

Results of Directional Survey

API number:	30-025-41118		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	THISTLE UNIT # 46H

surface	ULSTR:	N	33	T	23S	R	33E
				350	FSL	2080	FWL

BH Loc	ULSTR:	B	33	T	23S	R	33E
15838	MD	11188.7	TVD	313	FNL	2019	FEL
				4967	FSL	3261	FWL

Top Perf/OH	ULSTR:	N	33	T	23S	R	33E
11405	MD	11199.6	TVD	529	FSL	2153	FEL
						3127	FWL

Bot Perf/OH	ULSTR:	B	33	T	23S	R	33E
15682	MD	11190.1	TVD	499	FSL	2019	FEL
				4781	FSL	3261	FWL

	MD	N/S	E/W	VD
	11382	160.05	1037.36	11191.31
TOP PERFS/OH	11405	179.35	1046.72	11199.60
	11414	186.90	1050.38	11202.84
	15609	4358.24	1181.71	11190.94
BOT PERFS/OH	15682	4431.22	1180.96	11190.14
	15704	4453.22	1180.74	11189.90

NEXT TO LAST	15798	4547.22	1180.31	11189.04
LAST READING	15868	4617.21	1180.01	11188.00
TD	15868	4617.21	1180.01	11188.00

Surface Location	350	FS	2080	FW
Projected BHL	4967	FS	3260	FW
Location of				
Top Perfs/OH	529	FS	3127	FW
Bottom Perfs/OH	4781	FS	3261	FW

SUMMARY of Subsurface Locations

Surface Location	N-33-23S-33E	350	FS	2080	FW	Vert. Depth
Top Perfs/OH	N-33-23S-33E	529	FS	3127	FW	11199.60
Bottom Perfs/OH	B-33-23S-33E	4781	FS	3261	FW	11190.14
Projected TD	B-33-23S-33E	4967	FS	3260	FW	11188.00

NOV 14 2013



A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

HOESS CO

OCT 11 2013

RECEIVED

July 23, 2013

Devon Energy Production Co., LP
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

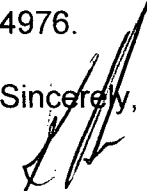
Attn: Patti Riechers

Re: **Thistle Unit No 046H**

Please find enclosed a copy of the survey from 0' to 5,200' ran on the above referenced well.

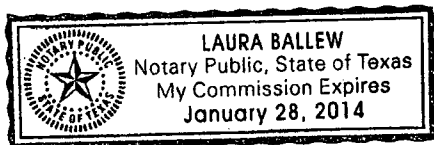
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

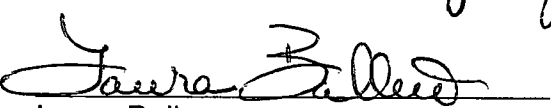
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 23rd day of July,
A.D., 2013, by Keith Havelka.




Laura Balley
Notary Public, State of Texas



Company: Devon Energy
Lease/Well: Thistle Unit/No 046H

Rig Name: H&P 416
State/County: New Mexico/Lea
Latitude: 32.26, Longitude: -103.58
GRID North is 0.40 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 25ft

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: final.ut
Minimum Curvature Method
Report Date/Time: 7/29/2013 / 16:04

Vaughn Energy Services
Fort Worth, Texas
817-741-3610

Surveyor: Jay Carroll
Thistle Unit No 046H / API 30-025-41118

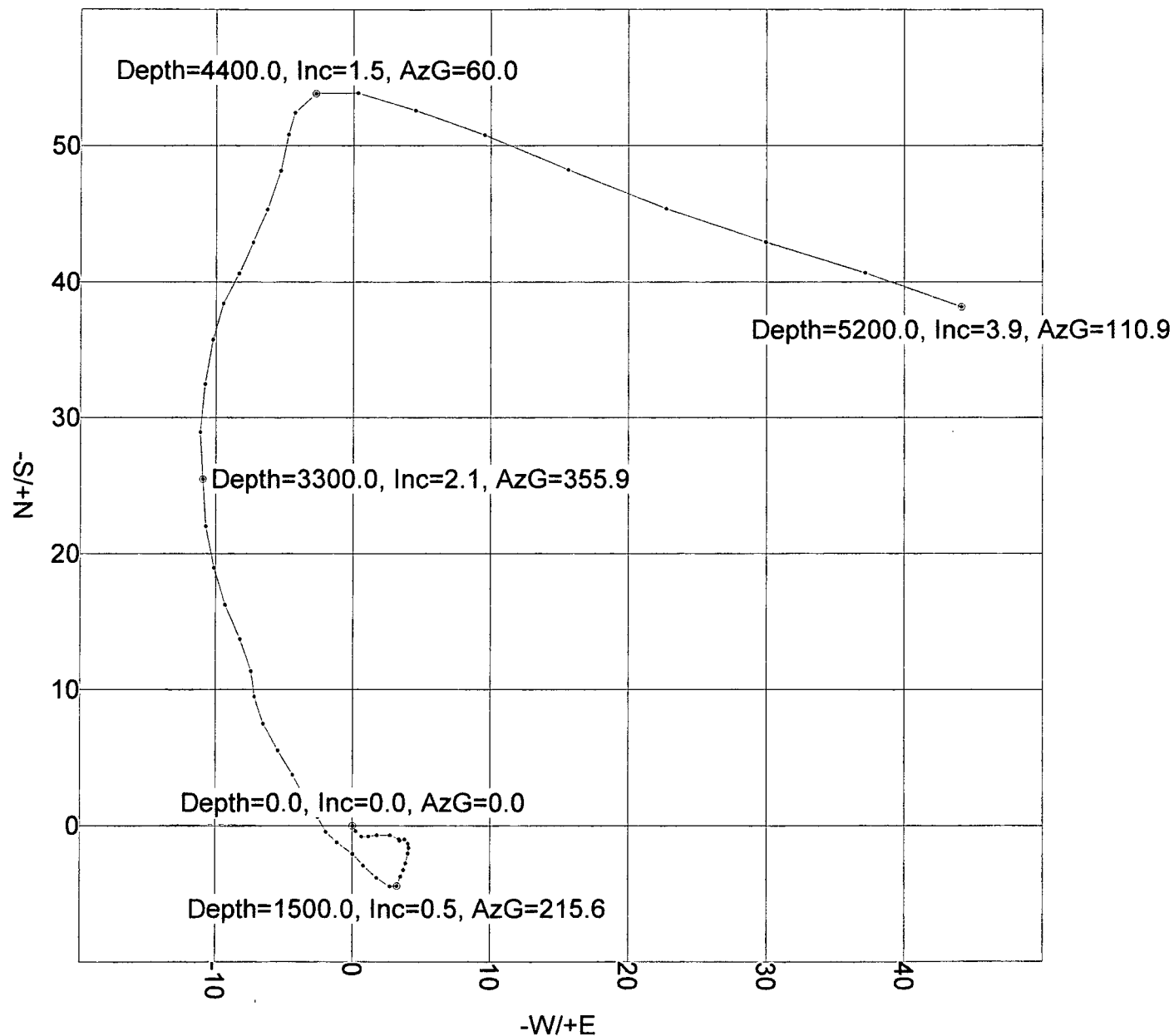
RECEIVED
OCT 11 2013
HOES OGD

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.52	150.04	100.00	-0.39	0.23	-0.39	0.45	150.04	0.52
200.00	0.24	92.51	200.00	-0.79	0.66	-0.79	1.03	140.38	0.44
300.00	0.35	85.72	300.00	-0.78	1.17	-0.78	1.40	123.80	0.12
400.00	0.37	79.78	399.99	-0.70	1.78	-0.70	1.92	111.45	0.04
500.00	0.71	94.90	499.99	-0.70	2.72	-0.70	2.80	104.39	0.37
600.00	0.28	171.73	599.99	-0.99	3.37	-0.99	3.51	106.35	0.70
700.00	0.16	4.34	699.99	-1.09	3.41	-1.09	3.58	107.67	0.43
800.00	0.42	94.88	799.98	-0.98	3.79	-0.98	3.91	104.50	0.45
900.00	0.37	200.82	899.98	-1.31	4.04	-1.31	4.24	107.98	0.63
1000.00	0.18	91.36	999.98	-1.61	4.08	-1.61	4.39	111.57	0.46
1100.00	0.53	209.37	1099.98	-2.02	4.02	-2.02	4.50	116.73	0.64
1200.00	0.37	169.03	1199.98	-2.74	3.85	-2.74	4.73	125.47	0.35
1300.00	0.32	229.32	1299.98	-3.24	3.70	-3.24	4.92	131.18	0.35
1400.00	0.37	181.17	1399.97	-3.74	3.48	-3.74	5.11	137.00	0.28
1500.00	0.51	215.55	1499.97	-4.42	3.22	-4.42	5.47	143.95	0.30
1600.00	0.48	322.13	1599.97	-4.46	2.70	-4.46	5.21	148.77	0.79
1700.00	0.85	294.32	1699.96	-3.82	1.77	-3.82	4.21	155.17	0.49
1800.00	0.77	333.34	1799.95	-2.91	0.79	-2.91	3.02	164.89	0.55

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.62	298.96	1899.95	-2.05	0.01	-2.05	2.05	179.62	0.44
2000.00	1.00	310.97	1999.94	-1.22	-1.11	-1.22	1.65	222.40	0.41
2100.00	0.30	321.79	2099.93	-0.45	-1.93	-0.45	1.98	256.95	0.71
2200.00	1.12	333.60	2199.92	0.63	-2.53	0.63	2.60	284.05	0.84
2300.00	0.82	319.58	2299.91	2.05	-3.42	2.05	3.99	300.94	0.38
2400.00	1.42	338.20	2399.89	3.75	-4.35	3.75	5.74	310.76	0.70
2500.00	1.01	316.27	2499.87	5.54	-5.42	5.54	7.75	315.62	0.61
2600.00	1.57	342.19	2599.84	7.49	-6.45	7.49	9.88	319.24	0.79
2700.00	0.84	339.70	2699.82	9.48	-7.12	9.48	11.86	323.06	0.74
2800.00	1.36	359.21	2799.80	11.35	-7.39	11.35	13.54	326.91	0.64
2900.00	1.65	326.09	2899.77	13.73	-8.21	13.73	16.00	329.11	0.90
3000.00	1.55	346.80	2999.73	16.23	-9.32	16.23	18.72	330.14	0.58
3100.00	1.70	339.96	3099.69	18.95	-10.14	18.95	21.49	331.85	0.25
3200.00	1.92	356.90	3199.64	22.01	-10.74	22.01	24.49	334.00	0.58
3300.00	2.07	355.87	3299.58	25.48	-10.96	25.48	27.74	336.73	0.15
3400.00	1.88	357.75	3399.52	28.92	-11.15	28.92	31.00	338.91	0.20
3500.00	2.24	12.37	3499.46	32.47	-10.80	32.47	34.22	341.61	0.63
3600.00	1.56	5.96	3599.40	35.74	-10.24	35.74	37.18	344.01	0.71
3700.00	1.66	25.82	3699.36	38.40	-9.47	38.40	39.55	346.15	0.56
3800.00	1.18	29.78	3799.33	40.60	-8.32	40.60	41.44	348.42	0.49
3900.00	1.72	21.81	3899.30	42.89	-7.25	42.89	43.50	350.41	0.57
4000.00	1.28	24.35	3999.26	45.30	-6.23	45.30	45.73	352.17	0.45
4100.00	2.17	15.21	4099.22	48.14	-5.28	48.14	48.43	353.75	0.94
4200.00	0.96	4.58	4199.18	50.81	-4.71	50.81	51.03	354.70	1.25
4300.00	0.99	27.39	4299.16	52.41	-4.25	52.41	52.58	355.37	0.39
4400.00	1.50	60.02	4399.14	53.82	-2.72	53.82	53.89	357.11	0.85
4500.00	2.31	108.27	4499.09	53.84	0.32	53.84	53.84	0.34	1.72
4600.00	2.71	105.64	4598.99	52.57	4.51	52.57	52.77	4.91	0.42
4700.00	3.44	113.08	4698.85	50.76	9.55	50.76	51.65	10.66	0.83
4800.00	4.13	112.44	4798.63	48.21	15.64	48.21	50.68	17.98	0.69
4900.00	4.63	111.37	4898.34	45.36	22.73	45.36	50.74	26.61	0.50
5000.00	4.12	105.65	4998.05	42.93	29.94	42.93	52.34	34.90	0.67
5100.00	4.59	108.95	5097.76	40.66	37.18	40.66	55.10	42.44	0.53
5200.00	3.89	110.88	5197.49	38.15	44.14	38.15	58.34	49.16	0.71



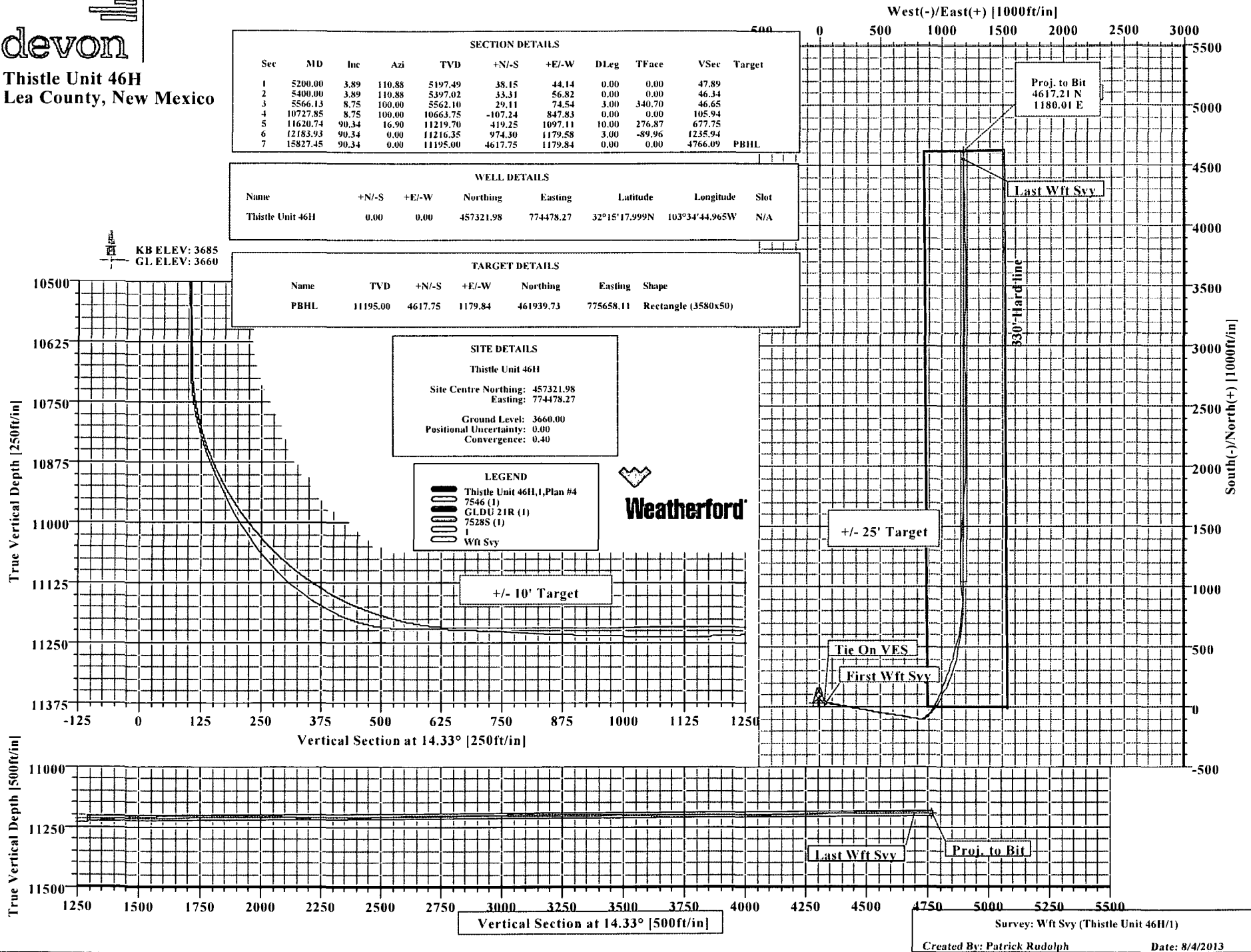
Vaughn Energy Services
Fort Worth, Texas
817-741-3610
Surveyor: Jay Carroll
Thistle Unit No 46H / API 30-025-41118



VES Survey Date: 07/17/2013



Thistle Unit 46H
Lea County, New Mexico





Weatherford International Ltd.

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy	Date: 8/4/2013	Time: 14:42:19	Page: 1
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference:	Well: Thistle Unit 46H, Grid North	
Site: Thistle Unit 46H	Vertical (TVD) Reference:	SITE 3685.0	
Well: Thistle Unit 46H	Section (VS) Reference:	Well (0.00N,0.00E,14.33Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: Wft Svy	Start Date: 7/22/2013
Company: Weatherford	Engineer: Russell W. Joyner
Tool: MWD;MWD - Standard	Tied-to: User Defined

Site: Thistle Unit 46H

Site Position:	Northing: 457321.98 ft	Latitude: 32 15 17.999 N
From: Map	Easting: 774478.27 ft	Longitude: 103 34 44.965 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 3660.00 ft		Grid Convergence: 0.40 deg

Well: Thistle Unit 46H	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 457321.98 ft
+E/-W 0.00 ft	Easting : 774478.27 ft
Position Uncertainty: 0.00 ft	Latitude: 32 15 17.999 N
	Longitude: 103 34 44.965 W

Wellpath: 1	Drilled From: Surface
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 8/15/2013	Above System Datum: Mean Sea Level
Field Strength: 48443 nT	Declination: 7.33 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 60.16 deg
ft	+N/-S
	+E/-W
	Direction
	deg
0.00	0.00
0.00	0.00
0.00	14.33

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
5200.00	3.89	110.88	5197.49	38.15	44.14	0.00	47.89	457360.13	774522.41	Tie On VES First Wft Svy
5359.00	3.37	108.07	5356.17	34.78	53.62	0.35	46.97	457356.76	774531.89	
5390.00	3.12	110.59	5387.12	34.20	55.28	0.93	46.82	457356.18	774533.55	
5422.00	3.91	99.91	5419.06	33.70	57.17	3.20	46.81	457355.68	774535.44	
5516.00	5.88	94.40	5512.71	32.78	65.13	2.15	47.88	457354.76	774543.40	
5580.00	6.41	97.16	5576.34	32.09	71.94	0.95	48.89	457354.07	774550.21	
5674.00	6.76	98.66	5669.72	30.60	82.62	0.41	50.10	457352.58	774560.89	
5769.00	7.74	96.33	5763.96	29.05	94.50	1.08	51.54	457351.03	774572.77	
5863.00	8.39	97.92	5857.03	27.41	107.59	0.73	53.19	457349.39	774585.86	
5958.00	8.59	109.11	5951.00	24.13	121.15	1.75	53.37	457346.11	774599.42	
6052.00	7.85	101.34	6044.03	20.57	134.08	1.42	53.12	457342.55	774612.35	
6146.00	7.12	103.00	6137.23	18.00	146.05	0.81	53.59	457339.98	774624.32	
6241.00	8.58	97.33	6231.34	15.77	158.82	1.74	54.59	457337.75	774637.09	
6335.00	7.85	95.68	6324.37	14.24	172.16	0.82	56.41	457336.22	774650.43	
6430.00	9.31	101.88	6418.31	12.02	186.14	1.82	57.71	457334.00	774664.41	
6524.00	9.38	103.10	6511.06	8.71	201.04	0.22	58.20	457330.69	774679.31	
6618.00	8.81	102.22	6603.88	5.45	215.54	0.62	58.63	457327.43	774693.81	
6713.00	8.58	102.55	6697.79	2.37	229.56	0.25	59.12	457324.35	774707.83	
6807.00	7.93	101.29	6790.81	-0.42	242.77	0.72	59.68	457321.56	774721.04	
6901.00	7.43	101.27	6883.97	-2.88	255.09	0.53	60.35	457319.10	774733.36	
6996.00	8.30	101.16	6978.08	-5.40	267.84	0.92	61.06	457316.58	774746.11	
7090.00	9.25	98.95	7070.98	-7.89	281.96	1.07	62.14	457314.09	774760.23	
7185.00	8.85	100.52	7164.79	-10.41	296.68	0.49	63.34	457311.57	774774.95	
7280.00	8.37	99.33	7258.72	-12.87	310.69	0.54	64.43	457309.11	774788.96	
7374.00	9.05	99.22	7351.64	-15.16	324.74	0.72	65.68	457306.82	774803.01	
7469.00	8.70	98.95	7445.50	-17.48	339.21	0.37	67.02	457304.50	774817.48	
7563.00	8.42	99.68	7538.45	-19.74	353.02	0.32	68.25	457302.24	774831.29	
7658.00	9.56	100.83	7632.28	-22.39	367.63	1.21	69.29	457299.59	774845.90	
7752.00	8.68	102.32	7725.10	-25.37	382.22	0.97	70.02	457296.61	774860.49	
7847.00	8.32	102.34	7819.05	-28.37	395.94	0.38	70.51	457293.61	774874.21	



Weatherford International Ltd.

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 46H
Well: Thistle Unit 46H
Wellpath: 1

Date: 8/4/2013 Time: 14:42:19 Page: 2
Co-ordinate(NE) Reference: Well: Thistle Unit 46H, Grid North
Vertical (TVD) Reference: SITE 3685.0
Section (VS) Reference: Well (0.00N,0.00E,14.33Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
7941.00	8.34	101.44	7912.06	-31.18	409.27	0.14	71.09	457290.80	774887.54	
8036.00	9.13	102.04	8005.96	-34.12	423.39	0.84	71.74	457287.86	774901.66	
8131.00	8.43	102.74	8099.84	-37.22	437.55	0.75	72.23	457284.76	774915.82	
8225.00	8.68	100.76	8192.80	-40.07	451.24	0.41	72.86	457281.91	774929.51	
8320.00	8.14	100.88	8286.78	-42.68	464.89	0.57	73.72	457279.30	774943.16	
8414.00	8.80	99.91	8379.75	-45.17	478.51	0.72	74.67	457276.81	774956.78	
8509.00	8.80	99.00	8473.63	-47.56	492.84	0.15	75.91	457274.42	774971.11	
8603.00	9.78	101.30	8566.40	-50.25	507.78	1.11	77.00	457271.73	774986.05	
8698.00	8.92	101.22	8660.14	-53.26	522.91	0.91	77.82	457268.72	775001.18	
8792.00	10.24	100.55	8752.82	-56.21	538.28	1.41	78.77	457265.77	775016.55	
8887.00	9.74	101.64	8846.38	-59.38	554.45	0.56	79.70	457262.60	775032.72	
8982.00	8.99	97.77	8940.12	-62.00	569.67	1.03	80.93	457259.98	775047.94	
9077.00	8.34	99.80	9034.03	-64.18	583.82	0.76	82.32	457257.80	775062.09	
9171.00	9.00	95.73	9126.96	-66.07	597.85	0.96	83.96	457255.91	775076.12	
9266.00	8.26	96.69	9220.88	-67.61	612.02	0.79	85.98	457254.37	775090.29	
9360.00	8.46	92.13	9313.88	-68.65	625.64	0.74	88.33	457253.33	775103.91	
9455.00	8.77	95.56	9407.81	-69.61	639.83	0.63	90.92	457252.37	775118.10	
9550.00	8.66	96.27	9501.72	-71.10	654.15	0.16	93.02	457250.88	775132.42	
9644.00	7.97	98.48	9594.73	-72.83	667.63	0.81	94.68	457249.15	775145.90	
9739.00	7.25	100.40	9688.89	-74.88	680.04	0.80	95.76	457247.10	775158.31	
9835.00	8.96	105.03	9783.93	-77.92	693.22	1.91	96.08	457244.06	775171.49	
9929.00	9.18	104.71	9876.75	-81.72	707.54	0.24	95.95	457240.26	775185.81	
10024.00	9.28	103.20	9970.52	-85.39	722.33	0.28	96.05	457236.59	775200.60	
10119.00	8.51	104.93	10064.38	-88.95	736.58	0.86	96.12	457233.03	775214.85	
10213.00	9.69	99.28	10157.20	-92.02	751.10	1.57	96.75	457229.96	775229.37	
10307.00	9.75	97.62	10249.85	-94.35	766.80	0.30	98.37	457227.63	775245.07	
10402.00	9.10	97.34	10343.56	-96.38	782.22	0.69	100.23	457225.60	775260.49	
10496.00	8.28	98.11	10436.48	-98.28	796.30	0.88	101.87	457223.70	775274.57	
10591.00	8.10	102.72	10530.52	-100.72	809.60	0.72	102.79	457221.26	775287.87	
10661.00	7.41	101.29	10599.88	-102.69	818.84	1.02	103.17	457219.29	775297.11	
10689.00	7.06	103.83	10627.65	-103.45	822.28	1.69	103.28	457218.53	775300.55	
10721.00	7.30	99.63	10659.40	-104.26	826.19	1.80	103.47	457217.72	775304.46	
10752.00	9.32	90.02	10690.08	-104.59	830.64	7.89	104.25	457217.39	775308.91	
10784.00	12.07	76.78	10721.52	-103.83	836.49	11.47	106.44	457218.15	775314.76	
10815.00	15.31	70.29	10751.64	-101.71	843.50	11.55	110.23	457220.27	775321.77	
10846.00	18.61	64.52	10781.29	-98.20	851.83	11.94	115.69	457223.78	775330.10	
10878.00	20.62	58.30	10811.43	-93.04	861.23	9.05	123.02	457228.94	775339.50	
10909.00	22.18	50.02	10840.30	-86.41	870.36	10.96	131.70	457235.57	775348.63	
10941.00	24.92	45.53	10869.64	-77.80	879.80	10.23	142.37	457244.18	775358.07	
10973.00	27.40	45.05	10898.36	-67.88	889.83	7.78	154.47	457254.10	775368.10	
11004.00	28.42	48.48	10925.75	-57.95	900.40	6.13	166.71	457264.03	775378.67	
11035.00	30.42	47.20	10952.75	-47.72	911.68	6.76	179.41	457274.26	775389.95	
11067.00	31.69	42.85	10980.17	-36.06	923.35	8.06	193.60	457285.92	775401.62	
11098.00	34.38	38.80	11006.16	-23.26	934.37	11.22	208.73	457298.72	775412.64	
11130.00	37.48	35.51	11032.07	-8.29	945.69	11.41	226.03	457313.69	775423.96	
11162.00	40.10	32.90	11057.01	8.29	956.95	9.65	244.89	457330.27	775435.22	
11193.00	43.51	29.87	11080.12	25.94	967.69	12.78	264.64	457347.92	775445.96	
11225.00	45.80	28.70	11102.88	45.55	978.69	7.60	286.37	457367.53	775456.96	
11256.00	48.68	27.43	11123.93	65.64	989.39	9.76	308.47	457387.62	775467.66	
11288.00	53.18	27.05	11144.09	87.72	1000.75	14.09	332.68	457409.70	775479.02	
11319.00	58.18	26.54	11161.56	110.57	1012.29	16.19	357.68	457432.55	775490.56	
11351.00	61.40	27.45	11177.66	135.21	1024.84	10.36	384.65	457457.19	775503.11	



Weatherford International Ltd.

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 46H
Well: Thistle Unit 46H
Wellpath: 1

Date: 8/4/2013 Time: 14:42:19 Page: 3
Co-ordinate(NE) Reference: Well: Thistle Unit 46H, Grid North
Vertical (TVD) Reference: SITE 3685.0
Section (VS) Reference: Well (0.00N,0.00E,14.33Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
11382.00	66.33	26.06	11191.31	160.05	1037.36	16.40	411.82	457482.03	775515.63	
11414.00	71.42	25.68	11202.84	186.90	1050.38	15.94	441.06	457508.88	775528.65	
11445.00	76.17	24.29	11211.49	213.88	1062.94	15.92	470.31	457535.86	775541.21	
11477.00	81.44	22.46	11217.70	242.68	1075.39	17.40	501.30	457564.66	775553.66	
11507.00	87.27	20.42	11220.65	270.46	1086.29	20.58	530.91	457592.44	775564.56	
11539.00	89.93	16.78	11221.44	300.77	1096.49	14.09	562.80	457622.75	775574.76	
11571.00	89.30	13.89	11221.65	331.63	1104.96	9.24	594.79	457653.61	775583.23	
11634.00	87.34	13.39	11223.50	392.82	1119.81	3.21	657.76	457714.80	775598.08	
11728.00	87.76	11.12	11227.52	484.59	1139.74	2.45	751.60	457806.57	775618.01	
11823.00	87.76	7.34	11231.23	578.27	1154.96	3.98	846.14	457900.25	775633.23	
11918.00	88.53	5.70	11234.31	672.60	1165.74	1.91	940.20	457994.58	775644.01	
12013.00	89.16	2.42	11236.22	767.33	1172.47	3.52	1033.65	458089.31	775650.74	
12107.00	90.35	358.41	11236.62	861.31	1173.15	4.45	1124.87	458183.29	775651.42	
12202.00	92.31	353.43	11234.42	956.01	1166.39	5.63	1214.95	458277.99	775644.66	
12297.00	95.26	356.12	11228.15	1050.38	1157.76	4.20	1304.26	458372.36	775636.03	
12391.00	95.61	358.74	11219.24	1143.86	1153.56	2.80	1393.78	458465.84	775631.83	
12486.00	93.08	1.53	11212.04	1238.57	1153.79	3.96	1485.60	458560.55	775632.06	
12581.00	91.54	2.80	11208.21	1333.42	1157.38	2.10	1578.39	458655.40	775635.65	
12675.00	89.86	3.03	11207.07	1427.29	1162.16	1.80	1670.52	458749.27	775640.43	
12770.00	90.42	2.73	11206.83	1522.17	1166.93	0.67	1763.63	458844.15	775645.20	
12864.00	91.19	3.86	11205.51	1616.00	1172.33	1.45	1855.88	458937.98	775650.60	
12959.00	89.79	5.17	11204.70	1710.70	1179.81	2.02	1949.48	459032.68	775658.08	
13054.00	88.46	4.95	11206.15	1805.31	1188.19	1.42	2043.23	459127.29	775666.46	
13148.00	84.11	2.69	11212.24	1898.88	1194.44	5.21	2135.43	459220.86	775672.71	
13243.00	86.57	1.82	11219.96	1993.48	1198.16	2.75	2228.01	459315.46	775676.43	
13338.00	91.96	359.62	11221.18	2088.43	1199.35	6.13	2320.30	459410.41	775677.62	
13401.00	94.27	359.63	11217.75	2151.33	1198.94	3.67	2381.14	459473.31	775677.21	
13496.00	91.26	359.20	11213.17	2246.20	1197.97	3.20	2472.82	459568.18	775676.24	
13527.00	90.07	358.95	11212.81	2277.19	1197.47	3.92	2502.73	459599.17	775675.74	
13622.00	90.21	359.13	11212.58	2372.18	1195.88	0.24	2594.36	459694.16	775674.15	
13717.00	91.19	359.53	11211.42	2467.17	1194.77	1.11	2686.12	459789.15	775673.04	
13812.00	91.40	359.58	11209.27	2562.14	1194.03	0.23	2777.95	459884.12	775672.30	
13906.00	91.68	0.29	11206.75	2656.10	1193.93	0.81	2868.97	459978.08	775672.20	
14001.00	90.91	358.28	11204.60	2751.07	1192.74	2.27	2960.68	460073.05	775671.01	
14096.00	91.75	359.96	11202.39	2846.03	1191.28	1.98	3052.33	460168.01	775669.55	
14190.00	89.37	359.56	11201.47	2940.01	1190.89	2.57	3143.29	460261.99	775669.16	
14285.00	89.72	0.13	11202.23	3035.01	1190.63	0.70	3235.27	460356.99	775668.90	
14379.00	89.86	0.62	11202.57	3129.01	1191.25	0.54	3326.49	460450.99	775669.52	
14474.00	90.49	0.93	11202.28	3224.00	1192.53	0.74	3418.85	460545.98	775670.80	
14569.00	87.83	0.58	11203.68	3318.97	1193.78	2.82	3511.17	460640.95	775672.05	
14663.00	88.04	0.67	11207.06	3412.90	1194.81	0.24	3602.44	460734.88	775673.08	
14758.00	88.04	0.54	11210.31	3507.84	1195.81	0.14	3694.67	460829.82	775674.08	
14852.00	89.09	0.03	11212.67	3601.81	1196.28	1.24	3785.83	460923.79	775674.55	
14946.00	90.42	358.97	11213.07	3695.80	1195.46	1.81	3876.70	461017.78	775673.73	
15041.00	92.66	358.84	11210.51	3790.74	1193.64	2.36	3968.23	461112.72	775671.91	
15136.00	93.42	358.81	11205.48	3885.59	1191.70	0.80	4059.65	461207.57	775669.97	
15230.00	91.75	358.59	11201.24	3979.47	1189.57	1.79	4150.08	461301.45	775667.84	
15324.00	92.10	358.51	11198.08	4073.38	1187.19	0.38	4240.48	461395.36	775665.46	
15419.00	91.05	358.74	11195.47	4168.32	1184.91	1.13	4331.90	461490.30	775663.18	
15514.00	91.61	359.14	11193.26	4263.28	1183.15	0.72	4423.47	461585.26	775661.42	
15609.00	91.19	359.12	11190.94	4358.24	1181.71	0.44	4515.12	461680.22	775659.98	
15704.00	90.07	359.71	11189.90	4453.22	1180.74	1.33	4606.91	461775.20	775659.01	
15798.00	90.98	359.76	11189.04	4547.22	1180.31	0.97	4697.87	461869.20	775658.58	Last Wft Svy



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company:	Devon Energy	Date:	8/4/2013	Time:	14:42:19	Page:	4
Field:	Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference:	Well: Thistle Unit 46H, Grid North				
Site:	Thistle Unit 46H	Vertical (TVD) Reference:	SITE 3685.0				
Well:	Thistle Unit 46H	Section (VS) Reference:	Well (0.00N,0.00E,14.33Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature			Db:	Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
15868.00	90.98	359.76	11187.84	4617.21	1180.01	0.00	4765.61	461939.19	775658.28	Proj. to Bit

Annotation

MD ft	TVD ft	
5200.00	5197.49	Tie On VES
5359.00	5356.17	First Wft Svy
15798.00	11189.04	Last Wft Svy
15868.00	11187.84	Proj. to Bit



Stimulations Summary

District PERMIAN BASIN		County LEA		Field Name JOHNSON RANCH		Project Group DELAWARE BASIN		State/Province NM															
Surface Legal Location SEC33 T23S R33E		API/UWI 3002541118		Latitude (°) 32° 15' 18.008" N		Longitude (°) 103° 34' 44.947" W		Ground Elev... 3,659.50		KB - GL (ft) 25.00		Orig KB Elev (ft) 3,684.50		Tubing Head Elevation (ft)									
HYBRID , 8/27/2013 06:30 , BONE SPRING 2ND, OH , 15,355.4 ftKB - 15,682.9 ftKB, TRICAN , 100 MESH Bulk Sand 69147 LB; CRC PREMIUM F₂ in																							
Proppant De... 355,000.0		Total Clean Volu... 6443.91		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 3,975.0		Q Treat Avg (bbl/... 6,787.0		P Max (psi) 77		Q Treat Max (bbl/... 7,698.0		Conc Max... 81		4.05	
HYBRID , 8/27/2013 16:53 , BONE SPRING 2ND, OH , 14,919.0 ftKB - 15,260.0 ftKB, TRICAN , 100 MESH Bulk Sand 128012 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 8589.83		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 4,665.0		Q Treat Avg (bbl/... 6,618.0		P Max (psi) 77		Q Treat Max (bbl/... 7,432.0		Conc Max... 81		3.28	
HYBRID , 8/28/2013 16:54 , BONE SPRING 2ND, OH , 14,479.0 ftKB - 14,821.0 ftKB, TRICAN , 100 MESH Bulk Sand 96021 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 6295.55		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 4,538.0		Q Treat Avg (bbl/... 7,289.0		P Max (psi) 80		Q Treat Max (bbl/... 7,658.0		Conc Max... 80		4.11	
HYBRID , 8/29/2013 10:56 , BONE SPRING 2ND, OH , 14,040.0 ftKB - 14,381.0 ftKB, TRICAN , 100 MESH Bulk Sand 100066 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 5959.31		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 6,904.0		Q Treat Avg (bbl/... 6,904.0		P Max (psi) 80		Q Treat Max (bbl/... 7,093.0		Conc Max... 80		3.96	
HYBRID , 8/29/2013 17:10 , BONE SPRING 2ND, OH , 13,601.0 ftKB - 13,942.0 ftKB, TRICAN , 100 MESH Bulk Sand 86540 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 6106.17		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 4,392.0		Q Treat Avg (bbl/... 6,696.0		P Max (psi) 80		Q Treat Max (bbl/... 7,055.0		Conc Max... 80		3.69	
HYBRID , 8/30/2013 07:51 , BONE SPRING 2ND, OH , 13,162.0 ftKB - 13,503.0 ftKB, TRICAN , 100 MESH Bulk Sand 89444 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 6199.29		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 4,525.0		Q Treat Avg (bbl/... 6,852.0		P Max (psi) 80		Q Treat Max (bbl/... 8,035.0		Conc Max... 81		3.62	
HYBRID , 8/30/2013 13:09 , BONE SPRING 2ND, OH , 12,723.0 ftKB - 13,064.0 ftKB, TRICAN , 100 MESH Bulk Sand 84655 LB; CRC PREMIUM F₂ in																							
Proppant De... 355,000.0		Total Clean Volu... 6368.02		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 6,303.0		Q Treat Avg (bbl/... 6,582.0		P Max (psi) 80		Q Treat Max (bbl/... 6,992.0		Conc Max... 81		3.51	
HYBRID , 8/30/2013 19:27 , BONE SPRING 2ND, OH , 12,283.0 ftKB - 12,625.0 ftKB, TRICAN , 100 MESH Bulk Sand 84519 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 6241.21		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 6,284.0		Q Treat Avg (bbl/... 6,284.0		P Max (psi) 80		Q Treat Max (bbl/... 6,589.0		Conc Max... 81		3.60	
HYBRID , 8/31/2013 10:06 , BONE SPRING 2ND, OH , 11,844.0 ftKB - 12,185.0 ftKB, TRICAN , 100 MESH Bulk Sand 86166 LB; CRC PREMIUM Resin																							
Proppant De... 355,000.0		Total Clean Volu... 7038.88		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 4,712.0		Q Treat Avg (bbl/... 6,679.0		P Max (psi) 81		Q Treat Max (bbl/... 6,890.0		Conc Max... 81		3.21	
HYBRID , 8/31/2013 16:55 , BONE SPRING 2ND, OH , 11,405.0 ftKB - 11,746.0 ftKB, TRICAN , 100 MESH Bulk Sand 88247 LB; CRC PREMIUM F₂ in																							
Proppant De... 355,000.0		Total Clean Volu... 6156.60		Pre Trt S/I Prs (psi)		Pst Trt S/I Prs (psi)		P Break (psi)		ISIP (psi)		Avg Treat Pressur... 4,568.0		Q Treat Avg (bbl/... 6,357.0		P Max (psi) 80		Q Treat Max (bbl/... 6,726.0		Conc Max... 81		3.28	