

LEAM Drilling System

SURVEY REPORT

Company: LOUIS DREYFUS NATURAL GAS Field: EDDY COUNTY, NEW MEXICO Site: MCGRUDER "13" FED COM #1 Well: MC13FC1 Wellpath: MFC13-SVY	Date: 1/16/98 Co-ordinate(NE) Reference: Site: MCGRUDER "13" FED COM #1 Vertical (TVD) Reference: SITE 0.0 above Mean Sea Level Section (VS) Reference: Slot (0.0E,0.0N,75.0Azi) Survey Calculation Method: Minimum Curvature	Page: 1 Time: 11:27:43
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Survey: MFC13-SVY	Start Date: 12/24/97
Company: Tool:	

Well: MC13FC1

Originating From:	0.0 ft +N/-S 0.0 ft +E/-W	Map Easting : 0.00 ft Map Northing: 0.00 ft	
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Survey												
MD ft	Incl deg	Azmi deg	TVD ft	VS ft	N/S ft	E/W ft	DLS d/100ft	Build d/100ft	Turn d/100ft	ClsD ft	ClsA deg	
5000.0	0.80	226.78	4999.1	13.1	41.3	2.5	0.00	0.00	0.00	41.4	3.45	
5160.0	0.75	14.00	5159.1	12.7	41.6	1.9	0.93	-0.03	92.01	41.6	2.66	
5255.0	2.80	72.70	5254.1	15.3	42.9	4.3	2.63	2.16	61.79	43.1	5.72	
5346.0	2.30	53.00	5345.0	19.2	44.7	7.9	1.10	-0.55	-21.65	45.3	10.00	
5440.0	4.50	56.20	5438.8	24.4	47.8	12.4	2.35	2.34	3.40	49.4	14.58	
5534.0	6.80	63.30	5532.4	33.4	52.4	20.5	2.55	2.45	7.55	56.3	21.35	
5629.0	9.10	73.70	5626.5	46.4	57.0	32.7	2.85	2.42	10.95	65.8	29.85	
5724.0	11.30	72.30	5720.0	63.2	62.0	48.8	2.33	2.32	-1.47	78.9	38.22	
5817.0	13.30	64.30	5810.8	82.8	69.4	67.1	2.82	2.15	-8.60	96.5	44.05	
5910.0	14.40	63.90	5901.1	104.7	79.1	87.1	1.19	1.18	-0.43	117.7	47.77	
6001.0	17.00	63.10	5988.7	128.8	90.1	109.2	2.87	2.86	-0.88	141.6	50.47	
6094.0	17.40	64.10	6077.6	155.8	102.3	133.8	0.53	0.43	1.08	168.5	52.59	
6156.0	19.70	62.10	6136.3	175.1	111.3	151.4	3.85	3.71	-3.23	187.9	53.68	
6249.0	21.70	60.30	6223.3	207.0	127.1	180.2	2.26	2.15	-1.94	220.5	54.79	
6343.0	24.10	63.20	6309.9	242.6	144.4	212.4	2.82	2.55	3.09	256.8	55.79	
6434.0	25.10	64.20	6392.7	279.8	161.2	246.4	1.19	1.10	1.10	294.4	56.81	
6525.0	25.30	64.40	6475.0	317.8	178.0	281.3	0.24	0.22	0.22	332.9	57.68	
6619.0	27.30	65.60	6559.3	358.9	195.6	319.0	2.20	2.13	1.28	374.2	58.49	
6712.0	25.00	65.60	6642.7	399.3	212.5	356.4	2.47	-2.47	0.00	414.9	59.19	
6793.0	21.30	67.40	6717.2	430.8	225.2	385.5	4.65	-4.57	2.22	446.5	59.71	
6886.0	18.70	72.00	6804.6	462.4	236.3	415.3	3.27	-2.80	4.95	477.8	60.36	
6991.0	21.10	77.80	6903.3	498.1	245.5	449.8	2.96	2.29	5.52	512.4	61.37	
7113.0	25.80	69.90	7015.2	546.5	259.3	496.2	4.63	3.85	-6.48	559.9	62.41	
7207.0	26.80	73.80	7099.5	588.1	272.2	535.8	2.12	1.06	4.15	601.0	63.07	
7299.0	27.70	72.20	7181.3	630.2	284.6	576.1	1.26	0.98	-1.74	642.5	63.71	
7361.0	26.70	70.90	7236.4	658.5	293.5	603.0	1.88	-1.61	-2.10	670.6	64.04	
7453.0	26.30	74.30	7318.8	699.5	305.8	642.1	1.71	-0.43	3.70	711.2	64.53	
7575.0	31.00	71.30	7425.8	757.9	323.2	697.9	4.03	3.85	-2.46	769.1	65.15	
7671.0	30.00	72.60	7508.5	806.5	338.3	744.3	1.25	-1.04	1.35	817.5	65.56	
7764.0	29.10	73.30	7589.4	852.4	351.8	788.1	1.04	-0.97	0.75	863.0	65.95	
7858.0	27.70	72.90	7672.1	897.1	364.7	830.9	1.50	-1.49	-0.43	907.4	66.30	
7952.0	28.60	75.00	7755.0	941.4	377.0	873.5	1.42	0.96	2.23	951.4	66.66	
8077.0	27.90	74.90	7865.1	1000.6	392.4	930.6	0.56	-0.56	-0.08	1010.0	67.14	
8202.0	25.20	77.20	7976.9	1056.4	405.9	984.8	2.31	-2.16	1.84	1065.2	67.60	
8327.0	25.10	76.80	8090.1	1109.5	417.8	1036.6	0.16	-0.08	-0.32	1117.6	68.05	
8419.0	24.40	79.40	8173.6	1148.0	425.8	1074.3	1.41	-0.76	2.83	1155.6	68.38	
8519.0	22.90	80.00	8265.2	1187.9	433.0	1113.7	1.52	-1.50	0.60	1194.9	68.76	
8632.0	20.10	89.20	8370.4	1228.7	437.0	1154.8	3.87	-2.48	8.14	1234.7	69.27	
8695.0	20.90	89.80	8429.4	1250.0	437.2	1176.9	1.31	1.27	0.95	1255.5	69.62	
8822.0	20.80	103.00	8548.1	1291.8	432.2	1221.5	3.69	-0.08	10.39	1295.7	70.51	
8918.0	20.70	95.90	8637.9	1322.7	426.7	1255.0	2.62	-0.10	-7.40	1325.6	71.22	
9043.0	24.10	89.20	8753.5	1368.1	424.7	1302.5	3.40	2.72	-5.36	1370.0	71.94	
9139.0	23.00	92.70	8841.5	1405.0	424.1	1340.9	1.85	-1.15	3.65	1406.3	72.45	