



Weatherford

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

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

Date: June 30, 2014

Attention: Art Alarcon

30 015 42031

Re: Devon Energy
 Well: Betelgeuse 19 Fed 6H
 Eddy County, New Mexico

NM OIL CONSERVATION
 ARTESIA DISTRICT

OCT 09 2014

RECEIVED

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
John Josserand MWD Supervisor	6H	4093 MD 12683 MD	6/9/2014 6/27/2014	Measurement While Drilling

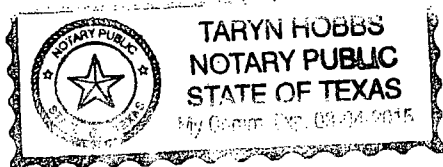
A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Jesus Aguilar
 MWD Coordinator

On this, the 11th day of July, 2014, before me a notary public, the undersigned officer, personally appeared Jesus 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



5D Survey Report

Devon Energy

Field Name: *Eddy Co, NM (Nad 83 NME)*

Site Name: *Betelgeuse 19 Fed 6H*

Well Name: *Betelgeuse 19 Fed 6H*

Survey: *Wft MWD Svy*

27 June 2014



Weatherford®

Betelgeuse 19 Fed 6H

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
Betelgeuse 19
Fed 6H

Units : US ft
North Reference : Grid
Convergence Angle : 0.23
Position
Northing : 599920.68 US ft
Latitude : 32° 38' 54.52"
Easting : 674975.51 US ft
Longitude : -103° 53' 56.92"
Elevation above Mean Sea Level: 3416.00 US ft
Comment :

Slot Name
Betelgeuse 19
Fed 6H

Position (Offsets relative to Site Centre)
+N / -S : 0.00 US ft
Northing : 599920.68 US ft
Latitude : 32° 38' 54.52"
+E / -W : 0.00 US ft
Easting : 674975.51 US ft
Longitude : -103° 53' 56.92"
Elevation above Mean Sea Level : 3416.00 US ft
Comment :

Well Name
Betelgeuse 19
Fed 6H

Type : Main well
UWI :
Rig Height Well TVD Reference : 26.00 US ft
Comment :
Relative to Mean Sea Level: 3442.00 US ft
Closure Distance : 5173.92 US ft
Closure Azimuth : 263.157°
Vertical Section (Position of Origin Relative to Slot)
+N / -S : 0.00 US ft
+E / -W : 0.00 US ft
Az : 269.45°

Target Set

Name : Betelgeuse 19 Fed 6H
Number of Targets : 1

Comment :

Target Name:
PBHL 6H

Shape:
Cuboid

Position (Relative to Slot centre)
+N / -S : -622.01 US ft
Northing : 599298.67 US ft
Latitude : 32° 38' 48.57"
+E / -W : -5137.71 US ft
Easting : 669837.80 US ft
Longitude : -103° 54' 57.04"
TVD (Well TVD Reference) : 7911.00 US ft

Orientation
Azimuth : 269.45°
Inclination : 0.72°
Dimensions
Length : 8880.00 US ft
Breadth : 50.00 US ft
Height : 20.00 US ft

Survey Name : Wft MWD Svy

Date : 18/Jun/2014
Survey Tool : MWD
Comment :
Company : Wft

Magnetic Model

Model Name: BGGM
Date: 15/Jun/2014
Field Strength: 48534.4 nT
Declination: 7.53°
Dip: 60.43°

Tie Point

MD: 3909.79
Inclination: 1.01
Azimuth: 201.26
TVD: 3908.73
North Offset: -37.4199
East Offset: -17.7181

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	
4093.00	1.44	115.36	4091.91	-39.91	-16.22	16.61	0.00	599880.77	674959.29	First Wft Svy	
4188.00	2.17	149.94	4186.87	-41.98	-14.24	14.65	1.35	599878.70	674961.27		
4282.00	3.01	169.59	4280.77	-45.95	-12.91	13.35	1.29	599874.73	674962.60		
4376.00	3.71	191.04	4374.61	-51.36	-13.04	13.54	1.52	599869.32	674962.47		
4470.00	4.83	197.00	4468.35	-58.13	-14.78	15.34	1.28	599862.55	674960.73		
4564.00	6.08	193.10	4561.92	-66.76	-17.07	17.71	1.39	599853.92	674958.44		
4658.00	7.26	188.47	4655.29	-77.49	-19.07	19.81	1.38	599843.19	674956.44		
4752.00	8.74	187.35	4748.37	-90.44	-20.86	21.73	1.58	599830.24	674954.65		
4846.00	9.13	190.27	4841.23	-104.87	-23.10	24.11	0.64	599815.81	674952.41		
4941.00	9.20	194.50	4935.02	-119.63	-26.35	27.50	0.71	599801.05	674949.16		
5035.00	8.53	193.58	5027.89	-133.69	-29.87	31.15	0.73	599786.99	674945.64		
5129.00	9.04	193.09	5120.79	-147.66	-33.18	34.59	0.55	599773.02	674942.33		
5223.00	8.88	193.83	5213.64	-161.89	-36.58	38.13	0.21	599758.79	674938.93		
5317.00	8.36	192.77	5306.58	-175.60	-39.83	41.51	0.58	599745.08	674935.68		
5411.00	9.25	193.30	5399.47	-189.62	-43.08	44.89	0.95	599731.06	674932.43		
5505.00	9.12	194.55	5492.27	-204.18	-46.69	48.64	0.25	599716.50	674928.82		
5599.00	8.59	195.61	5585.15	-218.16	-50.45	52.54	0.59	599702.52	674925.06		
5693.00	9.39	194.50	5677.99	-232.34	-54.25	56.48	0.87	599688.34	674921.26		
5788.00	9.38	194.69	5771.72	-247.33	-58.16	60.53	0.03	599673.35	674917.35		
5882.00	9.14	196.21	5864.49	-261.91	-62.19	64.70	0.36	599658.77	674913.32		
5976.00	8.84	197.59	5957.34	-275.96	-66.45	69.10	0.39	599644.72	674909.06		
6071.00	8.54	195.74	6051.25	-289.71	-70.57	73.35	0.43	599630.97	674904.94		
6165.00	7.95	196.29	6144.28	-302.67	-74.29	77.19	0.63	599618.01	674901.22		
6259.00	8.29	195.14	6237.33	-315.45	-77.88	80.91	0.40	599605.23	674897.63		
6354.00	9.27	189.34	6331.22	-329.61	-80.91	84.07	1.39	599591.07	674894.60		
6448.00	9.01	189.59	6424.03	-344.34	-83.37	86.67	0.28	599576.34	674892.14		
6542.00	7.72	191.33	6517.03	-357.79	-85.83	89.26	1.40	599562.89	674889.68		
6636.00	8.95	189.83	6610.03	-371.19	-88.32	91.88	1.33	599549.49	674887.19		
6730.00	9.66	189.69	6702.79	-386.16	-90.90	94.60	0.76	599534.52	674884.61		
6825.00	8.66	188.26	6796.58	-401.10	-93.27	97.11	1.08	599519.58	674882.24		
6919.00	8.25	189.09	6889.56	-414.76	-95.35	99.33	0.46	599505.92	674880.16		
7014.00	8.88	193.53	6983.50	-428.62	-98.14	102.25	0.96	599492.06	674877.37		
7108.00	10.99	195.47	7076.09	-444.31	-102.23	106.49	2.27	599476.37	674873.28		
7202.00	10.74	194.89	7168.40	-461.41	-106.87	111.29	0.29	599459.27	674868.64		
7296.00	9.85	193.95	7260.89	-477.68	-111.06	115.64	0.96	599443.00	674864.45		
7359.00	10.01	194.55	7322.94	-488.21	-113.73	118.42	0.30	599432.47	674861.78		
7390.00	10.60	195.07	7353.44	-493.57	-115.15	119.89	1.93	599427.11	674860.36		
7422.00	10.48	201.88	7384.90	-499.11	-117.00	121.79	3.91	599421.57	674858.51		
7453.00	11.19	215.01	7415.36	-504.19	-119.78	124.61	8.26	599416.49	674855.73		
7484.00	13.55	225.38	7445.64	-509.21	-124.09	128.97	10.43	599411.47	674851.42		
7516.00	16.69	234.38	7476.53	-514.52	-130.50	135.43	12.22	599406.16	674845.01		
7547.00	18.91	241.85	7506.05	-519.49	-138.55	143.53	10.26	599401.19	674836.96		
7579.00	21.24	246.07	7536.10	-524.28	-148.42	153.44	8.57	599396.40	674827.09		
7610.00	23.84	248.91	7564.73	-528.82	-159.40	164.47	9.09	599391.86	674816.11		
7642.00	26.45	253.46	7593.70	-533.17	-172.27	177.38	10.14	599387.51	674803.24		
7673.00	29.58	255.51	7621.07	-537.06	-186.30	191.44	10.56	599383.62	674789.21		
7705.00	33.23	258.27	7648.38	-540.82	-202.54	207.72	12.26	599379.86	674772.97		
7736.00	35.68	260.17	7673.94	-544.09	-219.76	224.98	8.63	599376.59	674755.75		
7767.00	37.53	261.70	7698.82	-546.99	-238.02	243.26	6.65	599373.69	674737.49		
7799.00	40.17	263.37	7723.74	-549.59	-257.92	263.18	8.88	599371.09	674717.59		
7830.00	43.25	265.07	7746.88	-551.66	-278.44	283.72	10.58	599369.02	674697.07		
7862.00	46.27	266.43	7769.60	-553.32	-300.90	306.20	9.90	599367.36	674674.61		
7893.00	47.85	267.82	7790.72	-554.46	-323.57	328.87	6.06	599366.22	674651.94		
7924.00	49.34	270.05	7811.22	-554.88	-346.81	352.12	7.23	599365.80	674628.70		
7956.00	52.17	271.92	7831.47	-554.45	-371.59	376.89	9.93	599366.23	674603.92		
7987.00	54.95	273.77	7849.88	-553.21	-396.49	401.78	10.17	599367.47	674579.02		
8018.00	56.67	273.75	7867.30	-551.52	-422.08	427.35	5.55	599369.16	674553.43		

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
8050.00	57.84	272.48	7884.61	-550.06	-448.95	454.21	4.95	599370.62	674526.56	
8081.00	59.75	270.62	7900.67	-549.35	-475.45	480.70	8.02	599371.33	674500.06	
8112.00	62.91	268.55	7915.54	-549.55	-502.64	507.90	11.76	599371.13	674472.87	
8144.00	66.19	267.56	7929.29	-550.54	-531.52	536.78	10.62	599370.14	674443.99	
8175.00	70.24	267.48	7940.79	-551.78	-560.27	565.54	13.07	599368.90	674415.24	
8207.00	73.76	267.30	7950.68	-553.17	-590.67	595.95	11.01	599367.51	674384.84	
8238.00	77.15	267.31	7958.46	-554.58	-620.64	625.93	10.94	599366.10	674354.87	
8270.00	81.37	266.81	7964.43	-556.19	-652.03	657.34	13.28	599364.49	674323.48	
8301.00	85.10	266.29	7968.08	-558.05	-682.75	688.08	12.15	599362.63	674292.76	
8357.00	90.07	266.09	7970.44	-561.76	-738.56	743.92	8.88	599358.92	674236.95	
8451.00	91.54	266.37	7969.12	-567.94	-832.34	837.76	1.59	599352.74	674143.17	
8546.00	90.98	268.09	7967.03	-572.53	-927.21	932.66	1.90	599348.15	674048.30	
8640.00	91.05	268.72	7965.36	-575.15	-1021.16	1026.63	0.67	599345.53	673954.35	
8734.00	91.12	269.19	7963.58	-576.86	-1115.12	1120.61	0.51	599343.82	673860.39	
8828.00	91.33	269.02	7961.57	-578.33	-1209.09	1214.58	0.29	599342.35	673766.42	
8923.00	91.54	269.74	7959.19	-579.36	-1304.05	1309.55	0.79	599341.32	673671.46	
9017.00	91.68	269.82	7956.55	-579.72	-1398.02	1403.52	0.17	599340.96	673577.49	
9112.00	89.58	269.09	7955.51	-580.62	-1493.00	1498.50	2.34	599340.06	673482.51	
9206.00	89.37	269.58	7956.37	-581.71	-1586.99	1592.50	0.57	599338.97	673388.52	
9300.00	89.30	269.95	7957.46	-582.10	-1680.98	1686.49	0.40	599338.58	673294.53	
9394.00	89.86	269.28	7958.15	-582.73	-1774.98	1780.49	0.93	599337.95	673200.53	
9488.00	90.14	269.62	7958.15	-583.63	-1868.97	1874.49	0.47	599337.05	673106.54	
9582.00	90.77	268.70	7957.40	-585.01	-1962.96	1968.48	1.19	599335.67	673012.55	
9676.00	91.33	269.19	7955.68	-586.74	-2056.92	2062.46	0.79	599333.94	672918.59	
9771.00	91.82	269.92	7953.07	-587.48	-2151.88	2157.42	0.93	599333.20	672823.63	
9865.00	91.47	268.77	7950.37	-588.55	-2245.84	2251.38	1.28	599332.13	672729.67	
9959.00	91.33	268.33	7948.07	-590.93	-2339.78	2345.34	0.49	599329.75	672635.73	
10054.00	91.47	268.91	7945.75	-593.22	-2434.72	2440.31	0.63	599327.46	672540.79	
10148.00	91.75	269.45	7943.11	-594.56	-2528.68	2534.27	0.65	599326.12	672446.83	
10243.00	91.05	267.84	7940.79	-596.81	-2623.62	2629.23	1.85	599323.87	672351.89	
10337.00	91.05	268.38	7939.07	-599.91	-2717.55	2723.18	0.57	599320.77	672257.96	
10431.00	91.19	269.10	7937.23	-601.98	-2811.51	2817.16	0.78	599318.70	672164.00	
10525.00	89.72	269.51	7936.48	-603.12	-2905.50	2911.15	1.62	599317.56	672070.01	
10620.00	89.09	269.73	7937.47	-603.75	-3000.49	3006.15	0.70	599316.93	671975.02	
10714.00	88.95	268.32	7939.08	-605.35	-3094.46	3100.13	1.51	599315.33	671881.05	
10808.00	89.02	267.42	7940.74	-608.84	-3188.38	3194.08	0.96	599311.84	671787.13	
10902.00	89.93	268.05	7941.60	-612.55	-3282.30	3288.03	1.18	599308.13	671693.21	
10997.00	89.86	268.25	7941.78	-615.62	-3377.25	3383.00	0.22	599305.06	671598.26	
11091.00	90.00	269.01	7941.89	-617.87	-3471.22	3476.99	0.82	599302.81	671504.29	
11185.00	90.98	270.27	7941.09	-618.46	-3565.21	3570.99	1.70	599302.22	671410.30	
11280.00	91.26	270.26	7939.23	-618.02	-3660.19	3665.96	0.29	599302.66	671315.32	
11375.00	91.40	270.48	7937.03	-617.41	-3755.17	3760.92	0.27	599303.27	671220.34	
11469.00	91.47	271.13	7934.67	-616.09	-3849.13	3854.86	0.70	599304.59	671126.38	
11563.00	90.49	270.57	7933.07	-614.69	-3943.10	3948.82	1.20	599305.99	671032.41	
11657.00	90.35	270.15	7932.38	-614.10	-4037.10	4042.81	0.47	599306.58	670938.41	
11751.00	90.28	270.51	7931.86	-613.56	-4131.09	4136.79	0.39	599307.12	670844.42	
11846.00	91.47	270.30	7930.41	-612.89	-4226.08	4231.77	1.27	599307.79	670749.43	
11940.00	92.66	270.40	7927.02	-612.31	-4320.01	4325.69	1.27	599308.37	670655.50	
12034.00	92.38	268.42	7922.89	-613.28	-4413.91	4419.60	2.13	599307.40	670561.60	
12129.00	94.49	270.27	7917.20	-614.37	-4508.73	4514.42	2.95	599306.31	670466.78	
12223.00	93.64	269.63	7910.53	-614.45	-4602.49	4608.18	1.13	599306.23	670373.02	
12318.00	92.87	269.92	7905.14	-614.82	-4697.33	4703.02	0.87	599305.86	670278.18	
12412.00	92.80	269.31	7900.49	-615.45	-4791.22	4796.90	0.65	599305.23	670184.29	
12506.00	91.96	269.48	7896.59	-616.44	-4885.13	4890.82	0.91	599304.24	670090.38	
12600.00	90.49	270.04	7894.58	-616.84	-4979.10	4984.80	1.67	599303.84	669996.41	
12683.00	91.40	270.18	7893.21	-616.68	-5062.09	5067.78	1.11	599304.00	669913.42	Last Wft Svy
12758.00	91.40	270.18	7891.38	-616.44	-5137.07	5142.75	0.00	599304.24	669838.44	Proj. To Bit 6H

devon

Betelgeuse 19 Fed 6H
Eddy Co, NM



Plan Data for Betelgeuse 19 Fed 6H

Plan Point Information:

Dogleg Severity Unit: %/100.00ft Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	OLS
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
3909.00	1.01	201.26	3908.74	-37.42	-17.72	599883.26	674957.79	18.08	3.13
4024.00	1.01	201.23	4022.92	-39.30	-18.45	599881.38	674957.06	18.82	0.00
4124.00	1.01	201.23	4122.91	-40.94	-19.09	599879.74	674956.42	19.48	0.00
4308.58	8.84	192.47	4308.98	-106.37	-34.62	599814.31	674940.88	35.65	1.00
7455.20	8.84	192.47	7420.34	-488.60	-119.16	599432.08	674856.35	123.84	0.00
8342.48	98.72	269.44	7966.98	-578.23	-698.06	599342.45	674277.45	703.58	10.00
12782.69	98.72	269.44	7910.99	-622.01	-5137.71	599298.67	669837.80	5143.44	0.00

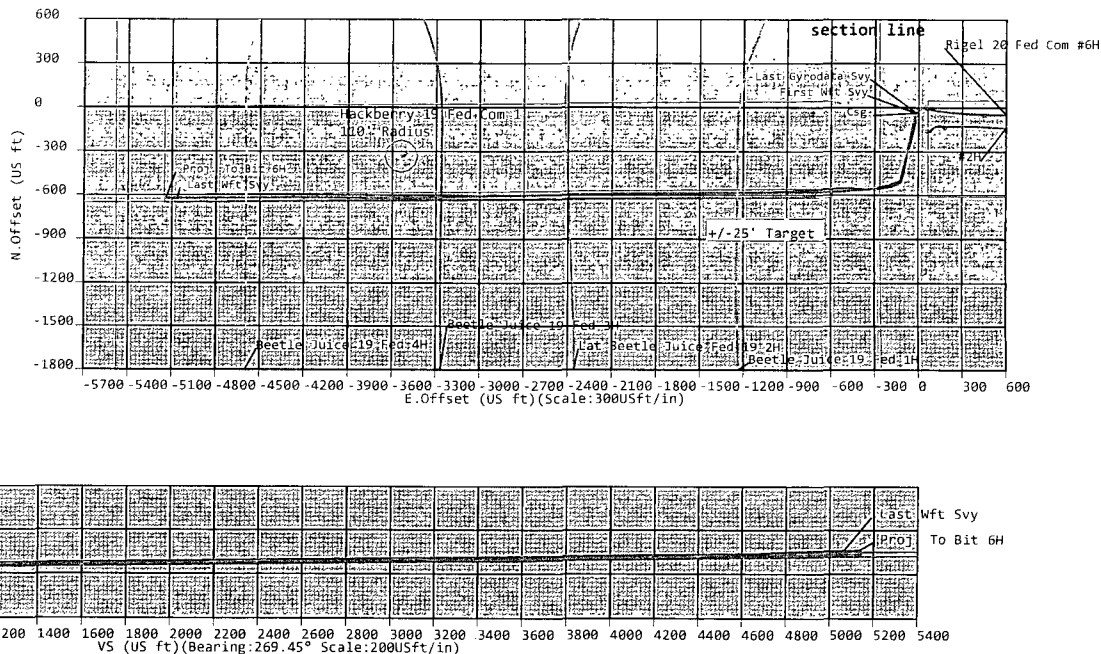
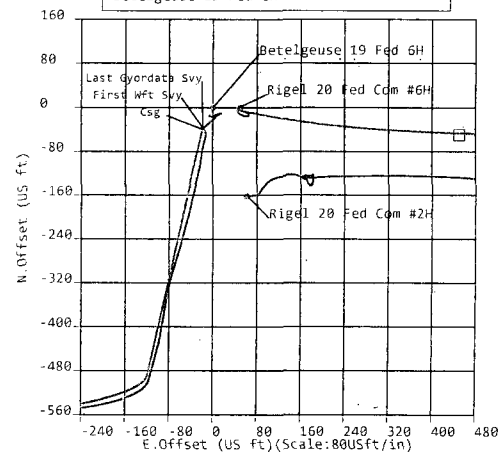
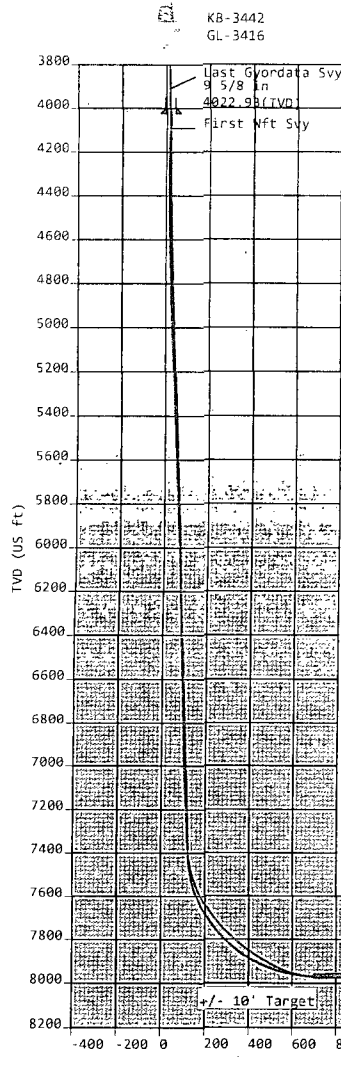
Plan Data for Betelgeuse 19 Fed 6H

Slot: Betelgeuse 19 Fed 6H
Position:
Offset is from Site centre
+N/-S: 0.00USft Northing: 599920.68USft Latitude: 32°38'54.5"
+E/-W: 0.00USft Easting: 674975.51USft Longitude: -103°53'56.9"
Elevation Above VRD: 3416.00USft

Plan Data for Betelgeuse 19 Fed 6H

Target Set Information:
Name: Betelgeuse 19 Fed 6H
Position offsets from Slot centre
Name TVD +N/-S +E/-W Northing Easting Shape Comment
(USft) (USft) (USft) (USft) (USft)
PSHL 6H 7911.00 -622.01 -5137.71 599298.67 669837.80 Cuboid

Betelgeuse 19 Fed 6H	_____
Rigel 20 Fed Com #6H	_____
#2H	_____
Beetle Juice 19 Fed 1H	_____
Pilot Beetle Juice Fed 19 2H	_____
Lat Beetle Juice Fed 19 2H	_____
Beetle Juice 19 Fed 3H	_____
Beetle Juice 19 Fed 4H	_____
Hackberry 19 Fed Com 1	_____
Betelgeuse 19 Fed 6H	_____



Sign Off: Russell Joyner



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location Sec. 20 T19S R31E	API/UWI 3001542031	Latitude (") 32° 38' 54.523" N	Longitude (") 103° 53' 56.92" W	Ground Elev... 3,416.10	KB - GL (ft) 26.00	Orig KB Elev (ft) 3,442.10	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID 35135	Kick Off Depth (ftKB)	Vertical Section Direction (") 269.45
Actual Deviation Survey GYRO/MWD, Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey	

Deviation Survey

Date 6/13/2014		Description GYRO/MWD			
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
6/13/2014	100.00	0.25	254.99	100.00	0.21	-0.06	-0.21	0.25	GYRO	GYRODATA SERVICES CA...
6/13/2014	200.00	0.54	214.98	200.00	0.70	-0.50	-0.69	0.38	GYRO	GYRODATA SERVICES CA...
6/13/2014	300.00	0.69	216.49	299.99	1.33	-1.37	-1.32	0.15	GYRO	GYRODATA SERVICES CA...
6/13/2014	400.00	1.01	203.58	399.98	2.06	-2.66	-2.03	0.37	GYRO	GYRODATA SERVICES CA...
6/13/2014	510.70	1.01	208.96	510.66	2.94	-4.41	-2.89	0.09	GYRO	GYRODATA SERVICES CA...
6/13/2014	602.90	0.99	196.65	602.85	3.57	-5.88	-3.51	0.23	GYRO	GYRODATA SERVICES CA...
6/13/2014	694.30	0.96	191.48	694.24	3.96	-7.39	-3.89	0.10	GYRO	GYRODATA SERVICES CA...
6/13/2014	786.00	0.92	193.27	785.92	4.30	-8.86	-4.22	0.05	GYRO	GYRODATA SERVICES CA...
6/13/2014	877.70	0.89	194.89	877.61	4.67	-10.26	-4.57	0.04	GYRO	GYRODATA SERVICES CA...
6/13/2014	969.30	0.84	198.54	969.20	5.07	-11.59	-4.96	0.08	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,061.80	0.83	207.13	1,061.69	5.61	-12.83	-5.48	0.14	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,153.00	0.59	203.61	1,152.89	6.11	-13.85	-5.97	0.27	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,244.40	0.37	180.84	1,244.28	6.31	-14.57	-6.17	0.31	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,336.00	0.40	120.28	1,335.88	6.04	-15.03	-5.90	0.42	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,427.40	0.68	90.72	1,427.28	5.22	-15.20	-5.08	0.42	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,521.50	1.03	87.02	1,521.37	3.82	-15.16	-3.67	0.38	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,615.80	1.21	77.52	1,615.65	2.00	-14.90	-1.86	0.27	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,710.20	1.45	70.38	1,710.02	-0.11	-14.28	0.24	0.31	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,804.40	1.59	66.25	1,804.19	-2.43	-13.36	2.56	0.19	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,898.60	1.79	67.33	1,898.35	-5.00	-12.26	5.12	0.21	GYRO	GYRODATA SERVICES CA...
6/13/2014	1,992.60	1.35	71.52	1,992.31	-7.41	-11.35	7.52	0.48	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,086.60	1.22	72.93	2,086.29	-9.42	-10.70	9.53	0.14	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,181.10	1.12	79.77	2,180.77	-11.30	-10.24	11.40	0.18	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,274.90	0.96	83.60	2,274.55	-12.98	-9.99	13.08	0.19	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,369.20	0.11	152.57	2,368.85	-13.81	-9.98	13.91	0.98	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,463.60	0.98	255.25	2,463.24	-13.07	-10.27	13.17	1.07	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,557.90	0.75	245.00	2,557.53	-11.73	-10.74	11.83	0.29	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,652.00	0.76	240.84	2,651.63	-10.62	-11.30	10.73	0.06	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,746.30	0.82	238.43	2,745.92	-9.49	-11.96	9.60	0.07	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,840.60	0.91	233.02	2,840.21	-8.31	-12.76	8.43	0.13	GYRO	GYRODATA SERVICES CA...
6/13/2014	2,935.00	1.11	227.51	2,934.59	-7.03	-13.83	7.16	0.24	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,029.50	1.37	221.33	3,029.07	-5.59	-15.30	5.74	0.31	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,124.00	1.43	224.63	3,123.54	-4.00	-16.99	4.16	0.11	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,218.50	1.57	226.47	3,218.01	-2.22	-18.72	2.40	0.16	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,312.90	1.79	228.72	3,312.37	-0.15	-20.58	0.35	0.24	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,407.20	2.06	228.84	3,406.61	2.25	-22.67	-2.03	0.29	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,501.20	2.33	229.42	3,500.55	5.00	-25.02	-4.76	0.29	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,595.60	2.52	227.82	3,594.86	8.02	-27.66	-7.75	0.21	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,690.50	2.76	226.95	3,689.66	11.26	-30.62	-10.97	0.26	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,784.60	3.07	226.42	3,783.64	14.77	-33.91	-14.45	0.33	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,878.60	1.86	221.55	3,877.55	17.63	-36.78	-17.28	1.31	GYRO	GYRODATA SERVICES CA...
6/13/2014	3,909.80	1.01	201.26	3,908.74	18.08	-37.42	-17.72	3.13	GYRO	WEATHERFORD MWD
6/18/2014	4,188.00	2.17	149.94	4,186.84	16.39	-44.26	-15.97	0.62	MWD	WEATHERFORD MWD
6/18/2014	4,282.00	3.01	169.59	4,280.74	15.09	-48.23	-14.63	1.29	MWD	WEATHERFORD MWD
6/18/2014	4,376.00	3.71	191.04	4,374.59	15.28	-53.64	-14.77	1.52	MWD	WEATHERFORD MWD
6/18/2014	4,470.00	4.83	197.00	4,468.32	17.09	-60.41	-16.51	1.28	MWD	WEATHERFORD MWD
6/18/2014	4,564.00	6.08	193.10	4,561.90	19.45	-69.05	-18.79	1.39	MWD	WEATHERFORD MWD



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 20 T19S R31E	API/UWI 3001542031	Latitude (") 32° 38' 54.523" N	Longitude (") 103° 53' 56.92" W	Ground Elev... 3,416.10
			KB - GL (ft) 26.00	Orig KB Elev (ft) 3,442.10
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (ft/100ft)	Survey Tool	Survey Company
6/18/2014	4,658.00	7.26	188.47	4,655.26	21.56	-79.77	-20.80	1.38	MWD	WEATHERFORD MWD
6/18/2014	4,752.00	8.74	187.35	4,748.34	23.47	-92.73	-22.58	1.58	MWD	WEATHERFORD MWD
6/18/2014	4,846.00	9.13	190.27	4,841.20	25.86	-107.15	-24.83	0.64	MWD	WEATHERFORD MWD
6/18/2014	4,941.00	9.20	194.50	4,934.99	29.24	-121.92	-28.07	0.71	MWD	WEATHERFORD MWD
6/18/2014	5,035.00	8.53	193.58	5,027.87	32.90	-135.97	-31.59	0.73	MWD	WEATHERFORD MWD
6/18/2014	5,129.00	9.04	193.09	5,120.76	36.34	-149.94	-34.90	0.55	MWD	WEATHERFORD MWD
6/18/2014	5,223.00	8.88	193.83	5,213.62	39.88	-164.18	-38.31	0.21	MWD	WEATHERFORD MWD
6/18/2014	5,317.00	8.36	192.77	5,306.55	43.26	-177.89	-41.55	0.58	MWD	WEATHERFORD MWD
6/19/2014	5,505.00	9.12	194.55	5,492.37	50.29	-205.64	-48.32	0.43	MWD	WEATHERFORD MWD
6/19/2014	5,599.00	8.59	195.61	5,585.25	54.18	-219.61	-52.08	0.59	MWD	WEATHERFORD MWD
6/19/2014	5,693.00	9.39	194.50	5,678.09	58.13	-233.80	-55.89	0.87	MWD	WEATHERFORD MWD
6/19/2014	5,788.00	9.38	194.69	5,771.82	62.18	-248.79	-59.79	0.03	MWD	WEATHERFORD MWD
6/19/2014	5,882.00	9.14	196.21	5,864.60	66.34	-263.37	-63.82	0.36	MWD	WEATHERFORD MWD
6/19/2014	5,976.00	8.84	197.59	5,957.44	70.74	-277.42	-68.08	0.39	MWD	WEATHERFORD MWD
6/19/2014	6,071.00	8.54	195.74	6,051.35	74.99	-291.17	-72.20	0.43	MWD	WEATHERFORD MWD
6/19/2014	6,165.00	7.95	196.29	6,144.38	78.84	-304.13	-75.92	0.63	MWD	WEATHERFORD MWD
6/19/2014	6,259.00	8.29	195.14	6,237.44	82.55	-316.91	-79.51	0.40	MWD	WEATHERFORD MWD
6/19/2014	6,354.00	9.27	189.34	6,331.33	85.72	-331.07	-82.54	1.39	MWD	WEATHERFORD MWD
6/19/2014	6,448.00	9.01	189.59	6,424.13	88.31	-345.80	-85.00	0.28	MWD	WEATHERFORD MWD
6/19/2014	6,542.00	7.72	191.33	6,517.13	90.91	-359.25	-87.47	1.40	MWD	WEATHERFORD MWD
6/19/2014	6,636.00	8.95	189.83	6,610.14	93.53	-372.64	-89.95	1.33	MWD	WEATHERFORD MWD
6/19/2014	6,730.00	9.66	189.69	6,702.90	96.25	-387.62	-92.53	0.76	MWD	WEATHERFORD MWD
6/19/2014	6,825.00	8.66	188.26	6,796.69	98.76	-402.56	-94.90	1.08	MWD	WEATHERFORD MWD
6/19/2014	6,919.00	8.25	189.09	6,889.66	100.97	-416.22	-96.98	0.46	MWD	WEATHERFORD MWD
6/19/2014	7,014.00	8.88	193.53	6,983.61	103.90	-430.08	-99.77	0.96	MWD	WEATHERFORD MWD
6/19/2014	7,108.00	10.99	195.47	7,076.19	108.14	-445.77	-103.86	2.27	MWD	WEATHERFORD MWD
6/19/2014	7,202.00	10.74	194.89	7,168.51	112.94	-462.87	-108.50	0.29	MWD	WEATHERFORD MWD
6/19/2014	7,296.00	9.85	193.95	7,260.99	117.28	-479.14	-112.69	0.96	MWD	WEATHERFORD MWD
6/19/2014	7,359.00	10.01	194.55	7,323.05	120.06	-489.67	-115.37	0.30	MWD	WEATHERFORD MWD
6/20/2014	7,390.00	10.60	195.07	7,353.55	121.53	-495.03	-116.78	1.93	MWD	WEATHERFORD MWD
6/20/2014	7,422.00	10.48	201.88	7,385.01	123.43	-500.57	-118.63	3.91	MWD	WEATHERFORD MWD
6/20/2014	7,453.00	11.19	215.01	7,415.46	126.26	-505.65	-121.41	8.26	MWD	WEATHERFORD MWD
6/20/2014	7,516.00	16.69	234.38	7,476.61	137.23	-515.94	-132.29	11.34	MWD	WEATHERFORD MWD
6/20/2014	7,547.00	18.91	241.85	7,506.13	145.33	-520.90	-140.34	10.26	MWD	WEATHERFORD MWD
6/20/2014	7,579.00	21.24	246.07	7,536.19	155.25	-525.70	-150.21	8.57	MWD	WEATHERFORD MWD
6/20/2014	7,610.00	23.84	248.91	7,564.82	166.27	-530.23	-161.19	9.09	MWD	WEATHERFORD MWD
6/20/2014	7,642.00	26.45	253.46	7,593.79	179.18	-534.59	-174.06	10.14	MWD	WEATHERFORD MWD
6/20/2014	7,673.00	29.58	255.51	7,621.15	193.25	-538.47	-188.09	10.56	MWD	WEATHERFORD MWD
6/20/2014	7,705.00	33.23	258.27	7,648.46	209.52	-542.23	-204.32	12.26	MWD	WEATHERFORD MWD
6/20/2014	7,736.00	35.68	260.17	7,674.02	226.78	-545.50	-221.55	8.63	MWD	WEATHERFORD MWD
6/20/2014	7,767.00	37.53	261.70	7,698.90	245.06	-548.41	-239.81	6.65	MWD	WEATHERFORD MWD
6/20/2014	7,799.00	40.17	263.37	7,723.82	264.98	-551.01	-259.71	8.88	MWD	WEATHERFORD MWD
6/20/2014	7,830.00	43.25	265.07	7,746.96	285.52	-553.08	-280.22	10.58	MWD	WEATHERFORD MWD
6/20/2014	7,862.00	46.27	266.43	7,769.68	308.00	-554.74	-302.69	9.90	MWD	WEATHERFORD MWD
6/20/2014	7,893.00	47.85	267.82	7,790.80	330.68	-555.87	-325.36	6.06	MWD	WEATHERFORD MWD
6/20/2014	7,924.00	49.34	270.05	7,811.31	353.92	-556.30	-348.60	7.23	MWD	WEATHERFORD MWD
6/21/2014	7,956.00	52.17	271.92	7,831.55	378.69	-555.87	-373.37	9.93	MWD	WEATHERFORD MWD
6/21/2014	7,987.00	54.95	273.77	7,849.96	403.58	-554.62	-398.28	10.17	MWD	WEATHERFORD MWD
6/21/2014	8,018.00	56.67	273.75	7,867.38	429.15	-552.94	-423.86	5.55	MWD	WEATHERFORD MWD
6/21/2014	8,050.00	57.84	272.48	7,884.69	456.01	-551.48	-450.74	4.95	MWD	WEATHERFORD MWD
6/21/2014	8,081.00	59.75	270.62	7,900.75	482.50	-550.77	-477.24	8.02	MWD	WEATHERFORD MWD
6/21/2014	8,112.00	62.91	268.55	7,915.62	509.70	-550.97	-504.43	11.76	MWD	WEATHERFORD MWD
6/21/2014	8,144.00	66.19	267.56	7,929.37	538.58	-551.96	-533.31	10.62	MWD	WEATHERFORD MWD
6/21/2014	8,175.00	70.24	267.48	7,940.88	567.34	-553.20	-562.06	13.07	MWD	WEATHERFORD MWD
6/21/2014	8,207.00	73.76	267.30	7,950.76	597.75	-554.59	-592.46	11.01	MWD	WEATHERFORD MWD



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 20 T19S R31E	API/UWI 3001542031	Latitude (°) 32° 38' 54.523" N	Longitude (°) 103° 53' 56.92" W	Ground Elev. ... 3,416.10
			KB - GL (ft) 26.00	Orig KB Elev (ft) 3,442.10
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl. (°)	Azm. (°)	IVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (7/100ft)	Survey Tool	Survey Company
6/21/2014	8,238.00	77.15	267.31	7,958.55	627.73	-556.00	-622.43	10.94	MWD	WEATHERFORD MWD
6/21/2014	8,270.00	81.37	266.81	7,964.51	659.14	-557.61	-653.82	13.28	MWD	WEATHERFORD MWD
6/21/2014	8,301.00	85.10	266.29	7,968.16	689.88	-559.46	-684.54	12.15	MWD	WEATHERFORD MWD
6/21/2014	8,357.00	90.07	266.09	7,970.52	745.72	-563.18	-740.35	8.88	MWD	WEATHERFORD MWD
6/21/2014	8,451.00	91.54	266.37	7,969.20	839.56	-569.36	-834.13	1.59	MWD	WEATHERFORD MWD
6/21/2014	8,546.00	90.98	268.09	7,967.11	934.46	-573.95	-929.00	1.90	MWD	WEATHERFORD MWD
6/21/2014	8,640.00	91.05	268.72	7,965.44	1,028.43	-576.57	-1,022.94	0.67	MWD	WEATHERFORD MWD
6/21/2014	8,734.00	91.12	269.19	7,963.66	1,122.41	-578.28	-1,116.91	0.51	MWD	WEATHERFORD MWD
6/21/2014	8,828.00	91.33	269.02	7,961.65	1,216.39	-579.75	-1,210.88	0.29	MWD	WEATHERFORD MWD
6/21/2014	8,923.00	91.54	269.74	7,959.28	1,311.36	-580.78	-1,305.84	0.79	MWD	WEATHERFORD MWD
6/21/2014	9,017.00	91.68	269.82	7,956.63	1,405.32	-581.14	-1,399.80	0.17	MWD	WEATHERFORD MWD
6/21/2014	9,112.00	89.58	269.09	7,955.59	1,500.31	-582.04	-1,494.79	2.34	MWD	WEATHERFORD MWD
6/21/2014	9,206.00	89.37	269.58	7,956.45	1,594.30	-583.13	-1,588.78	0.57	MWD	WEATHERFORD MWD
6/21/2014	9,300.00	89.30	269.95	7,957.54	1,688.29	-583.52	-1,682.77	0.40	MWD	WEATHERFORD MWD
6/21/2014	9,394.00	89.86	269.28	7,958.23	1,782.29	-584.15	-1,776.76	0.93	MWD	WEATHERFORD MWD
6/21/2014	9,488.00	90.14	269.62	7,958.23	1,876.29	-585.05	-1,870.76	0.47	MWD	WEATHERFORD MWD
6/21/2014	9,582.00	90.77	268.70	7,957.49	1,970.28	-586.43	-1,964.75	1.19	MWD	WEATHERFORD MWD
6/21/2014	9,676.00	91.33	269.19	7,955.76	2,064.26	-588.16	-2,058.71	0.79	MWD	WEATHERFORD MWD
6/21/2014	9,771.00	91.82	269.92	7,953.15	2,159.23	-588.90	-2,153.67	0.93	MWD	WEATHERFORD MWD
6/21/2014	9,865.00	91.47	268.77	7,950.45	2,253.19	-589.97	-2,247.63	1.28	MWD	WEATHERFORD MWD
6/21/2014	9,959.00	91.33	268.33	7,948.16	2,347.15	-592.35	-2,341.57	0.49	MWD	WEATHERFORD MWD
6/21/2014	10,054.00	91.47	268.91	7,945.84	2,442.11	-594.64	-2,436.51	0.63	MWD	WEATHERFORD MWD
6/21/2014	10,148.00	91.75	269.45	7,943.19	2,536.07	-595.98	-2,530.46	0.65	MWD	WEATHERFORD MWD
6/21/2014	10,243.00	91.05	267.84	7,940.87	2,631.03	-598.23	-2,625.41	1.85	MWD	WEATHERFORD MWD
6/21/2014	10,337.00	91.05	268.38	7,939.15	2,724.99	-601.33	-2,719.34	0.57	MWD	WEATHERFORD MWD
6/21/2014	10,431.00	91.19	269.10	7,937.31	2,818.96	-603.39	-2,813.30	0.78	MWD	WEATHERFORD MWD
6/21/2014	10,525.00	89.72	269.51	7,936.57	2,912.95	-604.53	-2,907.28	1.62	MWD	WEATHERFORD MWD
6/21/2014	10,620.00	89.09	269.73	7,937.55	3,007.95	-605.16	-3,002.28	0.70	MWD	WEATHERFORD MWD
6/24/2014	10,714.00	88.95	268.32	7,939.16	3,101.93	-606.76	-3,096.25	1.51	MWD	WEATHERFORD MWD
6/24/2014	10,808.00	89.02	267.42	7,940.83	3,195.88	-610.26	-3,190.17	0.96	MWD	WEATHERFORD MWD
6/24/2014	10,902.00	89.93	268.05	7,941.69	3,289.83	-613.97	-3,284.09	1.18	MWD	WEATHERFORD MWD
6/24/2014	10,997.00	89.86	268.25	7,941.86	3,384.81	-617.04	-3,379.04	0.22	MWD	WEATHERFORD MWD
6/24/2014	11,091.00	90.00	269.01	7,941.98	3,478.80	-619.29	-3,473.01	0.82	MWD	WEATHERFORD MWD
6/24/2014	11,185.00	90.98	270.27	7,941.17	3,572.79	-619.88	-3,567.00	1.70	MWD	WEATHERFORD MWD
6/24/2014	11,280.00	91.26	270.26	7,939.32	3,667.76	-619.44	-3,661.98	0.29	MWD	WEATHERFORD MWD
6/24/2014	11,375.00	91.40	270.48	7,937.11	3,762.72	-618.82	-3,756.96	0.27	MWD	WEATHERFORD MWD
6/24/2014	11,469.00	91.47	271.13	7,934.76	3,856.67	-617.50	-3,850.92	0.70	MWD	WEATHERFORD MWD
6/24/2014	11,563.00	90.49	270.57	7,933.15	3,950.62	-616.11	-3,944.89	1.20	MWD	WEATHERFORD MWD
6/24/2014	11,657.00	90.35	270.15	7,932.46	4,044.61	-615.52	-4,038.89	0.47	MWD	WEATHERFORD MWD
6/24/2014	11,751.00	90.28	270.51	7,931.94	4,138.60	-614.98	-4,132.88	0.39	MWD	WEATHERFORD MWD
6/24/2014	11,846.00	91.47	270.30	7,930.49	4,233.57	-614.31	-4,227.87	1.27	MWD	WEATHERFORD MWD
6/24/2014	11,940.00	92.66	270.40	7,927.11	4,327.50	-613.73	-4,321.80	1.27	MWD	WEATHERFORD MWD
6/26/2014	12,034.00	92.38	268.42	7,922.97	4,421.40	-614.70	-4,415.70	2.13	MWD	WEATHERFORD MWD
6/26/2014	12,129.00	94.49	270.27	7,917.28	4,516.22	-615.78	-4,510.52	2.95	MWD	WEATHERFORD MWD
6/26/2014	12,223.00	93.64	269.63	7,910.62	4,609.98	-615.87	-4,604.28	1.13	MWD	WEATHERFORD MWD
6/26/2014	12,318.00	92.87	269.92	7,905.22	4,704.82	-616.24	-4,699.12	0.87	MWD	WEATHERFORD MWD
6/26/2014	12,412.00	92.80	269.31	7,900.57	4,798.71	-616.87	-4,793.01	0.65	MWD	WEATHERFORD MWD
6/26/2014	12,506.00	91.96	269.48	7,896.67	4,892.62	-617.86	-4,886.92	0.91	MWD	WEATHERFORD MWD
6/26/2014	12,600.00	90.49	270.04	7,894.66	4,986.60	-618.25	-4,980.89	1.67	MWD	WEATHERFORD MWD
6/26/2014	12,683.00	91.40	270.18	7,893.29	5,069.58	-618.10	-5,063.88	1.11	MWD	WEATHERFORD MWD
6/26/2014	12,758.00	91.40	270.18	7,891.46	5,144.55	-617.86	-5,138.86	0.00	BIT	WEATHERFORD MWD