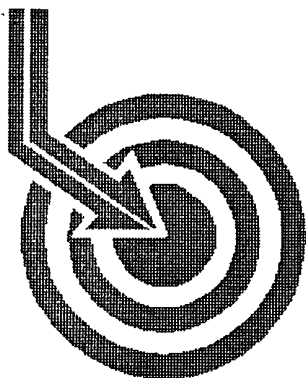




Scientific Drilling

RECEIVED

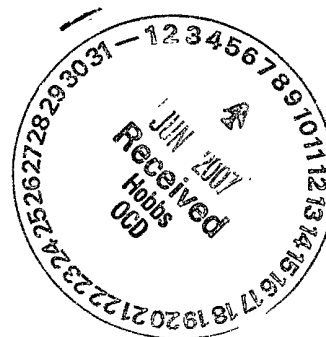
FEB 01 2007

MIDLAND

SUR: O-21-18s-35e, 660/S & 1830/E
BHL: B-21-18s-35e, 4611/S & 1777/E
API # 30-025-38193

POGO

Field: Vacuum
Site: Lea County, NM
Well: Iron Horse State #1
Wellpath: VH - Job #32K0107014
Survey: 01/04/07



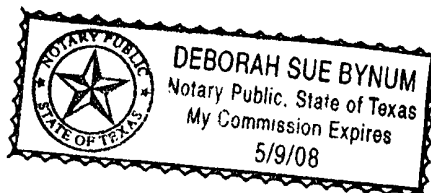
This survey is correct to the best of my knowledge
and is supported by actual field data.

.....*R. W. Hart*..... Company Representative

Notorized this date 30th of January, 2007.

Deborah Sue Bynum

Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International

Survey Report

Company: POGO
Field: Vacuum
Site: Lea County, NM
Well: Iron Horse State #1
Wellpath: VH - Job #32K0107014

Date: 01/29/2007 **Time:** 21:13:10 **Page:** 1
Co-ordinate(NE) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,2.60Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Survey: 01/04/07
KSRG 0'-3725'

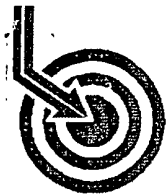
Start Date: 01/04/2007

Company: Scientific Drilling Internatio
Tool: Keeper;Keeper Gyro

Engineer: Gonzales w/P&M
Tied-to: From Surface

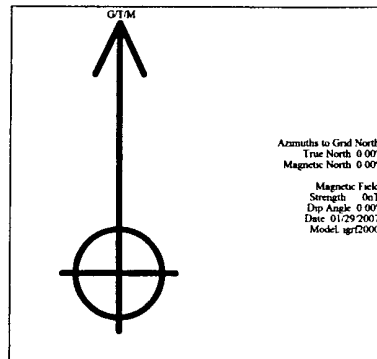
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	359.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.26	146.85	100.00	-0.18	-0.19	0.12	0.26	0.23	146.85
200.00	0.42	170.29	200.00	-0.73	-0.74	0.31	0.21	0.80	157.31
300.00	0.84	143.84	299.99	-1.66	-1.69	0.80	0.50	1.88	154.61
400.00	0.94	144.67	399.98	-2.87	-2.96	1.71	0.10	3.41	149.93
500.00	1.41	139.35	499.96	-4.42	-4.56	2.99	0.48	5.45	146.76
600.00	1.41	141.74	599.93	-6.24	-6.46	4.55	0.06	7.90	144.83
700.00	1.54	137.29	699.90	-8.12	-8.41	6.22	0.17	10.46	143.50
800.00	1.89	134.78	799.85	-10.17	-10.56	8.31	0.36	13.43	141.81
900.00	2.06	132.70	899.79	-12.44	-12.94	10.80	0.18	16.85	140.16
1000.00	2.09	136.03	999.73	-14.85	-15.47	13.38	0.12	20.46	139.14
1100.00	2.14	143.80	1099.66	-17.56	-18.29	15.75	0.29	24.14	139.26
1200.00	2.03	149.84	1199.59	-20.50	-21.33	17.75	0.25	27.75	140.24
1300.00	1.68	152.26	1299.54	-23.26	-24.16	19.32	0.36	30.93	141.35
1400.00	1.73	151.50	1399.49	-25.81	-26.78	20.72	0.05	33.86	142.27
1500.00	2.05	172.02	1499.44	-28.86	-29.88	21.69	0.74	36.92	144.03
1600.00	1.91	194.30	1599.38	-32.25	-33.27	21.53	0.78	39.62	147.09
1700.00	1.82	194.61	1699.33	-35.44	-36.42	20.71	0.09	41.90	150.37
1800.00	1.58	198.05	1799.29	-38.32	-39.26	19.89	0.26	44.01	153.14
1900.00	1.09	190.21	1899.26	-40.59	-41.51	19.29	0.52	45.77	155.08
2000.00	0.77	175.07	1999.25	-42.20	-43.12	19.18	0.40	47.19	156.02
2100.00	0.73	174.04	2099.24	-43.50	-44.42	19.30	0.04	48.43	156.51
2200.00	0.42	157.07	2199.23	-44.46	-45.39	19.51	0.35	49.41	156.74
2300.00	0.48	165.49	2299.23	-45.19	-46.13	19.76	0.09	50.19	156.81
2400.00	0.48	160.39	2399.22	-45.98	-46.93	20.00	0.04	51.02	156.91
2500.00	0.53	157.12	2499.22	-46.78	-47.75	20.33	0.06	51.90	156.94
2600.00	0.44	169.60	2599.22	-47.58	-48.56	20.57	0.14	52.74	157.04
2700.00	0.44	146.69	2699.21	-48.26	-49.26	20.85	0.17	53.49	157.05
2800.00	0.47	140.80	2799.21	-48.88	-49.90	21.32	0.06	54.26	156.86
2900.00	0.35	131.29	2899.21	-49.37	-50.42	21.81	0.14	54.93	156.60
3000.00	0.45	95.21	2999.21	-49.58	-50.65	22.43	0.27	55.40	156.11
3100.00	0.43	83.49	3099.20	-49.54	-50.65	23.20	0.09	55.71	155.39
3200.00	0.31	99.09	3199.20	-49.51	-50.65	23.84	0.16	55.98	154.79
3300.00	0.75	145.65	3299.20	-50.07	-51.23	24.47	0.58	56.77	154.46
3400.00	0.79	148.14	3399.19	-51.16	-52.35	25.21	0.05	58.11	154.29
3500.00	0.78	162.33	3499.18	-52.36	-53.59	25.78	0.19	59.47	154.31
3600.00	0.49	168.75	3599.17	-53.42	-54.66	26.07	0.30	60.55	154.50
3700.00	0.79	175.70	3699.17	-54.52	-55.76	26.20	0.31	61.61	154.83
3725.00	0.60	163.29	3724.16	-54.81	-56.06	26.25	0.97	61.90	154.91



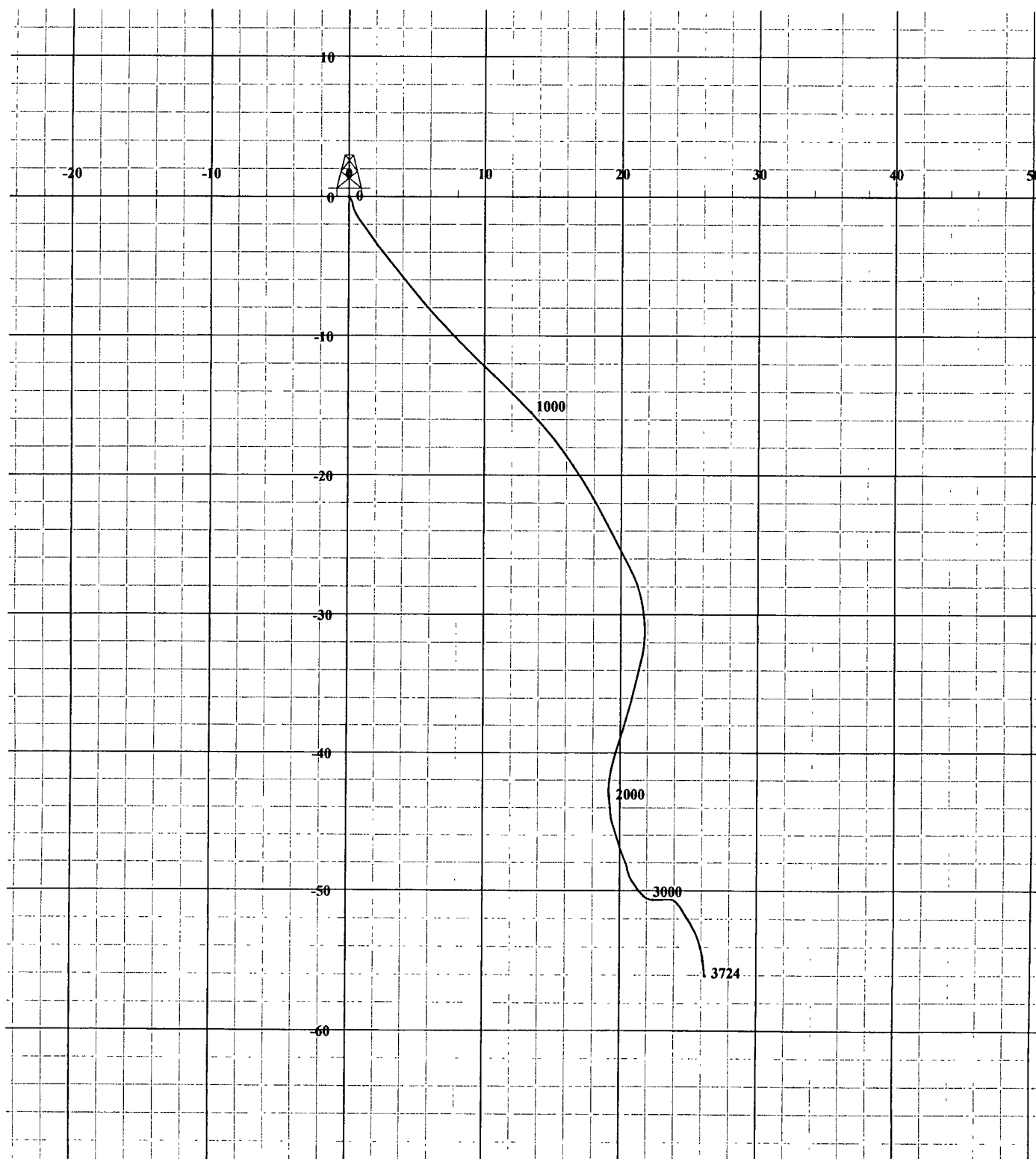
Scientific
Drilling

Field: Vacuum
Site: Lea County, NM
Well: Iron Horse State #1
Wellpath: VH - Job #32K0107014
Survey: 01/04/07



West(-)/East(+) [10ft/in]

South(-)/North(+) [10ft/in]



Pathfinder Energy

Survey Report

Company: Pogo Field: Iron Horse Site: Iron Horse State #1 Well: Iron Horse State #1 Wellpath: OH	Date: 6/4/2007 Time: 15:46:06 Page: 1 Co-ordinate(NE) Reference: Site: Iron Horse State #1, Grid North Vertical (TVD) Reference: SITE 22.0 Section (VS) Reference: Well (0.00N,0.00E,1.16Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Field: Iron Horse

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

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

Site: Iron Horse State #1

Site Position:	Northing: 629585.32 ft	Latitude: 32 43 39.800 N
From: Map	Easting: 809966.14 ft	Longitude: 103 27 35.300 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 3918 00 ft		Grid Convergence: 0.47 deg

Well: Iron Horse State #1

Slot Name:

Well Position: +N/-S 0.00 ft	Northing: 629585.32 ft	Latitude: 32 43 39.800 N
+E/-W 0.00 ft	Easting: 809966.14 ft	Longitude: 103 27 35.300 W
Position Uncertainty: 0 00 ft		

Wellpath: OH

Current Datum: SITE
Magnetic Data: 1/2/2007
Field Strength: 49427 nT
Vertical Section: Depth From (TVD)
 ft

Height 22 00 ft

Drilled From: Surface
Tie-on Depth: 0.00 ft
Above System Datum: Mean Sea Level
Declination: 8.10 deg
Mag Dip Angle: 60.79 deg
+E/-W Direction
 ft deg

0.00	0.00	0.00	1.16
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Survey: Pathfinder Surveys

Start Date: 1/8/2007

Company: Pathfinder Energy
Tool:

Engineer:
Tied-to: From: Definitive Path

Survey: Pathfinder 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
3725.00	0.60	163.29	3724.16	-56.06	26.25	-55.52	0.00	0.00	0.00	
3920.00	1.85	357.38	3919.14	-53.89	26.40	-53.35	1.25	0.64	-85.08	
3951.00	5.28	5.64	3950.07	-51.97	26.52	-51.43	11.16	11.06	26.65	
3983.00	9.23	6.08	3981.81	-47.96	26.94	-47.40	12.34	12.34	1.37	
4013.00	12.57	3.18	4011.27	-42.30	27.37	-41.74	11.28	11.13	-9.67	
4045.00	16.36	1.07	4042.25	-34.32	27.65	-33.75	11.96	11.84	-6.59	
4076.00	20.22	359.58	4071.67	-24.59	27.69	-24.02	12.54	12.45	-4.81	
4108.00	23.39	358.35	4101.38	-12.71	27.47	-12.15	10.01	9.91	-3.84	
4140.00	26.20	356.15	4130.43	0.69	26.81	1.24	9.24	8.78	-6.87	
4172.00	29.46	355.71	4158.72	15.59	25.75	16.11	10.21	10.19	-1.37	
4204.00	33.15	356.77	4186.06	32.18	24.67	32.67	11.66	11.53	3.31	
4235.00	36.40	358.61	4211.52	49.84	23.97	50.32	11.02	10.48	5.94	
4267.00	39.31	0.01	4236.79	69.48	23.74	69.94	9.48	9.09	4.38	
4299.00	41.77	0.45	4261.10	90.27	23.82	90.74	7.74	7.69	1.37	
4331.00	44.67	359.66	4284.42	112.18	23.84	112.64	9.22	9.06	-2.47	
4362.00	47.13	1.07	4305.99	134.44	23.99	134.90	8.58	7.94	4.55	
4394.00	49.95	1.33	4327.18	158.42	24.49	158.88	8.83	8.81	0.81	
4426.00	53.20	1.86	4347.06	183.47	25.19	183.94	10.24	10.16	1.66	
4458.00	56.98	1.07	4365.37	209.70	25.86	210.18	11.98	11.81	-2.47	
4490.00	60.67	1.07	4381.93	237.07	26.37	237.56	11.53	11.53	0.00	
4521.00	64.28	0.54	4396.26	264.55	26.75	265.04	11.74	11.65	-1.71	
4553.00	68.15	0.28	4409.16	293.83	26.96	294.31	12.12	12.09	-0.81	
4585.00	71.93	358.78	4420.08	323.90	26.71	324.37	12.61	11.81	-4.69	
4616.00	72.55	358.17	4429.54	353.41	25.92	353.86	2.74	2.00	-1.97	

Pathfinder Energy

Survey Report

Company: Pogo Field: Iron Horse Site: Iron Horse State #1 Well: Iron Horse State #1 Wellpath: OH	Date: 6/4/2007 Time: 15:46:06 Page: 2 Co-ordinate(NE) Reference: Site: Iron Horse State #1, Grid North Vertical (TVD) Reference: SITE 22.0 Section (VS) Reference: Well (0.00N,0.00E,1.16Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: Pathfinder 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
4648.00	72.28	358.87	4439.21	383.91	25.14	384.34	2.25	-0.84	2.19	
4680.00	74.83	359.14	4448.27	414.59	24.60	415.00	8.01	7.97	0.84	
4712.00	79.67	359.40	4455.33	445.79	24.21	446.19	15.15	15.12	0.81	
4744.00	85.21	0.19	4459.53	477.50	24.09	477.89	17.48	17.31	2.47	
4776.00	87.85	0.01	4461.47	509.44	24.15	509.82	8.27	8.25	-0.56	
4839.00	89.96	359.66	4462.67	572.42	23.97	572.79	3.39	3.35	-0.56	
4871.00	90.66	359.31	4462.50	604.42	23.68	604.77	2.45	2.19	-1.09	
4935.00	91.45	359.31	4461.32	668.40	22.91	668.73	1.23	1.23	0.00	
4998.00	91.80	358.78	4459.54	731.37	21.86	731.66	1.01	0.56	-0.84	
5030.00	91.71	358.78	4458.56	763.35	21.18	763.62	0.28	-0.28	0.00	
5094.00	91.71	358.61	4456.65	827.30	19.72	827.53	0.27	0.00	-0.27	
5158.00	91.71	358.49	4454.74	891.25	18.10	891.44	0.19	0.00	-0.19	
5222.00	91.01	358.43	4453.22	955.21	16.38	955.35	1.10	-1.09	-0.09	
5286.00	89.34	358.34	4453.02	1019.18	14.58	1019.27	2.61	-2.61	-0.14	
5350.00	88.99	357.55	4453.95	1083.13	12.29	1083.16	1.35	-0.55	-1.23	
5414.00	88.90	357.64	4455.13	1147.07	9.60	1147.03	0.20	-0.14	0.14	
5478.00	88.90	357.47	4456.36	1211.00	6.87	1210.89	0.27	0.00	-0.27	
5542.00	88.81	357.38	4457.64	1274.92	4.00	1274.74	0.20	-0.14	-0.14	
5606.00	88.90	356.85	4458.92	1338.82	0.78	1338.57	0.84	0.14	-0.83	
5670.00	89.25	357.47	4459.95	1402.74	-2.39	1402.40	1.11	0.55	0.97	
5733.00	88.81	358.43	4461.02	1465.69	-4.65	1465.29	1.68	-0.70	1.52	
5797.00	89.60	359.31	4461.91	1529.67	-5.91	1529.23	1.85	1.23	1.37	
5860.00	90.13	359.93	4462.06	1592.67	-6.33	1592.21	1.29	0.84	0.98	
5924.00	90.04	359.84	4461.96	1656.67	-6.46	1656.20	0.20	-0.14	-0.14	
5987.00	89.60	359.58	4462.16	1719.66	-6.77	1719.17	0.81	-0.70	-0.41	
6051.00	90.13	359.75	4462.31	1783.66	-7.15	1783.15	0.87	0.83	0.27	
6115.00	90.92	1.25	4461.72	1847.65	-6.59	1847.14	2.65	1.23	2.34	
6179.00	91.63	2.30	4460.30	1911.61	-4.61	1911.12	1.98	1.11	1.64	
6243.00	92.07	2.56	4458.23	1975.52	-1.90	1975.07	0.80	0.69	0.41	
6307.00	91.28	1.95	4456.36	2039.44	0.62	2039.03	1.56	-1.23	-0.95	
6369.00	91.36	2.04	4454.93	2101.38	2.78	2101.01	0.19	0.13	0.15	
6433.00	91.80	2.30	4453.17	2165.31	5.20	2164.98	0.80	0.69	0.41	
6497.00	92.15	2.04	4450.96	2229.23	7.62	2228.93	0.68	0.55	-0.41	
6561.00	92.42	1.77	4448.41	2293.14	9.75	2292.87	0.60	0.42	-0.42	
6624.00	92.24	1.95	4445.85	2356.06	11.79	2355.81	0.40	-0.29	0.29	
6682.00	91.10	1.42	4444.16	2414.01	13.50	2413.79	2.17	-1.97	-0.91	
6746.00	90.48	0.37	4443.28	2477.99	14.50	2477.78	1.91	-0.97	-1.64	
6810.00	90.22	0.63	4442.89	2541.99	15.05	2541.77	0.57	-0.41	0.41	
6874.00	90.48	1.25	4442.50	2605.98	16.10	2605.77	1.05	0.41	0.97	
6936.00	90.75	1.77	4441.83	2667.95	17.74	2667.77	0.94	0.44	0.84	
6999.00	90.75	1.42	4441.01	2730.92	19.49	2730.76	0.56	0.00	-0.56	
7063.00	91.36	1.77	4439.83	2794.89	21.27	2794.74	1.10	0.95	0.55	
7127.00	91.19	1.86	4438.40	2858.84	23.30	2858.72	0.30	-0.27	0.14	
7191.00	91.10	1.60	4437.12	2922.80	25.23	2922.71	0.43	-0.14	-0.41	
7255.00	91.10	1.33	4435.90	2986.76	26.87	2986.70	0.42	0.00	-0.42	
7319.00	91.28	1.33	4434.57	3050.73	28.35	3050.68	0.28	0.28	0.00	
7383.00	91.10	2.12	4433.24	3114.69	30.28	3114.66	1.27	-0.28	1.23	
7447.00	91.10	1.86	4432.01	3178.64	32.50	3178.65	0.41	0.00	-0.41	
7511.00	91.45	2.04	4430.59	3242.59	34.68	3242.62	0.61	0.55	0.28	
7575.00	91.28	1.42	4429.06	3306.54	36.61	3306.60	1.00	-0.27	-0.97	
7639.00	91.36	1.42	4427.59	3370.50	38.19	3370.58	0.12	0.12	0.00	
7703.00	91.36	1.68	4426.07	3434.46	39.92	3434.56	0.41	0.00	0.41	
7767.00	91.36	1.51	4424.55	3498.42	41.71	3498.55	0.27	0.00	-0.27	

Pathfinder Energy

Survey Report

Company: Pogo Field: Iron Horse Site: Iron Horse State #1 Well: Iron Horse State #1 Wellpath: OH	Date: 6/4/2007 Time: 15:46:06 Page: 3 Co-ordinate(NE) Reference: Site: Iron Horse State #1, Grid North Vertical (TVD) Reference: SITE 22.0 Section (VS) Reference: Well (0.00N,0.00E,1.16Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey: Pathfinder 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
7831.00	91.63	1.25	4422.88	3562.38	43.25	3562.52	0.59	0.42	-0.41	
7895.00	91.98	1.42	4420.86	3626.33	44.74	3626.49	0.61	0.55	0.27	
7959.00	92.33	1.77	4418.46	3690.26	46.52	3690.44	0.77	0.55	0.55	
8023.00	92.59	1.25	4415.71	3754.18	48.20	3754.38	0.91	0.41	-0.81	
8087.00	92.77	1.68	4412.72	3818.09	49.84	3818.31	0.73	0.28	0.67	
8151.00	93.30	1.25	4409.33	3881.97	51.47	3882.22	1.07	0.83	-0.67	
8162.00	93.39	1.25	4408.69	3892.95	51.71	3893.20	0.82	0.82	0.00	Final Survey
8220.00	93.39	1.25	4405.26	3950.84	52.97	3951.10	0.00	0.00	0.00	Projection to Bit

Annotation

MD ft	TVD ft	
8162.00	4408.69	Final Survey
8220.00	4405.26	Projection to Bit

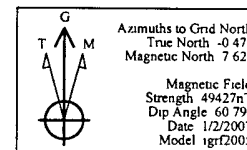


Field: Iron Horse
 Site: Iron Horse State #1
 Well: Iron Horse State #1
 Wellpath: OH
 Survey: Pathfinder Surveys

PATHFINDER

WELLPATH DETAILS				
OH				
Rig	SITE 22 00ft			
Ref Datum				
V Section	Origin	Origin	Starting	
Angle	+N/-S	+E/-W	From TVD	
1 16°	0 00	0 00	0 00	

TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Shape
PBHL	4438.00	3999.18	80.98	Point
T7	4444.00	3499.28	70.86	Point
T6	4448.00	2999.39	60.73	Point
T5	4451.00	2499.49	50.61	Point
T4	4453.00	1999.59	40.49	Point
T3	4454.00	1499.69	30.37	Point
T2	4455.00	999.80	20.24	Point
T1	4465.00	499.90	10.12	Point



SITE DETAILS	
Iron Horse State #1	
Site Centre Northing	629585.32
Easting	809966.14
Ground Level	3918.00
Positional Uncertainty	0.00
Convergence	0.47

Survey Pathfinder Surveys (Iron Horse State #1/OH)										
No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
70	7319.00	91.28	1.33	4434.57	3050.73	28.35	0.28	0.00	3050.68	
71	7383.00	91.10	2.12	4433.24	3114.69	30.28	1.27	102.83	3114.66	
72	7447.00	91.10	1.86	4432.01	3178.64	32.50	0.41	-90.00	3178.65	
73	7511.00	91.45	2.04	4430.59	3242.59	34.68	0.61	27.21	3242.62	
74	7575.00	91.28	1.42	4429.06	3306.54	36.61	1.00	-105.33	3306.60	
75	7639.00	91.36	1.42	4427.59	3370.50	38.19	0.12	0.00	3370.58	
76	7703.00	91.36	1.68	4426.07	3434.46	39.92	0.41	90.00	3434.56	
77	7767.00	91.36	1.51	4424.55	3498.42	41.71	0.27	-90.00	3498.55	
78	7831.00	91.63	1.25	4422.88	3562.38	43.25	0.59	-43.91	3562.52	
79	7895.00	91.98	1.42	4420.86	3626.33	44.74	0.61	25.89	3626.49	
80	7959.00	92.33	1.77	4418.46	3690.26	46.52	0.77	44.97	3690.44	
81	8023.00	92.59	1.25	4415.71	3754.18	48.20	0.91	-63.40	3754.38	
82	8087.00	92.77	1.68	4412.72	3818.09	49.84	0.73	67.25	3818.31	
83	8151.00	93.30	1.25	4409.33	3881.97	51.47	1.07	-39.00	3882.22	
84	8162.00	93.39	1.25	4408.69	3892.95	51.71	0.82	0.00	3893.20	
85	8220.00	93.39	1.25	4405.26	3950.84	52.97	0.00	0.00	3951.10	

ANNOTATIONS			
No	TVD	MD	Annotation
1	4408.69	8162.00	Final Survey
2	4405.26	8220.00	Projection to Bit

ALL DEPTHS REFERENCE KB

