



NM OIL CONSERVATION
ARTESIA DISTRICT

APR 01 2015

RECEIVED

December 9, 2014

Devon Energy
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

RD 4/2/15
Accepted for record
NEED

Attn: David Cook

Re: **Bo Duke Fed 5 3H**

30-015-42613

Please find enclosed a copy of the survey from 0.00' to 8939.94' 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,

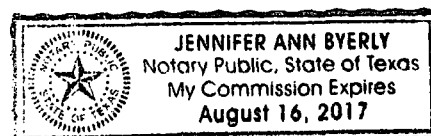
Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 9 day of December A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas

VES Survey International
P.O. Box 261021 Corpus Christi, TX 78426
T (361) 767-0602 F (361) 767-0612
www.vessurvey.com





Company: Devon Energy
Lease/Well: Bo Duke Fed 5/3H

Rig Name: H & P 251
State/County: New Mexico/Eddy
Latitude: 32.33, Longitude: -104.31
GRID North is 0.01 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 25 Foot

DRILLOG MS GYRO SURVEY CALCULATIONS
Filename: bo duke fed 5 3h_gyro survey.ut
Minimum Curvature Method
Report Date/Time: 12/9/2014 / 14:28

NM OIL CONSERVATION
ARTESIA DISTRICT

APR 01 2015

VES Survey International
West Texas
(432) 563-5444
Surveyor: Gene Heiss
Bo Duke Fed 5 3H / API 30-015-42693

RECEIVED

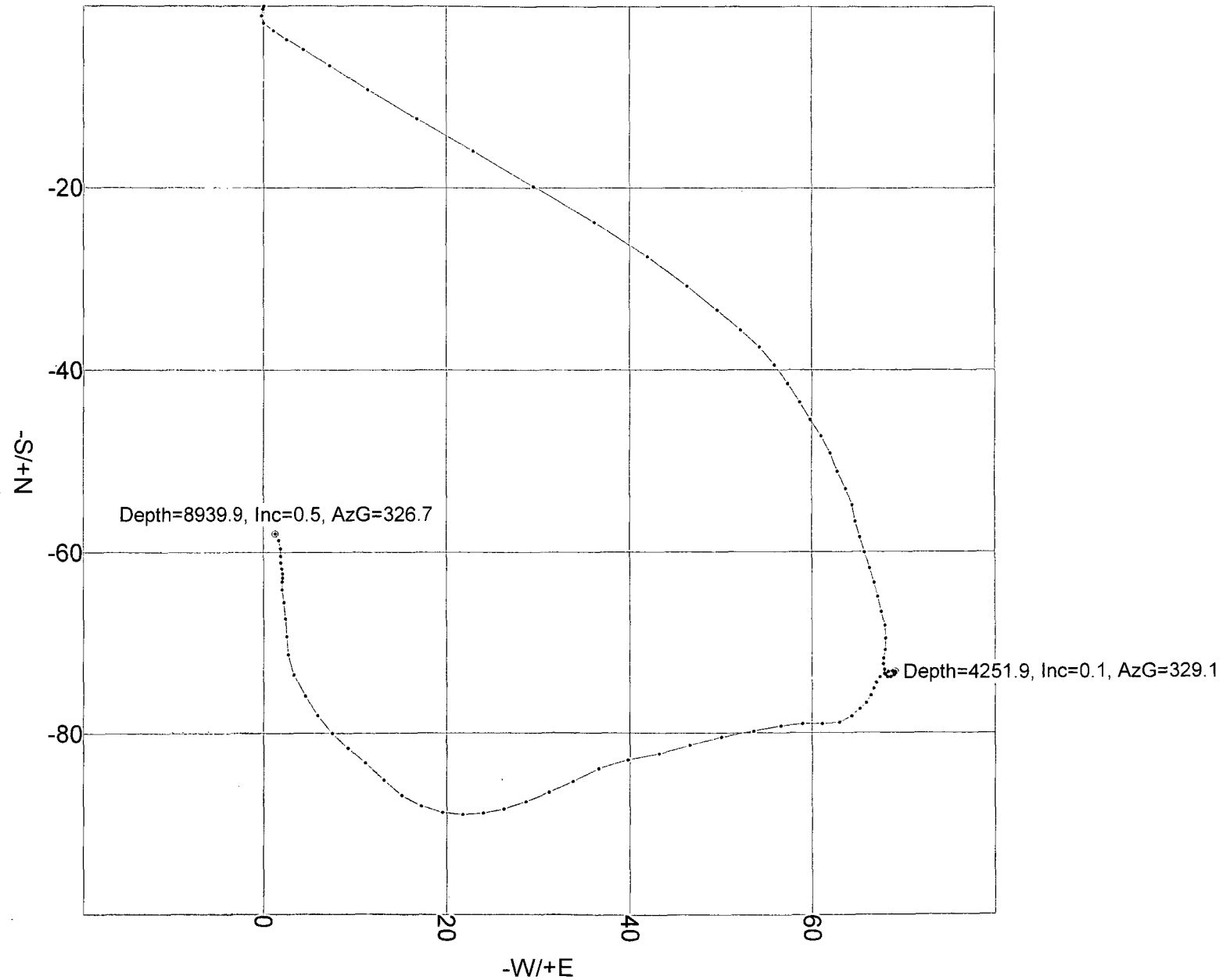
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
32.74	0.11	250.72	32.74	-0.01	-0.03	-0.01	0.03	250.72	0.33
126.50	0.34	180.38	126.50	-0.32	-0.12	-0.32	0.34	199.71	0.35
220.26	0.58	196.47	220.26	-1.06	-0.25	-1.06	1.09	193.38	0.29
314.02	0.60	132.59	314.01	-1.85	-0.03	-1.85	1.85	180.81	0.67
407.78	1.12	125.74	407.76	-2.71	1.08	-2.71	2.92	158.37	0.56
501.54	1.00	121.30	501.51	-3.67	2.52	-3.67	4.45	145.57	0.15
595.30	1.64	120.63	595.24	-4.78	4.37	-4.78	6.48	137.56	0.68
689.06	2.47	123.41	688.94	-6.58	7.22	-6.58	9.77	132.36	0.89
782.82	3.57	121.59	782.57	-9.22	11.39	-9.22	14.66	129.00	1.18
876.58	4.14	119.71	876.11	-12.43	16.82	-12.43	20.91	126.47	0.62
970.34	4.52	119.97	969.61	-15.95	22.96	-15.95	27.96	124.80	0.40
1064.10	4.78	120.66	1063.06	-19.79	29.52	-19.79	35.54	123.84	0.29
1157.86	4.73	120.87	1156.50	-23.77	36.19	-23.77	43.30	123.29	0.06
1251.62	3.69	125.96	1250.00	-27.52	41.95	-27.52	50.17	123.26	1.17
1345.38	2.95	127.48	1343.60	-30.76	46.31	-30.76	55.60	123.59	0.79
1439.14	2.22	130.68	1437.27	-33.42	49.61	-33.42	59.82	123.97	0.79
1532.90	1.85	130.12	1530.97	-35.58	52.15	-35.58	63.13	124.31	0.40
1626.66	1.59	134.00	1624.69	-37.46	54.24	-37.46	65.92	124.63	0.31

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
1720.42	1.57	146.00	1718.41	-39.43	55.89	-39.43	68.40	125.20	0.35
1814.18	1.52	144.35	1812.14	-41.50	57.33	-41.50	70.78	125.90	0.07
1907.94	1.43	149.84	1905.87	-43.52	58.64	-43.52	73.02	126.58	0.18
2001.70	1.33	146.79	1999.60	-45.44	59.82	-45.44	75.12	127.22	0.13
2095.46	1.31	146.46	2093.33	-47.24	61.01	-47.24	77.16	127.75	0.03
2189.22	1.30	157.39	2187.07	-49.11	62.01	-49.11	79.10	128.38	0.27
2282.98	1.34	160.13	2280.80	-51.13	62.79	-51.13	80.98	129.15	0.08
2376.74	1.27	147.97	2374.54	-53.04	63.72	-53.04	82.90	129.77	0.30
2470.50	1.13	171.82	2468.28	-54.84	64.40	-54.84	84.58	130.41	0.55
2564.26	1.14	167.07	2562.02	-56.66	64.74	-56.66	86.03	131.19	0.10
2658.02	1.04	160.74	2655.76	-58.37	65.23	-58.37	87.54	131.82	0.17
2751.78	1.08	163.61	2749.51	-60.02	65.76	-60.02	89.03	132.39	0.07
2845.54	1.15	164.46	2843.25	-61.78	66.26	-61.78	90.59	132.99	0.09
2939.30	0.90	159.92	2937.00	-63.38	66.77	-63.38	92.06	133.51	0.28
3033.06	1.06	170.23	3030.74	-64.93	67.17	-64.93	93.42	134.03	0.25
3126.82	1.05	162.55	3124.49	-66.61	67.57	-66.61	94.88	134.59	0.15
3220.58	0.84	172.57	3218.23	-68.11	67.92	-68.11	96.19	135.08	0.28
3314.34	0.92	180.43	3311.98	-69.54	68.00	-69.54	97.27	135.64	0.15
3408.10	0.64	181.60	3405.73	-70.82	67.98	-70.82	98.17	136.17	0.29
3501.86	0.52	203.00	3499.49	-71.74	67.80	-71.74	98.71	136.62	0.26
3595.62	0.35	151.66	3593.25	-72.38	67.77	-72.38	99.16	136.88	0.43
3689.38	0.42	178.10	3687.00	-72.98	67.92	-72.98	99.70	137.06	0.20
3783.14	0.27	156.25	3780.76	-73.53	68.02	-73.53	100.17	137.23	0.21
3876.90	0.19	126.80	3874.52	-73.82	68.24	-73.82	100.53	137.25	0.15
3970.66	0.32	67.90	3968.28	-73.82	68.60	-73.82	100.78	137.10	0.29
4064.42	0.23	47.62	4062.04	-73.60	68.98	-73.60	100.87	136.85	0.13
4158.18	0.11	354.84	4155.80	-73.37	69.11	-73.37	100.80	136.71	0.20
4251.94	0.06	329.07	4249.56	-73.24	69.08	-73.24	100.67	136.67	0.07
4345.70	0.32	270.54	4343.32	-73.19	68.79	-73.19	100.44	136.77	0.31
4439.46	0.26	250.87	4437.08	-73.26	68.32	-73.26	100.17	137.00	0.12
4533.22	0.32	242.02	4530.84	-73.45	67.88	-73.45	100.02	137.26	0.08
4626.98	0.42	225.29	4624.59	-73.82	67.41	-73.82	99.96	137.60	0.15
4720.74	0.49	203.70	4718.35	-74.42	67.00	-74.42	100.14	138.00	0.20
4814.50	0.39	205.26	4812.11	-75.08	66.70	-75.08	100.43	138.38	0.10
4908.26	0.61	201.54	4905.87	-75.83	66.38	-75.83	100.78	138.80	0.23
5002.02	0.58	218.46	4999.62	-76.67	65.91	-76.67	101.10	139.32	0.19
5095.78	0.60	233.38	5093.38	-77.33	65.22	-77.33	101.16	139.86	0.16
5189.54	0.86	224.87	5187.13	-78.12	64.33	-78.12	101.20	140.53	0.30
5283.30	1.05	256.41	5280.88	-78.82	63.00	-78.82	100.90	141.37	0.59

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
5377.06	1.26	273.01	5374.62	-78.97	61.14	-78.97	99.87	142.25	0.42
5470.82	1.42	266.97	5468.35	-78.98	58.94	-78.98	98.55	143.26	0.23
5564.58	1.51	261.81	5562.08	-79.21	56.56	-79.21	97.33	144.47	0.17
5658.34	2.18	258.49	5655.79	-79.74	53.59	-79.74	96.08	146.10	0.73
5752.10	2.23	259.62	5749.48	-80.43	50.05	-80.43	94.73	148.10	0.07
5845.86	2.18	252.66	5843.17	-81.29	46.56	-81.29	93.68	150.20	0.29
5939.62	2.14	256.17	5936.87	-82.24	43.17	-82.24	92.88	152.30	0.15
6033.38	2.12	261.29	6030.56	-82.92	39.76	-82.92	91.95	154.38	0.20
6127.14	1.96	243.96	6124.26	-83.88	36.60	-83.88	91.52	156.42	0.68
6220.90	1.82	242.21	6217.97	-85.28	33.84	-85.28	91.75	158.35	0.16
6314.66	1.70	248.50	6311.69	-86.48	31.24	-86.48	91.95	160.14	0.25
6408.42	1.66	246.52	6405.41	-87.53	28.70	-87.53	92.12	161.85	0.07
6502.18	1.51	256.27	6499.13	-88.36	26.26	-88.36	92.18	163.45	0.33
6595.94	1.31	261.66	6592.86	-88.81	24.00	-88.81	92.00	164.88	0.26
6689.70	1.40	268.99	6686.60	-88.99	21.80	-88.99	91.62	166.24	0.21
6783.46	1.43	283.55	6780.33	-88.73	19.52	-88.73	90.86	167.59	0.38
6877.22	1.50	290.93	6874.06	-88.02	17.24	-88.02	89.69	168.92	0.21
6970.98	1.51	306.65	6967.79	-86.85	15.10	-86.85	88.15	170.14	0.44
7064.74	1.68	314.96	7061.51	-85.14	13.13	-85.14	86.14	171.23	0.31
7158.50	1.73	311.73	7155.23	-83.22	11.10	-83.22	83.96	172.40	0.12
7252.26	1.33	309.19	7248.96	-81.59	9.20	-81.59	82.11	173.57	0.44
7346.02	1.52	318.81	7342.69	-79.96	7.53	-79.96	80.32	174.62	0.33
7439.78	1.60	322.69	7436.41	-77.99	5.92	-77.99	78.21	175.66	0.14
7533.54	1.55	332.22	7530.14	-75.83	4.54	-75.83	75.96	176.57	0.28
7627.30	1.67	333.40	7623.86	-73.49	3.34	-73.49	73.56	177.40	0.13
7721.06	1.26	357.86	7717.59	-71.24	2.69	-71.24	71.29	177.84	0.79
7814.82	1.22	351.54	7811.33	-69.22	2.50	-69.22	69.26	177.93	0.15
7908.58	1.18	2.45	7905.07	-67.27	2.40	-67.27	67.31	177.96	0.25
8002.34	1.02	346.09	7998.81	-65.49	2.24	-65.49	65.53	178.04	0.37
8096.10	0.75	358.82	8092.56	-64.07	2.03	-64.07	64.10	178.19	0.35
8189.86	0.30	3.42	8186.32	-63.21	2.03	-63.21	63.24	178.16	0.48
8283.62	0.23	5.32	8280.07	-62.77	2.06	-62.77	62.80	178.12	0.08
8377.38	0.33	358.46	8373.83	-62.31	2.07	-62.31	62.34	178.10	0.11
8471.14	0.36	340.51	8467.59	-61.76	1.96	-61.76	61.79	178.18	0.12
8564.90	0.46	357.49	8561.35	-61.10	1.85	-61.10	61.13	178.27	0.16
8658.66	0.42	5.50	8655.11	-60.38	1.87	-60.38	60.41	178.23	0.08
8752.42	0.60	355.17	8748.86	-59.55	1.86	-59.55	59.57	178.21	0.22
8846.18	0.51	339.47	8842.62	-58.66	1.67	-58.66	58.68	178.37	0.19
8939.94	0.52	326.70	8936.37	-57.91	1.29	-57.91	57.92	178.73	0.12



VES Survey International
West Texas
(432) 563-5444
Surveyor: Gene Heiss
Bo Duke Fed 5 3H / API 30-015-42693



VES Survey Date: 11/22/2014



Weatherford*

Evaluation, Drilling & Intervention
10000 West County Rd. 116
P.O. Box 61028
Midland, TX USA 79711
Tel. (432) 561-8892 Fax (432) 561-8895

Devon Energy
333 W. Sherridan Ave
Oklahoma City, OK, 73102

Date: December 12, 2014

Attention: Scott Schmidt

Re: Devon Energy
Well: Bo Duke Fed 5 3H
Eddy County, New Mexico

Enclosed, please find the original survey performed on the referenced well by Precision Energy Services, Inc. (P-5 No. 676004), a Weatherford company. Other information required by your office is as follows:

Name & Title Of Surveyor	Well Number	Surveyed Depths	Dates Performed	Type of Survey
Jesus Lopez	5 3H	6038 MD	11/23/2014	Measurement
MWD Supervisor		11124 MD	12/7/2014	While Drilling

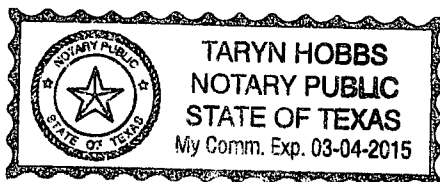
A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Jesse Aguilar
MWD Ops Coordinator

On this, the 19th day of January, 2015, before me a notary public, the undersigned officer, personally appeared Jesse Aguilar, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

In witness hereof, I hereunto set my hand and official seal.

Notary Public



WD Survey Report

Bo Duke Fed 5 3H Lateral

Field Name
Eddy Co, NM
(Nad 83 NME)

Map Units : US ft **Company Name** : Devon Energy

Vertical Reference Datum (VRD) : Mean Sea Level

Projected Coordinate System : NAD83 / New Mexico East (ftUS)

Comment :

Site Name
Bo Duke Fed 5
3H

Units : US ft **North Reference** : Grid **Convergence Angle** : 0.01

Position
Northing : 482627.47 US ft **Latitude** : 32°19'36.53"
Easting : 547472.09 US ft **Longitude** : -104°18'48.50"

Elevation above Mean Sea Level: 3364.00 US ft

Comment :

Slot Name
Bo Duke Fed 5
3H

Position (Offsets relative to Site Centre)
+N / -S : 0.00 US ft **Northing** : 482627.47 US ft **Latitude** : 32°19'36.53"
+E / -W : 0.00 US ft **Easting** : 547472.09 US ft **Longitude** : -104°18'48.50"

Slot TVD Reference : Ground Elevation

Elevation above Mean Sea Level : 3364.00 US ft

Comment :

Well Name
Bo Duke Fed 5
3H Lateral

Type : Sidetrack **UWI** :

Parent : Bo Duke Fed 5 3H Pilot **Tie Point Method** : MD **Tie Point** : 5939.62 US ft

Rig Height **Well TVD Reference** : 25.00 US ft **Comment** :

Relative to Mean Sea Level: 3389.00 US ft

Closure Distance : 4856.52 US ft **Closure Azimuth** : 1.92325°

Vertical Section (Position of Origin Relative to Slot)
+N / -S : 0.00 US ft **+E / -W** : 0.00 US ft **Az** : 0.00°

Survey Name : Wft MWD Svy

Date : 30/Nov/2014 **Survey Tool** : MWD **Comment** : **Company** : Wft

Magnetic Model

Model Name: BGGM **Date**: 24/Nov/2014 **Field Strength**: 48224.4 nT **Declination**: 7.69° **Dip**: 60.06°

Tie Point

MD: 5939.62 **Inclination**: 2.14 **Azimuth**: 256.17 **TVD**: 5936.87 **North Offset**: -82.24 **East Offset**: 43.17

Well path created using minimum curvature

Survey Points (Relative to Slot centre, TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N Offset (US ft)	E Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
6038.00	11.25	345.16	6034.59	-73.37	38.91	-73.37	0.00	482554.10	547511.00	First Wft Svy Lat
6075.00	15.01	345.03	6070.62	-65.25	36.75	-65.25	10.16	482562.22	547508.84	
6106.00	18.60	345.64	6100.29	-56.58	34.49	-56.58	11.59	482570.89	547506.58	
6138.00	22.21	346.82	6130.28	-45.75	31.84	-45.75	11.35	482581.72	547503.93	
6169.00	25.32	349.88	6158.64	-33.51	29.34	-33.51	10.79	482593.96	547501.43	
6201.00	28.55	354.56	6187.17	-19.16	27.41	-19.16	12.07	482608.31	547499.50	
6232.00	31.82	356.96	6213.97	-3.62	26.28	-3.62	11.24	482623.85	547498.37	
6263.00	34.88	357.77	6239.86	13.40	25.50	13.40	9.97	482640.87	547497.59	
6295.00	37.51	358.18	6265.68	32.29	24.83	32.29	8.25	482659.76	547496.92	
6326.00	39.59	359.40	6289.92	51.60	24.43	51.60	7.14	482679.07	547496.52	

Survey Points (Relative to Slot centre TVD relative to Well TVD Reference)										
ND (USft)	Inc (°)	Az (°)	TVD (USft)	N Offset (USft)	E Offset (USft)	VS (USft)	DLS (%/100USft)	Northing (USft)	Easting (USft)	Comment
6358.00	41.65	359.83	6314.21	72.43	24.29	72.43	6.50	482699.90	547496.38	
6390.00	44.08	0.03	6337.66	94.20	24.27	94.20	7.61	482721.67	547496.36	
6421.00	47.22	0.48	6359.33	116.36	24.37	116.36	10.18	482743.83	547496.46	
6450.00	50.46	0.84	6378.42	138.19	24.62	138.19	11.21	482765.66	547496.71	
6481.00	54.45	0.97	6397.30	162.76	25.01	162.76	12.88	482790.23	547497.10	
6513.00	58.55	0.80	6414.96	189.44	25.42	189.44	12.82	482816.91	547497.51	
6544.00	62.79	0.75	6430.14	216.46	25.78	216.46	13.68	482843.93	547497.87	
6575.00	67.59	1.13	6443.15	244.58	26.25	244.58	15.52	482872.05	547498.34	
6607.00	72.09	2.01	6454.17	274.60	27.07	274.60	14.30	482902.07	547499.16	
6638.00	75.65	2.15	6462.78	304.36	28.16	304.36	11.49	482931.83	547500.25	
6669.00	78.15	1.97	6469.81	334.53	29.24	334.53	8.08	482962.00	547501.33	
6701.00	80.94	2.26	6475.62	365.97	30.40	365.97	8.76	482993.44	547502.49	
6732.00	83.76	1.89	6479.74	396.68	31.51	396.68	9.17	483024.15	547503.60	
6763.00	86.28	1.91	6482.43	427.54	32.54	427.54	8.13	483055.01	547504.63	
6795.00	89.37	2.10	6483.65	459.49	33.66	459.49	9.67	483086.96	547505.75	
6826.00	90.63	2.12	6483.65	490.47	34.80	490.47	4.07	483117.94	547506.89	
6845.00	90.91	2.09	6483.39	509.46	35.50	509.46	1.48	483136.93	547507.59	
6937.00	91.89	1.84	6481.14	601.37	38.65	601.37	1.10	483228.84	547510.74	
7028.00	90.14	1.81	6479.53	692.31	41.55	692.31	1.92	483319.78	547513.64	
7122.00	90.00	1.78	6479.42	786.26	44.49	786.26	0.15	483413.73	547516.58	
7216.00	89.93	2.46	6479.48	880.20	47.97	880.20	0.73	483507.67	547520.06	
7310.00	89.65	2.42	6479.82	974.11	51.97	974.11	0.30	483601.58	547524.06	
7405.00	89.44	2.17	6480.57	1069.03	55.77	1069.03	0.34	483696.50	547527.86	
7499.00	89.23	2.11	6481.67	1162.96	59.28	1162.96	0.23	483790.43	547531.37	
7593.00	89.51	1.66	6482.70	1256.90	62.38	1256.90	0.56	483884.37	547534.47	
7687.00	89.44	2.18	6483.56	1350.85	65.53	1350.85	0.56	483978.32	547537.62	
7781.00	90.07	1.88	6483.96	1444.79	68.85	1444.79	0.74	484072.26	547540.94	
7875.00	89.93	1.87	6483.96	1538.74	71.93	1538.74	0.15	484166.21	547544.02	
7970.00	89.79	2.11	6484.19	1633.68	75.23	1633.68	0.29	484261.15	547547.32	
8064.00	91.40	1.92	6483.22	1727.61	78.53	1727.61	1.72	484355.08	547550.62	
8158.00	91.40	2.05	6480.92	1821.53	81.79	1821.53	0.14	484449.00	547553.88	
8252.00	92.52	2.16	6477.71	1915.41	85.24	1915.41	1.20	484542.88	547557.33	
8346.00	91.40	2.21	6474.49	2009.28	88.82	2009.28	1.19	484636.75	547560.91	
8440.00	89.37	0.24	6473.86	2103.25	90.83	2103.25	3.01	484730.72	547562.92	
8534.00	89.37	0.12	6474.89	2197.24	91.13	2197.24	0.13	484824.71	547563.22	
8629.00	88.88	0.52	6476.34	2292.23	91.66	2292.23	0.67	484919.70	547563.75	
8723.00	88.67	0.53	6478.35	2386.21	92.52	2386.21	0.22	485013.68	547564.61	
8817.00	88.39	0.61	6480.77	2480.17	93.45	2480.17	0.31	485107.64	547565.54	
8911.00	89.58	0.34	6482.43	2574.15	94.23	2574.15	1.30	485201.62	547566.32	
9005.00	89.58	0.42	6483.12	2668.15	94.85	2668.15	0.09	485295.62	547566.94	
9099.00	90.21	0.46	6483.29	2762.14	95.58	2762.14	0.67	485389.61	547567.67	
9193.00	90.77	1.03	6482.49	2856.13	96.80	2856.13	0.85	485483.60	547568.89	
9288.00	91.33	1.47	6480.75	2951.09	98.87	2951.09	0.75	485578.56	547570.96	
9382.00	91.12	1.59	6478.74	3045.04	101.38	3045.04	0.26	485672.51	547573.47	
9476.00	90.84	1.56	6477.13	3138.99	103.96	3138.99	0.30	485766.46	547576.05	
9570.00	91.19	1.57	6475.46	3232.94	106.53	3232.94	0.37	485860.41	547578.62	
9665.00	90.98	1.94	6473.67	3327.87	109.44	3327.87	0.45	485955.34	547581.53	
9759.00	90.49	1.93	6472.46	3421.81	112.61	3421.81	0.52	486049.28	547584.70	
9853.00	90.00	2.08	6472.06	3515.75	115.90	3515.75	0.55	486143.22	547587.99	
9947.00	90.91	1.66	6471.31	3609.70	118.97	3609.70	1.07	486237.17	547591.06	
10041.00	90.42	1.46	6470.22	3703.66	121.53	3703.66	0.56	486331.13	547593.62	
10136.00	89.86	1.70	6469.99	3798.62	124.15	3798.62	0.64	486426.09	547596.24	
10230.00	91.12	1.21	6469.18	3892.59	126.53	3892.59	1.44	486520.06	547598.62	
10324.00	90.98	1.12	6467.46	3986.55	128.44	3986.55	0.18	486614.02	547600.53	
10418.00	90.77	1.59	6466.03	4080.51	130.67	4080.51	0.55	486707.98	547602.76	
10512.00	90.35	1.74	6465.11	4174.47	133.40	4174.47	0.47	486801.94	547605.49	
10607.00	90.00	1.68	6464.82	4269.43	136.23	4269.43	0.37	486896.90	547608.32	
10701.00	89.72	2.06	6465.05	4363.37	139.30	4363.37	0.50	486990.84	547611.39	
10795.00	89.44	2.42	6465.74	4457.30	142.97	4457.30	0.49	487084.77	547615.06	

ID Survey Report

Survey Points (Relative to Slot centre, TVD relative to Well TVD Reference)										
MD (USft)	Inc (°)	Az (°)	TVD (USft)	N Offset (USft)	E Offset (USft)	VS (USft)	DLS (%/100USft)	Northing (USft)	Easting (USft)	Comment
10889.00	90.28	2.49	6465.97	4551.21	147.00	4551.21	0.90	487178.68	547619.09	
10983.00	90.07	3.03	6465.68	4645.10	151.53	4645.10	0.62	487272.57	547623.62	
11077.00	89.77	3.23	6465.81	4738.96	156.66	4738.96	0.38	487366.43	547628.75	
11124.00	89.65	3.18	6466.05	4785.89	159.29	4785.89	0.28	487413.36	547631.38	Last Wft Lat Svy
11192.00	89.36	3.06	6466.64	4853.78	162.99	4853.78	0.46	487481.25	547635.08	Proj. To Bit

devon

Bo Duke Fed 5 3H
Eddy Co, NM



Plan Data for Bo Duke Fed 5 3H Lateral

Plan Point Information:

DogLeg Severity Unit: $^{\circ}/100.00\text{ft}$ Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS
(USft)	($^{\circ}$)	($^{\circ}$)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
5939.62	2.14	256.17	5936.87	-82.22	43.16	482545.25	547515.25	-80.89	0.15
5962.75	2.13	257.42	5959.98	-82.41	42.32	482545.06	547514.41	-81.10	0.21
6789.75	90.46	1.43	6485.17	442.89	36.35	483070.36	547508.44	443.78	11.00
7557.37	90.46	1.43	6479.08	1210.24	55.53	483837.71	547527.62	1211.36	0.00
7572.25	90.16	1.43	6479.00	1225.11	55.90	483852.58	547527.99	1226.24	2.00
11208.72	90.16	1.43	6469.00	4860.44	146.64	487487.91	547618.73	4862.65	0.00

Plan Data for Bo Duke Fed 5 3H Lateral

Slot: Bo Duke Fed 5 3H
Position:
Offset is from Site centre
+N/-S: 0.00USft Northing: 482627.47USft Latitude: $32^{\circ}19'36.5''$
+E/-W: 0.00USft Easting: 547472.09USft Longitude: $-104^{\circ}18'48.5''$
Elevation Above VRD: 3364.00USft

Plan Data for Bo Duke Fed 5 3H Lateral

Target Set Information:

Name: Bo Duke Fed 5 3H

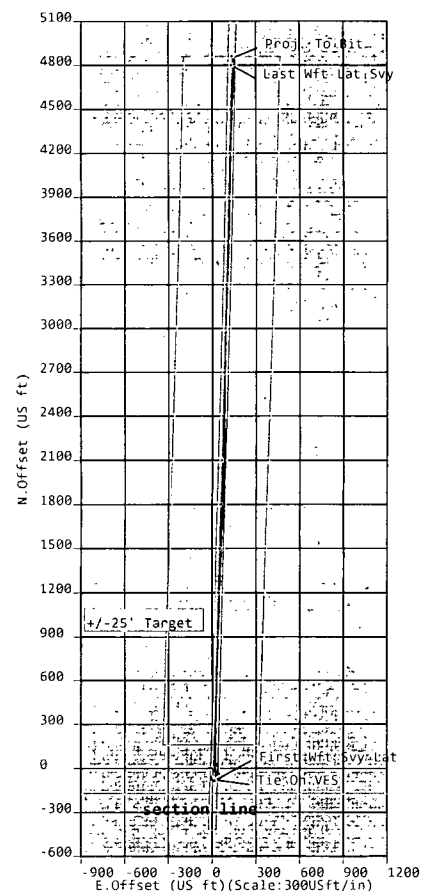
Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape	Comment
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)		
Lp 6485.18	442.88	36.33	483070.35	547508.42	Cuboid		
Mid Tgt 6479.00	1225.10	55.90	483852.57	547527.99	Cuboid		
PBHL 3H 6469.00	4860.43	146.24	487487.90	547618.33	Cuboid		

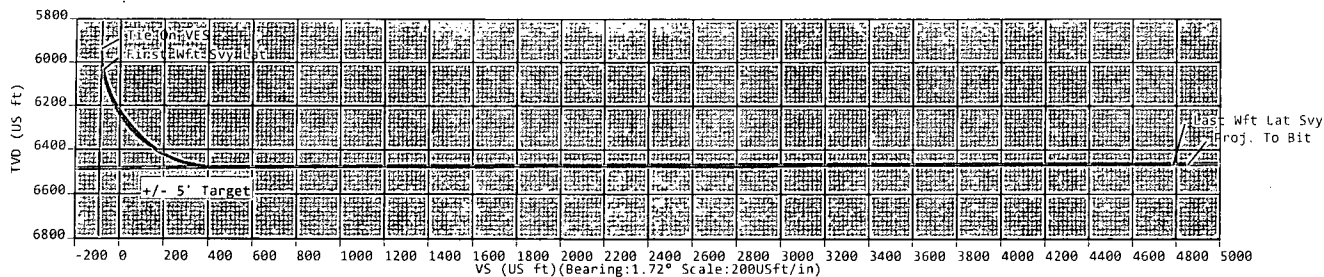
Plan Data for Bo Duke Fed 5 3H Lateral

Well: Bo Duke Fed 5 3H Lateral
Type: Side-Track
File Number:
Plan Folder: P1 Plan: P1:V3
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 1.72°
+E/-W: 0.00USft
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
BGGM 48224(nT) 7.69 $^{\circ}$ 60.86 $^{\circ}$ 2014-11-24

Bo Duke Fed 5 3H Lateral _____
Bo Duke Fed 5 3H Pilot _____
Bo Duke Fed 5 3H Lateral _____



KB-3389
GL-3364



Sign Off: Russell Joyner



Directional Survey

Sub-Division DELAWARE BASIN	County EDDY	Field Name HAPPY VALLEY	Region DELAWARE SLOPE WEST	State/Province NM		
Surface Legal Location Sec. 5 23S 26E	API/UWI 3001542693	Latitude (°) 32° 19' 36.528" N	Longitude (°) 104° 18' 48.502" W	Ground Elev M... 3,364.20	Orig KB Elev (ft) 3,389.20	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID	Vertical Section Direction (°)
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Kick Offs & Key Depths

Date	Type			Top Depth (ftKB)
Actual Deviation Survey	Definitive?	Proposed?	Proposed Deviation Survey	

Deviation Survey

Date		Description			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
Wellbore Name STJ01				Parent Wellbore OH		SAP Well ID			Vertical Section Direction (°) 1.72	

Kick Offs & Key Depths

Date 11/29/2014	Type Kick Off	Top Depth (ftKB) 5,963.0	
Actual Deviation Survey MWD SURVEYS , Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey

Deviation Survey

Date 11/29/2014		Description MWD SURVEYS			
MD Tie In (ftKB) 5,939.62	TVD Tie In (ftKB) 5,936.87	Inclination Tie In (°) 2.14	Azimuth Tie In (°) 256.17	NSTie In (ft) -82.24	EW Tie In (ft) 43.17

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
11/29/2...	6,038.00	11.25	345.16	6,034.59	-72.17	-73.37	38.91	11.60	MWD	WEATHERFORD
11/29/2...	6,075.00	15.01	345.03	6,070.62	-64.12	-65.25	36.75	10.16	MWD	WEATHERFORD
11/29/2...	6,106.00	18.60	345.64	6,100.29	-55.52	-56.58	34.49	11.59	MWD	WEATHERFORD
11/29/2...	6,138.00	22.21	346.82	6,130.28	-44.77	-45.75	31.84	11.35	MWD	WEATHERFORD
11/29/2...	6,169.00	25.32	349.88	6,158.65	-32.62	-33.51	29.34	10.79	MWD	WEATHERFORD
11/29/2...	6,201.00	28.55	354.56	6,187.18	-18.33	-19.16	27.41	12.07	MWD	WEATHERFORD
11/29/2...	6,232.00	31.82	356.96	6,213.97	-2.83	-3.62	26.28	11.24	MWD	WEATHERFORD
11/29/2...	6,263.00	34.88	357.77	6,239.86	14.16	13.40	25.50	9.97	MWD	WEATHERFORD
11/29/2...	6,295.00	37.51	358.18	6,265.68	33.02	32.29	24.83	8.25	MWD	WEATHERFORD
11/29/2...	6,326.00	39.59	359.40	6,289.93	52.31	51.60	24.43	7.14	MWD	WEATHERFORD
11/29/2...	6,358.00	41.65	359.83	6,314.22	73.13	72.43	24.29	6.50	MWD	WEATHERFORD
11/29/2...	6,390.00	44.08	0.03	6,337.67	94.89	94.20	24.27	7.61	MWD	WEATHERFORD
11/29/2...	6,421.00	47.22	0.48	6,359.34	117.04	116.36	24.37	10.18	MWD	WEATHERFORD
11/29/2...	6,450.00	50.46	0.84	6,378.42	138.87	138.19	24.62	11.21	MWD	WEATHERFORD
11/29/2...	6,481.00	54.45	0.97	6,397.31	163.44	162.76	25.01	12.88	MWD	WEATHERFORD
11/29/2...	6,513.00	58.55	0.80	6,414.97	190.12	189.44	25.42	12.82	MWD	WEATHERFORD
11/29/2...	6,544.00	62.79	0.75	6,430.15	217.13	216.46	25.78	13.68	MWD	WEATHERFORD
11/29/2...	6,575.00	67.59	1.13	6,443.15	245.26	244.58	26.25	15.52	MWD	WEATHERFORD
11/29/2...	6,607.00	72.09	2.01	6,454.18	275.29	274.60	27.07	14.30	MWD	WEATHERFORD
11/29/2...	6,638.00	75.65	2.15	6,462.79	305.07	304.36	28.16	11.49	MWD	WEATHERFORD
11/29/2...	6,669.00	78.15	1.97	6,469.81	335.26	334.53	29.24	8.08	MWD	WEATHERFORD
11/29/2...	6,701.00	80.94	2.26	6,475.62	366.72	365.97	30.40	8.76	MWD	WEATHERFORD
11/29/2...	6,732.00	83.76	1.89	6,479.75	397.44	396.68	31.51	9.17	MWD	WEATHERFORD
11/29/2...	6,763.00	86.28	1.91	6,482.44	428.32	427.54	32.54	8.13	MWD	WEATHERFORD
11/29/2...	6,795.00	89.37	2.10	6,483.65	460.30	459.49	33.66	9.67	MWD	WEATHERFORD
11/29/2...	6,826.00	90.63	2.12	6,483.65	491.29	490.47	34.80	4.07	MWD	WEATHERFORD
12/3/2014	6,845.00	90.91	2.09	6,483.40	510.29	509.46	35.50	1.48	MWD	WEATHERFORD
12/3/2014	6,937.00	91.89	1.84	6,481.15	602.26	601.37	38.65	1.10	MWD	WEATHERFORD
12/3/2014	7,028.00	90.14	1.81	6,479.54	693.24	692.31	41.55	1.92	MWD	WEATHERFORD
12/3/2014	7,122.00	90.00	1.78	6,479.42	787.24	786.26	44.49	0.15	MWD	WEATHERFORD
12/3/2014	7,216.00	89.93	2.46	6,479.48	881.24	880.20	47.97	-0.73	MWD	WEATHERFORD
12/3/2014	7,310.00	89.65	2.42	6,479.82	975.23	974.11	51.97	0.30	MWD	WEATHERFORD



Directional Survey

Sub-Division DELAWARE BASIN	County EDDY	Field Name HAPPY VALLEY	Region DELAWARE SLORE WEST	State/Province NM
Surface Legal Location Sec. 5 23S 26E	API/UWI 3001542693	Latitude (°) 32° 19' 36.528" N	Longitude (°) 104° 18' 48.502" W	Ground Elev M. 3,364.20
				Orig KB Elev (ft) 3,389.20
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
12/3/2014	7,405.00	89.44	2.17	6,480.58	1,070.23	1,069.03	55.77	0.34	MWD	WEATHERFORD
12/3/2014	7,499.00	89.23	2.11	6,481.67	1,164.22	1,162.96	59.28	0.23	MWD	WEATHERFORD
12/3/2014	7,593.00	89.51	1.66	6,482.70	1,258.21	1,256.90	62.38	0.56	MWD	WEATHERFORD
12/3/2014	7,687.00	89.44	2.18	6,483.56	1,352.21	1,350.85	65.53	0.56	MWD	WEATHERFORD
12/3/2014	7,781.00	90.07	1.88	6,483.97	1,446.20	1,444.79	68.85	0.74	MWD	WEATHERFORD
12/3/2014	7,875.00	89.93	1.87	6,483.97	1,540.20	1,538.74	71.93	0.15	MWD	WEATHERFORD
12/3/2014	7,970.00	89.79	2.11	6,484.20	1,635.20	1,633.68	75.23	0.29	MWD	WEATHERFORD
12/4/2014	8,064.00	91.40	1.92	6,483.22	1,729.19	1,727.61	78.53	1.72	MWD	WEATHERFORD
12/4/2014	8,158.00	91.40	2.05	6,480.92	1,823.16	1,821.53	81.79	0.14	MWD	WEATHERFORD
12/4/2014	8,252.00	92.52	2.16	6,477.71	1,917.10	1,915.41	85.24	1.20	MWD	WEATHERFORD
12/4/2014	8,346.00	91.40	2.21	6,474.50	2,011.04	2,009.28	88.82	1.19	MWD	WEATHERFORD
12/4/2014	8,440.00	89.37	0.24	6,473.86	2,105.03	2,103.25	90.83	3.01	MWD	WEATHERFORD
12/4/2014	8,534.00	89.37	0.12	6,474.90	2,198.99	2,197.24	91.13	0.13	MWD	WEATHERFORD
12/4/2014	8,629.00	88.88	0.52	6,476.35	2,293.95	2,292.23	91.66	0.67	MWD	WEATHERFORD
12/4/2014	8,723.00	88.67	0.53	6,478.36	2,387.91	2,386.21	92.52	0.22	MWD	WEATHERFORD
12/4/2014	8,817.00	88.39	0.61	6,480.77	2,481.86	2,480.17	93.45	0.31	MWD	WEATHERFORD
12/4/2014	8,911.00	89.58	0.34	6,482.43	2,575.82	2,574.15	94.23	1.30	MWD	WEATHERFORD
12/4/2014	9,005.00	89.58	0.42	6,483.12	2,669.79	2,668.15	94.85	0.09	MWD	WEATHERFORD
12/4/2014	9,099.00	90.21	0.46	6,483.30	2,763.77	2,762.14	95.58	0.67	MWD	WEATHERFORD
12/4/2014	9,193.00	90.77	1.03	6,482.49	2,857.75	2,856.13	96.80	0.85	MWD	WEATHERFORD
12/4/2014	9,288.00	91.33	1.47	6,480.75	2,952.73	2,951.09	98.87	0.75	MWD	WEATHERFORD
12/4/2014	9,382.00	91.12	1.59	6,478.74	3,046.71	3,045.04	101.38	0.26	MWD	WEATHERFORD
12/5/2014	9,476.00	90.84	1.56	6,477.13	3,140.69	3,138.99	103.96	0.30	MWD	WEATHERFORD
12/5/2014	9,570.00	91.19	1.57	6,475.47	3,234.68	3,232.94	106.53	0.37	MWD	WEATHERFORD
12/5/2014	9,665.00	90.98	1.94	6,473.67	3,329.66	3,327.87	109.44	0.45	MWD	WEATHERFORD
12/5/2014	9,759.00	90.49	1.93	6,472.46	3,423.65	3,421.81	112.61	0.52	MWD	WEATHERFORD
12/5/2014	9,853.00	90.00	2.08	6,472.06	3,517.65	3,515.75	115.90	0.55	MWD	WEATHERFORD
12/5/2014	9,947.00	90.91	1.66	6,471.31	3,611.64	3,609.70	118.97	1.07	MWD	WEATHERFORD
12/5/2014	10,041.00	90.42	1.46	6,470.22	3,705.64	3,703.66	121.53	0.56	MWD	WEATHERFORD
12/5/2014	10,136.00	89.86	1.70	6,469.99	3,800.64	3,798.62	124.15	0.64	MWD	WEATHERFORD
12/5/2014	10,230.00	91.12	1.21	6,469.19	3,894.63	3,892.59	126.53	1.44	MWD	WEATHERFORD
12/5/2014	10,324.00	90.98	1.12	6,467.47	3,988.61	3,986.55	128.44	0.18	MWD	WEATHERFORD
12/5/2014	10,418.00	90.77	1.59	6,466.03	4,082.60	4,080.51	130.67	0.55	MWD	WEATHERFORD
12/5/2014	10,512.00	90.35	1.74	6,465.11	4,176.59	4,174.47	133.40	0.47	MWD	WEATHERFORD
12/5/2014	10,607.00	90.00	1.68	6,464.82	4,271.59	4,269.43	136.23	0.37	MWD	WEATHERFORD
12/5/2014	10,701.00	89.72	2.06	6,465.05	4,365.59	4,363.37	139.30	0.50	MWD	WEATHERFORD
12/5/2014	10,795.00	89.44	2.42	6,465.74	4,459.58	4,457.30	142.97	0.49	MWD	WEATHERFORD
12/5/2014	10,889.00	90.28	2.49	6,465.97	4,553.57	4,551.21	147.00	0.90	MWD	WEATHERFORD
12/5/2014	10,983.00	90.07	3.03	6,465.68	4,647.56	4,645.10	151.53	0.62	MWD	WEATHERFORD
12/5/2014	11,077.00	89.79	3.23	6,465.80	4,741.53	4,738.96	156.66	0.37	MWD	WEATHERFORD
12/6/2014	11,124.00	89.65	3.18	6,466.03	4,788.51	4,785.89	159.29	0.32	MWD	WEATHERFORD
12/6/2014	11,192.00	89.65	3.18	6,466.44	4,856.49	4,853.78	163.06	0.00	BIT	WEATHERFORD
12/6/2014	11,192.00	89.65	3.18	6,466.44	4,856.49	4,853.78	163.06	0.00	BIT	WEATHERFORD