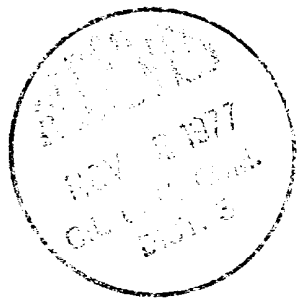
Mobil Oil Corporation

THREE GREENWAY PLAZA EAST - SUITE 800
HOUSTON, TEXAS 77046

October 31, 1977



A. R. Kendrick (2)
District Supervisor
New Mexico O.C.C.
1000 Rio Brazos Road
Aztec, NM 87410

MOBIL OIL CORPORATION'S
NAVAJO NO. 3
TOCITO DOME POOL
SAN JUAN COUNTY, N.M.
C-9-26N-18W

Dear Mr. Kendrick:

Attached per our discussion is information concerning our Navajo No. 3 which was recently potentialed. The well flowed 393 BO & no water with a GOR of 730:1 on a 9/64" choke in 24 hours. The TP was 1320 psi.

The well is located 1050' FNL & 1845' FWL, Sect. 9, T26N, R18W, San Juan, County. The Northwest quarter of Sec. 9 has not been included in a pool, but the Southwest quarter is in the Tocito Dome Penn 'D' Pool and the E/2 of Sec. 9 is in the Tocito Dome Penn Gas Pool.

The attached Structure Map on the top of the Penn 'D' Zone indicates that the zone is continuous between the two pools. However, there is some type of unde fined permeability separation as indicated by pressures, production and gas analyses.

Gulf Coast Producing Co's Navajo Tocito No. 1 is an offset to the east of over No. 3.

It was drilled by Campbell, Kiel and Rothwell, and completed as a gas well about 10 years ago. However, the attached July 1977 Monthly Statistical Report shows it averaged 385 BOPD with a GOR of 728 CFPB in July. Thus, it now appears to be an oil well too.

The reservoir pressure in our Navajo No. 3 is obviously higher than in our No. 2 well. Whereas, the No. 3 is flowing with some 1320 psi T.P., the initial BHP of our No. 2 well was only some 700 psi in 1974. (Report attached.) Too, Amoco's reported surface injection pressures during their gas injection tests into the Penn 'D' Zone were some 800 to 1000 psi in 1975.

Our No. 1 & 2 Navajo wells are up-dip of our No. 3, but they produce lots of water.

Amoco's Navajo No. 21 in NENE Sect. 15 was P & A'd because of lack of productive pay in the well, even though the zone was present as shown by the Structure Map.

The attached gas analyses from our No. 3 and Gulf Coast Producing No. 1 are more similar than our No. 1.

Although the performance characteristics of our No. 3 Navajo and Gulf Coast Producing's No. 1 are certainly different than our nearby wells No. 1 & 2, the pool rules for the Tocito Dome Penn 'D' Pool are satisfactory for both conditions.

It is therefore respectfully requested that all wells in Section 9 be placed in the Tocito Dome Penn 'D' Pool.

Yours very truly,

J. A. Morris
Regulatory Engineering
Supervisor

JAM/mm

cc: P. T. McGrath
U.S.G.S.
Box 959
Farmington, NM 87401

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO TOCITO NO. 2

Field : TOCITO DOME File 2-5629-BU

CHRONOLOGICAL PRESSURE AND PRODUCTION DATA

1974 Date	Status of Well	Time	Elapsed Time Hrs.	Min.	Wellhead Pressure Tbg	Csg	BHP @ 6300' Psig
4-28	Swabbing well	09:00					
"	Shut in	09:00					
"	Inst. @ 6300'	18:45	9	45			692
"	"	19:00	10	00			692
"	"	21:00	12	00			693
4-29	"	03:00	18	00			696
"	"	09:00	24	00			697
5-1	"	09:00	72	00			699
5-2	"	09:00	96	00	345	Pkr	700

WELL	U	S	T	R	MC	OIL ALLOWABLE	MP	STAT	EX	OIL PRODUCTION	CSG HD ALLOWABLE	GAS PRODUCTION	WATER PRODUCTION	DAYS PROD	GAS DISPOSITION VOLUME	GAS DISPOSITION DISP	EX	CUMULATIVE GAS O/P	OIL RUNS VOLUME	OIL RUNS DISP	EX	CUMULATIVE OIL O/P	ENDING OIL STORAGE
30		3	25N	3W								915		22									
LEASE TOTAL												1972			1921	GNM							
															51	LSE							
MCCRODEN A																							
1A		9	25N	3W								392		22									
20		9	25N	3W								2770		22									
LEASE TOTAL												3162			3056	GNM							
															106	LSE							
MCCRODEN B																							
1K		4	25N	3W								788		22									
21		4	25N	3W								2122		22									
LEASE TOTAL												2910			2816	GNM							
															94	LSE							
COMPANY TOTAL						233				233		170598											
WESTERN OIL AND MINERALS LTD												**********											
HURT																							
1E		11	25N	3W								1230		32	1230	EPG							
HAROLD A. YAFFEE												**********											
YAFFEE																							
2J		2	25N	3W								1474		32	1474	EPG							
POOL TOTAL						233				233		641896	36										
TOCITO DOME MISSISSIPPIAN, NO. (GAS)												6M TO 7M											
CONSOLIDATED OIL AND GAS INCORPORATED												**********											
STAVER NAVAJO																							
1O		34	27N	18W				U				LAST PROD. DATE 03/77											
SAGUARO OIL CO.												**********											
STAVER NAVAJO																							
1M		34	27N	18W								LAST PROD. DATE 10/76							NO REPORT				
POOL TOTAL																							
TOCITO DOME PENN., NORTH (GAS)												6M TO 7M											
GULF COAST PRODUCING CO												**********											
NAVAJO TOCITO																							
1G		9	26N	18W		11949				11949		8695		31									
4L		10	26N	18W								85		1									
LEASE TOTAL						11949				11949		8780			8392	W H			12062	PER			
															388	LSE							
COMPANY TOTAL						11949				11949		8780							12062				
POOL TOTAL						11949				11949		8780							12062				
TWIN MOUNDS PICTURED CLIFFS (GAS)												0M TO 5M											
DUGAN PRODUCTION CORPORATION												**********											
CLINE																							
1O		33	30N	14W								1012	360	30	1012	EPG							
MAYRE																							
1P		31	30N	14W								LAST PROD. DATE 03/77											
COMPANY TOTAL												1012	360										
MESA PETROLEUM COMPANY												**********											
RUSSELL																							
												1974	3	24	1974	EPG							

11949 / 31 = 385 BO/D

8695 MCF / 11949 BO = 728 CF/B GOR

EFTELLER, INC.
reservoir engineering data
MIDLAND, TEXAS

Page 2 of 2
File 2-5629-BU

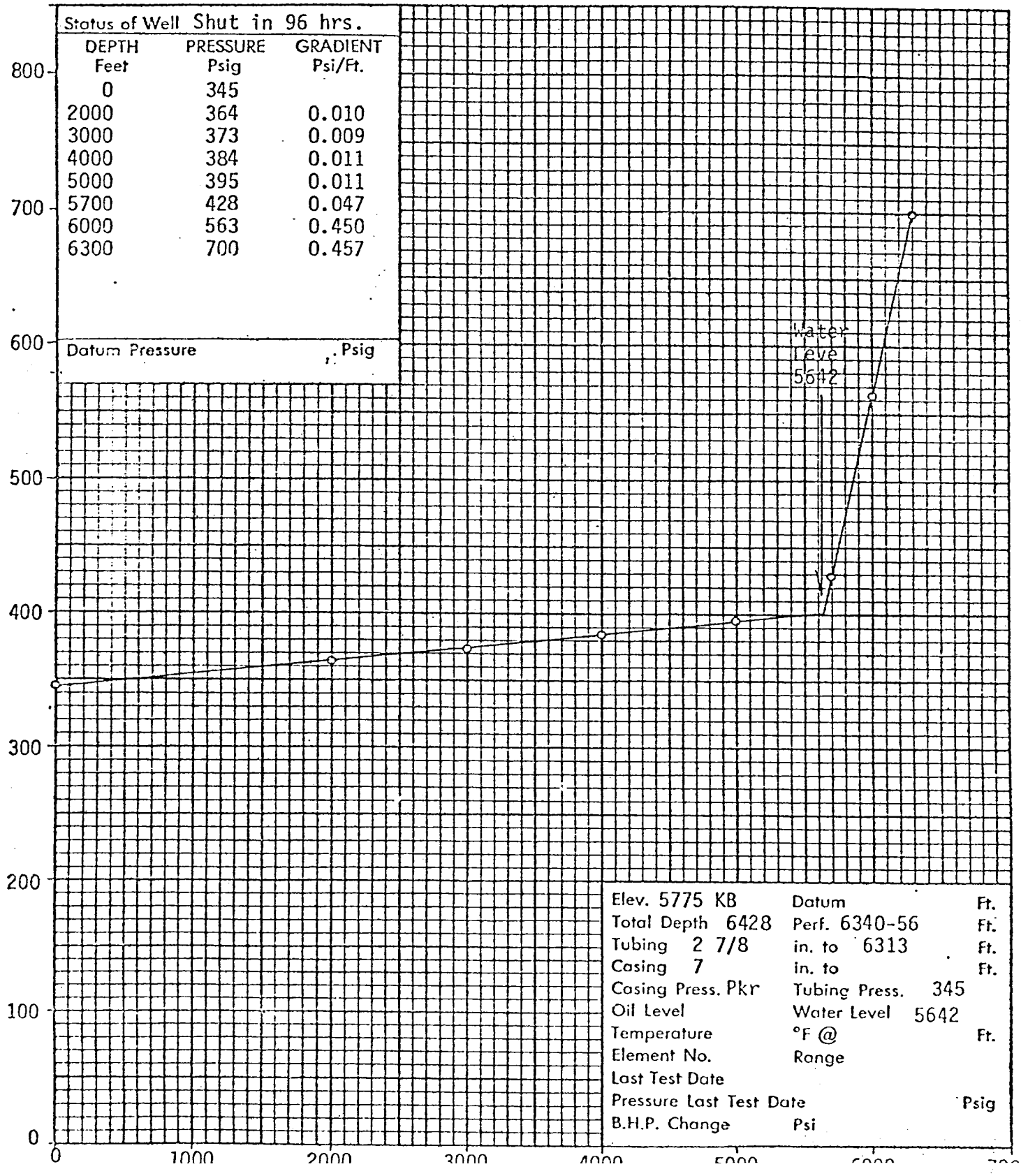
Company MOBIL OIL CORPORATION Lease NAVAJO TOCITO Well No. 2
Field TOCITO DOME County SAN JUAN State NEW MEXICO
Formation Test Date MAY 2, 1974

Status of Well Shut in 96 hrs.

DEPTH Feet	PRESSURE Psig	GRADIENT Psi/Ft.
0	345	
2000	364	0.010
3000	373	0.009
4000	384	0.011
5000	395	0.011
5700	428	0.047
6000	563	0.450
6300	700	0.457

Datum Pressure Psig

PRESSURE POUNDS PER SQUARE INCH GAUGE



Elev. 5775 KB		Datum	Ft.
Total Depth 6428		Perf. 6340-56	Ft.
Tubing 2 7/8		in. to 6313	Ft.
Casing 7		in. to	Ft.
Casing Press. Pkr		Tubing Press. 345	
Oil Level		Water Level 5642	
Temperature		°F @	Ft.
Element No.		Range	
Last Test Date			
Pressure Last Test Date			Psig
B.H.P. Change	Psi		

Cyl. No. 149 Cyl. Pressure _____ @ _____ °F
Stream Sampled _____
Volume of Stream Sampled _____
Date Sampled _____
Requested by _____
Submitted by _____
Pressures: Bottomhole _____
Shutin Casing _____
Shutin Tubing _____
Flowing Tubing _____
Flowing Casing _____
Primary Separator _____
Secondary Separator _____
Stock Tank _____
Choke Sizes: Tubing _____ Casing _____
Production Rates:
Primary Sep. Gas _____ Oil _____
Second Sep. Gas _____ Oil _____
Primary Sep. Water _____
Stock Tank Oil _____
Stock Tank Water _____
Potential Rates: Gas _____
Oil _____
Disposition Production: Gas _____ Oil _____
Field Tests: Air _____ %
CO_2 _____ %
H_2S _____ Gr/100
Sample Method _____

Lease Name Navajo Well No. 1
District Casper State _____
Operator Mobil
Field Tocita Dome County _____
Sand Penn D Depth _____
Well Depth _____ Perf. _____ Shots _____
Temperatures: Bottomhole _____
Flowing Wellhead _____
Heater In _____ Out _____
Primary Sep. Gas _____ Oil _____
Second Sep. Gas _____ Oil _____
Meter Run _____
Stock Tank _____
Atmospheric _____
Heater _____
Ratios:
Sep. Gas/Sep. Water _____
Sep. Gas/Stock Oil _____
Sep. Gas/Stock Water _____
Sep. Gas/Sep. Oil _____
Overall Gas/Liquid _____
Allowable Rates: Gas _____
Oil _____
Gas Gravity _____
Oil Gravity _____ @ _____ °F
Gas Measurement: Method _____ Press. Base _____
Liquid Outage _____
REMARKS: (including weather data) No data sheet submitted.

LABORATORY DATA

Analysis No. C-7953 Method Gas Chrom. Analyzed by Maloney Date 10/7/66

Component	Mol. %	Vol. %	Content GPM	V.P. psia
Hydrogen Sulfide				
Carbon Dioxide	1.28			
Nitrogen	3.46			
Air				
Methane	65.09			
Ethan	14.35			
Propane	9.08	?	2.50	
i-Butane	1.73		.57	
n-Butane	3.02		.72	
i-Pentane	0.73		.27	
n-Pentane	0.62		.22	
Hexanes (+)	0.64		.33	
TOTAL	100.00		4.61	

ENGLER:
IBP _____ °F
5% _____
10% _____
20% _____
30% _____
40% _____
50% _____
60% _____
70% _____
80% _____
90% _____
95% _____
EP _____
Rec. _____ %
Res. _____ %
Loss _____ %

C_6 + DATA:
Mol. Wt. _____
CF/Gal. _____
Gal/Mol _____
°API _____
Calc. VP _____
26/70 Equiv. _____

DISTRIBUTION: W. G. Sole
J. E. Shannon

REMARKS: _____

Signed G. E. McIver Date 10/12/66

Mobil

MOBIL OIL CORPORATION
P. O. BOX 900
DALLAS, TEXAS 75221

CO-7384 (2-67)

report of laboratory analysis - field sample

FIELD DATA

CYL. NO. 4270 CYL. PRESSURE 730 @ 62 °F
STREAM SAMPLED Separator Outlet
VOLUME OF STREAM SAMPLED 8,250 Mcf/D
DATE SAMPLED 12/12/67
REQUESTED BY G. T. Stroud
SUBMITTED BY "

PRESSURES: BOTTOMHOLE
SHUTIN CASING 2544
SHUTIN TUBING 2546
FLOWING TUBING
FLOWING CASING
PRIMARY SEPARATOR
SECONDARY SEPARATOR
STOCK TANK

CHOKE SIZES: TUBING CASING

LEASE NAME Navajo WELL NO. 1
DISTRICT Casper STATE New Mexico
OPERATOR Campbell, Kiel & Rothwell
FIELD Tocito T 26 R 18W COUNTY San Juan
SAND Penn "E" DEPTH
WELL DEPTH 6352 PERF. 6322-28 SHOTS 4/ft

TEMPERATURES: BOTTOMHOLE
FLOWING WELLHEAD
HEATER IN OUT
PRIMARY SEP. GAS OIL
SECOND SEP. GAS OIL
METER RUN
STOCK TANK
ATMOSPHERIC 32
HEATER 27/64

PRODUCTION RATES:
PRIMARY SEP. GAS OIL
SECOND SEP. GAS OIL
PRIMARY SEP. WATER
STOCK TANK OIL
STOCK TANK WATER
POTENTIAL RATES: GAS
OIL

RATIOS:
SEP. GAS/SEP. WATER
SEP. GAS/STOCK OIL
SEP. GAS/STOCK WATER
SEP. GAS/SEP. OIL
OVERALL GAS/LIQUID
ALLOWABLE RATES: GAS
OIL

DISPOSITION PRODUCTION: GAS OIL

FIELD TESTS: AIR %
CO_2 %
H_2S GR/100

GAS GRAVITY
OIL GRAVITY @ °
GAS MEASUREMENT: METHOD orifice meter PRESS. BASE 15.02

SAMPLE METHOD purged cylinder LIQUID OUTAGE

REMARKS: (INCLUDING WEATHER DATA)

LABORATORY DATA

ANALYSIS NO. C-939 METHOD Gas Chrom. ANALYZED BY Loop DATE 12/21/67

COMPONENT	MOL. %	VOL. %	CONTENT GPM	V.P. PSIA
HYDROGEN SULFIDE				
CARBON DIOXIDE	2.30			
NITROGEN	35.70			
AIR				
METHANE	51.15			
ETHANE	5.90			
PROPANE	2.82		0.776	
I-BUTANE	0.52		0.170	
n-BUTANE	0.84		0.265	
I-PENTANE	0.25		0.091	
n-PENTANE	0.23		0.083	
HEXANES (+)	0.29		0.124	
TOTAL	100.00		1.509	

ENGLER:
IBP °F
5%
10%
20%
30%
40%
50%
60%
70%
80%
90%
95%
EP
REC. %
RES. %

C_{6+} DATA:
MOL. WT. 91.587
CF/GAL. 23.453
GAL/MOL 16.181
°API 76.6
CALC. VP 3.87

DISTRIBUTION: G. T. Stroud - W/Engler and Calc. Sheets

REMARKS:

MOBIL P. O. BOX 900 DALLAS, TEXAS 75221

report of laboratory analysis - field sample

FIELD DATA

CYL NO _____ CYL PRESSURE 1140 @ 26 F

STREAM SAMPLED Well Head

VOLUME OF STREAM SAMPLED _____

DATE SAMPLED _____

REQUESTED BY _____

SUBMITTED BY K. R. Pritchard

PRESSURES: BOTTOMHOLE _____ SHUTIN CASING 1340 SHUTIN TUBING 1140 FLOWING TUBING _____ FLOWING CASING _____ PRIMARY SEPARATOR _____ SECONDARY SEPARATOR _____ STOCK TANK _____

CHOKE SIZES: TUBING _____ CASING _____

LEASE NAME Navajo-Tocito WELL NO 3

DISTRICT Hobbs - Four Corners Area STATE N. Mex.

OPERATOR Mobil

FIELD Tocito Dome COUNTY San Juan

SAND Penn - D DEPTH _____

WELL DEPTH _____ PERF _____ SHOTS _____

TEMPERATURES: BOTTOMHOLE _____ FLOWING WELLHEAD _____ HEATER IN _____ OUT _____ PRIMARY SEP GAS _____ OIL _____ SECOND SEP GAS _____ OIL _____ METER RUN _____ STOCK TANK _____ ATMOSPHERIC 60 HEATER _____

PRODUCTION RATES

PRIMARY SEP GAS _____ OIL _____

SECOND SEP GAS _____ OIL _____

PRIMARY SEP WATER _____

STOCK TANK OIL _____

STOCK TANK WATER _____

POTENTIAL RATES: GAS _____ OIL _____

DISPOSITION PRODUCTION: GAS _____ OIL _____

RATIOS

SEP GAS/SEP WATER _____

SEP GAS/STOCK OIL _____

SEP GAS/STOCK WATER _____

SEP GAS/SEP OIL _____

OVERALL GAS/LIQUID _____

ALLOWABLE RATES: GAS _____ OIL _____

FIELD TESTS: AIR _____ % CO2 _____ % H2S _____ GR/100

GAS GRAVITY _____

OIL GRAVITY _____ @ _____ F

GAS MEASUREMENT METHOD _____ PRESS BASE _____

SAMPLE METHOD Fill & purge LIQUID OUTAGE _____

REMARKS: (INCLUDING WEATHER DATA) _____

LABORATORY DATA

ANALYSIS NO C25,605 METHOD _____ ANALYZED BY _____ DATE 10/14/77

COMPONENT	CYL # 4387 MOL %	4356 XXXMOL%	CONTENT GPM	VP PSIA
HYDROGEN SULFIDE				
CARBON DIOXIDE	3.576	3.658		
NITROGEN	27.419	26.605		
AIR				
METHANE	60.139	60.175		
ETHANE	5.751	5.983		
PROPANE	1.990	2.198		
i-BUTANE	.304	.352		
n-BUTANE	.454	.523		
i-PENTANE	.116	.140		
n-PENTANE	.101	.122		
HEXANES (+)	.150	.244		
TOTAL	100.000	100.000		

ENGLER: IBP _____ F, 10% _____, 20% _____, 30% _____, 40% _____, 50% _____, 60% _____, 70% _____, 80% _____, 90% _____, 97% _____, EP _____, REC _____ %, RES _____ %, LOSS _____ %

C7+ DATA: MW _____, G _____, API _____, CALC VP _____

BTU

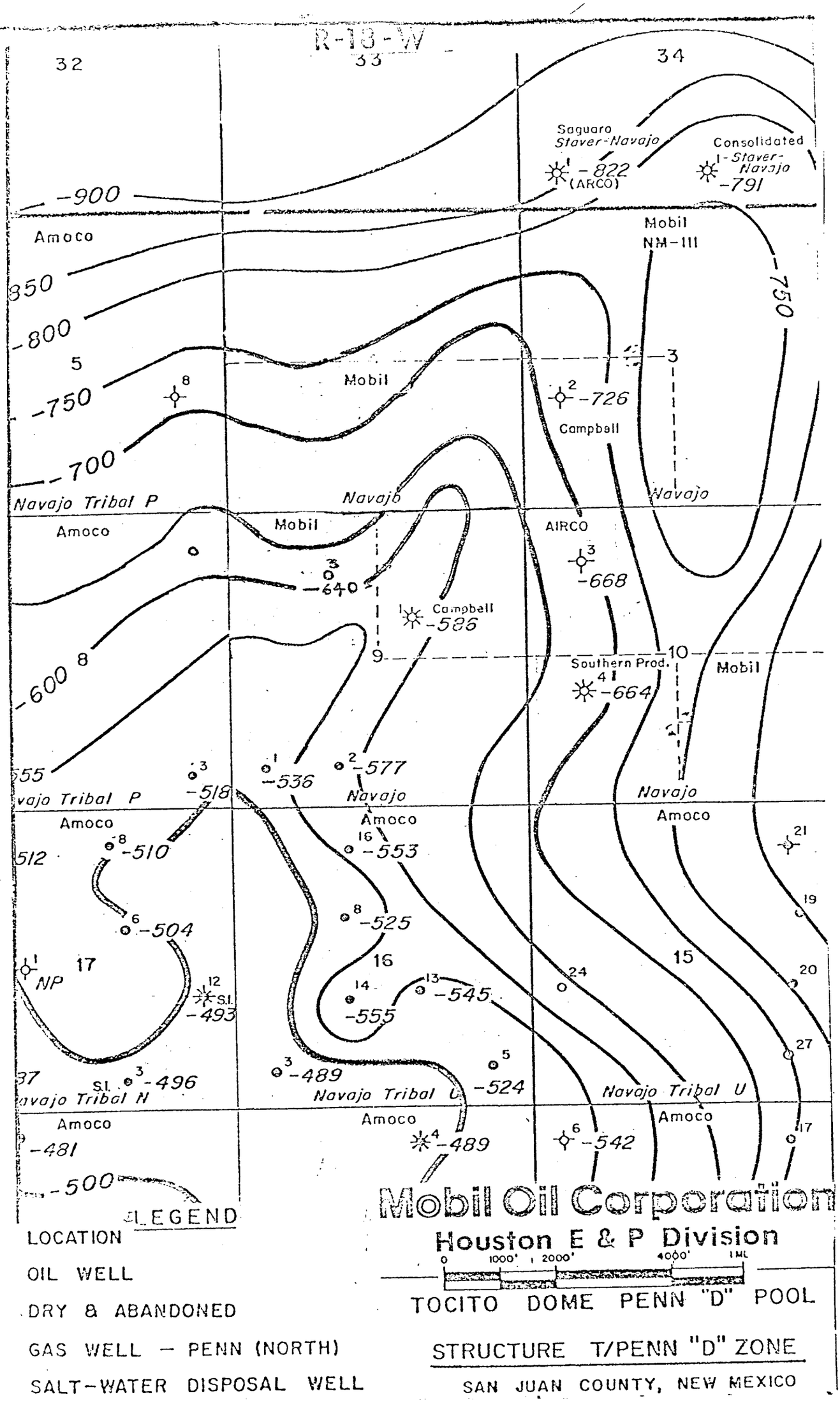
Cyl. 4387 - 788

Cyl. 4356 - 808

DISTRIBUTION: CWJ AJA CLP RED CWB

REMARKS _____

SIGNED G. E. McIver DATE 10/18/77


R-13-W
32
33
34
Saguaro Stayer-Navajo
1 -822 (ARCO)
Consolidated
1-Stayer-Navajo
-791
-900
Amoco
Mobil NM-III
850
-800
-750
-700
5
8
Mobil
2 -726
Campbell
3
Navajo Tribal P
Navajo
Amoco
Mobil
AIRCO
3 -640
3 -668
1 Campbell -586
9
10
Southern Prod.
4 -664
Mobil
600
8
555
3 -518
1 -536
2 -577
Navajo
Navajo
vajo Tribal P
Amoco
Amoco
Amoco
512
8 -510
16 -553
21
19
6 -504
8 -525
1 NP
17
16
15
12 S.I. -493
14
13 -545
24
20
-555
27
37
S.I.
3 -496
3 -489
5 -524
Navajo Tribal U
Navajo Tribal U
avajo Tribal N
Amoco
Amoco
Amoco
-481
4 -489
6 -542
17
-500
LEGEND
LOCATION
OIL WELL
DRY & ABANDONED
GAS WELL — PENN (NORTH)
SALT-WATER DISPOSAL WELL
Mobil Oil Corporation
Houston E & P Division
0 1000' 2000' 4000' 1 MI
TOCITO DOME PENN "D" POOL
STRUCTURE T/PENN "D" ZONE
SAN JUAN COUNTY, NEW MEXICO