

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: (575) 748-1283 Fax: (575) 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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT
As-Drilled

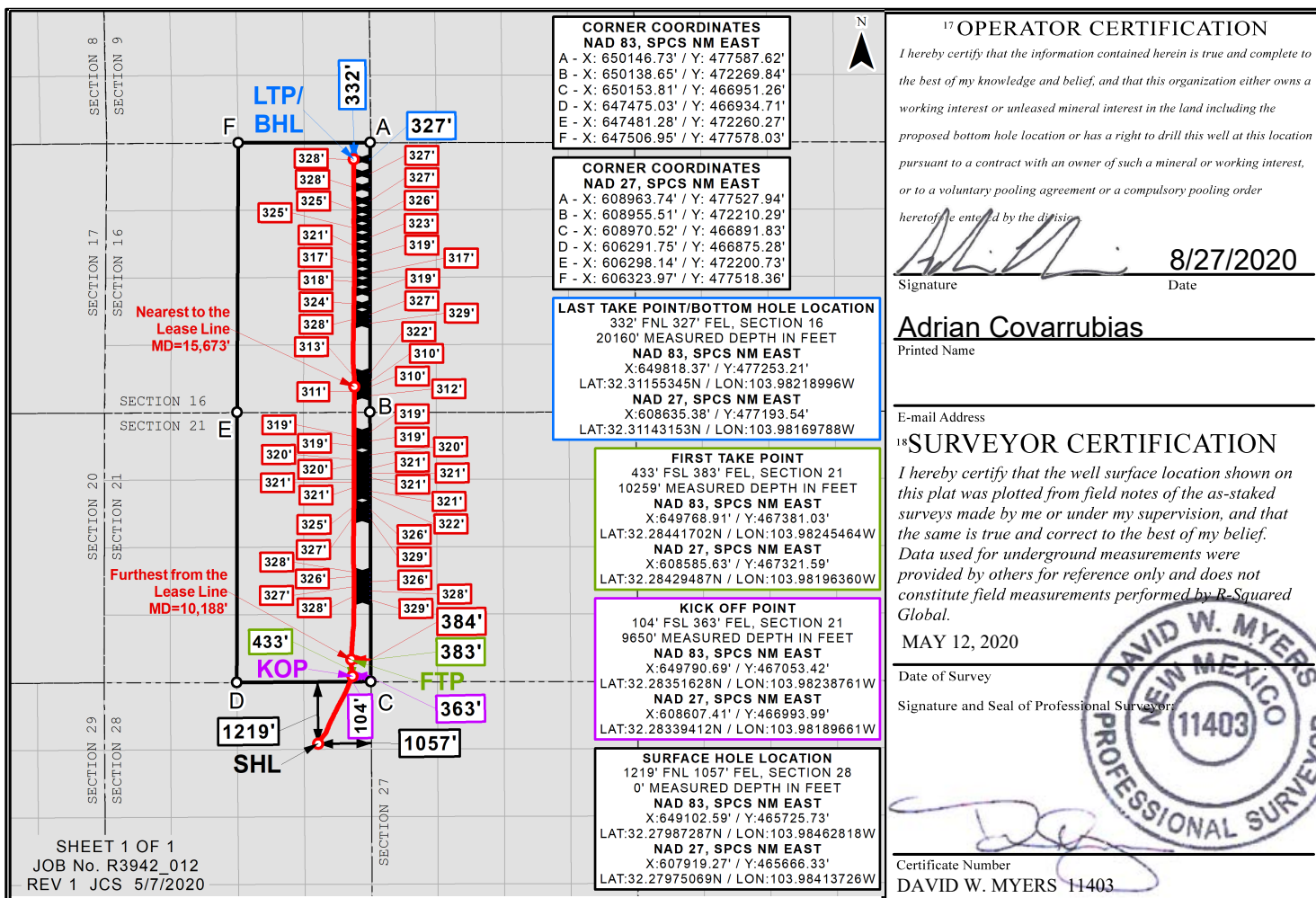
WELL LOCATION AND ACREAGE DEDICATION AS-DRILLED PLAT

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.						

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	90.25	0.47	10093.73	2924.73 N	717.68 E	2924.27	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