

DEVIATION REPORT

Name of Company	Address			
MERIDIAN OIL INC.	PO Box 4289, Farmington, NM			
Lease Name & Number	Unit Letter	Sec.	Twn	Rge
Black Diamond Com 20 #1	120'FNL, 120'FWL	20	30N	15W
Pool and Formation	County			
Horseshoe Gallup Ext.	San Juan			

Depth	Deviation	Depth	Deviation
(Ft.)	(Degrees)	(Ft.)	(Degrees)

see attached

RECEIVED
NOV 3 1993
OIL CON. DIV.
DIST. 3

I, the undersigned, certify that I, acting in my capacity as Petroleum Engineer for **MERIDIAN OIL INC.**, am authorized by said Company to make this report; and that this report was prepared under my supervision and directions, and that the facts stated herein are true to the best of my knowledge and belief.

L.R. Baul

Subscribed and sworn to before me this 1st day of November 1993.

James A. Bradfield
Notary Public in and for San Juan County, New Mexico
My commission expires August 17, 1996.

Geoservices-Directional

Deviation report

Well : B_OMD #20-1 (ST#1)
 Field : HORSE SHOE GALLUP
 Company : MERIDIAN OIL CO.

Coordinates RECTANGULAR

Well head : Target : Impact :
 X = 0.0 X = 0.0 X = 0.0
 Y = 0.0 Y = 0.0 Y = 0.0
 Z = 0.0 Z = 0.0 Z = 0.0
 Horizontal displacement 0.00 ft
 Total vertical depth 0.00 ft Kick off point 3552.00 ft
 Magnetic declination 11.50 deg Convergence 0.00 deg
 Horizontal projection computed in azimuth North 145.00 deg. (SE 35.00)

Surv no	Measured depth feet	Drift angle degree	Azimuth magnt. degree	Azimuth geogr. degree	Vertical depth feet	Horizntl prjction feet	Horizntl displcmt feet	Average Az(geo) degree	.Relative East/West feet	Coordinates. Nor/South feet	Dog dleg	leg dlgh	grBu
													/100ft
Computation method : Radius of curvature													
1	0.0	0.00	193.50	205.00	0.0	0.0	0.0	90.00	0.0 E	0.0 N	0.0	0.0	1000.0
2	486.0	0.37	193.50	205.00	486.0	0.8	1.6	205.00	0.7 W	1.4 S	0.1	0.0	0.1
3	983.0	0.25	185.50	197.00	983.0	2.3	4.3	202.48	1.6 W	3.9 S	0.0	-0.0	-0.0
4	1472.0	1.25	245.00	256.50	1471.9	3.2	10.2	216.82	6.1 W	8.1 S	0.2	0.2	0.2
5	1967.0	0.62	239.00	250.50	1966.9	0.6	17.3	233.00	13.8 W	10.4 S	0.1	-0.0	-0.1
6	2465.0	1.87	287.50	299.00	2464.7	-6.3	26.1	248.54	24.3 W	9.5 S	0.3	0.2	0.3
7	2962.0	2.12	287.50	299.00	2961.4	-21.8	39.4	268.31	39.4 W	1.2 S	0.1	0.0	0.1
8	3460.0	1.37	266.00	277.50	3459.2	-34.0	53.9	273.79	53.7 W	3.6 N	0.2	-0.1	-0.2
9	3506.0	1.62	264.00	275.50	3505.2	-34.8	55.1	273.85	54.9 W	3.7 N	0.5	-0.1	0.5
10	3538.0	1.25	266.00	277.50	3537.2	-35.3	55.9	273.89	55.7 W	3.8 N	1.2	0.2	-1.2
11	3569.0	1.50	191.00	202.50	3568.2	-35.4	56.4	273.49	56.3 W	3.4 N	5.4	-5.8	0.8
12	3601.0	4.50	154.00	165.50	3600.1	-34.1	56.5	271.82	56.4 W	1.8 N	10.7	-6.1	9.4
13	3631.0	7.80	142.50	154.00	3630.0	-31.0	55.3	268.74	55.3 W	1.2 S	11.7	-4.1	11.0
14	3663.0	11.10	139.00	150.50	3661.5	-25.7	53.2	263.68	52.9 W	5.9 S	10.4	-1.8	10.3
15	3694.0	14.50	137.00	148.50	3691.7	-18.9	50.8	256.59	49.4 W	11.8 S	11.0	-1.4	11.0
16	3726.0	17.80	135.50	147.00	3722.5	-10.0	48.6	246.62	44.6 W	19.3 S	10.4	-1.3	10.3
17	3757.0	20.80	135.50	147.00	3751.7	0.2	48.0	234.47	39.1 W	27.9 S	9.6	0.0	9.7
18	3788.0	23.90	134.00	145.50	3780.4	12.0	49.8	220.79	32.5 W	37.7 S	10.2	-1.8	10.0
19	3820.0	27.10	133.50	145.00	3809.3	25.8	54.9	206.72	24.7 W	49.0 S	10.0	-0.7	10.0
20	3851.0	30.50	134.00	145.50	3836.4	40.7	63.4	194.77	16.2 W	61.3 S	11.0	0.8	11.0
21	3882.0	34.10	134.50	146.00	3862.6	57.3	75.3	185.21	6.8 W	75.0 S	11.6	0.9	11.6
22	3912.0	37.60	135.00	146.50	3886.9	74.8	89.6	178.13	2.9 E	89.6 S	11.7	1.0	11.7
23	3944.0	41.10	136.00	147.50	3911.7	95.1	107.5	172.53	14.0 E	106.6 S	11.1	2.0	10.9
24	3976.0	44.80	136.00	147.50	3935.1	116.9	127.6	168.39	25.7 E	125.0 S	11.5	0.0	11.6
25	4008.0	48.60	135.50	147.00	3957.0	140.2	149.5	165.17	38.3 E	144.6 S	11.9	-1.1	11.9
26	4040.0	52.80	135.00	146.50	3977.3	164.9	173.2	162.58	51.9 E	165.3 S	13.2	-1.2	13.1
27	4071.0	56.60	134.50	146.00	3995.2	190.2	197.6	160.52	65.9 E	186.3 S	12.3	-1.3	12.3
28	4102.0	60.80	134.00	145.50	4011.3	216.7	223.3	158.79	80.8 E	208.2 S	13.6	-1.4	13.5
29	4134.0	64.80	133.00	144.50	4025.9	245.1	251.0	157.24	97.1 E	231.5 S	12.8	-2.8	12.5
30	4165.0	68.60	133.00	144.50	4038.2	273.6	278.9	155.95	113.7 E	254.7 S	12.3	0.0	12.3
31	4196.0	72.80	133.00	144.50	4048.4	302.9	307.6	154.87	130.7 E	278.5 S	13.5	0.0	13.5
32	4227.0	76.90	133.00	144.50	4056.5	332.8	337.1	153.95	148.0 E	302.8 S	13.2	0.0	13.2
33	4259.0	81.40	132.50	144.00	4062.6	364.2	368.1	153.13	166.4 E	328.3 S	14.1	-1.5	14.1
34	4290.0	85.10	132.50	144.00	4066.2	395.0	398.5	152.43	184.5 E	353.2 S	11.9	0.0	11.9
35	4390.0	87.62	132.50	144.00	4072.6	494.7	497.4	150.74	243.1 E	434.0 S	2.5	0.0	2.5

Genservices-Directional

Deviation report

Well : B_DMD #20-1 (ST#1)
 Field : HORSE SHOE GALLUP
 Company : MERIDIAN OIL CO.

Surv no	Measured depth feet	Drift angle degree	Azimut magnt. degree	Azimut geogr. degree	Vertical depth feet	Horizntl prjction feet	Horizntl displcmt feet	Average Az(geo) degree	.Relative Coordinates.		Dog leg			
									East/West feet	Nor/South feet	dleg	dlgH	grBu	

Computation method : Radius of curvature														
36	4423.0	88.25	134.00	145.50	4073.8	527.7	530.2	150.37	262.2 E	460.9 S	4.9	4.5	1.9	
37	4455.0	87.25	134.00	145.50	4075.0	559.7	562.1	150.09	280.3 E	487.3 S	3.1	0.0	-3.1	
38	4487.0	87.12	135.50	147.00	4076.6	591.6	594.0	149.89	298.0 E	513.8 S	4.7	4.7	-0.4	
39	4520.0	88.25	135.50	147.00	4077.9	624.6	626.9	149.73	316.0 E	541.5 S	3.4	0.0	3.4	
40	4552.0	89.00	135.50	147.00	4078.7	656.6	658.9	149.60	333.4 E	568.3 S	2.3	0.0	2.3	
41	4585.0	89.12	135.50	147.00	4079.2	689.5	691.9	149.48	351.4 E	596.0 S	0.4	0.0	0.4	
42	4617.0	88.25	135.00	146.50	4080.0	721.5	723.8	149.36	368.9 E	622.7 S	3.1	-1.6	-2.7	
43	4649.0	86.87	134.50	146.00	4081.3	753.5	755.7	149.23	386.7 E	649.3 S	4.6	-1.6	-4.3	
44	4681.0	86.25	134.50	146.00	4083.2	785.4	787.6	149.09	404.5 E	675.8 S	1.9	0.0	-1.9	
45	4714.0	87.00	134.50	146.00	4085.2	818.4	820.5	148.97	423.0 E	703.1 S	2.3	0.0	2.3	
46	4746.0	88.12	133.50	145.00	4086.5	850.3	852.4	148.84	441.1 E	729.5 S	4.7	-3.1	3.5	
47	4779.0	88.87	133.50	145.00	4087.4	883.3	885.4	148.70	460.0 E	756.5 S	2.3	0.0	2.3	
48	4806.0	88.37	133.50	145.00	4088.1	910.3	912.3	148.59	475.5 E	778.6 S	1.9	0.0	-1.9	
49	4846.0	87.25	132.50	144.00	4089.6	950.3	952.2	148.42	498.7 E	811.1 S	3.7	-2.5	-2.8	
50	4876.0	87.25	134.50	146.00	4091.0	980.2	982.1	148.31	515.9 E	835.7 S	6.6	6.7	0.0	
51	4909.0	84.25	135.00	146.50	4093.5	1013.1	1015.0	148.25	534.2 E	863.0 S	9.2	1.5	-9.1	
52	4940.0	82.62	134.50	146.00	4097.0	1043.9	1045.7	148.19	551.3 E	888.6 S	5.5	-1.6	-5.3	
53	4973.0	82.75	134.00	145.50	4101.2	1076.6	1078.4	148.11	569.7 E	915.7 S	1.5	-1.5	0.4	
54	5005.0	82.75	133.50	145.00	4105.3	1108.4	1110.2	148.03	587.8 E	941.8 S	1.5	-1.5	0.0	
55	5038.0	82.50	135.00	146.50	4109.5	1141.1	1142.9	147.97	606.2 E	968.8 S	4.5	4.5	-0.8	
56	5070.0	84.00	134.50	146.00	4113.3	1172.9	1174.6	147.92	623.9 E	995.3 S	4.9	-1.6	4.7	
57	5090.0	85.13	135.00	146.50	4115.1	1192.8	1194.5	147.89	634.9 E	1011.8 S	6.2	2.5	5.7	
58	5134.0	86.25	135.00	146.50	4118.5	1236.7	1238.4	147.84	659.1 E	1048.4 S	2.5	0.0	2.5	
59	5167.0	86.00	135.50	147.00	4120.7	1269.6	1271.3	147.81	677.2 E	1075.9 S	1.7	1.5	-0.8	
60	5199.0	85.87	135.00	146.50	4123.0	1301.5	1303.2	147.79	694.7 E	1102.6 S	1.6	-1.6	-0.4	
61	5232.0	85.75	135.50	147.00	4125.4	1334.4	1336.1	147.76	712.7 E	1130.1 S	1.5	1.5	-0.4	
62	5264.0	85.87	135.50	147.00	4127.7	1366.3	1368.0	147.74	730.1 E	1156.9 S	0.4	0.0	0.4	
63	5296.0	85.75	135.50	147.00	4130.0	1398.2	1399.9	147.73	747.5 E	1183.7 S	0.4	0.0	-0.4	
64	5328.0	86.12	135.50	147.00	4132.3	1430.1	1431.9	147.71	764.9 E	1210.4 S	1.1	0.0	1.2	
65	5362.0	86.37	135.50	147.00	4134.5	1464.0	1465.8	147.69	783.4 E	1238.9 S	0.7	0.0	0.7	
66	5393.0	86.50	135.50	147.00	4136.5	1494.9	1496.7	147.68	800.2 E	1264.9 S	0.4	0.0	0.4	
67	5422.0	86.75	136.50	148.00	4138.2	1523.8	1525.7	147.68	815.8 E	1289.3 S	3.5	3.4	0.9	
68	5456.0	87.75	137.50	149.00	4139.8	1557.7	1559.6	147.70	833.5 E	1318.2 S	4.1	2.9	2.9	
69	5487.0	89.25	138.00	149.50	4140.6	1588.6	1590.6	147.73	849.3 E	1344.9 S	5.1	1.6	4.8	
70	5519.0	89.25	138.00	149.50	4141.0	1620.5	1622.6	147.76	865.6 E	1372.4 S	0.0	0.0	0.0	
71	5551.0	89.25	138.00	149.50	4141.4	1652.4	1654.6	147.79	881.8 E	1400.0 S	0.0	0.0	0.0	
72	5584.0	89.37	138.50	150.00	4141.8	1685.3	1687.5	147.83	898.5 E	1428.5 S	1.5	1.5	0.4	
73	5615.0	89.62	138.00	149.50	4142.1	1716.2	1718.5	147.87	914.1 E	1455.3 S	1.8	-1.6	0.8	
74	5648.0	89.62	138.00	149.50	4142.3	1749.1	1751.5	147.90	930.8 E	1483.7 S	0.0	0.0	0.0	
75	5680.0	87.87	138.00	149.50	4143.0	1781.0	1783.5	147.93	947.1 E	1511.3 S	5.4	0.0	-5.5	
76	5712.0	87.75	137.50	149.00	4144.3	1812.9	1815.5	147.95	963.4 E	1538.8 S	1.6	-1.6	-0.4	
77	5746.0	87.75	136.00	147.50	4145.6	1846.8	1849.4	147.96	981.3 E	1567.6 S	4.4	-4.4	0.0	
78	5778.0	89.12	136.50	148.00	4146.5	1878.7	1881.4	147.95	998.3 E	1594.7 S	4.5	1.6	4.3	

Geoservices-Directional

Deviation report

Well : B_DMD #20-1 (ST#1)
 Field : HORSE SHOE GALLUP
 Company : MERIDIAN OIL CO.

Surv no	Measured depth feet	Drift angle degree	Azimuth magnt. degree	Azimuth geogr. degree	Vertical depth feet	Horizntl prjction feet	Horizntl displcmt feet	Average Az(geo) degree	.Relative Coordinates. East/West feet Nor/South feet		Dog leg dleg dlgH grBu /100ft		

Computation method : Radius of curvature													
79	5809.0	89.50	136.50	148.00	4146.8	1909.7	1912.4	147.95	1014.8 E	1621.0 S	1.2	0.0	1.2
80	5839.0	89.50	136.00	147.50	4147.1	1939.6	1942.4	147.95	1030.8 E	1646.4 S	1.7	-1.7	0.0
81	5870.0	88.62	136.00	147.50	4147.6	1970.6	1973.4	147.94	1047.4 E	1672.5 S	2.8	0.0	-2.8
82	5902.0	88.75	136.00	147.50	4148.3	2002.6	2005.4	147.94	1064.6 E	1699.5 S	0.4	0.0	0.4
83	5932.0	89.12	137.00	148.50	4148.9	2032.5	2035.4	147.94	1080.5 E	1724.9 S	3.5	3.3	1.2
84	5964.0	89.37	136.00	147.50	4149.3	2064.5	2067.4	147.94	1097.5 E	1752.0 S	3.2	-3.1	0.8
85	5994.0	89.75	136.00	147.50	4149.6	2094.4	2097.4	147.93	1113.6 E	1777.3 S	1.3	0.0	1.3
86	6025.0	89.75	136.00	147.50	4149.7	2125.4	2128.4	147.92	1130.2 E	1803.5 S	0.0	0.0	0.0
87	6056.0	90.00	135.50	147.00	4149.8	2156.4	2159.4	147.91	1147.0 E	1829.6 S	1.8	-1.6	0.8
88	6087.0	90.25	136.00	147.50	4149.7	2187.4	2190.4	147.91	1163.8 E	1855.6 S	1.8	1.6	0.8
89	6118.0	90.50	134.50	146.00	4149.5	2218.4	2221.4	147.89	1180.8 E	1881.6 S	4.9	-4.8	0.8
90	6149.0	90.75	135.50	147.00	4149.2	2249.3	2252.4	147.87	1197.9 E	1907.4 S	3.3	3.2	0.8
91	6181.0	90.62	136.00	147.50	4148.8	2281.3	2284.4	147.86	1215.2 E	1934.3 S	1.6	1.6	-0.4
92	6213.0	91.12	136.00	147.50	4148.3	2313.3	2316.4	147.86	1232.4 E	1961.3 S	1.5	0.0	1.6
93	6243.0	90.37	136.50	148.00	4147.9	2343.2	2346.4	147.86	1248.4 E	1986.7 S	3.0	1.7	-2.5
94	6275.0	89.37	136.50	148.00	4148.0	2375.2	2378.4	147.86	1265.4 E	2013.8 S	3.1	0.0	-3.1
95	6306.0	89.75	136.00	147.50	4148.2	2406.2	2409.4	147.86	1281.9 E	2040.0 S	2.0	-1.6	1.2
96	6338.0	90.12	136.50	148.00	4148.2	2438.1	2441.4	147.85	1299.0 E	2067.1 S	1.9	1.6	1.2
97	6370.0	88.50	136.50	148.00	4148.6	2470.1	2473.4	147.86	1315.9 E	2094.2 S	5.1	0.0	-5.1
98	6401.0	86.50	138.00	149.50	4150.0	2501.0	2504.3	147.87	1332.0 E	2120.7 S	8.0	4.8	-6.5
99	6433.0	86.12	138.00	149.50	4152.0	2532.8	2536.2	147.89	1348.2 E	2148.2 S	1.2	0.0	-1.2
100	6464.0	86.62	137.00	148.50	4154.0	2563.7	2567.2	147.90	1364.1 E	2174.7 S	3.6	-3.2	1.6
101	6496.0	87.13	137.50	149.00	4155.7	2595.6	2599.1	147.91	1380.7 E	2202.1 S	2.2	1.6	1.6
102	6528.0	87.25	137.50	149.00	4157.3	2627.4	2631.1	147.93	1397.2 E	2229.4 S	0.4	0.0	0.4
103	6559.0	87.25	138.00	149.50	4158.8	2658.3	2662.0	147.94	1413.0 E	2256.1 S	1.6	1.6	0.0
104	6623.0	88.25	138.00	149.50	4161.3	2722.1	2726.0	147.98	1445.5 E	2311.2 S	1.5	0.0	1.6
105	6655.0	88.37	137.50	149.00	4162.3	2754.0	2757.9	147.99	1461.8 E	2338.6 S	1.6	-1.6	0.4
106	6687.0	88.50	137.50	149.00	4163.1	2785.9	2789.9	148.00	1478.3 E	2366.1 S	0.4	0.0	0.4
107	6718.0	87.12	138.00	149.50	4164.3	2816.8	2820.9	148.02	1494.1 E	2392.7 S	4.7	1.6	-4.5
108	6750.0	86.87	138.00	149.50	4166.0	2848.6	2852.8	148.03	1510.4 E	2420.2 S	0.7	0.0	-0.8
109	6781.0	86.62	138.50	150.00	4167.8	2879.5	2883.8	148.05	1525.9 E	2447.0 S	1.8	1.6	-0.8
110	6813.0	87.00	137.50	149.00	4169.5	2911.3	2915.7	148.07	1542.2 E	2474.5 S	3.3	-3.1	1.2
111	6842.0	87.37	138.00	149.50	4171.0	2940.2	2944.7	148.08	1557.0 E	2499.4 S	2.1	1.7	1.3
112	6874.0	86.50	138.00	149.50	4172.7	2972.1	2976.6	148.09	1573.2 E	2526.9 S	2.7	0.0	-2.7
113	6904.0	86.00	138.00	149.50	4174.6	3001.9	3006.5	148.11	1588.4 E	2552.7 S	1.7	0.0	-1.7
114	6935.0	84.75	138.50	150.00	4177.1	3032.7	3037.4	148.13	1603.9 E	2579.4 S	4.3	1.6	-4.0
115	6965.0	84.00	139.00	150.50	4180.1	3062.4	3067.3	148.15	1618.8 E	2605.3 S	3.0	1.7	-2.5
116	6996.0	84.00	139.00	150.50	4183.3	3093.1	3098.1	148.17	1633.9 E	2632.2 S	0.0	0.0	0.0
117	7028.0	83.87	139.50	151.00	4186.7	3124.8	3129.9	148.20	1649.5 E	2659.9 S	1.6	1.6	-0.4
118	7060.0	84.25	139.50	151.00	4190.0	3156.4	3161.6	148.22	1664.9 E	2687.8 S	1.2	0.0	1.2
119	7092.0	85.75	140.50	152.00	4192.8	3188.1	3193.5	148.26	1680.1 E	2715.8 S	5.6	3.1	4.7
120	7123.0	87.87	141.50	153.00	4194.5	3218.8	3224.3	148.30	1694.4 E	2743.2 S	7.5	3.2	6.8
121	7155.0	87.37	142.00	153.50	4195.8	3250.4	3256.2	148.35	1708.8 E	2771.8 S	2.2	1.6	-1.6

Geoservices-Directional

Deviation report

Well : B_DMD #20-1 (ST#1)
 Field : HORSE SHOE GALLUP
 Company : MERIDIAN OIL CO.

Surv no	Measured depth feet	Drift angle degree	Azimuth magnt. degree	Azimuth geogr. degree	Vertical depth feet	Horizntl prjction feet	Horizntl displcmt feet	Average Az(geo) degree	.Relative Coordinates.		Dog leg		
									East/West feet	Nor/South feet	dleg	dlgH /100ft	grBu
Computation method : Radius of curvature													
122	7185.0	86.50	142.50	154.00	4197.5	3280.0	3286.0	148.40	1722.1 E	2798.6 S	3.3	1.7	-2.9
123	7216.0	87.75	142.50	154.00	4199.0	3310.6	3316.8	148.45	1735.6 E	2826.5 S	4.0	0.0	4.0
124	7246.0	88.25	142.50	154.00	4200.1	3340.2	3346.7	148.50	1748.8 E	2853.4 S	1.7	0.0	1.7
125	7277.0	87.75	142.50	154.00	4201.1	3370.8	3377.5	148.55	1762.4 E	2881.3 S	1.6	0.0	-1.6
126	7309.0	87.88	143.00	154.50	4202.4	3402.4	3409.3	148.60	1776.3 E	2910.1 S	1.6	1.6	0.4
127	7341.0	90.25	143.00	154.50	4202.9	3434.0	3441.2	148.66	1790.0 E	2938.9 S	7.4	0.0	7.4
128	7372.0	93.75	143.00	154.50	4201.8	3464.5	3472.0	148.71	1803.4 E	2966.9 S	11.3	0.0	11.3
129	7404.0	94.50	143.50	155.00	4199.5	3496.0	3503.7	148.76	1817.0 E	2995.8 S	2.8	1.6	2.3
130	7435.0	95.00	143.50	155.00	4196.9	3526.4	3534.4	148.82	1830.0 E	3023.8 S	1.6	0.0	1.6
131	7467.0	95.62	144.00	155.50	4194.0	3557.7	3566.1	148.87	1843.4 E	3052.7 S	2.5	1.6	1.9
132	7517.0	95.50	143.50	155.00	4189.1	3606.7	3615.5	148.96	1864.2 E	3097.9 S	1.0	-1.0	-0.2
133	7560.0	94.98	143.50	155.00	4185.2	3648.9	3658.1	149.03	1882.3 E	3136.7 S	1.2	0.0	-1.2