



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

30-015-39/62

DEVON ENERGY

SNAPPING 2 STATE #6H

EDDY COUNTY, NEW MEXICO

PREPARED BY: STEVE BIBB

Pathfinder

6213 WCR 112
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) NICK POND
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 11-05-11 TO 11-15-11
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:

DEVON ENERGY
SNAPPING 2 STATE #6H
EDDY COUNTY, NM
RIG: H&P 416

9. SURVEY CERTIFIED FROM: 8426 TO 13743 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4690.5 FEET ON A BEARING OF 7.16 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 13798 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "S. Bibb".

STEVE BIBB
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 11/04/2011
Date Completed: 11/15/2011

DEVON ENERGY
SNAPPING 2 STATE #6H
EDDY COUNTY, NM
Rig:H&P 416
PathFinder Office Supervisor: STEVE BIBB
PathFinder Field Engineers:NICK POND
MAGSUD ALIYEV

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.3.56.8385 N LON:103.44.51.2924 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 722785.2800 Y: 388163.8100
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.30°EAST TO GRID
Vertical Section Plane: 7.27
Survey Vert. Reference: 26.20' Rotary Table To Ground
Altitude:3241.10' Ground To MSL

Measured Depth	13798.00	(feet)
Inclination	90.22	(deg)
Azimuth	358.74	(deg)
True Vertical Depth	9004.31	(feet)
Vertical Section	4690.49	(feet)
Survey X cord	723369.86	(feet)
Survey Y cord	392817.74	(feet)
Survey Lat	32.07857257 N	(deg)
Survey Lon	103.74561233 W	(deg)
Rectangular Corr. N/S	4653.93 N	(feet)
Rectangular Corr. E/W	584.58 E	(feet)
Closure Distance	4690.50	(feet)
Direction of Closure	7.16	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

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SNAPPING 2 STATE #6H
EDDY COUNTY, NM
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Altitude:3241.10' Ground To MSL

Survey Calculations by RX5 V6.03E 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 INTO SCIENTIFIC GYRO SURVEYS @ 8361' MD.								
8361.00	2.50	220.02	8355.76	0.00	-156.83	161.48 S 26.47 E	163.64@ 170.69	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
8423.00	2.81	357.90	8417.73	62.00	-156.47	161.00 S 25.54 E	163.01@ 170.98	7.99
8455.00	5.80	7.65	8449.64	32.00	-154.08	158.61 S 25.73 E	160.68@ 170.79	9.59
8486.00	9.76	10.55	8480.35	31.00	-149.89	154.47 S 26.42 E	156.72@ 170.29	12.83
8518.00	12.75	12.84	8511.73	32.00	-143.66	148.36 S 27.70 E	150.93@ 169.42	9.45
8549.00	15.48	13.54	8541.79	31.00	-136.14	141.00 S 29.43 E	144.04@ 168.21	8.82
8581.00	18.29	13.01	8572.41	32.00	-126.90	131.96 S 31.56 E	135.68@ 166.55	8.79
8612.00	20.66	12.84	8601.63	31.00	-116.62	121.88 S 33.87 E	126.50@ 164.47	7.65
8644.00	22.95	12.66	8631.34	32.00	-104.79	110.29 S 36.49 E	116.17@ 161.69	7.16
8675.00	25.85	11.61	8659.57	31.00	-92.03	97.77 S 39.18 E	105.33@ 158.16	9.46
8707.00	28.14	11.26	8688.08	32.00	-77.54	83.54 S 42.06 E	93.53@ 153.28	7.17
8739.00	30.25	13.63	8716.01	32.00	-62.00	68.30 S 45.43 E	82.03@ 146.37	7.52
8770.00	33.24	16.79	8742.37	31.00	-45.86	52.57 S 49.73 E	72.36@ 136.59	11.03
8802.00	35.88	18.46	8768.73	32.00	-28.00	35.28 S 55.23 E	65.54@ 122.57	8.77
8833.00	38.34	20.04	8793.45	31.00	-9.71	17.62 S 61.40 E	63.88@ 106.01	8.51
8865.00	41.77	22.77	8817.94	32.00	10.25	1.54 N 68.93 E	68.95@ 88.72	12.04
8895.00	44.41	24.88	8839.85	30.00	29.88	20.28 N 77.22 E	79.84@ 75.29	10.03
8928.00	46.25	26.72	8863.05	33.00	52.13	41.40 N 87.44 E	96.74@ 64.66	6.84
8959.00	48.89	28.66	8883.96	31.00	73.57	61.65 N 98.07 E	115.84@ 57.85	9.69
8991.00	51.53	30.32	8904.44	32.00	96.32	83.05 N 110.18 E	137.98@ 52.99	9.16
9022.00	53.55	31.66	8923.29	31.00	118.85	104.14 N 122.85 E	161.05@ 49.71	7.36
9054.00	57.68	32.80	8941.36	32.00	142.78	126.47 N 136.94 E	186.41@ 47.28	13.24
9085.00	62.17	33.12	8956.89	31.00	166.95	148.97 N 151.53 E	212.50@ 45.49	14.51
9117.00	66.13	33.13	8970.84	32.00	192.86	173.09 N 167.27 E	240.70@ 44.02	12.37

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Survey Report

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SNAPPING 2 STATE #6H
EDDY COUNTY, NM
RIG:H&P 416

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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)
9148.00	70.87	33.90	8982.20	31.00	218.72	197.12 N	183.19 E	269.10@	42.90	15.46
9172.00	74.22	32.70	8989.40	24.00	239.29	216.26 N	195.76 E	291.70@	42.15	14.75
9203.00	78.79	32.52	8996.63	31.00	266.53	241.64 N	212.00 E	321.46@	41.26	14.75
9235.00	82.57	32.00	9001.81	32.00	295.14	268.34 N	228.85 E	352.67@	40.46	11.92
9266.00	83.10	31.91	9005.68	31.00	323.09	294.44 N	245.13 E	383.12@	39.78	1.73
9298.00	84.24	32.61	9009.21	32.00	351.92	321.33 N	262.10 E	414.67@	39.20	4.17
9330.00	85.56	34.37	9012.05	32.00	380.51	347.91 N	279.69 E	446.40@	38.80	6.86
9361.00	88.11	34.28	9013.76	31.00	408.07	373.47 N	297.14 E	477.26@	38.51	8.23
9393.00	88.99	34.37	9014.57	32.00	436.56	399.89 N	315.18 E	509.17@	38.24	2.76
9425.00	90.04	35.86	9014.84	32.00	464.85	426.07 N	333.59 E	541.12@	38.06	5.70
9519.00	91.28	36.22	9013.76	94.00	547.24	502.07 N	388.89 E	635.06@	37.76	1.37
9614.00	92.07	37.80	9010.98	95.00	629.69	577.89 N	446.05 E	730.01@	37.66	1.86
9709.00	92.68	38.94	9007.05	95.00	710.97	652.31 N	504.96 E	824.92@	37.74	1.36
9804.00	93.21	37.80	9002.17	95.00	792.20	726.69 N	563.85 E	919.79@	37.81	1.32
9898.00	91.10	33.40	8998.63	94.00	874.86	803.05 N	618.52 E	1013.63@	37.60	5.19
9993.00	86.79	29.62	9000.38	95.00	961.43	883.99 N	668.14 E	1108.09@	37.08	6.03
10087.00	87.23	24.88	9005.29	94.00	1049.63	967.42 N	711.11 E	1200.66@	36.32	5.06
10182.00	87.41	19.78	9009.73	95.00	1141.24	1055.17 N	747.15 E	1292.91@	35.30	5.37
10276.00	86.26	14.51	9014.92	94.00	1233.67	1144.82 N	774.81 E	1382.37@	34.09	5.73
10371.00	88.11	7.21	9019.60	95.00	1328.30	1237.94 N	792.67 E	1469.98@	32.63	7.92
10465.00	92.24	2.99	9019.31	94.00	1422.19	1331.53 N	801.02 E	1553.90@	31.03	6.28
10560.00	93.21	358.42	9014.79	95.00	1516.43	1426.39 N	802.19 E	1636.49@	29.35	4.91
10667.00	91.80	355.74	9010.11	107.00	1621.63	1533.13 N	796.75 E	1727.80@	27.46	2.83
10758.00	91.19	356.98	9007.74	91.00	1710.96	1623.92 N	790.97 E	1806.31@	25.97	1.52
10853.00	90.66	355.66	9006.20	95.00	1804.21	1718.71 N	784.88 E	1889.44@	24.54	1.50
10947.00	89.96	354.08	9005.70	94.00	1896.01	1812.33 N	776.47 E	1971.66@	23.19	1.84
11042.00	90.22	354.63	9005.55	95.00	1988.61	1906.86 N	767.13 E	2055.39@	21.91	0.64
11136.00	90.66	354.17	9004.82	94.00	2080.25	2000.41 N	757.95 E	2139.19@	20.75	0.68

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11231.00	88.90	352.54	9005.19	95.00	2172.45	2094.77 N	746.96 E	2223.96@	19.63	2.53
11326.00	88.90	353.41	9007.01	95.00	2264.49	2189.04 N	735.34 E	2309.24@	18.57	0.92
11420.00	89.52	351.49	9008.31	94.00	2355.35	2282.21 N	723.00 E	2393.99@	17.58	2.15
11515.00	90.40	351.48	9008.38	95.00	2446.77	2376.16 N	708.93 E	2479.66@	16.61	0.93
11609.00	89.34	352.28	9008.59	94.00	2537.39	2469.21 N	695.65 E	2565.34@	15.73	1.41
11704.00	88.99	353.64	9009.97	95.00	2629.44	2563.49 N	684.01 E	2653.17@	14.94	1.48
11798.00	89.52	354.24	9011.20	94.00	2720.89	2656.95 N	674.09 E	2741.13@	14.24	0.85
11893.00	90.22	354.16	9011.41	95.00	2813.43	2751.46 N	664.49 E	2830.56@	13.58	0.74
11988.00	90.40	353.34	9010.90	95.00	2905.80	2845.90 N	654.15 E	2920.11@	12.94	0.88
12082.00	89.16	356.44	9011.26	94.00	2997.60	2939.51 N	645.77 E	3009.61@	12.39	3.55
12177.00	89.34	356.29	9012.50	95.00	3090.87	3034.31 N	639.75 E	3101.02@	11.91	0.25
12271.00	89.60	355.31	9013.37	94.00	3182.99	3128.05 N	632.87 E	3191.43@	11.44	1.08
12366.00	89.43	356.16	9014.18	95.00	3276.07	3222.79 N	625.80 E	3282.98@	10.99	0.91
12460.00	89.43	357.19	9015.11	94.00	3368.46	3316.62 N	620.35 E	3374.14@	10.59	1.09
12555.00	90.57	355.94	9015.11	95.00	3461.80	3411.45 N	614.66 E	3466.38@	10.21	1.78
12649.00	90.31	359.12	9014.39	94.00	3554.43	3505.35 N	610.61 E	3558.13@	9.88	3.39
12744.00	90.13	358.56	9014.02	95.00	3648.41	3600.32 N	608.69 E	3651.42@	9.60	0.62
12839.00	90.84	359.86	9013.22	95.00	3742.46	3695.31 N	607.38 E	3744.89@	9.33	1.56
12933.00	91.45	358.95	9011.34	94.00	3835.56	3789.28 N	606.40 E	3837.50@	9.09	1.16
13028.00	90.57	358.81	9009.67	95.00	3929.53	3884.25 N	604.54 E	3931.01@	8.85	0.94
13122.00	91.10	358.57	9008.30	94.00	4022.46	3978.21 N	602.39 E	4023.56@	8.61	0.62
13217.00	89.43	358.97	9007.86	95.00	4116.42	4073.19 N	600.36 E	4117.19@	8.38	1.81
13311.00	90.04	358.92	9008.29	94.00	4209.42	4167.17 N	598.63 E	4209.95@	8.17	0.65
13406.00	91.01	358.05	9007.42	95.00	4303.30	4262.13 N	596.11 E	4303.62@	7.96	1.37
13501.00	90.40	358.16	9006.25	95.00	4397.08	4357.07 N	592.97 E	4397.24@	7.75	0.65
13595.00	91.10	357.51	9005.02	94.00	4489.80	4451.00 N	589.42 E	4489.85@	7.54	1.02
13690.00	89.60	359.24	9004.44	95.00	4583.65	4545.95 N	586.73 E	4583.66@	7.35	2.41
13743.00	90.22	358.74	9004.52	53.00	4636.10	4598.94 N	585.79 E	4636.10@	7.26	1.50

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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 (ft) (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
STRAIGHT-LINE PROJECTION TO BIT @ 13798' MD								
13798.00	90.22	358.74	9004.31	55.00	4690.49	4653.93 N 584.58 E	4690.50@ 7.16	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	DEVON ENERGY		
LEASE / WELL No.:	SNAPPING 2	STATE #6H	
WELL LOCATION:	BONE SPRING		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	H&P 416		
API WELL No:	30-015-39162		
JOB No:	700004181-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.3	LWD Calculated:	7.296086
		Agreed Upon:	7.3
X =	722785.280000	Feet	Y = 388163.810000
			Feet
SITE LATITUDE:	32.065788	SITE LONGITUDE:	103.747581
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	7.27		
KELLY BUSHING ELEVATION:	26.2		
ALTITUDE:	3241.1	Feet	WATER DEPTH:
			N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	8361		
DRIFT ANGLE:	2.5		
DRIFT DIRECTION:	220.02		
TRUE VERTICAL DEPTH:	8355.76		
VERTICAL SECTION:	-156.84		
RECTANGULAR COORDINATE (N / S):	-161.48		
RECTANGULAR COORDINATE (E / W):	26.47		
CLOSURE DISTANCE / DIRECTION:	163.64	170.69	
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:	8437	TOTAL DEPTH:	13581.9
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers:

**Signature of both field engineers required if applicable

Directional Driller:

DATE: 11-4-11



Well Name:		SNAPPING 2 STATE 6H								
Survey:		FINAL GYRO SURVEY								
Survey Date:		11/4/2011								
MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle	
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg	
3900.00	7.23	122.91	3898.38	-29.30	-29.11	-3.36	2.30	29.31	186.58	
4000.00	6.74	126.31	3997.64	-34.87	-36.00	6.65	0.64	36.61	169.54	
4100.00	4.64	132.96	4097.14	-40.08	-42.24	14.34	2.19	44.60	161.25	
4200.00	3.35	135.59	4196.89	-44.25	-47.08	19.34	1.31	50.90	157.66	
4300.00	3.01	134.88	4296.74	-47.67	-51.02	23.25	0.33	56.07	155.50	
4400.00	2.80	135.65	4396.61	-50.79	-54.62	26.82	0.22	60.85	153.85	
4500.00	2.55	140.98	4496.50	-53.84	-58.10	29.93	0.35	65.35	152.75	
4600.00	2.42	146.12	4596.41	-56.97	-61.58	32.51	0.25	69.63	152.17	
4700.00	2.12	157.17	4696.33	-60.16	-65.04	34.40	0.53	73.58	152.12	
4800.00	1.93	157.79	4796.27	-63.23	-68.30	35.76	0.18	77.10	152.37	
4900.00	1.81	160.43	4896.21	-66.11	-71.36	36.93	0.15	80.34	152.64	
5000.00	1.79	163.11	4996.16	-68.95	-74.34	37.91	0.09	83.45	152.98	
5100.00	1.45	162.87	5096.12	-71.53	-77.06	38.74	0.34	86.25	153.31	
5200.00	1.42	163.83	5196.09	-73.83	-79.46	39.46	0.04	88.72	153.59	
5300.00	1.17	158.73	5296.07	-75.87	-81.61	40.17	0.28	90.96	153.79	
5400.00	0.79	145.80	5396.05	-77.28	-83.12	40.93	0.44	92.65	153.78	
5500.00	0.76	139.14	5496.04	-78.23	-84.19	41.75	0.09	93.97	153.62	
5600.00	0.73	131.60	5596.03	-79.03	-85.11	42.65	0.10	95.20	153.38	
5700.00	0.94	137.13	5696.02	-79.91	-86.13	43.69	0.23	96.58	153.11	
5800.00	0.93	147.99	5796.01	-81.07	-87.42	44.67	0.18	98.18	152.93	
5900.00	1.02	160.46	5896.00	-82.49	-88.95	45.40	0.23	99.87	152.96	
6000.00	0.83	168.36	5995.98	-83.97	-90.50	45.85	0.23	101.45	153.13	
6100.00	1.04	165.88	6095.97	-85.50	-92.09	46.21	0.22	103.04	153.35	
6200.00	1.27	173.97	6195.95	-87.43	-94.07	46.55	0.28	104.96	153.67	
6300.00	1.67	177.56	6295.92	-89.94	-96.63	46.73	0.41	107.34	154.19	
6400.00	1.95	184.76	6395.87	-93.08	-99.79	46.65	0.36	110.15	154.94	
6500.00	2.22	185.55	6495.80	-96.72	-103.41	46.32	0.27	113.31	155.87	
6600.00	2.43	183.15	6595.72	-100.76	-107.45	46.02	0.23	116.89	156.81	
6700.00	2.06	191.91	6695.64	-104.66	-111.32	45.53	0.50	120.27	157.75	
6800.00	1.72	195.28	6795.59	-107.93	-114.52	44.77	0.35	122.96	158.65	
6900.00	1.84	191.62	6895.54	-111.02	-117.54	44.05	0.17	125.52	159.46	
7000.00	1.76	194.17	6995.49	-114.15	-120.61	43.35	0.11	128.16	160.23	
7100.00	1.81	199.30	7095.44	-117.22	-123.59	42.45	0.17	130.68	161.04	
7200.00	1.73	199.18	7195.39	-120.25	-126.51	41.43	0.08	133.12	161.87	
7300.00	1.57	195.66	7295.35	-123.08	-129.25	40.56	0.19	135.47	162.58	
7400.00	1.86	208.91	7395.31	-125.95	-132.00	39.41	0.49	137.75	163.38	
7500.00	2.09	197.58	7495.25	-129.26	-135.16	38.07	0.45	140.42	164.27	
7600.00	1.86	198.19	7595.19	-132.64	-138.44	37.01	0.24	143.30	165.03	



Well Name: SNAPPING 2 STATE 6H
Survey: FINAL GYRO SURVEY
Survey Date: 11/4/2011

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
7700.00	1.97	199.40	7695.13	-135.91	-141.60	35.94	0.12	146.09	165.76
7800.00	1.97	202.16	7795.07	-139.25	-144.81	34.72	0.09	148.92	166.52
7900.00	1.77	195.19	7895.02	-142.44	-147.89	33.67	0.31	151.68	167.18
8000.00	1.76	197.97	7994.97	-145.48	-150.84	32.79	0.09	154.36	167.74
8100.00	1.98	202.51	8094.92	-148.65	-153.90	31.65	0.27	157.12	168.38
8200.00	1.98	212.36	8194.86	-151.89	-156.96	30.06	0.34	159.81	169.16
8300.00	1.95	221.47	8294.80	-154.86	-159.69	28.01	0.31	162.13	170.05
8361.00	2.50	220.02	8355.76	-156.84	-161.48	26.47	0.91	163.64	170.69



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Devon Energy Corporation
Snapping 2 State #6H
Eddy County, NM
Rig:HP 416

Thu Oct 27 17:46:57 2011

Coordinates

Latitude: 32.065788 N (32 deg. 3 min. 56.8385 sec.)
Longitude: 103.747581 W (-103 deg. 44 min. 51.2924 sec.)
Elevation: 3267.30 feet.
Calculation Date: Oct/27/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.0002 degrees
Total Magnetic Field: 0.48466 gauss
Magnetic Declination: 7.609739 degrees
Horizontal Intensity: 0.242326 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.609739 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 722785.2800 feet
Y: 388163.8100 feet
True to Grid: (convergence) -0.310979 degrees
Magnetic to Grid: 7.298760 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.298760 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

DEVON ENERGY
SNAPPING 2 STATE #6H
BONE SPRING

Fri Nov 04 12:15:03 2011

Coordinates

Latitude: 32.065788 N (32 deg. 3 min. 56.8385 sec.)
Longitude: 103.747581 W (-103 deg. 44 min. 51.2924 sec.)
Elevation: 3267.30 feet.
Calculation Date: Nov/04/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9997 degrees
Total Magnetic Field: 0.48463 gauss
Magnetic Declination: 7.607065 degrees
Horizontal Intensity: 0.242319 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.607065 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 722785.2800 feet
Y: 388163.8100 feet
True to Grid: (convergence) -0.310979 degrees
Magnetic to Grid: 7.296086 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.296086 Degr.

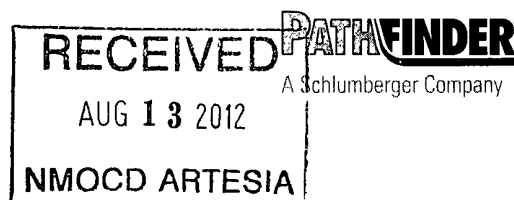


Stimulations Summary

District	County		Field Name		Project Group			State/Province		
PERMIAN BASIN	EDDY		AVALON SHALE		PB NEW MEXICO			NM		
Surface Legal Location		API/UWI	Latitude (DMS)	Longitude (DMS)	Ground Elev	KB - GL (ft)	Orig KB Elev (ft)	TH Elev (ft)		
SEC2 T26S R31E		3001539162	32° 3' 56.839" N	103° 44' 51.292" ...	3,241.00	26.20	3,267.20			
HYDRAULIC FRAC, 2/27/2012 06:00, AVALON SHALE, OH, 13,466.0 ftKB - 13,788.0 ftKB, BHI, 213016.301 LBS; OTTAWA 242117.606 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	8125.90	276.0	1,802.0			5,999.0	71	6,768.0	80	3.00
HYDRAULIC FRAC, 2/28/2012 06:00, AVALON SHALE, OH, 13,040.0 ftKB - 13,362.0 ftKB, BHI, 207398 LBS; OTTATWA 241732 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	8054.90	876.0	2,177.0	4,713.0		5,977.0	72	6,604.0	80	3.00
HYDRAULIC FRAC, 3/1/2012 06:00, AVALON SHALE, OH, 12,613.0 ftKB - 12,935.0 ftKB, BHI, OTTATWA 170263 LBS; 214271 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	8010.80	948.0	2,559.0	4,572.0		5,580.0	77	5,843.0	79	2.50
HYDRAULIC FRAC, 3/1/2012 10:00, AVALON SHALE, OH, 12,187.0 ftKB - 12,509.0 ftKB, BHI, OTTATWA 170203 LBS; 212802 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7994.10	701.0	2,087.0	5,222.0		5,700.0	76	6,177.0	81	2.50
HYDRAULIC FRAC, 3/1/2012 12:00, AVALON SHALE, OH, 12,187.0 ftKB - 12,509.0 ftKB, BHI, 212868 LBS; OTTATWA 170286 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7595.80	834.0	2,174.0	4,467.0		5,706.0	74	6,895.0	77	2.50
HYDRAULIC FRAC, 3/2/2012 06:00, AVALON SHALE, OH, 11,334.0 ftKB - 11,656.0 ftKB, BHI, 212951 LBS; OTTATWA 170471 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7994.60	867.0	2,776.0	4,586.0		5,500.0	79	6,020.0	80	2.50
HYDRAULIC FRAC, 3/3/2012 10:00, AVALON SHALE, OH, 10,908.0 ftKB - 11,230.0 ftKB, BHI, 211636 LBS; OTTATWA 170572 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7927.00	888.0	3,199.0	5,194.0		5,467.0	77	6,225.0	80	2.50
HYDRAULIC FRAC, 3/3/2012 12:00, AVALON SHALE, OH, 10,481.0 ftKB - 10,803.0 ftKB, BHI, 212558 LBS; OTTAWA 169165 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7925.30	0.0	1,491.0	6,650.0		5,840.0	72	6,950.0	80	2.50
HYDRAULIC FRAC, 3/3/2012 14:00, AVALON SHALE, OH, 10,055.0 ftKB - 10,377.0 ftKB, BHI, 212352 LBS; OTTAWA 170257 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7882.20	0.0	2,106.0	3,274.0		5,840.0	72	6,755.0	80	2.50
HYDRAULIC FRAC, 3/5/2012 13:40, AVALON SHALE, OH, 9,629.0 ftKB - 9,950.0 ftKB, BHI, OTTAWA 170292 LBS; 214755 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7925.60	0.0	1,625.0	3,278.0		5,095.0	79	5,455.0	80	2.50
HYDRAULIC FRAC, 3/5/2012 19:00, AVALON SHALE, OH, 9,202.0 ftKB - 9,524.0 ftKB, BHI, OTTAWA 170306 LBS; 212446 LBS										
Proppant De	V (pumped) (bbl)	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P(break) (psi)	ISIP (psi)	P (avg) (psi)	Rate (avg) (bbl/m)	P (max) (psi)	Rate (max) (bbl/m)	Max Conc
	7846.40	0.0	1,620.0	3,505.0		5,200.0	80	5,814.0	80	2.50

Pathfinder

6213 WCR 112
Midland, Texas 79706
Tel (432)687-1647
Fax (432)687-1544



November 22, 2011

Devon Energy
20 N. Broadway
Oklahoma City, OK

RE: Devon Energy
Snapping 2 State #6H
API: 30-015-39162
Eddy County, NM
RIG: H & P 416
FIELD: Bone Spring
PES FILE NO.: 700004181-WT-WT

15-39162

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,

STEVE BIBB
M/LWD Service Coordinator
PathFinder Energy Services

ML:sh