



An Operating Unit of Smith International, Inc.

DIRECTIONAL SURVEY REPORT

30-015-36406

DEVON ENERGY

COTTON DRAW #110H

EDDY COUNTY, NEW MEXICO

RECEIVED

MAR 15 2011

NMOCD ARTESIA

PREPARED BY: FRANCISCO SINISTERRA

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

Pathfinder

6213 W. Interstate 20
Midland, Texas. 79706
Tel. 432.687.1647
Fax 432.687.1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) WAYNE GRAHAM
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 11-07-10 TO 11-20-10
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
COTTON DRAW #110H
EDDY COUNTY, NM
RIG: MCVAY 8
9. SURVEY CERTIFIED FROM: 7654 TO 12353 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 4289.13 FEET ON A BEARING OF 359.27 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 12400 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "Francisco Sinisterra", written over a horizontal line.

FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 11/07/2010
Date Completed: 11/20/2010

DEVON ENERGY CORPORATION

COTTON DRAW UNIT #110H

EDDY COUNTY, NM

Rig: MCVAY 8

PathFinder Office Supervisor: Francisco Sinisterra

PathFinder Field Engineers: Wayne Graham

Ryan Miller

Jesus Garcia

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.10.58.4578 N LON: 103.44.16.4604 W

GRID Reference: NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 725547.0640 Y: 430785.2900

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.42° EAST TO GRID

Vertical Section Plane: 359.66

Survey Vert. Reference: 19.00' Kelly Bushing To Ground

Altitude: 3509.00' Ground To MSL

Measured Depth	12400.00	(feet)
Inclination	91.54	(deg)
Azimuth	355.09	(deg)
True Vertical Depth	8295.53	(feet)
Vertical Section	4289.03	(feet)
Survey X cord	725492.46	(feet)
Survey Y cord	435074.07	(feet)
Survey Lat	32.19469465 N	(deg)
Survey Lon	103.73800543 W	(deg)
Rectangular Corr. N/S	4288.78 N	(feet)
Rectangular Corr. E/W	54.60 W	(feet)
Closure Distance	4289.13	(feet)
Direction of Closure	359.27	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY CORPORATION
COTTON DRAW UNIT #110H
EDDY COUNTY, NM
Rig:MCVAY 8

PathFinder Office Supervisor: Francisco Sinisterra
PathFinder Field Engineers: Wayne Graham
Ryan Miller
Jesus Garcia

Survey Calculations by RX5 V6.03B using Minimum Curvature

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.10.58.4578 N LON:103.44.16.4604 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 725547.0640 Y: 430785.2900
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.42°EAST TO GRID
Vertical Section Plane: 359.66
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude:3509.00' 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)
TIE IN TO SCIENTIFIC GYRO SURVEYS @ 7628'MD								
7628.00	0.59	171.39	7625.82	0.00	-71.45	71.13 S 54.47 E	89.59@ 142.56	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
7654.00	0.53	165.01	7651.82	26.00	-71.70	71.38 S 54.52 E	89.82@ 142.63	0.33
7686.00	0.26	113.29	7683.82	32.00	-71.87	71.55 S 54.63 E	90.02@ 142.64	1.32
7719.00	1.85	356.57	7716.81	33.00	-71.37	71.05 S 54.66 E	89.64@ 142.43	6.00
7751.00	4.66	352.40	7748.76	32.00	-69.57	69.24 S 54.46 E	88.09@ 141.81	8.81
7783.00	7.39	354.62	7780.58	32.00	-66.23	65.91 S 54.10 E	85.26@ 140.62	8.56
7815.00	10.73	356.63	7812.17	32.00	-61.20	60.88 S 53.73 E	81.20@ 138.57	10.48
7847.00	14.33	358.44	7843.41	32.00	-54.26	53.95 S 53.44 E	75.94@ 135.27	11.31
7879.00	18.03	359.30	7874.13	32.00	-45.35	45.03 S 53.28 E	69.76@ 130.21	11.59
7911.00	21.37	359.59	7904.26	32.00	-34.56	34.25 S 53.17 E	63.25@ 122.79	10.44
7943.00	24.80	359.51	7933.69	32.00	-22.02	21.70 S 53.07 E	57.34@ 112.24	10.72
7973.00	28.31	359.94	7960.52	30.00	-8.61	8.29 S 53.01 E	53.66@ 98.89	11.72
8005.00	31.22	359.56	7988.30	32.00	7.28	7.59 N 52.94 E	53.48@ 81.84	9.11
8036.00	33.68	358.58	8014.45	31.00	23.91	24.22 N 52.67 E	57.97@ 65.30	8.12
8068.00	36.49	358.51	8040.64	32.00	42.29	42.61 N 52.20 E	67.38@ 50.78	8.78
8100.00	39.57	358.59	8065.84	32.00	62.00	62.31 N 51.70 E	80.97@ 39.68	9.63
8132.00	42.74	358.84	8089.93	32.00	83.06	83.36 N 51.23 E	97.85@ 31.57	9.92
8164.00	45.46	359.37	8112.91	32.00	105.32	105.63 N 50.88 E	117.24@ 25.72	8.58
8196.00	48.54	358.82	8134.73	32.00	128.72	129.02 N 50.51 E	138.56@ 21.38	9.71
8228.00	51.35	359.40	8155.32	32.00	153.21	153.51 N 50.13 E	161.49@ 18.09	8.89
8260.00	54.08	359.39	8174.70	32.00	178.67	178.97 N 49.87 E	185.79@ 15.57	8.53
8292.00	57.33	359.50	8192.73	32.00	205.10	205.40 N 49.61 E	211.31@ 13.58	10.16
8322.00	59.79	359.35	8208.38	30.00	230.70	230.99 N 49.35 E	236.21@ 12.06	8.21
8354.00	61.73	359.42	8224.01	32.00	258.62	258.91 N 49.05 E	263.52@ 10.73	6.07
8387.00	64.46	358.90	8238.94	33.00	288.04	288.33 N 48.62 E	292.40@ 9.57	8.39

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY CORPORATION
COTTON DRAW UNIT #110H
EDDY COUNTY, NM
RIG:MCVAY 8

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)
8419.00	67.09	359.15	8252.07	32.00	317.22	317.51 N	48.12 E	321.14@	8.62	8.25
8451.00	69.56	358.97	8263.89	32.00	346.95	347.24 N	47.64 E	350.49@	7.81	7.74
8483.00	73.07	358.53	8274.14	32.00	377.26	377.54 N	46.97 E	380.45@	7.09	11.05
8515.00	76.24	358.14	8282.61	32.00	408.10	408.38 N	46.08 E	410.98@	6.44	9.98
8547.00	78.44	358.16	8289.62	32.00	439.31	439.59 N	45.07 E	441.89@	5.85	6.88
8579.00	81.69	358.36	8295.14	32.00	470.82	471.09 N	44.11 E	473.15@	5.35	10.17
8611.00	84.59	358.99	8298.96	32.00	502.58	502.85 N	43.38 E	504.72@	4.93	9.27
8643.00	86.79	359.59	8301.37	32.00	534.49	534.75 N	42.98 E	536.48@	4.60	7.13
8680.00	88.02	0.30	8303.04	37.00	571.45	571.71 N	42.95 E	573.33@	4.30	3.84
8712.00	87.93	0.40	8304.17	32.00	603.43	603.69 N	43.14 E	605.23@	4.09	0.42
8744.00	87.41	0.17	8305.47	32.00	635.40	635.67 N	43.30 E	637.14@	3.90	1.78
8776.00	86.88	0.59	8307.07	32.00	667.36	667.63 N	43.51 E	669.04@	3.73	2.11
8812.00	87.32	1.14	8308.89	36.00	703.30	703.57 N	44.06 E	704.95@	3.58	1.95
8839.00	88.72	1.48	8309.82	27.00	730.27	730.55 N	44.67 E	731.92@	3.50	5.34
8871.00	89.43	0.70	8310.34	32.00	762.26	762.54 N	45.28 E	763.88@	3.40	3.30
8902.00	89.78	0.01	8310.55	31.00	793.26	793.54 N	45.47 E	794.84@	3.28	2.50
8935.00	88.72	0.09	8310.98	33.00	826.25	826.54 N	45.50 E	827.79@	3.15	3.22
8967.00	88.81	358.93	8311.67	32.00	858.24	858.53 N	45.23 E	859.72@	3.02	3.63
8994.00	89.52	358.98	8312.07	27.00	885.24	885.52 N	44.74 E	886.65@	2.89	2.64
9026.00	90.31	358.70	8312.11	32.00	917.23	917.51 N	44.09 E	918.57@	2.75	2.62
9058.00	89.96	358.78	8312.04	32.00	949.23	949.50 N	43.39 E	950.50@	2.62	1.12
9090.00	90.48	358.70	8311.92	32.00	981.23	981.50 N	42.68 E	982.42@	2.49	1.64
9122.00	91.19	359.50	8311.45	32.00	1013.22	1013.49 N	42.18 E	1014.37@	2.38	3.34
9154.00	91.36	359.57	8310.74	32.00	1045.21	1045.48 N	41.92 E	1046.32@	2.30	0.57
9218.00	90.84	359.13	8309.51	64.00	1109.20	1109.46 N	41.19 E	1110.23@	2.13	1.06
9282.00	91.98	359.12	8307.93	64.00	1173.18	1173.44 N	40.22 E	1174.12@	1.96	1.78
9345.00	93.39	359.40	8304.98	63.00	1236.10	1236.36 N	39.40 E	1236.99@	1.83	2.28
9409.00	94.26	359.46	8300.71	64.00	1299.96	1300.21 N	38.77 E	1300.79@	1.71	1.36
9473.00	93.83	358.88	8296.20	64.00	1363.80	1364.05 N	37.84 E	1364.57@	1.59	1.13

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY CORPORATION
COTTON DRAW UNIT #110H
EDDY COUNTY, NM
RIG:MCVAY 8

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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)
9504.00	92.42	358.79	8294.51	31.00	1394.75	1394.99 N	37.21 E	1395.49@	1.53	4.56
9535.00	91.54	359.10	8293.44	31.00	1425.73	1425.97 N	36.64 E	1426.44@	1.47	3.01
9567.00	90.22	359.49	8292.95	32.00	1457.72	1457.96 N	36.25 E	1458.41@	1.42	4.30
9598.00	89.34	359.45	8293.06	31.00	1488.72	1488.96 N	35.96 E	1489.40@	1.38	2.84
9630.00	89.52	359.44	8293.38	32.00	1520.72	1520.96 N	35.65 E	1521.37@	1.34	0.56
9661.00	89.25	358.96	8293.72	31.00	1551.72	1551.95 N	35.22 E	1552.35@	1.30	1.78
9693.00	88.81	359.10	8294.26	32.00	1583.71	1583.94 N	34.68 E	1584.32@	1.25	1.44
9723.00	88.99	359.11	8294.83	30.00	1613.70	1613.93 N	34.21 E	1614.30@	1.21	0.60
9754.00	89.34	358.92	8295.29	31.00	1644.70	1644.93 N	33.68 E	1645.27@	1.17	1.29
9785.00	89.34	358.88	8295.64	31.00	1675.69	1675.92 N	33.08 E	1676.25@	1.13	0.13
9816.00	89.34	358.74	8296.00	31.00	1706.69	1706.91 N	32.44 E	1707.22@	1.09	0.45
9847.00	89.60	358.45	8296.29	31.00	1737.68	1737.90 N	31.68 E	1738.19@	1.04	1.26
9909.00	90.92	358.75	8296.01	62.00	1799.67	1799.88 N	30.16 E	1800.13@	0.96	2.18
9971.00	89.69	358.51	8295.68	62.00	1861.66	1861.86 N	28.68 E	1862.08@	0.88	2.02
10034.00	90.31	358.79	8295.68	63.00	1924.65	1924.84 N	27.20 E	1925.03@	0.81	1.08
10096.00	89.87	358.88	8295.58	62.00	1986.64	1986.83 N	25.94 E	1987.00@	0.75	0.72
10158.00	88.99	359.06	8296.19	62.00	2048.63	2048.81 N	24.82 E	2048.96@	0.69	1.45
10221.00	88.99	358.72	8297.30	63.00	2111.62	2111.79 N	23.60 E	2111.92@	0.64	0.54
10282.00	89.16	358.56	8298.29	61.00	2172.60	2172.77 N	22.15 E	2172.88@	0.58	0.38
10344.00	89.60	358.15	8298.96	62.00	2234.58	2234.74 N	20.38 E	2234.83@	0.52	0.97
10406.00	90.48	358.09	8298.92	62.00	2296.55	2296.70 N	18.34 E	2296.78@	0.46	1.42
10467.00	89.52	358.30	8298.92	61.00	2357.53	2357.67 N	16.42 E	2357.73@	0.40	1.61
10531.00	89.96	358.29	8299.21	64.00	2421.51	2421.64 N	14.52 E	2421.69@	0.34	0.69
10593.00	89.34	358.34	8299.59	62.00	2483.50	2483.61 N	12.69 E	2483.65@	0.29	1.00
10655.00	89.25	357.67	8300.35	62.00	2545.47	2545.57 N	10.53 E	2545.59@	0.24	1.09
10717.00	89.87	357.11	8300.83	62.00	2607.41	2607.51 N	7.71 E	2607.52@	0.17	1.35
10778.00	90.40	356.47	8300.68	61.00	2668.34	2668.41 N	4.30 E	2668.41@	0.09	1.36
10840.00	89.34	357.68	8300.82	62.00	2730.27	2730.33 N	1.13 E	2730.33@	0.02	2.60
10901.00	89.78	359.46	8301.29	61.00	2791.26	2791.30 N	0.39 W	2791.30@	359.99	3.01

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY CORPORATION
COTTON DRAW UNIT #110H
EDDY COUNTY, NM
RIG:MCVAY 8

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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)
10963.00	90.75	359.05	8301.00	62.00	2853.25	2853.30 N 1.20 W	2853.30@ 359.98	1.70
11025.00	90.31	358.61	8300.43	62.00	2915.24	2915.28 N 2.46 W	2915.28@ 359.95	1.00
11088.00	90.92	358.20	8299.75	63.00	2978.22	2978.25 N 4.22 W	2978.25@ 359.92	1.17
11149.00	92.07	358.02	8298.16	61.00	3039.18	3039.20 N 6.23 W	3039.20@ 359.88	1.91
11212.00	91.71	357.87	8296.09	63.00	3102.12	3102.12 N 8.49 W	3102.13@ 359.84	0.62
11304.00	91.63	358.54	8293.40	92.00	3194.05	3194.04 N 11.37 W	3194.06@ 359.80	0.73
11367.00	91.01	358.56	8291.95	63.00	3257.02	3257.00 N 12.96 W	3257.03@ 359.77	0.98
11429.00	90.13	359.05	8291.34	62.00	3319.01	3318.98 N 14.25 W	3319.01@ 359.75	1.62
11493.00	89.52	359.02	8291.53	64.00	3383.00	3382.97 N 15.33 W	3383.01@ 359.74	0.95
11554.00	89.16	358.68	8292.23	61.00	3443.99	3443.96 N 16.55 W	3444.00@ 359.72	0.81
11616.00	90.04	358.39	8292.67	62.00	3505.98	3505.93 N 18.14 W	3505.98@ 359.70	1.49
11678.00	89.52	359.20	8292.90	62.00	3567.97	3567.92 N 19.44 W	3567.97@ 359.69	1.55
11740.00	89.16	358.59	8293.62	62.00	3629.96	3629.90 N 20.64 W	3629.96@ 359.67	1.14
11802.00	88.81	358.33	8294.72	62.00	3691.94	3691.87 N 22.30 W	3691.94@ 359.65	0.70
11865.00	88.02	358.73	8296.46	63.00	3754.90	3754.83 N 23.92 W	3754.90@ 359.63	1.41
11927.00	88.55	357.85	8298.32	62.00	3816.86	3816.77 N 25.77 W	3816.86@ 359.61	1.66
11988.00	89.08	357.29	8299.58	61.00	3877.80	3877.70 N 28.36 W	3877.80@ 359.58	1.26
12050.00	89.69	356.71	8300.24	62.00	3939.73	3939.61 N 31.60 W	3939.74@ 359.54	1.36
12112.00	90.13	356.11	8300.34	62.00	4001.63	4001.49 N 35.48 W	4001.65@ 359.49	1.20
12173.00	90.48	357.05	8300.01	61.00	4062.54	4062.38 N 39.12 W	4062.57@ 359.45	1.65
12236.00	90.84	356.98	8299.29	63.00	4125.47	4125.29 N 42.40 W	4125.51@ 359.41	0.58
12298.00	91.28	355.89	8298.14	62.00	4187.36	4187.16 N 46.26 W	4187.41@ 359.37	1.89
12353.00	91.54	355.09	8296.79	55.00	4242.20	4241.97 N 50.58 W	4242.27@ 359.32	1.53
STRAIGHT LINE PROJECTION TO BIT @ 12400' MD.								
12400.00	91.54	355.09	8295.53	47.00	4289.03	4288.78 N 54.60 W	4289.13@ 359.27	0.00



TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	DEVON ENERGY CORPORATION		
LEASE / WELL No.:	COTTON DRAW UNIT	#110H	
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NM	US
RIG:	MCVAY #8		
API WELL No:	30-015-36406		
JOB No:	700000768 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):					
On Wall Plat:	7.41	LWD Calculated:	7.417	Agreed Upon:	7.42
X =	725547.064000	Feet	Y =	430785.290000	Feet
SITE LATITUDE:	32.182905	SITE LONGITUDE:	103.737906		
GRID SYSTEM:	VERDADER ☐	UTM ☐	LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	359.66				
KELLY BUSHING ELEVATION:	19'				
ALTITUDE:	3509	Feet	WATER DEPTH:	N/A	Feet

TIE-IN SURVEY

MEASURED DEPTH:	7628'		
DRIFT ANGLE:	0.59		
DRIFT DIRECTION:	171.39		
TRUE VERTICAL DEPTH:	7625.82		
VERTICAL SECTION:	-71.46		
RECTANGULAR COORDINATE (N / S):	71.13 S		
RECTANGULAR COORDINATE (E / W):	54.47 E		
CLOSURE DISTANCE / DIRECTION:	89.6	142.56	
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:	7732.04	TOTAL DEPTH:	12349.71
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers:

JESUS GARCIA

RYAN MILLER

**Signature of both field engineers required if applicable

Directional Driller: SCOTT BRANDT

DATE: 9-Nov-2010



PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

A Schlumberger Company

DEVON ENERGY
COTTON DRAW UNIT # 110H
EDDY COUNTY, NEW MEXICO
Rig: McVAY 8

Fri Nov-05-11:37:06 2010

Coordinates

Latitude: 32.182905 N (32 deg. 10 min. 58.4578 sec.)
Longitude: 103.737906 W (-103 deg. 44 min. 16.4604 sec.)
Elevation: 3528.00 feet.
Calculation Date: Nov/05/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.1349 degrees
Total Magnetic Field: 0.48633 gauss
Magnetic Declination: 7.733359 degrees
Horizontal Intensity: 0.242174 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.733359 Degs

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 725547.0640 feet
Y: 430785.2900 feet
True to Grid: (convergence) -0.317147 degrees
Magnetic to Grid: 7.416212 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.416212 Degs.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

DEVON ENERGY CORPORATION
COTTON DRAW UNIT #110H
PADUCA; DELAWARE
Rig:MCVAY 8

Thu Nov 11 10:59:10 2010

Coordinates

Latitude: 32.182905 N (32 deg. 10 min. 58.4578 sec.)
Longitude: 103.737906 W (-103 deg. 44 min. 16.4604 sec.)
Elevation: 3528.00 feet.
Calculation Date: Nov/07/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.1346 degrees
Total Magnetic Field: 0.48659 gauss
Magnetic Declination: 7.734473 degrees
Horizontal Intensity: 0.242304 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.734473 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 725547.0640 feet
Y: 430785.2900 feet
True to Grid: (convergence) -0.317147 degrees
Magnetic to Grid: 7.417325 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.417325 Degr.

Pathfinder

6213 W. Interstate 20
Midland, Texas. 79706
Tel. 432.687.1647
Fax 432.687.1544



December 8, 2010

Devon Energy
20 N. Broadway
Oklahoma City, OK

RE: Devon Energy
Cotton Draw #110H
API: 30-015-36406
Eddy County, NM
RIG: McVay 8
FIELD: Paduca; Delaware
PES FILE NO.: 700000768-WT-WT

To whom it may concern:

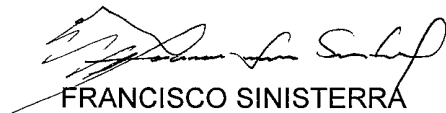
We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

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