.00	0.00	
800.00	7.00	11.39	797.63	42.91	17.15	-42.58	0.00	0.00	0.00	
900.00	7.00	11.39	896.88	54.84	19.56	-54.48	0.00	0.00	0.00	
1000.00	7.00	11.39	996.14	66.78	21.96	-66.37	0.00	0.00	0.00	
1100.00	7.00	11.39	1095.39	78.72	24.36	-78.26	0.00	0.00	0.00	
1200.00	7.00	11.39	1194.65	90.66	26.77	-90.16	0.00	0.00	0.00	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: State 16-11-9-60
Well: 4-16-9-60
Wellpath: Original Hole

Date: 09/24/2013
Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North
Vertical (TVD) Reference: 5011'GL+17'KB 5028.0
Section (VS) Reference: Well (0.00N,0.00E,178.95Azi)
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
1300.00	7.00	11.39	1293.90	102.60	29.17	-102.05	0.00	0.00	0.00	9 5/8"
1400.00	7.00	11.39	1393.16	114.54	31.58	-113.94	0.00	0.00	0.00	
1447.19	7.00	11.39	1440.00	120.17	32.71	-119.55	0.00	0.00	0.00	
1500.00	7.00	11.39	1492.41	126.48	33.98	-125.83	0.00	0.00	0.00	
1600.00	7.00	11.39	1591.67	138.42	36.39	-137.73	0.00	0.00	0.00	
1700.00	7.00	11.39	1690.93	150.36	38.79	-149.62	0.00	0.00	0.00	
1800.00	7.00	11.39	1790.18	162.30	41.20	-161.51	0.00	0.00	0.00	
1900.00	7.00	11.39	1889.44	174.23	43.60	-173.41	0.00	0.00	0.00	
2000.00	7.00	11.39	1988.69	186.17	46.01	-185.30	0.00	0.00	0.00	
2100.00	7.00	11.39	2087.95	198.11	48.41	-197.19	0.00	0.00	0.00	
2200.00	7.00	11.39	2187.20	210.05	50.82	-209.09	0.00	0.00	0.00	
2300.00	7.00	11.39	2286.46	221.99	53.22	-220.98	0.00	0.00	0.00	
2400.00	7.00	11.39	2385.71	233.93	55.63	-232.87	0.00	0.00	0.00	
2500.00	7.00	11.39	2484.97	245.87	58.03	-244.76	0.00	0.00	0.00	
2600.00	7.00	11.39	2584.23	257.81	60.44	-256.66	0.00	0.00	0.00	
2700.00	7.00	11.39	2683.48	269.75	62.84	-268.55	0.00	0.00	0.00	
2800.00	7.00	11.39	2782.74	281.69	65.25	-280.44	0.00	0.00	0.00	
2900.00	7.00	11.39	2881.99	293.62	67.65	-292.34	0.00	0.00	0.00	
3000.00	7.00	11.39	2981.25	305.56	70.06	-304.23	0.00	0.00	0.00	
3100.00	7.00	11.39	3080.50	317.50	72.46	-316.12	0.00	0.00	0.00	
3200.00	7.00	11.39	3179.76	329.44	74.87	-328.01	0.00	0.00	0.00	
3300.00	7.00	11.39	3279.02	341.38	77.27	-339.91	0.00	0.00	0.00	
3400.00	7.00	11.39	3378.27	353.32	79.68	-351.80	0.00	0.00	0.00	
3500.00	7.00	11.39	3477.53	365.26	82.08	-363.69	0.00	0.00	0.00	
3600.00	7.00	11.39	3576.78	377.20	84.49	-375.59	0.00	0.00	0.00	
3700.00	7.00	11.39	3676.04	389.14	86.89	-387.48	0.00	0.00	0.00	
3800.00	7.00	11.39	3775.29	401.08	89.30	-399.37	0.00	0.00	0.00	
3900.00	7.00	11.39	3874.55	413.02	91.70	-411.27	0.00	0.00	0.00	
4000.00	7.00	11.39	3973.80	424.95	94.10	-423.16	0.00	0.00	0.00	
4100.00	7.00	11.39	4073.06	436.89	96.51	-435.05	0.00	0.00	0.00	
4200.00	7.00	11.39	4172.32	448.83	98.91	-446.94	0.00	0.00	0.00	
4300.00	7.00	11.39	4271.57	460.77	101.32	-458.84	0.00	0.00	0.00	
4400.00	7.00	11.39	4370.83	472.71	103.72	-470.73	0.00	0.00	0.00	
4500.00	7.00	11.39	4470.08	484.65	106.13	-482.62	0.00	0.00	0.00	
4600.00	7.00	11.39	4569.34	496.59	108.53	-494.52	0.00	0.00	0.00	
4700.00	7.00	11.39	4668.59	508.53	110.94	-506.41	0.00	0.00	0.00	
4800.00	7.00	11.39	4767.85	520.47	113.34	-518.30	0.00	0.00	0.00	
4900.00	7.00	11.39	4867.11	532.41	115.75	-530.20	0.00	0.00	0.00	
5000.00	7.00	11.39	4966.36	544.34	118.15	-542.09	0.00	0.00	0.00	
5100.00	7.00	11.39	5065.62	556.28	120.56	-553.98	0.00	0.00	0.00	
5200.00	7.00	11.39	5164.87	568.22	122.96	-565.87	0.00	0.00	0.00	
5300.00	7.00	11.39	5264.13	580.16	125.37	-577.77	0.00	0.00	0.00	
5400.00	7.00	11.39	5363.38	592.10	127.77	-589.66	0.00	0.00	0.00	
5500.00	7.00	11.39	5462.64	604.04	130.18	-601.55	0.00	0.00	0.00	
5600.00	7.00	11.39	5561.89	615.98	132.58	-613.45	0.00	0.00	0.00	
5700.00	7.00	11.39	5661.15	627.92	134.99	-625.34	0.00	0.00	0.00	
5800.00	7.00	11.39	5760.41	639.86	137.39	-637.23	0.00	0.00	0.00	
5811.81	7.00	11.39	5772.12	641.27	137.68	-638.64	0.00	0.00	0.00	
5850.00	3.37	25.62	5810.16	644.56	138.62	-641.91	10.00	-9.49	37.25	
5900.00	2.50	141.70	5860.12	645.03	139.93	-642.36	10.00	-1.74	232.16	
5950.00	7.15	166.79	5909.93	641.14	141.32	-638.44	10.00	9.30	50.19	
6000.00	12.08	171.86	5959.22	632.93	142.77	-630.20	10.00	9.87	10.14	
6050.00	17.05	174.01	6007.60	620.45	144.28	-617.70	10.00	9.94	4.30	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: State 16-11-9-60
Well: 4-16-9-60
Wellpath: Original Hole

Date: 09/24/2013
Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North
Vertical (TVD) Reference: 5011'GL+17'KB 5028.0
Section (VS) Reference: Well (0.00N,0.00E,178.95Azi)
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
6100.00	22.04	175.21	6054.70	603.80	145.83	-601.02	10.00	9.97	2.40	
6150.00	27.03	175.98	6100.17	583.10	147.41	-580.30	10.00	9.98	1.55	
6200.00	32.02	176.53	6143.66	558.52	149.01	-555.70	10.00	9.99	1.09	
6250.00	37.02	176.94	6184.85	530.24	150.61	-527.39	10.00	9.99	0.83	
6300.00	42.01	177.27	6223.41	498.48	152.21	-495.61	10.00	9.99	0.65	
6350.00	47.01	177.54	6259.06	463.48	153.80	-460.58	10.00	9.99	0.54	
6400.00	52.00	177.77	6291.51	425.50	155.35	-422.58	10.00	9.99	0.46	
6450.00	57.00	177.97	6320.54	384.83	156.86	-381.89	10.00	9.99	0.40	
6500.00	62.00	178.15	6345.91	341.79	158.32	-338.83	10.00	10.00	0.36	
6550.00	67.00	178.31	6367.43	296.69	159.71	-293.72	10.00	10.00	0.32	
6580.04	70.00	178.40	6378.43	268.76	160.51	-265.77	10.00	10.00	0.31	7"
6600.00	72.00	178.46	6384.93	249.90	161.03	-246.90	10.00	10.00	0.30	
6650.00	76.99	178.60	6398.30	201.75	162.26	-198.74	10.00	10.00	0.28	
6700.00	81.99	178.74	6407.41	152.61	163.40	-149.59	10.00	10.00	0.27	
6750.00	86.99	178.87	6412.21	102.87	164.44	-99.84	10.00	10.00	0.27	
6780.11	90.00	178.95	6413.00	72.78	165.01	-69.74	10.00	10.00	0.26	
6800.00	90.00	178.95	6413.00	52.89	165.37	-49.85	0.00	0.00	0.00	
6900.00	90.00	178.95	6413.00	-47.09	167.20	50.15	0.00	0.00	0.00	
7000.00	90.00	178.95	6413.00	-147.07	169.03	150.15	0.00	0.00	0.00	
7100.00	90.00	178.95	6413.00	-247.06	170.86	250.15	0.00	0.00	0.00	
7200.00	90.00	178.95	6413.00	-347.04	172.69	350.15	0.00	0.00	0.00	
7300.00	90.00	178.95	6413.00	-447.02	174.52	450.15	0.00	0.00	0.00	
7400.00	90.00	178.95	6413.00	-547.01	176.34	550.15	0.00	0.00	0.00	
7500.00	90.00	178.95	6413.00	-646.99	178.17	650.15	0.00	0.00	0.00	
7600.00	90.00	178.95	6413.00	-746.97	180.00	750.15	0.00	0.00	0.00	
7700.00	90.00	178.95	6413.00	-846.96	181.83	850.15	0.00	0.00	0.00	
7800.00	90.00	178.95	6413.00	-946.94	183.66	950.15	0.00	0.00	0.00	
7900.00	90.00	178.95	6413.00	-1046.92	185.49	1050.15	0.00	0.00	0.00	
8000.00	90.00	178.95	6413.00	-1146.91	187.32	1150.15	0.00	0.00	0.00	
8100.00	90.00	178.95	6413.00	-1246.89	189.14	1250.15	0.00	0.00	0.00	
8200.00	90.00	178.95	6413.00	-1346.87	190.97	1350.15	0.00	0.00	0.00	
8300.00	90.00	178.95	6413.00	-1446.86	192.80	1450.15	0.00	0.00	0.00	
8400.00	90.00	178.95	6413.00	-1546.84	194.63	1550.15	0.00	0.00	0.00	
8500.00	90.00	178.95	6413.00	-1646.82	196.46	1650.15	0.00	0.00	0.00	
8600.00	90.00	178.95	6413.00	-1746.81	198.29	1750.15	0.00	0.00	0.00	
8700.00	90.00	178.95	6413.00	-1846.79	200.12	1850.15	0.00	0.00	0.00	
8800.00	90.00	178.95	6413.00	-1946.77	201.94	1950.15	0.00	0.00	0.00	
8900.00	90.00	178.95	6413.00	-2046.76	203.77	2050.15	0.00	0.00	0.00	
9000.00	90.00	178.95	6413.00	-2146.74	205.60	2150.15	0.00	0.00	0.00	
9100.00	90.00	178.95	6413.00	-2246.72	207.43	2250.15	0.00	0.00	0.00	
9200.00	90.00	178.95	6413.00	-2346.71	209.26	2350.15	0.00	0.00	0.00	
9300.00	90.00	178.95	6413.00	-2446.69	211.09	2450.15	0.00	0.00	0.00	
9400.00	90.00	178.95	6413.00	-2546.67	212.92	2550.15	0.00	0.00	0.00	
9500.00	90.00	178.95	6413.00	-2646.66	214.74	2650.15	0.00	0.00	0.00	
9600.00	90.00	178.95	6413.00	-2746.64	216.57	2750.15	0.00	0.00	0.00	
9700.00	90.00	178.95	6413.00	-2846.62	218.40	2850.15	0.00	0.00	0.00	
9800.00	90.00	178.95	6413.00	-2946.61	220.23	2950.15	0.00	0.00	0.00	
9900.00	90.00	178.95	6413.00	-3046.59	222.06	3050.15	0.00	0.00	0.00	
10000.00	90.00	178.95	6413.00	-3146.57	223.89	3150.15	0.00	0.00	0.00	
10100.00	90.00	178.95	6413.00	-3246.55	225.72	3250.15	0.00	0.00	0.00	
10200.00	90.00	178.95	6413.00	-3346.54	227.54	3350.15	0.00	0.00	0.00	
10300.00	90.00	178.95	6413.00	-3446.52	229.37	3450.15	0.00	0.00	0.00	
10400.00	90.00	178.95	6413.00	-3546.50	231.20	3550.15	0.00	0.00	0.00	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: State 16-11-9-60
Well: 4-16-9-60
Wellpath: Original Hole

Date: 09/24/2013
Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North
Vertical (TVD) Reference: 5011'GL+17'KB 5028.0
Section (VS) Reference: Well (0.00N,0.00E,178.95Azi)
Plan: Plan #4

Page: 4

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
10500.00	90.00	178.95	6413.00	-3646.49	233.03	3650.15	0.00	0.00	0.00	
10600.00	90.00	178.95	6413.00	-3746.47	234.86	3750.15	0.00	0.00	0.00	
10700.00	90.00	178.95	6413.00	-3846.45	236.69	3850.15	0.00	0.00	0.00	
10800.00	90.00	178.95	6413.00	-3946.44	238.51	3950.15	0.00	0.00	0.00	
10846.76	90.00	178.95	6413.00	-3993.19	239.37	3996.91	0.00	0.00	0.00	PBHL 4-16

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec			<--- Longitude ---> Deg Min Sec		
State 1-16 (DA)			-100.00	-3940.98	69.71	1516973.66	3386643.84	40	44	38.840 N	104	6	16.658 W
SL 4-16			0.00	0.00	0.00	1520914.64	3386574.13	40	45	17.787 N	104	6	16.758 W
PBHL 4-16			6413.00	-3993.17	240.54	1516921.47	3386814.67	40	44	38.298 N	104	6	14.449 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1447.19	1440.00	9.625	12.250	9 5/8"
6580.04	6378.43	7.000	8.500	7"