



CARRIZO OIL & GAS, INC.

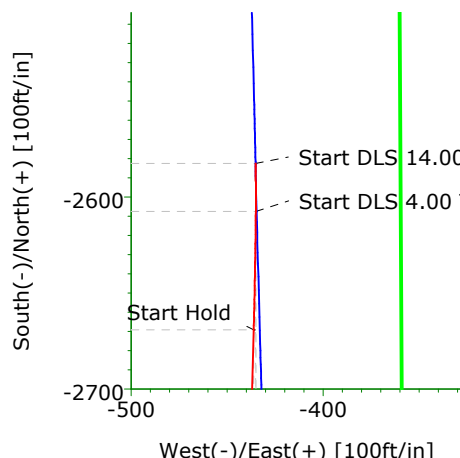
Field: Niobrara CONZ'83
 Site: Nelson 17-44-9-60 Pad
 Well: 1-20-9-60
 Wellpath: Sidetrack
 Plan: Plan #1



Precision
 Directional Services

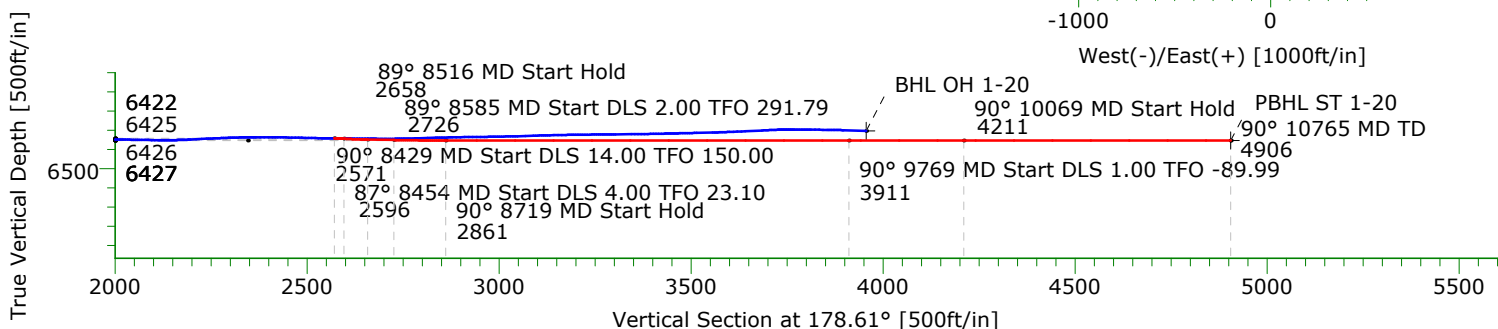
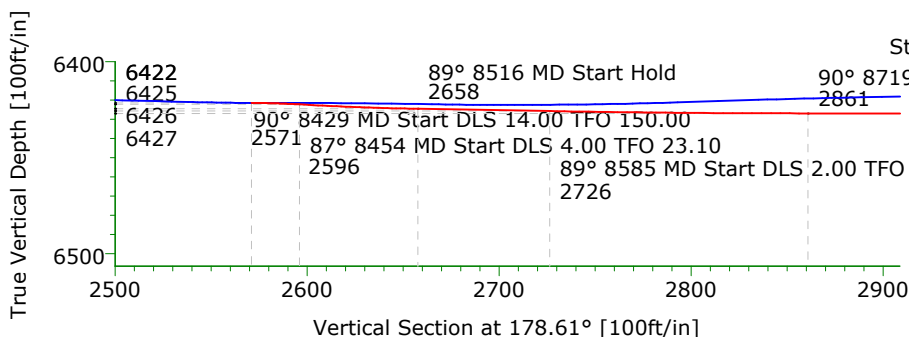
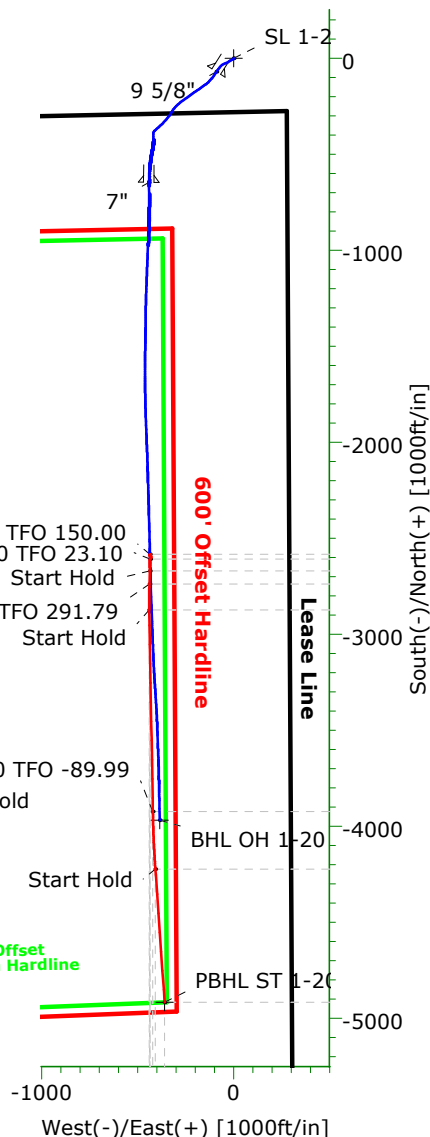
CASING DETAILS

No.	TVD	MD	Name	Size
1	1411.29	1417.00	9 5/8"	9.625
2	6345.41	6475.00	7"	7.000



Azimuths to Grid North
 True North: -0.90°
 Magnetic North: 7.44°

Magnetic Field
 Strength: 53264nT
 Dip Angle: 67.38°
 Date: 11/28/2012
 Model: IGRF2010



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 1-20	0.00	0.00	0.00	1516554.16	3385648.65	40°44'34.850N	104°06'29.671W	Point
BHL OH 1-20	6401.92	-3966.93	-384.62	1512587.23	3385264.03	40°43'55.717N	104°06'35.475W	Point
PBHL ST 1-20	6427.00	-4915.88	-358.56	1511638.28	3385290.09	40°43'46.337N	104°06'35.330W	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	8429.00	89.76	178.78	6421.56	-2582.37	-435.14	0.00	0.00	2571.06	
2	8454.00	86.73	180.53	6422.33	-2607.36	-434.99	14.00	150.00	2596.04	
3	8515.78	89.00	181.50	6424.63	-2669.08	-436.09	4.00	23.10	2657.71	
4	8584.58	89.00	181.50	6425.83	-2737.84	-437.89	0.00	0.00	2726.42	
5	8719.20	90.00	179.00	6427.00	-2872.45	-438.48	2.00	291.79	2860.97	
6	9769.20	90.00	179.00	6427.00	-3922.29	-420.15	0.00	0.00	3910.94	
7	10069.06	90.00	176.00	6427.00	-4221.83	-407.08	1.00	-89.99	4210.71	
8	10764.81	90.00	176.00	6427.00	-4915.88	-358.56	0.00	0.00	4905.74	PBHL ST 1-20

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Nelson 17-44-9-60 Pad Well: 1-20-9-60 Wellpath: Sidetrack	Date: 11/28/2012 Co-ordinate(NE) Reference: Well: 1-20-9-60, Grid North Vertical (TVD) Reference: 5007'GL+17"KB 5024.0 Section (VS) Reference: Well (0.00N,0.00E,178.61Azi) Plan: Plan #1	Time: 08:27:26 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: Nelson 17-44-9-60 Pad Weld County, CO	
Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 5007.00 ft	Northing: 1516550.77 ft Easting: 3385658.15 ft Latitude: 40 44 34.815 N Longitude: 104 6 29.548 W North Reference: Grid Grid Convergence: 0.90 deg

Well: 1-20-9-60 Adjusted from site	Slot Name:
Well Position: +N/-S 3.39 ft +E/-W -9.50 ft Position Uncertainty: 0.00 ft	Northing: 1516554.16 ft Easting : 3385648.65 ft Latitude: 40 44 34.850 N Longitude: 104 6 29.671 W

Wellpath: Sidetrack Current Datum: 5007'GL+17"KB Magnetic Data: 11/28/2012 Field Strength: 53264 nT Vertical Section: Depth From (TVD) ft	Height 5024.00 ft	Drilled From: Original Hole Tie-on Depth: 9815.00 ft Above System Datum: Mean Sea Level Declination: 8.34 deg Mag Dip Angle: 67.38 deg +E/-W ft Direction deg
0.00	0.00	0.00 178.61

Plan: Plan #1 Principal: No	Date Composed: 11/28/2012 Version: 1 Tied-to: From: Definitive Path
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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
8429.00	89.76	178.78	6421.56	-2582.37	-435.14	0.00	0.00	0.00	0.00	
8454.00	86.73	180.53	6422.33	-2607.36	-434.99	14.00	-12.12	7.01	150.00	
8515.78	89.00	181.50	6424.63	-2669.08	-436.09	4.00	3.68	1.57	23.10	
8584.58	89.00	181.50	6425.83	-2737.84	-437.89	0.00	0.00	0.00	0.00	
8719.20	90.00	179.00	6427.00	-2872.45	-438.48	2.00	0.74	-1.86	291.79	
9769.20	90.00	179.00	6427.00	-3922.29	-420.15	0.00	0.00	0.00	0.00	
10069.06	90.00	176.00	6427.00	-4221.83	-407.08	1.00	0.00	-1.00	-89.99	
10764.81	90.00	176.00	6427.00	-4915.88	-358.56	0.00	0.00	0.00	0.00	PBHL ST 1-20

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
8429.00	89.76	178.78	6421.56	-2582.37	-435.14	2571.06	0.00	0.00	0.00	
8454.00	86.73	180.53	6422.33	-2607.36	-434.99	2596.04	14.00	-12.12	7.01	
8515.78	89.00	181.50	6424.63	-2669.08	-436.09	2657.71	4.00	3.68	1.57	
8529.00	89.00	181.50	6424.86	-2682.29	-436.43	2670.92	0.00	0.00	0.00	
8584.58	89.00	181.50	6425.83	-2737.84	-437.89	2726.42	0.00	0.00	0.00	
8629.00	89.33	180.67	6426.48	-2782.25	-438.73	2770.79	2.00	0.74	-1.86	
8719.20	90.00	179.00	6427.00	-2872.45	-438.48	2860.97	2.00	0.74	-1.86	
8729.00	90.00	179.00	6427.00	-2882.25	-438.30	2870.77	0.00	0.00	0.00	
8829.00	90.00	179.00	6427.00	-2982.23	-436.56	2970.76	0.00	0.00	0.00	
8929.00	90.00	179.00	6427.00	-3082.22	-434.81	3070.76	0.00	0.00	0.00	
9029.00	90.00	179.00	6427.00	-3182.20	-433.07	3170.76	0.00	0.00	0.00	
9129.00	90.00	179.00	6427.00	-3282.18	-431.32	3270.76	0.00	0.00	0.00	
9229.00	90.00	179.00	6427.00	-3382.17	-429.58	3370.75	0.00	0.00	0.00	
9329.00	90.00	179.00	6427.00	-3482.15	-427.83	3470.75	0.00	0.00	0.00	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Nelson 17-44-9-60 Pad
Well: 1-20-9-60
Wellpath: Sidetrack

Date: 11/28/2012
Co-ordinate(NE) Reference: Well: 1-20-9-60, Grid North
Vertical (TVD) Reference: 5007'GL+17"KB 5024.0
Section (VS) Reference: Well (0.00N,0.00E,178.61Azi)
Plan: Plan #1

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
9429.00	90.00	179.00	6427.00	-3582.14	-426.09	3570.75	0.00	0.00	0.00	
9529.00	90.00	179.00	6427.00	-3682.12	-424.34	3670.75	0.00	0.00	0.00	
9629.00	90.00	179.00	6427.00	-3782.11	-422.60	3770.74	0.00	0.00	0.00	
9729.00	90.00	179.00	6427.00	-3882.09	-420.85	3870.74	0.00	0.00	0.00	
9769.20	90.00	179.00	6427.00	-3922.29	-420.15	3910.94	0.00	0.00	0.00	
9829.00	90.00	178.40	6427.00	-3982.07	-418.79	3970.74	1.00	0.00	-1.00	
9929.00	90.00	177.40	6427.00	-4082.00	-415.13	4070.73	1.00	0.00	-1.00	
10029.00	90.00	176.40	6427.00	-4181.86	-409.73	4170.69	1.00	0.00	-1.00	
10069.06	90.00	176.00	6427.00	-4221.83	-407.08	4210.71	1.00	0.00	-1.00	
10129.00	90.00	176.00	6427.00	-4281.62	-402.90	4270.59	0.00	0.00	0.00	
10229.00	90.00	176.00	6427.00	-4381.38	-395.92	4370.49	0.00	0.00	0.00	
10329.00	90.00	176.00	6427.00	-4481.14	-388.95	4470.38	0.00	0.00	0.00	
10429.00	90.00	176.00	6427.00	-4580.89	-381.98	4570.28	0.00	0.00	0.00	
10529.00	90.00	176.00	6427.00	-4680.65	-375.00	4670.17	0.00	0.00	0.00	
10629.00	90.00	176.00	6427.00	-4780.40	-368.03	4770.07	0.00	0.00	0.00	
10729.00	90.00	176.00	6427.00	-4880.16	-361.06	4869.97	0.00	0.00	0.00	
10764.81	90.00	176.00	6427.00	-4915.88	-358.56	4905.74	0.00	0.00	0.00	PBHL ST 1-20

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		
SL 1-20			0.00	0.00	0.00	1516554.16	3385648.65	40	44	34.850 N	104	6	29.671 W
BHL OH 1-20			6401.92	-3966.93	-384.62	1512587.23	3385264.03	40	43	55.717 N	104	6	35.475 W
PBHL ST 1-20			6427.00	-4915.88	-358.56	1511638.28	3385290.09	40	43	46.337 N	104	6	35.330 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1417.00	1411.29	9.625	12.250	9 5/8"
6475.00	6345.41	7.000	8.500	7"

Precision Directional Services, Inc.

Anticollision Report

Company: CARRIZO OIL & GAS, INC.	Date: 11/28/2012	Time: 08:28:12	Page: 1
Field: Niobrara CONZ'83			
Reference Site: Nelson 17-44-9-60 Pad	Co-ordinate(NE) Reference: Well: 1-20-9-60, Grid North		
Reference Well: 1-20-9-60	Vertical (TVD) Reference: 5007'GL+17'KB 5024.0		
Reference Wellpath: Sidetrack	Db: Adapti		

NO GLOBAL SCAN: Using user defined selection & scan criteria
Interpolation Method: MD **Interval:** 100.00 ft
Depth Range: 8429.00 to 10764.81 ft
Maximum Radius: 100.00 ft

Reference: Plan: Plan #1
Error Model: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Ellipse

Plan: Plan #1	Date Composed: 11/28/2012
Principal: No	Version: 1
	Tied-to: From: Definitive Path

Summary

<----- Offset Wellpath ----->			Reference	Offset	Ctr-Ctr	Edge	Separation	Warning
Site	Well	Wellpath	MD ft	MD ft	Distance ft	Distance ft	Factor	
Nelson 17-44-9-60 Pa1-20-9-60		Original Hole V0	8429.00	8429.00	0.00	-52.02	0.00	No Data

Site: Nelson 17-44-9-60 Pad
Well: 1-20-9-60
Wellpath: Original Hole V0

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location			Ctr-Ctr	Edge	Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East		Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft		ft	ft		
8429.00	6421.56	8429.00	6421.56	26.01	26.01	0.00	-2582.37	-435.14		0.00	-52.02	0.00	No Data
8529.00	6424.86	8528.90	6422.37	26.55	26.51	302.64	-2682.23	-432.54		4.62	-43.10	0.10	
8629.00	6426.48	8628.59	6421.90	27.04	27.01	297.69	-2781.89	-430.01		9.86	-39.92	0.20	
8729.00	6427.00	8728.41	6419.02	27.52	27.50	304.90	-2881.61	-426.87		13.96	-34.88	0.29	
8829.00	6427.00	8828.48	6417.51	28.03	28.01	304.65	-2981.59	-422.83		16.71	-33.25	0.33	
8929.00	6427.00	8928.25	6415.19	28.55	28.53	306.31	-3081.25	-418.75		19.97	-30.52	0.40	
9029.00	6427.00	9028.12	6412.63	29.06	29.03	307.68	-3180.99	-414.48		23.53	-27.61	0.46	
9129.00	6427.00	9127.88	6411.49	29.58	29.52	303.99	-3280.56	-408.33		27.78	-25.33	0.52	
9229.00	6427.00	9227.80	6410.34	30.10	30.05	301.32	-3380.28	-402.22		32.09	-22.74	0.59	
9329.00	6427.00	9328.59	6408.31	30.62	30.62	301.52	-3480.92	-397.37		35.76	-20.18	0.64	
9429.00	6427.00	9428.04	6405.87	31.15	31.13	303.32	-3580.29	-393.97		38.49	-17.97	0.68	
9529.00	6427.00	9527.88	6401.60	31.67	31.66	306.61	-3679.96	-390.18		42.63	-14.01	0.75	
9629.00	6427.00	9629.64	6398.42	32.20	32.21	309.51	-3781.63	-387.93		44.93	-12.21	0.79	
9729.00	6427.00	9730.01	6399.55	29.53	32.74	308.32	-3881.98	-386.10		44.29	-12.68	0.78	
9829.00	6427.00	9815.00	6401.92	25.35	32.88	305.96	-3966.93	-384.62		45.02	-10.18	0.82	