

Energen Resources Corporation

Field: Carson
 Site: Carson 200S
 Well: Carson 200S
 Wellpath: Original Hole
 Survey: Pathfinder LWD Surveys

COMPANY DETAILS

Energen Resources Corporation
 2198 Bloomfield Hwy
 Farmington, NM 87401

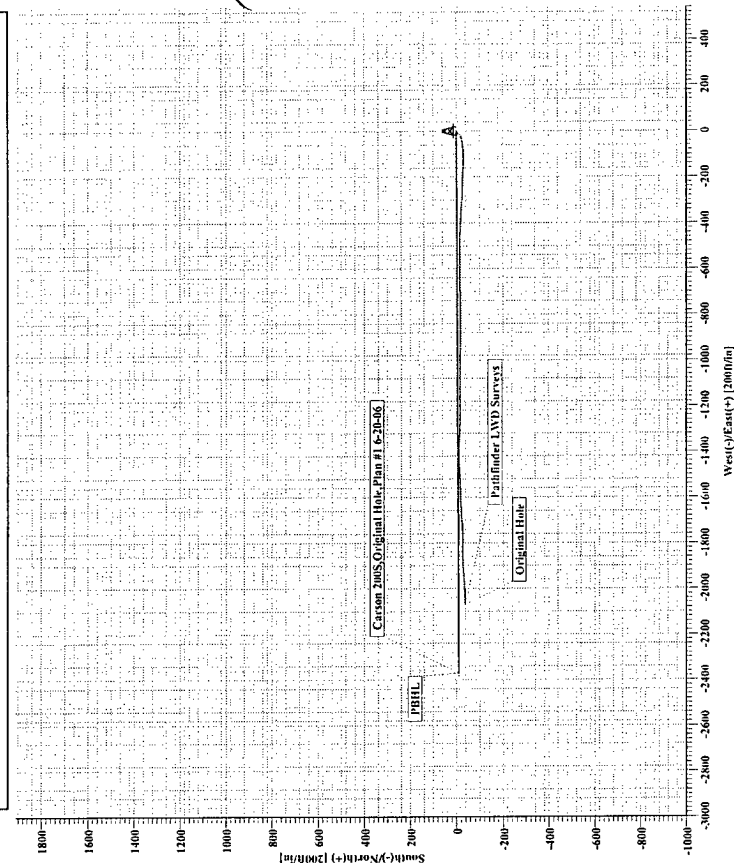
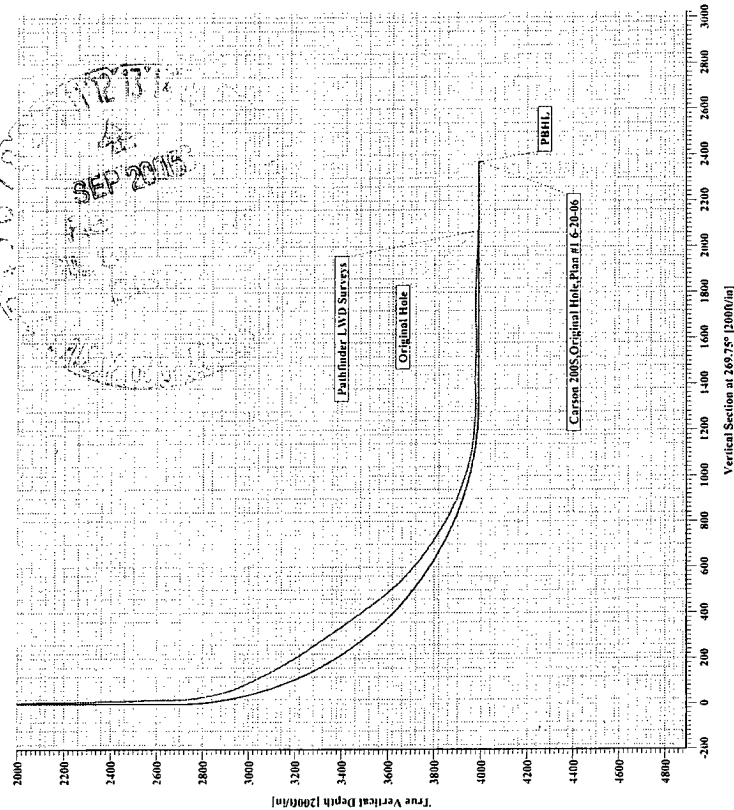
Calculation Method: Minimum Curvature
 Error System: Systematic Ellipse
 Scan Method: Closest Approach 3D
 Error Surface: Elliptical Cone
 Warning Method: Error Ratio

SITE DETAILS

Carson 200S
 Water Depth: 0.00
 Positional Uncertainty: 0.00
 Convergence: -0.57

ANNOTATIONS

No.	TVD	MD	Annotation
1	2678.63	2679.00	KOP @ 2679 MD / TVD Build 4.37°/100
2	3975.16	4736.74	EOC @ 4737 MD / 3989 TVD



PATHFINDER

WELLPATH DETAILS

Rig: Original Hole
 Ref. Datum: SITE 0.00ft
 V. Section Angle: Origin +N/S
 Starting From TVD: Origin +E/W
 269.75° 0.00 0.00 0.00

Survey: Pathfinder LWD Surveys (Carson 200S/Original Hole)

No	MD	Inc	Az	TVD	+N/S	+E/W	DLeg	TFace	VSec
80	4984.00	92.15	267.38	3979.59	-18.35	-1628.77	6.38	-52.25	1628.84
81	5016.00	92.77	265.53	3978.22	-20.33	-1660.68	6.09	-71.42	1660.75
82	5048.00	91.36	265.97	3977.06	-22.70	-1692.57	4.62	-162.67	1692.65
83	5079.00	90.66	266.06	3976.52	-24.85	-1723.49	2.28	-172.67	1723.58
84	5111.00	90.04	266.33	3976.32	-26.98	-1755.42	2.11	-156.47	1755.52
85	5143.00	87.93	269.84	3976.89	-28.05	-1787.39	12.80	-121.04	1787.49
86	5175.00	88.11	271.07	3977.99	-27.79	-1819.37	3.88	-81.69	1819.47
87	5207.00	88.37	269.40	3978.98	-27.66	-1851.35	5.28	-81.17	1851.45
88	5238.00	88.64	268.17	3979.79	-28.32	-1882.33	4.06	-77.63	1882.44
89	5270.00	88.11	267.29	3980.69	-29.59	-1914.30	3.21	-121.08	1914.41
90	5301.00	87.67	266.24	3981.84	-31.33	-1945.22	3.67	-112.77	1945.34
91	5333.00	87.93	266.41	3983.06	-33.38	-1977.13	0.97	-33.16	1977.26
92	5365.00	87.58	268.35	3984.32	-34.85	-2009.08	6.16	-100.27	2009.21
93	5425.00	87.58	268.35	3986.85	-36.57	-2069.00	0.00	-180.00	2069.14

6-2-7, 30N 4W

MD1 4672
 TVD1 3974

MD2 5425
 TVD2 3987

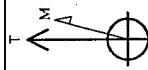
Surface 745/W
 start lateral 760/W
 end lateral 782/W

30-0301-27589

1345/E
 2612/E
 1034/W

(SD-200624)

Azimuths to True North
 Magnetic North: 10.2°
 Magnetic Field
 Strength: 514.26nT
 Dip Angle: 63.7°
 Date: 6/20/2006
 Model: IGR2005



Pathfinder Energy

Survey Report

Company: Energen Resources Corporation Field: Carson Site: Carson 200S Well: Carson 200S Wellpath: Original Hole	Date: 7/18/2006 Time: 16:43:24 Page: 1 Co-ordinate(NE) Reference: Well: Carson 200S, True North Vertical (TVD) Reference: SITE 0.0 Section (VS) Reference: Well (0.00N,0.00E,269.75Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Field: Carson
Rio Arriba County, NM

Map System: US State Plane Coordinate System 1983
Geo Datum: GRS 1980
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Central Zone
Coordinate System: Well Centre
Geomagnetic Model: igrf2005

Site: Carson 200S

Site Position: From: Lease Line Position Uncertainty: 0.00 ft Ground Level: 0.00 ft	Northing: ft Easting: ft	Latitude: Longitude: North Reference: True Grid Convergence: -0.57 deg
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Well: Carson 200S Well Position: +N/-S 0.00 ft Northing: 2123323.65 ft +E/-W 0.00 ft Easting: 1359864.98 ft Position Uncertainty: 0.00 ft	Slot Name: Latitude: 36 49 53.000 N Longitude: 107 12 31.200 W
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Wellpath: Original Hole Current Datum: SITE Magnetic Data: 6/20/2006 Field Strength: 51426 nT Vertical Section: Depth From (TVD) ft	Height 0.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 10.27 deg Mag Dip Angle: 63.77 deg +E/-W Direction ft deg
0.00	0.00	0.00 269.75

Survey: Pathfinder LWD Surveys Company: Pathfinder Energy Tool:	Start Date: 7/18/2006 Engineer: Midwellplan Tied-to: From Surface
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Survey: Pathfinder LWD Surveys

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
354.00	0.18	4.78	354.00	0.55	0.05	-0.05	0.05	0.05	0.00	
832.00	0.18	15.86	832.00	2.02	0.31	-0.32	0.01	0.00	2.32	
1272.00	0.09	143.92	1272.00	2.41	0.71	-0.72	0.06	-0.02	29.10	
1700.00	0.88	231.28	1699.98	0.08	-1.66	1.66	0.21	0.18	20.41	
2123.00	1.23	226.80	2122.91	-5.06	-7.50	7.53	0.08	0.08	-1.06	
2546.00	2.11	219.24	2545.72	-14.20	-15.74	15.80	0.21	0.21	-1.79	
2667.00	2.11	235.06	2666.64	-17.20	-18.97	19.05	0.48	0.00	13.07	
2697.00	2.64	235.06	2696.62	-17.91	-19.99	20.07	1.77	1.77	0.00	
2726.00	4.22	247.54	2725.56	-18.70	-21.53	21.61	5.99	5.45	43.03	
2758.00	6.24	254.75	2757.43	-19.61	-24.29	24.38	6.63	6.31	22.53	
2788.00	8.62	255.10	2787.18	-20.61	-28.04	28.13	7.93	7.93	1.17	
2820.00	10.99	253.60	2818.71	-22.09	-33.28	33.38	7.45	7.41	-4.69	
2851.00	12.84	255.45	2849.04	-23.79	-39.45	39.56	6.09	5.97	5.97	
2882.00	14.95	258.44	2879.13	-25.46	-46.71	46.82	7.19	6.81	9.65	
2914.00	17.85	262.22	2909.82	-26.95	-55.61	55.73	9.65	9.06	11.81	
2945.00	21.02	263.71	2939.05	-28.20	-65.85	65.97	10.35	10.23	4.81	
2975.00	23.13	266.52	2966.85	-29.15	-77.08	77.20	7.86	7.03	9.37	
3005.00	25.15	269.25	2994.23	-29.59	-89.34	89.46	7.69	6.73	9.10	
3036.00	26.56	269.78	3022.13	-29.70	-102.85	102.98	4.61	4.55	1.71	
3068.00	26.82	268.72	3050.72	-29.89	-117.23	117.35	1.70	0.81	-3.31	
3099.00	27.17	270.65	3078.34	-29.97	-131.29	131.42	3.04	1.13	6.23	
3130.00	28.84	271.45	3105.71	-29.70	-145.85	145.98	5.52	5.39	2.58	
3162.00	29.99	270.92	3133.58	-29.38	-161.56	161.69	3.68	3.59	-1.66	

Pathfinder Energy

Survey Report

Company: Energen Resources Corporation
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Date: 7/18/2006 Time: 16:43:24 Page: 2
 Co-ordinate(NE) Reference: Well: Carson 200S, True North
 Vertical (TVD) Reference: SITE 0.0
 Section (VS) Reference: Well (0.00N,0.00E,269.75Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: Pathfinder LWD Surveys

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
3193.00	30.34	272.32	3160.39	-28.93	-177.13	177.25	2.53	1.13	4.52	
3224.00	30.78	272.23	3187.08	-28.31	-192.88	193.00	1.43	1.42	-0.29	
3255.00	32.62	271.09	3213.45	-27.84	-209.16	209.28	6.24	5.94	-3.68	
3286.00	34.21	271.62	3239.33	-27.44	-226.23	226.34	5.21	5.13	1.71	
3317.00	34.73	272.32	3264.89	-26.83	-243.76	243.88	2.11	1.68	2.26	
3346.00	34.91	272.76	3288.69	-26.10	-260.30	260.42	1.07	0.62	1.52	
3377.00	34.91	272.85	3314.12	-25.23	-278.02	278.13	0.17	0.00	0.29	
3407.00	34.91	273.12	3338.72	-24.34	-295.17	295.27	0.52	0.00	0.90	
3438.00	35.35	274.35	3364.07	-23.17	-312.97	313.07	2.69	1.42	3.97	
3470.00	35.79	274.35	3390.10	-21.76	-331.53	331.62	1.37	1.37	0.00	
3502.00	35.96	273.03	3416.03	-20.55	-350.24	350.33	2.47	0.53	-4.12	
3533.00	36.14	273.64	3441.09	-19.49	-368.45	368.54	1.30	0.58	1.97	
3563.00	36.23	273.91	3465.31	-18.33	-386.13	386.20	0.61	0.30	0.90	
3594.00	36.49	271.80	3490.27	-17.41	-404.48	404.55	4.12	0.84	-6.81	
3625.00	36.75	271.80	3515.15	-16.83	-422.96	423.03	0.84	0.84	0.00	
3654.00	37.72	271.80	3538.24	-16.28	-440.50	440.57	3.34	3.34	0.00	
3684.00	38.34	270.74	3561.87	-15.87	-458.98	459.04	3.00	2.07	-3.53	
3716.00	38.87	269.69	3586.88	-15.80	-478.94	479.01	2.63	1.66	-3.28	
3747.00	40.63	269.60	3610.71	-15.92	-498.77	498.83	5.68	5.68	-0.29	
3778.00	42.65	270.21	3633.88	-15.95	-519.36	519.43	6.65	6.52	1.97	
3809.00	44.76	270.21	3656.29	-15.87	-540.78	540.84	6.81	6.81	0.00	
3841.00	46.52	270.13	3678.66	-15.81	-563.66	563.72	5.50	5.50	-0.25	
3872.00	47.92	269.16	3699.71	-15.95	-586.41	586.47	5.07	4.52	-3.13	
3903.00	50.12	269.95	3720.04	-16.13	-609.81	609.87	7.35	7.10	2.55	
3935.00	52.23	269.60	3740.10	-16.23	-634.74	634.80	6.65	6.59	-1.09	
3966.00	54.17	270.04	3758.67	-16.30	-659.56	659.62	6.36	6.26	1.42	
3998.00	55.84	269.25	3777.02	-16.47	-685.77	685.84	5.60	5.22	-2.47	
4029.00	56.98	269.16	3794.17	-16.83	-711.59	711.66	3.69	3.68	-0.29	
4061.00	57.07	269.16	3811.59	-17.22	-738.44	738.50	0.28	0.28	0.00	
4092.00	58.74	269.67	3828.06	-17.49	-764.70	764.76	5.56	5.39	1.65	
4124.00	60.41	269.58	3844.27	-17.67	-792.29	792.36	5.22	5.22	-0.28	
4155.00	62.08	269.93	3859.18	-17.78	-819.46	819.53	5.48	5.39	1.13	
4186.00	63.75	270.11	3873.29	-17.77	-847.06	847.13	5.41	5.39	0.58	
4217.00	65.60	270.28	3886.55	-17.68	-875.08	875.15	5.99	5.97	0.55	
4249.00	67.53	270.72	3899.28	-17.42	-904.44	904.51	6.16	6.03	1.37	
4281.00	69.73	270.63	3910.94	-17.07	-934.24	934.30	6.88	6.87	-0.28	
4312.00	70.87	270.98	3921.39	-16.66	-963.42	963.48	3.83	3.68	1.13	
4343.00	72.63	270.28	3931.10	-16.34	-992.86	992.92	6.07	5.68	-2.26	
4374.00	73.95	270.11	3940.01	-16.24	-1022.55	1022.61	4.29	4.26	-0.55	
4406.00	75.80	270.19	3948.36	-16.16	-1053.44	1053.50	5.79	5.78	0.25	
4437.00	77.47	270.54	3955.52	-15.96	-1083.59	1083.65	5.50	5.39	1.13	
4468.00	79.80	270.81	3961.63	-15.61	-1113.98	1114.04	7.56	7.52	0.87	
4501.00	83.62	269.93	3966.39	-15.40	-1146.63	1146.69	11.87	11.58	-2.67	
4532.00	85.66	269.31	3969.29	-15.60	-1177.49	1177.55	6.88	6.58	-2.00	
4559.00	85.76	268.96	3971.31	-16.01	-1204.41	1204.47	1.34	0.37	-1.30	
4666.00	88.64	273.18	3976.53	-14.01	-1311.23	1311.28	4.77	2.69	3.94	entry
4698.00	91.45	273.53	3976.51	-12.13	-1343.17	1343.21	8.85	8.78	1.09	
4730.00	92.42	272.04	3975.43	-10.58	-1375.12	1375.15	5.55	3.03	-4.66	
4762.00	90.92	269.49	3974.50	-10.15	-1407.10	1407.13	9.24	-4.69	-7.97	
4794.00	88.46	267.91	3974.67	-10.88	-1439.08	1439.12	9.14	-7.69	-4.94	
4825.00	87.14	266.85	3975.86	-12.30	-1470.03	1470.07	5.46	-4.26	-3.42	
4857.00	86.61	266.50	3977.60	-14.15	-1501.93	1501.97	1.98	-1.66	-1.09	
4889.00	87.76	267.56	3979.18	-15.80	-1533.84	1533.90	4.88	3.59	3.31	

Pathfinder Energy

Survey Report

Company: Energen Resources Corporation
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Site: Carson 200S
Well: Carson 200S
Wellpath: Original Hole

Date: 7/18/2006 **Time:** 16:43:24 **Page:** 3
Co-ordinate(NE) Reference: Well: Carson 200S, True North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,269.75Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Survey: Pathfinder LWD Surveys

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
4921.00	88.37	268.96	3980.26	-16.78	-1565.81	1565.87	4.77	1.91	4.37	
4952.00	90.92	268.97	3980.45	-17.34	-1596.80	1596.86	8.23	8.23	0.03	
4984.00	92.15	267.38	3979.59	-18.35	-1628.77	1628.84	6.28	3.84	-4.97	
5016.00	92.77	265.53	3978.22	-20.33	-1660.68	1660.75	6.09	1.94	-5.78	
5048.00	91.36	265.97	3977.06	-22.70	-1692.57	1692.65	4.62	-4.41	1.37	
5079.00	90.66	266.06	3976.52	-24.85	-1723.49	1723.58	2.28	-2.26	0.29	
5111.00	90.04	266.33	3976.32	-26.98	-1755.42	1755.52	2.11	-1.94	0.84	
5143.00	87.93	269.84	3976.89	-28.05	-1787.39	1787.49	12.80	-6.59	10.97	
5175.00	88.11	271.07	3977.99	-27.79	-1819.37	1819.47	3.88	0.56	3.84	
5207.00	88.37	269.40	3978.98	-27.66	-1851.35	1851.45	5.28	0.81	-5.22	
5238.00	88.64	268.17	3979.79	-28.32	-1882.33	1882.44	4.06	0.87	-3.97	
5270.00	88.11	267.29	3980.69	-29.59	-1914.30	1914.41	3.21	-1.66	-2.75	
5301.00	87.67	266.24	3981.84	-31.33	-1945.22	1945.34	3.67	-1.42	-3.39	
5333.00	87.93	266.41	3983.06	-33.38	-1977.13	1977.26	0.97	0.81	0.53	
5365.00	87.58	268.35	3984.32	-34.85	-2009.08	2009.21	6.16	-1.09	6.06	
5425.00	87.58	268.35	3986.85	-36.57	-2069.00	2069.14	0.00	0.00	0.00	