

Energen Resources

Carson Natl Forest-S29, T32N, R4W

Carracas Mesa

Arboles 29 A #11

30-039-29954

Lateral 2

Plan: End of Well Report H surface 2260/N 480/E sec 30
E Lateral origin: 1424/N 843/W } MD 4875 TVd 3960
F Lateral BH: 1580/N 1657/W } sec 29

Final Survey

MD 5779 TVd 3970

26 July, 2007

RCVD AUG 29 '07

OIL CONS. DIV.

DIST. 3

Submit "As Drilled" plat

B

Project: Carson Natl Forest-S29, T32N, R4W
Site: Carracas Mesa
Well: Arboles 29 A #11
Wellbore: Final Survey

Plan: End of Well Report (Arboles 29 A #11/Final Survey)

PROJECT DETAILS: Carson Natl Forest-S29, T32N, R4W

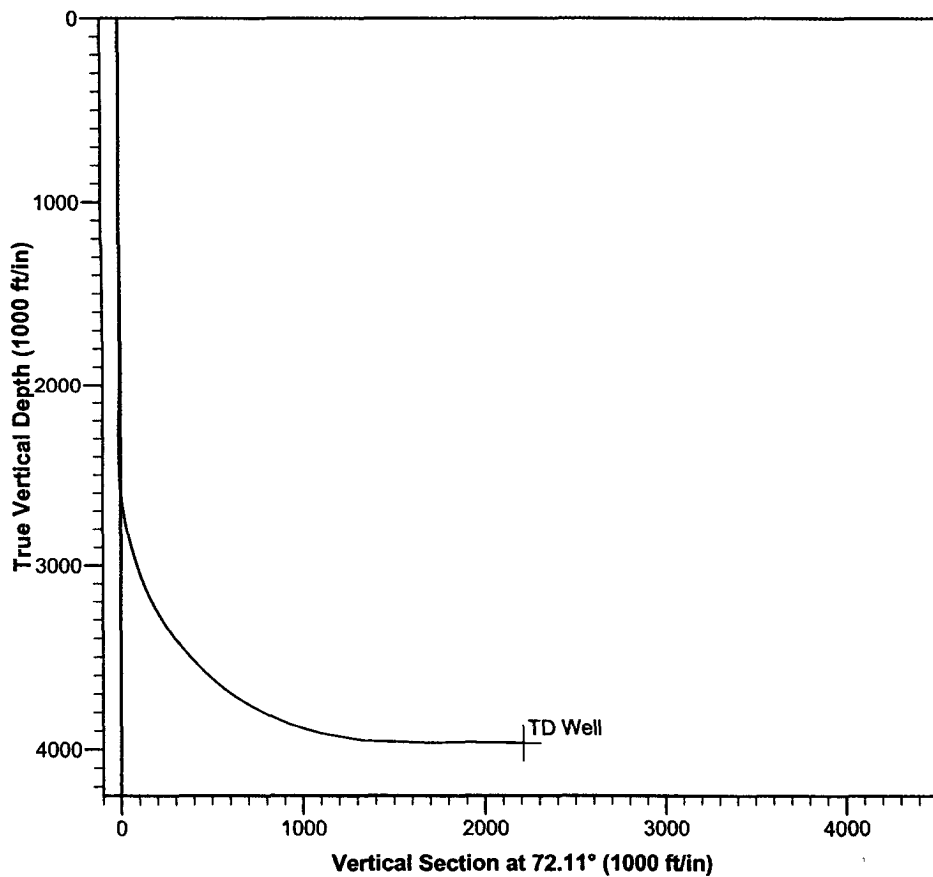
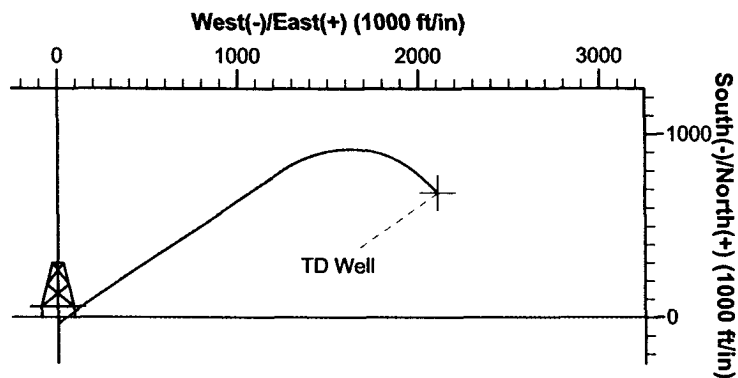
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Central Zone

System Datum: Mean Sea Level



Azimuths to True North
 Magnetic North: 10.18°

Magnetic Field
 Strength: 51325.4snT
 Dip Angle: 63.84°
 Date: 7/26/2007
 Model: IGRF200510



Energen

Final Survey



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Site: Carracas Mesa
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Wellbore: Final Survey
Design: End of Well Report

Local Co-ordinate Reference: Well Arboles 29 A #11
TVD Reference: KB @ 7233.0ft (Patterson 749)
MD Reference: KB @ 7233.0ft (Patterson 749)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.16 Single User Db

Project	Carson Natl 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 Central Zone		

Site	Carracas Mesa				
Site Position:		Northing:	2,169,921.56 ft	Latitude:	36° 57' 31.392 N
From:	Lat/Long	Easting:	1,336,985.25 ft	Longitude:	107° 17' 18.816 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-0.62 °

Well	Arboles 29 A #11					
Well Position	+N-S	0.0 ft	Northing:	2,169,921.56 ft	Latitude:	36° 57' 31.392 N
	+E-W	0.0 ft	Easting:	1,336,985.25 ft	Longitude:	107° 17' 18.816 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	7,221.0 ft	Ground Level:	7,221.0 ft

Wellbore	Final Survey				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/26/2007	10.18	63.84	51,325

Design	End of Well Report			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.0	0.0	0.0	72.11

Survey Tool Program	Date	7/26/2007		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	5,779.0	End of Well Report (Final Survey)	MWD	MWD - Standard

Planned Survey						
MD (ft)	TVD (ft)	Inc (°)	Azi (°)	V. Sec (ft)	N/S (ft)	E/W (ft)
0.0	0.0	0.00	0.00	0.0	0.0	0.0
100.0	100.0	0.06	174.56	0.0	-0.1	0.0
200.0	200.0	0.12	174.56	0.0	-0.2	0.0
226.0	226.0	0.14	174.56	-0.1	-0.3	0.0
290.0	290.0	0.18	174.56	-0.1	-0.5	0.0
300.0	300.0	0.20	173.17	-0.1	-0.5	0.0
400.0	400.0	0.40	166.85	-0.2	-1.0	0.1
500.0	500.0	0.60	164.76	-0.2	-1.8	0.4
595.0	595.0	0.79	163.75	-0.3	-2.9	0.7
600.0	600.0	0.79	164.08	-0.3	-3.0	0.7
700.0	700.0	0.89	169.92	-0.4	-4.4	1.0
800.0	800.0	0.99	174.59	-0.7	-6.1	1.2

Energen

Final Survey



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Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	V. Sec (ft)	N/S (ft)	E/W (ft)
900.0	899.9	1.10	178.36	-1.1	-7.9	1.3
934.0	933.9	1.14	179.48	-1.3	-8.6	1.4
1,000.0	999.9	1.18	179.15	-1.7	-9.9	1.4
1,100.0	1,099.9	1.23	178.69	-2.3	-12.0	1.4
1,200.0	1,199.9	1.29	178.27	-3.0	-14.2	1.5
1,250.0	1,249.9	1.32	178.07	-3.3	-15.3	1.5
1,300.0	1,299.9	1.30	176.14	-3.6	-16.5	1.6
1,400.0	1,399.8	1.27	172.13	-4.0	-18.7	1.8
1,500.0	1,499.8	1.24	167.93	-4.3	-20.9	2.2
1,560.0	1,559.8	1.23	165.33	-4.4	-22.1	2.5
1,600.0	1,599.8	1.26	167.78	-4.5	-23.0	2.7
1,700.0	1,699.8	1.33	173.44	-4.8	-25.2	3.0
1,800.0	1,799.7	1.42	178.45	-5.4	-27.6	3.2
1,874.0	1,873.7	1.49	181.76	-6.0	-29.5	3.2
1,900.0	1,899.7	1.48	183.35	-6.2	-30.1	3.2
2,000.0	1,999.7	1.44	189.71	-7.3	-32.7	2.9
2,100.0	2,099.6	1.41	196.36	-8.6	-35.1	2.3
2,187.0	2,186.6	1.41	202.24	-9.9	-37.1	1.6
2,200.0	2,199.6	1.41	203.34	-10.1	-37.4	1.5
2,278.0	2,277.6	1.41	209.98	-11.4	-39.1	0.6
2,300.0	2,299.6	0.76	205.71	-11.7	-39.5	0.4
2,339.0	2,338.6	0.44	50.72	-11.7	-39.6	0.4
2,399.0	2,398.6	1.76	41.14	-10.7	-38.8	1.2
2,400.0	2,399.6	1.76	41.20	-10.7	-38.8	1.2
2,461.0	2,460.5	1.76	44.74	-9.1	-37.4	2.5
2,500.0	2,499.5	3.17	44.53	-7.6	-36.2	3.7
2,522.0	2,521.5	3.96	44.48	-6.4	-35.2	4.7
2,582.0	2,581.2	7.12	43.07	-1.3	-31.0	8.7
2,600.0	2,599.0	7.70	43.57	0.7	-29.3	10.2
2,642.0	2,640.6	9.06	44.48	6.1	-24.9	14.5
2,703.0	2,700.7	9.94	50.10	15.3	-18.1	21.9
2,764.0	2,760.7	10.99	55.02	25.7	-11.4	30.7
2,800.0	2,796.0	11.85	57.65	32.6	-7.5	36.6
2,826.0	2,821.4	12.49	59.33	37.9	-4.6	41.3
2,885.0	2,878.8	14.60	57.49	51.3	2.6	53.1
2,900.0	2,893.3	15.02	57.05	55.0	4.7	56.3
2,947.0	2,938.5	16.36	55.82	67.3	11.8	66.9
3,009.0	2,997.5	19.35	52.56	85.3	22.9	82.3
3,073.0	3,057.5	21.72	53.27	106.5	36.4	100.2
3,100.0	3,082.4	22.83	53.59	116.2	42.5	108.4
3,135.0	3,114.5	24.27	53.97	129.5	50.8	119.7
3,198.0	3,171.4	26.73	55.20	155.4	66.5	141.8
3,200.0	3,173.2	26.81	55.23	156.2	67.0	142.5
3,261.0	3,227.0	29.37	56.17	183.8	83.2	166.3

Energen Final Survey



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3,300.0	3,260.7	30.68	56.33	202.6	94.0	182.5
3,324.0	3,281.3	31.48	56.43	214.5	100.9	192.8
3,388.0	3,334.9	34.73	55.73	248.1	120.4	221.8
3,400.0	3,344.7	35.30	55.78	254.7	124.3	227.5
3,451.0	3,385.7	37.72	55.99	283.8	141.3	252.6
3,500.0	3,423.8	40.12	56.27	313.4	158.4	278.2
3,514.0	3,434.5	40.80	56.34	322.1	163.5	285.7
3,577.0	3,481.3	43.18	55.11	362.6	187.2	320.6
3,600.0	3,498.0	44.08	55.24	377.8	196.3	333.6
3,640.0	3,526.3	45.64	55.46	404.8	212.3	356.8
3,703.0	3,569.6	47.66	55.64	448.7	238.2	394.6
3,767.0	3,612.5	48.10	55.90	494.2	264.9	433.8
3,800.0	3,634.1	50.02	56.14	518.2	278.9	454.5
3,829.0	3,652.4	51.70	56.34	539.8	291.4	473.2
3,850.0	3,665.2	53.17	56.79	555.9	300.5	487.1
3,893.0	3,690.1	56.19	57.66	589.8	319.5	516.6
3,900.0	3,694.0	56.58	57.71	595.4	322.6	521.5
3,956.0	3,723.5	59.71	58.10	641.5	347.9	561.8
4,000.0	3,745.4	60.75	57.17	678.5	368.4	594.1
4,019.0	3,754.6	61.20	56.78	694.5	377.4	608.0
4,082.0	3,783.6	63.84	56.78	748.4	408.0	654.7
4,100.0	3,791.5	64.12	56.96	764.0	416.9	668.3
4,145.0	3,810.9	64.81	57.40	803.3	438.9	702.4
4,208.0	3,836.6	67.01	56.43	858.8	470.3	750.6
4,270.0	3,859.2	70.26	56.78	914.4	502.0	798.8
4,300.0	3,869.0	71.62	56.78	941.7	517.6	822.5
4,332.0	3,878.7	73.07	56.78	971.2	534.3	848.0
4,395.0	3,896.0	75.10	55.38	1,029.4	568.1	898.3
4,400.0	3,897.3	75.26	55.39	1,034.0	570.8	902.3
4,457.0	3,910.9	77.12	55.55	1,087.0	602.2	947.9
4,500.0	3,919.6	79.58	55.79	1,127.4	626.0	982.6
4,520.0	3,923.0	80.72	55.90	1,146.3	637.0	998.9
4,583.0	3,932.7	81.51	56.08	1,206.1	671.8	1,050.5
4,600.0	3,935.3	81.25	56.23	1,222.3	681.2	1,064.5
4,645.0	3,942.4	80.55	56.61	1,265.1	705.8	1,101.5
4,706.0	3,951.4	82.48	55.55	1,323.1	739.4	1,151.6
4,737.0	3,954.6	85.56	55.99	1,352.6	756.8	1,177.1
4,795.0	3,958.1	87.52	56.97	1,408.4	788.8	1,225.3
4,800.0	3,958.3	87.69	57.05	1,413.2	791.5	1,229.5
4,836.0	3,959.4	88.90	57.66	1,448.0	810.9	1,259.8
4,863.0	3,959.9	89.18	58.72	1,474.2	825.1	1,282.8
4,875.0	3,960.0	89.10	60.14	1,485.9	831.2	1,293.1
4,900.0	3,960.5	88.92	63.09	1,510.5	843.1	1,315.1
4,903.0	3,960.5	88.90	63.44	1,513.5	844.4	1,317.8

Energen

Final Survey



Company: Energen Resources
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Site: Carracas Mesa
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Wellbore: Final Survey
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MD (ft)	TVD (ft)	Inc (°)	Azi (°)	V. Sec (ft)	N/S (ft)	E/W (ft)
4,950.0	3,961.4	88.97	67.06	1,560.1	864.1	1,360.4
4,965.0	3,961.7	88.99	68.22	1,575.1	869.8	1,374.3
5,000.0	3,962.3	89.04	70.59	1,610.0	882.1	1,407.1
5,027.0	3,962.7	89.08	72.42	1,637.0	890.7	1,432.7
5,050.0	3,963.1	88.79	74.26	1,660.0	897.3	1,454.7
5,089.0	3,964.1	88.29	77.39	1,698.9	906.8	1,492.5
5,100.0	3,964.4	88.76	78.38	1,709.8	909.1	1,503.2
5,149.0	3,964.6	90.84	82.79	1,758.3	917.2	1,551.6
5,150.0	3,964.6	90.87	82.89	1,759.3	917.3	1,552.6
5,200.0	3,963.2	92.30	87.84	1,807.9	921.3	1,602.4
5,210.0	3,962.8	92.59	88.83	1,817.5	921.6	1,612.3
5,250.0	3,961.8	90.33	92.53	1,855.4	921.1	1,652.3
5,272.0	3,961.9	89.08	94.56	1,875.9	919.8	1,674.3
5,300.0	3,962.4	88.65	97.63	1,901.4	916.8	1,702.1
5,335.0	3,963.4	88.11	101.46	1,932.5	911.0	1,736.6
5,350.0	3,963.9	88.38	102.87	1,945.5	907.8	1,751.3
5,398.0	3,964.9	89.25	107.37	1,985.7	895.3	1,797.6
5,400.0	3,964.9	89.28	107.57	1,987.3	894.7	1,799.5
5,450.0	3,965.2	89.98	112.61	2,026.7	877.6	1,846.4
5,461.0	3,965.2	90.13	113.72	2,035.0	873.2	1,856.5
5,475.0	3,965.2	90.17	115.46	2,045.3	867.4	1,869.3
5,500.0	3,965.1	90.24	118.58	2,063.0	856.0	1,891.5
5,523.0	3,965.0	90.31	121.44	2,078.5	844.5	1,911.4
5,550.0	3,964.8	90.27	123.67	2,095.7	830.0	1,934.2
5,587.0	3,964.7	90.22	126.73	2,117.9	808.7	1,964.4
5,600.0	3,964.6	90.06	127.77	2,125.3	800.8	1,974.8
5,650.0	3,964.9	89.43	131.79	2,152.0	768.8	2,013.2
5,682.0	3,965.7	87.58	133.75	2,167.7	747.1	2,036.7
5,700.0	3,966.5	87.58	133.75	2,176.2	734.7	2,049.7
5,779.0	3,969.8	87.58	133.75	2,213.7	680.1	2,106.7

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TD Well - plan hits target - Point	0.00	0.00	3,969.8	680.1	2,106.7	2,170,578.66	1,339,099.24	36° 57' 38.116 N	107° 16' 52.859 W

Checked By: _____ Approved By: _____ Date: _____