

30-025-31969

FOR

 * MARATHON OIL CO. *

JOB NUMBER:

WELL NAME: WARN STATE A/C2 #21

See

Unit C

6.185 35E

110 9/16 & 199 3/4

LOCATION: LEA COUNTY, NEW MEXICO

BHL:

935/11 + 2188/11
6-185-350

6-189-350

SURVEY DATE: 6-18-93

SURVEY ENGINEER: MARK COCKRELL

GYRO REFERENCE BEARING: N03-00E

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: N47.03E
SURF. ELEVATION: RKB

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***** DEPTH MEASURED IN FEET *****
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COMMENTS: GYRO 0-5700
PETERSON DRILLING #4
REPORT FOR LOYD JONES

*** THIS DIRECTIONAL SURVEY REPORT IS ***
** CORRECT TO THE BEST OF MY KNOWLEDGE **
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *

Mal Lohmull

COMPANY REPRESENTATIVE

Subscribed and Sworn before me, LaDon Weed, notary for Midland Co. Texas on
July 29 , 1993

Landon Weed

DIG INC.
MIDLAND, TEXAS

JOB NUMBER:

WELL NAME: WARN STATE A/C2 #21

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	INCL	BEARING	COORDINATES		D-LEG /100	D-LEG /CL	STATION DISPLACEMENT	
					LATITUDE	DEPARTURE			DISP.	DIRECTION
100.0	100.00	-0.06	00.50	S35.70E	0.35 S	0.25 E	0.50	0.50	0.44	AT S35.70E
200.0	199.99	-0.12	00.50	S41.43E	1.04 S	0.80 E	0.05	0.05	1.31	AT S37.61E
300.0	299.99	-0.90	01.00	S18.83W	2.19 S	0.81 E	0.87	0.87	2.33	AT S20.19E
400.0	399.97	-2.42	01.25	S00.35W	4.11 S	0.52 E	0.44	0.44	4.14	AT S07.17E
500.0	499.94	-3.72	01.25	S12.35E	6.26 S	0.74 E	0.28	0.28	6.31	AT S06.77E
600.0	599.92	-4.93	01.50	S13.08E	8.60 S	1.27 E	0.25	0.25	8.70	AT S08.42E
700.0	699.89	-6.16	01.25	S10.82E	10.95 S	1.77 E	0.26	0.26	11.09	AT S09.20E
800.0	799.86	-7.33	01.25	S10.57E	13.09 S	2.18 E	0.01	0.01	13.27	AT S09.45E
900.0	899.84	-8.42	01.25	S15.30E	15.22 S	2.67 E	0.10	0.10	15.45	AT S09.94E
1000.0	999.81	-9.68	01.50	S08.03E	17.56 S	3.14 E	0.30	0.30	17.84	AT S10.13E
1100.0	1099.77	-11.31	01.75	S07.78E	20.37 S	3.53 E	0.25	0.25	20.68	AT S09.82E
1200.0	1199.71	-13.18	02.25	S12.52E	23.80 S	4.16 E	0.53	0.53	24.16	AT S09.91E
1300.0	1299.63	-15.65	02.25	S05.63W	27.67 S	4.39 E	0.71	0.71	28.02	AT S09.02E
1400.0	1399.55	-19.00	02.50	S16.77W	31.71 S	3.57 E	0.52	0.52	31.91	AT S06.42E
1500.0	1499.46	-22.74	02.25	S27.92W	35.54 S	2.02 E	0.52	0.52	35.59	AT S03.26E
1600.0	1599.39	-26.24	02.00	S27.05W	38.83 S	0.31 E	0.25	0.25	38.83	AT S00.46E
1700.0	1699.34	-29.31	01.75	S27.18W	41.74 S	1.18 W	0.25	0.25	41.75	AT S01.62W
1800.0	1799.30	-31.76	01.75	S01.70E	44.62 S	1.83 W	0.87	0.87	44.66	AT S02.35W
1900.0	1899.25	-33.77	01.75	S01.57E	47.68 S	1.75 W	0.00	0.00	47.71	AT S02.10W
2000.0	1999.20	-36.21	02.00	S11.58W	50.91 S	2.06 W	0.50	0.50	50.95	AT S02.31W
2100.0	2099.14	-38.78	02.00	S01.73E	54.36 S	2.35 W	0.46	0.46	54.42	AT S02.48W
2200.0	2199.09	-40.99	01.50	S11.40W	57.39 S	2.56 W	0.64	0.64	57.45	AT S02.55W
2300.0	2299.05	-43.04	01.50	S05.53W	59.98 S	2.94 W	0.15	0.15	60.05	AT S02.81W
2400.0	2399.03	-44.92	01.25	S12.67W	62.34 S	3.31 W	0.30	0.30	62.43	AT S03.04W
2500.0	2499.01	-45.77	01.00	S46.20E	64.01 S	2.92 W	1.13	1.13	64.08	AT S02.61W
2600.0	2598.99	-45.79	01.00	S38.05E	65.30 S	1.75 W	0.14	0.14	65.33	AT S01.54W
2700.0	2698.98	-45.53	01.00	S65.92E	66.35 S	0.42 W	0.48	0.48	66.35	AT S00.36W
2800.0	2798.97	-45.40	00.75	S23.78E	67.30 S	0.64 E	0.67	0.67	67.31	AT S00.55E
2900.0	2898.96	-45.91	00.75	S16.40E	68.53 S	1.09 E	0.10	0.10	68.54	AT S00.91E
3000.0	2998.95	-46.60	00.75	S06.02E	69.81 S	1.35 E	0.14	0.14	69.82	AT S01.10E
3100.0	3098.95	-47.05	00.50	S35.62E	70.81 S	1.67 E	0.40	0.40	70.83	AT S01.35E
3200.0	3198.94	-47.18	00.50	S32.23E	71.54 S	2.16 E	0.03	0.03	71.57	AT S01.73E
3300.0	3298.94	-47.81	00.75	S14.15W	72.54 S	2.23 E	0.54	0.54	72.58	AT S01.76E
3400.0	3398.93	-49.01	00.75	S37.53W	73.69 S	1.67 E	0.30	0.30	73.71	AT S01.30E
3500.0	3498.92	-50.31	00.75	S47.93W	74.65 S	0.78 E	0.14	0.14	74.66	AT S00.60E
3600.0	3598.91	-51.77	01.00	S25.32W	75.88 S	0.07 W	0.42	0.42	75.88	AT S00.06W

DIG INC.
MIDLAND, TEXAS

JOB NUMBER:

WELL NAME: WARN STATE A/C2 #21

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	INCL	BEARING	COORDINATES		D-LEG /100	D-LEG /CL	STATION DISPLACEMENT	
					LATITUDE	DEPARTURE			DISP.	DIRECTION
3700.0	3698.90	-53.01	00.50	S58.25W	76.90 S	0.82 W	0.64	0.64	76.90	AT S00.61W
3800.0	3798.90	-53.88	00.50	S50.63W	77.40 S	1.53 W	0.07	0.07	77.42	AT S01.13W
3900.0	3898.89	-54.96	00.75	S52.02W	78.08 S	2.38 W	0.25	0.25	78.12	AT S01.75W
4000.0	3998.88	-56.27	00.75	S39.40W	78.99 S	3.31 W	0.16	0.16	79.06	AT S02.40W
4100.0	4098.87	-57.53	00.75	S65.78W	79.77 S	4.32 W	0.34	0.34	79.88	AT S03.10W
4200.0	4198.86	-58.78	00.75	S63.18W	80.33 S	5.50 W	0.03	0.03	80.52	AT S03.92W
4300.0	4298.86	-60.03	00.75	S66.57W	80.89 S	6.69 W	0.04	0.04	81.16	AT S04.73W
4400.0	4398.85	-61.30	00.75	S52.77W	81.54 S	7.81 W	0.18	0.18	81.92	AT S05.47W
4500.0	4498.84	-62.79	01.00	S60.78W	82.36 S	9.09 W	0.28	0.28	82.86	AT S06.30W
4600.0	4598.82	-64.72	01.25	S55.78W	83.40 S	10.76 W	0.27	0.27	84.09	AT S07.35W
4700.0	4698.79	-67.08	01.50	S58.80W	84.69 S	12.78 W	0.26	0.26	85.65	AT S08.58W
4800.0	4798.76	-69.38	01.25	S67.82W	85.78 S	14.91 W	0.33	0.33	87.07	AT S09.86W
4900.0	4898.73	-71.70	01.50	S39.82W	87.20 S	16.76 W	0.71	0.71	88.80	AT S10.88W
5000.0	4998.70	-74.27	01.50	S60.83W	88.84 S	18.74 W	0.55	0.55	90.80	AT S11.91W
5100.0	5098.66	-77.02	01.75	S60.85W	90.23 S	21.21 W	0.25	0.25	92.69	AT S13.23W
5200.0	5198.60	-80.24	02.00	S53.92W	92.00 S	23.96 W	0.34	0.34	95.07	AT S14.60W
5300.0	5298.54	-83.67	02.00	S59.93W	93.90 S	26.88 W	0.21	0.21	97.67	AT S15.97W
5400.0	5398.49	-86.89	01.75	S53.93W	95.67 S	29.62 W	0.32	0.32	100.15	AT S17.20W
5500.0	5498.44	-89.92	01.75	S39.93W	97.74 S	31.84 W	0.43	0.43	102.80	AT S18.04W
5600.0	5598.40	-92.95	01.75	S51.95W	99.85 S	34.02 W	0.37	0.37	105.49	AT S18.81W
5700.0	5698.36	-95.78	01.50	S40.97W	101.78 S	36.08 W	0.40	0.40	107.99	AT S19.52W

 * THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF *
 * ***** *
 * 5700.0 FEET EQUALS 107.99 FEET AT S19.52W *
 * ***** *

DIG INC.
MIDLAND, TEXAS

JOB NUMBER: G-2665

WELL NAME: WARN STATE A/C2 #21

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	INCL	BEARING	COORDINATES		D-LEG /100	O-LEG /CL	STATION DISPLACEMENT	
					LATITUDE	DEPARTURE			DISP.	DIRECTION
5700.0	5698.36	-95.78	01.50	S40.97W	101.78 S	36.08 W	0.00		107.99	AT S19.52W
5800.0	5798.32	-98.58	01.75	S38.00W	103.97 S	37.88 W	0.26	0.26	110.66	AT S20.02W
5900.0	5898.29	-100.46	01.00	S18.00E	106.00 S	38.55 W	1.45	1.45	112.80	AT S19.98W
6000.0	5998.24	-98.07	03.25	N60.00E	105.42 S	35.82 W	3.59	3.59	111.34	AT S18.77W
6100.0	6097.80	-89.01	07.25	N43.00E	99.38 S	29.06 W	4.25	4.25	103.54	AT S16.30W
6200.0	6196.77	-74.77	09.25	N38.00E	88.43 S	19.81 W	2.12	2.12	90.62	AT S12.63W
6300.0	6295.28	-57.79	10.50	N40.00E	75.12 S	9.00 W	1.30	1.30	75.66	AT S06.83W
6400.0	6393.36	-38.48	12.00	N38.00E	59.95 S	3.25 E	1.55	1.55	60.03	AT S03.11E
6500.0	6490.79	-16.26	14.00	N38.00E	42.22 S	17.10 E	2.00	2.00	45.55	AT S22.05E
6600.0	6587.60	8.43	15.00	N37.00E	22.35 S	32.34 E	1.03	1.03	39.31	AT S55.35E
6700.0	6684.20	33.91	15.00	N37.00E	1.68 S	47.91 E	0.00	0.00	47.94	AT S87.99E
6800.0	6780.73	59.61	15.25	N37.00E	19.16 N	63.62 E	0.25	0.25	66.44	AT N73.24E
6900.0	6877.27	85.30	15.00	N37.00E	39.99 N	79.32 E	0.25	0.25	88.83	AT N63.24E
7000.0	6974.24	109.36	13.25	N38.00E	59.36 N	94.16 E	1.77	1.77	111.31	AT N57.77E
7100.0	7071.87	130.76	11.75	N39.00E	76.31 N	107.63 E	1.52	1.52	131.93	AT N54.66E
7200.0	7169.90	150.29	11.00	N39.00E	91.63 N	120.04 E	0.75	0.75	151.02	AT N52.64E
7300.0	7268.23	168.36	10.00	N40.00E	105.70 N	131.63 E	1.02	1.02	168.81	AT N51.23E
7400.0	7366.93	184.34	08.50	N42.00E	117.84 N	142.15 E	1.53	1.53	184.65	AT N50.34E
7500.0	7465.95	198.21	07.50	N43.00E	128.11 N	151.55 E	1.01	1.01	198.44	AT N49.79E
7600.0	7565.18	210.59	06.75	N45.00E	137.04 N	160.16 E	0.79	0.79	210.78	AT N49.45E
7700.0	7664.56	221.69	06.00	N45.00E	144.89 N	168.01 E	0.75	0.75	221.85	AT N49.23E
7800.0	7764.05	231.70	05.50	N44.00E	152.03 N	175.03 E	0.51	0.51	231.84	AT N49.02E
7900.0	7863.61	241.06	05.25	N45.00E	158.71 N	181.60 E	0.27	0.27	241.18	AT N48.85E
8000.0	7963.22	249.96	05.00	N41.00E	165.24 N	187.69 E	0.44	0.44	250.06	AT N48.64E
8100.0	8062.89	257.98	04.25	N41.00E	171.32 N	192.98 E	0.75	0.75	258.06	AT N48.40E
8150.0	8112.75	261.67	04.25	N42.00E	174.10 N	195.44 E	0.15	0.07	261.74	AT N48.30E

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*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF      *
*                                     *
*      8150.0 FEET EQUALS      261.74      FEET AT      N48.30E      *
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