



An Operating Unit of Smith International, Inc.

30 015 37336

DIRECTIONAL SURVEY REPORT

OXY PETROLEUM

FEDERAL 23 #4

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

A handwritten signature in black ink, appearing to be "FRANCISCO SINISTERRA", written in a cursive, stylized manner.

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

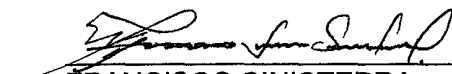
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) RAFAEL DONARUMMA
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 12/12/09 TO 12/21/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

OXY PETROLEUM
FEDERAL 23 #4
EDDY COUNTY, NM
RIG: H & P 340

9. SURVEY CERTIFIED FROM: 76 TO 8553 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 1347.58 FEET ON A BEARING OF 266.94 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 8616 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 12/12/2009
Date Completed: 12/21/2009

OXY PETROLEUM
FEDERAL 23 #4
EDDY COUNTY, NM
Rig:H&P #340
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:RAFAEL DONARUMMA
STEWART ROBERTSON
JUAN ALCOCER

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.22.17.7212 N LON:103.44.30.1724 W
SRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 682656.6000 Y: 499404.2000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.53°EAST TO GRID
Vertical Section Plane: 265.17
Survey Vert. Reference: 17.00' Kelly Bushing To Ground
Altitude:3596.00' Ground To MSL

Measured Depth	8616.00	(feet)
Inclination	12.93	(deg)
Azimuth	264.87	(deg)
True Vertical Depth	8423.86	(feet)
Vertical Section	1346.94	(feet)
Survey X cord	681310.95	(feet)
Survey Y cord	499332.18	(feet)
Survey Lat	32.37141164 N	(deg)
Survey Lon	103.74607418 W	(deg)
Rectangular Corr. N/S	72.02 S	(feet)
Rectangular Corr. E/W	1345.65 W	(feet)
Closure Distance	1347.58	(feet)
Direction of Closure	266.94	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

OXY PETROLEUM
FEDERAL 23 #4
EDDY COUNTY, NM
Rig:H&P #340

PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: RAFAEL DONARUMMA
STEWART ROBERTSON
JUAN ALCOCER

Survey Calculations by RX5 V6.02A using Minimum Curvature

Page 01/05
Tie-in Date: 12/12/2009
Date Completed: 12/21/2009

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Survey Vert. Reference: 17.00' Kelly Bushing To Ground
Altitude:3596.00' Ground To MSL

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
ORIGIN OF WELL AT SURFACE.										
0.00	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00@	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
76.00	0.26	95.60	76.00	76.00	-0.17	0.02 S	0.17 E	0.17@	95.60	0.34
107.00	0.35	23.46	107.00	31.00	-0.28	0.06 N	0.28 E	0.29@	77.26	1.18
138.00	0.26	105.93	138.00	31.00	-0.39	0.13 N	0.38 E	0.41@	71.23	1.32
168.00	0.53	46.74	168.00	30.00	-0.57	0.21 N	0.55 E	0.59@	69.40	1.52
201.00	0.44	19.86	201.00	33.00	-0.74	0.43 N	0.71 E	0.83@	58.58	0.73
230.00	0.44	343.81	230.00	29.00	-0.76	0.64 N	0.71 E	0.96@	47.94	0.94
260.00	0.53	1.33	260.00	30.00	-0.76	0.89 N	0.68 E	1.12@	37.45	0.57
291.00	0.70	2.02	290.99	31.00	-0.79	1.22 N	0.69 E	1.41@	29.52	0.55
321.00	0.53	353.05	320.99	30.00	-0.81	1.55 N	0.68 E	1.69@	23.84	0.65
381.00	0.79	350.07	380.99	60.00	-0.76	2.23 N	0.58 E	2.30@	14.54	0.44
412.00	0.97	345.42	411.98	31.00	-0.70	2.69 N	0.48 E	2.73@	10.01	0.62
442.00	1.14	354.80	441.98	30.00	-0.66	3.24 N	0.38 E	3.26@	6.77	0.81
473.00	1.06	351.33	472.97	31.00	-0.63	3.83 N	0.31 E	3.84@	4.68	0.34
504.00	1.58	345.15	503.97	31.00	-0.54	4.52 N	0.16 E	4.53@	2.03	1.74
535.00	1.41	349.44	534.95	31.00	-0.43	5.31 N	0.02 W	5.31@	359.79	0.66
565.00	1.58	345.23	564.94	30.00	-0.32	6.07 N	0.19 W	6.08@	358.19	0.67
596.00	1.58	347.71	595.93	31.00	-0.19	6.90 N	0.39 W	6.92@	356.75	0.22
627.00	1.67	355.03	626.92	31.00	-0.13	7.77 N	0.52 W	7.79@	356.15	0.73
658.00	1.58	348.26	657.91	31.00	-0.08	8.64 N	0.65 W	8.66@	355.71	0.68
688.00	1.67	350.30	687.90	30.00	0.01	9.48 N	0.81 W	9.51@	355.14	0.36
733.00	2.37	354.95	732.87	45.00	0.06	11.05 N	1.00 W	11.09@	354.84	1.60
762.00	2.55	353.39	761.84	29.00	0.09	12.29 N	1.13 W	12.34@	354.77	0.66
896.00	2.64	352.67	895.70	134.00	0.31	18.31 N	1.86 W	18.40@	354.19	0.07
941.00	2.29	353.38	940.66	45.00	0.39	20.23 N	2.10 W	20.34@	354.08	0.78

PathFinder Energy Services, Inc.

Survey Report

OXY PETROLEUM
FEDERAL 23 #4
EDDY COUNTY, NM
RIG:H&P #340

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
986.00	2.37	344.77	985.62	45.00	0.58	22.02 N	2.45 W	22.16@	353.66	0.80
1031.00	2.20	356.96	1030.59	45.00	0.72	23.78 N	2.74 W	23.94@	353.44	1.14
1076.00	2.90	353.60	1075.54	45.00	0.73	25.78 N	2.91 W	25.94@	353.56	1.59
1121.00	3.34	358.67	1120.48	45.00	0.68	28.22 N	3.07 W	28.38@	353.80	1.15
1166.00	3.61	0.55	1165.39	45.00	0.47	30.94 N	3.08 W	31.10@	354.31	0.65
1211.00	3.52	357.87	1210.31	45.00	0.27	33.74 N	3.12 W	33.89@	354.71	0.42
1257.00	3.17	2.52	1256.23	46.00	0.04	36.42 N	3.12 W	36.56@	355.11	0.96
1302.00	3.08	6.52	1301.16	45.00	-0.36	38.87 N	2.93 W	38.98@	355.69	0.52
1347.00	2.73	8.75	1346.10	45.00	-0.85	41.13 N	2.63 W	41.21@	356.35	0.82
1392.00	2.37	6.85	1391.06	45.00	-1.29	43.11 N	2.35 W	43.17@	356.88	0.82
1437.00	2.29	2.70	1436.02	45.00	-1.59	44.93 N	2.20 W	44.99@	357.20	0.42
1482.00	2.29	11.10	1480.99	45.00	-1.96	46.71 N	1.98 W	46.75@	357.57	0.75
1527.00	2.11	355.29	1525.95	45.00	-2.21	48.42 N	1.88 W	48.46@	357.78	1.40
1572.00	1.93	351.36	1570.93	45.00	-2.16	50.00 N	2.06 W	50.04@	357.64	0.50
1618.00	1.58	348.46	1616.90	46.00	-2.03	51.38 N	2.30 W	51.43@	357.43	0.78
1662.00	0.97	347.77	1660.89	44.00	-1.91	52.34 N	2.50 W	52.40@	357.26	1.39
1707.00	0.79	355.21	1705.89	45.00	-1.86	53.02 N	2.61 W	53.09@	357.18	0.47
1753.00	0.70	328.82	1751.88	46.00	-1.74	53.58 N	2.78 W	53.65@	357.03	0.76
1798.00	0.26	241.49	1796.88	45.00	-1.52	53.77 N	3.01 W	53.85@	356.79	1.63
1843.00	0.79	235.59	1841.88	45.00	-1.16	53.54 N	3.36 W	53.65@	356.41	1.18
1888.00	0.53	254.58	1886.88	45.00	-0.69	53.31 N	3.82 W	53.45@	355.91	0.75
1933.00	0.35	177.48	1931.88	45.00	-0.48	53.12 N	4.01 W	53.27@	355.68	1.26
1978.00	0.62	100.95	1976.88	45.00	-0.70	52.93 N	3.77 W	53.07@	355.93	1.42
2023.00	0.70	77.37	2021.87	45.00	-1.21	52.95 N	3.26 W	53.05@	356.48	0.62
2068.00	0.35	91.24	2066.87	45.00	-1.62	53.01 N	2.85 W	53.08@	356.92	0.82
2113.00	0.79	56.08	2111.87	45.00	-2.03	53.18 N	2.46 W	53.23@	357.35	1.21
2159.00	0.44	63.76	2157.87	46.00	-2.47	53.43 N	2.04 W	53.47@	357.82	0.78
2204.00	0.62	50.98	2202.86	45.00	-2.83	53.66 N	1.69 W	53.69@	358.19	0.48
2249.00	0.70	50.71	2247.86	45.00	-3.26	53.99 N	1.29 W	54.00@	358.63	0.18

PathFinder Energy Services, Inc.

Survey Report

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EDDY COUNTY, NM
RIG:H&P #340

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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 Dir (ft) (deg)		DLS (dg/100ft)
2294.00	0.79	69.97	2292.86	45.00	-3.79	54.27 N	0.79 W	54.27@	359.17	0.59
2339.00	0.70	87.94	2337.85	45.00	-4.36	54.38 N	0.22 W	54.38@	359.77	0.55
2384.00	0.26	196.73	2382.85	45.00	-4.60	54.30 N	0.03 E	54.30@	0.03	1.82
2429.00	0.62	246.08	2427.85	45.00	-4.33	54.10 N	0.23 W	54.10@	359.76	1.09
2474.00	0.97	273.45	2472.85	45.00	-3.72	54.02 N	0.83 W	54.03@	359.12	1.13
2520.00	1.23	251.42	2518.84	46.00	-2.86	53.89 N	1.69 W	53.92@	358.21	1.07
2565.00	1.93	264.23	2563.82	45.00	-1.63	53.66 N	2.90 W	53.74@	356.91	1.73
2610.00	1.93	252.88	2608.80	45.00	-0.13	53.36 N	4.38 W	53.54@	355.31	0.85
2655.00	2.46	267.24	2653.76	45.00	1.57	53.09 N	6.06 W	53.44@	353.48	1.69
2700.00	2.37	271.29	2698.72	45.00	3.46	53.07 N	7.96 W	53.66@	351.47	0.43
2745.00	2.90	261.49	2743.68	45.00	5.52	52.92 N	10.02 W	53.86@	349.28	1.54
2790.00	3.52	260.50	2788.60	45.00	8.04	52.52 N	12.50 W	53.99@	346.61	1.38
2835.00	4.31	259.86	2833.50	45.00	11.10	52.00 N	15.53 W	54.27@	343.37	1.76
2880.00	4.75	263.49	2878.36	45.00	14.64	51.49 N	19.05 W	54.90@	339.70	1.17
2925.00	5.10	263.28	2923.19	45.00	18.51	51.04 N	22.88 W	55.94@	335.85	0.78
2971.00	5.10	261.14	2969.01	46.00	22.59	50.49 N	26.93 W	57.22@	331.92	0.41
3016.00	5.28	262.07	3013.83	45.00	26.65	49.89 N	30.96 W	58.72@	328.18	0.44
3061.00	5.36	266.24	3058.63	45.00	30.82	49.47 N	35.11 W	60.66@	324.64	0.88
3106.00	5.28	266.98	3103.44	45.00	34.99	49.22 N	39.27 W	62.97@	321.41	0.23
3151.00	5.19	265.32	3148.25	45.00	39.10	48.95 N	43.37 W	65.40@	318.46	0.39
3196.00	5.10	265.79	3193.07	45.00	43.13	48.64 N	47.39 W	67.91@	315.74	0.22
3242.00	5.19	266.17	3238.88	46.00	47.26	48.35 N	51.51 W	70.64@	313.19	0.21
3287.00	5.36	260.73	3283.69	45.00	51.39	47.87 N	55.61 W	73.38@	310.72	1.17
3332.00	5.28	259.61	3328.50	45.00	55.54	47.16 N	59.73 W	76.10@	308.30	0.29
3377.00	5.10	258.78	3373.32	45.00	59.59	46.40 N	63.72 W	78.82@	306.06	0.43
3422.00	5.19	258.00	3418.13	45.00	63.60	45.58 N	67.68 W	81.60@	303.96	0.25
3467.00	5.10	262.23	3462.95	45.00	67.61	44.89 N	71.65 W	84.55@	302.07	0.87
3512.00	4.75	262.07	3507.79	45.00	71.47	44.36 N	75.48 W	87.55@	300.45	0.78
3557.00	4.48	253.87	3552.64	45.00	75.06	43.62 N	79.01 W	90.25@	298.90	1.58

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Survey Report

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3602.00	4.22	252.77	3597.51	45.00	78.40	42.64 N	82.28 W	92.67@	297.39	0.61
3647.00	4.22	251.41	3642.39	45.00	81.62	41.62 N	85.43 W	95.03@	295.98	0.22
3692.00	3.87	245.57	3687.28	45.00	84.66	40.47 N	88.38 W	97.21@	294.60	1.20
3737.00	4.22	251.21	3732.17	45.00	87.70	39.30 N	91.33 W	99.43@	293.28	1.18
3783.00	4.75	252.18	3778.02	46.00	91.20	38.18 N	94.75 W	102.15@	291.95	1.16
3828.00	5.36	256.41	3822.85	45.00	95.09	37.11 N	98.56 W	105.32@	290.63	1.59
3873.00	5.72	257.76	3867.64	45.00	99.39	36.14 N	102.80 W	108.97@	289.37	0.85
3918.00	5.63	256.65	3912.42	45.00	103.80	35.16 N	107.14 W	112.76@	288.17	0.32
3963.00	5.45	255.74	3957.21	45.00	108.09	34.12 N	111.36 W	116.47@	287.04	0.45
4008.00	5.19	251.94	4002.02	45.00	112.18	32.96 N	115.36 W	119.98@	285.95	0.97
4053.00	5.01	253.08	4046.84	45.00	116.08	31.76 N	119.18 W	123.34@	284.92	0.46
4098.00	4.92	257.89	4091.67	45.00	119.92	30.78 N	122.94 W	126.74@	284.06	0.95
4143.00	5.01	253.10	4136.50	45.00	123.75	29.81 N	126.71 W	130.17@	283.24	0.94
4159.00	4.75	257.17	4152.44	16.00	125.09	29.46 N	128.03 W	131.37@	282.96	2.71
4286.00	3.78	252.04	4279.09	127.00	134.38	27.00 N	137.14 W	139.77@	281.14	0.82
4376.00	3.08	248.35	4368.93	90.00	139.58	25.19 N	142.21 W	144.42@	280.05	0.82
4466.00	4.31	270.76	4458.74	90.00	145.26	24.35 N	147.83 W	149.83@	279.35	2.08
4557.00	5.98	277.35	4549.37	91.00	153.30	25.00 N	155.96 W	157.95@	279.11	1.94
4647.00	7.83	275.42	4638.72	90.00	163.91	26.18 N	166.71 W	168.75@	278.92	2.07
4737.00	10.46	275.16	4727.57	90.00	177.99	27.49 N	180.95 W	183.03@	278.64	2.92
4828.00	12.66	275.86	4816.71	91.00	195.93	29.25 N	199.10 W	201.24@	278.36	2.42
4918.00	14.60	272.34	4904.18	90.00	216.88	30.72 N	220.25 W	222.38@	277.94	2.34
5008.00	17.67	271.38	4990.62	90.00	241.72	31.51 N	245.24 W	247.26@	277.32	3.42
5098.00	19.17	270.23	5076.01	90.00	270.02	31.90 N	273.68 W	275.53@	276.65	1.71
5189.00	19.35	265.31	5161.92	91.00	299.98	30.73 N	303.64 W	305.20@	275.78	1.79
5279.00	18.38	265.66	5247.09	90.00	329.08	28.44 N	332.65 W	333.87@	274.89	1.08
5369.00	16.88	266.46	5332.86	90.00	356.33	26.56 N	359.85 W	360.82@	274.22	1.69
5459.00	17.50	265.75	5418.84	90.00	382.93	24.75 N	386.38 W	387.17@	273.66	0.73
5549.00	18.55	267.16	5504.42	90.00	410.77	23.03 N	414.18 W	414.82@	273.18	1.26

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5639.00	18.20	264.35	5589.83	90.00	439.13	20.94 N	442.46 W	442.96@	272.71	1.06
5775.00	20.49	262.59	5718.14	136.00	484.15	15.78 N	487.21 W	487.46@	271.86	1.74
5910.00	20.66	261.45	5844.53	135.00	531.52	9.19 N	534.19 W	534.27@	270.99	0.32
6045.00	18.99	260.48	5971.53	135.00	577.18	2.02 N	579.41 W	579.41@	270.20	1.26
6180.00	17.32	262.76	6099.80	135.00	619.15	4.15 S	621.01 W	621.02@	269.62	1.34
6316.00	17.67	265.31	6229.52	136.00	660.02	8.39 S	661.66 W	661.71@	269.27	0.62
6451.00	17.24	265.14	6358.30	135.00	700.51	11.76 S	702.01 W	702.11@	269.04	0.32
6586.00	17.59	266.89	6487.11	135.00	740.91	14.56 S	742.32 W	742.46@	268.88	0.47
6722.00	17.59	265.05	6616.75	136.00	782.00	17.45 S	783.31 W	783.50@	268.72	0.41
6857.00	16.44	264.52	6745.84	135.00	821.50	21.03 S	822.65 W	822.92@	268.54	0.86
6992.00	16.36	265.05	6875.35	135.00	859.61	24.50 S	860.61 W	860.96@	268.37	0.13
7127.00	16.44	264.79	7004.86	135.00	897.73	27.87 S	898.57 W	899.01@	268.22	0.08
7217.00	16.97	265.23	7091.06	90.00	923.60	30.12 S	924.35 W	924.84@	268.13	0.61
7308.00	16.80	263.47	7178.14	91.00	950.03	32.72 S	950.65 W	951.21@	268.03	0.59
7398.00	17.50	264.00	7264.13	90.00	976.56	35.61 S	977.03 W	977.68@	267.91	0.80
7488.00	16.44	264.79	7350.21	90.00	1002.82	38.18 S	1003.17 W	1003.89@	267.82	1.20
7578.00	17.67	263.82	7436.26	90.00	1029.21	40.81 S	1029.43 W	1030.24@	267.73	1.40
7668.00	19.52	262.50	7521.55	90.00	1057.89	44.25 S	1057.92 W	1058.85@	267.61	2.11
7758.00	19.61	263.38	7606.36	90.00	1088.00	47.95 S	1087.83 W	1088.89@	267.48	0.34
7848.00	19.70	264.08	7691.11	90.00	1118.27	51.25 S	1117.92 W	1119.10@	267.37	0.28
7939.00	18.47	263.64	7777.11	91.00	1148.01	54.43 S	1147.50 W	1148.79@	267.28	1.36
8029.00	17.41	265.40	7862.73	90.00	1175.73	57.09 S	1175.09 W	1176.48@	267.22	1.32
8119.00	18.20	266.02	7948.42	90.00	1203.25	59.15 S	1202.54 W	1203.99@	267.18	0.90
8209.00	18.55	265.75	8033.83	90.00	1231.62	61.18 S	1230.84 W	1232.35@	267.15	0.40
8300.00	18.64	264.61	8120.08	91.00	1260.63	63.62 S	1259.75 W	1261.35@	267.11	0.41
8390.00	17.59	264.52	8205.62	90.00	1288.61	66.27 S	1287.61 W	1289.31@	267.05	1.17
8480.00	16.00	263.73	8291.78	90.00	1314.61	68.93 S	1313.47 W	1315.28@	267.00	1.78
8553.00	12.93	264.87	8362.46	73.00	1332.84	70.76 S	1331.61 W	1333.49@	266.96	4.22
STRAIGHT-LINE PROJECTION TO BIT DEPTH @ 8616' MD.										
8616.00	12.93	264.87	8423.86	63.00	1346.94	72.02 S	1345.65 W	1347.58@	266.94	0.00



TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	OXY PETROLEUM		
LEASE / WELL No.:	FEDERAL 23	#4	
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	H&P #340		
API WELL No:	30-015-37336		
JOB No:	101009394-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.53	7.528822	Agreed Upon: 7.53
X =	683656.600000	Feet	Y = 499404.200000 Feet
SITE LATITUDE:	32.371589	SITE LONGITUDE:	103.741715
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	267.1		
KELLY BUSHING ELEVATION:	17		
ALTITUDE:	3596	Feet	WATER DEPTH: - Feet

TIE-IN SURVEY

MEASURED DEPTH:	0		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	0		
TRUE VERTICAL DEPTH:	0		
VERTICAL SECTION:	0		
RECTANGULAR COORDINATE (N / S):	0		
RECTANGULAR COORDINATE (E / W):	0		
CLOSURE DISTANCE / DIRECTION:			
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SURFACE		
COPY OF TIE-IN SURVEY REPORT	☐ YES ☒ NO		

WELL PLAN

KICKOFF DEPTH:	0	TOTAL DEPTH:	8597.76
KICKOFF ANGLE:	0	MAX ANGLE:	20.47

PES Engineers:

Rafael Donarumma
RAFAEL DONARUMMA

**Signature of both field engineers required if applicable

Directional Driller:

S. Brandt / J. Phillips
S. BRANDT / J. PHILLIPS

DATE: 11-Dec-2009

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

OXY PETROLEUM
FEDERAL 23 #4
EDDY COUNTY, NEW MEXICO
Rig:HP 340

Tue Dec 08 10:14:27 2009

Coordinates

Latitude: 32.371589 N (32 deg. 22 min. 17.7212 sec.)
Longitude: 103.741715 W (-103 deg. 44 min. 30.1724 sec.)
Elevation: 3596.00 feet.
Calculation Date: Dec/08/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.3501 degrees
Total Magnetic Field: 0.48868 gauss
Magnetic Declination: 7.845588 degrees
Horizontal Intensity: 0.241748 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.845588 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 682656.6000 feet
Y: 499404.2000 feet
True to Grid: (convergence) -0.316766 degrees
Magnetic to Grid: 7.528822 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.528822 Degr.