

Results of Directional Survey

API number:	30-025-04454		
OGRID:		Operator:	XTO ENERGY, INC
		Property:	EUNICE MONUMENT SOUTH UNIT # 262H

surface	ULSTR:	U(M)	03	T	21S	R	36E
				661	FSL	663	FWL

BH Loc	ULSTR:	O(G)lot 15	04	T	21S	R	36E
7438	MD	3750.3	TVD	3052	FSL	2180	FEL

Top Perf/OH	ULSTR:		03	T	21S	R	36E
0	MD		TVD				

Bot Perf/OH	ULSTR:		04	T	21S	R	36E
0	MD		TVD				

	MD	N/S	E/W	VD
		-464.87	259.70	9425.31
TOP PERFS/OH		#DIV/0!	#DIV/0!	#DIV/0!
		-522.66	284.59	9428.49
		-4470.90	514.18	9490.42
BOT PERFS/OH		#DIV/0!	#DIV/0!	#DIV/0!
		-4516.88	512.74	9491.06

NEXT TO LAST	7386	2355.74	-2804.86	3752.61
LAST READING	7438.2	2390.83	-2843.43	3750.26
TD	7438	2390.70	-2843.28	3750.27

Surface Location	661	FS	663	FW
Projected BHL	3052	FS	2180	FE
Location of				
Top Perfs/OH	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Bottom Perfs/OH	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

SUMMARY of Subsurface Locations

Surface Location	U-03-21S-36E	661	FS	663	FW	Vert. Depth
Top Perfs/OH	U-03-21S-36E	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Bottom Perfs/OH	O-04-21S-36E	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Projected TD	O-04-21S-36E	3052	FS	2180	FE	3750.27



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

HOBBS OCD

DEC 03 2012

RECEIVED

XTO ENERGY

EUNICE MONUMENT SOUTH UNIT #262H ST01

LEA COUNTY, NEW MEXICO

SUR: U-3-21s-36e, 661/S & 663/W
BHL: O-4-21s-36e, 3052/S & 2180/E
API # 30-025-04454

PREPARED BY: MARCUS MITCHAM

Pathfinder

6213 WCR. 112
Midland, Texas. 79706-3725, USA
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) JEFF CORBETT
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 8/17/12 TO 8/18/12
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:

XTO ENERGY INC.
EUNICE MONUMENT SOUTH UNIT #262H ST01
LEA COUNTY, NM
RIG: KEY #36
9. SURVEY CERTIFIED FROM: 3,570 TO 7,386 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 3,714.99 FEET ON A BEARING OF 310.06 DEGREES. FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 7,438.20 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



MARCUS MITCHAM
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

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Tie-in Date: 08/24/2012
Date Completed: 09/07/2012

XTO ENERGY
EMSU #262H ST01
LEA COUNTY, NM
Rig:KEY ENERGY 36
PathFinder Office Supervisor: MARCUS MITCHAM
PathFinder Field Engineers:JEFF CORBETT
EMMANUEL HERNANDEZ

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.30.8.5170 N LON:103.15.32.8745 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 831176.7000 Y: 548141.7000
North Aligned To:GRID NORTH
Total Magnetic Correction: 6.74° EAST TO GRID
Vertical Section Plane: 310.04
Survey Vert. Reference: 12.00' Kelly Bushing To Ground
Altitude:3582.00' Ground To MSL

Measured Depth	7438.20	(feet)
Inclination	92.59	(deg)
Azimuth	312.29	(deg)
True Vertical Depth	3750.26	(feet)
Vertical Section	3714.99	(feet)
Survey X cord	828333.27	(feet)
Survey Y cord	550532.53	(feet)
Survey Lat	32.50901517 N	(deg)
Survey Lon	103.26827590 W	(deg)
Rectangular Corr. N/S	2390.83 N	(feet)
Rectangular Corr. E/W	2843.43 W	(feet)
Closure Distance	3714.99	(feet)
Direction of Closure	310.06	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

XTO ENERGY
EMSU #262H ST01
LEA COUNTY, NM
Rig:KEY ENERGY 36
PathFinder Office Supervisor: MARCUS MITCHAM
PathFinder Field Engineers: JEFF CORBETT
EMMANUEL HERNANDEZ

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.30.8.5170 N LON:103.15.32.8745 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 831176.7000 Y: 548141.7000
North Aligned To:GRID NORTH
Total Magnetic Correction: 6.74° EAST TO GRID
Vertical Section Plane: 310.04
Survey Vert. Reference: 12.00' Kelly Bushing To Ground
Altitude:3582.00' Ground To MSL

Survey Calculations by RX5 V6.04B using Minimum Curvature

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)
TIED-IN TO SCIENTIFIC DRILLING GYRO SURVEY AT 3500'MD										
3500.00	0.12	286.52	3499.79	0.00	-17.47	0.56 S	22.35 E	22.36@	91.44	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS										
3570.00	0.07	192.80	3569.79	70.00	-17.42	0.58 S	22.27 E	22.28@	91.49	0.20
3629.00	22.51	282.80	3627.28	59.00	-7.27	1.92 N	11.11 E	11.27@	80.20	38.15
3645.00	28.14	285.00	3641.74	16.00	-1.12	3.57 N	4.47 E	5.72@	51.34	35.67
3660.00	33.33	285.97	3654.63	15.00	5.85	5.63 N	2.92 W	6.34@	332.61	34.76
3674.00	37.90	289.84	3666.01	14.00	13.40	8.14 N	10.66 W	13.42@	307.37	36.38
3689.00	41.86	294.49	3677.52	15.00	22.55	11.79 N	19.56 W	22.83@	301.07	33.03
3706.00	46.78	296.95	3689.68	17.00	34.06	16.95 N	30.25 W	34.67@	299.26	30.65
3721.00	48.45	296.47	3699.79	15.00	44.84	21.93 N	40.14 W	45.74@	298.64	11.38
3737.00	50.21	294.81	3710.22	16.00	56.59	27.18 N	51.09 W	57.86@	298.01	13.52
3752.00	51.97	293.47	3719.64	15.00	67.82	31.95 N	61.74 W	69.51@	297.36	13.64
3769.00	53.29	292.11	3729.96	17.00	80.72	37.18 N	74.19 W	82.99@	296.62	10.03
3784.00	55.22	291.33	3738.72	15.00	92.27	41.68 N	85.50 W	95.12@	295.99	13.54
3800.00	57.24	290.54	3747.61	16.00	104.84	46.43 N	97.92 W	108.37@	295.37	13.28
3815.00	59.36	290.45	3755.50	15.00	116.87	50.90 N	109.88 W	121.09@	294.86	14.14
3831.00	63.75	290.54	3763.11	16.00	130.12	55.83 N	123.05 W	135.12@	294.40	27.44
3846.00	68.06	290.36	3769.24	15.00	143.02	60.61 N	135.88 W	148.78@	294.04	28.75
3863.00	72.81	290.10	3774.93	17.00	158.09	66.15 N	150.90 W	164.77@	293.67	27.98
3878.00	76.94	289.48	3778.84	15.00	171.67	71.05 N	164.53 W	179.21@	293.36	27.82
3894.00	81.51	288.87	3781.83	16.00	186.35	76.21 N	179.37 W	194.89@	293.02	28.81
3909.00	83.10	288.87	3783.84	15.00	200.21	81.02 N	193.43 W	209.72@	292.73	10.60
3926.00	84.42	289.13	3785.69	17.00	215.98	86.52 N	209.41 W	226.58@	292.45	7.91
3941.00	84.94	289.22	3787.08	15.00	229.94	91.42 N	223.52 W	241.49@	292.25	3.52
3958.00	85.56	289.66	3788.49	17.00	245.80	97.06 N	239.50 W	258.42@	292.06	4.47

PathFinder Energy Services, Inc.

Survey Report

XTO ENERGY
 EMSU #262H ST01
 LEA COUNTY, NM
 RIG:KEY ENERGY 36

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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)
3973.00	85.74	290.80	3789.62	15.00	259.87	102.23 N	253.53 W	273.37@	291.96	7.67
3989.00	85.47	292.30	3790.85	16.00	275.00	108.09 N	268.37 W	289.32@	291.94	9.50
4004.00	85.91	293.00	3791.98	15.00	289.27	113.85 N	282.17 W	304.27@	291.97	5.50
4021.00	86.79	294.32	3793.06	17.00	305.55	120.66 N	297.71 W	321.23@	292.06	9.32
4036.00	87.41	295.20	3793.82	15.00	320.00	126.94 N	311.31 W	336.20@	292.18	7.17
4052.00	88.55	296.08	3794.38	16.00	335.49	133.85 N	325.73 W	352.16@	292.34	9.00
4067.00	89.25	296.78	3794.67	15.00	350.06	140.53 N	339.16 W	367.12@	292.51	6.60
4084.00	90.84	297.31	3794.66	17.00	366.63	148.26 N	354.30 W	384.07@	292.71	9.86
4099.00	91.63	297.66	3794.33	15.00	381.27	155.18 N	367.60 W	399.01@	292.89	5.76
4115.00	91.63	298.18	3793.88	16.00	396.90	162.67 N	381.73 W	414.95@	293.08	3.25
4147.00	91.36	301.26	3793.04	32.00	428.37	178.53 N	409.51 W	446.73@	293.55	9.66
4179.00	91.01	303.37	3792.38	32.00	460.07	195.63 N	436.55 W	478.38@	294.14	6.68
4209.00	90.92	305.39	3791.88	30.00	489.92	212.56 N	461.30 W	507.92@	294.74	6.74
4240.00	90.13	306.80	3791.59	31.00	520.84	230.83 N	486.35 W	538.35@	295.39	5.21
4272.00	90.31	308.56	3791.47	32.00	552.81	250.39 N	511.67 W	569.65@	296.07	5.53
4303.00	90.48	309.88	3791.26	31.00	583.81	269.99 N	535.69 W	599.88@	296.75	4.29
4335.00	90.22	311.72	3791.06	32.00	615.80	290.89 N	559.91 W	630.97@	297.45	5.81
4367.00	89.96	311.98	3791.01	32.00	647.79	312.24 N	583.75 W	662.01@	298.14	1.15
4398.00	89.87	311.90	3791.06	31.00	678.77	332.96 N	606.81 W	692.16@	298.75	0.39
4430.00	90.04	313.13	3791.08	32.00	710.74	354.59 N	630.40 W	723.28@	299.36	3.88
4462.00	90.31	313.04	3790.98	32.00	742.70	376.45 N	653.77 W	754.40@	299.93	0.89
4494.00	90.66	312.77	3790.71	32.00	774.65	398.23 N	677.20 W	785.62@	300.46	1.38
4525.00	90.75	312.34	3790.33	31.00	805.62	419.19 N	700.04 W	815.95@	300.91	1.42
4556.00	91.01	312.77	3789.86	31.00	836.59	440.16 N	722.87 W	846.33@	301.34	1.62
4588.00	90.84	313.13	3789.34	32.00	868.54	461.96 N	746.29 W	877.70@	301.76	1.24
4619.00	90.66	313.39	3788.93	31.00	899.49	483.20 N	768.86 W	908.09@	302.15	1.02
4652.00	90.66	313.48	3788.55	33.00	932.43	505.89 N	792.83 W	940.47@	302.54	0.27
4683.00	91.01	313.57	3788.10	31.00	963.37	527.23 N	815.30 W	970.92@	302.89	1.17

PathFinder Energy Services, Inc.

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 RIG:KEY ENERGY 36

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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)
4715.00	91.28	313.30	3787.46	32.00	995.31	549.23 N	838.53 W	1002.39@	303.22	1.19
4746.00	91.45	313.21	3786.72	31.00	1026.25	570.47 N	861.10 W	1032.92@	303.52	0.62
4778.00	91.54	313.21	3785.89	32.00	1058.19	592.37 N	884.42 W	1064.47@	303.81	0.28
4810.00	91.71	313.13	3784.98	32.00	1090.13	614.25 N	907.75 W	1096.04@	304.09	0.59
4841.00	91.71	313.21	3784.06	31.00	1121.07	635.45 N	930.35 W	1126.65@	304.33	0.26
4873.00	92.15	313.57	3782.98	32.00	1153.00	657.42 N	953.59 W	1158.25@	304.58	1.78
4905.00	92.15	313.30	3781.78	32.00	1184.92	679.41 N	976.81 W	1189.85@	304.82	0.84
4936.00	90.57	312.77	3781.04	31.00	1215.87	700.56 N	999.46 W	1220.53@	305.03	5.38
4968.00	90.66	313.04	3780.70	32.00	1247.82	722.34 N	1022.90 W	1252.24@	305.23	0.89
5000.00	90.40	312.77	3780.40	32.00	1279.78	744.13 N	1046.34 W	1283.96@	305.42	1.17
5031.00	90.57	312.60	3780.14	31.00	1310.75	765.14 N	1069.12 W	1314.71@	305.59	0.78
5063.00	90.84	312.60	3779.75	32.00	1342.71	786.80 N	1092.68 W	1346.48@	305.76	0.84
5094.00	91.01	312.34	3779.25	31.00	1373.68	807.73 N	1115.54 W	1377.26@	305.91	1.00
5127.00	91.10	313.04	3778.64	33.00	1406.64	830.10 N	1139.79 W	1410.03@	306.07	2.14
5159.00	90.84	312.34	3778.10	32.00	1438.60	851.79 N	1163.31 W	1441.82@	306.21	2.33
5190.00	91.71	312.51	3777.41	31.00	1469.57	872.70 N	1186.19 W	1472.63@	306.34	2.86
5222.00	91.98	312.69	3776.38	32.00	1501.52	894.35 N	1209.73 W	1504.43@	306.48	1.01
5254.00	90.75	311.55	3775.61	32.00	1533.49	915.80 N	1233.46 W	1536.27@	306.59	5.24
5286.00	90.40	311.46	3775.29	32.00	1565.48	937.01 N	1257.42 W	1568.15@	306.69	1.13
5316.00	90.75	311.37	3774.99	30.00	1595.47	956.85 N	1279.92 W	1598.05@	306.78	1.20
5348.00	91.28	310.93	3774.43	32.00	1627.45	977.91 N	1304.01 W	1629.95@	306.87	2.15
5380.00	90.04	311.28	3774.06	32.00	1659.45	998.94 N	1328.12 W	1661.86@	306.95	4.03
5412.00	88.46	311.81	3774.48	32.00	1691.43	1020.16 N	1352.07 W	1693.76@	307.04	5.21
5444.00	88.46	312.16	3775.34	32.00	1723.40	1041.56 N	1375.85 W	1725.63@	307.13	1.09
5475.00	88.55	311.46	3776.14	31.00	1754.38	1062.22 N	1398.94 W	1756.52@	307.21	2.28
5507.00	88.64	311.28	3776.93	32.00	1786.36	1083.36 N	1422.95 W	1788.43@	307.28	0.63
5539.00	89.34	311.28	3777.49	32.00	1818.34	1104.47 N	1447.00 W	1820.34@	307.35	2.19
5570.00	90.92	311.81	3777.42	31.00	1849.33	1125.03 N	1470.20 W	1851.26@	307.42	5.38

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5602.00	91.80	311.55	3776.66	32.00	1881.31	1146.30 N	1494.09 W	1883.17@	307.50	2.87
5634.00	92.59	311.63	3775.44	32.00	1913.27	1167.53 N	1518.00 W	1915.06@	307.56	2.48
5665.00	91.01	312.16	3774.46	31.00	1944.24	1188.22 N	1541.07 W	1945.96@	307.63	5.38
5696.00	90.66	312.07	3774.01	31.00	1975.22	1209.01 N	1564.06 W	1976.86@	307.70	1.17
5728.00	91.63	311.90	3773.37	32.00	2007.19	1230.41 N	1587.84 W	2008.77@	307.77	3.08
5759.00	92.15	311.98	3772.35	31.00	2038.16	1251.12 N	1610.89 W	2039.67@	307.84	1.70
5791.00	90.75	311.98	3771.54	32.00	2070.13	1272.51 N	1634.67 W	2071.58@	307.90	4.37
5822.00	91.01	311.81	3771.06	31.00	2101.11	1293.21 N	1657.74 W	2102.50@	307.96	1.00
5853.00	91.36	311.81	3770.42	31.00	2132.09	1313.87 N	1680.84 W	2133.42@	308.01	1.13
5885.00	91.01	311.90	3769.76	32.00	2164.07	1335.22 N	1704.67 W	2165.34@	308.07	1.13
5917.00	91.54	312.07	3769.05	32.00	2196.04	1356.62 N	1728.45 W	2197.26@	308.13	1.74
5949.00	91.80	311.81	3768.12	32.00	2228.01	1378.00 N	1752.24 W	2229.18@	308.18	1.15
5980.00	90.31	311.72	3767.55	31.00	2258.99	1398.64 N	1775.36 W	2260.11@	308.23	4.81
6012.00	89.08	311.63	3767.72	32.00	2290.97	1419.92 N	1799.26 W	2292.06@	308.28	3.85
6043.00	89.34	311.46	3768.14	31.00	2321.96	1440.48 N	1822.46 W	2323.00@	308.32	1.00
6075.00	89.69	311.11	3768.41	32.00	2353.95	1461.59 N	1846.51 W	2354.96@	308.36	1.55
6106.00	90.04	311.37	3768.49	31.00	2384.94	1482.03 N	1869.82 W	2385.92@	308.40	1.41
6138.00	90.57	311.37	3768.32	32.00	2416.94	1503.17 N	1893.83 W	2417.88@	308.44	1.66
6169.00	91.10	311.72	3767.87	31.00	2447.92	1523.73 N	1917.03 W	2448.83@	308.48	2.05
6201.00	90.40	312.86	3767.45	32.00	2479.89	1545.26 N	1940.70 W	2480.76@	308.53	4.18
6233.00	90.75	313.21	3767.13	32.00	2511.85	1567.10 N	1964.09 W	2512.66@	308.59	1.55
6265.00	90.57	313.48	3766.76	32.00	2543.79	1589.06 N	1987.36 W	2544.55@	308.65	1.01
6296.00	90.92	313.65	3766.35	31.00	2574.73	1610.42 N	2009.82 W	2575.43@	308.70	1.26
6327.00	90.66	313.57	3765.93	31.00	2605.67	1631.80 N	2032.26 W	2606.32@	308.76	0.88
6359.00	89.60	312.95	3765.85	32.00	2637.62	1653.73 N	2055.57 W	2638.22@	308.82	3.84
6391.00	89.87	312.77	3766.00	32.00	2669.58	1675.50 N	2079.02 W	2670.14@	308.87	1.01
6422.00	89.87	313.13	3766.07	31.00	2700.54	1696.62 N	2101.71 W	2701.06@	308.91	1.16
6455.00	90.22	313.39	3766.05	33.00	2733.48	1719.24 N	2125.75 W	2733.97@	308.96	1.32

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 RIG:KEY ENERGY 36

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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)	
6486.00	90.57	313.83	3765.83	31.00	2764.42	1740.62 N	2148.19 W	2764.86@	309.02	1.81
6518.00	90.66	313.65	3765.49	32.00	2796.36	1762.74 N	2171.31 W	2796.76@	309.07	0.63
6550.00	90.84	313.92	3765.07	32.00	2828.28	1784.88 N	2194.41 W	2828.65@	309.12	1.01
6582.00	91.28	313.83	3764.48	32.00	2860.21	1807.06 N	2217.47 W	2860.53@	309.18	1.40
6614.00	91.45	313.48	3763.72	32.00	2892.13	1829.14 N	2240.62 W	2892.43@	309.23	1.22
6646.00	91.80	313.48	3762.81	32.00	2924.06	1851.15 N	2263.83 W	2924.33@	309.27	1.09
6677.00	92.33	313.39	3761.69	31.00	2954.99	1872.45 N	2286.32 W	2955.22@	309.32	1.73
6709.00	92.68	313.30	3760.29	32.00	2986.91	1894.39 N	2309.57 W	2987.12@	309.36	1.13
6740.00	91.89	312.95	3759.06	31.00	3017.84	1915.57 N	2332.18 W	3018.02@	309.40	2.79
6772.00	91.54	312.94	3758.10	32.00	3049.78	1937.36 N	2355.59 W	3049.95@	309.44	1.09
6803.00	90.22	312.36	3757.62	31.00	3080.74	1958.36 N	2378.39 W	3080.90@	309.47	4.65
6835.00	90.13	312.54	3757.53	32.00	3112.72	1979.96 N	2402.00 W	3112.85@	309.50	0.63
6867.00	89.25	312.39	3757.70	32.00	3144.69	2001.56 N	2425.61 W	3144.81@	309.53	2.79
6898.00	89.87	313.36	3757.94	31.00	3175.65	2022.65 N	2448.33 W	3175.76@	309.56	3.71
6930.00	90.13	314.13	3757.94	32.00	3207.58	2044.78 N	2471.44 W	3207.67@	309.60	2.54
6962.00	90.13	313.39	3757.86	32.00	3239.51	2066.91 N	2494.56 W	3239.59@	309.64	2.31
6993.00	89.87	313.42	3757.86	31.00	3270.46	2088.21 N	2517.08 W	3270.52@	309.68	0.84
7025.00	89.87	313.38	3757.94	32.00	3302.40	2110.20 N	2540.33 W	3302.46@	309.72	0.13
7057.00	90.22	313.57	3757.91	32.00	3334.35	2132.22 N	2563.55 W	3334.39@	309.75	1.25
7089.00	89.87	313.17	3757.89	32.00	3366.29	2154.19 N	2586.81 W	3366.32@	309.79	1.66
7120.00	89.96	312.84	3757.93	31.00	3397.25	2175.34 N	2609.48 W	3397.28@	309.82	1.10
7151.00	90.48	312.81	3757.81	31.00	3428.21	2196.41 N	2632.22 W	3428.23@	309.84	1.68
7183.00	90.75	313.00	3757.47	32.00	3460.17	2218.19 N	2655.66 W	3460.19@	309.87	1.03
7215.00	90.31	312.67	3757.17	32.00	3492.13	2239.95 N	2679.12 W	3492.14@	309.90	1.72
7246.00	91.01	313.03	3756.82	31.00	3523.09	2261.03 N	2701.85 W	3523.10@	309.92	2.54
7277.00	91.10	312.72	3756.25	31.00	3554.05	2282.12 N	2724.56 W	3554.05@	309.95	1.04
7309.00	91.80	312.71	3755.44	32.00	3586.00	2303.82 N	2748.06 W	3586.01@	309.97	2.19
7341.00	91.98	312.35	3754.38	32.00	3617.96	2325.44 N	2771.63 W	3617.96@	310.00	1.26

PathFinder Energy Services, Inc.

Survey Report

XTO ENERGY
 EMSU #262H ST01
 LEA COUNTY, NM
 RIG:KEY ENERGY 36

Page 06/05

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)
7372.00	92.33	312.40	3753.22	31.00	3648.91	2346.32 N	2794.52 W	3648.91@	310.02	1.14
7386.00	92.59	312.29	3752.61	14.00	3662.88	2355.74 N	2804.86 W	3662.88@	310.03	2.02
STRAIGHT LINE PROJECTION TO BIT DEPTH AT 7438.20' MD										
7438.20	92.59	312.29	3750.26	52.20	3714.99	2390.83 N	2843.43 W	3714.99@	310.06	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	XTO ENERGY		
LEASE / WELL No.:	EMSU	#262H	
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	KEY #36		
API WELL No:	30-025-0445401		
JOB No:	12MLD0401		
P.O. / AFE No.	1201064		
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	6.79	LWD Calculated:	6.74
		Agreed Upon:	6.74
X =	831176.700000	Feet	Y = 548141.700000
			Feet
SITE LATITUDE:	32.502366 N	SITE LONGITUDE:	103.259132 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	310.04		
KELLY BUSHING ELEVATION:	12		
ALTITUDE:	3594	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	3500		
DRIFT ANGLE:	0.12		
DRIFT DIRECTION:	286.52		
TRUE VERTICAL DEPTH:	3499.79		
VERTICAL SECTION:	-17.47		
RECTANGULAR COORDINATE (N / S) :	-0.56		
RECTANGULAR COORDINATE (E / W) :	22.35		
CLOSURE DISTANCE / DIRECTION:	22.35	91.44	
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:	3500	TOTAL DEPTH:	7468.7
KICKOFF ANGLE:	0.12	MAX ANGLE:	90.72

PES Engineers:

JEFF CORBETT

**Signature of both field engineers required if applicable

EMMANUEL HERNANDEZ

Directional Driller: BRETT NICHOLS

DATE: 24-Aug-2012



Gyroscopic Survey Report
for
XTO

Well Location	LEA COUNTY, NEW MEXICO
Well Name	EUNICE MONUMENT SOUTH UNIT #262
Rig Name	PROVIDENCE #1
Survey Date	6/12/2012
Latitude	32.5020000°N
North Reference	Grid North
Grid Correction	-0.58 deg
Depth Reference	GROUND LEVEL (0.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	FINAL GYRO SURVEY
Operator(s)	DUSTIN FIGUEROA

Well Notes

SUR: U-3-21s-36e, 661/S & 663/W
BHL: O-4-21s-36e, 3052/S & 2180/E
API # 30-025-04454



Survey:		FINAL GYRO SURVEY								
Survey Date:		6/12/2012								
MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Direction	Dogleg Severity	Closure Distance	
ft	deg	deg	ft	ft	ft	ft	deg	7100ft	ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	
100.00	0.47	136.79	100.00	-0.30	-0.30	0.28	136.79	0.47	0.41	
200.00	0.67	110.10	199.99	-0.81	-0.81	1.12	125.74	0.33	1.38	
300.00	0.82	107.02	299.99	-1.22	-1.22	2.36	117.32	0.15	2.65	
400.00	0.97	94.83	399.97	-1.50	-1.50	3.89	111.07	0.24	4.17	
500.00	1.14	95.04	499.96	-1.66	-1.66	5.73	106.13	0.17	5.97	
600.00	1.19	87.54	599.94	-1.70	-1.70	7.77	102.36	0.16	7.95	
700.00	1.31	86.62	699.91	-1.59	-1.59	9.95	99.07	0.12	10.07	
800.00	0.93	93.72	799.89	-1.57	-1.57	11.90	97.53	0.41	12.00	
900.00	0.57	76.54	899.88	-1.51	-1.51	13.19	96.53	0.42	13.28	
1000.00	0.33	48.25	999.88	-1.20	-1.20	13.89	94.95	0.32	13.94	
1100.00	0.11	339.68	1099.88	-0.92	-0.92	14.07	93.76	0.31	14.10	
1200.00	0.12	267.95	1199.88	-0.84	-0.84	13.94	93.45	0.13	13.96	
1300.00	0.12	350.40	1299.88	-0.74	-0.74	13.81	93.05	0.16	13.83	
1400.00	0.14	172.15	1399.88	-0.75	-0.75	13.81	93.11	0.27	13.83	
1500.00	0.26	276.55	1499.88	-0.85	-0.85	13.60	93.57	0.33	13.62	
1600.00	0.28	166.37	1599.88	-1.06	-1.06	13.43	94.50	0.45	13.47	
1700.00	0.40	240.97	1699.88	-1.46	-1.46	13.17	96.34	0.43	13.26	
1800.00	0.01	63.98	1799.88	-1.63	-1.63	12.87	97.22	0.41	12.98	
1900.00	0.33	309.50	1899.88	-1.44	-1.44	12.66	96.50	0.34	12.74	
2000.00	0.07	18.82	1999.88	-1.20	-1.20	12.45	95.50	0.32	12.51	
2100.00	0.50	31.31	2099.87	-0.77	-0.77	12.70	93.45	0.44	12.72	
2200.00	0.79	85.89	2199.87	-0.34	-0.34	13.62	91.43	0.65	13.62	
2300.00	1.20	78.97	2299.85	-0.09	-0.09	15.34	90.34	0.43	15.34	
2400.00	0.70	75.04	2399.84	0.27	0.27	16.96	89.09	0.51	16.96	
2500.00	0.95	92.06	2499.83	0.40	0.40	18.38	88.76	0.35	18.38	
2600.00	0.58	53.82	2599.82	0.67	0.67	19.61	88.05	0.61	19.63	
2700.00	0.31	111.04	2699.82	0.87	0.87	20.28	87.54	0.49	20.30	
2800.00	0.19	112.84	2799.82	0.71	0.71	20.69	88.04	0.12	20.70	
2900.00	0.55	97.48	2899.81	0.58	0.58	21.31	88.44	0.37	21.32	
3000.00	0.72	109.81	2999.81	0.31	0.31	22.38	89.21	0.22	22.38	
3100.00	0.59	110.44	3099.80	-0.08	-0.08	23.44	90.20	0.13	23.44	
3200.00	0.50	131.03	3199.80	-0.55	-0.55	24.25	91.30	0.21	24.26	
3300.00	0.58	275.07	3299.79	-0.79	-0.79	24.08	91.89	1.03	24.10	
3400.00	0.66	277.94	3399.79	-0.67	-0.67	23.01	91.67	0.08	23.02	
3500.00	0.12	286.52	3499.79	-0.56	-0.56	22.35	91.44	0.54	22.35	
3600.00	0.12	167.48	3599.79	-0.64	-0.64	22.27	91.63	0.21	22.28	
3700.00	0.57	231.94	3699.78	-1.04	-1.04	21.90	92.72	0.52	21.93	



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

XTO Energy
EMSU #262H
Lea County, New Mexico
Rig:Key #36

Fri Aug 10 16:29:26 2012

Coordinates

Latitude: 32.502366 N (32 deg. 30 min. 8.5170 sec.)
Longitude: 103.259132 W (-103 deg. 15 min. 32.8745 sec.)
Elevation: 3606.00 feet.
Calculation Date: Aug/10/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.4692 degrees
Total Magnetic Field: 0.48701 gauss
Magnetic Declination: 7.317262 degrees
Horizontal Intensity: 0.240045 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.317262 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 831176.7000 feet
Y: 548141.7000 feet
True to Grid: (convergence) -0.577254 degrees
Magnetic to Grid: 6.740008 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 6.740008 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

FOOT
CALCULATION
(SIDETRACK 1)

XTO ENERGY
EMSU #262 ST01
EUNICE MONUMENT SOUTH UNIT

Fri Aug 24 14:54:17 2012

Coordinates

Latitude: 32.502366 N (32 deg. 30 min. 8.5170 sec.)
Longitude: 103.259132 W (-103 deg. 15 min. 32.8745 sec.)
Elevation: 3594.00 feet.
Calculation Date: Aug/24/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.4682 degrees
Total Magnetic Field: 0.48698 gauss
Magnetic Declination: 7.312507 degrees
Horizontal Intensity: 0.240034 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.312507 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 831176.7000 feet
Y: 548141.7000 feet
True to Grid: (convergence) -0.577254 degrees
Magnetic to Grid: 6.735253 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 6.735253 Degs.



A Schlumberger Company

HOBBS OGD

NOV 13 2012

DIRECTIONAL SURVEY REPORT

RECEIVED

XTO ENERGY

EUNICE MONUMENT SOUTH UNIT #262H

LEA COUNTY, NEW MEXICO

SUR: U-3-21s-36e, 661/S & 663/W
BHL: O-4-21s-36e, 3052/S & 2180/E
API # 30-025-04454

PREPARED BY: MARCUS MITCHAM

Pathfinder

6213 WCR. 112
Midland, Texas. 79706-3725, USA
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) JEFF CORBETT
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 8/17/12 TO 8/18/12
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:

XTO ENERGY INC.
EUNICE MONUMENT SOUTH UNIT #262H
LEA COUNTY, NM
RIG: KEY #36

9. SURVEY CERTIFIED FROM: 3,660 TO 3,709 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 11.61 FEET ON A BEARING OF 343.50 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 3,766 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "MARCUS MITCHAM".

MARCUS MITCHAM
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 08/16/2012
Date Completed: 08/21/2012

XTO ENERGY
EMSU #262H
LEA COUNTY, NM
Rig:KEY ENERGY 36
PathFinder Office Supervisor: MARCUS MITCHAM
PathFinder Field Engineers:JEFF CORBETT
EMMANUEL HERNANDEZ

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.30.8.5170 N LON:103.15.32.8745 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 831176.7000 Y: 548141.7000
North Aligned To:GRID NORTH
Total Magnetic Correction: 6.74° EAST TO GRID
Vertical Section Plane: 310.04
Survey Vert. Reference: 12.00' Rotary Table To Ground
Altitude:3582.00' Ground To MSL

Measured Depth	3766.00	(feet)
Inclination	19.52	(deg)
Azimuth	295.29	(deg)
True Vertical Depth	3761.44	(feet)
Vertical Section	9.69	(feet)
Survey X cord	831173.40	(feet)
Survey Y cord	548152.83	(feet)
Survey Lat	32.50239653 N	(deg)
Survey Lon	103.25914215 W	(deg)
Rectangular Corr. N/S	11.13 N	(feet)
Rectangular Corr. E/W	3.30 W	(feet)
Closure Distance	11.61	(feet)
Direction of Closure	343.50	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

Page 01/01

Tie-in Date: 08/16/2012

Date Completed: 08/21/2012

XTO ENERGY

EMSU #262H

LEA COUNTY, NM

Rig:KEY ENERGY 36

PathFinder Office Supervisor: MARCUS MITCHAM

PathFinder Field Engineers: JEFF CORBETT

EMMANUEL HERNANDEZ

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.30.8.5170 N LON:103.15.32.8745 W

GRID Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 831176.7000 Y: 548141.7000

North Aligned To:GRID NORTH

Total Magnetic Correction: 6.74° EAST TO GRID

Vertical Section Plane: 310.04

Survey Vert. Reference: 12.00' Rotary Table To Ground

Altitude:3582.00' Ground To MSL

Survey Calculations by RX5 V6.04B using Minimum Curvature

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)
TIED-IN TO SCIENTIFIC DRILLING GYRO SURVEY AT 3600'MD										
3600.00	0.12	167.48	3599.79	0.00	-17.46	0.64 S	22.27 E	22.28@	91.65	0.00
3660.00	0.37	225.13	3659.79	60.00	-17.49	0.84 S	22.15 E	22.16@	92.17	0.54
3676.00	8.35	295.37	3675.73	16.00	-16.36	0.38 S	21.06 E	21.06@	91.02	51.45
3692.00	13.54	295.29	3691.28	15.84	-13.46	0.91 N	18.34 E	18.36@	87.16	32.77
3709.00	19.52	295.29	3707.63	17.06	-8.76	2.98 N	13.95 E	14.27@	77.94	35.05
STRAIGHT LINE PROJECTION TO BIT DEPTH AT 3766'MD										
3766.00	19.52	295.29	3761.44	57.10	9.69	11.13 N	3.30 W	11.61@	343.50	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	XTO ENERGY		
LEASE / WELL No.:	EMSU	#262H	
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	KEY #36		
API WELL No:	30-025-0445401		
JOB No:	12MLD0401		
P.O. / AFE No.	1201064		
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	6.79	LWD Calculated:	6.74
		Agreed Upon:	6.74
X =	831176.700000	Feet	Y = 548141.700000
			Feet
SITE LATITUDE:	32.502366 N	SITE LONGITUDE:	103.259132 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	310.04		
KELLY BUSHING ELEVATION:	12		
ALTITUDE:	3594	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	3600		
DRIFT ANGLE:	0.12		
DRIFT DIRECTION:	167.48		
TRUE VERTICAL DEPTH:	3599.79		
VERTICAL SECTION:	-17.46		
RECTANGULAR COORDINATE (N / S) :	-0.64		
RECTANGULAR COORDINATE (E / W) :	22.27		
CLOSURE DISTANCE / DIRECTION:	22.28	91.65	
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:	3600	TOTAL DEPTH:	7468.7
KICKOFF ANGLE:	0.12	MAX ANGLE:	90.72

PES Engineers: JEFF CORBETT
EMMANUEL HERNANDEZ

**Signature of both field engineers required if applicable

Directional Driller: BRETT NICHOLS

DATE: 16-Aug-2012



Gyroscopic Survey Report
for
XTO

Well Location	LEA COUNTY, NEW MEXICO
Well Name	EUNICE MONUMENT SOUTH UNIT #262
Rig Name	PROVIDENCE #1
Survey Date	6/12/2012
Latitude	32.5020000°N
North Reference	Grid North
Grid Correction	-0.58 deg
Depth Reference	GROUND LEVEL (0.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	FINAL GYRO SURVEY
Operator(s)	DUSTIN FIGUEROA

Well Notes



Survey: FINAL GYRO SURVEY									
Survey Date: 6/12/2012									
MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Direction	Dogleg Severity	Closure Distance
ft	deg	deg	ft	ft	ft	ft	deg	7100ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00
100.00	0.47	136.79	100.00	-0.30	-0.30	0.28	136.79	0.47	0.41
200.00	0.67	110.10	199.99	-0.81	-0.81	1.12	125.74	0.33	1.38
300.00	0.82	107.02	299.99	-1.22	-1.22	2.36	117.32	0.15	2.65
400.00	0.97	94.83	399.97	-1.50	-1.50	3.89	111.07	0.24	4.17
500.00	1.14	95.04	499.96	-1.66	-1.66	5.73	106.13	0.17	5.97
600.00	1.19	87.54	599.94	-1.70	-1.70	7.77	102.36	0.16	7.95
700.00	1.31	86.62	699.91	-1.59	-1.59	9.95	99.07	0.12	10.07
800.00	0.93	93.72	799.89	-1.57	-1.57	11.90	97.53	0.41	12.00
900.00	0.57	76.54	899.88	-1.51	-1.51	13.19	96.53	0.42	13.28
1000.00	0.33	48.25	999.88	-1.20	-1.20	13.89	94.95	0.32	13.94
1100.00	0.11	339.68	1099.88	-0.92	-0.92	14.07	93.76	0.31	14.10
1200.00	0.12	267.95	1199.88	-0.84	-0.84	13.94	93.45	0.13	13.96
1300.00	0.12	350.40	1299.88	-0.74	-0.74	13.81	93.05	0.16	13.83
1400.00	0.14	172.15	1399.88	-0.75	-0.75	13.81	93.11	0.27	13.83
1500.00	0.26	276.55	1499.88	-0.85	-0.85	13.60	93.57	0.33	13.62
1600.00	0.28	166.37	1599.88	-1.06	-1.06	13.43	94.50	0.45	13.47
1700.00	0.40	240.97	1699.88	-1.46	-1.46	13.17	96.34	0.43	13.26
1800.00	0.01	63.98	1799.88	-1.63	-1.63	12.87	97.22	0.41	12.98
1900.00	0.33	309.50	1899.88	-1.44	-1.44	12.66	96.50	0.34	12.74
2000.00	0.07	18.82	1999.88	-1.20	-1.20	12.45	95.50	0.32	12.51
2100.00	0.50	31.31	2099.87	-0.77	-0.77	12.70	93.45	0.44	12.72
2200.00	0.79	85.89	2199.87	-0.34	-0.34	13.62	91.43	0.65	13.62
2300.00	1.20	78.97	2299.85	-0.09	-0.09	15.34	90.34	0.43	15.34
2400.00	0.70	75.04	2399.84	0.27	0.27	16.96	89.09	0.51	16.96
2500.00	0.95	92.06	2499.83	0.40	0.40	18.38	88.76	0.35	18.38
2600.00	0.58	53.82	2599.82	0.67	0.67	19.61	88.05	0.61	19.63
2700.00	0.31	111.04	2699.82	0.87	0.87	20.28	87.54	0.49	20.30
2800.00	0.19	112.84	2799.82	0.71	0.71	20.69	88.04	0.12	20.70
2900.00	0.55	97.48	2899.81	0.58	0.58	21.31	88.44	0.37	21.32
3000.00	0.72	109.81	2999.81	0.31	0.31	22.38	89.21	0.22	22.38
3100.00	0.59	110.44	3099.80	-0.08	-0.08	23.44	90.20	0.13	23.44
3200.00	0.50	131.03	3199.80	-0.55	-0.55	24.25	91.30	0.21	24.26
3300.00	0.58	275.07	3299.79	-0.79	-0.79	24.08	91.89	1.03	24.10
3400.00	0.66	277.94	3399.79	-0.67	-0.67	23.01	91.67	0.08	23.02
3500.00	0.12	286.52	3499.79	-0.56	-0.56	22.35	91.44	0.54	22.35
3600.00	0.12	167.48	3599.79	-0.64	-0.64	22.27	91.63	0.21	22.28
3700.00	0.57	231.94	3699.78	-1.04	-1.04	21.90	92.72	0.52	21.93



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

XTO Energy
EMSU #262H
Lea County, New Mexico
Rig:Key #36

Fri Aug 10 16:29:26 2012

Coordinates

Latitude: 32.502366 N (32 deg. 30 min. 8.5170 sec.)
Longitude: 103.259132 W (-103 deg. 15 min. 32.8745 sec.)
Elevation: 3606.00 feet.
Calculation Date: Aug/10/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.4692 degrees
Total Magnetic Field: 0.48701 gauss
Magnetic Declination: 7.317262 degrees
Horizontal Intensity: 0.240045 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.317262 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 831176.7000 feet
Y: 548141.7000 feet
True to Grid: (convergence) -0.577254 degrees
Magnetic to Grid: 6.740008 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 6.740008 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Thu Aug 16 19:48:03 2012

Coordinates

Latitude: 32.502366 N (32 deg. 30 min. 8.5170 sec.)
Longitude: 103.259132 W (-103 deg. 15 min. 32.8745 sec.)
Elevation: 3606.00 feet.
Calculation Date: Aug/16/2012

*FIELD
CALCULATION*

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.4687 degrees
Total Magnetic Field: 0.48700 gauss
Magnetic Declination: 7.315222 degrees
Horizontal Intensity: 0.240040 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.315222 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 831176.7000 feet
Y: 548141.7000 feet
True to Grid: (convergence) -0.577254 degrees
Magnetic to Grid: 6.737967 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 6.737967 Degr.