

Pathfinder Energy

Survey Report - Geographic

CONFIDENTIAL

Company: POGO Producing Company	Date: 4/25/2006	Time: 11:01:18	Page: 1
Field: Pierce Crossing-Bone Spring East	Co-ordinate(NE) Reference: Site: H Buck State #10, Grid North		
Site: H Buck State #10	Vertical (TVD) Reference: System: Mean Sea Level		
Well: H-Buck State #10	Section (VS) Reference: Well (0.00N,0.00E,269.70Azi)		
Wellpath: Original Hole	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: Pierce Crossing-Bone Spring East
Eddy County, New Mexico

Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Eastern Zone
Coordinate System: Site Centre
Geomagnetic Model: igrf2005

Site: H Buck State #10
Eddy County, New Mexico
Section 16; T-24-S; R29-E

Site Position:	Northing: 441014.30 ft	Latitude: 32 12 43.113 N
From: Map	Easting: 608829.60 ft	Longitude: 103 58 53.231 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 2927.00 ft		Grid Convergence: 0.19 deg

Well: H-Buck State #10	Slot Name:
Lats & Longs are Estimated as of 3-16-06	
Well Position: +N/-S 0.00 ft	Northing: 441014.30 ft
+E/-W 0.00 ft	Easting: 608829.60 ft
Position Uncertainty: 0.00 ft	Latitude: 32 12 43.113 N
	Longitude: 103 58 53.231 W

Wellpath: Original Hole	Drilled From: Surface
	Tie-on Depth: 0.00 ft
Current Datum: Mean Sea Level	Above System Datum: Mean Sea Level
Magnetic Data: 4/4/2006	Declination: 8.38 deg
Field Strength: 49123 nT	Mag Dip Angle: 60.23 deg
Vertical Section: Depth From (TVD)	+E/-W Direction
ft	ft deg
0.00	0.00 269.70

Survey: Pathfinder MWD Survey	Start Date: 4/9/2006
Company: Pathfinder Energy	Engineer: Marty Schmidt
Tool:	Tied-to: From: Gyro Survey

Survey: Pathfinder MWD Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec	Longitude Deg Min Sec
6710.00	0.86	247.54	6709.59	-6.54	30.98	441007.76	608860.58	32 12 43.047 N	103 58 52.871 W
6817.00	0.88	233.89	6816.58	-7.33	29.57	441006.97	608859.17	32 12 43.039 N	103 58 52.887 W
6913.00	0.62	233.45	6912.57	-8.08	28.56	441006.22	608858.16	32 12 43.032 N	103 58 52.899 W
7009.00	0.44	232.84	7008.57	-8.61	27.85	441005.69	608857.45	32 12 43.026 N	103 58 52.907 W
7105.00	0.53	166.04	7104.56	-9.26	27.66	441005.04	608857.26	32 12 43.020 N	103 58 52.910 W
7168.00	1.06	174.21	7167.56	-10.12	27.79	441004.18	608857.39	32 12 43.011 N	103 58 52.908 W
7200.00	2.55	221.68	7199.54	-10.95	27.35	441003.35	608856.95	32 12 43.003 N	103 58 52.913 W
7223.00	5.02	243.79	7222.49	-11.78	26.11	441002.52	608855.71	32 12 42.995 N	103 58 52.928 W
7232.00	6.07	247.34	7231.45	-12.13	25.31	441002.17	608854.91	32 12 42.992 N	103 58 52.937 W
7264.00	10.29	253.76	7263.12	-13.59	21.01	441000.71	608850.61	32 12 42.977 N	103 58 52.987 W
7296.00	15.21	255.34	7294.32	-15.45	14.20	440998.85	608843.80	32 12 42.959 N	103 58 53.067 W
7328.00	18.82	257.10	7324.91	-17.66	5.10	440996.64	608834.70	32 12 42.938 N	103 58 53.173 W
7360.00	21.81	259.73	7354.92	-19.88	-5.78	440994.42	608823.82	32 12 42.916 N	103 58 53.299 W
7392.00	23.74	262.90	7384.42	-21.73	-18.03	440992.57	608811.57	32 12 42.898 N	103 58 53.442 W
7424.00	25.76	265.27	7413.48	-23.10	-31.35	440991.20	608798.25	32 12 42.885 N	103 58 53.597 W
7456.00	28.14	266.24	7442.01	-24.17	-45.81	440990.13	608783.79	32 12 42.875 N	103 58 53.765 W
7488.00	32.62	266.24	7469.61	-25.23	-61.96	440989.07	608767.64	32 12 42.865 N	103 58 53.953 W
7519.00	36.93	265.62	7495.06	-26.49	-79.59	440987.81	608750.01	32 12 42.853 N	103 58 54.159 W
7551.00	41.06	265.71	7519.93	-28.01	-99.66	440986.29	608729.94	32 12 42.839 N	103 58 54.392 W
7583.00	44.14	266.76	7543.48	-29.43	-121.27	440984.87	608708.33	32 12 42.825 N	103 58 54.644 W
7615.00	46.69	268.17	7565.94	-30.43	-144.04	440983.87	608685.56	32 12 42.816 N	103 58 54.909 W
7647.00	50.65	268.26	7587.07	-31.18	-168.05	440983.12	608661.55	32 12 42.809 N	103 58 55.188 W
7679.00	54.78	269.14	7606.45	-31.75	-193.50	440982.55	608636.10	32 12 42.805 N	103 58 55.485 W

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Company: POGO Producing Company Field: Pierce Crossing-Bone Spring East Site: H Buck State #10 Well: H-Buck State #10 Wellpath: Original Hole	Date: 4/25/2006 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 11:01:18 Site: H Buck State #10, Grid North System: Mean Sea Level Well: (0.00N, 0.00E, 269.70Azi) Minimum Curvature	Page: 2 Db: Sybase
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Survey: Pathfinder MWD Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude →			← Longitude →		
								Deg	Min	Sec	Deg	Min	Sec
7711.00	59.00	268.79	7623.93	-32.24	-220.29	440982.06	608609.31	32	12	42.801 N	103	58	55.797 W
7743.00	61.73	268.61	7639.75	-32.87	-248.10	440981.43	608581.50	32	12	42.795 N	103	58	56.120 W
7775.00	64.37	268.35	7654.25	-33.63	-276.61	440980.67	608552.99	32	12	42.789 N	103	58	56.452 W
7807.00	68.24	269.05	7667.11	-34.29	-305.90	440980.01	608523.70	32	12	42.783 N	103	58	56.793 W
7832.47	70.90	269.96	7676.00	-34.49	-329.76	440979.81	608499.84	32	12	42.782 N	103	58	57.071 W
7839.00	71.58	270.19	7678.10	-34.48	-335.94	440979.82	608493.66	32	12	42.782 N	103	58	57.143 W
7871.00	73.95	270.46	7687.58	-34.31	-366.51	440979.99	608463.09	32	12	42.785 N	103	58	57.499 W
7903.00	75.71	271.60	7695.95	-33.75	-397.38	440980.55	608432.22	32	12	42.791 N	103	58	57.858 W
7935.00	78.35	271.95	7703.14	-32.79	-428.55	440981.51	608401.05	32	12	42.802 N	103	58	58.221 W
7967.00	80.72	272.04	7708.95	-31.69	-460.00	440982.61	608369.60	32	12	42.814 N	103	58	58.587 W
7999.00	82.48	272.13	7713.62	-30.54	-491.63	440983.76	608337.97	32	12	42.826 N	103	58	58.955 W
8025.00	84.27	271.84	7716.62	-29.65	-517.44	440984.65	608312.16	32	12	42.836 N	103	58	59.255 W
8031.00	84.68	271.77	7717.20	-29.46	-523.41	440984.84	608306.19	32	12	42.838 N	103	58	59.325 W
8063.00	86.09	271.07	7719.77	-28.67	-555.29	440985.63	608274.31	32	12	42.847 N	103	58	59.696 W
8095.00	88.29	271.42	7721.34	-27.97	-587.25	440986.33	608242.35	32	12	42.855 N	103	59	0.068 W
8127.00	89.16	270.90	7722.06	-27.33	-619.23	440986.97	608210.37	32	12	42.862 N	103	59	0.440 W
8159.00	90.04	271.33	7722.28	-26.70	-651.22	440987.60	608178.38	32	12	42.869 N	103	59	0.812 W
8179.00	89.69	271.25	7722.33	-26.25	-671.22	440988.05	608158.38	32	12	42.874 N	103	59	1.045 W
8211.00	89.34	270.98	7722.60	-25.63	-703.21	440988.67	608126.39	32	12	42.882 N	103	59	1.417 W
8243.00	89.34	271.07	7722.97	-25.06	-735.20	440989.24	608094.40	32	12	42.888 N	103	59	1.790 W
8275.00	89.43	270.72	7723.31	-24.56	-767.20	440989.74	608062.40	32	12	42.894 N	103	59	2.162 W
8307.00	89.69	270.46	7723.55	-24.23	-799.20	440990.07	608030.40	32	12	42.899 N	103	59	2.535 W
8339.00	90.75	270.54	7723.43	-23.95	-831.19	440990.35	607998.41	32	12	42.902 N	103	59	2.907 W
8371.00	91.01	270.37	7722.94	-23.70	-863.19	440990.60	607966.41	32	12	42.906 N	103	59	3.279 W
8403.00	91.10	270.10	7722.35	-23.56	-895.18	440990.74	607934.42	32	12	42.908 N	103	59	3.652 W
8434.00	91.01	270.19	7721.78	-23.49	-926.18	440990.81	607903.42	32	12	42.910 N	103	59	4.013 W
8466.00	91.10	270.37	7721.19	-23.33	-958.17	440990.97	607871.43	32	12	42.913 N	103	59	4.385 W
8498.00	90.31	270.46	7720.80	-23.10	-990.17	440991.20	607839.43	32	12	42.916 N	103	59	4.757 W
8562.00	90.04	270.19	7720.60	-22.73	-1054.17	440991.57	607775.43	32	12	42.922 N	103	59	5.502 W
8626.00	90.57	269.67	7720.26	-22.81	-1118.17	440991.49	607711.43	32	12	42.923 N	103	59	6.247 W
8688.00	90.57	268.87	7719.64	-23.60	-1180.16	440990.70	607649.44	32	12	42.917 N	103	59	6.969 W
8752.00	90.66	269.58	7718.96	-24.47	-1244.15	440989.83	607585.45	32	12	42.910 N	103	59	7.714 W
8817.00	90.57	269.93	7718.26	-24.75	-1309.14	440989.55	607520.46	32	12	42.910 N	103	59	8.470 W
8880.00	90.48	269.31	7717.68	-25.16	-1372.14	440989.14	607457.46	32	12	42.908 N	103	59	9.204 W
8944.00	90.92	269.49	7716.90	-25.83	-1436.13	440988.47	607393.47	32	12	42.903 N	103	59	9.948 W
9008.00	91.19	269.93	7715.72	-26.16	-1500.12	440988.14	607329.48	32	12	42.902 N	103	59	10.693 W
9072.00	91.54	269.84	7714.20	-26.29	-1564.10	440988.01	607265.50	32	12	42.903 N	103	59	11.438 W
9135.00	91.10	270.28	7712.75	-26.22	-1627.08	440988.08	607202.52	32	12	42.905 N	103	59	12.171 W
9199.00	90.75	270.37	7711.71	-25.86	-1691.07	440988.44	607138.53	32	12	42.911 N	103	59	12.916 W
9263.00	90.92	270.28	7710.78	-25.49	-1755.07	440988.81	607074.53	32	12	42.917 N	103	59	13.661 W
9327.00	90.84	269.84	7709.80	-25.43	-1819.06	440988.87	607010.54	32	12	42.919 N	103	59	14.406 W
9391.00	91.01	269.75	7708.76	-25.66	-1883.05	440988.64	606946.55	32	12	42.919 N	103	59	15.150 W
9453.00	91.19	269.67	7707.57	-25.97	-1945.04	440988.33	606884.56	32	12	42.918 N	103	59	15.872 W
9517.00	91.10	269.75	7706.29	-26.29	-2009.02	440988.01	606820.58	32	12	42.917 N	103	59	16.617 W
9581.00	90.48	270.10	7705.41	-26.38	-2073.02	440987.92	606756.58	32	12	42.918 N	103	59	17.362 W
9644.00	90.57	269.58	7704.84	-26.55	-2136.01	440987.75	606693.59	32	12	42.918 N	103	59	18.095 W
9709.00	90.13	269.67	7704.44	-26.98	-2201.01	440987.32	606628.59	32	12	42.916 N	103	59	18.851 W
9773.00	90.75	270.19	7703.95	-27.06	-2265.01	440987.24	606564.59	32	12	42.917 N	103	59	19.596 W
9837.00	91.10	270.10	7702.91	-26.90	-2329.00	440987.40	606500.60	32	12	42.921 N	103	59	20.341 W
9901.00	91.01	270.02	7701.74	-26.83	-2392.99	440987.47	606436.61	32	12	42.924 N	103	59	21.086 W
9965.00	91.19	269.84	7700.51	-26.91	-2456.98	440987.39	606372.62	32	12	42.925 N	103	59	21.831 W
10029.00	91.10	270.19	7699.23	-26.89	-2520.96	440987.41	606308.64	32	12	42.927 N	103	59	22.576 W

Pathfinder Energy

Survey Report - Geographic

CONFIDENTIAL

Company: POGO Producing Company Field: Pierce Crossing-Bone Spring East Site: H Buck State #10 Well: H-Buck State #10 Wellpath: Original Hole	Date: 4/25/2006 Time: 11:01:18 Page: 3 Co-ordinate(NE) Reference: Site: H Buck State #10, Grid North Vertical (TVD) Reference: System: Mean Sea Level Section (VS) Reference: Well: (0.00N,0.00E,269.70Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: Pathfinder MWD Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude → Deg Min Sec			← Longitude → Deg Min Sec		
10093.00	91.10	269.93	7698.00	-26.82	-2584.95	440987.48	606244.65	32	12	42.930 N	103	59	23.320 W
10156.00	90.92	269.93	7696.89	-26.90	-2647.94	440987.40	606181.66	32	12	42.931 N	103	59	24.054 W
10220.00	91.01	269.31	7695.81	-27.32	-2711.93	440986.98	606117.67	32	12	42.929 N	103	59	24.798 W
10284.00	91.10	268.87	7694.63	-28.34	-2775.91	440985.96	606053.69	32	12	42.921 N	103	59	25.543 W
10348.00	90.92	268.96	7693.50	-29.55	-2839.89	440984.75	605989.71	32	12	42.911 N	103	59	26.288 W
10410.00	90.13	269.13	7692.94	-30.59	-2901.88	440983.71	605927.72	32	12	42.903 N	103	59	27.010 W
10443.00	89.43	268.70	7693.06	-31.21	-2934.87	440983.09	605894.73	32	12	42.897 N	103	59	27.394 W
10506.00	88.81	268.70	7694.03	-32.64	-2997.85	440981.66	605831.75	32	12	42.885 N	103	59	28.127 W
10570.00	89.08	268.79	7695.21	-34.04	-3061.82	440980.26	605767.78	32	12	42.873 N	103	59	28.871 W
10635.00	90.04	269.49	7695.71	-35.02	-3126.81	440979.28	605702.79	32	12	42.866 N	103	59	29.628 W
10699.00	90.66	269.58	7695.32	-35.54	-3190.81	440978.76	605638.79	32	12	42.863 N	103	59	30.373 W
10763.00	91.36	269.67	7694.19	-35.95	-3254.80	440978.35	605574.80	32	12	42.861 N	103	59	31.118 W
10809.00	91.36	269.67	7693.10	-36.22	-3300.78	440978.08	605528.82	32	12	42.859 N	103	59	31.653 W
10865.00	91.36	269.67	7691.77	-36.54	-3356.77	440977.76	605472.83	32	12	42.858 N	103	59	32.304 W

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 H. Buck State #10		7676.00	-22.80	-4305.20	440991.50	604524.40	32	12	43.024 N	103	59	43.344 W

Annotation

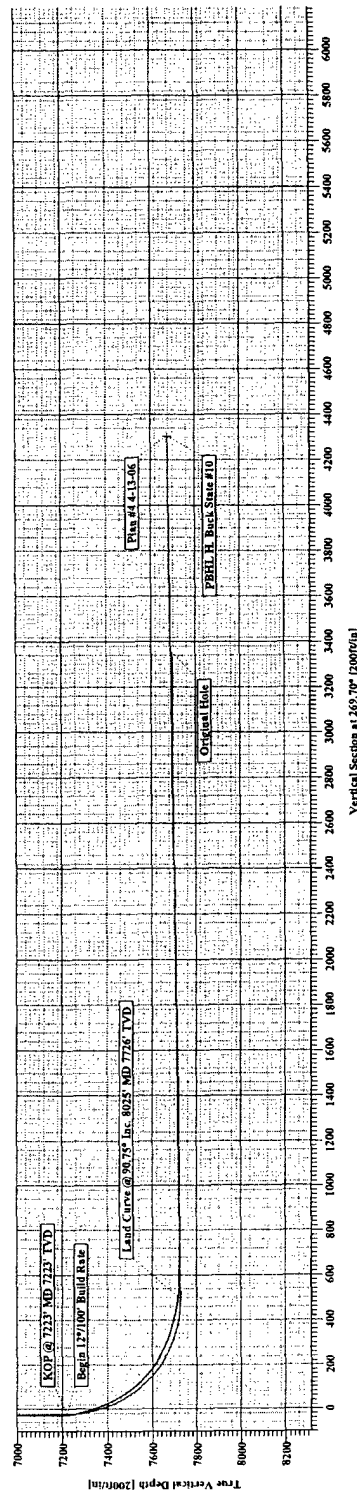
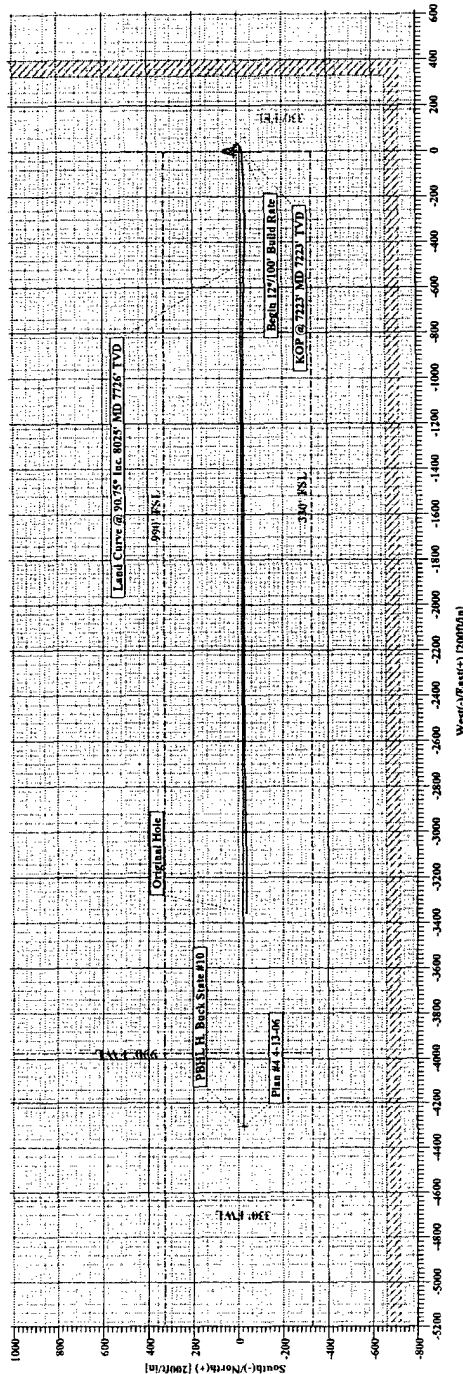
MD ft	TVD ft	
7223.00	7222.49	KOP @ 7223' MD 7223' TVD
7223.00	7222.49	Begin 12°/100' Build Rate
8025.00	7716.62	Land Curve @ 90.75° Inc. 8025' MD 7726' TVD

PATHFINDER

ENERGY SERVICES

POGO Producing Company
Field: Pierce Crossing-Bone Spring East
Site: H Buck State #10
Well: H-Buck State #10
Wellpath: Original Hole
Plan: Plan #4 4-13-06
Pathfinder MWD Surveys

WELL DETAILS					
Name	+N/-S	+E/-W	Northing	Eastng	Longitude
H-Buck State #10	0.00	0.00	441014.30	608829.60	32°12'43.113N 103°58'53.231W N/A



Azimuths to Grid North
 True North: -0.19°
 Magnetic North: 8.19°
 Magnetic Field
 Strength: 49125.0 T
 Dip Angle: 60.23°
 Date: 4/4/2006
 Model: igr2005

FIELD DETAILS
 Pierce Crossing-Bone Spring East
 Eddy County, New Mexico
 Grid Zone: 14QUT
 Zone: 14QUT
 Easting: 608829.60
 Northing: 441014.30
 System Datum: Mean Sea Level
 Units: Feet, Meters, Grid North

SITE DETAILS
 Well Name: H-Buck State #10
 Eddy County, New Mexico
 Section 16, T-24-S, R-29-E
 Six Center Northing: 441014.30
 Easting: 608829.60
 Ground Level: 2927.00
 Production: 0.00
 Convergence: 0.19

WELL PATH DETAILS
 Original Hole
 Ref: Ref. Datum
 V. Section: V. Section
 Angle: Angle
 From TVD: From TVD
 269.70° 0.00 0.00

Plan: Plan #4 4-13-06
 Sheet: 1 of 1
 Date: 4/2/2006
 Created By: MWD Surveys

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