



NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 25 2016

RECEIVED

October 5, 2015

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

15-43322

Attn: Megan Moravec

Re: **Emerald PWU 20 No 010H**

Please find enclosed a copy of the survey from 0' to 3153' 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.

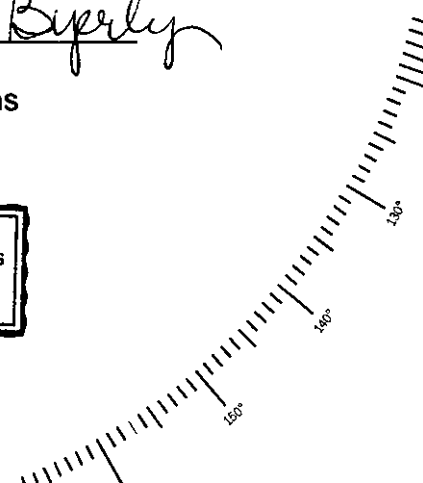
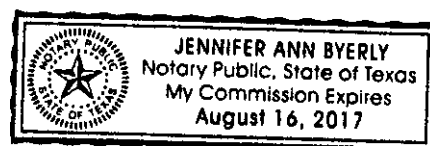
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 5 day of October, A.D., 2015, by Keith Havelka.

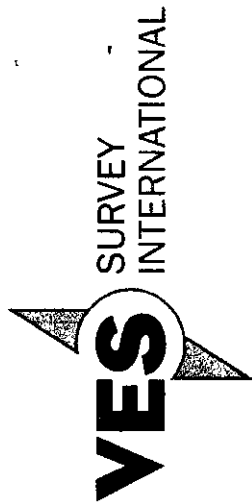
Jennifer Ann Byerly
Notary Public, State of Texas





Company: Devon Energy

Lease/Well: Emerald PWU 20 No/010H



Rig Name: Cactus 138

State/County: New Mexico/Eddy

VS-Azi: 0.00 Degrees

Latitude: 32.64706, Longitude: -104.10468

Grid North = True North -0.12 degs (NAD 27)

Grid Correction Applied = -0.12 degs

Depth Reference : RKB = 25 Foot

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 25 2016

RECEIVED

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: ...ald pwu 20 10h_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 10/5/2015 / 08:57

VES Survey International

Midland, TX

(432) 563-5444

Surveyor: Gene Heiss

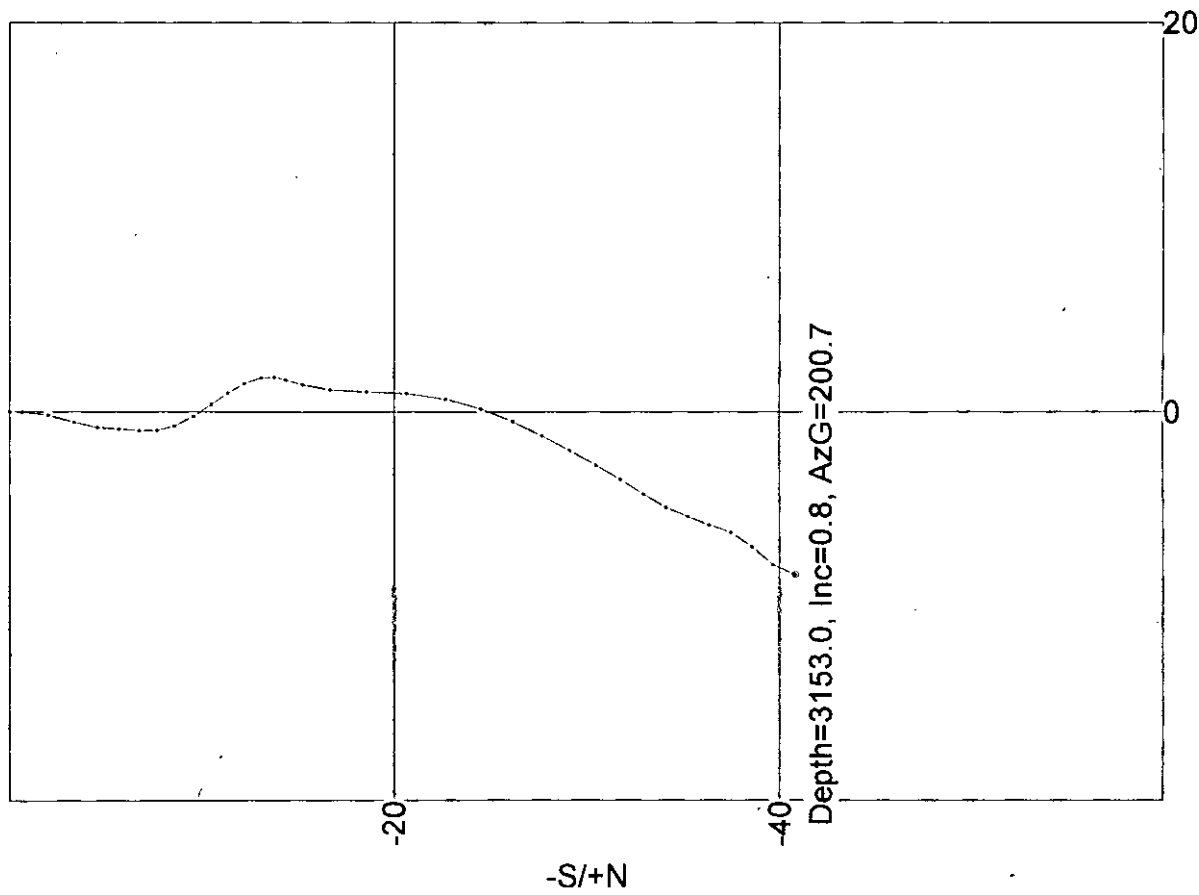
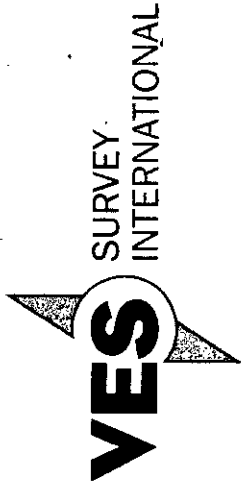
Emerald PWU 20 010H / API 30-015-43322

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	****
92.58	0.81	181.55	92.58	-0.66	-0.02	-0.66	0.66	181.55	0.88
185.32	0.86	191.56	185.31	-2.00	-0.18	-2.00	2.01	185.02	0.17
278.06	0.88	197.81	278.04	-3.36	-0.53	-3.36	3.40	189.01	0.10
370.80	0.70	184.71	370.77	-4.60	-0.80	-4.60	4.67	189.82	0.27
463.54	0.65	183.73	463.50	-5.70	-0.88	-5.70	5.76	188.76	0.06
556.28	0.67	184.18	556.23	-6.76	-0.95	-6.76	6.83	188.01	0.02
649.02	0.48	173.79	648.97	-7.69	-0.95	-7.69	7.75	187.03	0.23
741.76	0.66	159.58	741.71	-8.58	-0.72	-8.58	8.61	184.79	0.25
834.50	0.73	148.76	834.44	-9.59	-0.22	-9.59	9.60	181.34	0.16
927.24	0.64	143.70	927.17	-10.52	0.39	-10.52	10.53	177.86	0.12
1019.98	0.61	147.23	1019.91	-11.36	0.97	-11.36	11.40	175.13	0.06
1112.72	0.62	152.92	1112.64	-12.22	1.46	-12.22	12.31	173.17	0.07
1205.46	0.50	171.90	1205.38	-13.07	1.75	-13.07	13.18	172.38	0.24
1298.20	0.37	187.39	1298.11	-13.77	1.77	-13.77	13.88	172.68	0.19
1390.94	0.38	197.13	1390.85	-14.36	1.64	-14.36	14.45	173.49	0.07
1483.68	0.73	194.30	1483.59	-15.22	1.40	-15.22	15.28	174.73	0.38

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
1576.42	1.10	188.03	1576.32	-16.67	1.13	-16.67	16.71	176.11	0.42
1669.16	1.25	178.82	1669.04	-18.57	1.03	-18.57	18.60	176.82	0.26
1761.90	1.31	186.18	1761.75	-20.63	0.94	-20.63	20.65	177.40	0.19
1854.64	1.23	190.34	1854.47	-22.66	0.65	-22.66	22.67	178.37	0.13
1947.38	1.12	200.22	1947.19	-24.49	0.15	-24.49	24.49	179.64	0.24
2040.12	1.06	203.14	2039.91	-26.14	-0.50	-26.14	26.14	181.10	0.09
2132.86	1.01	207.76	2132.64	-27.66	-1.22	-27.66	27.68	182.53	0.11
2225.60	0.99	207.42	2225.36	-29.09	-1.97	-29.09	29.16	183.88	0.03
2318.34	0.94	210.32	2318.09	-30.46	-2.72	-30.46	30.58	185.11	0.08
2411.08	0.87	210.26	2410.82	-31.72	-3.46	-31.72	31.91	186.23	0.07
2503.82	0.89	213.06	2503.55	-32.93	-4.21	-32.93	33.20	187.28	0.05
2596.56	0.78	207.09	2596.28	-34.09	-4.89	-34.09	34.44	188.15	0.15
2689.30	0.74	198.30	2689.01	-35.23	-5.36	-35.23	35.63	188.65	0.13
2782.04	0.73	203.28	2781.74	-36.34	-5.78	-36.34	36.80	189.04	0.07
2874.78	0.74	193.86	2874.48	-37.47	-6.16	-37.47	37.97	189.34	0.13
2967.52	0.98	230.43	2967.21	-38.56	-6.92	-38.56	39.17	190.17	0.63
3060.26	0.80	206.85	3059.94	-39.64	-7.82	-39.64	40.40	191.16	0.43
3153.00	0.80	200.74	3152.67	-40.82	-8.34	-40.82	41.66	191.54	0.09



VES Survey International
Midland, TX
(432) 563-5444
Surveyor: Gene Heiss
Emerald PWU 20 010H / API 30-015-43322



-W/+E
VES Survey Date: 9/30/2015



Well Name: EMERALD PWU 20 10H

Sub-Division DELAWARE BASIN WEST	Region SLOPE EAST	Field Name PARKWAY WEST	RECEIVED EDDY	State/Province NM		
Surface Legal Location SEC20 T19S R29E	API/UWI 3001543322	Latitude (") 32° 38' 49.412" N	Longitude (") 104° 6' 16.843" W	Orig KB Elevation (ft) 3,364.00	Ground Elev MSL (ft) 3,339.00	KB - GL (ft) 25.00

Wellbores			
Wellbore Name OH	Parent Wellbore OH	SAP Well ID 38847	Vertical Section Direction (*)

Kick Offs & Key Depths			
Date 10/6/2015		Type CURVE	Top Depth (ftKB) 8,450.0
Actual Deviation Survey GYRO, Proposed? No		Definitive? No	Proposed? No
Proposed Deviation Survey			

Deviation Survey					
Date 9/30/2015		Description GYRO			
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)	EW (ft)	DLS ("/100ft)	Survey Tool	Survey Company
9/30/2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	92.58	0.81	181.55	92.58	-0.04	-0.65	-0.02	0.87	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	185.32	0.86	191.56	185.31	-0.24	-1.99	-0.17	0.17	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	278.06	0.88	197.81	278.04	-0.64	-3.35	-0.53	0.10	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	370.80	0.70	184.71	370.77	-0.94	-4.59	-0.80	0.27	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	463.54	0.65	183.73	463.50	-1.06	-5.68	-0.88	0.06	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	556.28	0.67	184.18	556.24	-1.17	-6.75	-0.95	0.02	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	649.02	0.48	173.79	648.97	-1.19	-7.68	-0.95	0.23	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	741.76	0.66	159.58	741.71	-0.99	-8.56	-0.72	0.25	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	834.50	0.73	148.76	834.44	-0.53	-9.57	-0.23	0.16	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	927.24	0.64	143.70	927.17	0.05	-10.49	0.39	0.12	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,019.98	0.61	147.23	1,019.91	0.60	-11.32	0.96	0.05	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,112.72	0.62	152.92	1,112.64	1.06	-12.19	1.46	0.07	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,205.46	0.50	171.90	1,205.38	1.32	-13.03	1.74	0.24	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,298.20	0.37	187.39	1,298.11	1.32	-13.73	1.76	0.19	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,390.94	0.38	197.13	1,390.85	1.17	-14.32	1.63	0.07	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,483.68	0.73	194.30	1,483.59	0.90	-15.19	1.39	0.38	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,576.42	1.10	188.03	1,576.32	0.59	-16.64	1.12	0.41	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,669.16	1.25	178.82	1,669.04	0.42	-18.53	1.02	0.26	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,761.90	1.31	186.18	1,761.75	0.26	-20.60	0.93	0.19	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,854.64	1.23	190.34	1,854.47	-0.09	-22.63	0.63	0.13	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	1,947.38	1.12	200.22	1,947.19	-0.64	-24.46	0.14	0.25	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,040.12	1.06	203.14	2,039.91	-1.35	-26.10	-0.51	0.09	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,132.86	1.01	207.76	2,132.64	-2.11	-27.61	-1.23	0.10	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,225.60	0.99	207.42	2,225.37	-2.91	-29.05	-1.98	0.02	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,318.34	0.94	210.32	2,318.09	-3.70	-30.42	-2.73	0.08	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,411.08	0.87	210.26	2,410.82	-4.48	-31.68	-3.47	0.08	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,503.82	0.89	213.06	2,503.55	-5.27	-32.89	-4.22	0.05	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,596.56	0.78	207.09	2,596.28	-5.99	-34.06	-4.90	0.15	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,689.30	0.74	198.30	2,689.01	-6.50	-35.19	-5.37	0.13	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,782.04	0.73	203.28	2,781.74	-6.96	-36.30	-5.79	0.07	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,874.78	0.74	193.86	2,874.48	-7.37	-37.42	-6.17	0.13	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	2,967.52	0.98	230.43	2,967.21	-8.16	-38.51	-6.92	0.63	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	3,060.26	0.80	206.85	3,059.94	-9.10	-39.59	-7.83	0.44	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	3,153.00	0.80	200.74	3,152.67	-9.66	-40.78	-8.35	0.09	GYRO	VAUHG N ENERGY SERVICES
9/30/2015	3,236.00	0.95	195.98	3,235.66	-10.09	-41.98	-8.74	0.20	LWD	WEATHERFORD
9/30/2015	3,299.00	1.07	195.20	3,298.65	-10.42	-43.05	-9.04	0.19	LWD	WEATHERFORD
9/30/2015	3,395.00	1.12	199.75	3,394.63	-11.03	-44.80	-9.60	0.10	LWD	WEATHERFORD
9/30/2015	3,490.00	1.26	198.70	3,489.61	-11.74	-46.66	-10.24	0.15	LWD	WEATHERFORD
9/30/2015	3,585.00	0.47	182.49	3,584.60	-12.13	-48.04	-10.60	0.86	LWD	WEATHERFORD
9/30/2015	3,680.00	0.30	144.80	3,679.60	-12.03	-48.63	-10.47	0.31	LWD	WEATHERFORD
9/30/2015	3,775.00	0.21	192.21	3,774.59	-11.93	-49.01	-10.36	0.23	LWD	WEATHERFORD
9/30/2015	3,870.00	0.69	248.82	3,869.59	-12.51	-49.38	-10.93	0.63	LWD	WEATHERFORD
9/30/2015	3,965.00	1.31	247.70	3,964.58	-14.07	-50.00	-12.47	0.65	LWD	WEATHERFORD
9/30/2015	4,060.00	1.28	290.19	4,059.55	-16.07	-50.05	-14.47	0.99	LWD	WEATHERFORD
9/30/2015	4,155.00	1.69	310.37	4,154.52	-18.09	-48.77	-16.53	0.69	LWD	WEATHERFORD
9/30/2015	4,251.00	1.92	306.25	4,250.48	-20.41	-46.91	-18.91	0.27	LWD	WEATHERFORD
9/30/2015	4,346.00	2.28	300.41	4,345.41	-23.26	-45.01	-21.82	0.44	LWD	WEATHERFORD
9/30/2015	4,442.00	2.82	293.34	4,441.32	-27.01	-43.11	-25.64	0.65	LWD	WEATHERFORD
9/30/2015	4,536.00	2.98	291.38	4,535.20	-31.35	-41.30	-30.04	0.20	LWD	WEATHERFORD
9/30/2015	4,632.00	3.15	290.11	4,631.06	-36.09	-39.48	-34.84	0.19	LWD	WEATHERFORD
9/30/2015	4,727.00	3.12	291.60	4,725.92	-40.88	-37.63	-39.69	0.09	LWD	WEATHERFORD
9/30/2015	4,822.00	3.02	294.44	4,820.78	-45.50	-35.65	-44.37	0.19	LWD	WEATHERFORD
9/30/2015	4,917.00	3.07	293.63	4,915.65	-50.04	-33.59	-48.98	0.07	LWD	WEATHERFORD
9/30/2015	5,011.00	3.77	298.71	5,009.48	-54.97	-31.10	-54.00	0.81	LWD	WEATHERFORD
9/30/2015	5,106.00	4.67	302.20	5,104.22	-60.86	-27.54	-60.01	0.98	LWD	WEATHERFORD
9/30/2015	5,202.00	5.01	311.75	5,199.88	-67.14	-22.66	-66.45	0.91	LWD	WEATHERFORD
9/30/2015	5,297.00	5.25	312.72	5,294.50	-73.24	-16.95	-72.73	0.27	LWD	WEATHERFORD
9/30/2015	5,392.00	5.30	313.47	5,389.10	-79.42	-10.98	-79.11	0.09	LWD	WEATHERFORD
9/30/2015	5,487.00	5.23	313.80	5,483.70	-85.54	-4.97	-85.42	0.08	LWD	WEATHERFORD
9/30/2015	5,583.00	5.09	315.04	5,579.31	-91.51	1.07	-91.59	0.19	LWD	WEATHERFORD
9/30/2015	5,678.00	4.69	316.90	5,673.96	-96.95	6.89	-97.22	0.45	LWD	WEATHERFORD
9/30/2015	5,771.00	4.91	319.81	5,766.63	-101.92	12.71	-102.39	0.35	LWD	WEATHERFORD
9/30/2015	5,867.00	4.59	319.64	5,862.30	-106.87	18.77	-107.52	0.33	LWD	WEATHERFORD
9/30/2015	5,962.00	4.90	314.37	5,956.98	-112.04	24.51	-112.89	0.56	LWD	WEATHERFORD
9/30/2015	6,058.00	5.71	311.17	6,052.57	-118.37	30.52	-119.41	0.90	LWD	WEATHERFORD



Well Name: EMERALD PWU 20 10H

Sub-Division DELAWARE BASIN WEST		Region SLOPE EAST		Field Name PARKWAY WEST		County EDDY		State/Province NM	
Surface Legal Location SEC20 T19S R29E		API/UWI 3001543322	Latitude (") 32° 38' 49.412" N	Longitude (") 104° 6' 16.843" W	Orig KB Elevation (ft) 3,364.00	Ground Elev MSL (ft) 3,339.00	KB - GL (ft) 25.00		

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
9/30/2015	6,153.00	5.40	306.73	6,147.12	-125.32	36.30	-126.55	0.56	LWD	WEATHERFORD
9/30/2015	6,249.00	5.59	306.24	6,242.68	-132.53	41.77	-133.94	0.20	LWD	WEATHERFORD
9/30/2015	6,344.00	5.42	305.97	6,337.24	-139.72	47.14	-141.31	0.18	LWD	WEATHERFORD
9/30/2015	6,439.00	5.36	306.87	6,431.82	-146.73	52.44	-148.49	0.11	LWD	WEATHERFORD
9/30/2015	6,534.00	5.43	308.78	6,526.40	-153.60	57.91	-155.54	0.20	LWD	WEATHERFORD
9/30/2015	6,629.00	5.35	301.99	6,620.98	-160.69	63.07	-162.80	0.68	LWD	WEATHERFORD
9/30/2015	6,724.00	5.15	302.39	6,715.58	-167.90	67.70	-170.16	0.21	LWD	WEATHERFORD
9/30/2015	6,819.00	4.33	299.85	6,810.26	-174.47	71.77	-176.87	0.89	LWD	WEATHERFORD
9/30/2015	6,912.00	4.42	305.64	6,902.99	-180.30	75.61	-182.83	0.48	LWD	WEATHERFORD
9/30/2015	7,006.00	4.28	303.24	6,996.72	-186.05	79.64	-188.70	0.24	LWD	WEATHERFORD
9/30/2015	7,101.00	5.50	306.28	7,091.37	-192.53	84.28	-195.34	1.31	LWD	WEATHERFORD
9/30/2015	7,196.00	5.91	304.73	7,185.90	-200.04	89.76	-203.03	0.46	LWD	WEATHERFORD
9/30/2015	7,291.00	5.87	313.50	7,280.40	-207.38	95.89	-210.57	0.95	LWD	WEATHERFORD
9/30/2015	7,387.00	5.36	304.00	7,375.94	-214.47	101.78	-217.85	1.10	LWD	WEATHERFORD
9/30/2015	7,483.00	4.59	292.16	7,471.58	-221.61	105.73	-225.13	1.33	LWD	WEATHERFORD
9/30/2015	7,578.00	4.37	304.64	7,566.29	-228.00	109.22	-231.62	1.05	LWD	WEATHERFORD
9/30/2015	7,672.00	3.48	317.72	7,660.07	-232.73	113.37	-236.49	1.34	LWD	WEATHERFORD
9/30/2015	7,767.00	2.25	327.95	7,754.95	-235.54	117.09	-239.42	1.40	LWD	WEATHERFORD
9/30/2015	7,861.00	1.35	339.44	7,848.91	-236.82	119.69	-240.79	1.03	LWD	WEATHERFORD
9/30/2015	7,957.00	1.04	19.48	7,944.89	-236.87	121.57	-240.89	0.90	LWD	WEATHERFORD
9/30/2015	8,052.00	0.66	59.70	8,039.88	-236.07	122.66	-240.13	0.72	LWD	WEATHERFORD
9/30/2015	8,147.00	0.78	51.34	8,134.87	-235.07	123.34	-239.16	0.17	LWD	WEATHERFORD
9/30/2015	8,243.00	0.65	86.31	8,230.86	-234.00	123.78	-238.10	0.47	LWD	WEATHERFORD
9/30/2015	8,338.00	0.49	157.03	8,325.86	-233.32	123.44	-237.41	0.71	LWD	WEATHERFORD
9/30/2015	8,380.00	0.29	139.97	8,367.86	-233.19	123.19	-237.27	0.55	LWD	WEATHERFORD
9/30/2015	8,432.00	0.16	130.34	8,419.86	-233.05	123.04	-237.13	0.26	LWD	WEATHERFORD
9/30/2015	8,463.00	2.75	87.16	8,450.84	-232.28	123.05	-236.35	8.50	LWD	WEATHERFORD
9/30/2015	8,495.00	6.78	87.66	8,482.73	-229.62	123.17	-233.70	12.59	LWD	WEATHERFORD
9/30/2015	8,527.00	10.74	87.27	8,514.35	-224.75	123.39	-228.83	12.38	LWD	WEATHERFORD
9/30/2015	8,574.00	17.09	85.04	8,559.95	-213.46	124.19	-217.56	13.56	LWD	WEATHERFORD
9/30/2015	8,622.00	22.02	86.26	8,605.16	-197.42	125.39	-201.55	10.31	LWD	WEATHERFORD
9/30/2015	8,669.00	27.28	88.39	8,647.87	-177.83	126.27	-181.98	11.35	LWD	WEATHERFORD
9/30/2015	8,716.00	30.66	91.66	8,688.98	-155.09	126.23	-159.22	7.94	LWD	WEATHERFORD
9/30/2015	8,763.00	34.12	96.35	8,728.67	-130.07	124.42	-134.13	9.09	LWD	WEATHERFORD
9/30/2015	8,811.00	37.01	95.40	8,767.71	-102.40	121.57	-106.36	6.13	LWD	WEATHERFORD
9/30/2015	8,858.00	39.85	93.85	8,804.53	-73.38	119.23	-77.25	6.38	LWD	WEATHERFORD
9/30/2015	8,906.00	45.06	91.78	8,839.93	-41.10	117.67	-44.90	11.24	LWD	WEATHERFORD
9/30/2015	8,953.00	51.70	92.95	8,871.13	-6.08	116.20	-9.82	14.25	LWD	WEATHERFORD
9/30/2015	9,001.00	57.04	93.31	8,899.08	32.77	114.07	29.13	11.14	LWD	WEATHERFORD
9/30/2015	9,048.00	63.20	93.07	8,922.49	73.35	111.80	69.80	13.11	LWD	WEATHERFORD
9/30/2015	9,095.00	67.26	92.84	8,942.18	115.87	109.60	112.41	8.65	LWD	WEATHERFORD
9/30/2015	9,142.00	73.16	91.13	8,958.08	159.97	108.08	156.58	13.01	LWD	WEATHERFORD
9/30/2015	9,190.00	78.36	89.99	8,969.89	206.44	107.63	203.09	11.08	LWD	WEATHERFORD
9/30/2015	9,214.00	81.57	88.93	8,974.07	230.06	107.86	226.72	14.06	LWD	WEATHERFORD
9/30/2015	9,309.00	93.15	87.48	8,978.44	324.80	110.83	321.40	12.28	LWD	WEATHERFORD
9/30/2015	9,404.00	92.38	88.02	8,973.85	419.68	114.56	416.22	0.99	LWD	WEATHERFORD
9/30/2015	9,499.00	90.56	88.92	8,971.42	514.65	117.09	511.15	2.14	LWD	WEATHERFORD
9/30/2015	9,594.00	89.79	89.14	8,971.13	609.64	118.70	606.14	0.84	LWD	WEATHERFORD
9/30/2015	9,783.00	88.95	89.46	8,973.20	798.58	121.01	795.11	0.48	LWD	WEATHERFORD
9/30/2015	9,878.00	89.51	89.98	8,974.48	893.54	121.47	890.10	0.80	LWD	WEATHERFORD
9/30/2015	9,972.00	88.60	90.63	8,976.03	987.46	120.97	984.08	1.19	LWD	WEATHERFORD
9/30/2015	10,067.00	89.16	90.59	8,977.89	1,082.35	119.96	1,079.06	0.59	LWD	WEATHERFORD
9/30/2015	10,162.00	91.40	89.30	8,977.42	1,177.30	120.05	1,174.05	2.72	LWD	WEATHERFORD
9/30/2015	10,257.00	91.75	89.02	8,974.81	1,272.25	121.45	1,269.00	0.47	LWD	WEATHERFORD
9/30/2015	10,353.00	89.93	89.05	8,973.41	1,368.22	123.06	1,364.97	1.90	LWD	WEATHERFORD
9/30/2015	10,448.00	88.60	90.46	8,974.62	1,463.17	123.47	1,459.96	2.04	LWD	WEATHERFORD
9/30/2015	10,544.00	90.35	88.64	8,975.50	1,559.13	124.22	1,555.95	2.63	LWD	WEATHERFORD
9/30/2015	10,639.00	90.63	88.48	8,974.69	1,654.13	126.61	1,650.91	0.34	LWD	WEATHERFORD
9/30/2015	10,734.00	90.70	88.37	8,973.59	1,749.12	129.22	1,745.87	0.14	LWD	WEATHERFORD
9/30/2015	10,830.00	89.23	89.81	8,973.65	1,845.10	130.75	1,841.85	2.14	LWD	WEATHERFORD
9/30/2015	10,925.00	89.44	90.60	8,974.75	1,940.03	130.41	1,936.85	0.86	LWD	WEATHERFORD
9/30/2015	11,019.00	88.39	90.31	8,976.53	2,033.94	129.66	2,030.82	1.16	LWD	WEATHERFORD
9/30/2015	11,114.00	88.04	90.78	8,979.49	2,128.81	128.76	2,125.77	0.62	LWD	WEATHERFORD
9/30/2015	11,209.00	89.16	89.95	8,981.81	2,223.71	128.15	2,220.74	1.47	LWD	WEATHERFORD
9/30/2015	11,304.00	88.74	90.39	8,983.55	2,318.64	127.87	2,315.72	0.64	LWD	WEATHERFORD
9/30/2015	11,400.00	87.97	90.38	8,986.31	2,414.52	127.22	2,411.68	0.80	LWD	WEATHERFORD
9/30/2015	11,494.00	89.58	90.56	8,988.32	2,508.42	126.45	2,505.65	1.72	LWD	WEATHERFORD
9/30/2015	11,589.00	88.95	91.02	8,989.53	2,603.31	125.14	2,600.64	0.82	LWD	WEATHERFORD
9/30/2015	11,684.00	89.65	89.73	8,990.70	2,698.23	124.52	2,695.62	1.54	LWD	WEATHERFORD
9/30/2015	11,780.00	89.72	89.95	8,991.22	2,794.19	124.79	2,791.62	0.24	LWD	WEATHERFORD
9/30/2015	11,875.00	92.45	89.96	8,989.42	2,889.12	124.86	2,886.60	2.87	LWD	WEATHERFORD
9/30/2015	11,970.00	93.01	89.45	8,984.90	2,983.97	125.35	2,981.49	0.80	LWD	WEATHERFORD
9/30/2015	12,065.00	93.86	89.09	8,979.21	3,078.78	126.56	3,076.31	0.97	LWD	WEATHERFORD
9/30/2015	12,161.00	92.66	89.91	8,973.75	3,174.60	127.40	3,172.15	1.51	LWD	WEATHERFORD
9/30/2015	12,256.00	91.40	90.51	8,970.38	3,269.48	127.05	3,267.08	1.47	LWD	WEATHERFORD
9/30/2015	12,352.00	91.75	90.33	8,967.74	3,365.37	126.35	3,363.04	0.41	LWD	WEATHERFORD
9/30/2015	12,447.00	90.42	89.83	8,965.95	3,460.29	126.21	3,458.02	1.50	LWD	WEATHERFORD



Well Name: EMERALD PWU 20 10H

Sub-Division DELAWARE BASIN WEST		Region SLOPE EAST		Field Name PARKWAY WEST				County EDDY		State/Province NM			
Surface Legal Location SEC20 T19S R29E		API/UWI 3001543322		Latitude (") 32° 38' 49.412" N		Longitude (") 104° 6' 16.843" W		Orig KB Elevation (ft) 3,364.00		Ground Elev MSL (ft) 3,339.00		KB - GL (ft) 25.00	
Survey Data													
Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS ("/100ft)	Survey Tool	Survey Company			
9/30/2015	12,542.00	89.86	89.51	8,965.71	3,555.26	126.76	3,553.02	0.68	LWD	WEATHERFORD			
9/30/2015	12,638.00	90.21	89.56	8,965.66	3,651.23	127.54	3,649.02	0.37	LWD	WEATHERFORD			
9/30/2015	12,732.00	90.42	89.35	8,965.14	3,745.21	128.43	3,743.01	0.32	LWD	WEATHERFORD			
9/30/2015	12,828.00	90.42	89.33	8,964.43	3,841.18	129.54	3,839.00	0.02	LWD	WEATHERFORD			
9/30/2015	12,922.00	90.42	89.49	8,963.75	3,935.16	130.51	3,933.00	0.17	LWD	WEATHERFORD			
9/30/2015	13,018.00	88.95	88.25	8,964.27	4,031.15	132.40	4,028.97	2.00	LWD	WEATHERFORD			
9/30/2015	13,111.00	89.02	88.44	8,965.92	4,124.13	135.09	4,121.92	0.22	LWD	WEATHERFORD			
9/30/2015	13,206.00	89.79	88.43	8,966.91	4,219.12	137.68	4,216.88	0.81	LWD	WEATHERFORD			
9/30/2015	13,300.00	90.28	89.23	8,966.85	4,313.12	139.60	4,310.86	1.00	LWD	WEATHERFORD			
9/30/2015	13,395.00	89.37	88.15	8,967.14	4,408.11	141.77	4,405.83	1.49	LWD	WEATHERFORD			
9/30/2015	13,489.00	89.09	88.14	8,968.40	4,502.10	144.81	4,499.77	0.30	LWD	WEATHERFORD			
9/30/2015	13,584.00	90.63	88.27	8,968.64	4,597.10	147.79	4,594.72	1.63	LWD	WEATHERFORD			
9/30/2015	13,631.00	90.91	88.15	8,968.00	4,644.09	149.26	4,641.69	0.65	LWD	WEATHERFORD			
9/30/2015	13,725.00	90.63	88.27	8,966.74	4,738.08	152.19	4,735.64	0.32	BIT	WEATHERFORD			

Page 3/3

Report Printed: 2/23/2016