

30-039-26480

Energen Resources

Carson National Forest, S29, T32N, R4W

Carracas Mesa

Carracas 29 B #8

Final Survey

Plan: Actual Drill Path

Surface 1795/N 790/E
B1#1 2034/N 1197/E
B1#2 1179/N 1837/E

Energen Resources - Survey

26 October, 2006

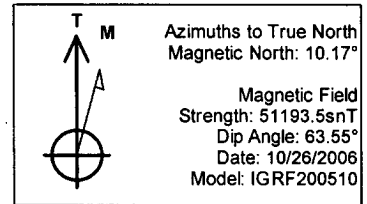
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md2 4911 Tvd 24093

(Standard loc)

8

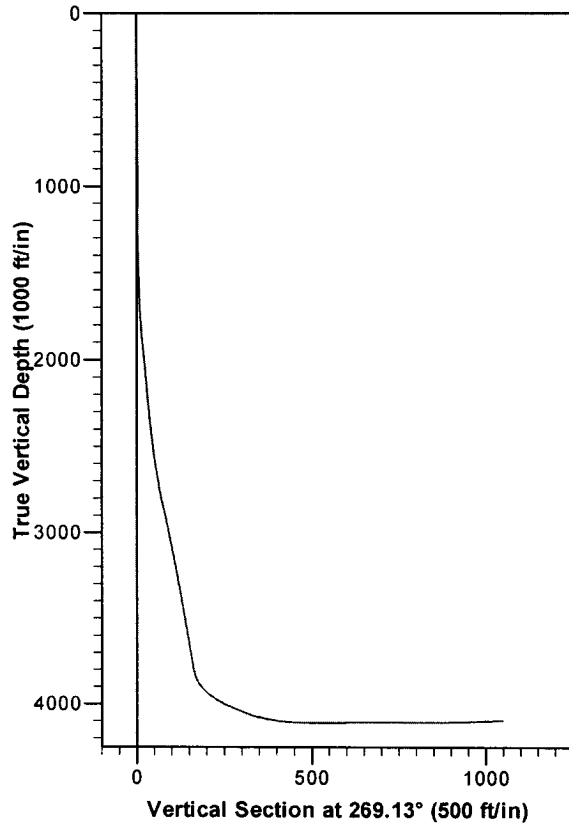
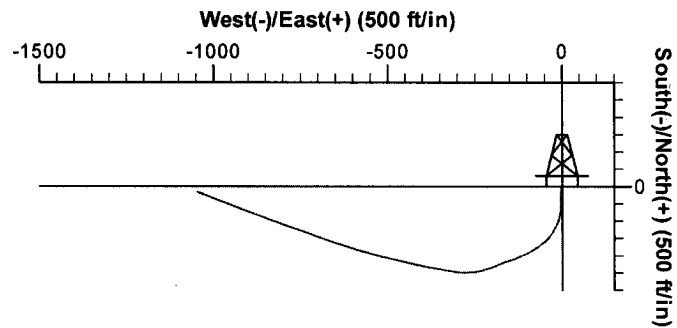


Project: Carson National Forest
Site: Carracas Mesa
Well: Carracas 29 B #8
Wellbore: Final Survey
Plan: Actual Drill Path (Carracas 29 B #8/Final Survey)



PROJECT DETAILS: Carson National Forest, S29, T32N, R4W	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Western Zone
System Datum:	Mean Sea Level

SURFACE LOCATION	
Easting:	2919911.01
Northing:	2029735.13



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Energen Resources - Survey



Company:	Energen Resources	Local Co-ordinate Reference:	Well Carracas 29 B #8
Project:	Carson National Forest, S29, T32N, R4W	TVD Reference:	Rig Floor @ 7334.0ft (AWS 450)
Site:	Carracas Mesa	MD Reference:	Rig Floor @ 7334.0ft (AWS 450)
Well:	Carracas 29 B #8	North Reference:	True
Wellbore:	Final Survey	Survey Calculation Method:	Minimum Curvature
Design:	Actual Drill Path	Database:	EDM 2003.16 Single User Db

Project	Carson National Forest, S29, T32N, R4W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site		Carracas Mesa			
Site Position:		Northing:	2,029,735.13ft	Latitude:	36° 34' 34.350 N
From:	Lat/Long	Easting:	2,919,911.01ft	Longitude:	107° 9' 46.870 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.40 °

Well	Carracas 29 B #8					
Well Position	+N/-S	0.0 ft	Northing:	2,029,735.13 ft	Latitude:	36° 34' 34.350 N
	+E/-W	0.0 ft	Easting:	2,919,911.01 ft	Longitude:	107° 9' 46.870 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	7,321.0 ft	Ground Level:	7,321.0 ft

Wellbore	Final Survey				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/26/2006	10.17	63.55	51,193

Design	Actual Drill Path			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	269.13

Survey Tool Program		Date 10/26/2006		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	4,911.0	Actual Drill Path (Final Survey)	MWD	MWD - Standard

Planned Survey							
MD	TVD	Inc	Azi	V. Sec	N/S	E/W	
(ft)	(ft)	(°)	(°)	(ft)	(ft)	(ft)	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	
100.0	100.0	0.36	192.80	0.1	-0.3	-0.1	
200.0	200.0	0.73	192.80	0.3	-1.2	-0.3	
300.0	300.0	0.92	195.15	0.7	-2.6	-0.6	
400.0	400.0	1.11	196.69	1.2	-4.3	-1.1	
500.0	499.9	1.45	190.29	1.7	-6.5	-1.6	
600.0	599.9	1.81	186.38	2.2	-9.3	-2.0	
700.0	699.8	2.30	185.49	2.6	-12.9	-2.4	
800.0	799.7	2.79	184.91	3.1	-17.3	-2.8	
900.0	899.6	3.27	181.23	3.4	-22.6	-3.1	
1,000.0	999.4	3.75	178.50	3.5	-28.7	-3.0	
1,100.0	1,099.2	4.46	178.94	3.4	-35.8	-2.9	

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Well:	Carracas 29 B #8	North Reference:	True
Wellbore:	Final Survey	Survey Calculation Method:	Minimum Curvature
Design:	Actual Drill Path	Database:	EDM 2003.16 Single User Db

Planned Survey						
MD (ft)	TVD (ft)	Inc (°)	Azi (°)	V. Sec (ft)	N/S (ft)	E/W (ft)
1,200.0	1,198.8	5.17	179.27	3.4	-44.2	-2.7
1,300.0	1,298.4	5.17	180.10	3.5	-53.3	-2.7
1,400.0	1,398.0	5.18	180.94	3.7	-62.3	-2.8
1,500.0	1,497.6	5.49	187.35	4.6	-71.5	-3.5
1,600.0	1,597.1	5.87	193.00	6.5	-81.3	-5.2
1,700.0	1,696.5	5.96	195.85	9.2	-91.2	-7.8
1,800.0	1,796.0	6.06	198.61	12.4	-101.2	-10.9
1,900.0	1,895.5	5.78	203.37	16.3	-110.8	-14.6
2,000.0	1,995.0	5.54	208.58	20.7	-119.7	-18.9
2,100.0	2,094.5	5.14	210.91	25.4	-127.8	-23.5
2,200.0	2,194.2	4.75	213.64	30.1	-135.1	-28.1
2,300.0	2,293.8	4.44	216.67	34.8	-141.6	-32.7
2,400.0	2,393.6	4.14	220.14	39.6	-147.5	-37.3
2,500.0	2,493.2	5.13	224.21	45.1	-153.4	-42.8
2,600.0	2,592.7	6.13	226.95	52.2	-160.3	-49.8
2,700.0	2,692.1	6.64	230.55	60.7	-167.6	-58.1
2,800.0	2,791.4	7.16	233.63	70.3	-175.0	-67.6
2,900.0	2,890.7	6.83	238.31	80.5	-181.8	-77.7
3,000.0	2,990.0	6.54	243.44	90.7	-187.5	-87.9
3,100.0	3,089.4	6.24	244.36	100.8	-192.4	-97.9
3,200.0	3,188.8	5.93	245.38	110.4	-196.9	-107.4
3,300.0	3,288.3	5.56	244.48	119.5	-201.1	-116.5
3,400.0	3,387.9	5.20	243.45	128.0	-205.2	-124.9
3,500.0	3,487.4	5.29	247.06	136.4	-209.0	-133.2
3,600.0	3,587.0	5.40	250.54	145.1	-212.4	-141.9
3,700.0	3,686.6	5.09	252.54	153.8	-215.3	-150.6
3,800.0	3,786.2	4.79	254.78	162.1	-217.7	-158.8 Directional Driller Tie In
3,824.0	3,810.1	4.40	254.78	164.0	-218.2	-160.7
3,825.0	3,811.1	4.60	254.78	164.0	-218.2	-160.8
3,850.0	3,835.9	9.54	254.78	167.0	-219.0	-163.7
3,856.0	3,841.8	10.73	254.78	168.1	-219.3	-164.7
3,875.0	3,860.4	14.39	247.96	172.0	-220.7	-168.6
3,888.0	3,872.9	16.97	244.99	175.2	-222.1	-171.9
3,900.0	3,884.3	19.32	245.79	178.6	-223.6	-175.3
3,919.0	3,902.0	23.04	246.74	185.0	-226.4	-181.5
3,925.0	3,907.5	24.23	247.09	187.2	-227.3	-183.8
3,951.0	3,930.7	29.37	248.32	198.1	-231.8	-194.6
3,975.0	3,951.1	34.04	250.45	210.0	-236.2	-206.4
3,983.0	3,957.7	35.61	251.05	214.3	-237.7	-210.7
4,000.0	3,971.2	38.83	253.46	224.1	-240.8	-220.5
4,013.0	3,981.2	41.33	255.09	232.2	-243.1	-228.6
4,025.0	3,990.1	42.78	257.33	240.1	-245.0	-236.4
4,045.0	4,004.5	45.29	260.81	253.7	-247.6	-250.0
4,050.0	4,008.0	45.70	262.24	257.3	-248.2	-253.5

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Planned Survey						
MD (ft)	TVD (ft)	Inc (°)	Azi (°)	V. Sec (ft)	N/S (ft)	E/W (ft)
4,076.0	4,025.7	48.10	269.33	276.2	-249.5	-272.5
4,100.0	4,041.3	50.86	273.94	294.4	-249.0	-290.7
4,107.0	4,045.7	51.70	275.22	299.9	-248.6	-296.1
4,125.0	4,056.5	54.71	276.84	314.2	-247.0	-310.5
4,138.0	4,063.8	56.89	277.94	324.8	-245.7	-321.1
4,150.0	4,070.1	59.41	279.05	334.9	-244.1	-331.2
4,171.0	4,080.1	63.84	280.85	353.0	-241.0	-349.4
4,175.0	4,081.9	64.65	280.84	356.5	-240.3	-352.9
4,200.0	4,091.5	69.74	280.77	379.1	-236.0	-375.6
4,203.0	4,092.6	70.35	280.76	381.9	-235.4	-378.3
4,225.0	4,099.2	74.65	282.14	402.4	-231.3	-398.9
4,234.0	4,101.4	76.41	282.69	410.8	-229.4	-407.4
4,250.0	4,104.7	79.95	283.24	426.0	-225.9	-422.7
4,265.0	4,106.9	83.27	283.74	440.4	-222.4	-437.1
4,275.0	4,107.9	84.62	283.44	450.0	-220.1	-446.8
4,297.0	4,109.4	87.58	282.78	471.3	-215.1	-468.1
4,300.0	4,109.6	87.60	282.84	474.2	-214.4	-471.0
4,328.0	4,110.7	87.76	283.39	501.4	-208.1	-498.3
4,350.0	4,111.2	89.45	284.36	522.7	-202.8	-519.6
4,360.0	4,111.3	90.22	284.80	532.3	-200.3	-529.3
4,392.0	4,111.1	90.40	285.15	563.1	-192.0	-560.2
4,400.0	4,111.0	90.64	285.70	570.8	-189.9	-567.9
4,424.0	4,110.6	91.36	287.35	593.7	-183.1	-591.0
4,455.0	4,109.7	91.80	287.52	623.1	-173.8	-620.5
4,486.0	4,108.7	91.98	289.11	652.3	-164.1	-649.9
4,500.0	4,108.2	92.05	289.18	665.5	-159.5	-663.1
4,518.0	4,107.6	92.15	289.28	682.4	-153.5	-680.1
4,550.0	4,106.8	90.66	289.90	712.4	-142.8	-710.3
4,581.0	4,106.5	90.57	289.72	741.4	-132.3	-739.4
4,600.0	4,106.3	90.52	289.67	759.1	-125.9	-757.3
4,613.0	4,106.2	90.48	289.63	771.3	-121.5	-769.6
4,644.0	4,106.3	89.08	290.16	800.3	-111.0	-798.7
4,676.0	4,106.9	88.64	290.42	830.1	-99.9	-828.7
4,708.0	4,107.8	88.20	289.90	860.0	-88.9	-858.7
4,725.0	4,108.1	89.93	290.96	875.8	-82.9	-874.7
4,739.0	4,107.9	91.36	291.83	888.8	-77.8	-887.7
4,750.0	4,107.5	92.78	291.65	898.9	-73.8	-897.9
4,771.0	4,106.0	95.50	291.30	918.3	-66.1	-917.4
4,802.0	4,103.4	94.26	290.60	947.0	-55.0	-946.3
4,834.0	4,100.8	95.06	290.95	976.6	-43.7	-976.1
4,866.0	4,097.8	95.67	291.39	1,006.2	-32.2	-1,005.8
4,900.0	4,094.4	95.67	291.39	1,037.5	-19.9	-1,037.3
4,911.0	4,093.3	95.67	291.39	1,047.6	-15.9	-1,047.5