

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

NMOCD-REC'D: 09/01/2020 Form C-104

Revised August 1, 2011

Submit one copy to appropriate District Office

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Marathon Oil Permian LLC 5555 San Felipe St., Houston, TX 77056		² OGRID Number 372098
		³ Reason for Filing Code/ Effective Date RT
⁴ API Number 30 - 015-46209	⁵ Pool Name PURPLE SAGE; WOLFCAMP (GAS)	⁶ Pool Code 98220
⁷ Property Code 325763	⁸ Property Name BLUE STEEL 21 WXY FED COM	⁹ Well Number 18H

II. ¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
A	28	23S	29E		1219	NORTH	1057	EAST	EDDY

¹¹ Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	16	23S	29E		332	NORTH	327	EAST	EDDY
¹² Lse Code F	¹³ Producing Method Code	¹⁴ Gas Connection Date	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date				

III. Oil and Gas Transporters

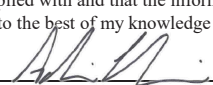
¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
327139	Sendero Carlsbad Midstream LLC	G
307204	Oryx Midstream Services, LLC	O

IV. Well Completion Data

²¹ Spud Date 12/30/2019	²² Ready Date 5/28/2020	²³ TD 20160' / 10116'	²⁴ PBTB 20105' / 10116'	²⁵ Perforations 10302' - 20021'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
17 1/2"	13 3/8", 54.5#, J55, STC	306'	357		
12 1/4"	9 5/8", 40#, J55, LTC	3020'	990		
8 3/4"	5 1/2", 20#, P110, VA Roughneck	20151'	2960		

V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: 		OIL CONSERVATION DIVISION Approved by: *DENIED	
Printed name: Adrian Covarrubias		Title:	
Title: Regulatory Professional		Approval Date:	
E-mail Address: acovarrubias@marathonoil.com		*RT EXPIRED 8/28/2020 See attachment: Resubmit, C-102,survey with C-104 NW, 3160-4 ASAP.	
Date: 8/27/2020	Phone: 713-296-3368		

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 334-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 334-6170
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

NMOCD-REC'D: 09/01/2020

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT
As-Drilled

WELL LOCATION AND ACREAGE DEDICATION AS-DRILLED PLAT

¹ API Number 30-015-46209	² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp (Gas)
⁴ Property Code 325763	Property Name Blue Steel 21 WXY Fed Com	⁶ Well Number 18H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 2998'

¹⁰ Surface Location

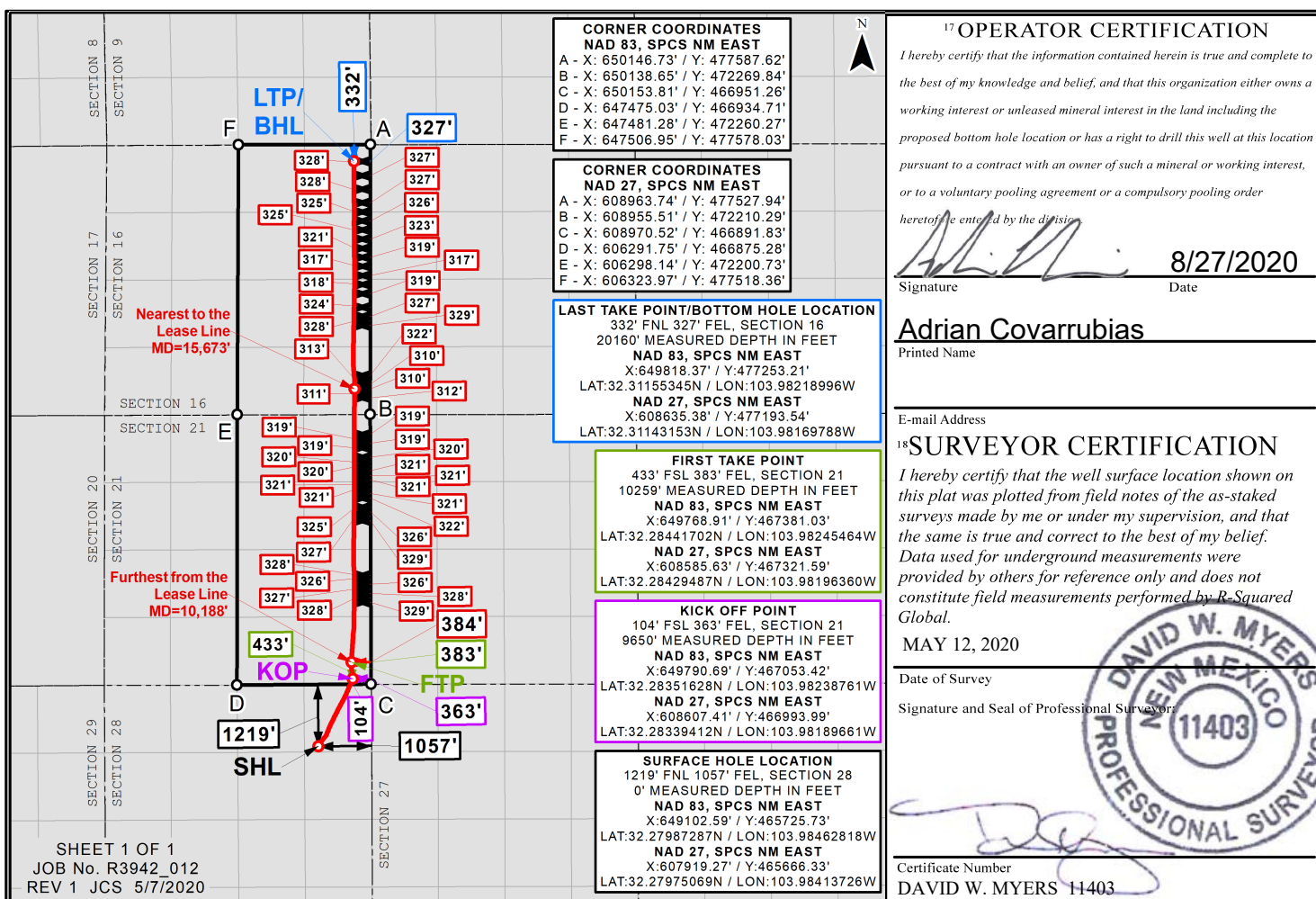
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	28	23S	29E		1219	NORTH	1057	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	16	23S	29E		332	NORTH	327	EAST	EDDY

¹² Dedicated Acres 640.0	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



Distances/areas relative to NAD 83 Combined Scale Factor: 0.9997823 Convergence Angle: 00°11'10.61002"

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Marathon Oil Permian LLC
Blue Steel Fed Com WXY #18H
Eddy County, New Mexico (NAD27)
Eddy New Mexico
USA
MO-XX-0906335425

<i>Measured Depth (feet)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (feet)</i>	<i>Latitude (feet)</i>	<i>Departure (feet)</i>	<i>Vertical Section (feet)</i>	<i>Dogleg (deg/100ft)</i>
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
117.00	1.20	227.94	116.99	0.82 S	0.91 W	-0.82	1.03
210.00	1.10	248.74	209.97	1.80 S	2.46 W	-1.80	0.46
387.00	0.97	240.27	386.94	3.16 S	5.35 W	-3.15	0.11
417.00	1.10	234.55	416.94	3.45 S	5.80 W	-3.44	0.55
510.00	1.71	184.54	509.91	5.35 S	6.64 W	-5.35	1.41
603.00	1.89	180.76	602.87	8.27 S	6.77 W	-8.26	0.23
697.00	1.80	178.83	696.82	11.29 S	6.76 W	-11.29	0.12
790.00	1.67	184.63	789.78	14.10 S	6.84 W	-14.10	0.23
883.00	1.49	179.97	882.74	16.66 S	6.95 W	-16.66	0.24
972.00	1.27	187.97	971.72	18.80 S	7.09 W	-18.79	0.33
1062.00	1.19	201.51	1061.70	20.65 S	7.57 W	-20.65	0.33
1151.00	1.27	214.87	1150.67	22.32 S	8.47 W	-22.32	0.33
1241.00	1.54	223.83	1240.65	24.01 S	9.88 W	-24.01	0.39
1331.00	0.84	319.45	1330.63	24.39 S	11.14 W	-24.38	2.03
1420.00	3.25	9.90	1419.58	21.40 S	11.13 W	-21.40	3.14
1510.00	5.01	13.60	1509.34	15.07 S	9.77 W	-15.06	1.98
1600.00	7.30	21.42	1598.82	5.93 S	6.76 W	-5.92	2.70
1690.00	8.40	34.43	1687.98	4.82 N	0.95 W	4.82	2.31
1780.00	8.35	45.24	1777.02	14.84 N	7.40 E	14.84	1.75
1869.00	10.15	34.95	1864.87	25.82 N	16.49 E	25.81	2.74
1959.00	12.44	31.09	1953.12	40.63 N	26.04 E	40.61	2.68
2048.00	13.85	31.17	2039.79	57.95 N	36.50 E	57.93	1.58
2138.00	12.97	30.47	2127.33	75.87 N	47.20 E	75.84	0.99
2227.00	12.00	32.40	2214.23	92.29 N	57.22 E	92.25	1.19
2317.00	12.40	36.71	2302.20	107.94 N	68.01 E	107.89	1.10
2407.00	13.76	39.26	2389.86	123.98 N	80.56 E	123.92	1.64
2497.00	13.58	39.17	2477.31	140.46 N	94.01 E	140.39	0.20
2586.00	12.40	43.04	2564.03	155.54 N	107.13 E	155.47	1.65
2676.00	11.47	45.41	2652.09	168.89 N	120.10 E	168.80	1.17
2765.00	12.48	39.52	2739.15	182.52 N	132.52 E	182.42	1.78
2855.00	12.13	37.06	2827.08	197.56 N	144.41 E	197.46	0.70
2944.00	13.05	27.39	2913.95	213.95 N	154.67 E	213.84	2.58
2965.00	13.49	25.02	2934.39	218.28 N	156.79 E	218.17	3.33
3036.00	13.13	21.75	3003.49	233.27 N	163.28 E	233.16	1.18
3125.00	12.88	20.98	3090.20	251.92 N	170.58 E	251.80	0.34
3214.00	13.57	20.85	3176.84	270.94 N	177.85 E	270.82	0.78
3304.00	13.98	21.59	3264.25	290.92 N	185.61 E	290.79	0.49
3393.00	13.99	22.26	3350.62	310.87 N	193.64 E	310.73	0.18
3483.00	14.63	22.23	3437.82	331.46 N	202.06 E	331.32	0.71
3573.00	14.93	22.33	3524.84	352.71 N	210.77 E	352.56	0.33
3662.00	13.85	23.60	3611.05	373.07 N	219.39 E	372.92	1.26
3752.00	13.77	23.31	3698.45	392.78 N	227.94 E	392.62	0.11
3842.00	13.26	25.71	3785.96	411.92 N	236.65 E	411.76	0.84
3932.00	11.39	26.82	3873.88	429.15 N	245.14 E	428.98	2.10
4022.00	10.62	25.08	3962.22	444.60 N	252.67 E	444.42	0.93
4111.00	11.17	26.46	4049.62	459.74 N	259.98 E	459.56	0.68
4201.00	12.24	28.13	4137.75	475.96 N	268.36 E	475.77	1.25
4290.00	12.94	28.09	4224.61	493.07 N	277.50 E	492.87	0.78
4380.00	13.05	27.73	4312.30	510.95 N	286.98 E	510.75	0.16
4469.00	12.27	25.53	4399.14	528.38 N	295.73 E	528.17	1.04
4559.00	12.03	24.22	4487.13	545.55 N	303.69 E	545.34	0.40
4648.00	12.48	25.91	4574.10	562.66 N	311.70 E	562.44	0.65
4738.00	13.09	28.42	4661.86	580.38 N	320.81 E	580.15	0.92
4828.00	13.17	28.23	4749.51	598.38 N	330.51 E	598.14	0.10
4918.00	14.16	28.22	4836.96	617.11 N	340.56 E	616.87	1.10

5007.00	14.78	27.45	4923.14	636.78 N	350.95 E	636.54	0.73
5097.00	14.82	26.91	5010.15	657.24 N	361.45 E	656.98	0.16
5187.00	13.62	25.27	5097.39	677.08 N	371.18 E	676.82	1.40
5276.00	13.64	25.68	5183.89	696.01 N	380.20 E	695.74	0.11
5366.00	13.21	25.45	5271.43	714.86 N	389.22 E	714.59	0.48
5455.00	12.21	24.36	5358.25	732.62 N	397.47 E	732.34	1.15
5544.00	10.99	27.30	5445.43	748.73 N	405.25 E	748.45	1.52
5634.00	10.61	27.56	5533.83	763.71 N	413.02 E	763.42	0.43
5723.00	12.13	28.60	5621.08	779.19 N	421.29 E	778.89	1.72
5813.00	12.86	29.94	5708.95	796.17 N	430.82 E	795.87	0.87
5903.00	11.12	29.10	5796.98	812.44 N	440.04 E	812.13	1.94
5992.00	11.38	29.67	5884.27	827.57 N	448.56 E	827.26	0.32
6082.00	12.23	30.17	5972.36	843.53 N	457.75 E	843.21	0.95
6171.00	13.40	29.55	6059.14	860.66 N	467.58 E	860.33	1.32
6262.00	13.38	29.09	6147.67	879.03 N	477.90 E	878.70	0.12
6351.00	11.85	28.10	6234.52	896.09 N	487.21 E	895.75	1.74
6441.00	12.34	25.67	6322.52	912.91 N	495.73 E	912.57	0.79
6530.00	13.92	27.13	6409.19	931.01 N	504.73 E	930.66	1.81
6620.00	12.55	27.96	6496.80	949.28 N	514.25 E	948.93	1.53
6709.00	12.13	27.69	6583.74	966.11 N	523.13 E	965.74	0.48
6798.00	11.66	26.95	6670.83	982.40 N	531.55 E	982.03	0.56
6888.00	10.22	26.88	6759.19	997.63 N	539.29 E	997.25	1.60
6978.00	9.64	30.36	6847.85	1011.26 N	546.70 E	1010.87	0.93
7067.00	8.59	25.72	6935.72	1023.68 N	553.35 E	1023.29	1.43
7157.00	7.73	24.12	7024.81	1035.26 N	558.75 E	1034.87	1.00
7246.00	7.36	21.59	7113.04	1046.02 N	563.29 E	1045.63	0.55
7336.00	9.68	21.22	7202.04	1058.44 N	568.15 E	1058.04	2.57
7426.00	12.28	23.86	7290.39	1074.25 N	574.76 E	1073.84	2.95
7516.00	14.73	23.52	7377.89	1093.49 N	583.20 E	1093.08	2.72
7605.00	13.88	24.23	7464.13	1113.60 N	592.10 E	1113.18	0.97
7695.00	9.85	16.62	7552.20	1130.83 N	598.73 E	1130.41	4.79
7784.00	8.11	17.87	7640.10	1144.10 N	602.84 E	1143.68	1.97
7874.00	9.60	25.32	7729.03	1156.93 N	607.99 E	1156.51	2.08
7963.00	11.85	25.92	7816.47	1171.86 N	615.16 E	1171.43	2.53
8052.00	12.76	31.57	7903.43	1188.45 N	624.30 E	1188.01	1.70
8142.00	13.02	29.01	7991.16	1205.78 N	634.42 E	1205.33	0.70
8232.00	12.25	29.75	8078.98	1222.93 N	644.07 E	1222.48	0.87
8321.00	10.64	32.11	8166.21	1238.09 N	653.12 E	1237.63	1.88
8411.00	9.88	27.41	8254.77	1251.98 N	661.09 E	1251.52	1.26
8501.00	8.77	22.63	8343.58	1265.17 N	667.29 E	1264.70	1.50
8590.00	6.88	16.75	8431.75	1276.54 N	671.44 E	1276.07	2.31
8680.00	7.19	20.85	8521.07	1286.96 N	674.99 E	1286.49	0.66
8769.00	6.97	23.74	8609.39	1297.11 N	679.15 E	1296.64	0.47
8859.00	6.50	27.89	8698.77	1306.61 N	683.73 E	1306.13	0.75
8948.00	5.80	28.54	8787.26	1315.01 N	688.24 E	1314.53	0.79
9038.00	4.91	27.99	8876.87	1322.40 N	692.22 E	1321.92	0.99
9128.00	3.03	29.60	8966.65	1327.87 N	695.20 E	1327.39	2.09
9217.00	0.29	111.78	9055.61	1329.84 N	696.57 E	1329.35	3.38
9307.00	1.08	251.57	9145.60	1329.48 N	695.98 E	1329.00	1.46
9396.00	1.51	251.36	9234.58	1328.84 N	694.08 E	1328.36	0.49
9486.00	1.89	242.46	9324.54	1327.78 N	691.64 E	1327.29	0.51
9551.00	2.51	226.72	9389.49	1326.30 N	689.65 E	1325.82	1.33
9649.00	3.34	0.43	9487.43	1327.69 N	688.10 E	1327.21	5.51
9739.00	12.78	5.20	9576.44	1340.26 N	689.03 E	1339.78	10.51
9828.00	23.58	353.38	9660.90	1367.85 N	687.87 E	1367.36	12.76
9918.00	32.76	351.05	9740.16	1409.88 N	681.99 E	1409.40	10.27
10008.00	43.38	350.46	9810.90	1464.57 N	673.05 E	1464.10	11.81
10098.00	48.51	355.99	9873.49	1528.75 N	665.57 E	1528.28	7.20
10188.00	52.05	1.30	9931.01	1597.90 N	664.01 E	1597.43	6.00
10278.00	56.00	3.24	9983.87	1670.66 N	666.93 E	1670.19	4.73
10367.00	66.77	2.42	10026.43	1748.58 N	670.75 E	1748.11	12.13
10457.00	71.14	0.89	10058.74	1832.52 N	673.17 E	1832.05	5.11
10546.00	77.45	2.85	10082.82	1918.10 N	675.99 E	1917.63	7.40
10636.00	89.20	3.45	10093.27	2007.20 N	680.90 E	2006.72	13.07
10725.00	92.62	3.55	10091.85	2096.01 N	686.33 E	2095.53	3.85
10815.00	89.01	6.12	10090.57	2185.66 N	693.92 E	2185.17	4.92
10838.00	89.24	6.54	10090.92	2208.51 N	696.46 E	2208.03	2.06
10927.00	89.75	5.54	10091.70	2297.01 N	705.82 E	2296.52	1.26
11017.00	89.61	2.10	10092.20	2386.80 N	711.82 E	2386.30	3.83
11106.00	89.85	0.24	10092.63	2475.78 N	713.64 E	2475.28	2.11
11196.00	90.05	0.62	10092.71	2565.77 N	714.31 E	2565.27	0.48
11286.00	89.71	0.94	10092.89	2655.76 N	715.54 E	2655.26	0.52
11375.00	89.78	0.54	10093.28	2744.76 N	716.69 E	2744.25	0.46
11465.00	90.28	0.49	10093.24	2834.75 N	717.49 E	2834.25	0.56
11554.00	90.35	0.45	10093.73	2924.73 N	718.32 E	2924.23	0.35

11554.00	90.37	0.15	10092.73	2923.75 N	717.99 E	2923.25	0.39
11644.00	90.18	0.42	10092.30	3013.75 N	718.44 E	3013.24	0.37
11733.00	89.78	0.50	10092.34	3102.74 N	719.16 E	3102.24	0.46
11823.00	89.90	359.96	10092.59	3192.74 N	719.52 E	3192.24	0.62
11913.00	90.56	0.19	10092.23	3282.74 N	719.64 E	3282.24	0.78
12002.00	90.68	356.53	10091.26	3371.68 N	717.09 E	3371.18	4.12
12091.00	90.05	356.99	10090.70	3460.54 N	712.05 E	3460.04	0.88
12180.00	90.53	358.76	10090.25	3549.47 N	708.75 E	3548.98	2.07
12270.00	90.69	359.88	10089.29	3639.46 N	707.68 E	3638.96	1.26
12360.00	89.89	359.94	10088.83	3729.46 N	707.54 E	3728.96	0.90
12449.00	89.88	0.44	10089.01	3818.46 N	707.84 E	3817.96	0.56
12538.00	90.39	0.70	10088.79	3907.45 N	708.72 E	3906.96	0.65
12628.00	89.90	0.05	10088.56	3997.45 N	709.31 E	3996.95	0.91
12718.00	90.49	0.64	10088.26	4087.45 N	709.85 E	4086.95	0.93
12807.00	90.49	0.76	10087.50	4176.44 N	710.93 E	4175.94	0.13
12896.00	90.44	0.35	10086.77	4265.43 N	711.79 E	4264.93	0.46
12985.00	90.47	0.49	10086.07	4354.42 N	712.44 E	4353.92	0.16
13075.00	90.66	0.80	10085.18	4444.41 N	713.46 E	4443.91	0.40
13164.00	89.70	0.56	10084.90	4533.41 N	714.52 E	4532.90	1.11
13254.00	89.54	0.53	10085.50	4623.40 N	715.38 E	4622.90	0.18
13343.00	89.57	0.64	10086.19	4712.39 N	716.29 E	4711.89	0.13
13433.00	90.20	0.75	10086.37	4802.38 N	717.39 E	4801.88	0.71
13522.00	89.84	0.64	10086.34	4891.38 N	718.47 E	4890.87	0.43
13612.00	89.58	0.62	10086.80	4981.37 N	719.45 E	4980.87	0.29
13701.00	90.29	359.62	10086.90	5070.37 N	719.63 E	5069.87	1.38
13791.00	89.49	359.48	10087.07	5160.37 N	718.92 E	5159.86	0.91
13881.00	89.82	0.17	10087.61	5250.36 N	718.64 E	5249.86	0.85
13970.00	90.08	359.98	10087.68	5339.36 N	718.75 E	5338.86	0.36
14059.00	89.71	359.87	10087.84	5428.36 N	718.64 E	5427.86	0.44
14149.00	89.47	0.10	10088.49	5518.36 N	718.62 E	5517.86	0.37
14238.00	89.81	0.05	10089.05	5607.36 N	718.73 E	5606.85	0.39
14330.00	89.64	0.01	10089.50	5699.36 N	718.78 E	5698.85	0.19
14419.00	89.44	0.14	10090.21	5788.35 N	718.90 E	5787.85	0.26
14508.00	90.05	0.04	10090.60	5877.35 N	719.03 E	5876.85	0.69
14598.00	90.38	359.92	10090.26	5967.35 N	719.00 E	5966.85	0.38
14688.00	88.94	359.48	10090.79	6057.35 N	718.52 E	6056.84	1.67
14777.00	89.36	359.66	10092.12	6146.33 N	717.85 E	6145.83	0.51
14867.00	89.95	359.57	10092.66	6236.33 N	717.25 E	6235.83	0.66
14957.00	88.68	359.61	10093.74	6326.32 N	716.60 E	6325.82	1.41
15046.00	90.52	0.54	10094.37	6415.31 N	716.72 E	6414.81	2.31
15136.00	90.12	1.42	10093.86	6505.30 N	718.26 E	6504.79	1.07
15226.00	90.02	1.38	10093.75	6595.27 N	720.47 E	6594.76	0.12
15315.00	90.07	0.79	10093.67	6684.25 N	722.16 E	6683.75	0.67
15404.00	90.50	1.11	10093.23	6773.24 N	723.63 E	6772.73	0.61
15494.00	88.66	0.26	10093.89	6863.23 N	724.71 E	6862.72	2.26
15584.00	89.07	0.86	10095.67	6953.20 N	725.59 E	6952.69	0.82
15673.00	90.53	0.60	10095.98	7042.19 N	726.73 E	7041.68	1.67
15763.00	89.64	359.46	10095.84	7132.19 N	726.78 E	7131.68	1.60
15852.00	91.12	356.57	10095.25	7221.12 N	723.70 E	7220.62	3.65
15942.00	90.66	352.62	10093.85	7310.69 N	715.22 E	7310.19	4.42
16032.00	89.75	355.98	10093.53	7400.23 N	706.29 E	7399.74	3.87
16121.00	90.26	358.10	10093.53	7489.11 N	701.69 E	7488.62	2.45
16210.00	89.91	359.30	10093.40	7578.09 N	699.68 E	7577.59	1.41
16300.00	90.41	1.05	10093.15	7668.08 N	699.96 E	7667.59	2.02
16390.00	90.20	0.73	10092.67	7758.07 N	701.35 E	7757.58	0.42
16479.00	90.59	0.83	10092.05	7847.06 N	702.57 E	7846.56	0.46
16569.00	89.80	0.53	10091.74	7937.05 N	703.64 E	7936.56	0.95
16658.00	89.84	1.03	10092.02	8026.04 N	704.84 E	8025.55	0.56
16747.00	89.71	1.14	10092.37	8115.03 N	706.53 E	8114.53	0.19
16836.00	88.86	0.79	10093.48	8204.00 N	708.03 E	8203.51	1.04
16926.00	89.80	1.12	10094.53	8293.98 N	709.54 E	8293.49	1.11
17015.00	89.73	0.70	10094.90	8382.97 N	710.96 E	8382.47	0.48
17105.00	88.96	0.74	10095.93	8472.96 N	712.09 E	8472.46	0.86
17194.00	90.25	1.19	10096.55	8561.94 N	713.59 E	8561.44	1.53
17284.00	89.10	0.72	10097.06	8651.93 N	715.09 E	8651.42	1.38
17374.00	89.24	1.24	10098.38	8741.90 N	716.64 E	8741.40	0.60
17463.00	89.34	1.32	10099.48	8830.87 N	718.63 E	8830.37	0.14
17553.00	88.75	1.20	10100.99	8920.84 N	720.61 E	8920.33	0.67
17642.00	89.37	0.27	10102.44	9009.82 N	721.74 E	9009.31	1.26
17732.00	88.93	0.39	10103.78	9099.81 N	722.26 E	9099.30	0.52
17821.00	89.54	0.38	10104.97	9188.80 N	722.86 E	9188.29	0.70
17911.00	89.44	0.55	10105.76	9278.79 N	723.59 E	9278.28	0.23
18000.00	89.12	359.54	10106.88	9367.78 N	723.66 E	9367.27	1.20
18090.00	89.04	359.88	10108.32	9457.77 N	723.20 E	9457.26	0.39
18180.00	88.08	359.34	10110.58	9547.74 N	722.59 E	9547.23	1.22

18269.00	87.81	359.18	10113.77	9636.67 N	721.43 E	9636.17	0.36
18358.00	88.52	359.61	10116.62	9725.62 N	720.49 E	9725.11	0.94
18448.00	89.06	359.61	10118.52	9815.60 N	719.88 E	9815.09	0.59
18537.00	88.72	359.40	10120.24	9904.58 N	719.11 E	9904.07	0.45
18628.00	89.97	359.65	10121.29	9995.57 N	718.35 E	9995.06	1.40
18718.00	90.49	359.34	10120.93	10085.56 N	717.56 E	10085.06	0.67
18807.00	89.95	359.00	10120.59	10174.55 N	716.26 E	10174.05	0.72
18897.00	90.75	359.79	10120.04	10264.54 N	715.31 E	10264.04	1.26
18986.00	91.55	1.25	10118.26	10353.52 N	716.12 E	10353.02	1.87
19076.00	89.69	359.94	10117.29	10443.50 N	717.05 E	10443.00	2.53
19165.00	90.21	359.76	10117.37	10532.50 N	716.82 E	10532.00	0.61
19255.00	89.88	359.79	10117.30	10622.50 N	716.47 E	10622.00	0.36
19344.00	90.35	359.31	10117.11	10711.50 N	715.77 E	10711.00	0.75
19435.00	90.01	359.99	10116.83	10802.50 N	715.22 E	10801.99	0.84
19524.00	89.25	359.96	10117.41	10891.49 N	715.18 E	10890.99	0.85
19614.00	90.11	0.14	10117.91	10981.49 N	715.26 E	10980.99	0.97
19703.00	90.38	0.09	10117.53	11070.49 N	715.44 E	11069.99	0.31
19793.00	90.33	0.23	10116.98	11160.49 N	715.69 E	11159.98	0.17
19882.00	90.42	0.07	10116.39	11249.48 N	715.92 E	11248.98	0.21
19972.00	89.45	359.90	10116.49	11339.48 N	715.89 E	11338.98	1.10
20061.00	90.66	0.14	10116.40	11428.48 N	715.92 E	11427.98	1.38
20143.00	90.37	359.76	10115.67	11510.48 N	715.85 E	11509.97	0.58
20160.00	90.37	359.76	10115.56	11527.48 N	715.78 E	11526.97	0.01

CALCULATION BASED ON MINIMUM CURVATURE METHOD

**SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT**

**VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 359.96 DEGREES (GRID)
A TOTAL CORRECTION OF 6.79 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 20160.00 FEET
IS 11549.68 FEET ALONG 3.55 DEGREES (GRID)**

**SURVEYS CALCULATED USING SHORT COLLAR METHOD.
WELL ASSUMED VERTICAL AT WELLHEAD.
SURVEY FROM 2765' MD TO 20160' MD PROVIDED BY SPERRY DRILLING.
SURVEY AT 20143' MD IS PROJECTED TO TD AT 20160' MD.
SPERRY DRILLING ENGINEERS: CHAD HAGUE, MARY DEADY**