



An Operating Unit of Smith International, Inc.

DIRECTIONAL SURVEY REPORT

30-015-37965

RECEIVED

MAR 15 2011

NMOCD ARTESIA

DEVON ENERGY

DICKENS 29 FEDERAL COM #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) DEREK BOYD
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 09-28-10 TO 10-08-10
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:

DEVON ENERGY
DICKENS 29 FEDERAL COM #2H
EDDY COUNTY, NM
RIG: H&P 223

9. SURVEY CERTIFIED FROM: 5992 TO 10963 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4719.73 FEET ON A BEARING OF 266.46 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11041 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: 09/27/2010
Date Completed: 10/08/2010

DEVON ENERGY
DICKENS 29 FED COM #2H
EDDY COUNTY, NM
Rig:H&P #223
PathFinder Office Supervisor: Francisco Sinisterra
PathFinder Field Engineers:D. Boyd
D. Phillips
L. Herrera

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.53.26.5986 N LON:104.11.24.3663 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 585303.0110 Y: 687808.4200
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.93°EAST TO GRID
Vertical Section Plane: 266.66
Survey Vert. Reference: 25.00' Rotary Table To Ground
Altitude:3569.00' Ground To MSL

Measured Depth	11041.00	(feet)
Inclination	92.68	(deg)
Azimuth	264.98	(deg)
True Vertical Depth	6503.82	(feet)
Vertical Section	4719.70	(feet)
Survey X cord	580592.30	(feet)
Survey Y cord	687516.78	(feet)
Survey Lat	32.88993687 N	(deg)
Survey Lon	104.20544952 W	(deg)
Rectangular Corr. N/S	291.64 S	(feet)
Rectangular Corr. E/W	4710.71 W	(feet)
Closure Distance	4719.73	(feet)
Direction of Closure	266.46	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
DICKENS 29 FED COM #2H
EDDY COUNTY, NM
Rig:H&P #223

PathFinder Office Supervisor: Francisco Sinisterra
PathFinder Field Engineers: D. Boyd
D. Phillips
L. Herrera

Survey Calculations by RX5 V6.03B using Minimum Curvature

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.53.26.5986 N LON:104.11.24.3663 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 585303.0110 Y: 687808.4200
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Total Magnetic Correction: 7.93° EAST TO GRID
Vertical Section Plane: 266.66
Survey Vert. Reference: 25.00' Rotary Table To Ground
Altitude:3569.00' Ground To MSL

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular (ft)	Offsets (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
TIE-IN TO SCIENTIFIC DRILLING GYRO @ 5913'MD.									
5913.00	1.80	89.95	5912.68	0.00	-0.48	36.87 N	1.67 W	36.91@ 357.41	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS:									
5992.00	1.32	82.06	5991.65	79.00	-2.63	37.00 N	0.47 E	37.00@ 0.73	0.66
6023.00	0.88	263.90	6022.65	31.00	-2.74	37.02 N	0.59 E	37.03@ 0.91	7.10
6055.00	4.04	263.09	6054.62	32.00	-1.37	36.86 N	0.77 W	36.87@ 358.80	9.88
6087.00	7.47	265.65	6086.45	32.00	1.83	36.57 N	3.97 W	36.78@ 353.81	10.75
6118.00	10.99	267.02	6117.04	31.00	6.80	36.26 N	8.93 W	37.34@ 346.16	11.38
6150.00	14.60	266.91	6148.24	32.00	13.89	35.88 N	16.01 W	39.29@ 335.96	11.28
6181.00	18.47	266.91	6177.96	31.00	22.71	35.41 N	24.81 W	43.24@ 324.98	12.48
6213.00	22.51	266.65	6207.93	32.00	33.91	34.78 N	36.00 W	50.05@ 314.01	12.63
6244.00	26.56	266.52	6236.12	31.00	46.78	34.01 N	48.84 W	59.52@ 304.85	13.07
6275.00	30.42	265.95	6263.36	31.00	61.56	33.03 N	63.59 W	71.66@ 297.45	12.48
6307.00	34.29	265.67	6290.39	32.00	78.68	31.78 N	80.67 W	86.70@ 291.50	12.10
6338.00	37.46	265.53	6315.50	31.00	96.84	30.39 N	98.78 W	103.35@ 287.10	10.23
6370.00	40.54	265.27	6340.37	32.00	116.97	28.77 N	118.85 W	122.28@ 283.61	9.64
6401.00	44.14	264.40	6363.28	31.00	137.84	26.88 N	139.64 W	142.21@ 280.90	11.77
6433.00	47.31	264.40	6385.62	32.00	160.73	24.65 N	162.44 W	164.30@ 278.63	9.91
6464.00	50.21	264.62	6406.05	31.00	184.02	22.42 N	185.64 W	186.99@ 276.89	9.37
6496.00	52.76	264.96	6425.98	32.00	209.05	20.15 N	210.58 W	211.54@ 275.47	8.01
6527.00	55.49	265.13	6444.14	31.00	234.15	17.98 N	235.60 W	236.28@ 274.36	8.82
6559.00	58.04	265.36	6461.68	32.00	260.91	15.76 N	262.27 W	262.74@ 273.44	7.99
6590.00	61.11	265.10	6477.37	31.00	287.63	13.54 N	288.91 W	289.22@ 272.68	9.93
6622.00	63.14	264.99	6492.33	32.00	315.90	11.09 N	317.09 W	317.28@ 272.00	6.35
6653.00	65.33	264.86	6505.81	31.00	343.80	8.62 N	344.89 W	345.00@ 271.43	7.07
6685.00	67.27	264.72	6518.67	32.00	373.09	5.96 N	374.07 W	374.12@ 270.91	6.08
6716.00	70.35	264.41	6529.87	31.00	401.97	3.23 N	402.84 W	402.85@ 270.46	9.98

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
DICKENS 29 FED COM #2H
EDDY COUNTY, NM
RIG:H&P #223

Page 02/04

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)
6748.00	73.07	264.24	6539.92	32.00	432.32	0.22 N	433.07 W	433.07@	270.03	8.52
6779.00	75.53	264.09	6548.30	31.00	462.14	2.81 S	462.76 W	462.77@	269.65	7.95
6811.00	77.29	264.33	6555.82	32.00	493.21	5.95 S	493.70 W	493.74@	269.31	5.55
6842.00	80.55	264.56	6561.78	31.00	523.61	8.90 S	523.98 W	524.06@	269.03	10.54
6873.00	82.83	264.92	6566.26	31.00	554.26	11.71 S	554.52 W	554.65@	268.79	7.44
6905.00	83.98	265.43	6569.93	32.00	586.04	14.38 S	586.20 W	586.37@	268.59	3.93
6936.00	85.47	265.50	6572.78	31.00	616.90	16.82 S	616.97 W	617.20@	268.44	4.81
6968.00	88.64	266.14	6574.43	32.00	648.85	19.15 S	648.84 W	649.12@	268.31	10.11
6999.00	90.66	265.97	6574.62	31.00	679.85	21.28 S	679.76 W	680.09@	268.21	6.54
7031.00	91.63	266.28	6573.98	32.00	711.84	23.44 S	711.68 W	712.07@	268.11	3.18
7062.00	91.89	266.23	6573.03	31.00	742.82	25.47 S	742.60 W	743.04@	268.04	0.85
7094.00	92.24	266.14	6571.87	32.00	774.80	27.60 S	774.51 W	775.00@	267.96	1.13
7125.00	92.24	266.13	6570.66	31.00	805.78	29.68 S	805.42 W	805.96@	267.89	0.03
7156.00	90.92	266.09	6569.81	31.00	836.76	31.79 S	836.33 W	836.93@	267.82	4.26
7188.00	90.48	265.22	6569.42	32.00	868.75	34.21 S	868.24 W	868.91@	267.74	3.05
7219.00	90.92	264.98	6569.04	31.00	899.74	36.86 S	899.12 W	899.88@	267.65	1.62
7250.00	91.19	264.68	6568.47	31.00	930.72	39.65 S	929.99 W	930.83@	267.56	1.30
7282.00	90.31	264.37	6568.05	32.00	962.69	42.70 S	961.84 W	962.79@	267.46	2.92
7313.00	90.66	264.20	6567.79	31.00	993.67	45.79 S	992.69 W	993.74@	267.36	1.26
7345.00	90.31	263.59	6567.51	32.00	1025.63	49.19 S	1024.50 W	1025.68@	267.25	2.20
7376.00	90.75	263.52	6567.23	31.00	1056.58	52.67 S	1055.31 W	1056.62@	267.14	1.44
7408.00	91.19	263.54	6566.69	32.00	1088.53	56.28 S	1087.10 W	1088.55@	267.04	1.38
7439.00	89.87	263.16	6566.40	31.00	1119.48	59.87 S	1117.89 W	1119.49@	266.93	4.43
7471.00	88.72	262.85	6566.79	32.00	1151.41	63.77 S	1149.65 W	1151.41@	266.83	3.72
7503.00	88.99	262.37	6567.43	32.00	1183.32	67.88 S	1181.37 W	1183.32@	266.71	1.72
7534.00	89.08	262.56	6567.95	31.00	1214.23	71.94 S	1212.10 W	1214.23@	266.60	0.68
7565.00	89.43	263.02	6568.36	31.00	1245.16	75.84 S	1242.85 W	1245.16@	266.51	1.87
7597.00	89.25	264.47	6568.73	32.00	1277.12	79.32 S	1274.66 W	1277.13@	266.44	4.57
7628.00	89.08	265.52	6569.18	31.00	1308.10	82.03 S	1305.54 W	1308.11@	266.40	3.43

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
DICKENS 29 FED COM #2H
EDDY COUNTY, NM
RIG:H&P #223

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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)
7660.00	89.60	265.60	6569.55	32.00	1340.09	84.50 S	1337.44 W	1340.11@	266.38	1.64
7691.00	89.87	265.96	6569.69	31.00	1371.09	86.78 S	1368.35 W	1371.10@	266.37	1.45
7723.00	90.31	265.94	6569.64	32.00	1403.08	89.04 S	1400.27 W	1403.10@	266.36	1.38
7754.00	89.34	265.68	6569.73	31.00	1434.08	91.31 S	1431.19 W	1434.10@	266.35	3.24
7786.00	89.43	265.44	6570.08	32.00	1466.07	93.79 S	1463.09 W	1466.10@	266.33	0.80
7880.00	89.96	265.68	6570.58	94.00	1560.05	101.06 S	1556.81 W	1560.09@	266.29	0.62
7975.00	90.66	265.57	6570.06	95.00	1655.04	108.31 S	1651.53 W	1655.08@	266.25	0.75
8069.00	90.40	265.43	6569.19	94.00	1749.01	115.68 S	1745.24 W	1749.07@	266.21	0.31
8164.00	89.69	266.05	6569.12	95.00	1844.00	122.74 S	1839.97 W	1844.06@	266.18	0.99
8258.00	90.22	266.38	6569.19	94.00	1938.00	128.95 S	1933.77 W	1938.06@	266.19	0.66
8353.00	90.92	265.75	6568.25	95.00	2032.98	135.47 S	2028.54 W	2033.06@	266.18	0.99
8447.00	90.75	266.25	6566.88	94.00	2126.97	142.02 S	2122.30 W	2127.05@	266.17	0.56
8541.00	91.54	266.13	6565.00	94.00	2220.95	148.27 S	2216.07 W	2221.03@	266.17	0.85
8636.00	91.19	266.53	6562.74	95.00	2315.92	154.35 S	2310.85 W	2316.00@	266.18	0.56
8730.00	91.54	266.78	6560.50	94.00	2409.89	159.83 S	2404.66 W	2409.97@	266.20	0.46
8824.00	91.19	266.88	6558.26	94.00	2503.86	165.03 S	2498.49 W	2503.94@	266.22	0.39
8918.00	91.63	266.96	6555.95	94.00	2597.83	170.07 S	2592.33 W	2597.90@	266.25	0.48
9013.00	91.54	267.58	6553.32	95.00	2692.79	174.60 S	2687.18 W	2692.85@	266.28	0.66
9107.00	90.84	267.69	6551.37	94.00	2786.76	178.48 S	2781.08 W	2786.80@	266.33	0.75
9201.00	91.28	267.89	6549.63	94.00	2880.72	182.10 S	2875.00 W	2880.76@	266.38	0.51
9295.00	91.71	267.85	6547.18	94.00	2974.67	185.59 S	2968.90 W	2974.69@	266.42	0.46
9390.00	92.51	267.98	6543.68	95.00	3069.58	189.05 S	3063.77 W	3069.60@	266.47	0.85
9484.00	91.89	268.06	6540.07	94.00	3163.48	192.29 S	3157.64 W	3163.49@	266.52	0.67
9579.00	92.24	267.85	6536.65	95.00	3258.40	195.68 S	3252.52 W	3258.40@	266.56	0.43
9673.00	92.51	267.44	6532.75	94.00	3352.30	199.54 S	3346.36 W	3352.31@	266.59	0.52
9767.00	92.07	266.83	6528.99	94.00	3446.22	204.23 S	3440.17 W	3446.23@	266.60	0.80
9862.00	91.71	266.07	6525.86	95.00	3541.17	210.11 S	3534.93 W	3541.17@	266.60	0.89
9956.00	90.84	266.59	6523.77	94.00	3635.15	216.13 S	3628.72 W	3635.15@	266.59	1.08
10050.00	89.78	266.76	6523.26	94.00	3729.14	221.58 S	3722.56 W	3729.14@	266.59	1.14

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
DICKENS 29 FED COM #2H
EDDY COUNTY, NM
RIG:H&P #223

Page 04/04

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS
						(ft)	(ft)	(ft)	(deg)	(dg/100ft)
10145.00	89.69	265.80	6523.70	95.00	3824.14	227.74 S	3817.35 W	3824.14@	266.59	1.01
10239.00	90.75	266.07	6523.34	94.00	3918.13	234.41 S	3911.11 W	3918.13@	266.57	1.16
10333.00	90.66	266.71	6522.18	94.00	4012.12	240.32 S	4004.92 W	4012.12@	266.57	0.69
10428.00	90.84	266.48	6520.94	95.00	4107.11	245.97 S	4099.74 W	4107.12@	266.57	0.31
10522.00	90.40	266.81	6519.92	94.00	4201.10	251.47 S	4193.58 W	4201.11@	266.57	0.59
10616.00	91.10	266.20	6518.69	94.00	4295.10	257.20 S	4287.39 W	4295.10@	266.57	0.99
10711.00	91.63	265.59	6516.43	95.00	4390.06	264.00 S	4382.12 W	4390.07@	266.55	0.85
10806.00	91.89	265.38	6513.51	95.00	4484.99	271.47 S	4476.78 W	4485.01@	266.53	0.35
10868.00	92.15	265.11	6511.33	62.00	4546.94	276.61 S	4538.53 W	4546.95@	266.51	0.60
10900.00	92.15	265.05	6510.13	32.00	4578.90	279.35 S	4570.39 W	4578.92@	266.50	0.19
10963.00	92.68	264.98	6507.47	63.00	4641.82	284.82 S	4633.10 W	4641.84@	266.48	0.85
STRAIGHT-LINE PROJECTION TO BIT @ 11041' MD										
11041.00	92.68	264.98	6503.82	78.00	4719.70	291.64 S	4710.71 W	4719.73@	266.46	0.00

PATHFINDER ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	DEVON ENERGY		
LEASE / WELL No.:	DICKENS 29 FED COM	2H	
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	H&P #223		
API WELL No:	30-015-37965		
JOB No:	700000385-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.93°	LWD Calculated:	7.93°
		Agreed Upon:	7.93°
X =	585303.010000	Feet	Y = 687808.420000
			Feet
SITE LATITUDE:	32.890722N	SITE LONGITUDE:	104.190102W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐ ZONE:		
PROPOSED DRIFT DIRECTION:	266.66°		
KELLY BUSHING ELEVATION:	25		
ALTITUDE:	3569	Feet	WATER DEPTH: N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	5913		
DRIFT ANGLE:	1.80°		
DRIFT DIRECTION:	89.95°		
TRUE VERTICAL DEPTH:	5912.68		
VERTICAL SECTION:	-0.48		
RECTANGULAR COORDINATE (N / S) :	36.87		
RECTANGULAR COORDINATE (E / W) :	-1.67		
CLOSURE DISTANCE / DIRECTION:	36.91	357.41	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SCIENTIFIC DRILLING		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	6911.79'MD	TOTAL DEPTH:	11048.31'MD
KICKOFF ANGLE:	0°	MAX ANGLE:	90°

PES Engineers:

**Signature of both field engineers required if applicable

Directional Driller:

DATE: 9-27-10

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

DEVON ENERGY
DICKENS 29 FEDERAL COM #2H
EDDY COUNTY, NEW MEXICO
Rig:HP 323

Sun Sep 26 21:17:38 2010

Coordinates

Latitude: 32.890722 N (32 deg. 53 min. 26.5986 sec.)
Longitude: 104.190102 W (-104 deg. 11 min. 24.3663 sec.)
Elevation: 3594.00 feet.
Calculation Date: Sep/26/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.7128 degrees
Total Magnetic Field: 0.49019 gauss
Magnetic Declination: 8.009277 degrees
Horizontal Intensity: 0.239794 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.009277 Degr.

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 585303.0110 feet
Y: 687808.4200 feet
True to Grid: (convergence) -0.077780 degrees
Magnetic to Grid: 7.931497 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.931497 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

DEVON ENERGY
DICKENS 29 FED COM #2H
DOG CANYON; WOLFCAMP

Mon Sep 27 21:46:09 2010

Coordinates

Latitude: 32.890722 N (32 deg. 53 min. 26.5986 sec.)
Longitude: 104.190102 W (-104 deg. 11 min. 24.3663 sec.)
Elevation: 3594.00 feet.
Calculation Date: Sep/27/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.7127 degrees
Total Magnetic Field: 0.49019 gauss
Magnetic Declination: 8.008944 degrees
Horizontal Intensity: 0.239794 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.008944 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 585303.0110 feet
Y: 687808.4200 feet
True to Grid: (convergence) -0.077780 degrees
Magnetic to Grid: 7.931163 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.931163 Degr.



October 20, 2010

Devon Energy
20 N. Broadway
Oklahoma City, OK

RE: Devon Energy
Dickens 29 Federal Com #2H
API: 30-015-37965
Eddy County, NM
RIG: H&P 223
FIELD: Dog Canyon; Wolfcamp
PES FILE NO.: 700000385-WT-WT

To whom it may concern:

We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

DIRECTIONAL SURVEY DATA
1 – Original survey report
2 – Survey report copies

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (432) 687-1647

Sincerely,

FRANCISCO SINISTERRA
M/LWD Service Coordinator
PathFinder Energy Services

ML:sh

