



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

GULF ENERGY & MINERAL COMPANY-U.S.-SOUTHWEST DIVISION
COMPANY

Central Drinkard #421

WELL NAME

LEA COUNTY, NEW MEXICO

LOCATION

<u>JOB NUMBER</u>	<u>TYPE OF SURVEY</u>	<u>DATE</u>
WT1277 S0947	Magnetic Multi-Shot	12/18/77
WT1277 D0950	Magnetic Single Shot	1/2/78
WT1277 S0955	Magnetic Multi-Shot	12/23/77

SURVEY BY

James Blackledge
Roy Smith
~~James Blackledge~~

OFFICE

West Texas District
West Texas District
~~West Texas District~~

GULF ENERGY & MINERALS U.S.
CENTRAL DRINKARD UNIT WELL NO. 421
MAGNETIC MULTISHOTS AND MAGNETIC SINGLES
WT1277-S0955 AND WT1277-S0947 AND WT1277-D0950
LEA COUNTY, NEW MEXICO
JANUARY 2, 1978

PLANE OF PROPOSED DIRECTION IS N 57 DEG. 17 MIN. W

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

TRUE									
MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	VERTICAL DEPTH FEET	VERTICAL SECTION FEET	RECTANGULAR COORDINATES FEET		DOG LEG SEVERITY DEG/100FT		
420.	0 0	0	420.00	0.00	0.00	0.00	0.0		
494.	1 0	S 2 E	494.00	-3.37	.65 S	.02 E	1.4		
587.	0 45	S 8 W	586.99	-1.07	2.06 S	.05 W	.3		
680.	1 0	S 1 E	679.97	-1.76	3.48 S	.14 W	.3		
773.	0 45	S 2 W	772.96	-2.52	4.90 S	.15 W	.3		
866.	1 0	S 5 W	865.95	-3.21	6.32 S	.24 W	.3		
959.	1 0	S 8 E	958.94	-4.12	7.93 S	.19 W	.2		
1052.	1 0	S 15 E	1051.92	-5.26	9.52 S	.13 E	.1		
1145.	0 45	S 7 E	1144.91	-6.24	10.92 S	.40 E	.3		
1238.	1 0	S 4 E	1237.90	-7.11	12.33 S	.54 E	.3		
1331.	0 30	S 7 W	1330.89	-7.74	13.55 S	.50 E	.6		
1424.	0 30	S 36 E	1423.89	-8.33	14.31 S	.70 E	.4		
1517.	0 30	S 29 E	1516.89	-9.06	15.00 S	1.14 E	.1		
1610.	0 30	S 69 E	1609.88	-9.85	15.52 S	1.74 E	.4		
1703.	1 0	S 66 E	1702.88	-11.05	15.98 S	2.86 E	.5		
1796.	1 15	S 65 E	1795.86	-12.85	16.74 S	4.52 E	.3		
1889.	1 0	S 77 E	1888.84	-14.63	17.33 S	6.25 E	.4		
1982.	1 0	N 85 E	1981.83	-16.04	17.45 S	7.86 E	.3		
2075.	1 0	N 74 E	2074.81	-17.22	17.15 S	9.45 E	.2		
2168.	1 0	N 60 E	2167.80	-18.14	16.52 S	10.94 E	.3		
2261.	1 30	N 42 E	2260.77	-18.77	15.25 S	12.51 E	.7		
2354.	2 0	N 40 E	2353.73	-19.18	13.10 S	14.38 E	.5		
2447.	2 0	N 42 E	2446.67	-19.65	10.66 S	16.51 E	.1		
2540.	2 0	N 46 E	2539.62	-20.28	8.32 S	18.76 E	.2		
2633.	2 0	N 48 E	2632.56	-21.08	6.11 S	21.13 E	.1		
2663.	2 0	N 52 E	2662.54	-21.39	5.43 S	21.94 E	.5		
2700.	1 45	N 49 E	2699.52	-21.76	4.66 S	22.87 E	.7		
2838.	1 30	N 52 E	2837.47	-22.96	2.18 S	25.89 E	.2		
2931.	1 45	N 50 E	2930.43	-23.79	.52 S	27.94 E	.3		
3024.	1 15	N 46 E	3023.40	-24.43	1.11 N	29.75 E	.5		

TRUE

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	VERTICAL DEPTH FEET	VERTICAL SECTION FEET	R E C T A N G U L A R C O O R D I N A T E S	DOG LEG SEVERITY DEG/100FT
3117.	1 30	N 58 E	3116.37	-25.16	2.48 N 31.50 E	.4
3210.	1 0	N 48 E	3209.35	-25.86	3.70 N 33.12 E	.6
3303.	1 15	N 47 E	3302.33	-26.33	4.94 N 34.47 E	.3
3396.	0 45	N 66 E	3395.32	-26.98	5.83 N 35.81 E	.6
3489.	1 0	N 57 E	3488.30	-27.67	6.51 N 37.06 E	.3
3582.	1 0	N 60 E	3581.29	-28.37	7.35 N 38.44 E	.1
3675.	1 0	N 69 E	3674.28	-29.23	8.05 N 39.91 E	.2
3768.	0 45	N 61 E	3767.27	-29.98	8.65 N 41.19 E	.3
3861.	0 30	S 78 E	3860.26	-30.73	8.80 N 42.18 E	.5
3954.	0 45	N 67 E	3953.25	-31.51	8.89 N 43.17 E	.5
4047.	0 30	N 86 E	4046.25	-32.21	9.13 N 44.15 E	.3
4140.	0 45	S 54 E	4139.24	-33.17	8.86 N 45.11 E	.5
4233.	0 45	N 40 E	4232.24	-34.02	8.99 N 46.21 E	1.1
4326.	1 15	N 44 E	4325.22	-34.28	10.20 N 47.29 E	.5
4419.	1 15	N 61 E	4418.20	-34.96	11.43 N 48.90 E	.4
4512.	1 15	N 56 E	4511.18	-35.84	12.49 N 50.62 E	.1
4605.	1 0	N 41 E	4604.16	-36.34	13.69 N 51.99 E	.4
4698.	1 15	N 46 E	4697.14	-36.68	15.02 N 53.24 E	.3
4791.	1 30	N 48 E	4790.11	-37.23	16.54 N 54.88 E	.3
4884.	1 0	N 54 E	4883.09	-37.87	17.81 N 56.45 E	.6
4977.	0 45	N 59 E	4976.08	-38.44	18.60 N 57.64 E	.3
5000.	0 45	N 48 E	4999.08	-38.55	18.78 N 57.88 E	.6
5042.	2 30	N 22 W	5041.06	-38.17	19.87 N 58.13 E	5.6
5104.	3 30	N 24 W	5102.97	-35.49	22.85 N 56.86 E	1.6
5197.	4 15	N 34 W	5195.76	-29.96	28.34 N 53.82 E	1.1
5288.	5 30	N 38 W	5286.43	-22.76	34.60 N 49.27 E	1.4
5380.	6 30	N 42 W	5377.92	-13.58	41.96 N 43.09 E	1.2
5474.	7 30	N 45 W	5471.22	-2.45	50.27 N 35.21 E	1.1
5566.	9 0	N 47 W	5562.27	10.49	59.44 N 25.71 E	1.7
5660.	10 30	N 51 W	5654.91	26.24	69.88 N 13.70 E	1.7

TRUE									
MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	VERTICAL		VERTICAL SECTION FEET	R E C T A N G U L A R C O O R D I N A T E S		DOG LEG SEVERITY DEG/100FT	
			DEPTH FEET						
5753.	12 0	N 55 W	5746.12		44.33	80.80 N	.78 W	1.8	
5846.	13 45	N 56 W	5836.78		65.04	92.54 N	17.86 W	1.9	
5944.	13 45	N 56 W	5931.97		88.33	105.56 N	37.17 W	0.0	
6036.	13 30	N 55 W	6021.38		109.99	117.84 N	55.03 W	.4	
6098.	13 15	N 56 W	6081.70		124.33	125.96 N	66.85 W	.5	
6157.	12 15	N 61 W	6139.24		137.34	132.76 N	77.95 W	2.5	
6218.	11 45	N 61 W	6198.91		150.00	138.91 N	89.04 W	.8	
6281.	11 45	N 61 W	6260.59		162.80	145.13 N	100.26 W	0.0	
6373.	12 30	N 65 W	6350.54		182.02	153.90 N	117.48 W	1.2	
6465.	13 15	N 67 W	6440.22		202.28	162.24 N	136.20 W	.9	
6559.	13 45	N 69 W	6531.62		223.84	170.46 N	156.55 W	.7	
6653.	13 45	N 72 W	6622.93		245.59	177.92 N	177.61 W	.8	
6732.	13 15	N 73 W	6699.75		263.39	183.46 N	195.20 W	.7	

FINAL CLOSURE - DIRECTION: N 46 DEGS 46 MINS 30 SECS W
DISTANCE: 267.88 FEET

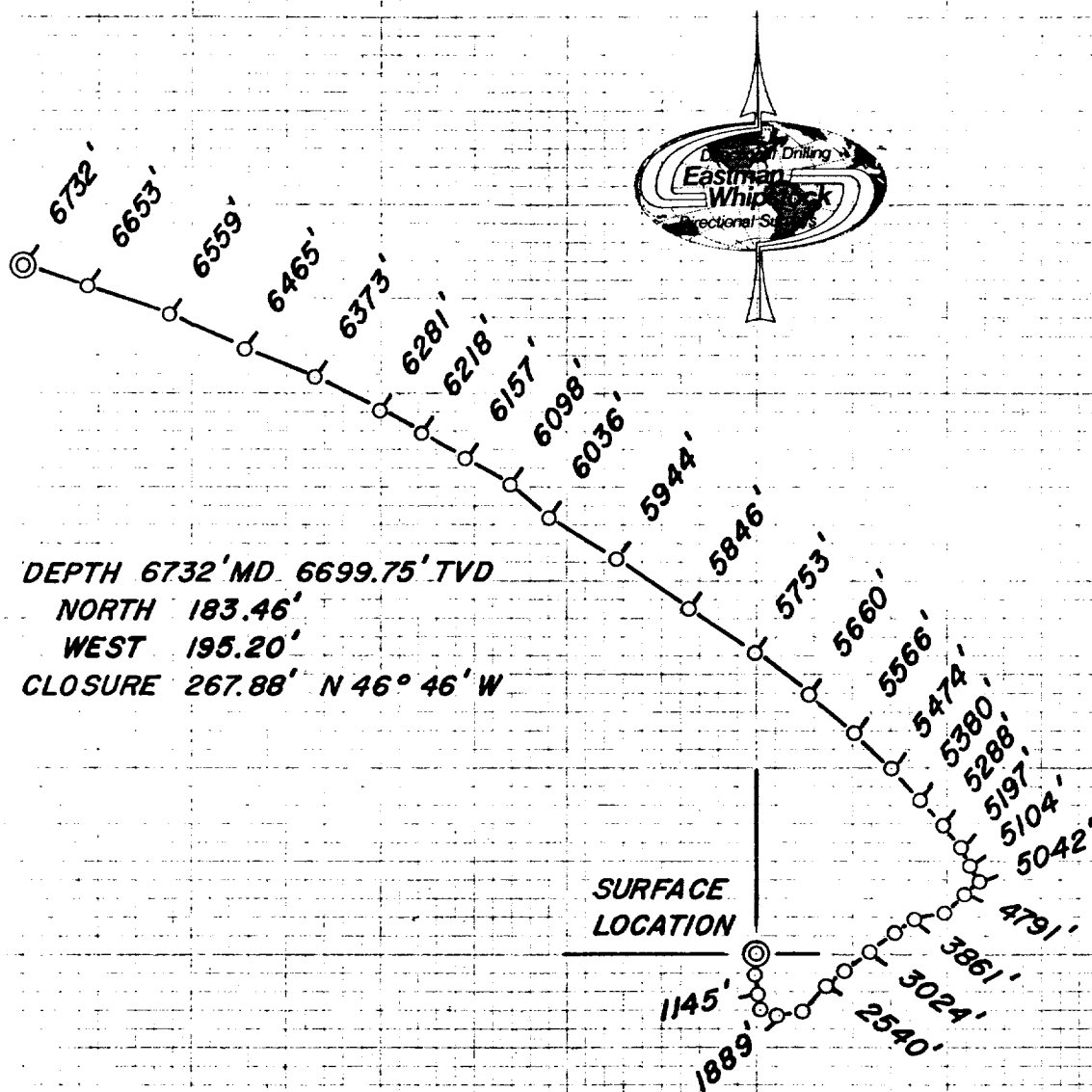
GULF ENERGY and MINERALS, U.S.

CENTRAL DRINKARD UNIT WELL NO. 421

LEA COUNTY, NEW MEXICO

JANUARY 2, 1978

1" = 50'



**NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT**

Form C-102
Supersedes C-124
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator Gulf Oil Company			Lease C D U		Well No. 421
Unit Letter H	Section 32	Township 21 South	Range 37 East	County Lea	
Actual Footage Location of Well:					
1465		feet from the North	line and	1056	feet from the East line
Ground Level Elev. 3451.4	Producing Formation Drinkard		Pool Drinkard		Dedicated Acreage 40 Acres

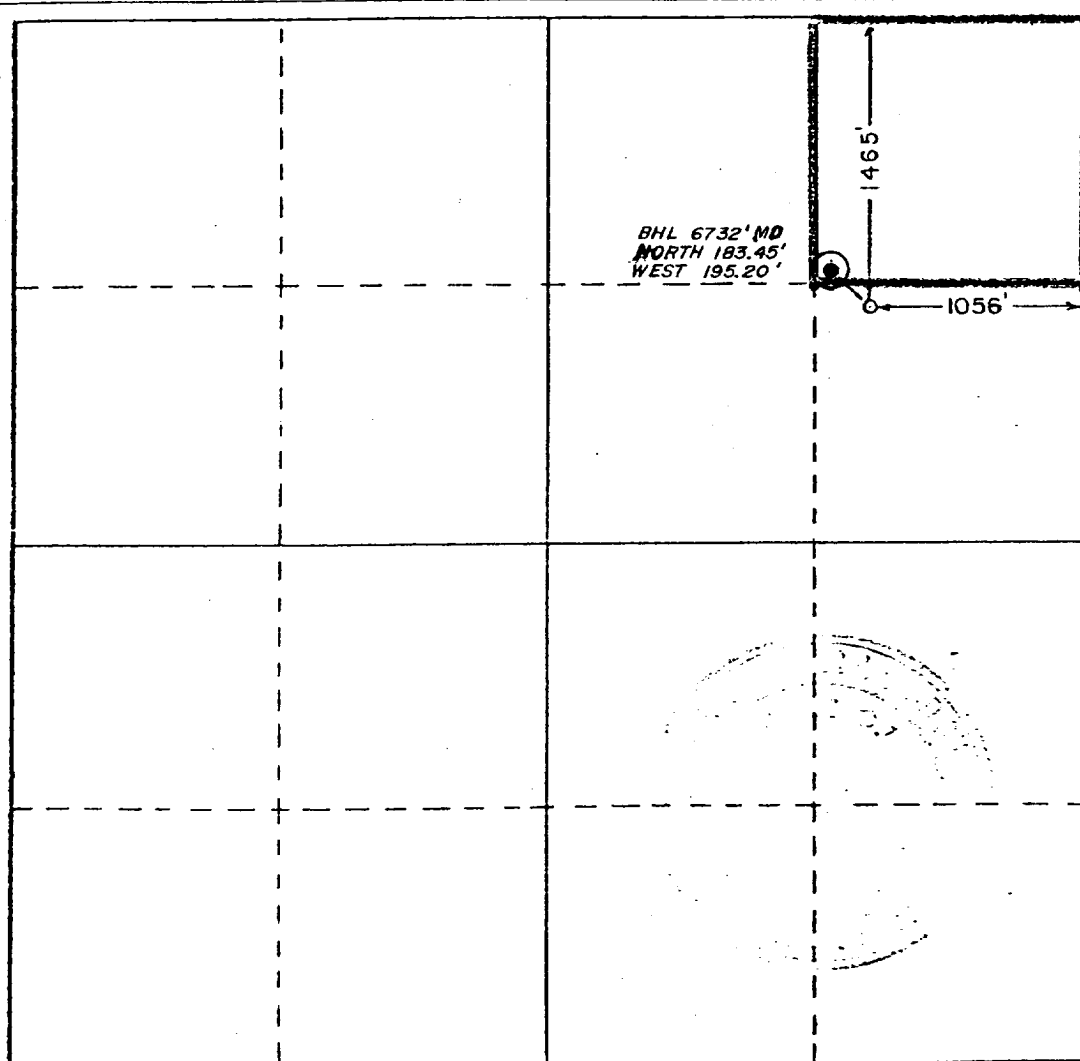
1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

Order No. 5548



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

C.D. Borland

Name

C.D. Borland

Position

Area Production Manager

Company

Gulf Oil Corporation

Date

October 25, 1977

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

October 21, 1977

Registered Professional Engineer
and/or Land Surveyor

John W. [Signature]

Certificate No.

676

0 330 660 990 1320 1650 1980 2310 2640 2000 1800 1600 1400 1200 1000 800 600 400 200 0



(915) 563-0511 / Telex: 74-3452
P. O. Box 5577 / Midland, Texas 79701
Int'l: TWX 910-881-5066 / Cable: EASTCO

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, James Blackledge, in the employ of Eastman Whipstock, Inc., did on the days of December 18, 19 77 thru December 18, 19 77 conduct or supervise the taking of a Magnetic Multi-Shot survey by the method of magnetic orientation from a depth of 420 feet to 2700 feet, with recordings of inclination and direction being obtained at approximate intervals of 93 feet.

This survey was conducted at the request of Gulf Energy & Mineral Company-U.S. for their Central Drinkard #421, Lea County County, State of New Mexico, in the _____ field.

The data for this survey and the calculations were obtained and performed by me according to standards and procedures as set forth by Eastman Whipstock, Inc. and is true and correct to the best of my knowledge.

James Blackledge
Directional Supervisor/Surveyor

The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Larry Massey

Before me, the undersigned authority, on this day personally appeared James Blackledge, known to me to be the person whose name is subscribed to this instrument, who after being by me duly sworn on oath, states that he has knowledge of all the facts stated above and that this instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 21st day of December, 19 77.

Nanda J. Howell
Notary Public in and for the County of
Midland, Texas
My commission expires 10/31/77



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SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, James Blackledge, in the employ of Eastman Whipstock, Inc., did on the days of December 23, 19 77 thru December 23, 19 77 conduct or supervise the taking of a Magnetic Multi-Shot survey by the method of magnetic orientation from a depth of 2700 feet to 5000 feet, with recordings of inclination and direction being obtained at approximate intervals of 93 feet.

This survey was conducted at the request of Gulf Energy & Mineral Co.-U.S.-Southwest for their Central Drinkard #421, Lea County, Div. State of New Mexico, in the field.

The data for this survey and the calculations were obtained and performed by me according to standards and procedures as set forth by Eastman Whipstock, Inc. and is true and correct to the best of my knowledge.

James Blackledge
Directional Supervisor/Surveyor

The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Larry Massey

Before me, the undersigned authority, on this day personally appeared James Blackledge, known to me to be the person whose name is subscribed to this instrument, who after being by me duly sworn on oath, states that he has knowledge of all the facts stated above and that this instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 27th day of December, 19 77.

Wanda J. Howell
Notary Public in and for the County of
Midland, Texas
My commission expires 10/31/78



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SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Roy Smith, in the employ of Eastman Whipstock, Inc., did on the days of December 23, 19 77 thru January 2, 19 78 conduct or supervise the taking of a Single Shot survey by the method of magnetic orientation from a depth of 5000 feet to 6732 feet, with recordings of inclination and direction being obtained at approximate intervals of 90 feet.

This survey was conducted at the request of Gulf Energy & Mineral Company-U.S.- for their Control Drinkard #421, Lea County, Southwest State of Texas, in the _____ field.

The data for this survey and the calculations were obtained and performed by me according to standards and procedures as set forth by Eastman Whipstock, Inc. and is true and correct to the best of my knowledge.

Roy Smith
Directional Supervisor/Surveyor

The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Larry Massey

Before me, the undersigned authority, on this day personally appeared Roy Smith, known to me to be the person whose name is subscribed to this instrument, who after being by me duly sworn on oath, states that he has knowledge of all the facts stated above and that this instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 3rd day of January, 19 78.

Nanda J. Howell
Notary Public in and for the County of
Midland, Texas
My commission expires 10/31/78