

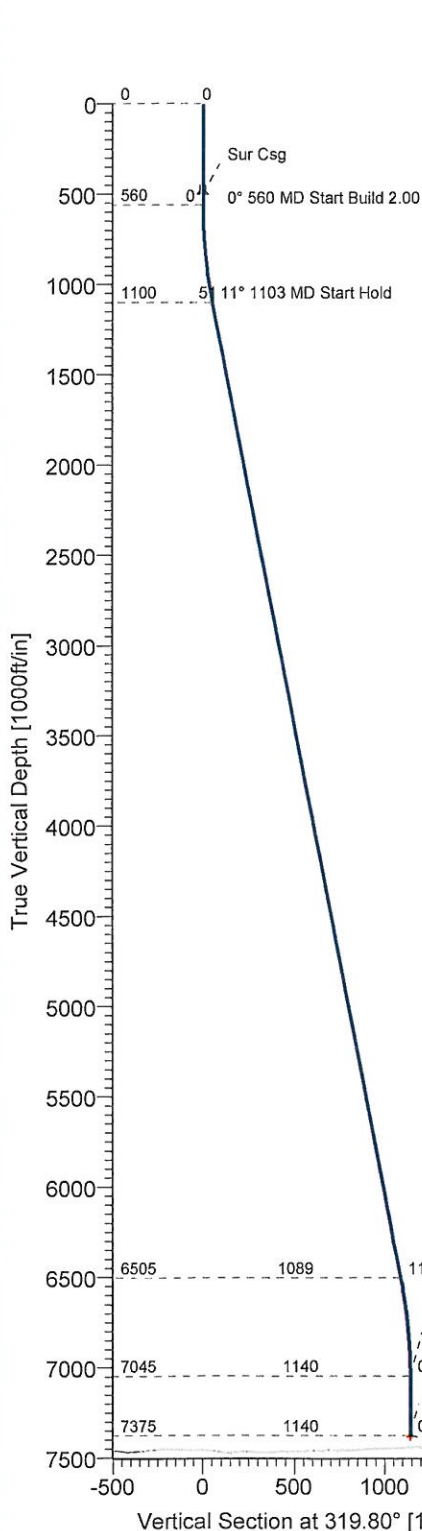


Apollo Operating, LLC.

Field: Weld Co, CO
Site: Mesbergen 45-3D
Well: 45-3D
Wellpath: OH
Plan: Plan #1

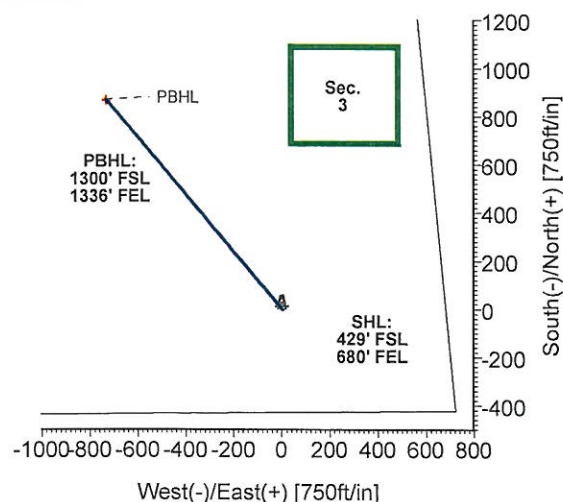


Azimuths to True North
Magnetic North: 8.97°
Magnetic Field
Strength: 53305nT
Dip Angle: 67.17°
Date: 10/1/2010
Model: IGRF2010



SITE DETAILS
Mesbergen 45-3D
3-BN-66W
Weld Co, CO
Site Centre Latitude: 40°30'40.619N
Longitude: 104°45'24.142W
Ground Level: 4900.00
Positional Uncertainty: 0.00
Convergence: 0.48

FIELD DETAILS
Weld Co, CO
Colorado
U.S.A.
Geodetic System: US State Plane Coordinate System 1983
Ellipsoid: GRS 1980
Zone: Colorado, Northern Zone
Magnetic Model: IGRF2010
System Datum: Mean Sea Level
Local North: True North



TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL	7375.00	871.00	-735.97	1430834.84	3205935.98	40°30'49.226N	104°45'33.671W

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	319.80	0.00	0.00	0.00	0.00	0.00	0.00	
2	560.00	0.00	319.80	560.00	0.00	0.00	0.00	0.00	0.00	
3	1103.34	10.87	319.80	1100.09	39.24	-33.16	2.00	319.80	51.37	
4	6606.85	10.87	319.80	6504.91	831.76	-702.81	0.00	0.00	1088.93	
5	7150.19	0.00	319.80	7045.00	871.00	-735.97	2.00	180.00	1140.30	
6	7480.19	0.00	319.80	7375.00	871.00	-735.97	0.00	0.00	1140.30	PBHL
7	8080	0.00	319.80	7975	871.0	-735.97	0.00	0.00	1140.30	uf

WELLPATH DETAILS

OH			
Rig:	SITE		
Ref. Datum:	4920.00ft		
V. Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
319.80°	0.00	0.00	0.00

8080 MDTD
PBHL uf

Ryan Energy Technologies
19510 Oil Center Blvd
Houston, TX 77073
Ph: 281-443-1414
Fx: 281-443-1676



Plan: Plan #1 (4/10/2010)
Created By: Eric McHenry Date: 10/1/2010
Checked: Date:
Reviewed: Date:
Approved: Date:



Ryan Energy Technologies

Planning Report



Company: Apollo Operating, LLC. Date: 10/1/2010 Time: 11:15:39 Page: 1
 Field: Weld Co, CO Co-ordinate(NE) Reference: Site: Mesbergen 45-3D, True North
 Site: Mesbergen 45-3D Vertical (TVD) Reference: SITE 4920.0
 Well: 45-3D Section (VS) Reference: Well (0.00N,0.00E,319.80Azi)
 Wellpath: OH Plan: Plan #1

Field: Weld Co, CO
 Colorado
 U.S.A.
 Map System: US State Plane Coordinate System 1983 Map Zone: Colorado, Northern Zone
 Geo Datum: GRS 1980 Coordinate System: Site Centre
 Sys Datum: Mean Sea Level Geomagnetic Model: IGRF2010

Site: Mesbergen 45-3D
 3-6N-66W
 Weld Co, CO
 Site Position: Northing: 1429970.04 ft Latitude: 40 30 40.619 N
 From: Geographic Easting: 3206679.22 ft Longitude: 104 45 24.142 W
 Position Uncertainty: 0.00 ft North Reference: True
 Ground Level: 4900.00 ft Grid Convergence: 0.48 deg

Well: 45-3D Slot Name:
 Well Position: +N/-S 0.00 ft Northing: 1429970.04 ft Latitude: 40 30 40.619 N
 +E/-W 0.00 ft Easting: 3206679.22 ft Longitude: 104 45 24.142 W
 Position Uncertainty: 0.00 ft

Wellpath: OH
 Current Datum: SITE Height 4920.00 ft
 Magnetic Data: 10/1/2010
 Field Strength: 53305 nT
 Vertical Section: Depth From (TVD) +N/-S
 ft ft
 0.00 0.00 0.00 319.80

Plan: Plan #1 Date Composed: 10/1/2010
 Principal: Yes 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	319.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
560.00	0.00	319.80	560.00	0.00	0.00	0.00	0.00	0.00	0.00	
1103.34	10.87	319.80	1100.09	39.24	-33.16	2.00	2.00	0.00	319.80	
6606.85	10.87	319.80	6504.91	831.76	-702.81	0.00	0.00	0.00	0.00	
7150.19	0.00	319.80	7045.00	871.00	-735.97	2.00	-2.00	0.00	180.00	
7480.19	0.00	319.80	7375.00	871.00	-735.97	0.00	0.00	0.00	0.00	PBHL

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
560.00	0.00	319.80	560.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.80	319.80	600.00	0.21	-0.18	0.28	2.00	2.00	0.00	
700.00	2.80	319.80	699.94	2.61	-2.21	3.42	2.00	2.00	0.00	
800.00	4.80	319.80	799.72	7.67	-6.48	10.05	2.00	2.00	0.00	
900.00	6.80	319.80	899.20	15.39	-13.01	20.15	2.00	2.00	0.00	
1000.00	8.80	319.80	998.27	25.76	-21.77	33.72	2.00	2.00	0.00	
1103.34	10.87	319.80	1100.09	39.24	-33.16	51.37	2.00	2.00	0.00	
1200.00	10.87	319.80	1195.02	53.16	-44.92	69.59	0.00	0.00	0.00	
1300.00	10.87	319.80	1293.22	67.56	-57.08	88.45	0.00	0.00	0.00	
1400.00	10.87	319.80	1391.43	81.96	-69.25	107.30	0.00	0.00	0.00	
1500.00	10.87	319.80	1489.64	96.36	-81.42	126.15	0.00	0.00	0.00	
1600.00	10.87	319.80	1587.84	110.76	-93.59	145.00	0.00	0.00	0.00	
1700.00	10.87	319.80	1686.05	125.16	-105.76	163.86	0.00	0.00	0.00	
1800.00	10.87	319.80	1784.26	139.56	-117.92	182.71	0.00	0.00	0.00	
1900.00	10.87	319.80	1882.46	153.96	-130.09	201.56	0.00	0.00	0.00	



Ryan Energy Technologies

Planning Report



Company: Apollo Operating, LLC.
Field: Weld Co, CO
Site: Mesbergen 45-3D
Well: 45-3D
Wellpath: OH

Date: 10/1/2010 Time: 11:15:39 Page: 2
Co-ordinate(N/E) Reference: Site: Mesbergen 45-3D, True North
Vertical (TVD) Reference: SITE 4920.0
Section (VS) Reference: Well (0.00N,0.00E,319.80Azi)
Plan: Plan #1

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
2000.00	10.87	319.80	1980.67	168.36	-142.26	220.42	0.00	0.00	0.00	
2100.00	10.87	319.80	2078.88	182.76	-154.43	239.27	0.00	0.00	0.00	
2200.00	10.87	319.80	2177.08	197.16	-166.59	258.12	0.00	0.00	0.00	
2300.00	10.87	319.80	2275.29	211.56	-178.76	276.97	0.00	0.00	0.00	
2400.00	10.87	319.80	2373.50	225.96	-190.93	295.83	0.00	0.00	0.00	
2500.00	10.87	319.80	2471.70	240.36	-203.10	314.68	0.00	0.00	0.00	
2600.00	10.87	319.80	2569.91	254.76	-215.27	333.53	0.00	0.00	0.00	
2700.00	10.87	319.80	2668.12	269.16	-227.43	352.38	0.00	0.00	0.00	
2800.00	10.87	319.80	2766.32	283.56	-239.60	371.24	0.00	0.00	0.00	
2900.00	10.87	319.80	2864.53	297.96	-251.77	390.09	0.00	0.00	0.00	
3000.00	10.87	319.80	2962.74	312.36	-263.94	408.94	0.00	0.00	0.00	
3100.00	10.87	319.80	3060.94	326.76	-276.10	427.80	0.00	0.00	0.00	
3200.00	10.87	319.80	3159.15	341.16	-288.27	446.65	0.00	0.00	0.00	
3300.00	10.87	319.80	3257.36	355.56	-300.44	465.50	0.00	0.00	0.00	
3400.00	10.87	319.80	3355.56	369.97	-312.61	484.35	0.00	0.00	0.00	
3500.00	10.87	319.80	3453.77	384.37	-324.78	503.21	0.00	0.00	0.00	
3600.00	10.87	319.80	3551.98	398.77	-336.94	522.06	0.00	0.00	0.00	
3700.00	10.87	319.80	3650.19	413.17	-349.11	540.91	0.00	0.00	0.00	
3800.00	10.87	319.80	3748.39	427.57	-361.28	559.76	0.00	0.00	0.00	
3900.00	10.87	319.80	3846.60	441.97	-373.45	578.62	0.00	0.00	0.00	
4000.00	10.87	319.80	3944.81	456.37	-385.61	597.47	0.00	0.00	0.00	
4100.00	10.87	319.80	4043.01	470.77	-397.78	616.32	0.00	0.00	0.00	
4200.00	10.87	319.80	4141.22	485.17	-409.95	635.17	0.00	0.00	0.00	
4300.00	10.87	319.80	4239.43	499.57	-422.12	654.03	0.00	0.00	0.00	
4400.00	10.87	319.80	4337.63	513.97	-434.29	672.88	0.00	0.00	0.00	
4500.00	10.87	319.80	4435.84	528.37	-446.45	691.73	0.00	0.00	0.00	
4600.00	10.87	319.80	4534.05	542.77	-458.62	710.59	0.00	0.00	0.00	
4700.00	10.87	319.80	4632.25	557.17	-470.79	729.44	0.00	0.00	0.00	
4800.00	10.87	319.80	4730.46	571.57	-482.96	748.29	0.00	0.00	0.00	
4900.00	10.87	319.80	4828.67	585.97	-495.13	767.14	0.00	0.00	0.00	
5000.00	10.87	319.80	4926.87	600.37	-507.29	786.00	0.00	0.00	0.00	
5100.00	10.87	319.80	5025.08	614.77	-519.46	804.85	0.00	0.00	0.00	
5200.00	10.87	319.80	5123.29	629.17	-531.63	823.70	0.00	0.00	0.00	
5300.00	10.87	319.80	5221.49	643.57	-543.80	842.55	0.00	0.00	0.00	
5400.00	10.87	319.80	5319.70	657.97	-555.96	861.41	0.00	0.00	0.00	
5500.00	10.87	319.80	5417.91	672.37	-568.13	880.26	0.00	0.00	0.00	
5600.00	10.87	319.80	5516.11	686.77	-580.30	899.11	0.00	0.00	0.00	
5700.00	10.87	319.80	5614.32	701.17	-592.47	917.97	0.00	0.00	0.00	
5800.00	10.87	319.80	5712.53	715.57	-604.64	936.82	0.00	0.00	0.00	
5900.00	10.87	319.80	5810.73	729.97	-616.80	955.67	0.00	0.00	0.00	
6000.00	10.87	319.80	5908.94	744.37	-628.97	974.52	0.00	0.00	0.00	
6100.00	10.87	319.80	6007.15	758.77	-641.14	993.38	0.00	0.00	0.00	
6200.00	10.87	319.80	6105.36	773.17	-653.31	1012.23	0.00	0.00	0.00	
6300.00	10.87	319.80	6203.56	787.57	-665.47	1031.08	0.00	0.00	0.00	
6400.00	10.87	319.80	6301.77	801.97	-677.64	1049.93	0.00	0.00	0.00	
6500.00	10.87	319.80	6399.98	816.37	-689.81	1068.79	0.00	0.00	0.00	
6606.85	10.87	319.80	6504.91	831.76	-702.81	1088.93	0.00	0.00	0.00	
6700.00	9.00	319.80	6596.66	844.04	-713.18	1105.00	2.00	-2.00	0.00	
6800.00	7.00	319.80	6695.68	854.67	-722.17	1118.93	2.00	-2.00	0.00	
6900.00	5.00	319.80	6795.13	862.66	-728.92	1129.38	2.00	-2.00	0.00	
7000.00	3.00	319.80	6894.88	867.99	-733.43	1136.37	2.00	-2.00	0.00	
7100.00	1.00	319.80	6994.81	870.67	-735.68	1139.86	2.00	-2.00	0.00	
7150.19	0.00	319.80	7045.00	871.00	-735.97	1140.30	2.00	-2.00	0.00	Niobrara
7200.00	0.00	319.80	7094.81	871.00	-735.97	1140.30	0.00	0.00	0.00	



Ryan Energy Technologies

Planning Report



Company: Apollo Operating, LLC.
Field: Weld Co, CO
Site: Mesbergen 45-3D
Well: 45-3D
Wellpath: OH

Date: 10/1/2010 Time: 11:15:39 Page: 3
Co-ordinate(N/E) Reference: Site: Mesbergen 45-3D, True North
Vertical (TVD) Reference: SITE 4920.0
Section (VS) Reference: Well (0.00N,0.00E,319.80Azi)
Plan: Plan #1

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
7300.00	0.00	319.80	7194.81	871.00	-735.97	1140.30	0.00	0.00	0.00	
7400.00	0.00	319.80	7294.81	871.00	-735.97	1140.30	0.00	0.00	0.00	
7460.19	0.00	319.80	7355.00	871.00	-735.97	1140.30	0.00	0.00	0.00	Codell
7480.19	0.00	319.80	7375.00	871.00	-735.97	1140.30	0.00	0.00	0.00	PBHL

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		
PBHL -Plan hit target			7375.00	871.00	-735.97	1430834.843	205935.98	40	30	49.226 N	104	45	33.671 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
500.00	500.00	0.000	0.000	Sur Csg

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
7150.19	7045.00	Niobrara		0.00	0.00
7460.19	7355.00	Codell		0.00	0.00