

Well Plan Details

Grynberg Petroleum Co.

 Helmer Directional Drilling, Inc. AFE

 Well: Fed 24-12-65-4-JH Lateral Job

Rig:

Weld County, CO

St. Plane - NAD83

3/7/2016

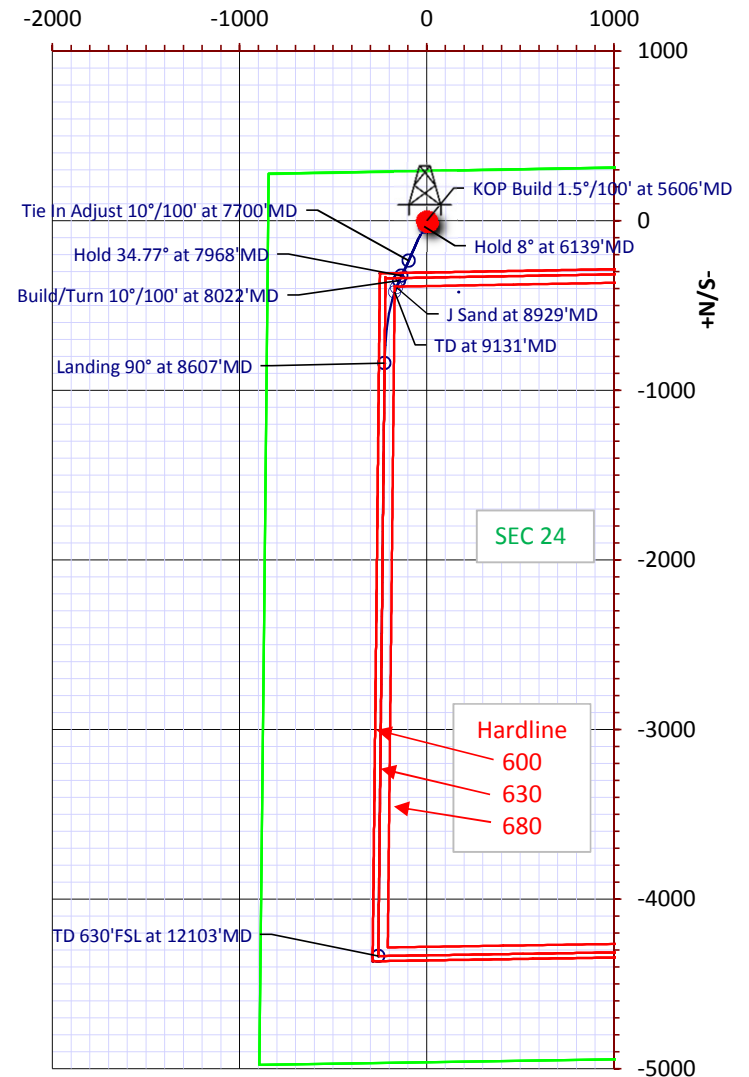
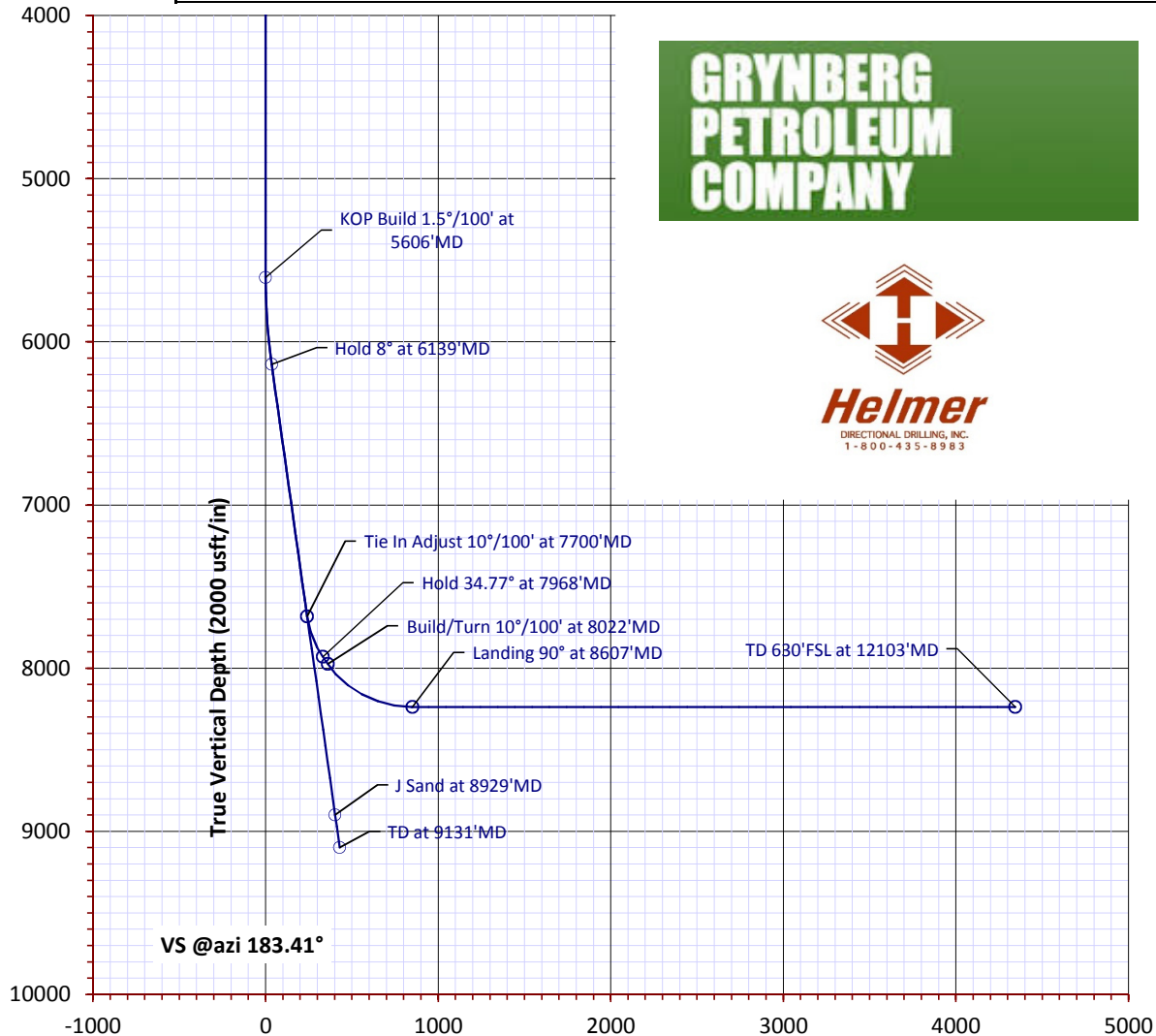
Well Information										
Rig:			Well: Fed 24-12-65-4-JH Lateral			Map Details			Magnetics	
Northing	1608083.691		Northing	1608083.690		System	2 - St. Plane		Decl., °	8.314
Easting	3244109.493		Easting	3244109.490		Datum	1983 - NAD83		Dip, °	67.384
Elevation	0.000		Elevation	0.000		Zone	0501 - Colorado North		True N	-0.571
Latitude	40.999203		Latitude	40.999203		Scale. Fac	1.000042		Mag N	7.742
Longitude	104.615686		Longitude	104.615686		Converg.	0.571385		Field, nT	52.908.1
Units	Feet		TVD Ref	Mean Sea Level					Date	03/03/16
Target Information										
Type	TVD	+N/S-	+E/W-	Latitude	Longitude	Northing	Easting	Description		
Radius:1	0.00	0.00	0.00	40.999203	104.615686	1608083.691	3244109.493	Surface		
Radius:1	8238.00	-310.39	-249.78	40.998358	104.616602	1607773.298	3243859.712	Heel		
Radius:1	8238.00	-4366.35	-288.62	40.987228	104.616889	1603717.342	3243820.876	PBHL		
Radius:1	8900.00	-394.10	-160.27	40.998126	104.616281	1607689.591	3243949.223	J Sand		
Radius:1	9100.00	-420.13	170.86	40.998045	104.615082	1607663.561	3244280.353	B&H TD 680'FWL		
Radius:1	8238.00	-840.16	-224.77	40.996903	104.616531	1607243.531	3243884.723	Landing 630 FWL		
Radius:1	8238.00	-4336.00	-258.33	40.987310	104.616778	1603747.691	3243851.163	TD 630'FSL, 630' FWL		
Section Details: Fed 24-12-65-4-JH Lateral										
MD	INC	AZI	TVD	NS	EW	VS183.41	BR	TR	DLS	Comments
0.00	0.00	0.00	0.00	0.00	0.00	0.00				Surface
7700.00	8.00	202.13	7683.08	-235.67	-95.84	240.95	0.00	0.00	0.00	Tie In Adjust 10°/100' at 7700'MD
7967.70	34.77	204.04	7930.09	-324.25	-134.66	331.69	10.00	0.22	10.00	Hold 34.77° at 7968'MD
8021.60	34.77	204.04	7974.36	-352.33	-147.18	360.46	0.00	0.00	0.00	Build/Turn 10°/100' at 8022'MD
8606.50	90.00	180.55	8237.87	-840.16	-224.77	852.04	9.63	-2.67	9.99	Landing 90° at 8607'MD
12102.50	90.00	180.55	8237.87	-4336.00	-258.33	4343.68	0.00	0.00	0.01	TD 630'FSL at 12103'MD

Grynberg Petroleum Co.

Well Grynberg Stateline Fed 24-12-65-4-JH

Rig

JOB #			Northing, ft	1,608,083.691	Latitude	40.999203	Vert. Sect, °	183.41
DD COMPANY Helmer Directional Drilling, Inc.			Easting, ft	3,244,109.493	Longitude	104.615686	Convergence	0.571385
LOCATION Weld County, CO			Elevation, ft	-	TVD Ref	Mean Sea Level	Scale Factor	1.000042
AFE/API #			Mag Date	3-Mar-2016	Decl., °	8.31	Map System	St. Plane - NAD83 Grid North
DATE 3-Mar-2016			Field Str, nT	52.908.1	Dip Angle, °	67.38	Map Zone	0501 - Colorado North
Description	Type	TVD	+N/S-	+E/W-	Latitude	Longitude	Northing	Easting
Surface	Radius	0.00	0.00	0.00	40.999203	104.615686	1,608,083.691	3,244,109.493
Heel	Radius	8238.00	-310.39	-249.78	40.998358	104.616602	1,607,773.298	3,243,859.712
PBHL	Radius	8238.00	-4366.35	-288.62	40.987228	104.616889	1,603,717.342	3,243,820.876
J Sand	Radius	8900.00	-394.10	-160.27	40.998126	104.616281	1,607,689.591	3,243,949.223
B&H TD 680'FWL	Radius	9100.00	-420.13	170.86	40.998045	104.615082	1,607,663.561	3,244,280.353
Landing 630' FWL	Radius	8238.00	-840.16	-224.77	40.996903	104.616531	1,607,243.531	3,243,884.723
TD 630'FSL, 630' FWL	Radius	8238.00	-4336.00	-258.33	40.987310	104.616778	1,603,747.691	3,243,851.163



Survey Report: Fed 24-12-65-4-JH Lateral

Operator Dir. Co. Well Name Location Rig Job	Grynberg Petroleum Co.	Northing Easting Elevation Latitude Longitude Units	1608083.690	Date System Datum Zone Scale Fac. Converg.	7-Mar-16				
	Helmer Directional Drilling, Inc.		3244109.490		2 - St. Plane				
	Fed 24-12-65-4-JH Lateral		0.00		1983 - NAD83				
	Weld County, CO		40.999203 104.615686 Feet		0501 - Colorado North 1.000042 0.571385				
MD	INC	AZI	TVD	+N/S-	+E/W-	VS@183.41°	BR	TR	DLS
0	0	0	0	0	0	0	0	0	0
0: Surface									
100	0	360	100	0	0	0	0	0	0
200	0	360	200	0	0	0	0	0	0
300	0	360	300	0	0	0	0	0	0
400	0	360	400	0	0	0	0	0	0
500	0	360	500	0	0	0	0	0	0
600	0	360	600	0	0	0	0	0	0
700	0	360	700	0	0	0	0	0	0
800	0	360	800	0	0	0	0	0	0
900	0	360	900	0	0	0	0	0	0
1000	0	360	1000	0	0	0	0	0	0
1100	0	360	1100	0	0	0	0	0	0
1200	0	360	1200	0	0	0	0	0	0
1300	0	360	1300	0	0	0	0	0	0
1400	0	360	1400	0	0	0	0	0	0
1500	0	360	1500	0	0	0	0	0	0
1600	0	360	1600	0	0	0	0	0	0
1700	0	360	1700	0	0	0	0	0	0
1800	0	360	1800	0	0	0	0	0	0
1900	0	360	1900	0	0	0	0	0	0
2000	0	360	2000	0	0	0	0	0	0
2100	0	360	2100	0	0	0	0	0	0
2200	0	360	2200	0	0	0	0	0	0
2300	0	360	2300	0	0	0	0	0	0
2400	0	360	2400	0	0	0	0	0	0
2500	0	360	2500	0	0	0	0	0	0
2600	0	360	2600	0	0	0	0	0	0
2700	0	360	2700	0	0	0	0	0	0
2800	0	360	2800	0	0	0	0	0	0
2900	0	360	2900	0	0	0	0	0	0
3000	0	360	3000	0	0	0	0	0	0
3100	0	360	3100	0	0	0	0	0	0
3200	0	360	3200	0	0	0	0	0	0
3300	0	360	3300	0	0	0	0	0	0
3400	0	360	3400	0	0	0	0	0	0
3500	0	360	3500	0	0	0	0	0	0
3600	0	360	3600	0	0	0	0	0	0
3700	0	360	3700	0	0	0	0	0	0
3800	0	360	3800	0	0	0	0	0	0
3900	0	360	3900	0	0	0	0	0	0
4000	0	360	4000	0	0	0	0	0	0
4100	0	360	4100	0	0	0	0	0	0
4200	0	360	4200	0	0	0	0	0	0

Survey Report: Fed 24-12-65-4-JH Lateral

Operator Dir. Co. Well Name Location Rig Job	Grynberg Petroleum Co. Helmer Directional Drilling, Inc.			Northing Easting Elevation Latitude Longitude Units	1608083.690 3244109.490 0.00 40.999203 104.615686 Feet		Date System Datum Zone Scale Fac. Converg.	7-Mar-16	
								2 - St. Plane	
								1983 - NAD83	
								0501 - Colorado North	
							1.000042		
							0.571385		
MD	INC	AZI	TVD	+N/S-	+E/W-	VS@183.41°	BR	TR	DLS
4300	0	360	4300	0	0	0	0	0	0
4400	0	360	4400	0	0	0	0	0	0
4500	0	360	4500	0	0	0	0	0	0
4600	0	360	4600	0	0	0	0	0	0
4700	0	360	4700	0	0	0	0	0	0
4800	0	360	4800	0	0	0	0	0	0
4900	0	360	4900	0	0	0	0	0	0
5000	0	360	5000	0	0	0	0	0	0
5100	0	360	5100	0	0	0	0	0	0
5200	0	360	5200	0.01	0	-0.01	0	0	0
5300	0	360	5300	0.01	0	-0.01	0	0	0
5400	0	360	5400	0.01	0	-0.01	0	0	0
5500	0	360	5500	0.01	0	-0.01	0	0	0
5600	0	360	5600	0.01	0	-0.01	0	0	0
5605.72	0	202.13	5605.72	0.01	0	-0.01	0	-2758.04	0
5700	1.41	202.13	5699.99	-1.07	-0.44	1.1	1.5	0	1.5
5800	2.91	202.13	5799.92	-4.57	-1.86	4.67	1.5	0	1.5
5900	4.41	202.13	5899.71	-10.49	-4.27	10.73	1.5	0	1.5
6000	5.91	202.13	5999.3	-18.83	-7.66	19.25	1.5	0	1.5
6100	7.41	202.13	6098.62	-29.58	-12.03	30.24	1.5	0	1.5
6139.06	8	202.13	6137.33	-34.43	-14	35.2	1.5	0	1.5
6200	8	202.13	6197.68	-42.29	-17.2	43.23	0	0	0
6300	8	202.13	6296.7	-55.18	-22.44	56.42	0	0	0
6400	8	202.13	6395.73	-68.07	-27.68	69.6	0	0	0
6500	8	202.13	6494.76	-80.96	-32.93	82.78	0	0	0
6600	8	202.13	6593.78	-93.85	-38.17	95.96	0	0	0
6700	8	202.13	6692.81	-106.75	-43.41	109.14	0	0	0
6800	8	202.13	6791.84	-119.64	-48.66	122.32	0	0	0
6900	8	202.13	6890.86	-132.53	-53.9	135.5	0	0	0
7000	8	202.13	6989.89	-145.42	-59.14	148.68	0	0	0
7100	8	202.13	7088.92	-158.32	-64.38	161.86	0	0	0
7200	8	202.13	7187.94	-171.21	-69.63	175.05	0	0	0
7300	8	202.13	7286.97	-184.1	-74.87	188.23	0	0	0
7400	8	202.13	7386	-196.99	-80.11	201.41	0	0	0
7500	8	202.13	7485.02	-209.88	-85.35	214.59	0	0	0
7600	8	202.13	7584.05	-222.78	-90.6	227.77	0	0	0
7700	8	202.13	7683.08	-235.67	-95.84	240.95	0	0	0
7700: Tie In Adjust 10°/100' at 7700'MD									
7800	18	203.49	7780.39	-256.34	-104.64	262.11	10	1.36	10
7900	28	203.89	7872.33	-292.06	-120.34	298.7	10	0.4	10
7967.7	34.77	204.04	7930.09	-324.25	-134.66	331.69	10	0.22	10
7967.7: Hold 34.77° at 7968'MD									
8000	34.77	204.04	7956.62	-341.08	-142.16	348.93	0	0	0
8021.6	34.77	204.04	7974.36	-352.33	-147.18	360.46	0	0	0

Survey Report: Fed 24-12-65-4-JH Lateral

Operator	Grynberg Petroleum Co.	Northing	1608083.690	Date	7-Mar-16
Dir. Co.	Helmer Directional Drilling, Inc.	Easting	3244109.490	System	2 - St. Plane
Well Name	Fed 24-12-65-4-JH Lateral	Elevation	0.00	Datum	1983 - NAD83
Location	Weld County, CO	Latitude	40.999203	Zone	0501 - Colorado North
Rig		Longitude	104.615686	Scale Fac.	1.000042
Job		Units	Feet	Converg.	0.571385

MD	INC	AZI	TVD	+N/S-	+E/W-	VS@183.41°	BR	TR	DLS
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8021.6: Build/Turn 10°/100' at 8022'MD

8100	41.84	198.55	8035.87	-397.6	-164.63	406.69	9.01	-7	10
8200	51.12	193.44	8104.68	-467.25	-184.34	477.39	9.29	-5.11	10
8300	60.58	189.52	8160.76	-548.27	-200.63	559.24	9.46	-3.91	10
8400	70.14	186.29	8202.41	-638.2	-213.02	649.74	9.55	-3.24	10
8500	79.74	183.42	8228.36	-734.3	-221.12	746.15	9.61	-2.87	10
8600	89.37	180.72	8237.83	-833.66	-224.7	845.55	9.63	-2.7	10
8606.5	90	180.55	8237.87	-840.16	-224.77	852.04	9.63	-2.67	9.99

8606.5: Landing 90° at 8607'MD

8700	90	180.55	8237.87	-933.65	-225.67	945.42	0	0	0
8800	90	180.55	8237.87	-1033.65	-226.63	1045.3	0	0	0
8900	90	180.55	8237.87	-1133.64	-227.59	1145.17	0	0	0
9000	90	180.55	8237.87	-1233.64	-228.55	1245.05	0	0	0
9100	90	180.55	8237.87	-1333.63	-229.51	1344.92	0	0	0
9200	90	180.55	8237.87	-1433.63	-230.47	1444.8	0	0	0
9300	90	180.55	8237.87	-1533.62	-231.43	1544.68	0	0	0
9400	90	180.55	8237.87	-1633.62	-232.39	1644.55	0	0	0
9500	90	180.55	8237.87	-1733.62	-233.35	1744.43	0	0	0
9600	90	180.55	8237.87	-1833.61	-234.31	1844.3	0	0	0
9700	90	180.55	8237.87	-1933.61	-235.27	1944.18	0	0	0
9800	90	180.55	8237.87	-2033.6	-236.23	2044.05	0	0	0
9900	90	180.55	8237.87	-2133.6	-237.19	2143.93	0	0	0
10000	90	180.55	8237.87	-2233.59	-238.15	2243.8	0	0	0
10100	90	180.55	8237.87	-2333.59	-239.11	2343.68	0	0	0
10200	90	180.55	8237.87	-2433.58	-240.07	2443.55	0	0	0
10300	90	180.55	8237.87	-2533.58	-241.03	2543.43	0	0	0
10400	90	180.55	8237.87	-2633.57	-241.99	2643.3	0	0	0
10500	90	180.55	8237.87	-2733.57	-242.95	2743.18	0	0	0
10600	90	180.55	8237.87	-2833.56	-243.91	2843.06	0	0	0
10700	90	180.55	8237.87	-2933.56	-244.87	2942.93	0	0	0
10800	90	180.55	8237.87	-3033.56	-245.83	3042.81	0	0	0
10900	90	180.55	8237.87	-3133.55	-246.79	3142.68	0	0	0
11000	90	180.55	8237.87	-3233.55	-247.75	3242.56	0	0	0
11100	90	180.55	8237.87	-3333.54	-248.71	3342.43	0	0	0
11200	90	180.55	8237.87	-3433.54	-249.67	3442.31	0	0	0
11300	90	180.55	8237.87	-3533.53	-250.63	3542.18	0	0	0
11400	90	180.55	8237.87	-3633.53	-251.59	3642.06	0	0	0
11500	90	180.55	8237.87	-3733.52	-252.55	3741.93	0	0	0
11600	90	180.55	8237.87	-3833.52	-253.51	3841.81	0	0	0
11700	90	180.55	8237.87	-3933.51	-254.47	3941.69	0	0	0
11800	90	180.55	8237.87	-4033.51	-255.43	4041.56	0	0	0
11900	90	180.55	8237.87	-4133.5	-256.39	4141.44	0	0	0
12000	90	180.55	8237.87	-4233.5	-257.35	4241.31	0	0	0
12100	90	180.55	8237.87	-4333.5	-258.31	4341.19	0	0	0

Survey Report: Fed 24-12-65-4-JH Lateral

Operator	Grynberg Petroleum Co.	Northing	1608083.690	Date	7-Mar-16
Dir. Co.	Helmer Directional Drilling, Inc.	Easting	3244109.490	System	2 - St. Plane
Well Name	Fed 24-12-65-4-JH Lateral	Elevation	0.00	Datum	1983 - NAD83
Location	Weld County, CO	Latitude	40.999203	Zone	0501 - Colorado North
Rig		Longitude	104.615686	Scale Fac.	1.000042
Job		Units	Feet	Converg.	0.571385

MD	INC	AZI	TVD	+N/S-	+E/W-	VS@183.41°	BR	TR	DLS
12102.5	90	180.55	8237.87	-4336	-258.33	4343.68	0	0	0.01

12102.5: TD 630'FSL at 12103'MD