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30-015-45043

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 26 2019

State of New Mexico
County of Eddy

RECEIVED

I, Zhen Li, certify that; I am employed by Scientific Drilling International; that I did on the day(s) of 10/20/2018 through 11/14/2018 conduct or supervise the taking of a MWD survey from a depth of 172 feet to a depth of 13941 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Scientific Drilling International; that I am authorized and qualified to make this report; that this survey was conducted at the request of WPX Energy for the Cass Draw 10-23-27 Fee 401H Well, API# 30-015-45043 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Scientific Drilling International.

Field Technician

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WPX Energy

Cass Draw 10-23-27 Fee 401H - Actual

Eddy County, New Mexico (NAD 83)

Cass Draw/Johnson 10-23-27 Fee

Your Ref:

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Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Grid X
0	0	0	0	0	0	0	0	586321.9
172	0.5	150.31	172	-0.65	0.37	0.37	0.29	586322.3
264	1.21	198.43	263.99	-1.92	0.26	0.26	1.03	586322.2
418	1.89	185.93	417.93	-5.99	-0.51	-0.52	0.49	586321.4
510	1.74	179.7	509.89	-8.9	-0.66	-0.67	0.27	586321.2
603	2.29	179.98	602.83	-12.17	-0.65	-0.66	0.59	586321.3
695	1.12	162.49	694.79	-14.86	-0.38	-0.39	1.38	586321.5
788	0.57	68.52	787.78	-15.56	0.32	0.31	1.39	586322.2
880	0.62	83.47	879.77	-15.34	1.24	1.23	0.18	586323.1
973	0.63	101.84	972.77	-15.38	2.24	2.23	0.21	586324.1
1065	0.94	120.53	1064.76	-15.87	3.39	3.38	0.43	586325.3
1158	0.71	99.95	1157.75	-16.36	4.61	4.6	0.4	586326.5
1250	1.67	121.44	1249.73	-17.16	6.32	6.3	1.13	586328.2
1345	2.3	115.57	1344.67	-18.7	9.22	9.2	0.7	586331.1
1439	0.69	138.96	1438.64	-19.94	11.29	11.28	1.8	586333.2
1533	0.64	147.56	1532.63	-20.81	11.94	11.93	0.12	586333.8
1628	0.71	150.25	1627.62	-21.77	12.52	12.5	0.08	586334.4
1722	1.87	118.95	1721.6	-23.02	14.15	14.14	1.4	586336.1
1817	0.93	116.98	1816.57	-24.12	16.19	16.18	0.99	586338.1
1911	0.69	118.4	1910.56	-24.73	17.37	17.36	0.26	586339.3
2006	0.64	105.44	2005.55	-25.15	18.39	18.37	0.17	586340.3
2100	0.66	111.53	2099.55	-25.48	19.4	19.38	0.08	586341.3
2172	0.69	112.85	2171.54	-25.81	20.18	20.16	0.05	586342.1
2295	0.74	122.99	2294.53	-26.53	21.53	21.51	0.11	586343.4
2390	0.66	116.04	2389.53	-27.1	22.54	22.52	0.12	586344.4
2484	0.83	133.61	2483.52	-27.81	23.52	23.5	0.3	586345.4
2579	1.95	162.11	2578.49	-29.82	24.51	24.49	1.35	586346.4
2673	2.53	167.76	2672.42	-33.37	25.44	25.42	0.66	586347.3
2768	3.8	171.55	2767.27	-38.53	26.35	26.32	1.35	586348.3
2863	3.7	171.37	2862.07	-44.68	27.27	27.24	0.11	586349.2

2958	3.7	173.77	2956.87	-50.75	28.06	28.03	0.16	586350
3052	3.64	174.52	3050.68	-56.74	28.68	28.64	0.08	586350.6
3147	3.66	172.61	3145.48	-62.75	29.36	29.31	0.13	586351.3
3242	3.73	172.49	3240.29	-68.82	30.15	30.1	0.07	586352.1
3337	3.67	175.61	3335.09	-74.91	30.79	30.73	0.22	586352.7
3432	3.71	179.12	3429.89	-81.02	31.07	31.01	0.24	586353
3526	3.81	173.87	3523.69	-87.17	31.45	31.39	0.38	586353.4
3621	3.74	174.29	3618.48	-93.39	32.09	32.03	0.08	586354
3716	3.61	177.23	3713.29	-99.46	32.55	32.48	0.24	586354.5
3811	3.65	175.78	3808.1	-105.46	32.91	32.84	0.11	586354.8
3905	3.58	177.51	3901.91	-111.38	33.26	33.18	0.14	586355.2
4000	3.27	175.03	3996.74	-117.04	33.62	33.54	0.36	586355.5
4095	3.06	178.14	4091.6	-122.27	33.94	33.86	0.29	586355.8
4189	3.4	168.69	4185.45	-127.51	34.57	34.48	0.67	586356.5
4284	4.69	164.3	4280.21	-134.01	36.17	36.08	1.4	586358.1
4379	4.25	162.53	4374.92	-141.11	38.28	38.18	0.49	586360.2
4474	4.1	160.86	4469.67	-147.68	40.45	40.35	0.2	586362.4
4568	3.96	159.42	4563.44	-153.89	42.69	42.59	0.18	586364.6
4663	3.91	161.69	4658.21	-160.04	44.86	44.75	0.17	586366.8
4758	5.2	160.89	4752.91	-167.18	47.29	47.17	1.36	586369.2
4853	4.63	162.06	4847.56	-174.9	49.88	49.76	0.61	586371.8
4948	4.33	164.16	4942.27	-181.99	52.04	51.91	0.36	586373.9
5042	4.73	155.83	5035.98	-188.94	54.6	54.46	0.82	586376.5
5137	4.6	158.78	5130.66	-196.07	57.58	57.44	0.29	586379.5
5232	4.19	158.19	5225.38	-202.84	60.25	60.11	0.43	586382.2
5327	4.16	160.11	5320.13	-209.3	62.71	62.56	0.15	586384.6
5422	4.08	163.64	5414.89	-215.79	64.83	64.68	0.28	586386.7
5516	3.71	167.97	5508.67	-221.97	66.41	66.25	0.5	586388.3
5611	4.35	176.32	5603.43	-228.57	67.28	67.12	0.91	586389.2
5706	5.82	173.69	5698.06	-236.95	68.04	67.88	1.57	586389.9
5801	4.23	176.13	5792.69	-245.24	68.81	68.64	1.69	586390.7
5896	3.96	165.15	5887.45	-251.91	69.88	69.71	0.87	586391.8
5990	4.48	163.92	5981.19	-258.57	71.73	71.55	0.56	586393.6
6085	4.21	169.67	6075.92	-265.57	73.39	73.2	0.54	586395.3
6180	5.21	163	6170.6	-273.12	75.27	75.08	1.2	586397.2
6274	5.11	171.02	6264.22	-281.34	77.17	76.98	0.77	586399.1
6369	4.37	174.07	6358.89	-289.12	78.21	78.01	0.82	586400.1
6464	4.64	172.91	6453.6	-296.53	79.06	78.85	0.3	586401
6559	5.26	164.49	6548.25	-304.54	80.7	80.48	1	586402.6
6654	3.93	164.5	6642.94	-311.87	82.73	82.51	1.4	586404.6
6749	3.8	161.47	6737.72	-317.99	84.6	84.38	0.25	586406.5
6843	5.17	149.6	6831.44	-324.6	87.73	87.51	1.75	586409.6
6938	4.69	152.11	6926.08	-331.73	91.72	91.48	0.55	586413.6
7033	5	140.83	7020.75	-338.37	96.15	95.91	1.05	586418.1
7128	6.4	146.06	7115.28	-345.97	101.72	101.48	1.57	586423.6
7222	5.87	143.7	7208.74	-354.19	107.49	107.24	0.62	586429.4
7317	5.35	138.43	7303.28	-361.42	113.31	113.05	0.77	586435.2

7412	4.39	138.87	7397.94	-367.47	118.64	118.38	1.01	586440.5
7507	3.64	139.85	7492.7	-372.52	122.97	122.71	0.79	586444.9
7601	3.08	152.38	7586.54	-377.03	126.07	125.8	0.98	586448
7696	2.92	154.58	7681.41	-381.48	128.29	128.02	0.21	586450.2
7791	4.26	153.39	7776.22	-386.82	130.91	130.64	1.41	586452.8
7886	4.26	159.93	7870.96	-393.29	133.7	133.42	0.51	586455.6
7980	5	162.96	7964.66	-400.49	136.1	135.82	0.83	586458
8075	5	170.95	8059.3	-408.53	137.96	137.68	0.73	586459.9
8170	5.25	176.18	8153.92	-416.96	138.9	138.61	0.56	586460.8
8265	4.59	177.19	8248.57	-425.09	139.38	139.08	0.7	586461.3
8352	3.28	177.12	8335.36	-431.05	139.67	139.37	1.51	586461.6
8459	2.79	160.53	8442.21	-436.57	140.7	140.39	0.94	586462.6
8554	15.75	97.51	8535.88	-440.45	154.32	154.02	15.46	586476.2
8648	25.05	90.35	8623.91	-442.25	186.95	186.64	10.23	586508.9
8743	32.85	91.82	8706.97	-443.19	232.88	232.58	8.24	586554.8
8838	40.21	91.34	8783.26	-444.73	289.37	289.06	7.75	586611.3
8932	44.67	92.89	8852.61	-447.1	352.74	352.43	4.87	586674.6
9027	50.8	86.13	8916.51	-446.3	422.93	422.62	8.32	586744.8
9122	61.38	83.87	8969.44	-439.34	501.34	501.04	11.31	586823.2
9217	68.99	85.06	9009.29	-431.06	587.11	586.81	8.09	586909
9312	75.7	87.81	9038.09	-425.48	677.4	677.1	7.58	586999.3
9396	83.83	91.61	9053	-425.09	759.98	759.68	10.65	587081.9
9499	90.2	93.18	9058.37	-429.39	862.69	862.39	6.37	587184.6
9594	89.97	92.18	9058.22	-433.84	957.58	957.28	1.08	587279.5
9689	89.87	90.82	9058.36	-436.32	1052.55	1052.24	1.44	587374.5
9784	83.91	88.7	9063.51	-435.93	1147.36	1147.06	6.66	587469.3
9878	86.37	88.58	9071.47	-433.71	1240.99	1240.69	2.62	587562.9
9973	88.19	88.97	9075.98	-431.68	1335.86	1335.55	1.96	587657.8
10068	89.46	89.09	9077.93	-430.07	1430.82	1430.52	1.34	587752.7
10163	90.97	89.67	9077.57	-429.04	1525.81	1525.51	1.7	587847.7
10257	90.5	89.81	9076.37	-428.62	1619.8	1619.5	0.52	587941.7
10352	90.7	90.04	9075.37	-428.49	1714.8	1714.5	0.32	588036.7
10447	88.36	90	9076.15	-428.53	1809.79	1809.49	2.46	588131.7
10542	87.98	89.58	9079.18	-428.18	1904.74	1904.44	0.6	588226.6
10637	87.82	89.4	9082.67	-427.33	1999.67	1999.37	0.25	588321.6
10731	87.55	89.14	9086.46	-426.14	2093.58	2093.29	0.4	588415.5
10826	87.88	89.28	9090.25	-424.83	2188.5	2188.2	0.38	588510.4
10921	87.75	89.29	9093.87	-423.64	2283.42	2283.13	0.14	588605.3
11016	89.9	89.97	9095.82	-423.03	2378.4	2378.1	2.37	588700.3
11110	89.36	89.68	9096.43	-422.74	2472.39	2472.1	0.65	588794.3
11205	91.08	89.85	9096.06	-422.35	2567.39	2567.09	1.82	588889.3
11300	90.37	90.08	9094.86	-422.29	2662.38	2662.08	0.79	588984.3
11395	87.95	89.93	9096.25	-422.3	2757.36	2757.07	2.55	589079.3
11490	90.03	90.08	9097.93	-422.31	2852.34	2852.05	2.2	589174.2
11584	91.21	90.16	9096.91	-422.51	2946.33	2946.04	1.26	589268.2
11679	90.2	90.33	9095.74	-422.91	3041.33	3041.03	1.08	589363.2
11774	89.56	90.18	9095.94	-423.34	3136.32	3136.03	0.69	589458.2

11869	87.82	90.16	9098.11	-423.62	3231.29	3231	1.83	589553.2
11964	87.65	89.66	9101.87	-423.47	3326.22	3325.92	0.56	589648.1
12058	88.96	89.77	9104.65	-423	3420.18	3419.88	1.4	589742.1
12153	86.27	90.45	9108.6	-423.18	3515.08	3514.79	2.92	589837
12248	86.07	90.28	9114.95	-423.79	3609.87	3609.57	0.28	589931.8
12342	85.87	89.41	9121.55	-423.53	3703.64	3703.34	0.95	590025.5
12437	89.23	89.47	9125.61	-422.61	3798.53	3798.24	3.54	590120.4
12532	90.23	89.35	9126.06	-421.63	3893.52	3893.23	1.06	590215.4
12627	91.78	89.73	9124.39	-420.87	3988.5	3988.21	1.68	590310.4
12722	92.25	89.88	9121.05	-420.54	4083.44	4083.15	0.52	590405.3
12816	91.65	89.43	9117.86	-419.98	4177.39	4177.09	0.8	590499.3
12911	91.75	89.25	9115.04	-418.88	4272.34	4272.05	0.22	590594.2
13006	91.04	89.38	9112.72	-417.75	4367.3	4367.01	0.76	590689.2
13101	90.87	89.4	9111.14	-416.74	4462.28	4461.99	0.18	590784.2
13196	89.5	89.66	9110.83	-415.96	4557.28	4556.99	1.47	590879.2
13290	88.72	89.61	9112.29	-415.36	4651.26	4650.97	0.83	590973.2
13385	88.39	89.15	9114.69	-414.33	4746.23	4745.94	0.6	591068.1
13480	88.79	88.64	9117.03	-412.5	4841.18	4840.89	0.68	591163.1
13575	88.79	88.62	9119.03	-410.23	4936.13	4935.85	0.02	591258
13669	88.72	88.38	9121.08	-407.77	5030.08	5029.79	0.27	591352
13764	88.35	87.93	9123.5	-404.71	5125	5124.71	0.61	591446.9
13859	87.38	87.11	9127.04	-400.6	5219.84	5219.56	1.34	591541.7
13941	86.97	86.54	9131.09	-396.07	5301.62	5301.34	0.86	591623.5
14018	86.97	86.54	9135.16	-391.43	5378.37	5378.09	0	591700.3

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to GL 3116 + RKB 26 =. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 89.960° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.
Central meridian is -104.333°.
Grid Convergence at Surface is 0.078°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 14018.00ft.,
the Bottom Hole Displacement is 5392.59ft., in the Direction of 89.960° (Grid).

Grid Y	SSTVD
480099.7	-3142
480099.1	-2970
480097.8	-2878.01
480093.7	-2724.07
480090.8	-2632.11
480087.5	-2539.17
480084.8	-2447.21
480084.1	-2354.22
480084.4	-2262.23
480084.3	-2169.23
480083.8	-2077.24
480083.3	-1984.25
480082.5	-1892.27
480081	-1797.33
480079.8	-1703.36
480078.9	-1609.37
480077.9	-1514.38
480076.7	-1420.4
480075.6	-1325.43
480075	-1231.44
480074.6	-1136.45
480074.2	-1042.45
480073.9	-970.46
480073.2	-847.47
480072.6	-752.47
480071.9	-658.48
480069.9	-563.51
480066.3	-469.58
480061.2	-374.73
480055	-279.93

480049	-185.13
480043	-91.32
480037	3.48
480030.9	98.29
480024.8	193.09
480018.7	287.89
480012.5	381.69
480006.3	476.48
480000.2	571.29
479994.2	666.1
479988.3	759.91
479982.7	854.74
479977.4	949.6
479972.2	1043.45
479965.7	1138.21
479958.6	1232.92
479952	1327.67
479945.8	1421.44
479939.7	1516.21
479932.5	1610.91
479924.8	1705.56
479917.7	1800.27
479910.8	1893.98
479903.6	1988.66
479896.9	2083.38
479890.4	2178.13
479883.9	2272.89
479877.7	2366.67
479871.1	2461.43
479862.8	2556.06
479854.5	2650.69
479847.8	2745.45
479841.1	2839.19
479834.1	2933.92
479826.6	3028.6
479818.4	3122.22
479810.6	3216.89
479803.2	3311.6
479795.2	3406.25
479787.8	3500.94
479781.7	3595.72
479775.1	3689.44
479768	3784.08
479761.3	3878.75
479753.7	3973.28
479745.5	4066.74
479738.3	4161.28

479732.2	4255.94
479727.2	4350.7
479722.7	4444.54
479718.2	4539.41
479712.9	4634.22
479706.4	4728.96
479699.2	4822.66
479691.2	4917.3
479682.7	5011.92
479674.6	5106.57
479668.7	5193.36
479663.1	5300.21
479659.3	5393.88
479657.5	5481.91
479656.5	5564.97
479655	5641.26
479652.6	5710.61
479653.4	5774.51
479660.4	5827.44
479668.6	5867.29
479674.2	5896.09
479674.6	5911
479670.3	5916.37
479665.9	5916.22
479663.4	5916.36
479663.8	5921.51
479666	5929.47
479668	5933.98
479669.6	5935.93
479670.7	5935.57
479671.1	5934.37
479671.2	5933.37
479671.2	5934.15
479671.5	5937.18
479672.4	5940.67
479673.6	5944.46
479674.9	5948.25
479676.1	5951.87
479676.7	5953.82
479677	5954.43
479677.4	5954.06
479677.4	5952.86
479677.4	5954.25
479677.4	5955.93
479677.2	5954.91
479676.8	5953.74
479676.4	5953.94

479676.1	5956.11
479676.2	5959.87
479676.7	5962.65
479676.5	5966.6
479675.9	5972.95
479676.2	5979.55
479677.1	5983.61
479678.1	5984.06
479678.8	5982.39
479679.2	5979.05
479679.7	5975.86
479680.8	5973.04
479682	5970.72
479683	5969.14
479683.7	5968.83
479684.3	5970.29
479685.4	5972.69
479687.2	5975.03
479689.5	5977.03
479691.9	5979.08
479695	5981.5
479699.1	5985.04
479703.6	5989.09
479708.3	5993.16