

DEC 15 '93 13:18

FROM BARBARA COM 17SW

TO 19156865558

PAL

004

DIG INC.
MIDLAND, TEXAS

3D-025-32164

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

* CONOCO *

JOB NUMBER: G-2762

WELL NAME: ANDERSON RANCH UNIT #21

LOCATION: LEA COUNTY, NEW MEXICO

SURVEY DATE: 12-15-93

SURVEY ENGINEER: MARK COCKRELL

GYRO REFERENCE BEARING: N00.00E
SURF. ELEVATION: RKB

Surface: 1700/S & 850/W
1-165-322

BHL: 1281/S & 745/W

***** DEPTH MEASURED IN FEET *****
***** THIS DIRECTIONAL SURVEY REPORT IS *****
***** ** CORRECT TO THE BEST OF MY KNOWLEDGE ***
***** * AND IS SUPPORTED BY ACTUAL FIELD DATA! *
***** **
***** **
***** **
***** **
***** COMPANY REPRESENTATIVE *****

COMMENTS: GYRO 0-8750
QUARLES #10

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DIG INC.
MIDLAND, TEXAS

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WELL NAME: ANDERSON RANCH UNIT #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	0.15	00.25	S35.00W	0.18 S	0.13 W	0.25	0.25	0.22	AT S35.00W
200.0	200.00	0.25	00.25	S22.00E	0.56 S	0.17 W	0.24	0.24	0.58	AT S16.76W
300.0	300.00	0.27	00.25	S05.00W	0.98 S	0.11 W	0.12	0.12	0.99	AT S06.17W
400.0	400.00	0.26	00.25	S26.00E	1.39 S	0.03 W	0.13	0.13	1.39	AT S01.20W
500.0	500.00	0.02	00.25	S65.00E	1.68 S	0.26 E	0.17	0.17	1.70	AT S08.93E
600.0	600.00	-0.33	00.25	N49.00E	1.61 S	0.61 E	0.29	0.29	1.73	AT S20.73E
700.0	700.00	-0.51	00.00	N00.00E	1.45 S	0.76 E	0.25	0.25	1.64	AT S27.58E
800.0	799.99	-0.45	00.25	S06.00W	1.67 S	0.74 E	0.25	0.25	1.83	AT S23.75E
900.0	899.99	-0.46	00.25	S29.00E	2.08 S	0.82 E	0.15	0.15	2.23	AT S21.52E
1000.0	999.99	-0.56	00.25	S17.00E	2.48 S	0.99 E	0.05	0.05	2.57	AT S21.75E
1100.0	1099.99	-0.68	00.25	S34.00E	2.87 S	1.17 E	0.07	0.07	3.10	AT S22.28E
1200.0	1199.99	-0.90	00.25	S44.00E	3.21 S	1.45 E	0.04	0.04	3.52	AT S24.32E
1300.0	1299.99	-1.02	00.00	N00.00E	3.36 S	1.60 E	0.25	0.25	3.72	AT S25.45E
1400.0	1399.99	-0.90	00.25	S25.00W	3.56 S	1.51 E	0.25	0.25	3.87	AT S22.95E
1500.0	1499.99	-0.81	00.25	S19.00E	3.96 S	1.49 E	0.19	0.19	4.29	AT S20.56E
1600.0	1599.99	-1.03	00.25	S66.00E	4.26 S	1.76 E	0.20	0.20	4.61	AT S22.42E
1700.0	1699.99	-1.21	00.50	S10.00E	4.78 S	2.03 E	0.42	0.42	5.19	AT S29.04E
1800.0	1799.99	-1.61	00.50	S76.00E	5.31 S	2.53 E	0.54	0.54	5.89	AT S25.47E
1900.0	1899.98	-2.12	00.50	S24.00E	5.82 S	3.13 E	0.44	0.44	6.61	AT S28.30E
2000.0	1999.97	-2.67	00.75	S51.00E	6.63 S	3.82 E	0.38	0.38	7.65	AT S29.95E
2100.0	2099.97	-3.31	00.25	N67.00E	6.95 S	4.53 E	0.67	0.67	8.30	AT S33.07E
2200.0	2199.97	-3.69	00.25	N41.00E	6.70 S	4.87 E	0.11	0.11	8.29	AT S36.00E
2300.0	2299.97	-4.01	00.25	S53.00E	6.67 S	5.19 E	0.34	0.34	8.45	AT S37.88E
2400.0	2399.97	-4.58	00.50	N63.00E	6.60 S	5.75 E	0.45	0.45	8.76	AT S41.05E
2500.0	2499.96	-5.39	00.50	N55.00E	6.16 S	6.50 E	0.07	0.07	8.95	AT S46.55E
2600.0	2599.96	-5.85	00.25	N21.00E	5.70 S	6.93 E	0.32	0.32	8.98	AT S50.57E
2700.0	2699.96	-6.00	00.25	N11.00W	5.28 S	6.97 E	0.14	0.14	8.75	AT S52.83E
2800.0	2799.96	-5.89	00.25	N37.00W	4.90 S	6.80 E	0.11	0.11	8.98	AT S54.24E
2900.0	2899.96	-5.71	00.25	N30.00W	4.53 S	6.56 E	0.03	0.03	7.97	AT S55.35E
3000.0	2999.96	-5.54	00.25	N35.00W	4.16 S	6.32 E	0.02	0.02	7.57	AT S56.63E
3100.0	3099.96	-5.23	00.25	S85.00W	4.01 S	5.98 E	0.25	0.25	7.20	AT S56.19E
3200.0	3199.96	-4.81	00.25	N81.00W	3.99 S	5.55 E	0.06	0.06	6.83	AT S54.27E
3300.0	3299.95	-4.36	00.50	N43.00W	3.64 S	5.03 E	0.34	0.34	6.21	AT S54.16E
3400.0	3399.95	-3.91	00.25	N81.00W	3.28 S	4.52 E	0.34	0.34	5.59	AT S54.01E
3500.0	3499.95	-3.33	00.50	N70.00W	3.10 S	3.90 E	0.26	0.26	4.98	AT S51.49E
3600.0	3599.94	-2.29	01.00	N58.00W	2.49 S	2.75 E	0.52	0.52	3.71	AT S47.81E

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DIG INC.
MIDLAND, TEXAS

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WELL NAME: ANDERSON RANCH UNIT #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	3699.93	-0.99	01.00	N58.00W	1.56 S	1.27 E	0.00	0.00	2.01	AT S38.99E
3800.0	3799.92	0.04	00.50	N70.00W	0.95 S	0.12 E	0.52	0.52	0.96	AT S06.93E
3900.0	3899.91	1.12	01.00	N62.00W	0.39 S	1.06 W	0.51	0.51	1.14	AT S69.73W
4000.0	3999.89	2.54	01.25	N52.00W	0.69 N	2.69 W	0.32	0.32	2.78	AT N75.68W
4100.0	4099.86	4.11	01.25	N53.00W	1.32 N	4.49 W	0.15	0.15	4.88	AT N66.83W
4200.0	4199.85	5.44	01.00	N45.00W	3.10 N	6.04 W	0.37	0.37	6.79	AT N62.83W
4300.0	4299.83	6.46	01.00	N45.00W	4.33 N	7.28 W	0.00	0.00	8.47	AT N59.22W
4400.0	4399.82	7.55	01.00	N52.00W	5.49 N	8.58 W	0.12	0.12	10.19	AT N57.99W
4500.0	4499.80	8.78	01.00	N57.00W	6.50 N	10.00 W	0.09	0.09	11.93	AT N56.97W
4600.0	4599.79	9.81	00.75	N46.00W	7.43 N	11.20 W	0.30	0.30	13.44	AT N56.44W
4700.0	4699.78	10.62	01.00	N38.00W	8.57 N	12.21 W	0.28	0.28	14.92	AT N54.93W
4800.0	4799.76	11.95	01.25	N67.00W	9.69 N	13.75 W	0.61	0.61	16.82	AT N54.84W
4900.0	4899.73	13.76	01.25	N64.00W	10.59 N	15.74 W	0.07	0.07	18.97	AT N56.06W
5000.0	4999.71	15.31	01.00	N59.00W	11.52 N	17.46 W	0.27	0.27	20.92	AT N56.59W
5100.0	5099.70	16.71	01.25	N52.00W	12.64 N	19.07 W	0.28	0.28	22.88	AT N56.47W
5200.0	5199.67	17.86	01.25	N32.00W	14.24 N	20.51 W	0.43	0.43	24.97	AT N55.23W
5300.0	5299.64	18.74	01.50	N30.00W	16.29 N	21.74 W	0.25	0.25	27.17	AT N53.15W
5400.0	5399.61	19.39	01.25	N20.00W	18.45 N	22.77 W	0.35	0.35	29.31	AT N50.96W
5500.0	5499.59	19.93	01.25	N20.00W	20.44 N	23.65 W	0.17	0.17	31.26	AT N49.17W
5600.0	5599.57	20.55	00.75	N34.00W	21.95 N	24.53 W	0.51	0.51	32.92	AT N48.18W
5700.0	5699.57	21.06	00.50	N43.00W	22.81 N	25.20 W	0.27	0.27	33.99	AT N47.85W
5800.0	5799.57	21.72	00.50	S64.00W	22.94 N	25.89 W	0.59	0.59	34.59	AT N48.46W
5900.0	5899.56	22.54	00.50	N75.00W	22.86 N	26.70 W	0.35	0.35	35.15	AT N49.49W
6000.0	5999.56	23.56	00.75	N83.00W	23.05 N	27.77 W	0.26	0.26	36.09	AT N50.31W
6100.0	6099.55	24.83	00.75	S90.00W	23.13 N	29.07 W	0.09	0.09	37.15	AT N51.50W
6200.0	6199.54	26.34	01.00	N89.00W	23.15 N	30.60 W	0.25	0.25	38.37	AT N52.90W
6300.0	6299.51	28.49	01.50	S90.00W	23.16 N	32.78 W	0.50	0.50	40.14	AT N54.76W
6400.0	6399.47	31.29	01.75	S87.00W	23.08 N	35.62 W	0.26	0.26	42.44	AT N57.05W
6500.0	6499.44	33.87	01.25	N85.00W	23.10 N	38.23 W	0.54	0.54	44.66	AT N58.86W
6600.0	6599.41	36.00	01.25	S89.00W	23.17 N	40.40 W	0.13	0.13	46.58	AT N60.17W
6700.0	6699.39	37.92	01.00	N84.00W	23.24 N	42.36 W	0.28	0.28	48.32	AT N61.25W
6800.0	6799.37	39.85	01.25	S86.00W	23.26 N	44.32 W	0.32	0.32	50.05	AT N62.91W
6900.0	6899.35	42.02	01.25	S80.00W	22.99 N	46.48 W	0.13	0.13	51.86	AT N63.68W
7000.0	6999.32	44.42	01.50	S76.00W	22.49 N	48.83 W	0.27	0.27	53.76	AT N65.27W
7100.0	7099.29	47.02	01.50	S88.00W	22.13 N	51.40 W	0.31	0.31	55.96	AT N66.71W
7200.0	7199.26	49.40	01.25	S87.00W	22.02 N	53.80 W	0.25	0.25	58.19	AT N67.74W

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WELL NAME: ANDERSON RANCH UNIT #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			DTSP.	DIRECTION
7300.0	7299.24	51.57	01.25	S87.00W	21.91 N	55.98 W	0.00	0.00	50.11	AT N68.63W
7400.0	7399.22	53.52	01.00	S87.00W	21.81 N	57.94 W	0.25	0.25	51.91	AT N69.38W
7500.0	7499.20	55.25	01.00	S89.00W	21.75 N	59.68 W	0.03	0.03	53.52	AT N69.98W
7600.0	7599.19	56.76	00.75	S87.00W	21.70 N	61.21 W	0.25	0.25	64.94	AT N70.48W
7700.0	7699.18	57.96	01.00	S29.00W	20.90 N	62.29 W	0.88	0.88	65.70	AT N71.45W
7800.0	7799.16	59.09	01.25	S23.00W	19.13 N	63.14 W	0.28	0.28	65.97	AT N73.14W
7900.0	7899.14	60.18	01.25	S16.00W	17.09 N	63.90 W	0.11	0.11	66.15	AT N75.03W
8000.0	7999.12	61.10	01.00	S19.00W	15.23 N	64.52 W	0.25	0.25	66.29	AT N76.72W
8100.0	8099.10	61.90	01.25	S11.00W	13.33 N	65.01 W	0.29	0.29	66.37	AT N78.41W
8200.0	8199.07	62.61	01.25	S08.00W	11.18 N	65.37 W	0.07	0.07	66.32	AT N80.29W
8300.0	8299.04	63.09	01.75	S04.00E	8.58 N	65.42 W	0.59	0.56	65.98	AT N82.53W
8400.0	8399.99	63.19	02.00	S11.00E	5.34 N	64.98 W	0.34	0.34	65.20	AT N85.30W
8500.0	8499.91	62.39	02.50	S30.00E	1.74 N	63.56 W	0.89	0.89	63.58	AT N88.43W
8600.0	8599.77	60.22	03.50	S37.00E	2.59 S	60.63 W	1.06	1.06	60.68	AT S87.56W
8700.0	8699.60	57.33	03.25	S41.00E	7.16 S	56.93 W	0.34	0.34	57.38	AT S82.83W
8750.0	8748.52	56.01	03.00	S36.00E	9.29 S	55.23 W	0.74	0.37	55.01	AT S80.45W

* THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF *
* 8750.0 FEET EQUALS 56.01 FEET AT S80.45W *

9050

2° S27E