NEW MEXICO OIL CONSERVATION COMMISSION

CASE NO. 8683

APPLICATION FOR INCREASED GOR LIMITATION
FOR THE FEATHER MORROW POOL

LEA COUNTY, NEW MEXICO

AUGUST 28, 1985

PRESENTED BY H. L. BROWN, JR.

INTRODUCTION

H. L. Brown, Jr. is requesting an increase of the gas-oil ratio limitation for the Feather-Morrow Pool. The subject pool is currently operated upon a GOR limitation in accordance with rule 506(a), which is 2000 cubic feet of gas per barrel of oil. This application seeks the GOR limitation to be increased to 10,000:1 for the Feather-Morrow Pool. It is also requested that this increase be retroactive to the date of establishment of this pool. Information contained in this exibit support our opinion that wells located in this Morrow reservoir are capable of producing oil and gas without waste with GOR's greater than the current limitation of 2000:1.

HISTORY

The Feather-Morrow Pool is located in the western portion of Lea County, New Mexico as shown in Figure 1. The State UTP No. 1 was completed as a discovery Morrow oil well in September, 1981. Development of this field continued with the completion of the State UTP No. 2 in September, 1983, and the State UTP No. 3 in September, 1984. H. L. Brown, Jr. operates the State UTP No. 3,

while Santa Fe Energy operates the State UTP No.s' 1 and 2. Figures 2 and 3 show the cross-section for the three subject wells. As of June 1, 1985, 201,305 barrels of condensate and 1,206,691 MCF of gas had been produced from the Feather (Morrow) Field. Production and GOR data are provided in Table I. The current field GOR is found to be 8680 cubic feet of gas per barrel of oil.

FINDINGS

Pressure-volume-temperature fluid data available from the Morrow reservoir dated May 26, 1982, describe a condensate rather than a black oil reservoir fluid system. Therefore, elevated produced gas-oil ratio should not cause damage so long as it does not materially exceed that of the labratory P-V-T pressure depletion study. A copy of this report is located in the back of this exibit.

Pressure data versus cumulative well stream recovery to date show initial well stream in-place to be 14,300,182 MCF. This gives 12,708,572 MCF of sales gas and 2,013,752 barrels of condensate in-place initially. Using these in-place volumes and the P-V-T study, theoretical gas-oil ratio versus cumulative sales gas production was calculated. This theoretical gas-oil ratio behavior is shown on Figure 4 with red circles.

A decline analysis projection of future gas and condensate behavior for the individual wells and the total field was made. The resulting gas-oil ratio data are also shown on Figure 4 for the total field actual past and anticipated future behavior. Projections of the decline analysis relative to gas and condensate rates versus cumulative production are also presented on the plot. A comparison of the theoretical past and future gas-oil ratio behavior with the actual past and decline analysis future gas-oil ratio behavior shows reasonable agreement. This indicates continuation of current operations to be essentially in accord with what would be theoretically expected.

CONCLUSIONS

Based on data presented in this exibit, it is the opinion of H. L. Brown, Jr. that the Morrow reservoir can be produced without waste with an increase in the current GOR limitation. We respectfully request that a gas-oil ratio limitation 10,000:1 be adopted for the Feather-Morrow Pool and that the increase in GOR be retroactive to the date of establishment of this pool.

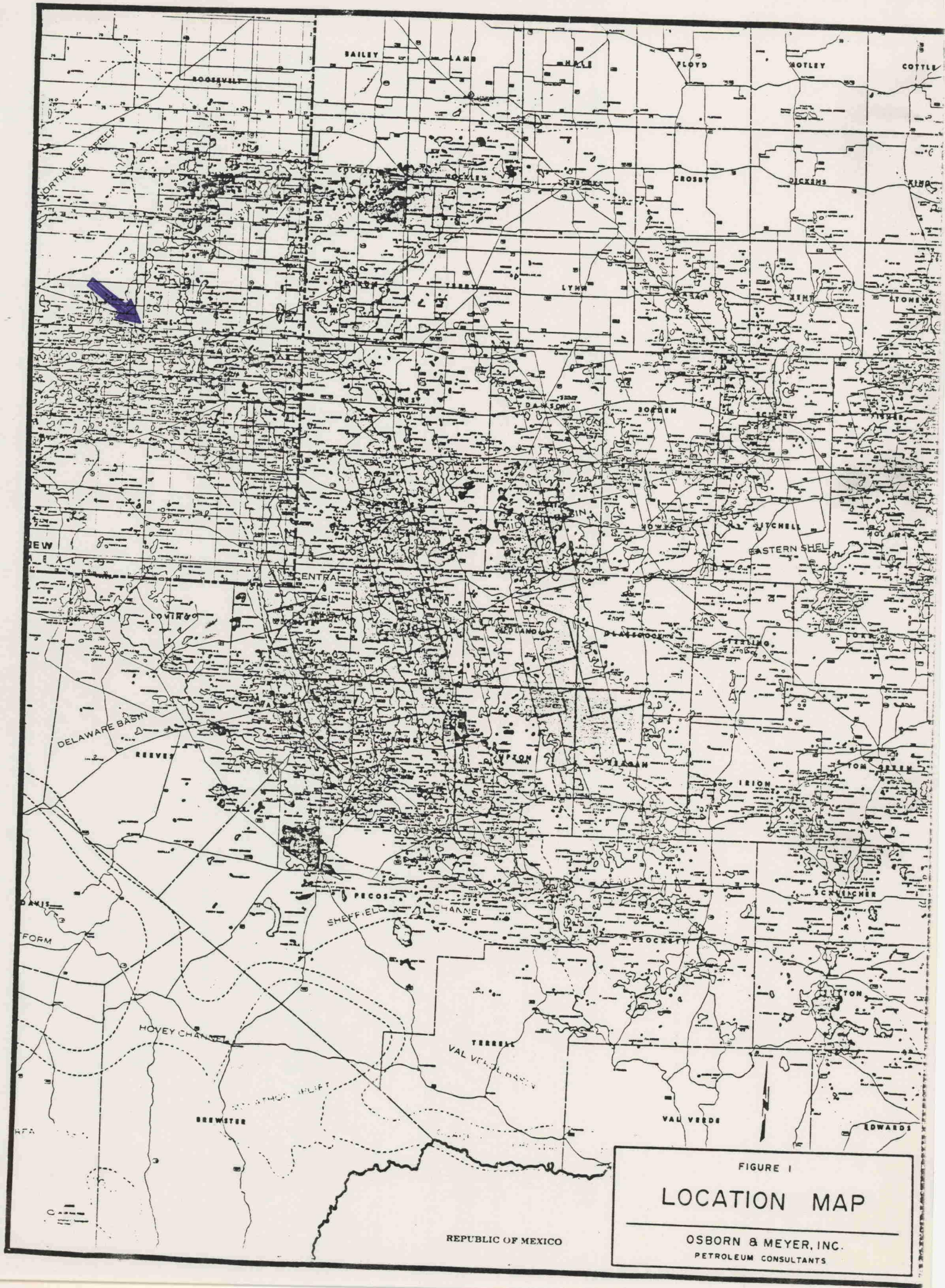
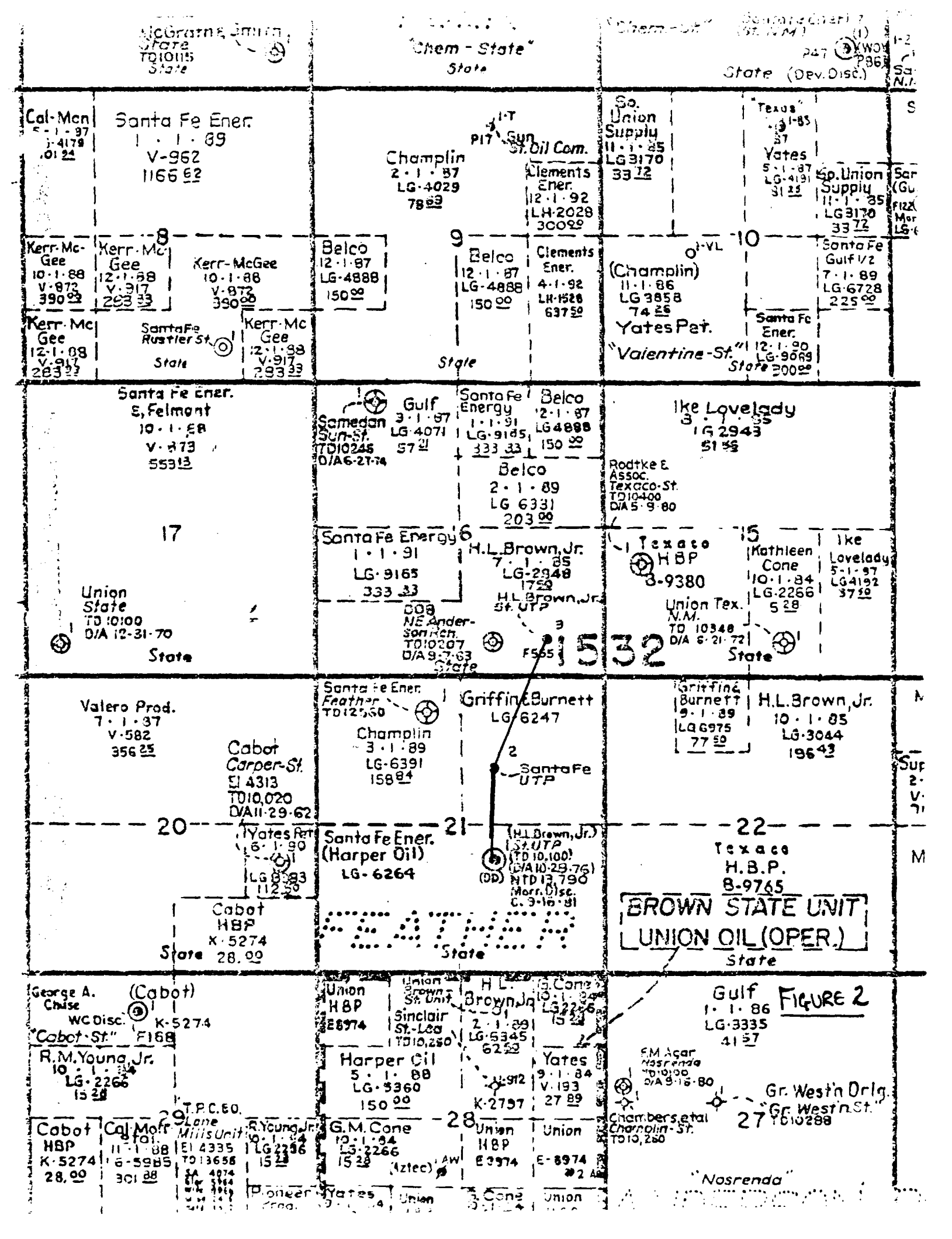


FIGURE 1

LOCATION MAP

OSBORN & MEYER, INC.
PETROLEUM CONSULTANTS


McGrath E. Union State TD10115 State
"Chem - State" State
State (Dev. Disc.)
Cal-Man 5-1-97 I-4179 101 24
Santa Fe Ener. 1-1-89 V-962 1166 62
I-T P17 Sun St. Oil Com.
Champlin 2-1-87 LG-4029 78 69
Clements Ener. 12-1-92 LH-2028 300 00
So. Union Supply 11-1-85 LG 3170 33 72
Texas I-85 S7 Yates 5-1-87 LG-4191 51 35
So. Union Supply 11-1-85 LG 3170 33 72
8
Kerr-McGee 10-1-88 V-873 390 00
Kerr-McGee 12-1-88 V-917 293 33
Kerr-McGee 10-1-88 V-873 390 00
Belco 12-1-87 LG-4888 150 00
9
Belco 12-1-87 LG-4888 150 00
Clements Ener. 4-1-92 LH-1528 637 50
I-VL O (Champlin) 11-1-86 LG 3858 74 26
Yates Pet. "Valentine-St."
10
Santa Fe Gulf 1/2 7-1-89 LG-6728 225 00
Kerr-McGee 12-1-88 V-917 293 33
Santa Fe Rustler St. State
Kerr-McGee 12-1-88 V-917 293 33
State
Santa Fe Ener. 12-1-90 LG-9069 200 00
State
Santa Fe Ener. E. Felmont 10-1-88 V-873 553 13
Gulf 3-1-87 LG-4071 S7 21
Samedan Sun-St. TD10245 D/A 6-21-74
Santa Fe Energy 1-1-91 LG-9165 333 33
Belco 12-1-87 LG 4888 150 00
Belco 2-1-89 LG 6331 203 00
Ike Lovelady 3-1-85 LG 2943 51 56
Rodtke & Assoc. Texaco-St. TD10400 D/A 5-9-80
17
Union State TD 10100 D/A 12-31-70 State
Santa Fe Energy 1-1-91 LG-9165 333 33
6
H.L. Brown, Jr. 7-1-85 LG-2948 175 00
H.L. Brown, Jr. St. UTP
DDB NE Anderson Ranch TD10207 D/A 9-7-63 State
3
F565
15
Texaco H BP 8-9380
Union Tex. N.M. TD 10348 D/A 6-21-72 State
Kathleen Cone 10-1-84 LG-2266 5 28
Ike Lovelady 5-1-97 LG4192 37 50
1532
Valero Prod. 7-1-87 V-582 356 25
Cabot Carper-St. EI 4313 TD10,020 D/A 11-29-62
Santa Fe Ener. Feather TD12,560
Champlin 3-1-89 LG-6391 158 84
Griffin & Burnett LG 6247
2
Santa Fe UTP
Griffin & Burnett 9-1-89 LG 6975 77 50
H.L. Brown, Jr. 10-1-85 LG-3044 196 43
20
Yates Pet 6-1-90 LG 6583 112 50
Cabot HBP K-5274 28.00 State
21
Santa Fe Ener. (Harper Oil) LG-6264
(H.L. Brown, Jr.) St. UTP (TD 10,100) (D/A 10-28-76) (DD) NTD 13,790 (Morr. Disc. C. 9-16-81)
22
Texaco H.B.P. 8-9765
BROWN STATE UNIT
UNION OIL (OPER.)
State
George A. Chise WC Disc. (Cabot) K-5274 "Cabot-St." F168
R.M. Young Jr. 10-1-84 LG-2266 15 28
Union HBP E8974
Union Brown St. Unit Sinclair St.-Lea TD10,250
H.L. Brown Jr. 2-1-89 LG-5345 62 50
G. Cone 10-1-84 LG-2266 15 28
Harper Oil 5-1-88 LG-5360 150 00
Yates 9-1-84 V-193 27 89
K-2797
Gulf 1-1-86 LG-3335 41 57
FIGURE 2
F.M. Acar Nosrenda TD10100 D/A 9-16-80
Gr. Westn Drlg. "Gr. Westn St." TD10288
Chambers et al Champlin-St. TD10,250
29
T.P.C. 60 Lane Mills Unit
Cabot HBP K-5274 28.00
Cal-Mon 11-1-88 G-5985 301 88
R. Young Jr. 10-1-84 LG-2266 15 28
28
G.M. Cone 10-1-84 LG-2266 15 28 (Aztec)
Union HBP E8974
Union E-8974
27
"Nosrenda"
Pioneer Prod.
Yates
Union
G. Cone
Union

STATE UTP WELLS NO. 1, 2 & 3