



Weatherford[®]

Evaluation, Drilling & Intervention
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Devon Energy
333 W. Sheridan Ave
Oklahoma City, OK, 73102

Date: May 26, 2015

Attention: Art Alarcon

30 05 42618

Re: Devon Energy
Well: Arcturus 18 Fed 7H
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:

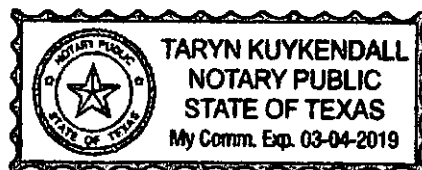
Name & Title Of Surveyor	Well Number	Surveyed Depths	Dates Performed	Type of Survey
Brent Tyler MWD Supervisor	7H	7290 MD 12544 MD	5/11/2015 5/20/2015	Measurement While Drilling

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.

Jesse Aguilar
MWD Ops Coordinator

On this, the 21st day of May, 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

5D Survey Report

Devon Energy

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

Site Name: *Arcturus 18 Fed 7H*

Well Name: *Arcturus 18 Fed 7H*

Survey: *Wft MWD Svy*

20 May 2015



Weatherford®

Arcturus 18 Fed 7H

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 Arcturus 18 Fed 7H	Units : US ft	North Reference : Grid	Convergence Angle : 0.23	
	Position:	Northing: 603697.38 US ft	Latitude: 32°39'31.91"	
		Easting: 674703.59 US ft	Longitude: -103°53'59.92"	
	Elevation above Mean Sea Level: 3424.00 US ft		Comment :	
Slot Name Arcturus 18 Fed 7H	Position (Offsets relative to Site Centre)			
	+N / -S: 0.00 US ft	Northing: 603697.38 US ft	Latitude: 32°39'31.91"	
	+E / -W: 0.00 US ft	Easting: 674703.59 US ft	Longitude: -103°53'59.92"	
	Slot TVD Reference : Ground Elevation			
Elevation above Mean Sea Level : 3424.00 US ft		Comment :		
Well Name Arcturus 18 Fed 7H	Type : Main well		UWI :	
	Rig Height Kelly Bushing : 25.00 US ft		Comment :	
	Relative to Mean Sea Level: 3449.00 US ft			
	Closure Distance : 4929.74 US ft		Closure Azimuth : 269.664°	
Vertical Section (Position of Origin Relative to Slot)				
+N / -S : 0.00 US ft +E / -W : 0.00 US ft Az : 269.54°				

Survey Name : Wft MWD Svy				
Date : 16/May/2015	Survey Tool : MWD	Comment :	Company : Wft	
Magnetic Model				
Model Name: BGGM	Date: 10/May/2015	Field Strength: 48419.3 nT	Declination: 7.48°	Dip: 60.43°
Tie Point				
MD: 7275	Inclination: 1.09	Azimuth: 249.47	TVD: 7273.08	North Offset: -4.54354 East Offset: 57.4983

Well path created using minimum curvature

Survey Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
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	
7290.00	1.09	248.40	7288.07	-4.65	57.23	-57.19	0.00	603692.73	674760.82	First Wft Svy	
7322.00	1.82	266.39	7320.06	-4.79	56.44	-56.40	2.66	603692.59	674760.03		
7354.00	4.63	269.75	7352.01	-4.83	54.64	-54.60	8.80	603692.55	674758.23		
7385.00	7.96	269.20	7382.82	-4.86	51.24	-51.20	10.74	603692.52	674754.83		
7417.00	11.41	268.85	7414.36	-4.96	45.86	-45.82	10.78	603692.42	674749.45		
7449.00	14.76	269.21	7445.52	-5.08	38.62	-38.58	10.47	603692.30	674742.21		
7480.00	17.22	270.10	7475.32	-5.12	30.08	-30.04	7.97	603692.26	674733.67		
7512.00	20.20	268.63	7505.63	-5.25	19.82	-19.78	9.43	603692.13	674723.41		
7544.00	23.28	266.35	7535.35	-5.78	7.98	-7.94	9.98	603691.60	674711.57		
7576.00	26.58	265.06	7564.36	-6.80	-5.46	5.52	10.45	603690.58	674698.13		
7608.00	30.00	265.37	7592.54	-8.06	-20.58	20.64	10.70	603689.32	674683.01		
7639.00	33.33	266.39	7618.92	-9.23	-36.80	36.88	10.88	603688.15	674666.79		
7671.00	36.14	266.88	7645.21	-10.29	-55.00	55.09	8.82	603687.09	674648.59		

5D Survey Report

Survey Points (Relative to Slot Centre, TVD relative to Kelly Bushing)										
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
7703.00	40.14	267.48	7670.37	-11.26	-74.74	74.83	12.55	603686.12	674628.85	
7735.00	43.64	267.18	7694.19	-12.26	-96.08	96.17	10.96	603685.12	674607.51	
7766.00	47.05	267.33	7715.98	-13.31	-118.10	118.21	11.01	603684.07	674585.49	
7798.00	50.35	267.72	7737.09	-14.35	-142.12	142.23	10.35	603683.03	674561.47	
7830.00	53.02	269.11	7756.93	-15.04	-167.21	167.33	9.01	603682.34	674536.38	
7862.00	55.89	269.83	7775.53	-15.28	-193.25	193.36	9.15	603682.10	674510.34	
7893.00	59.15	270.25	7792.18	-15.26	-219.39	219.51	10.58	603682.12	674484.20	
7925.00	61.80	270.90	7807.95	-14.97	-247.23	247.35	8.47	603682.41	674456.36	
7957.00	64.10	271.82	7822.50	-14.30	-275.72	275.83	7.63	603683.08	674427.87	
7989.00	65.80	271.95	7836.05	-13.34	-304.70	304.79	5.33	603684.04	674398.89	
8021.00	68.14	271.00	7848.57	-12.59	-334.13	334.22	7.81	603684.79	674369.46	
8039.00	69.93	270.65	7855.01	-12.34	-350.94	351.03	10.10	603685.04	674352.65	Cross Prod. Box
8052.00	71.22	270.40	7859.33	-12.23	-363.20	363.28	10.10	603685.15	674340.39	
8084.00	74.65	269.67	7868.72	-12.22	-393.78	393.87	10.94	603685.16	674309.81	
8116.00	77.60	269.06	7876.39	-12.56	-424.84	424.93	9.40	603684.82	674278.75	
8147.00	78.93	268.18	7882.70	-13.29	-455.19	455.28	5.11	603684.09	674248.40	
8179.00	81.36	268.18	7888.17	-14.29	-486.70	486.80	7.59	603683.09	674216.89	
8211.00	83.06	268.32	7892.51	-15.26	-518.39	518.49	5.33	603682.12	674185.20	
8243.00	85.45	268.70	7895.71	-16.09	-550.21	550.32	7.56	603681.29	674153.38	
8256.00	86.08	269.22	7896.67	-16.33	-563.17	563.29	6.28	603681.05	674140.42	
8352.00	88.53	269.51	7901.19	-17.39	-659.05	659.17	2.57	603679.99	674044.54	
8447.00	89.65	269.91	7902.70	-17.87	-754.04	754.16	1.25	603679.51	673949.55	
8542.00	89.86	270.24	7903.10	-17.74	-849.04	849.15	0.41	603679.64	673854.55	
8637.00	89.93	270.52	7903.28	-17.11	-944.04	944.14	0.30	603680.27	673759.55	
8733.00	89.93	270.81	7903.39	-16.00	-1040.03	1040.12	0.30	603681.38	673663.56	
8828.00	89.86	270.85	7903.57	-14.62	-1135.02	1135.10	0.08	603682.76	673568.57	
8923.00	89.79	270.96	7903.86	-13.12	-1230.01	1230.07	0.14	603684.26	673473.58	
9017.00	91.89	271.01	7902.48	-11.51	-1323.98	1324.03	2.23	603685.87	673379.61	
9112.00	92.80	270.30	7898.59	-10.42	-1418.89	1418.93	1.21	603686.96	673284.70	
9205.00	93.29	270.05	7893.65	-10.14	-1511.76	1511.79	0.59	603687.24	673191.83	
9299.00	92.10	270.05	7889.23	-10.06	-1605.65	1605.68	1.27	603687.32	673097.94	
9394.00	92.10	270.19	7885.75	-9.86	-1700.59	1700.61	0.15	603687.52	673003.00	
9489.00	91.75	269.94	7882.56	-9.75	-1795.53	1795.55	0.45	603687.63	672908.06	
9583.00	91.89	270.44	7879.58	-9.44	-1889.49	1889.50	0.55	603687.94	672814.10	
9677.00	91.12	269.76	7877.11	-9.27	-1983.45	1983.46	1.09	603688.11	672720.14	
9771.00	91.26	269.31	7875.15	-10.04	-2077.43	2077.44	0.50	603687.34	672626.16	
9867.00	91.47	269.89	7872.87	-10.71	-2173.40	2173.41	0.64	603686.67	672530.19	
9963.00	91.68	269.09	7870.23	-11.56	-2269.36	2269.38	0.86	603685.82	672434.23	
10057.00	90.77	268.86	7868.22	-13.24	-2363.32	2363.35	1.00	603684.14	672340.27	
10153.00	90.63	269.27	7867.05	-14.81	-2459.30	2459.34	0.45	603682.57	672244.29	
10248.00	90.42	268.97	7866.18	-16.27	-2554.28	2554.33	0.39	603681.11	672149.31	
10343.00	90.49	269.36	7865.42	-17.65	-2649.27	2649.33	0.42	603679.73	672054.32	
10438.00	90.84	269.82	7864.32	-18.33	-2744.26	2744.32	0.61	603679.05	671959.33	
10533.00	90.98	269.90	7862.81	-18.56	-2839.25	2839.31	0.17	603678.82	671864.34	
10629.00	91.12	268.89	7861.05	-19.58	-2935.23	2935.29	1.06	603677.80	671768.36	
10724.00	90.98	268.81	7859.31	-21.48	-3030.19	3030.27	0.17	603675.90	671673.40	
10819.00	91.19	269.37	7857.51	-22.99	-3125.16	3125.25	0.63	603674.39	671578.43	
10914.00	91.40	269.58	7855.36	-23.86	-3220.13	3220.22	0.31	603673.52	671483.46	
11010.00	91.75	269.70	7852.73	-24.47	-3316.10	3316.19	0.39	603672.91	671387.49	
11106.00	91.75	270.21	7849.79	-24.54	-3412.05	3412.14	0.53	603672.84	671291.54	
11201.00	91.54	270.49	7847.07	-23.96	-3507.01	3507.09	0.37	603673.42	671196.58	
11297.00	91.47	270.40	7844.55	-23.22	-3602.97	3603.04	0.12	603674.16	671100.62	
11392.00	91.61	270.62	7841.99	-22.37	-3697.94	3698.00	0.27	603675.01	671005.65	
11487.00	91.12	270.57	7839.73	-21.38	-3792.90	3792.95	0.52	603676.00	670910.69	
11582.00	90.84	270.27	7838.10	-20.69	-3887.89	3887.93	0.43	603676.69	670815.70	
11678.00	90.77	270.29	7836.76	-20.22	-3983.88	3983.91	0.08	603677.16	670719.71	
11773.00	91.26	271.20	7835.07	-18.98	-4078.85	4078.87	1.09	603678.40	670624.74	
11868.00	91.68	269.87	7832.64	-18.10	-4173.81	4173.82	1.47	603679.28	670529.78	

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Kelly Bushing)"										
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)	Eastling (US ft)	Comment
11964.00	91.33	269.27	7830.11	18.82	-4269.78	4269.79	0.72	603678.56	670433.81	
12059.00	90.28	269.14	7828.78	-20.14	-4364.76	4364.78	1.11	603677.24	670338.83	
12154.00	90.63	269.58	7828.03	-21.20	-4459.75	4459.77	0.59	603676.18	670243.84	
12249.00	90.49	269.47	7827.10	-21.98	-4554.74	4554.77	0.19	603675.40	670148.85	
12345.00	90.56	269.46	7826.22	-22.88	-4650.73	4650.77	0.07	603674.50	670052.86	
12440.00	89.93	268.82	7825.81	-24.31	-4745.72	4745.76	0.95	603673.07	669957.87	
12544.00	90.42	268.46	7825.49	-26.77	-4849.69	4849.75	0.58	603670.61	669853.90	Last Wft Svy 7H
12584.50	90.42	268.46	7825.20	-27.86	-4890.17	4890.24	0.00	603669.52	669813.42	Cross Prod. Box
12624.00	90.42	268.46	7824.91	-28.92	-4929.66	4929.73	0.00	603668.46	669773.93	Proj. To Bit

devon

Arcturus 18 Fed 7H
Eddy Co, NM

Plan Data for Arcturus 18 Fed 7H

Plan Point Information:

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

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
8923.00	89.79	270.96	7903.86	-13.12	-1230.01	603684.26	673473.58	1230.07	0.14
9003.00	89.73	271.05	7904.19	-11.72	-1309.99	603685.66	673393.60	1310.05	0.14
9139.59	92.00	269.53	7902.13	-11.03	-1446.55	603686.35	673257.04	1446.59	2.00
10039.59	92.00	269.53	7870.72	-18.41	-2345.97	603678.97	672357.62	2346.04	0.00
10088.25	91.03	269.53	7869.44	-18.80	-2394.62	603678.58	672308.97	2394.69	2.00
12624.12	91.03	269.53	7824.00	-39.55	-4929.99	603657.83	669773.60	4930.15	0.00

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Plan Data for Arcturus 18 Fed 7H

Well: Arcturus 18 Fed 7H
Type: Main-Well
File Number:
Plan Folder: P6
Plan: P6-VS
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft
+E/-W: 0.00USft
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
BGM 48619(n) 7.48° 68.43° 2015-05-10

Plan Data for Arcturus 18 Fed 7H

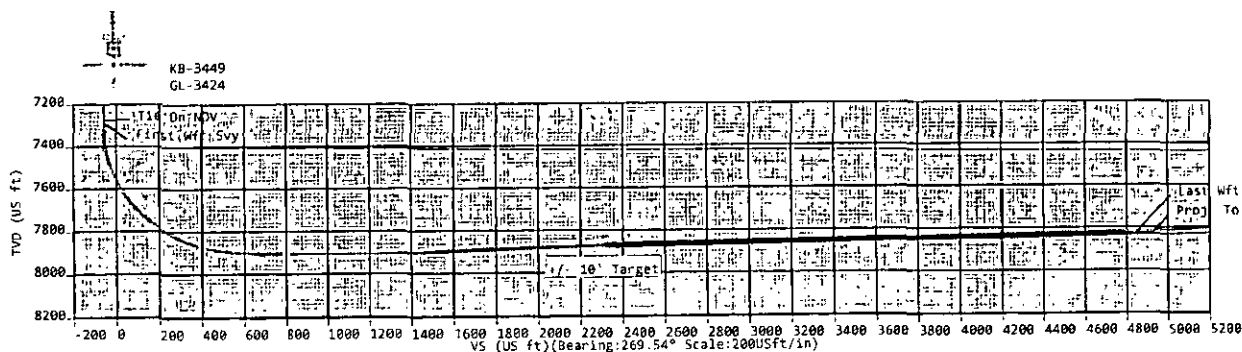
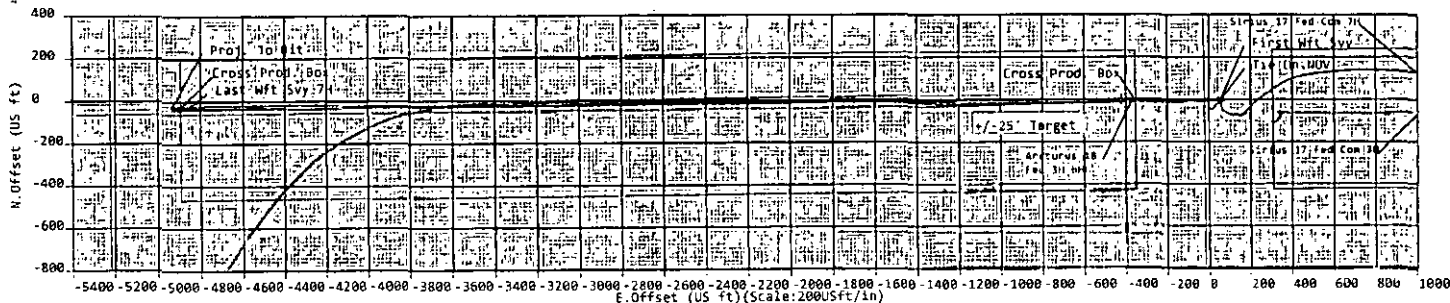
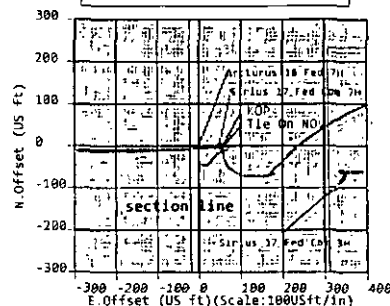
Target Set Information:
Name: Arcturus 18 Fed 7H
Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape	Comment
	(USft)	(USft)	(USft)	(USft)	(USft)		
LP Tgt	7904.00	-2.91	-420.00	603694.47	674283.59	Cuboid	
PBHL 7H	7824.00	-39.55	-4929.99	603657.83	669773.60	Cuboid	

Plan Data for Arcturus 18 Fed 7H

Slot: Arcturus 18 Fed 7H
Position:
Offset is from Site centre
+N/-S: 0.00USft Northing: 603697.38USft Latitude: 32°39'31.9"
+E/-W: 0.00USft Easting: 674703.59USft Longitude: -103°53'59.9"
Elevation Above VRD: 3424.00USft

Arcturus 18 Fed 7H
Sirius 17 Fed Com 7H
Arcturus 18 Fed 3H
Sirius 17 Fed Com 3H
Arcturus 18 Fed 7H
Arcturus 18 Fed 7H



Sign Off: Russell Joyner

Well Name: ARCTURUS 18 FED 7H

Sub-Division DELAWARE BASIN		Region DELAWARE SLOPE EAST		Field Name HACKBERRY NORTHWEST		County EDDY		State/Province NM	
Surface Legal Location SEC 17 T19S R31E		API Well 3001542618		Latitude (°) 32° 39' 31.475" N		Longitude (°) 103° 53' 57.39" W		Original KB Elevation (ft) 3,448.90	
								Ground Elev MSL (ft) 3,423.90	
								KB - GL (ft) 25.00	
Wellbores									
Wellbore Name OH		Parent Wellbore OH		SAP Well ID 38340		Vertical Section Direction (°)			
Kick Offs & Key Depths									
Date 5/15/2015		Type Kick Off		Top Depth (ftKB) 7,323.0					
Actual Deviation Survey NOV-FLO DRIFT, Proposed? No		Definitive? No		Proposed? No		Proposed Deviation Survey			
Deviation Survey									
Date 4/30/2015		Description NOV-FLO DRIFT							
MD Tie in (ftKB)		TVD Tie in (ftKB)		Inclination Tie in (°)		Azimuth Tie in (°)		NS Tie in (ft)	
								EW Tie in (ft)	
Survey Data									
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Survey Company
4/30/2015	195.00	0.20	358.00	195.00	0.01	0.34	-0.01	0.10	NOV-FLO DRIFT
4/30/2015	257.00	0.10	324.00	257.00	0.04	0.49	-0.05	0.21	MWD NOV-FLO DRIFT
4/30/2015	317.00	1.00	166.00	317.00	-0.05	0.03	0.05	1.82	MWD NOV-FLO DRIFT
5/1/2015	376.00	1.80	178.00	375.98	-0.20	1.40	0.21	1.44	MWD NOV-FLO DRIFT
5/1/2015	437.00	1.70	177.00	436.95	-0.26	3.26	0.29	0.17	MWD NOV-FLO DRIFT
5/1/2015	634.00	2.80	179.00	633.80	-0.44	10.99	0.52	0.56	MWD NOV-FLO DRIFT
5/3/2015	692.00	2.60	174.00	691.73	-0.59	13.71	0.69	0.53	MWD NOV-FLO DRIFT
5/3/2015	711.00	2.80	177.00	710.71	-0.65	14.61	0.75	1.29	MWD NOV-FLO DRIFT
5/3/2015	795.00	2.80	177.00	794.61	-0.84	18.70	0.97	0.00	MWD NOV-FLO DRIFT
5/4/2015	887.00	2.70	176.00	886.50	-1.07	23.11	1.24	0.12	MWD NOV-FLO DRIFT
5/4/2015	979.00	2.40	177.00	978.41	-1.30	27.20	1.49	0.33	MWD NOV-FLO DRIFT
5/4/2015	1,071.00	2.30	174.00	1,070.34	-1.56	30.95	1.78	0.17	MWD NOV-FLO DRIFT
5/4/2015	1,163.00	2.10	179.00	1,162.27	-1.76	34.48	2.01	0.30	MWD NOV-FLO DRIFT
5/4/2015	1,256.00	1.90	175.00	1,255.21	-1.90	37.72	2.17	0.28	MWD NOV-FLO DRIFT
5/4/2015	1,439.00	1.40	150.00	1,438.14	-3.25	42.67	3.55	0.47	MWD NOV-FLO DRIFT
5/4/2015	1,533.00	1.40	135.00	1,532.11	-4.62	44.48	4.94	0.39	MWD NOV-FLO DRIFT
5/4/2015	1,617.00	1.50	122.00	1,616.08	-6.27	45.79	6.60	0.41	MWD NOV-FLO DRIFT
5/4/2015	1,713.00	1.30	110.00	1,712.05	-8.35	46.83	8.68	0.37	MWD NOV-FLO DRIFT
5/4/2015	1,808.00	1.40	111.00	1,807.03	-10.44	47.61	10.78	0.11	MWD NOV-FLO DRIFT
5/4/2015	1,903.00	1.40	98.00	1,902.00	-12.67	48.21	13.01	0.31	MWD NOV-FLO DRIFT
5/4/2015	1,998.00	1.70	92.00	1,996.96	-15.22	48.44	15.57	0.37	MWD NOV-FLO DRIFT
5/4/2015	2,093.00	1.30	79.00	2,091.93	-17.69	48.28	18.03	0.55	MWD NOV-FLO DRIFT
5/4/2015	2,114.00	0.80	63.00	2,112.93	-18.05	48.17	18.40	2.74	MWD NOV-FLO DRIFT
5/4/2015	2,210.00	0.70	48.00	2,208.92	-19.09	47.47	19.43	0.23	MWD NOV-FLO DRIFT
5/5/2015	2,350.00	0.60	48.00	2,348.91	-20.28	46.41	20.61	0.07	MWD NOV-FLO DRIFT
5/6/2015	2,399.00	0.70	308.00	2,397.91	-20.24	46.06	20.56	2.04	MWD NOV-FLO DRIFT
5/6/2015	2,494.00	0.90	41.00	2,492.90	-20.28	45.14	20.60	1.23	MWD NOV-FLO DRIFT
5/6/2015	2,590.00	0.70	45.00	2,588.89	-21.19	44.15	21.51	0.22	MWD NOV-FLO DRIFT
5/6/2015	2,685.00	0.60	48.00	2,683.89	-21.97	43.40	22.27	0.11	MWD NOV-FLO DRIFT
5/6/2015	2,780.00	0.60	46.00	2,778.88	-22.69	42.70	22.99	0.00	MWD NOV-FLO DRIFT
5/6/2015	2,876.00	0.80	51.00	2,874.88	-23.57	41.93	23.87	0.22	MWD NOV-FLO DRIFT
5/6/2015	2,971.00	0.70	52.00	2,969.87	-24.55	41.16	24.84	0.11	MWD NOV-FLO DRIFT
5/6/2015	3,066.00	0.90	41.00	3,064.86	-25.50	40.24	25.79	0.26	MWD NOV-FLO DRIFT
5/6/2015	3,162.00	1.00	39.00	3,160.84	-26.54	39.02	26.81	0.11	MWD NOV-FLO DRIFT
5/9/2015	3,258.00	0.90	37.00	3,256.83	-27.53	37.77	27.79	0.11	MWD NOV-FLO DRIFT
5/9/2015	3,353.00	0.80	38.00	3,351.82	-28.39	36.65	28.65	0.11	MWD NOV-FLO DRIFT
5/9/2015	3,448.00	0.80	35.00	3,446.81	-28.18	35.58	29.44	0.04	MWD NOV-FLO DRIFT
5/9/2015	3,554.00	0.90	36.00	3,552.80	-30.11	34.30	30.35	0.10	MWD NOV-FLO DRIFT
5/9/2015	3,639.00	0.80	45.00	3,637.79	-30.83	33.34	31.17	0.20	MWD NOV-FLO DRIFT
5/9/2015	3,734.00	0.70	39.00	3,732.78	-31.77	32.42	32.00	0.13	MWD NOV-FLO DRIFT
5/9/2015	3,830.00	0.60	41.00	3,828.78	-32.47	31.59	32.70	0.11	MWD NOV-FLO DRIFT
5/9/2015	3,925.00	1.00	42.00	3,923.77	-33.36	30.60	33.58	0.42	MWD NOV-FLO DRIFT
5/9/2015	4,063.00	0.90	51.00	4,061.75	-35.02	29.02	35.23	0.13	MWD NOV-FLO DRIFT
5/13/2015	4,156.00	1.10	54.00	4,154.73	-36.32	28.03	36.52	0.22	MWD NOV-FLO DRIFT
5/13/2015	4,250.00	1.10	53.00	4,248.72	-37.78	28.96	37.97	0.02	MWD NOV-FLO DRIFT
5/13/2015	4,345.00	1.00	57.00	4,343.70	-39.21	25.96	39.39	0.13	MWD NOV-FLO DRIFT
5/13/2015	4,432.00	1.00	58.00	4,430.69	-40.49	25.14	40.67	0.02	MWD NOV-FLO DRIFT
5/13/2015	4,534.00	0.90	61.00	4,532.67	-41.95	24.28	42.13	0.11	MWD NOV-FLO DRIFT
5/13/2015	4,629.00	0.80	58.00	4,627.66	-43.17	23.57	43.34	0.12	MWD NOV-FLO DRIFT
5/13/2015	4,723.00	0.50	57.00	4,721.66	-44.08	23.00	44.24	0.32	MWD NOV-FLO DRIFT
5/13/2015	4,818.00	0.60	61.00	4,816.65	-44.86	22.53	45.03	0.11	MWD NOV-FLO DRIFT
5/13/2015	4,914.00	0.80	74.00	4,912.64	-45.95	22.10	46.11	0.26	MWD NOV-FLO DRIFT
5/13/2015	5,008.00	1.20	81.00	5,006.83	-47.56	21.77	47.71	0.44	MWD NOV-FLO DRIFT
5/13/2015	5,104.00	1.20	81.00	5,102.61	-49.54	21.46	49.70	0.00	MWD NOV-FLO DRIFT
5/13/2015	5,199.00	1.29	71.76	5,197.59	-51.55	20.97	51.70	0.23	MWD NOV-FLO DRIFT
5/13/2015	5,294.00	1.62	64.94	5,292.56	-53.79	20.06	53.93	0.39	MWD NOV-FLO DRIFT
5/13/2015	5,390.00	1.70	66.64	5,388.52	-56.33	18.92	56.47	0.10	MWD NOV-FLO DRIFT
5/13/2015	5,485.00	1.56	71.48	5,483.48	-58.86	17.95	58.99	0.21	MWD NOV-FLO DRIFT
5/13/2015	5,580.00	1.37	72.42	5,578.45	-61.17	17.20	61.29	0.20	MWD NOV-FLO DRIFT
5/13/2015	5,675.00	1.11	67.83	5,673.42	-63.11	16.51	63.23	0.29	MWD NOV-FLO DRIFT
5/13/2015	5,771.00	1.06	67.82	5,769.41	-64.80	15.82	64.91	0.05	MWD NOV-FLO DRIFT
5/13/2015	5,866.00	0.82	68.74	5,864.39	-66.25	15.24	66.36	0.25	MWD NOV-FLO DRIFT
5/13/2015	5,961.00	0.66	67.63	5,959.39	-67.39	14.79	67.50	0.17	MWD NOV-FLO DRIFT
5/13/2015	6,057.00	0.59	50.47	6,055.38	-68.29	14.26	68.39	0.21	MWD NOV-FLO DRIFT
5/13/2015	6,152.00	0.33	18.86	6,150.38	-68.78	13.69	68.86	0.37	MWD NOV-FLO DRIFT
5/13/2015	6,248.00	0.25	337.13	6,246.38	-68.77	13.24	68.87	0.23	MWD NOV-FLO DRIFT

Well Name: ARCTURUS 18 FED 7H

Sub-Division		Region		Field Name		County		State/Province		
DELAWARE BASIN		DELAWARE SLOPE EAST		HACKBERRY NORTHWEST		EDDY		NM		
Surface Legal Location		APRAJW		Latitude (°)		Longitude (°)		Orig KB Elevation (ft)		
SEC 17 T19S R31E		3001542618		32° 39' 31.475" N		103° 53' 57.39" W		3,448.90		
Ground Elev MSL (ft)		KB - GL (ft)								
3,423.90		25.00								
Survey Data										
Date	MO	MD	TIME	Ind (°)	Azm (°)	TVD (ft)	N/S (ft)	N/S (ft)	Survey	
									Company	
5/13/2015	6	344.00	0.53	326.53	6,342.37	-68.45	-12.88	68.54	0.30	MWD NOV. FLO DRIFT
5/13/2015	6	438.00	0.86	305.76	6,438.37	-67.77	-12.00	67.86	0.27	MWD NOV. FLO DRIFT
5/13/2015	6	534.00	0.70	303.78	6,532.36	-66.84	-11.35	66.92	0.05	MWD NOV. FLO DRIFT
5/13/2015	6	629.00	0.81	293.51	6,627.35	-65.76	-10.76	65.83	0.18	MWD NOV. FLO DRIFT
5/13/2015	6	724.00	1.29	282.67	6,722.34	-64.09	-10.26	64.17	0.54	MWD NOV. FLO DRIFT
5/13/2015	6	820.00	1.45	280.73	6,818.31	-61.85	-9.79	61.92	0.17	MWD NOV. FLO DRIFT
5/13/2015	6	915.00	1.17	276.56	6,913.29	-59.71	-9.46	59.77	0.31	MWD NOV. FLO DRIFT
5/13/2015	7	010.00	0.89	272.37	7,008.27	-58.01	-9.32	58.07	0.31	MWD NOV. FLO DRIFT
5/13/2015	7	106.00	1.15	255.86	7,104.28	-56.33	-9.52	56.39	0.41	MWD NOV. FLO DRIFT
5/13/2015	7	201.00	1.20	258.00	7,199.24	-54.42	-9.96	54.50	0.07	MWD NOV. FLO DRIFT
5/14/2015	7	275.00	1.09	249.47	7,273.22	-53.00	-10.37	53.08	0.27	MWD NOV. FLO DRIFT
5/15/2015	7	290.00	1.09	248.40	7,288.22	-52.74	-10.47	52.81	0.14	MWD WEATHERFORD MWD
5/15/2015	7	322.00	1.82	266.39	7,320.21	-51.95	-10.62	52.02	2.66	MWD WEATHERFORD MWD
5/15/2015	7	354.00	4.63	269.75	7,352.15	-50.15	-10.65	50.22	8.80	MWD WEATHERFORD MWD
5/15/2015	7	385.00	7.96	269.20	7,382.96	-46.75	-10.69	46.83	10.74	MWD WEATHERFORD MWD
5/15/2015	7	417.00	11.41	268.85	7,414.50	-41.37	-10.78	41.44	10.78	MWD WEATHERFORD MWD
5/15/2015	7	449.00	14.76	269.21	7,445.67	-34.12	-10.90	34.20	10.47	MWD WEATHERFORD MWD
5/15/2015	7	480.00	17.22	270.10	7,475.46	-25.58	-10.95	25.66	7.97	MWD WEATHERFORD MWD
5/15/2015	7	512.00	20.20	268.63	7,505.77	-15.32	-11.07	15.40	9.43	MWD WEATHERFORD MWD
5/15/2015	7	544.00	23.28	266.35	7,535.49	-3.48	-11.61	3.56	9.98	MWD WEATHERFORD MWD
5/15/2015	7	576.00	26.58	265.06	7,564.51	9.97	-12.63	9.88	10.45	MWD WEATHERFORD MWD
5/16/2015	7	608.00	30.00	265.37	7,592.68	25.09	-13.89	24.99	10.70	MWD WEATHERFORD MWD
5/16/2015	7	639.00	33.33	266.39	7,619.06	41.33	-15.05	41.22	10.88	MWD WEATHERFORD MWD
5/16/2015	7	671.00	36.14	266.88	7,645.36	59.54	-16.12	59.42	8.82	MWD WEATHERFORD MWD
5/16/2015	7	703.00	40.14	267.48	7,670.52	79.28	-17.09	79.16	12.55	MWD WEATHERFORD MWD
5/16/2015	7	735.00	43.64	267.18	7,694.34	100.62	-18.08	100.50	10.96	MWD WEATHERFORD MWD
5/16/2015	7	766.00	47.05	267.33	7,716.12	122.65	-19.14	122.52	11.01	MWD WEATHERFORD MWD
5/16/2015	7	798.00	50.35	267.72	7,737.24	146.68	-20.17	146.54	10.35	MWD WEATHERFORD MWD
5/16/2015	7	830.00	53.02	269.11	7,757.08	171.77	-20.86	171.63	9.01	MWD WEATHERFORD MWD
5/16/2015	7	862.00	55.89	269.83	7,775.68	197.81	-21.10	197.66	9.15	MWD WEATHERFORD MWD
5/16/2015	7	893.00	59.15	270.25	7,792.32	223.98	-21.08	223.81	10.58	MWD WEATHERFORD MWD
5/16/2015	7	925.00	61.80	270.90	7,808.09	251.79	-20.80	251.65	8.47	MWD WEATHERFORD MWD
5/16/2015	7	957.00	64.10	271.82	7,822.64	280.28	-20.12	280.14	7.63	MWD WEATHERFORD MWD
5/16/2015	7	989.00	65.80	271.95	7,836.19	309.24	-19.17	309.11	5.33	MWD WEATHERFORD MWD
5/16/2015	8	021.00	68.14	271.00	7,848.71	338.87	-18.41	338.55	7.81	MWD WEATHERFORD MWD
5/16/2015	8	052.00	71.22	270.40	7,859.47	367.74	-18.06	367.82	10.10	MWD WEATHERFORD MWD
5/16/2015	8	084.00	74.65	269.67	7,868.86	398.32	-18.04	398.20	10.94	MWD WEATHERFORD MWD
5/16/2015	8	116.00	77.60	269.06	7,876.54	429.38	-18.39	429.26	9.40	MWD WEATHERFORD MWD
5/16/2015	8	147.00	78.93	268.18	7,882.84	459.73	-19.12	459.61	5.11	MWD WEATHERFORD MWD
5/16/2015	8	179.00	81.36	268.18	7,888.32	491.25	-20.12	491.11	7.59	MWD WEATHERFORD MWD
5/16/2015	8	211.00	83.06	268.32	7,892.66	522.94	-21.09	522.80	5.33	MWD WEATHERFORD MWD
5/16/2015	8	243.00	85.45	268.70	7,895.86	554.77	-21.91	554.63	7.56	MWD WEATHERFORD MWD
5/16/2015	8	275.00	86.08	269.22	7,896.82	587.74	-22.15	587.59	6.28	MWD WEATHERFORD MWD
5/16/2015	8	307.00	88.53	269.51	7,901.33	663.62	-23.21	663.47	2.57	MWD WEATHERFORD MWD
5/16/2015	8	339.00	89.65	269.91	7,902.84	758.61	-23.69	758.46	1.25	MWD WEATHERFORD MWD
5/16/2015	8	371.00	89.86	270.24	7,903.25	853.60	-23.57	853.46	0.41	MWD WEATHERFORD MWD
5/16/2015	8	403.00	89.93	270.52	7,903.42	948.59	-22.84	948.45	0.30	MWD WEATHERFORD MWD
5/16/2015	8	435.00	89.93	270.81	7,903.54	1,044.58	-21.82	1,044.45	0.30	MWD WEATHERFORD MWD
5/16/2015	8	467.00	89.86	270.85	7,903.71	1,139.55	-20.45	1,139.44	0.08	MWD WEATHERFORD MWD
5/16/2015	8	499.00	89.79	270.96	7,904.00	1,234.53	-18.95	1,234.43	0.14	MWD WEATHERFORD MWD
5/16/2015	8	531.00	91.89	271.01	7,902.62	1,328.49	-17.33	1,328.40	2.23	MWD WEATHERFORD MWD
5/17/2015	9	112.00	92.80	270.30	7,898.74	1,423.39	-16.25	1,423.31	1.21	MWD WEATHERFORD MWD
5/17/2015	9	205.00	93.29	270.05	7,893.80	1,516.25	-15.96	1,516.18	0.59	MWD WEATHERFORD MWD
5/17/2015	9	299.00	92.10	270.05	7,889.38	1,610.14	-15.88	1,610.07	1.27	MWD WEATHERFORD MWD
5/17/2015	9	394.00	92.10	270.19	7,885.90	1,705.08	-15.68	1,705.01	0.15	MWD WEATHERFORD MWD
5/17/2015	9	489.00	91.75	269.94	7,882.71	1,800.02	-15.57	1,799.95	0.45	MWD WEATHERFORD MWD
5/17/2015	9	583.00	91.89	270.44	7,878.72	1,893.97	-15.26	1,893.90	0.55	MWD WEATHERFORD MWD
5/18/2015	9	677.00	91.12	269.76	7,877.25	1,987.83	-15.10	1,987.87	1.09	MWD WEATHERFORD MWD
5/18/2015	9	771.00	91.26	269.31	7,875.30	2,081.91	-15.86	2,081.85	0.50	MWD WEATHERFORD MWD
5/18/2015	9	867.00	91.47	269.89	7,873.01	2,177.88	-16.53	2,177.82	0.64	MWD WEATHERFORD MWD
5/18/2015	9	963.00	91.68	269.09	7,870.37	2,273.84	-17.39	2,273.78	0.86	MWD WEATHERFORD MWD
5/18/2015	10	057.00	90.77	268.86	7,868.36	2,367.81	-19.07	2,367.74	1.00	MWD WEATHERFORD MWD
5/18/2015	10	153.00	90.63	269.27	7,867.19	2,463.80	-20.63	2,463.72	0.45	MWD WEATHERFORD MWD
5/18/2015	10	248.00	90.42	268.97	7,866.32	2,558.80	-22.09	2,558.70	0.39	MWD WEATHERFORD MWD
5/18/2015	10	343.00	90.49	269.36	7,865.57	2,653.79	-23.48	2,653.69	0.42	MWD WEATHERFORD MWD
5/18/2015	10	438.00	90.84	269.82	7,864.46	2,748.78	-24.16	2,748.68	0.61	MWD WEATHERFORD MWD
5/18/2015	10	533.00	90.98	269.90	7,862.95	2,843.77	-24.39	2,843.67	0.17	MWD WEATHERFORD MWD
5/18/2015	10	629.00	91.12	268.89	7,861.20	2,939.75	-25.40	2,939.65	1.06	MWD WEATHERFORD MWD
5/18/2015	10	724.00	90.98	268.81	7,859.45	3,034.73	-27.31	3,034.61	0.17	MWD WEATHERFORD MWD
5/18/2015	10	819.00	91.19	269.37	7,857.66	3,129.71	-28.82	3,129.58	0.63	MWD WEATHERFORD MWD
5/18/2015	10	914.00	91.40	269.58	7,855.51	3,224.68	-29.69	3,224.55	0.31	MWD WEATHERFORD MWD
5/18/2015	11	010.00	91.75	269.70	7,852.87	3,320.65	-30.29	3,320.51	0.39	MWD WEATHERFORD MWD
5/18/2015	11	106.00	91.75	270.21	7,849.94	3,416.60	-30.37	3,416.47	0.53	MWD WEATHERFORD MWD
5/18/2015	11	201.00	91.54	270.49	7,847.21	3,511.55	-29.79	3,511.43	0.37	MWD WEATHERFORD MWD
5/18/2015	11	297.00	91.47	270.40	7,844.69	3,607.51	-29.04	3,607.39	0.12	MWD WEATHERFORD MWD
5/18/2015	11	392.00	91.61	270.62	7,842.14	3,702.46	-28.20	3,702.35	0.27	MWD WEATHERFORD MWD

Well Name: ARCTURUS 18 FED 7H

Sub-Division		Region		Field Name				County		State/Province	
DELAWARE BASIN		DELAWARE SLOPE EAST		HACKBERRY NORTHWEST				EDDY		NM	
Surface Legal Location		API/WVI		Latitude (°)		Longitude (°)		Orig KB Elevation (ft)		Ground Elev MSL (ft)	
SEC 17 T19S R31E		3001642618		32° 39' 31.475" N		103° 53' 57.39" W		3,448.90		3,423.90	
										KB - GL (ft)	
										25.00	
Survey Data											
Date	MD (ft)	Incl (°)	Azm (°)	TVD (ft)	VS (ft)	NIS (ft)	EW (ft)	DLS (ft/100ft)	Survey Tool	Survey Company	
5/18/2015	11,487.00	91.12	270.57	7,839.87	3,797.42	-27.21	-3,797.32	0.52	MWD	WEATHERFORD MWD	
5/18/2015	11,584.00	90.84	270.27	7,838.21	3,894.39	-26.50	-3,894.30	0.42	MWD	WEATHERFORD MWD	
5/18/2015	11,678.00	90.77	270.29	7,836.89	3,988.38	-26.04	-3,988.29	0.08	MWD	WEATHERFORD MWD	
5/18/2015	11,773.00	91.26	271.20	7,835.21	4,083.34	-24.60	-4,083.27	1.09	MWD	WEATHERFORD MWD	
5/18/2015	11,868.00	91.68	269.87	7,832.77	4,178.30	-23.92	-4,178.23	1.47	MWD	WEATHERFORD MWD	
5/19/2015	11,964.00	91.33	269.27	7,830.25	4,274.26	-24.64	-4,274.20	0.72	MWD	WEATHERFORD MWD	
5/19/2015	12,059.00	90.28	269.14	7,828.92	4,369.25	-25.06	-4,369.18	1.11	MWD	WEATHERFORD MWD	
5/19/2015	12,154.00	90.63	269.58	7,828.16	4,464.25	-27.02	-4,464.17	0.59	MWD	WEATHERFORD MWD	
5/19/2015	12,249.00	90.49	269.47	7,827.23	4,559.24	-27.80	-4,559.16	0.19	MWD	WEATHERFORD MWD	
5/19/2015	12,345.00	90.56	269.46	7,826.36	4,655.24	-28.70	-4,655.15	0.07	MWD	WEATHERFORD MWD	
5/19/2015	12,440.00	89.93	268.82	7,825.95	4,750.23	-30.13	-4,750.14	0.95	MWD	WEATHERFORD MWD	
5/19/2015	12,544.00	90.42	268.46	7,825.63	4,854.22	-32.59	-4,854.11	0.58	MWD	WEATHERFORD MWD	
5/19/2015	12,624.00	90.42	268.46	7,825.04	4,934.20	-34.74	-4,934.08	0.00	BIT	WEATHERFORD MWD	