



SURVEY CALCULATION PROGRAM

DIRECTIONAL DRILLING CONTRACTORS, LLC.

V1.00.02

OPERATOR:	GRUY PETROLEUM MANAGEMENT	Surveyor(s):	BYRON FRANKLIN	RIG: PATTERSON # 79
WELL:	STATE 14 COM # 2			
LOCATION:	EDDY COUNTY, NEW MEXICO			
JOB NUMBER:	MID - GY - 1076			
API NUMBER:				
FIELD:	TURKEY TRACK (MORROW)			
SURVEY DATE(S):	AUGUST 6, 2001			
COMMENTS:				
<div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center;">RECEIVED OCD - ARTESIA AUG 23 2002</p> </div>				

FACE RECORDING GYRO SURVEY FROM SURFACE TO 6,900 FEET
MEASURED DEPTH. ALL DIRECTIONS ARE REFERENCED TO GRID NORTH.

DATE: 08/21/01 TIME: 4:41 PM

MINIMUM CURVATURE CALCULATIONS(SPE-3382)

SVY NUM	MD	INC	TRUE AZM	TVD	SECT	N-S	E-W	PROPOSED DIRECTION		CLOSURE DIR (DEG AZ)	CLOSURE DISTANCE (FEET)	TARGET TRACKING	
								DLS/100	DLS/100			ABOVE(+) BELOW(-)	RIGHT(+) LEFT(-)
1	200.0	0.10	347.54	200.00	-0.17	0.17	-0.04	0.05	150.29	347.54	0.17	-200.0	-0.1
2	400.0	0.34	356.65	400.00	-0.87	0.93	-0.11	0.12		353.28	0.94	-400.0	-0.4
3	600.0	0.41	279.81	600.00	-1.85	1.65	-0.85	0.23		332.72	1.85	-600.0	-0.1
4	800.0	0.32	262.91	799.99	-2.52	1.70	-2.11	0.07		308.88	2.71	-800.0	1.0
5	1000.0	1.14	196.98	999.98	-1.37	-0.27	-3.24	0.53		265.22	3.26	-1000.0	3.0
6	1200.0	1.17	86.95	1199.95	0.91	-2.07	-1.79	0.95		220.85	2.73	-1200.0	2.6
7	1400.0	1.00	287.55	1399.94	0.54	-1.43	-1.41	1.07		224.61	2.01	-1399.9	1.9
8	1600.0	0.99	329.18	1599.91	-2.47	0.58	-3.96	0.35		278.32	4.00	-1599.9	3.2
9	1800.0	1.09	235.03	1799.89	-4.02	0.97	-6.40	0.76		278.64	6.48	-1799.9	5.1
10	2000.0	1.33	264.12	1999.85	-4.78	-0.36	-10.27	0.33		268.02	10.28	-1999.8	9.1
11	2200.0	0.81	334.70	2199.82	-7.13	0.69	-13.19	0.65		272.97	13.20	-2199.8	11.1
12	2400.0	0.89	264.39	2399.80	-9.17	1.81	-15.34	0.49		276.74	15.44	-2399.8	12.4
13	2600.0	1.07	305.18	2599.78	-11.50	2.74	-18.41	0.50		278.45	18.61	-2599.8	14.6
14	2800.0	0.96	258.36	2799.75	-13.71	3.47	-21.58	0.41		279.15	21.85	-2799.7	17.0
15	3000.0	1.05	241.17	2999.72	-14.26	2.25	-24.82	0.16		275.18	24.92	-2999.7	20.4
16	3200.0	0.90	50.26	3199.71	-14.56	2.37	-25.22	0.97		275.37	25.33	-3199.7	20.7
17	3400.0	1.36	17.64	3399.67	-16.44	5.64	-23.29	0.39		283.61	23.96	-3399.7	17.4



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MINIMUM CURVATURE CALCULATIONS(SPE-3362)

SVY NUM	MD	INC	TRUE AZM	TVD	SECT	N-S	E-W	PROPOSED DIRECTION		CLOSURE DIR (DEG AZ)	CLOSURE DISTANCE (FEET)	TARGET TRACKING TO CENTER	
								DLS/100	150.29			ABOVE(+) BELOW(-)	RIGHT(+) LEFT(-)
18	3600.0	1.21	99.15	3599.63	-16.72	7.56	-20.49	0.84	290.27	21.84	14.0	-3599.6	14.0
19	3800.0	1.29	209.88	3799.61	-14.26	5.28	-19.52	1.03	285.12	20.22	14.3	-3799.6	14.3
20	4000.0	1.61	199.42	3999.54	-11.28	0.67	-21.58	0.21	271.79	21.59	18.4	-3999.5	18.4
21	4200.0	1.91	221.54	4199.45	-8.37	-4.47	-24.72	0.37	259.75	25.13	23.7	-4199.5	23.7
22	4400.0	2.17	303.96	4399.36	-10.69	-4.85	-30.08	1.35	260.84	30.46	28.5	-4399.4	28.5
23	4600.0	2.22	224.27	4599.25	-13.02	-5.51	-35.92	1.41	261.28	36.34	33.9	-4599.3	33.9
24	4800.0	2.87	326.99	4799.13	-16.95	-4.08	-41.36	2.00	264.36	41.56	37.9	-4799.1	37.9
25	5000.0	2.67	215.23	4999.01	-19.98	-3.69	-46.77	2.29	265.49	46.92	42.5	-4999.0	42.5
26	5200.0	2.91	216.91	5198.77	-15.99	-11.55	-52.51	0.13	257.59	53.77	51.3	-5198.8	51.3
27	5400.0	3.69	303.41	5398.54	-19.72	-12.07	-60.94	2.28	258.80	62.12	58.9	-5398.5	58.9
28	5600.0	4.26	289.02	5598.06	-31.04	-6.10	-73.33	0.57	265.24	73.58	66.7	-5598.1	66.7
29	5800.0	3.60	341.11	5797.65	-42.80	2.26	-82.39	1.75	271.57	82.42	70.4	-5797.7	70.4
30	6000.0	1.86	172.40	5997.55	-45.96	4.99	-83.99	2.72	273.40	84.14	70.5	-5997.6	70.5
31	6200.0	1.00	102.75	6197.50	-41.77	1.38	-81.86	0.89	270.97	81.87	70.4	-6197.5	70.4
32	6400.0	1.52	285.24	6397.48	-42.47	1.70	-82.72	1.26	271.17	82.74	71.0	-6397.5	71.0
33	6600.0	1.37	346.38	6597.43	-46.64	4.72	-85.84	0.74	273.14	85.97	72.2	-6597.4	72.2
34	6800.0	1.73	62.38	6797.37	-48.83	8.44	-83.73	0.96	275.76	84.15	68.5	-6797.4	68.5
35	6900.0	1.23	153.61	6897.35	-47.70	8.18	-81.92	2.14	275.70	82.32	67.1	-6897.4	67.1

