

Pathfinder Energy

Survey Report

Company: Marbob Energy		Date: 8/14/2006		Time: 15:58:33		Page: 1	
Field: Hackberry 33 Fed Com #1		Co-ordinate(NE) Reference: Well: Hackberry 33 Fed Com #1, Grid Nort					
Site: Hackberry 33 Fed Com #1		Vertical (TVD) Reference: SITE 0.0					
Well: Hackberry 33 Fed Com #1		Section (VS) Reference: Well (0.00N,0.00E,64.54Azi)					
Wellpath: Original Hole		Survey Calculation Method: Minimum Curvature				Db: Sybase	

Field: Hackberry 33 Fed Com #1 Eddy County, New Mexico	
Map System: US State Plane Coordinate System 1927	Map Zone: New Mexico, Eastern Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: igrf2005

Site: Hackberry 33 Fed Com #1	
Site Position:	Northing: 522818.60 ft
From: Map	Easting: 508814.80 ft
Position Uncertainty: 0.00 ft	Latitude: 32 26 14.417 N
Ground Level: 0.00 ft	Longitude: 104 18 17.142 W
	North Reference: Grid
	Grid Convergence: 0.02 deg

Well: Hackberry 33 Fed Com #1		Slot Name:	
Well Position: +N/-S 0.00 ft	Northing: 522818.60 ft	Latitude: 32 26 14.417 N	
+E/-W 0.00 ft	Easting: 508814.80 ft	Longitude: 104 18 17.142 W	
Position Uncertainty: 0.00 ft			

Wellpath: Original Hole		Drilled From: Surface	
Current Datum: SITE	Height 0.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 7/20/2006		Above System Datum: Mean Sea Level	
Field Strength: 49193 nT		Declination: 8.51 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 60.38 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	64.54

Survey: Pathfinder MWD Surveys	Start Date: 7/24/2006
Company: Pathfinder Energy	Engineer: Midwellplan
Tool:	Tied-to: From: Definitive Path

Survey: Pathfinder MWD 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
5467.00	0.57	317.55	5466.63	34.68	-21.37	-4.38	0.00	0.00	0.00	
5541.00	1.93	65.97	5540.62	35.46	-20.48	-3.25	2.94	1.84	146.51	
5605.00	3.43	75.11	5604.55	36.39	-17.65	-0.29	2.43	2.34	14.28	
5668.00	3.52	65.62	5667.43	37.68	-14.06	3.50	0.92	0.14	-15.06	
5732.00	4.31	63.25	5731.28	39.57	-10.13	7.87	1.26	1.23	-3.70	
5796.00	5.36	63.86	5795.05	41.97	-5.29	13.26	1.64	1.64	0.95	
5859.00	6.77	67.99	5857.70	44.66	0.79	19.91	2.34	2.24	6.56	
5923.00	7.30	68.78	5921.22	47.54	8.08	27.73	0.84	0.83	1.23	
5987.00	7.39	70.01	5984.69	50.42	15.74	35.88	0.28	0.14	1.92	
6050.00	7.56	67.11	6047.16	53.42	23.36	44.06	0.66	0.27	-4.60	
6114.00	7.39	61.31	6110.61	57.03	30.85	52.37	1.21	-0.27	-9.06	
6177.00	6.86	55.95	6173.13	61.09	37.52	60.14	1.35	-0.84	-8.51	
6241.00	6.77	56.65	6236.68	65.30	43.84	67.65	0.19	-0.14	1.09	
6305.00	7.56	65.18	6300.18	69.14	50.81	75.60	2.07	1.23	13.33	
6368.00	8.62	74.50	6362.55	72.14	59.13	84.40	2.67	1.68	14.79	
6432.00	10.02	77.66	6425.71	74.61	69.19	94.54	2.33	2.19	4.94	
6496.00	10.64	78.98	6488.67	76.93	80.43	105.69	1.04	0.97	2.06	
6560.00	10.29	83.20	6551.61	78.74	91.90	116.82	1.32	-0.55	6.59	
6623.00	10.11	83.37	6613.61	80.04	102.98	127.39	0.29	-0.29	0.27	
6687.00	9.85	80.56	6676.64	81.59	113.96	137.97	0.86	-0.41	-4.39	
6751.00	10.38	79.51	6739.65	83.54	125.03	148.80	0.88	0.83	-1.64	
6814.00	10.64	81.09	6801.59	85.47	136.36	159.86	0.62	0.41	2.51	
6878.00	10.46	76.17	6864.51	87.78	147.84	171.21	1.43	-0.28	-7.69	
6942.00	10.11	72.74	6927.48	90.83	158.84	182.46	1.10	-0.55	-5.36	

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Site: Hackberry 33 Fed Com #1
Well: Hackberry 33 Fed Com #1
Wellpath: Original Hole

Date: 8/14/2006 **Time:** 15:58:33 **Page:** 2
Co-ordinate(NE) Reference: Well: Hackberry 33 Fed Com #1, Grid Nort
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,64.54Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Survey: Pathfinder MWD 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
7005.00	10.46	74.14	6989.47	94.03	169.62	193.57	0.68	0.56	2.22	
7069.00	10.02	74.85	7052.45	97.08	180.59	204.78	0.72	-0.69	1.11	
7132.00	9.23	68.61	7114.56	100.35	190.58	215.21	2.08	-1.25	-9.90	
7196.00	8.88	69.84	7177.77	103.93	200.00	225.25	0.62	-0.55	1.92	
7260.00	9.15	68.61	7240.98	107.49	209.37	235.24	0.52	0.42	-1.92	
7323.00	10.11	68.87	7303.09	111.31	219.19	245.76	1.53	1.52	0.41	
7387.00	10.82	70.01	7366.02	115.38	230.08	257.34	1.16	1.11	1.78	
7450.00	11.17	69.40	7427.87	119.55	241.35	269.30	0.59	0.56	-0.97	
7514.00	11.08	63.77	7490.67	124.45	252.67	281.63	1.70	-0.14	-8.80	
7578.00	11.08	58.24	7553.47	130.41	263.41	293.89	1.66	0.00	-8.64	
7641.00	10.29	65.09	7615.38	135.96	273.66	305.54	2.37	-1.25	10.87	
7705.00	10.11	68.61	7678.37	140.42	284.08	316.85	1.01	-0.28	5.50	
7768.00	9.94	68.17	7740.41	144.46	294.28	327.80	0.30	-0.27	-0.70	
7832.00	9.67	64.48	7803.48	148.83	304.25	338.68	1.07	-0.42	-5.77	
7896.00	9.79	64.12	7866.56	153.52	314.00	349.50	0.21	0.19	-0.56	
7959.00	9.85	65.18	7928.63	158.12	323.71	360.25	0.30	0.10	1.68	
8023.00	10.11	68.43	7991.67	162.48	333.90	371.32	0.97	0.41	5.08	
8086.00	10.46	67.90	8053.65	166.67	344.34	382.55	0.58	0.56	-0.84	
8150.00	10.46	62.37	8116.59	171.55	354.87	394.15	1.57	0.00	-8.64	
8214.00	10.11	57.71	8179.56	177.24	364.77	405.54	1.41	-0.55	-7.28	
8277.00	9.94	58.50	8241.60	183.04	374.08	416.44	0.35	-0.27	1.25	
8340.00	10.11	61.22	8303.64	188.54	383.56	427.36	0.80	0.27	4.32	
8372.00	10.29	60.87	8335.13	191.28	388.52	433.02	0.59	0.56	-1.09	
8463.00	9.85	62.72	8424.73	198.81	402.54	448.91	0.60	-0.48	2.03	
8495.00	9.32	62.28	8456.29	201.27	407.26	454.23	1.67	-1.66	-1.37	
8559.00	9.50	63.86	8519.42	206.01	416.59	464.69	0.49	0.28	2.47	
8622.00	10.20	66.50	8581.50	210.52	426.38	475.47	1.32	1.11	4.19	
8685.00	10.02	70.10	8643.52	214.61	436.65	486.50	1.04	-0.29	5.71	
8748.00	8.88	71.07	8705.66	218.05	446.40	496.78	1.83	-1.81	1.54	
8812.00	8.62	65.09	8768.92	221.68	455.42	506.49	1.48	-0.41	-9.34	
8875.00	9.76	58.94	8831.11	226.42	464.28	516.52	2.39	1.81	-9.76	
8939.00	10.29	57.80	8894.13	232.26	473.76	527.60	0.88	0.83	-1.78	
9003.00	9.76	60.70	8957.16	237.97	483.33	538.69	1.14	-0.83	4.53	
9067.00	8.88	59.99	9020.31	243.09	492.34	549.03	1.39	-1.37	-1.11	
9130.00	9.06	61.66	9082.54	247.88	500.92	558.83	0.50	0.29	2.65	
9194.00	9.06	64.30	9145.74	252.45	509.89	568.90	0.65	0.00	4.12	
9257.00	9.41	63.16	9207.93	256.93	518.96	579.01	0.63	0.56	-1.81	
9320.00	8.62	74.14	9270.15	260.55	528.09	588.81	3.00	-1.25	17.43	
9383.00	7.12	80.91	9332.56	262.45	536.49	597.21	2.79	-2.38	10.75	
9447.00	6.33	74.94	9396.12	264.00	543.81	604.49	1.65	-1.23	-9.33	
9510.00	7.39	58.32	9458.67	267.03	550.62	611.93	3.55	1.68	-26.38	
9574.00	10.02	53.93	9521.93	272.47	558.62	621.50	4.24	4.11	-6.86	
9637.00	10.20	54.98	9583.95	278.90	567.62	632.39	0.41	0.29	1.67	
9701.00	8.71	57.01	9647.08	284.79	576.33	642.78	2.39	-2.33	3.17	
9764.00	8.18	55.98	9709.40	289.89	584.04	651.94	0.87	-0.84	-1.63	
9828.00	8.18	53.49	9772.75	295.15	591.48	660.91	0.55	0.00	-3.89	
9893.00	9.58	48.13	9836.97	301.51	599.22	670.64	2.50	2.15	-8.25	
9956.00	9.32	48.04	9899.11	308.42	606.92	680.56	0.41	-0.41	-0.14	
10020.00	8.71	43.38	9962.32	315.41	614.10	690.05	1.49	-0.95	-7.28	
10083.00	8.27	44.96	10024.63	322.08	620.58	698.77	0.79	-0.70	2.51	
10147.00	6.86	44.88	10088.07	328.05	626.53	706.70	2.20	-2.20	-0.12	
10274.00	5.54	40.31	10214.33	338.10	635.85	719.44	1.11	-1.04	-3.60	
10337.00	4.92	42.06	10277.07	342.42	639.62	724.71	1.02	-0.98	2.78	

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Site: Hackberry 33 Fed Com #1	Vertical (TVD) Reference: SITE 0.0		
Well: Hackberry 33 Fed Com #1	Section (VS) Reference: Well (0.00N,0.00E,64.54Azi)		
Wellpath: Original Hole	Survey Calculation Method: Minimum Curvature		Db: Sybase

Survey: Pathfinder MWD 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
10401.00	4.22	47.78	10340.86	346.04	643.21	729.50	1.30	-1.09	8.94	
10465.00	3.96	47.87	10404.70	349.11	646.59	733.87	0.41	-0.41	0.14	
10528.00	3.25	45.05	10467.57	351.83	649.47	737.64	1.16	-1.13	-4.48	
10591.00	3.43	50.68	10530.47	354.28	652.19	741.15	0.59	0.29	8.94	
10655.00	2.99	53.49	10594.37	356.49	655.01	744.65	0.73	-0.69	4.39	
10718.00	2.81	58.68	10657.29	358.27	657.65	747.80	0.51	-0.29	8.24	
10782.00	2.73	62.19	10721.21	359.80	660.34	750.88	0.29	-0.12	5.48	
10845.00	2.37	57.18	10784.15	361.20	662.76	753.67	0.67	-0.57	-7.95	
10907.00	2.11	65.00	10846.10	362.38	664.87	756.08	0.65	-0.42	12.61	
10969.00	1.85	68.17	10908.06	363.23	666.83	758.22	0.45	-0.42	5.11	
11033.00	1.41	75.37	10972.04	363.82	668.56	760.03	0.76	-0.69	11.25	
11094.00	1.32	71.01	11033.02	364.23	669.95	761.46	0.23	-0.15	-7.15	
11158.00	1.06	79.07	11097.01	364.59	671.22	762.77	0.48	-0.41	12.59	
11221.00	1.06	51.64	11160.00	365.06	672.25	763.90	0.80	0.00	-43.54	
11285.00	1.06	50.85	11223.99	365.80	673.18	765.05	0.02	0.00	-1.23	
11348.00	0.97	48.57	11286.98	366.52	674.03	766.13	0.16	-0.14	-3.62	
11412.00	0.79	40.48	11350.97	367.21	674.72	767.05	0.34	-0.28	-12.64	
11470.00	0.79	40.48	11408.96	367.82	675.24	767.78	0.00	0.00	0.00	