



An Operating Unit of Smith International, Inc.

DIRECTIONAL SURVEY REPORT

OXY PETROLEUM

CYPRESS 33 FEDERAL #2H

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

Pathfinder Energy Services, Inc.
6213 W. Interstate 20 • Midland, TX • 79706
(432) 681-6000


DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) STEWART ROBERTSON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 10/27/09 TO 11/07/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

OXY PETROLEUM
CYPRESS 33 FEDERAL #2H
EDDY COUNTY, NM
RIG: H & P 370

9. SURVEY CERTIFIED FROM: 3042 TO 11323 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4115.94 FEET ON A BEARING OF 269.27 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11400 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

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Tie-in Date: 10/26/2009
Date Completed: 11/07/2009

OXY USA, INC
CYPRESS 33 FEDERAL #2H
EDDY COUNTY, NM
Rig:H & P 370
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:S. ROBERTSON
P. JARAMILLO

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.16.0.2119 N LON:103.58.59.3382 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coor: X: 608240.0000 Y: 460929.1000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.77° EAST TO GRID
Vertical Section Plane: 269.39
Survey Vert. Reference: 25.00' Rotary Table To Ground
Altitude:2996.30' Ground To MSL

Measured Depth	11400.00	(feet)
Inclination	90.75	(deg)
Azimuth	271.01	(deg)
True Vertical Depth	7647.60	(feet)
Vertical Section	4115.94	(feet)
Survey X cord	604124.39	(feet)
Survey Y cord	460876.71	(feet)
Survey Lat	32.26661773 N	(deg)
Survey Lon	103.99646488 W	(deg)
Rectangular Corr. N/S	52.39 S	(feet)
Rectangular Corr. E/W	4115.61 W	(feet)
Closure Distance	4115.94	(feet)
Direction of Closure	269.27	(deg)
Dogleg Severity	0.00	(deg/100ft)

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Survey Horiz. Reference:WELLHEAD
 Ref Coordinates: LAT:32.16.0.2119 N LON:103.58.59.3382 W
 Reference:NAD27 new mexico east Transverse Mercator
 Ref GRID Coord: X: 608240.0000 Y: 460929.1000
 North Aligned To:GRID NORTH
 Total Magnetic Correction: 7.77° EAST TO GRID
 Vertical Section Plane: 269.39
 Survey Vert. Reference: 25.00' Rotary Table To Ground
 Altitude:2996.30' Ground To MSL

Survey Calculations by PathCalc v1.97 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)	(ft)	(deg)	
THE FOLLOWING ARE SCIENTIFIC DRILLING GYRO SURVEYS										
0.00	0.00	0.00	-0.01	0.00	0.02	0.04 N	0.02 W	0.04@	325.89	0.00
100.00	0.18	267.42	99.99	100.00	0.18	0.03 N	0.18 W	0.18@	279.17	0.18
200.00	0.69	315.49	199.99	100.00	0.76	0.45 N	0.76 W	0.88@	300.70	0.59
300.00	1.16	331.16	299.98	100.00	1.65	1.77 N	1.67 W	2.43@	316.61	0.53
400.00	1.14	342.00	399.96	100.00	2.43	3.60 N	2.47 W	4.36@	325.59	0.22
500.00	0.92	352.62	499.94	100.00	2.82	5.34 N	2.88 W	6.07@	331.70	0.29
600.00	0.83	1.50	599.93	100.00	2.89	6.86 N	2.96 W	7.47@	336.66	0.16
700.00	0.76	359.24	699.92	100.00	2.86	8.25 N	2.95 W	8.76@	340.32	0.08
800.00	0.75	3.69	799.91	100.00	2.82	9.57 N	2.92 W	10.00@	343.04	0.06
900.00	0.81	0.71	899.90	100.00	2.75	10.93 N	2.87 W	11.30@	345.30	0.07
1000.00	0.83	0.53	999.89	100.00	2.72	12.36 N	2.85 W	12.68@	347.01	0.02
1100.00	0.91	347.03	1099.88	100.00	2.88	13.86 N	3.02 W	14.18@	347.69	0.22
1200.00	1.06	332.24	1199.87	100.00	3.47	15.45 N	3.63 W	15.87@	346.77	0.29
1300.00	1.20	322.24	1299.85	100.00	4.52	17.09 N	4.70 W	17.73@	344.61	0.24
1400.00	1.25	312.08	1399.82	100.00	5.96	18.65 N	6.15 W	19.64@	341.74	0.22
1500.00	1.07	311.10	1499.80	100.00	7.45	20.00 N	7.67 W	21.42@	339.02	0.18
1600.00	0.76	325.35	1599.79	100.00	8.52	21.16 N	8.75 W	22.89@	337.53	0.38
1700.00	0.66	309.94	1699.78	100.00	9.33	22.07 N	9.57 W	24.06@	336.57	0.21
1800.00	0.65	315.60	1799.78	100.00	10.16	22.85 N	10.41 W	25.11@	335.51	0.07
1900.00	0.40	314.67	1899.77	100.00	10.80	23.50 N	11.05 W	25.97@	334.81	0.25
2000.00	0.48	301.62	1999.77	100.00	11.40	23.96 N	11.66 W	26.65@	334.06	0.13
2100.00	0.60	278.27	2099.76	100.00	12.27	24.26 N	12.53 W	27.30@	332.68	0.25
2200.00	0.59	280.89	2199.76	100.00	13.29	24.43 N	13.55 W	27.94@	330.98	0.03

PathFinder Energy Services, Inc.

Survey Report

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
2300.00	0.46	270.16	2299.75	100.00	14.20	24.53 N	14.46 W	28.47@	329.48	0.16
2400.00	0.63	169.02	2399.75	100.00	14.50	23.99 N	14.76 W	28.17@	328.40	0.85
2500.00	0.75	156.23	2499.74	100.00	14.15	22.85 N	14.39 W	27.00@	327.80	0.19
2600.00	1.23	161.58	2599.73	100.00	13.56	21.23 N	13.79 W	25.32@	327.01	0.49
2700.00	1.80	158.12	2699.69	100.00	12.66	18.76 N	12.86 W	22.74@	325.56	0.58
2800.00	2.35	159.86	2799.63	100.00	11.41	15.38 N	11.57 W	19.24@	323.04	0.55
** TIE-IN TO SCIENTIFIC DRILLING SURVEYS @ 2886'MD.										
2886.00	2.22	161.66	2885.56	86.00	10.31	12.14 N	10.44 W	16.01@	319.31	0.17
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
3042.00	2.02	159.32	3041.45	156.00	8.45	6.70 N	8.52 W	10.84@	308.19	0.14
3101.00	1.93	157.57	3100.42	59.00	7.72	4.81 N	7.77 W	9.14@	301.75	0.18
3289.00	1.93	160.47	3288.31	188.00	5.52	1.10 S	5.51 W	5.61@	258.69	0.05
3477.00	1.85	165.30	3476.21	188.00	3.75	7.02 S	3.68 W	7.93@	207.65	0.09
3665.00	1.67	161.35	3664.12	188.00	2.16	12.55 S	2.03 W	12.71@	189.19	0.12
3852.00	1.58	162.66	3851.05	187.00	0.58	17.59 S	0.39 W	17.60@	181.28	0.05
4041.00	1.41	166.00	4039.98	189.00	-0.71	22.34 S	0.95 E	22.36@	177.57	0.10
4228.00	1.41	167.50	4226.92	187.00	-1.72	26.82 S	2.00 E	26.89@	175.73	0.02
4416.00	1.41	166.71	4414.87	188.00	-2.70	31.33 S	3.03 E	31.47@	174.47	0.01
4603.00	1.32	167.41	4601.81	187.00	-3.65	35.67 S	4.03 E	35.89@	173.55	0.05
4791.00	1.23	167.41	4789.77	188.00	-4.52	39.75 S	4.94 E	40.06@	172.91	0.05
4978.00	1.58	169.34	4976.71	187.00	-5.39	44.24 S	5.86 E	44.63@	172.46	0.19
5166.00	1.67	158.97	5164.64	188.00	-6.80	49.35 S	7.32 E	49.89@	171.56	0.16
5353.00	1.76	162.75	5351.55	187.00	-8.57	54.63 S	9.15 E	55.39@	170.49	0.08
5541.00	1.49	167.15	5539.48	188.00	-9.91	59.77 S	10.55 E	60.70@	169.99	0.16
5728.00	1.32	169.87	5726.42	187.00	-10.79	64.26 S	11.47 E	65.28@	169.88	0.10
5915.00	1.23	170.31	5913.37	187.00	-11.46	68.36 S	12.19 E	69.44@	169.89	0.05
6102.00	1.49	167.59	6100.32	187.00	-12.27	72.71 S	13.05 E	73.87@	169.83	0.14

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 CYPRESS 33 FEDERAL #2H
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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS (dg/100ft)
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
6290.00	1.49	168.73	6288.26	188.00	-13.22	77.50 S	14.05 E	78.76@	169.72	0.02
6477.00	1.58	172.15	6475.19	187.00	-14.00	82.44 S	14.88 E	83.77@	169.77	0.07
6664.00	1.85	183.58	6662.11	187.00	-14.10	88.00 S	15.04 E	89.28@	170.30	0.23
6706.00	1.85	188.15	6704.09	42.00	-13.95	89.35 S	14.90 E	90.58@	170.53	0.35
6757.00	1.85	200.63	6755.06	51.00	-13.53	90.94 S	14.50 E	92.08@	170.94	0.79
6790.00	3.96	232.71	6788.02	33.00	-12.42	92.12 S	13.40 E	93.09@	171.72	7.84
6822.00	6.95	244.49	6819.87	32.00	-9.78	93.63 S	10.77 E	94.25@	173.44	9.93
6851.00	10.20	250.47	6848.54	29.00	-5.76	95.24 S	6.77 E	95.48@	175.93	11.61
6886.00	13.54	253.89	6882.79	35.00	1.13	97.42 S	0.09 W	97.42@	180.05	9.75
6915.00	16.00	255.56	6910.83	29.00	8.28	99.36 S	7.22 W	99.62@	184.16	8.61
6944.00	18.38	256.00	6938.53	29.00	16.61	101.46 S	15.53 W	102.64@	188.70	8.22
6977.00	20.93	257.94	6969.61	33.00	27.45	103.95 S	26.34 W	107.24@	194.22	7.98
7008.00	22.77	259.78	6998.38	31.00	38.79	106.17 S	37.66 W	112.65@	199.53	6.33
7038.00	22.77	259.96	7026.04	30.00	50.24	108.21 S	49.09 W	118.83@	204.40	0.23
7073.00	23.13	259.43	7058.27	35.00	63.70	110.65 S	62.52 W	127.10@	209.47	1.19
7100.00	24.18	261.19	7083.00	27.00	74.39	112.47 S	73.20 W	134.20@	213.06	4.69
7131.00	25.32	264.26	7111.15	31.00	87.28	114.11 S	86.07 W	142.93@	217.03	5.54
7165.00	26.64	265.93	7141.72	34.00	102.13	115.38 S	100.91 W	153.28@	221.17	4.44
7196.00	28.31	267.78	7169.22	31.00	116.42	116.16 S	115.19 W	163.59@	224.76	6.05
7225.00	30.78	268.75	7194.45	29.00	130.71	116.58 S	129.48 W	174.23@	228.00	8.68
7258.00	32.80	268.92	7222.50	33.00	148.10	116.94 S	146.86 W	187.73@	231.47	6.13
7290.00	34.12	269.19	7249.19	32.00	165.74	117.23 S	164.50 W	202.00@	234.53	4.15
7319.00	35.35	269.45	7273.02	29.00	182.26	117.42 S	181.02 W	215.77@	237.03	4.27
7352.00	37.81	269.71	7299.52	33.00	201.93	117.57 S	200.69 W	232.59@	239.64	7.47
7383.00	39.22	270.07	7323.78	31.00	221.23	117.60 S	219.99 W	249.45@	241.87	4.61
7412.00	39.92	269.62	7346.13	29.00	239.70	117.65 S	238.46 W	265.91@	243.74	2.61
7445.00	40.80	269.63	7371.28	33.00	261.07	117.79 S	259.83 W	285.29@	245.61	2.67

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Survey Report

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 EDDY COUNTY, NM
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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)	(ft)	(deg)	
7477.00	42.30	269.99	7395.22	32.00	282.30	117.86 S	281.06 W	304.77@	247.25	4.75
7506.00	43.18	270.23	7416.52	29.00	301.98	117.82 S	300.74 W	323.00@	248.61	3.09
7539.00	44.67	270.88	7440.29	33.00	324.86	117.60 S	323.63 W	344.33@	250.03	4.72
7570.00	46.78	270.31	7461.93	31.00	347.05	117.37 S	345.82 W	365.20@	251.25	6.93
7599.00	49.77	269.93	7481.23	29.00	368.69	117.33 S	367.46 W	385.74@	252.29	10.36
7632.00	52.41	269.66	7501.96	33.00	394.37	117.42 S	393.14 W	410.30@	253.37	8.03
7663.00	54.96	269.68	7520.31	31.00	419.34	117.56 S	418.12 W	434.33@	254.30	8.23
7692.00	56.72	269.69	7536.60	29.00	443.34	117.70 S	442.11 W	457.51@	255.09	6.07
7725.00	58.56	269.62	7554.26	33.00	471.21	117.86 S	469.99 W	484.54@	255.92	5.58
7756.00	60.41	269.07	7570.00	31.00	497.92	118.17 S	496.69 W	510.55@	256.62	6.16
7785.00	61.73	269.34	7584.03	29.00	523.30	118.52 S	522.07 W	535.35@	257.21	4.62
7819.00	64.10	270.04	7599.51	34.00	553.57	118.68 S	552.33 W	564.94@	257.87	7.21
7850.00	65.77	270.47	7612.64	31.00	581.64	118.56 S	580.41 W	592.40@	258.46	5.53
7880.00	67.71	270.64	7624.49	30.00	609.20	118.29 S	607.97 W	619.37@	258.99	6.49
7912.00	69.29	271.01	7636.21	32.00	638.96	117.86 S	637.74 W	648.54@	259.53	5.05
7943.00	70.79	270.96	7646.79	31.00	668.09	117.36 S	666.87 W	677.12@	260.02	4.84
7972.00	72.19	270.85	7656.00	29.00	695.58	116.93 S	694.37 W	704.15@	260.44	4.84
8005.00	73.95	270.57	7665.61	33.00	727.14	116.54 S	725.94 W	735.23@	260.88	5.39
8037.00	75.62	270.55	7674.01	32.00	758.01	116.23 S	756.81 W	765.69@	261.27	5.22
8066.00	76.59	270.60	7680.97	29.00	786.15	115.95 S	784.96 W	793.48@	261.60	3.35
8099.00	78.70	271.14	7688.03	33.00	818.38	115.46 S	817.19 W	825.31@	261.96	6.59
8131.00	81.60	271.27	7693.51	32.00	849.88	114.80 S	848.71 W	856.44@	262.30	9.07
8160.00	83.71	271.38	7697.21	29.00	878.63	114.13 S	877.46 W	884.85@	262.59	7.29
8193.00	85.82	271.58	7700.22	33.00	911.47	113.29 S	910.31 W	917.33@	262.91	6.42
8224.00	87.49	271.40	7702.03	31.00	942.39	112.48 S	941.25 W	947.95@	263.19	5.42
8258.00	89.08	270.59	7703.05	34.00	976.36	111.89 S	975.23 W	981.62@	263.45	5.25
8291.00	89.78	270.59	7703.38	33.00	1009.35	111.55 S	1008.22 W	1014.37@	263.69	2.12

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)	(ft)	(deg)	
8322.00	90.57	270.68	7703.28	31.00	1040.35	111.21 S	1039.22 W	1045.15@	263.89	2.56
8351.00	91.36	270.95	7702.80	29.00	1069.33	110.79 S	1068.21 W	1073.94@	264.08	2.88
8416.00	91.10	271.15	7701.40	65.00	1134.29	109.60 S	1133.19 W	1138.48@	264.48	0.50
8444.00	90.75	270.89	7700.95	28.00	1162.27	109.11 S	1161.18 W	1166.29@	264.63	1.56
8537.00	90.22	271.06	7700.16	93.00	1255.24	107.52 S	1254.16 W	1258.76@	265.10	0.60
8630.00	90.31	271.49	7699.73	93.00	1348.18	105.45 S	1347.14 W	1351.26@	265.52	0.47
8724.00	90.04	270.89	7699.44	94.00	1442.14	103.50 S	1441.12 W	1444.83@	265.89	0.70
8817.00	89.43	270.49	7699.87	93.00	1535.11	102.38 S	1534.11 W	1537.52@	266.18	0.78
8910.00	90.40	270.20	7700.01	93.00	1628.10	101.82 S	1627.11 W	1630.29@	266.42	1.09
9006.00	90.92	269.67	7698.91	96.00	1724.09	101.93 S	1723.10 W	1726.11@	266.61	0.77
9100.00	90.48	269.06	7697.76	94.00	1818.08	102.97 S	1817.08 W	1820.00@	266.76	0.80
9194.00	92.07	269.54	7695.67	94.00	1912.05	104.12 S	1911.05 W	1913.89@	266.88	1.77
9259.00	92.95	269.96	7692.82	65.00	1976.99	104.40 S	1975.99 W	1978.74@	266.98	1.50
9288.00	93.03	269.90	7691.31	29.00	2005.95	104.44 S	2004.95 W	2007.67@	267.02	0.34
9352.00	93.12	270.55	7687.87	64.00	2069.85	104.19 S	2068.85 W	2071.48@	267.12	1.02
9382.00	93.30	270.77	7686.19	30.00	2099.79	103.84 S	2098.81 W	2101.37@	267.17	0.95
9476.00	92.59	271.14	7681.37	94.00	2193.63	102.28 S	2192.67 W	2195.05@	267.33	0.85
9570.00	92.24	271.46	7677.40	94.00	2287.50	100.15 S	2286.56 W	2288.75@	267.49	0.50
9664.00	91.63	271.44	7674.23	94.00	2381.38	97.77 S	2380.48 W	2382.48@	267.65	0.65
9758.00	91.19	272.00	7671.92	94.00	2475.27	94.95 S	2474.40 W	2476.22@	267.80	0.76
9852.00	90.48	271.80	7670.55	94.00	2569.17	91.83 S	2568.34 W	2569.98@	267.95	0.78
9946.00	91.45	272.20	7668.96	94.00	2663.06	88.55 S	2662.27 W	2663.74@	268.09	1.12
10011.00	91.45	271.94	7667.32	65.00	2727.97	86.21 S	2727.21 W	2728.57@	268.19	0.40
10040.00	90.92	271.72	7666.72	29.00	2756.94	85.28 S	2756.19 W	2757.50@	268.23	1.98
10134.00	90.92	271.97	7665.21	94.00	2850.84	82.25 S	2850.12 W	2851.31@	268.35	0.27
10228.00	91.01	271.83	7663.63	94.00	2944.74	79.14 S	2944.06 W	2945.12@	268.46	0.18
10322.00	91.71	271.63	7661.40	94.00	3038.63	76.30 S	3037.99 W	3038.95@	268.56	0.77

PathFinder Energy Services, Inc.

Survey Report

OXY USA, INC
 CYPRESS 33 FEDERAL #2H
 EDDY COUNTY, NM
 RIG:H & P 370

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS (dg/100ft)
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
10416.00	90.66	271.42	7659.45	94.00	3132.54	73.80 S	3131.94 W	3132.80@	268.65	1.14
10510.00	91.45	271.35	7657.72	94.00	3226.47	71.53 S	3225.89 W	3226.68@	268.73	0.84
10604.00	90.57	271.42	7656.06	94.00	3320.40	69.26 S	3319.85 W	3320.57@	268.80	0.94
10698.00	89.96	271.51	7655.63	94.00	3414.33	66.85 S	3413.82 W	3414.47@	268.88	0.66
10792.00	90.57	271.41	7655.20	94.00	3508.27	64.46 S	3507.78 W	3508.38@	268.95	0.66
10886.00	91.01	271.22	7653.90	94.00	3602.21	62.30 S	3601.75 W	3602.29@	269.01	0.51
10980.00	91.01	271.16	7652.24	94.00	3696.15	60.35 S	3695.71 W	3696.21@	269.06	0.06
11074.00	90.22	271.19	7651.23	94.00	3790.10	58.42 S	3789.69 W	3790.14@	269.12	0.84
11168.00	90.92	271.17	7650.30	94.00	3884.04	56.49 S	3883.66 W	3884.07@	269.17	0.74
11262.00	90.40	270.92	7649.22	94.00	3978.00	54.77 S	3977.64 W	3978.02@	269.21	0.61
11323.00	90.75	271.01	7648.60	61.00	4038.97	53.75 S	4038.63 W	4038.99@	269.24	0.59
STRAIGHT-LINE PROJECTION TO BIT DEPTH @ 11400'MD.										
11400.00	90.75	271.01	7647.60	77.00	4115.94	52.39 S	4115.61 W	4115.94@	269.27	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.