



HOBBS OCD
AUG 16 2017
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5D Survey Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Thistle Unit 112H*
Well Name: *Thistle Unit 112H*
Survey: *Definitive survey*

30 January 2017





Devon Energy
Thistle Unit 112H
Lea Co, NM



Plan Data for Thistle Unit 112H

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 Comments
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)
15717.00	89.65	357.83	10096.69	5738.17	-215.25	462949.49	780769.80	5738.85	0.40 Tie-on Svy
15925.38	89.00	359.81	10099.14	5946.48	-219.54	463157.80	780765.51	5947.18	1.00 Hold
16275.38	89.00	359.81	10105.25	6296.42	-220.70	463507.74	780764.35	6297.12	0.00 Build
16358.06	89.83	359.82	10106.10	6379.10	-220.97	463590.42	780764.08	6379.79	1.00 Hold
17647.87	89.83	359.82	10110.00	7668.89	-225.07	464880.21	780759.98	7669.59	0.00 PBHL 112H

Plan Data for Thistle Unit 112H

Field: Lea Co, NM Nad 83 NMEZ
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)

Site: Thistle Unit 112H

Unit: USFeet TVD Reference:
Company Name: Devon Energy
Position: Northing: 457211.32USft Latitude: 32.254571°
Easting: 780985.05USft Longitude: -103.558108°
North Reference: Grid Grid Convergence: 0.41°
Elevation Above VRD: 3643.80USft

Slot: Thistle Unit 112H

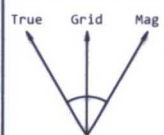
Position:
Offset is from Site centre
+N/-S: 0.00USft Northing: 457211.32USft Latitude: 32.254571°
+E/-W: 0.00USft Easting: 780985.05USft Longitude: -103.558108°
Elevation Above VRD: 3643.80USft

Well: Thistle Unit 112H

Type: Main-Well
File Number:
Plan Folder: P7 Plan: P7:V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 359.81°
+E/-W: 0.00USft
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
bggm2016 48099(nT) 7.05° 60.11° 2017-01-15

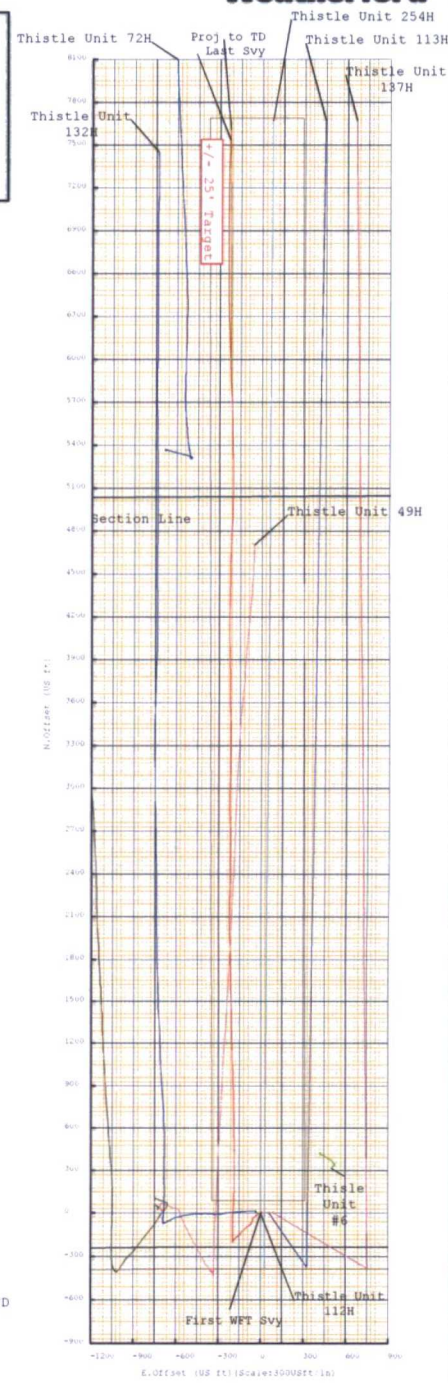
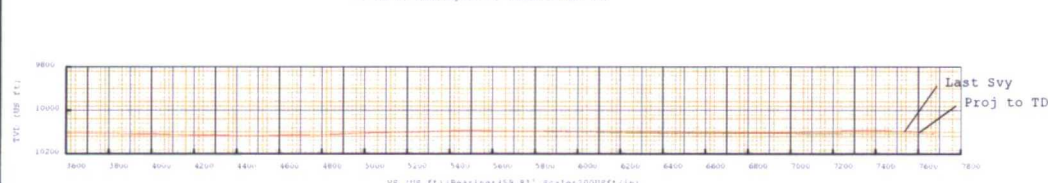
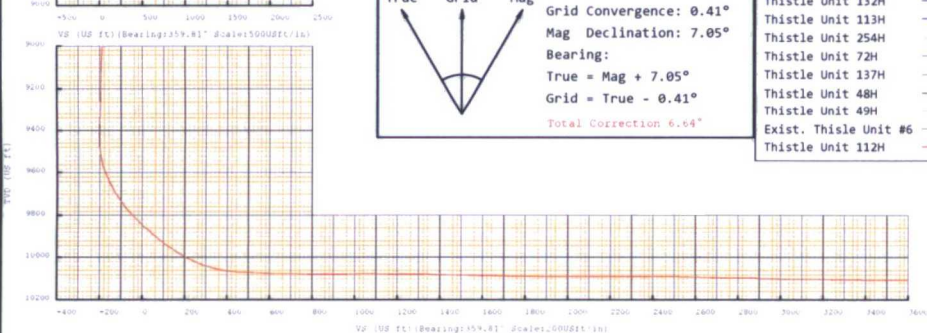
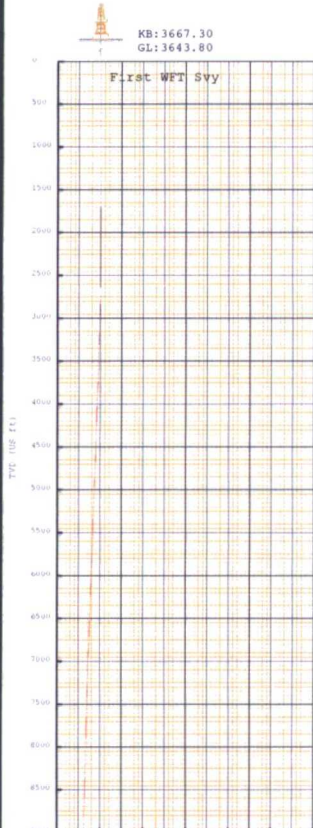
Plan Data for Thistle Unit 112H

Target Set Information:
Name: Thistle Unit 112H Tgts
Position offsets from Slot centre
Name TVD Elevation +N/-S +E/-W Northing Easting
(USft) (USft) (USft) (USft) (USft) (USft)
PBHL 112H 10110.00 -6442.70 7668.89 -225.07 464880.21 780759.98



Grid Convergence: 0.41°
Mag Declination: 7.05°
Bearing:
True = Mag + 7.05°
Grid = True - 0.41°
Total Correction 6.64°

Thistle Unit 112H	—
Thistle Unit 132H	—
Thistle Unit 113H	—
Thistle Unit 254H	—
Thistle Unit 72H	—
Thistle Unit 137H	—
Thistle Unit 48H	—
Thistle Unit 49H	—
Exist. Thistle Unit #6	—
Thistle Unit 112H	—





Thistle Unit 112H

Field Name: Lea Co, NM Nad 83 NMEZ	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: Thistle Unit 112H	Units: US ft	North Reference: Grid	Convergence Angle: 0.41	
	Position:	Northing: 457211.32 US ft	Latitude: 32° 15' 16.45"	
		Easting: 780985.05 US ft	Longitude: -103° 33' 29.19"	
	Elevation above MSL:3643.80 US ft			
Comment:				
Slot: Thistle Unit 112H	Position (Relative to Site Centre)			
	+N/-S: 0.00 US ft	Northing: 457211.32 US ft	Latitude: 32°15'16.45"	
	+E/-W: 0.00 US ft	Easting: 780985.05 US ft	Longitude: -103°33'29.19"	
	Slot TVD Reference: Ground Elevation			
	Elevation above MSL: 3643.80 US ft			
Comment:				
Well: Thistle Unit 112H	Type:Main well		UWI:	
	File Number:	Comment:		
	Closure Distance:7609.61US ft		Closure Azimuth:358.29°	
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: 0.00 US ft		+E/-W: 0.00 US ft	Az: 359.81°

Drill floor: Survey Name: Definitive Survey			
Rig Height (Drill Floor): 23.50 US ft	Elevation above MSL: 3667.30 US ft	Inclination: 0.00°	Azimuth: 0.00°

Survey Name: Definitive Survey			
Date: 03/Nov/2016	Survey Tool: See Survey Tool Ranges below.	Comment:	Company:
Magnetic Model:			
Model Name: bggm2016	Date: 15/Jan/2017	Field Strength: 48099.1 nT	Declination: 7.05° Dip: 60.11°
Tie Point:			
MD: 0.00 US ft	Inclination: 0.00°	Azimuth: 0.00°	TVD: -0.00 US ft
		North Offset: 0.00 US ft	East Offset: 0.00 US ft

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
MWD	0.00	634.00	WFT MWD Svy 1
MWD	634.00	1265.00	WFT MWD Svy 2
MWD	1265.00	5074.00	WFT MWD Svy 3
MWD	5074.00	9379.00	WFT MWD Svy 4

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Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
MWD	9379.00	10249.00	WFT MWD Svy 5
MWD	10249.00	12786.00	WFT MWD Svy 6
MWD	12786.00	17586.00	WFT MWD Svy 7

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	457211.32	780985.05	First WFT Svy
231.00	0.63	20.19	231.00	1.19	0.44	1.19	0.27	457212.51	780985.49	
274.00	0.78	15.84	273.99	1.70	0.60	1.69	0.37	457213.02	780985.65	
359.00	0.77	28.02	358.98	2.76	1.03	2.75	0.19	457214.08	780986.08	
451.00	0.60	37.48	450.98	3.68	1.61	3.68	0.22	457215.00	780986.66	
542.00	0.29	72.86	541.98	4.13	2.12	4.12	0.44	457215.45	780987.17	
634.00	0.42	81.20	633.97	4.25	2.68	4.24	0.15	457215.57	780987.73	
729.00	0.43	91.86	728.97	4.29	3.38	4.28	0.08	457215.61	780988.43	
820.00	0.40	90.54	819.97	4.28	4.03	4.26	0.03	457215.60	780989.08	
912.00	0.25	87.50	911.97	4.28	4.56	4.27	0.16	457215.60	780989.61	
1003.00	0.16	98.64	1002.97	4.27	4.88	4.26	0.11	457215.59	780989.93	
1094.00	0.20	94.08	1093.97	4.24	5.16	4.23	0.05	457215.56	780990.21	
1185.00	0.16	74.91	1184.97	4.26	5.45	4.25	0.08	457215.58	780990.50	
1265.00	0.22	81.72	1264.96	4.32	5.71	4.30	0.08	457215.64	780990.76	
1429.00	0.22	67.15	1428.96	4.48	6.31	4.46	0.03	457215.80	780991.36	
1519.00	0.25	61.17	1518.96	4.65	6.64	4.62	0.04	457215.97	780991.69	
1611.00	0.16	28.19	1610.96	4.86	6.87	4.83	0.16	457216.18	780991.92	
1702.00	0.25	328.64	1701.96	5.14	6.83	5.11	0.24	457216.46	780991.88	
1797.00	0.20	313.03	1796.96	5.43	6.60	5.40	0.08	457216.75	780991.65	
1892.00	0.31	320.21	1891.96	5.74	6.32	5.72	0.12	457217.06	780991.37	
1986.00	0.25	334.27	1985.96	6.12	6.06	6.10	0.10	457217.44	780991.11	
2081.00	0.29	277.90	2080.96	6.34	5.74	6.32	0.27	457217.66	780990.79	
2175.00	0.43	262.30	2174.96	6.32	5.15	6.31	0.18	457217.64	780990.20	
2269.00	0.55	255.27	2268.95	6.16	4.37	6.15	0.14	457217.48	780989.42	
2363.00	0.56	258.52	2362.95	5.95	3.48	5.94	0.04	457217.27	780988.53	
2458.00	0.95	253.04	2457.94	5.63	2.27	5.63	0.42	457216.95	780987.32	
2553.00	1.57	266.72	2552.92	5.33	0.22	5.33	0.72	457216.65	780985.27	
2648.00	1.69	234.76	2647.88	4.45	-2.23	4.45	0.95	457215.77	780982.82	
2742.00	2.19	223.67	2741.83	2.35	-4.60	2.36	0.66	457213.67	780980.45	
2837.00	2.76	226.63	2836.74	-0.54	-7.51	-0.51	0.61	457210.78	780977.54	
2932.00	2.68	231.05	2931.63	-3.50	-10.90	-3.47	0.24	457207.82	780974.15	
3026.00	2.60	230.52	3025.53	-6.24	-14.26	-6.19	0.09	457205.08	780970.79	
3121.00	2.54	232.33	3120.44	-8.90	-17.59	-8.84	0.11	457202.42	780967.46	
3216.00	2.40	233.00	3215.35	-11.38	-20.84	-11.31	0.15	457199.94	780964.21	
3405.00	2.88	232.40	3404.15	-16.66	-27.76	-16.57	0.25	457194.66	780957.29	
3499.00	2.88	228.83	3498.03	-19.65	-31.41	-19.55	0.19	457191.67	780953.64	
3594.00	2.66	227.01	3592.92	-22.73	-34.82	-22.61	0.25	457188.59	780950.23	
3689.00	2.58	228.98	3687.82	-25.64	-38.05	-25.51	0.13	457185.68	780947.00	
3783.00	2.47	222.37	3781.73	-28.52	-41.01	-28.38	0.33	457182.80	780944.04	
3878.00	2.24	220.58	3876.65	-31.44	-43.60	-31.30	0.25	457179.88	780941.45	
3973.00	2.00	219.39	3971.58	-34.13	-45.86	-33.98	0.26	457177.19	780939.19	
4067.00	2.23	218.73	4065.52	-36.83	-48.04	-36.67	0.25	457174.49	780937.01	
4162.00	2.27	218.84	4160.44	-39.74	-50.38	-39.57	0.04	457171.58	780934.67	
4257.00	1.97	216.80	4255.38	-42.51	-52.54	-42.33	0.33	457168.81	780932.51	
4351.00	1.65	209.88	4349.33	-44.98	-54.18	-44.80	0.41	457166.34	780930.87	
4446.00	1.73	195.79	4444.29	-47.54	-55.25	-47.36	0.44	457163.78	780929.80	
4541.00	2.12	188.52	4539.24	-50.66	-55.90	-50.47	0.48	457160.66	780929.15	
4635.00	2.23	198.03	4633.17	-54.12	-56.72	-53.93	0.40	457157.20	780928.33	
4730.00	2.59	216.87	4728.09	-57.59	-58.58	-57.40	0.91	457153.73	780926.47	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (%/100US ft)	Northing (US ft)	Easting (US ft)	Comment
4825.00	2.62	212.17	4822.99	-61.15	-61.03	-60.95	0.23	457150.17	780924.02	
4919.00	2.46	198.86	4916.90	-64.88	-62.82	-64.67	0.65	457146.44	780922.23	
5014.00	2.23	202.08	5011.82	-68.52	-64.18	-68.30	0.28	457142.80	780920.87	
5074.00	2.07	207.56	5071.77	-70.56	-65.12	-70.34	0.43	457140.76	780919.93	
5202.00	1.81	200.15	5199.70	-74.51	-66.88	-74.28	0.28	457136.81	780918.17	
5296.00	1.99	221.60	5293.65	-77.12	-68.48	-76.89	0.78	457134.20	780916.57	
5391.00	3.32	233.10	5388.55	-80.01	-71.77	-79.77	1.50	457131.31	780913.28	
5486.00	3.42	235.05	5483.38	-83.28	-76.30	-83.03	0.16	457128.04	780908.75	
5580.00	3.25	230.42	5577.22	-86.59	-80.65	-86.32	0.34	457124.73	780904.40	
5675.00	3.85	235.43	5672.04	-90.11	-85.35	-89.83	0.71	457121.21	780899.70	
5769.00	3.28	233.17	5765.86	-93.51	-90.10	-93.21	0.62	457117.81	780894.95	
5864.00	3.30	234.03	5860.70	-96.75	-94.49	-96.43	0.06	457114.57	780890.56	
5959.00	3.34	231.53	5955.54	-100.08	-98.87	-99.75	0.16	457111.24	780886.18	
6053.00	3.50	229.14	6049.38	-103.66	-103.18	-103.31	0.23	457107.66	780881.87	
6147.00	3.09	228.71	6143.22	-107.21	-107.26	-106.85	0.44	457104.11	780877.79	
6242.00	2.94	224.33	6238.09	-110.64	-110.88	-110.27	0.29	457100.68	780874.17	
6336.00	2.84	225.94	6331.97	-113.98	-114.24	-113.60	0.14	457097.34	780870.81	
6431.00	2.82	226.25	6426.85	-117.23	-117.62	-116.84	0.03	457094.09	780867.43	
6526.00	2.84	228.79	6521.74	-120.40	-121.08	-120.00	0.13	457090.92	780863.97	
6620.00	2.79	221.80	6615.62	-123.64	-124.36	-123.23	0.37	457087.68	780860.69	
6715.00	2.71	228.38	6710.52	-126.86	-127.58	-126.43	0.34	457084.46	780857.47	
6809.00	2.63	223.24	6804.41	-129.90	-130.71	-129.47	0.27	457081.42	780854.34	
6904.00	2.88	220.36	6899.30	-133.31	-133.75	-132.87	0.30	457078.01	780851.30	
6999.00	2.85	217.16	6994.19	-137.01	-136.72	-136.56	0.17	457074.31	780848.33	
7094.00	2.58	214.55	7089.08	-140.65	-139.36	-140.19	0.31	457070.67	780845.69	
7188.00	2.87	215.57	7182.97	-144.31	-141.93	-143.84	0.31	457067.01	780843.12	
7283.00	2.24	222.16	7277.88	-147.62	-144.56	-147.14	0.73	457063.70	780840.49	
7378.00	1.77	226.08	7372.82	-150.02	-146.87	-149.53	0.52	457061.30	780838.18	
7472.00	1.79	218.37	7466.77	-152.17	-148.82	-151.68	0.26	457059.15	780836.23	
7567.00	1.94	226.59	7561.72	-154.44	-150.91	-153.94	0.32	457056.88	780834.14	
7662.00	2.36	231.33	7656.66	-156.77	-153.61	-156.26	0.48	457054.55	780831.44	
7756.00	1.94	232.72	7750.59	-158.94	-156.38	-158.42	0.45	457052.38	780828.67	
7851.00	1.88	226.83	7845.54	-160.98	-158.80	-160.45	0.22	457050.34	780826.25	
7945.00	1.72	222.74	7939.49	-163.07	-160.88	-162.54	0.22	457048.25	780824.17	
8040.00	2.50	248.86	8034.43	-164.87	-163.78	-164.32	1.28	457046.45	780821.27	
8134.00	2.41	244.20	8128.34	-166.47	-167.47	-165.91	0.23	457044.85	780817.58	
8229.00	2.08	242.49	8223.27	-168.13	-170.80	-167.56	0.35	457043.19	780814.25	
8323.00	2.36	243.89	8317.20	-169.77	-174.05	-169.19	0.30	457041.55	780811.00	
8418.00	2.29	224.91	8412.12	-171.98	-177.15	-171.39	0.81	457039.34	780807.90	
8513.00	2.47	214.55	8507.04	-175.01	-179.65	-174.41	0.49	457036.31	780805.40	
8607.00	2.42	220.61	8600.95	-178.18	-182.09	-177.58	0.28	457033.14	780802.96	
8702.00	2.41	216.51	8695.87	-181.31	-184.58	-180.70	0.18	457030.01	780800.47	
8797.00	1.97	213.29	8790.80	-184.28	-186.67	-183.66	0.48	457027.04	780798.38	
8892.00	2.01	215.69	8885.74	-187.00	-188.54	-186.37	0.10	457024.32	780796.51	
8986.00	2.23	213.01	8979.68	-189.87	-190.49	-189.24	0.26	457021.45	780794.56	
9081.00	1.98	208.02	9074.61	-192.87	-192.27	-192.23	0.33	457018.45	780792.78	
9175.00	1.90	208.81	9168.56	-195.67	-193.79	-195.02	0.09	457015.65	780791.26	
9270.00	1.92	206.07	9263.51	-198.48	-195.24	-197.83	0.10	457012.84	780789.81	
9379.00	1.38	204.91	9372.46	-201.31	-196.60	-200.66	0.50	457010.01	780788.45	
9408.00	1.33	199.82	9401.45	-201.94	-196.86	-201.29	0.45	457009.38	780788.19	
9455.00	0.72	8.02	9448.45	-202.16	-197.00	-201.51	4.34	457009.16	780788.05	
9502.00	6.67	6.36	9495.33	-199.15	-196.66	-198.50	12.66	457012.17	780788.39	
9551.00	12.71	3.51	9543.61	-190.94	-196.01	-190.29	12.36	457020.38	780789.04	
9598.00	19.89	1.27	9588.69	-177.77	-195.52	-177.12	15.33	457033.55	780789.53	
9645.00	25.09	359.87	9632.10	-159.80	-195.37	-159.15	11.12	457051.52	780789.68	
9693.00	29.16	359.51	9674.82	-137.92	-195.49	-137.27	8.49	457073.40	780789.56	
9739.00	32.94	359.86	9714.22	-114.20	-195.62	-113.55	8.23	457097.12	780789.43	
9786.00	37.83	0.30	9752.52	-86.99	-195.57	-86.34	10.42	457124.33	780789.48	
9833.00	41.93	1.41	9788.58	-56.86	-195.11	-56.22	8.85	457154.46	780789.94	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
9880.00	45.20	1.30	9822.64	-24.49	-194.34	-23.84	6.96	457186.83	780790.71	
9927.00	47.93	2.73	9854.95	9.62	-193.13	10.26	6.21	457220.94	780791.92	
9974.00	50.30	2.67	9885.71	45.11	-191.46	45.74	5.04	457256.43	780793.59	
10021.00	52.44	2.47	9915.05	81.79	-189.82	82.41	4.57	457293.11	780795.23	
10069.00	53.51	2.00	9943.95	120.08	-188.32	120.70	2.36	457331.40	780796.73	
10116.00	55.84	1.06	9971.13	158.41	-187.30	159.03	5.22	457369.73	780797.75	
10163.00	60.57	0.26	9995.88	198.34	-186.85	198.96	10.17	457409.66	780798.20	
10210.00	65.92	0.34	10017.03	240.29	-186.63	240.91	11.38	457451.61	780798.42	
10249.00	70.15	0.40	10031.62	276.45	-186.40	277.07	10.85	457487.77	780798.65	
10294.00	73.92	0.12	10045.50	319.25	-186.20	319.87	8.40	457530.57	780798.85	
10325.00	76.66	359.83	10053.37	349.23	-186.22	349.85	8.88	457560.55	780798.83	
10357.00	80.17	0.09	10059.79	380.57	-186.24	381.19	11.00	457591.89	780798.81	
10420.00	86.36	359.30	10067.18	443.11	-186.57	443.72	9.90	457654.43	780798.48	
10483.00	87.06	359.36	10070.79	506.00	-187.31	506.62	1.12	457717.32	780797.74	
10515.00	87.34	359.22	10072.36	537.96	-187.71	538.58	0.98	457749.28	780797.34	
10609.00	88.95	358.95	10075.40	631.89	-189.21	632.52	1.74	457843.21	780795.84	
10704.00	89.30	358.62	10076.85	726.86	-191.22	727.49	0.51	457938.18	780793.83	
10799.00	89.58	358.42	10077.78	821.82	-193.67	822.46	0.36	458033.14	780791.38	
10894.00	90.35	358.09	10077.84	916.78	-196.57	917.43	0.88	458128.10	780788.48	
10988.00	90.84	358.37	10076.86	1010.73	-199.47	1011.39	0.60	458222.05	780785.58	
11083.00	89.65	358.70	10076.45	1105.70	-201.90	1106.36	1.30	458317.02	780783.15	
11178.00	89.30	358.18	10077.32	1200.66	-204.48	1201.33	0.66	458411.98	780780.57	
11272.00	89.79	358.50	10078.07	1294.61	-207.21	1295.29	0.62	458505.93	780777.84	
11366.00	88.25	359.08	10079.68	1388.58	-209.19	1389.26	1.75	458599.90	780775.86	
11460.00	88.39	358.80	10082.43	1482.52	-210.93	1483.21	0.33	458693.84	780774.12	
11555.00	88.95	359.08	10084.64	1577.48	-212.69	1578.17	0.66	458788.80	780772.36	
11649.00	89.23	358.97	10086.13	1671.45	-214.29	1672.15	0.32	458882.77	780770.76	
11744.00	88.81	358.31	10087.76	1766.41	-216.54	1767.12	0.82	458977.73	780768.51	
11838.00	89.03	359.14	10089.53	1860.37	-218.63	1861.08	0.91	459071.69	780766.42	
11933.00	90.14	358.82	10090.22	1955.35	-220.32	1956.07	1.22	459166.67	780764.73	
12028.00	89.86	0.42	10090.22	2050.34	-220.95	2051.07	1.71	459261.66	780764.10	
12123.00	89.65	0.60	10090.62	2145.34	-220.11	2146.06	0.29	459356.66	780764.94	
12218.00	90.42	0.78	10090.56	2240.33	-218.96	2241.05	0.83	459451.65	780766.09	
12312.00	89.86	0.19	10090.33	2334.33	-218.17	2335.04	0.87	459545.65	780766.88	
12408.00	90.35	359.82	10090.16	2430.33	-218.16	2431.04	0.64	459641.65	780766.89	
12502.00	88.95	0.21	10090.73	2524.32	-218.13	2525.03	1.55	459735.64	780766.92	
12596.00	88.67	0.06	10092.69	2618.30	-217.91	2619.01	0.34	459829.62	780767.14	
12691.00	88.60	359.47	10094.95	2713.27	-218.30	2713.98	0.63	459924.59	780766.75	
12786.00	89.37	359.39	10096.63	2808.25	-219.25	2808.97	0.81	460019.57	780765.80	
12879.00	88.60	0.32	10098.28	2901.24	-219.48	2901.95	1.30	460112.56	780765.57	
12974.00	88.74	0.50	10100.48	2996.21	-218.80	2996.92	0.24	460207.53	780766.25	
13070.00	88.81	0.42	10102.54	3092.18	-218.03	3092.89	0.11	460303.50	780767.02	
13163.00	89.37	0.20	10104.01	3185.17	-217.53	3185.87	0.65	460396.49	780767.52	
13259.00	89.44	0.02	10105.01	3281.16	-217.35	3281.87	0.20	460492.48	780767.70	
13353.00	89.51	359.72	10105.87	3375.16	-217.56	3375.86	0.33	460586.48	780767.49	
13448.00	89.51	359.44	10106.68	3470.15	-218.26	3470.86	0.29	460681.47	780766.79	
13543.00	89.72	359.37	10107.32	3565.15	-219.24	3565.85	0.23	460776.47	780765.81	
13637.00	90.14	359.18	10107.44	3659.14	-220.43	3659.85	0.49	460870.46	780764.62	
13731.00	89.79	359.16	10107.49	3753.13	-221.79	3753.84	0.37	460964.45	780763.26	
13826.00	88.67	359.07	10108.77	3848.11	-223.26	3848.83	1.18	461059.43	780761.79	
13921.00	89.30	359.15	10110.45	3943.08	-224.74	3943.80	0.67	461154.40	780760.31	
14014.00	88.53	359.47	10112.21	4036.06	-225.86	4036.78	0.90	461247.38	780759.19	
14108.00	89.23	0.10	10114.05	4130.04	-226.21	4130.76	1.00	461341.36	780758.84	
14202.00	89.09	0.77	10115.43	4224.02	-225.49	4224.75	0.73	461435.34	780759.56	
14297.00	89.51	0.36	10116.59	4319.01	-224.56	4319.73	0.62	461530.33	780760.49	
14392.00	90.21	0.93	10116.82	4414.00	-223.49	4414.72	0.95	461625.32	780761.56	
14485.00	89.93	1.25	10116.71	4506.99	-221.72	4507.70	0.46	461718.31	780763.33	
14580.00	90.56	1.31	10116.30	4601.96	-219.60	4602.66	0.67	461813.28	780765.45	
14674.00	90.98	2.12	10115.04	4695.91	-216.78	4696.60	0.97	461907.23	780768.27	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
14769.00	91.47	2.73	10113.01	4790.80	-212.77	4791.48	0.82	462002.12	780772.28	
14863.00	91.47	1.91	10110.60	4884.69	-208.96	4885.36	0.87	462096.01	780776.09	
14958.00	92.59	2.35	10107.23	4979.57	-205.43	4980.22	1.27	462190.89	780779.62	
15053.00	90.63	1.02	10104.56	5074.48	-202.64	5075.13	2.49	462285.80	780782.41	
15148.00	91.40	0.13	10102.88	5169.46	-201.69	5170.10	1.24	462380.78	780783.36	
15243.00	91.96	359.33	10100.09	5264.42	-202.14	5265.06	1.03	462475.74	780782.91	
15338.00	91.19	358.36	10097.48	5359.36	-204.05	5360.01	1.30	462570.68	780781.00	
15432.00	90.91	358.43	10095.76	5453.31	-206.68	5453.96	0.31	462664.63	780778.37	
15527.00	89.72	358.55	10095.24	5548.27	-209.19	5548.93	1.26	462759.59	780775.86	
15622.00	89.44	358.15	10095.94	5643.23	-211.92	5643.90	0.51	462854.55	780773.13	
15717.00	89.65	357.83	10096.69	5738.17	-215.25	5738.85	0.40	462949.49	780769.80	
15811.00	90.07	357.41	10096.92	5832.09	-219.16	5832.78	0.63	463043.41	780765.89	
15906.00	89.58	357.36	10097.21	5926.99	-223.49	5927.69	0.52	463138.31	780761.56	
16000.00	89.09	357.85	10098.30	6020.90	-227.42	6021.62	0.74	463232.22	780757.63	
16095.00	89.86	358.24	10099.17	6115.84	-230.66	6116.57	0.91	463327.16	780754.39	
16189.00	90.42	358.16	10098.94	6209.79	-233.61	6210.53	0.60	463421.11	780751.44	
16284.00	89.93	358.50	10098.65	6304.75	-236.38	6305.50	0.63	463516.07	780748.67	
16379.00	89.37	359.05	10099.23	6399.72	-238.41	6400.48	0.83	463611.04	780746.64	
16473.00	88.81	0.11	10100.72	6493.71	-239.10	6494.47	1.28	463705.03	780745.95	
16568.00	88.95	359.95	10102.58	6588.69	-239.05	6589.45	0.22	463800.01	780746.00	
16663.00	89.44	0.26	10103.92	6683.68	-238.88	6684.44	0.61	463895.00	780746.17	
16757.00	89.37	359.62	10104.89	6777.67	-238.97	6778.43	0.68	463988.99	780746.08	
16852.00	90.42	359.47	10105.07	6872.67	-239.73	6873.43	1.12	464083.99	780745.32	
16947.00	90.63	0.00	10104.20	6967.66	-240.17	6968.42	0.60	464178.98	780744.88	
17042.00	92.31	359.94	10101.76	7062.63	-240.22	7063.39	1.77	464273.95	780744.83	
17136.00	92.24	0.91	10098.03	7156.55	-239.52	7157.31	1.03	464367.87	780745.53	
17231.00	91.05	1.76	10095.30	7251.48	-237.31	7252.23	1.54	464462.80	780747.74	
17325.00	90.07	1.69	10094.38	7345.44	-234.48	7346.17	1.05	464556.76	780750.57	
17420.00	89.09	1.55	10095.08	7440.39	-231.79	7441.12	1.04	464651.71	780753.26	
17515.00	87.83	1.82	10097.63	7535.32	-229.00	7536.04	1.36	464746.64	780756.05	Last Svy
17586.00	87.83	1.82	10100.32	7606.23	-226.75	7606.94	0.00	464817.55	780758.30	Proj to TD



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. Sheridan Ave
Oklahoma City, OK, 73102

Date: January 20, 2017

Attention: Garrett Glaze

Re: Devon Energy
Well: Thistle Unit 112H
Lea 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:

<u>Name & Title Of Surveyor</u>	<u>Well Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Andrew Schmidt MWD Supervisor	112H	231 MD 17515 MD	1/13/2017 1/28/2017	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.

Jonathan Leger
MWD Ops Coordinator

On this, the 29th day of March, 2017, before me a notary public, the undersigned officer, personally appeared Jonathan Leger, 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

