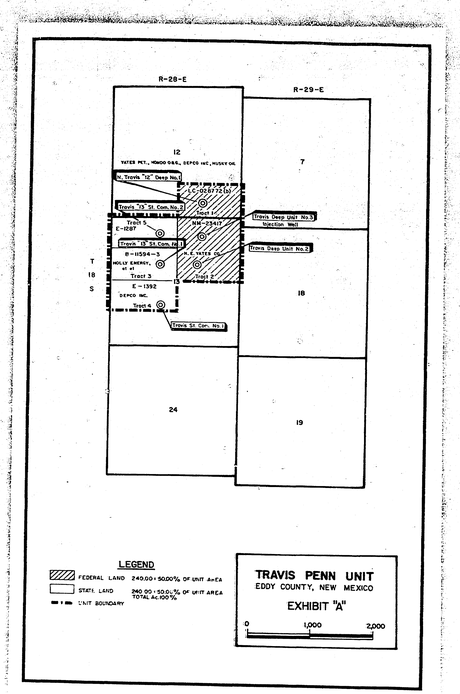
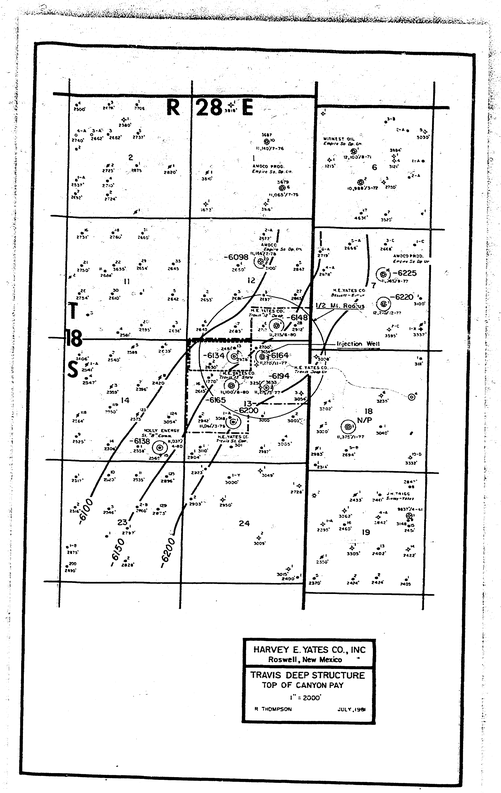
Case No
7320

Large Exhibits


R-28-E
R-29-E
12
WATER PET., HONDO G&S., DEPCO INT., HUSKY OK
N. Travis "12" Deep No.1
Travis "13" St. Com. No.2
Travis 13
Travis 5
E-1287
Travis "13" St. Com. No.1
B-11594-3
MOLLY ENERGY, ET AL
Tract 3
E-1392
DEPCO INC.
Travis 4
Travis St. Com. No.1
T
18
S
C-10697 (NI)
Travis 11
NM-23417
Travis 2
Travis Deep Unit No.3
Injection Well
Travis Deep Unit No.2
7
18
24
19
LEGEND
FEDERAL LAND 240.00 = 50.00% OF UNIT AREA
STATE LAND 240.00 = 50.0% OF UNIT AREA
TOTAL ACRES 100%
UNIT BOUNDARY
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO
EXHIBIT "A"
0
1,000
2,000


R 28 E
T 18 S
-6098
-6225
-6220
-6148
-6134
-6164
-6194
-6165
-6200
-6138
-6000
-6050
-6200
1/2 Mi. Radius
Injection Well
N/P
24
19
HARVEY E. YATES CO., INC
Roswell, New Mexico
TRAVIS DEEP STRUCTURE
TOP OF CANYON PAY
1" = 2000'
R. THOMPSON
JULY, 1978

A

HOLE DRIED, INC.
STATE 7-16C CON NO. 1
SEC 16, T-38-S, R-20-E

HARVEY E. YATES COMPANY
TRAVIS STATE NO. 3
SEC 15, T-38-S, R-20-E

HARVEY E. YATES COMPANY
TRAVIS 15 STATE NO. 1
SEC 15, T-38-S, R-20-E

HARVEY E. YATES COMPANY
TRAVIS 15 STATE NO. 2
SEC 15, T-38-S, R-20-E

HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT NO. 2
SEC 15, T-38-S, R-20-E

HARVEY E. YATES COMPANY
TRAVIS DEEP NO. 2
SEC 15, T-38-S, R-20-E

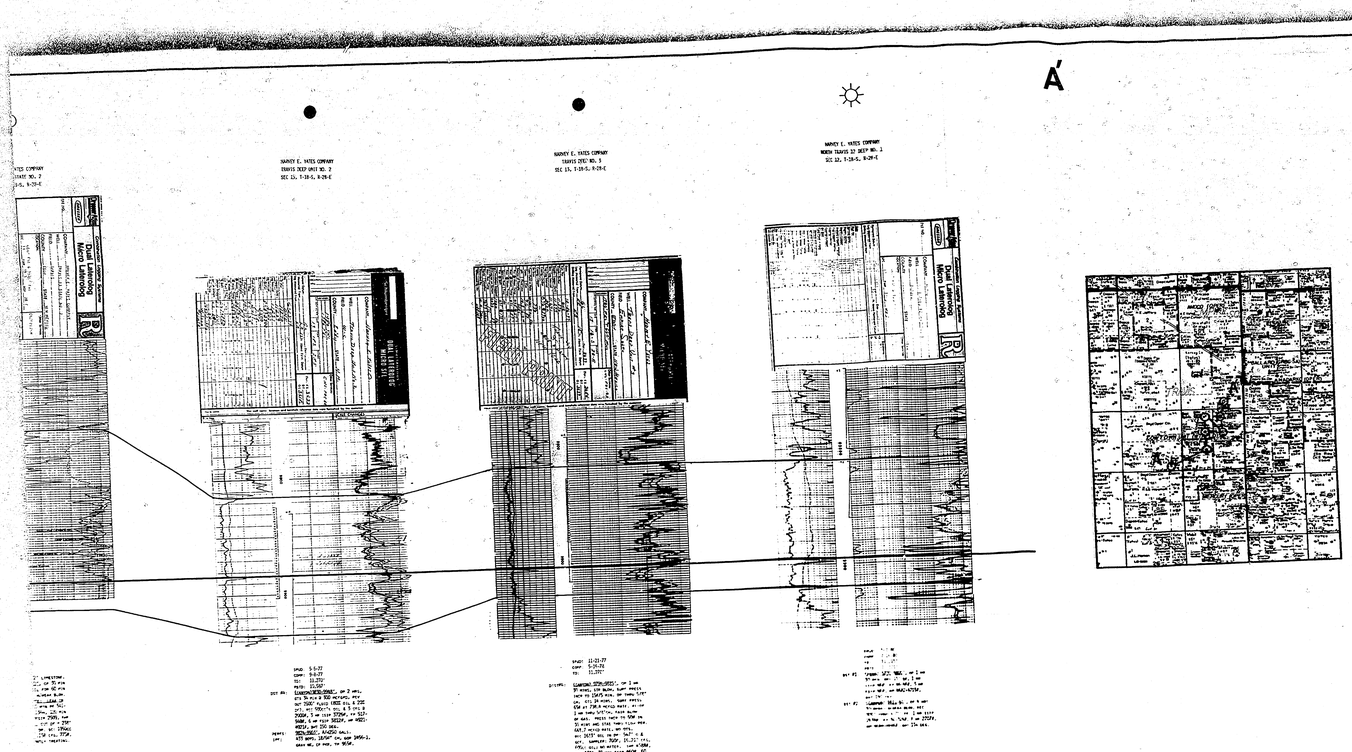
HARVEY E. YATES COMPANY
NORTH TRAVIS 12 DEEP NO. 1
SEC 12, T-38-S, R-20-E

TOP OF TRAVIS CANYON

DATUM — CANYON MARKER

BASE OF TRAVIS CANYON

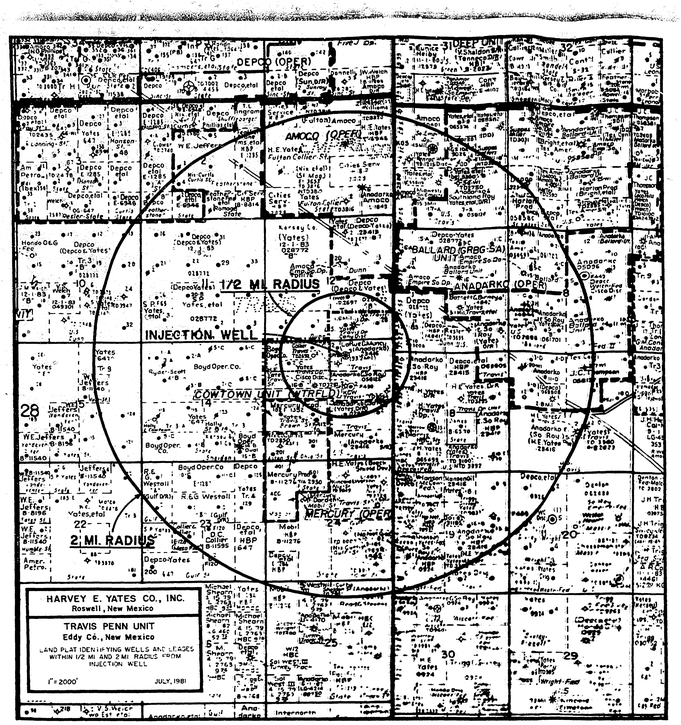
A'

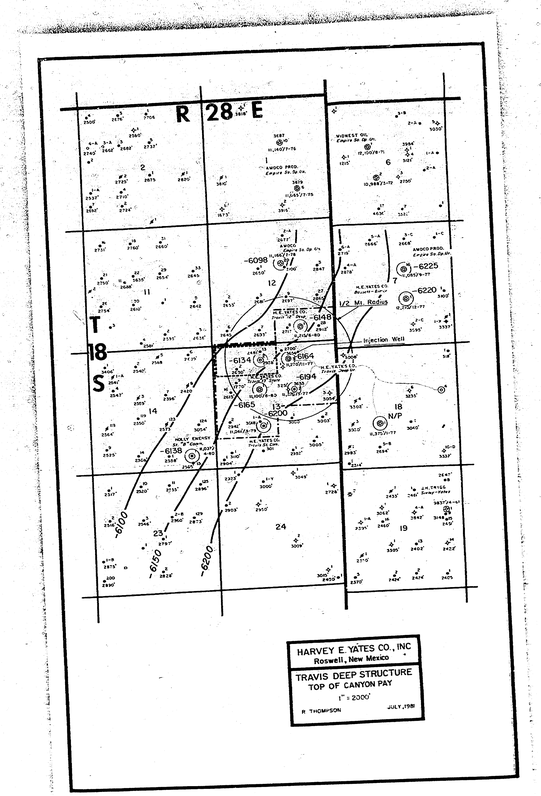


HARVEY E. YATES COMPANY
ROSWELL, NEW MEXICO

TRAVIS CANYON
STRATIGRAPHIC
CROSS-SECTION A-A'

EDDY COUNTY, NEW MEXICO


DEPCO (OPER)
AMOCO (OPER)
BALLARD (GRBG-SA) UNIT
ANADARKO (OPER)
1/2 MI. RADIUS
INJECTION WELL
COWTOWN UNIT (WTRFLD)
MERCURY (OPER)
2 MI. RADIUS
HARVEY E. YATES CO., INC.
Roswell, New Mexico
TRAVIS PENN UNIT
Eddy Co., New Mexico
LAND PLAT IDENTIFYING WELLS AND LEASES WITHIN 1/2 MI AND 2 MI. RADIUS FROM INJECTION WELL
1" = 2000'
JULY, 1981


R 28 E
T 18 S
-6098
-6154
-6148
-6164
-6184
-6165
-6230
-6138
-6100
-6150
-6200
-6225
-6220
1/2 Mi. Radius
Injection Well
N/P
24
19
HARVEY E. YATES CO., INC
Roswell, New Mexico
TRAVIS DEEP STRUCTURE
TOP OF CANYON PAY
1" = 2000'
R. THOMPSON
JULY, 1981

A

KELLY ENERGY, INC.
STATE "B-16" COM NO. 1
SEC 16, T-16-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS STATE NO. 1
SEC 15, T-16-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS 15 STATE NO. 1
SEC 15, T-16-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS 14 STATE NO. 2
SEC 15, T-16-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT NO. 2
SEC 15, T-16-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS DEEP NO. 3
SEC 15, T-16-S, R-28-E

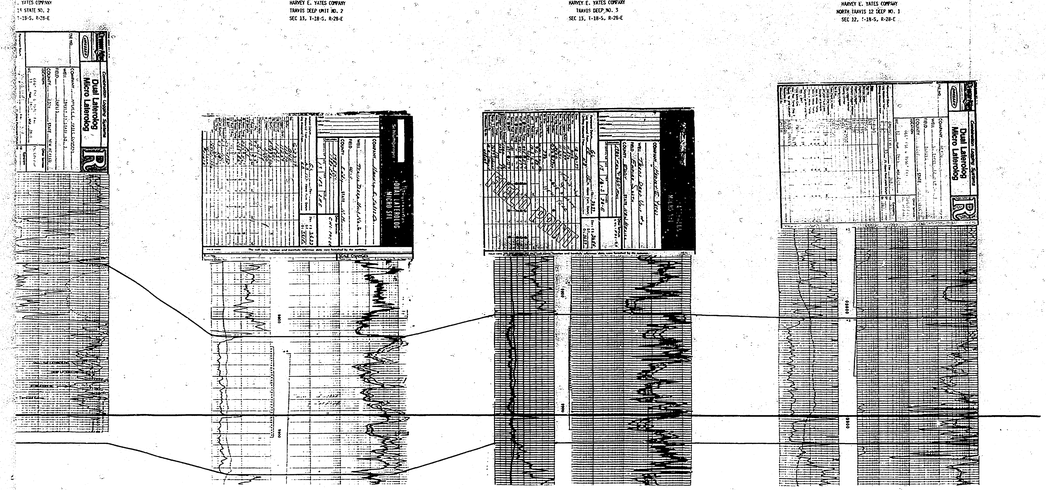
HARVEY E. YATES COMPANY
NORTH TRAVIS 22 DEEP NO. 1
SEC 22, T-16-S, R-28-E

TOP OF TRANS CANYON

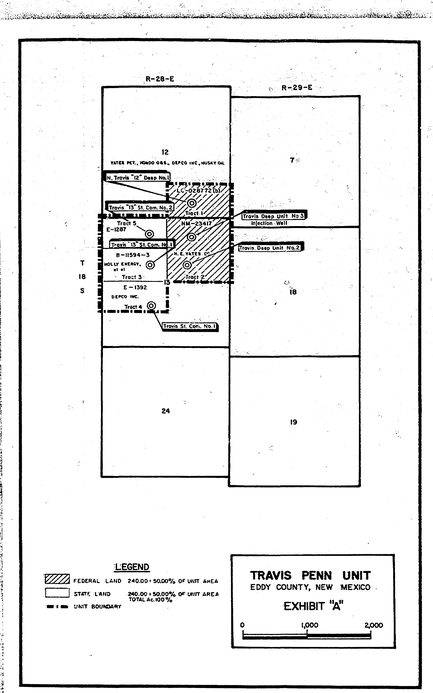
DATUM = CANYON MARKER

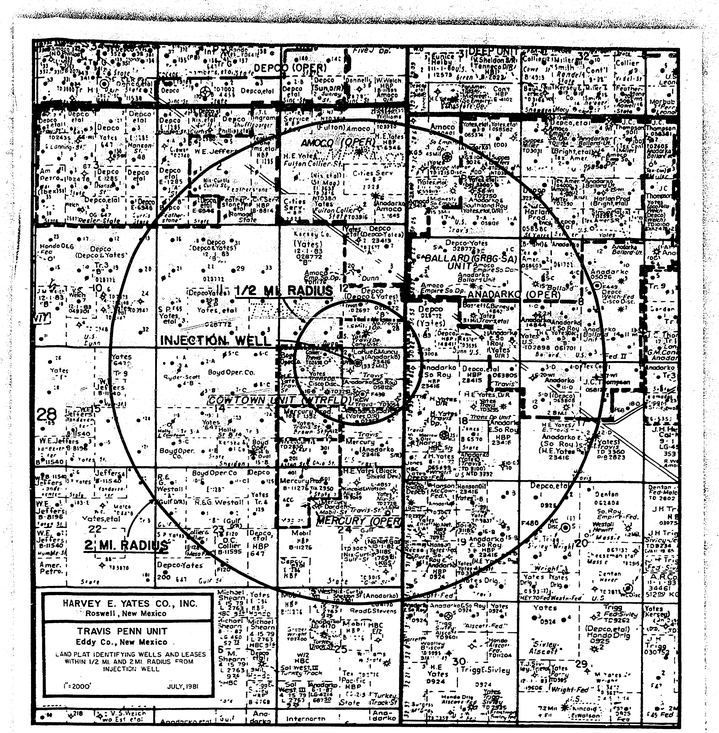
BASE OF TRANS CANYON

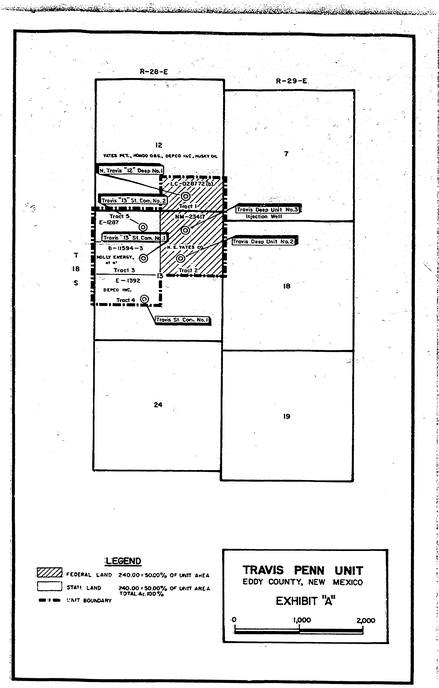
A



HARVEY E. YATES COMPANY
ROSWELL, NEW MEXICO
TRAVIS CANYON
STRATIGRAPHIC
CROSS - SECTION A-A'
EDDY COUNTY, NEW MEXICO


R-28-E
R-29-E
12
YATES PET., HONDO G&S., DEPCO INC, MUSKY OIL
Sr. Travis "A" Deep No.1
Travis "B" St. Com. No. 2
Tract 5
E-1287
Travis "B" St.Com. No.1
B-1594-3
MOLLY ENERGY, ET AL
Tract 3
E-1392
DEPCO INC.
Tract 4
Travis St. Com. No.1
Tract 1
HM-23417
A. E. YATES
Tract 2
Travis Deep Unit No.3 Injection Well
Travis Deep Unit No.2
T
18
S
7
18
24
19
LEGEND
FEDERAL LAND 240.00 = 50.00% OF UNIT AREA
STATE LAND 240.00 = 50.00% OF UNIT AREA
TOTAL AC 100%
UNIT BOUNDARY
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO
EXHIBIT "A"
0
1,000
2,000


DEPCO (OPER.)
AMOCO (OPER.)
DEEP UNIT
BALLARD (GRBG-SA) UNIT
ANADARKO (OPER.)
1/2 MI. RADIUS
INJECTION WELL
COWTOWN UNIT (WFMP) (OPER.)
MERCURY (OPER.)
2 MI. RADIUS
28
30
29
HARVEY E. YATES CO., INC.
Roswell, New Mexico
TRAVIS PENN UNIT
Eddy Co., New Mexico
LAND PLAT IDENTIFYING WELLS AND LEASES WITHIN 1/2 MI. AND 2 MI. RADIUS FROM INJECTION WELL
1"=2000'
JULY, 1981


R-28-E
R-29-E
12
YATES PET., HONDO OIL, DEPCO INC, HUNT OIL
N. Travis "A" Deep No.1
Travis "B" St. Com. No.2
Travis "B" St. Com. No.1
Tract 5
E-1237
Tract 2
Travis Deep Unit No.3
Injection Well
Travis Deep Unit No.2
Tract 1
T
18
S
Tract 3
E-1392
DEPCO INC.
Tract 4
Travis St. Com. No.1
7
18
24
19
LEGEND
FEDERAL LAND 240.00 = 50.00% OF UNIT AREA
STATE LAND 240.00 = 50.00% OF UNIT AREA
TOTAL AC 100%
UNIT BOUNDARY
TRAVIS PENN UNIT
EDDY COUNTY, NEW MEXICO
EXHIBIT "A"
0
1,000
2,000

A

HOLLY ENERGY, INC.
STATE "E-34" COM NO. 1
SEC 34, T-18-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS STATE NO. 1
SEC 15, T-18-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS 15 STATE NO. 1
SEC 15, T-18-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS 15 STATE NO. 2
SEC 15, T-18-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT NO. 2
SEC 15, T-18-S, R-28-E

HARVEY E. YATES COMPANY
TRAVIS DEEP NO. 3
SEC 15, T-18-S, R-28-E

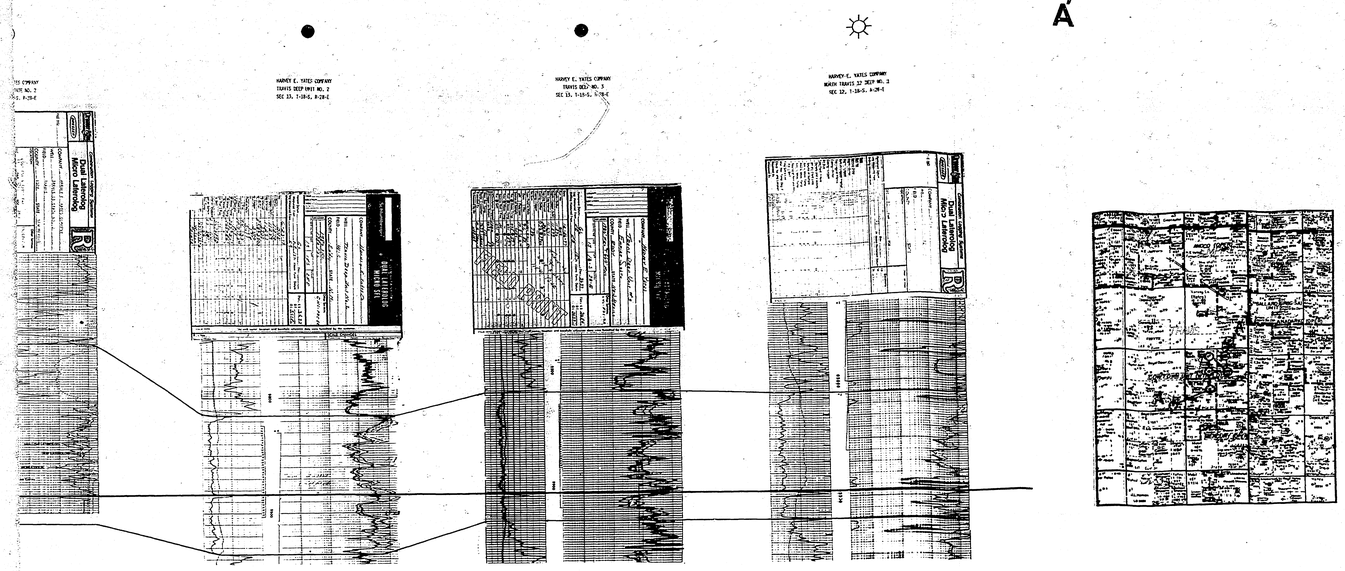
HARVEY E. YATES COMPANY
NORTH TRAVIS 12 FED NO. 1
SEC 12, T-24-S, R-28-E

TOP OF TRAVIS CANYON

DATUM — CANYON MARKER

BASE OF TRAVIS CANYON

A



HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT NO. 2
SEC 13, T-18-S, R-28-E

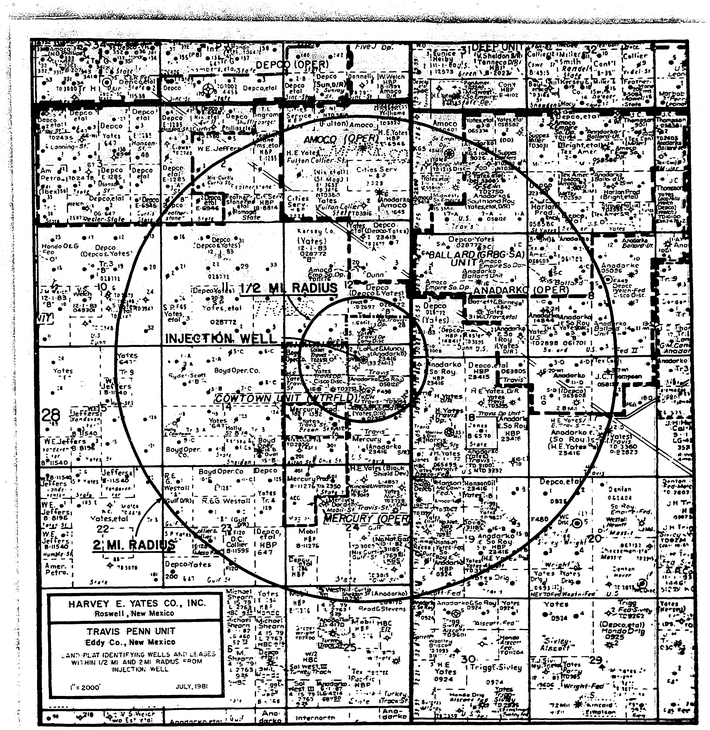
HARVEY E. YATES COMPANY
TRAVIS DEEP NO. 1
SEC 13, T-18-S, R-28-E

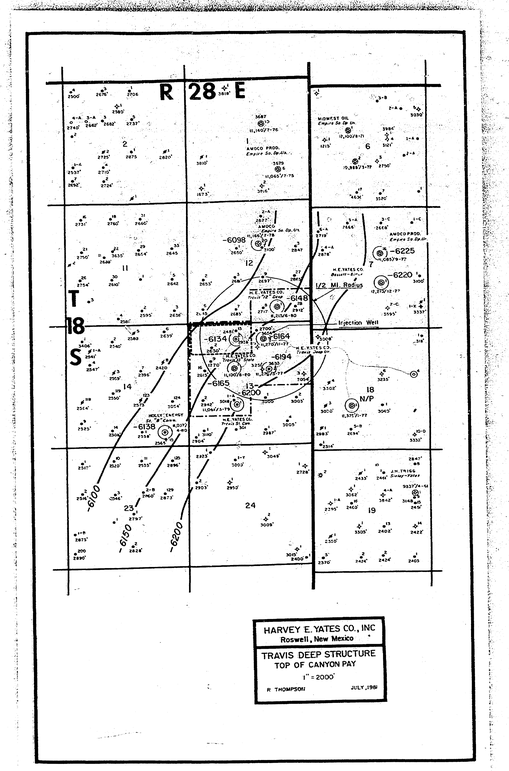
HARVEY E. YATES COMPANY
NORTH TRAVIS ST DEEP NO. 2
SEC 12, T-18-S, R-28-E

HARVEY E. YATES COMPANY
ROSWELL, NEW MEXICO

TRAVIS CANYON
STRATIGRAPHIC
CROSS-SECTION A-A'
EDDY COUNTY, NEW MEXICO

JULY, 1980


DEPCO (OPER)
AMOCO (OPER)
DEEP UNIT
BALLARD (GRBG-SA) UNIT
ANADARKO (OPER)
1/2 MI. RADIUS
INJECTION WELL
COWTOWN UNIT (WTRFLD)
MERCURY (OPER)
2 MI. RADIUS
HARVEY E. YATES CO., INC.
Roswell, New Mexico
TRAVIS PENN UNIT
Eddy Co., New Mexico
LAND PLAT IDENTIFYING WELLS AND LEASES WITHIN 1/2 MI AND 2 MI RADIUS FROM INJECTION WELL
1" = 2000'
JULY, 1981


R 28 E
T 18 S
1/2 Mi. Radius
Injection Well
-6098
-6134
-6165
-6200
-6138
-6194
-6225
-6220
-6100
-6200
HARVEY E. YATES CO., INC
Roswell, New Mexico
TRAVIS DEEP STRUCTURE
TOP OF CANYON PAY
1" = 2000'
R. THOMPSON
JULY, 1981

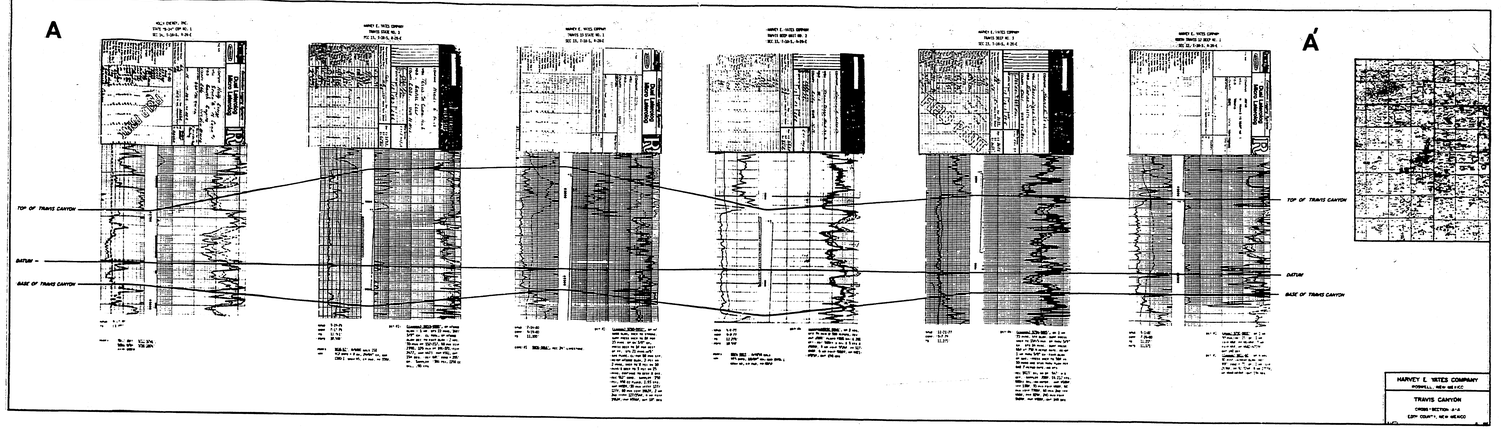

A
A'
TOP OF TRAVIS CANYON
DATUM
BASE OF TRAVIS CANYON
TOP OF TRAVIS CANYON
DATUM
BASE OF TRAVIS CANYON
HARVEY E. YATES COMPANY
ROSWELL, NEW MEXICO
TRAVIS CANYON
CROSS SECTION A-A'
EDDY COUNTY, NEW MEXICO

PLATE 4

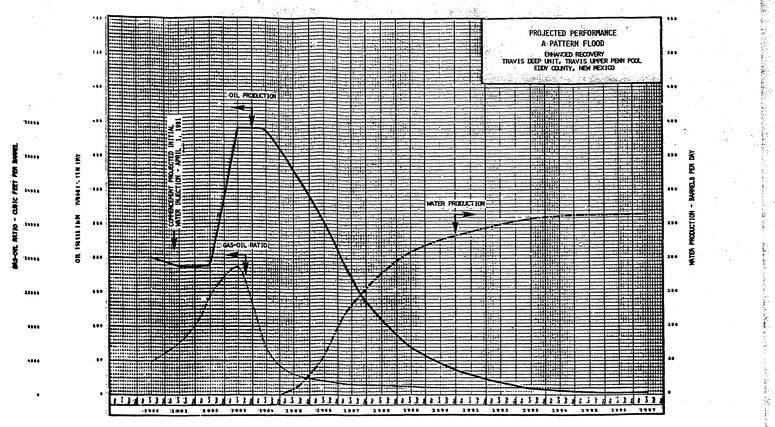

PROJECTED PERFORMANCE
A PATTERN FLOOD
DRAWICED RECOVERY
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
OIL PRODUCTION
WATER PRODUCTION
GAS-OIL RATIO
CUMULATIVE PRODUCTION AT END OF YEAR
WATER INJECTION - APRIL 1, 1961
GAS-OIL RATIO - CUBIC FEET PER BARREL
OIL PRODUCTION - BARRELS PER DAY
WATER PRODUCTION - BARRELS PER DAY

PLATE 5

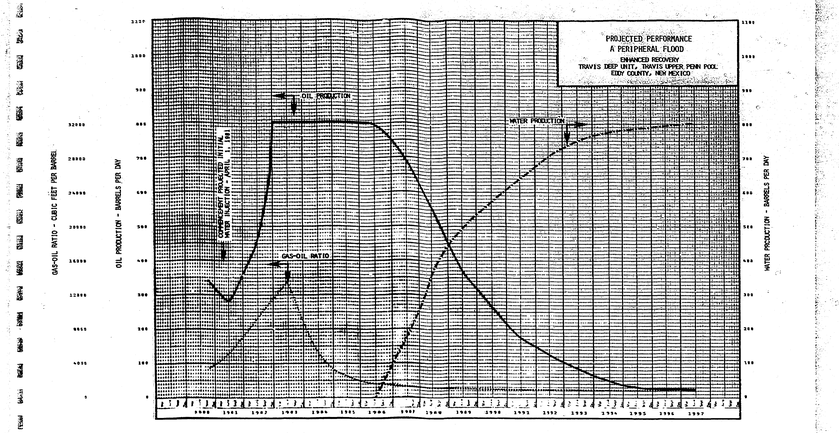
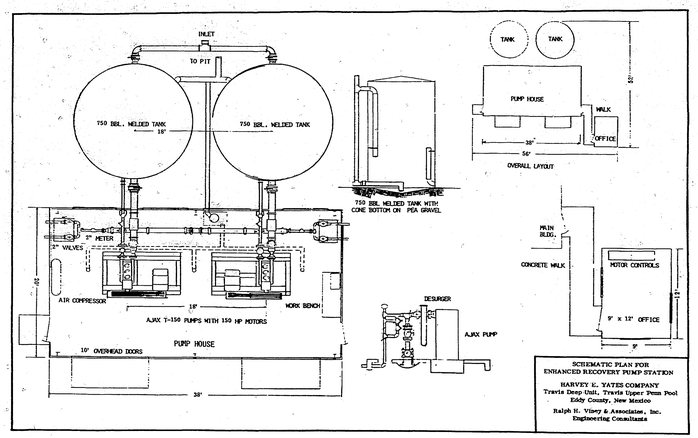

PROJECTED PERFORMANCE
A PERIPHERAL FLOOD
ENHANCED RECOVERY
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
OIL PRODUCTION
WATER PRODUCTION
GAS-OIL RATIO
COMMENCEMENT PROJECTED WATER INJECTION - APRIL 1, 1981
OIL PRODUCTION - BARRELS PER DAY
GAS-OIL RATIO - CUBIC FEET PER BARREL
WATER PRODUCTION - BARRELS PER DAY

PLATE 6



SCHEMATIC PLAN FOR
ENHANCED RECOVERY PUMP STATION

HARVEY E. YATES COMPANY
Travis Deep Unit, Travis Upper Penn Pool
Eddy County, New Mexico

Ralph H. Visey & Associates, Inc.
Engineering Consultants

PLATE 8

HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

FRACTIONAL FLOW FORMULA
BUCKLEY - LEVETT METHOD

$\frac{S_w}{}$	$\frac{K_{ro}}{K_{rw}}$	$\frac{U_w}{U_o}$	f_w
30	680.000	0.88	0.001668
40	60.000	0.88	0.018587
50	9.000	0.88	0.132108
60	2.100	0.88	0.351134
70	0.475	0.88	0.705213
80	0.110	0.88	0.911743
90	0.020	0.88	0.982704

FRACTIONAL FLOW AND DISPLACEMENT
CAUDLE, DYERS AND ERICKSON METHOD

Mobility Ratio (M) = $\frac{\frac{K_{rw}}{U_w}_{Sof}}{\frac{K_{ro}}{U_o}_{Sw}}$

Where: S_{wi} = 0.67 : K_{ro} = 0.600
S_{of} = 0.26 : K_{rw} = 0.245
U_w = 0.35 cp : U_o = 0.400 cp

M = 0.47 : $\frac{1}{M}$ = 2.14

PLATE 16

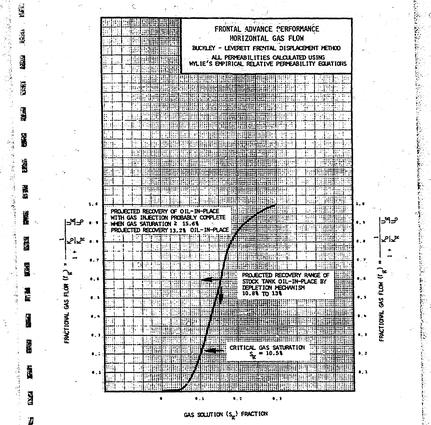

FRONTAL ADVANCE PERFORMANCE
HORIZONTAL GAS FLOW
BUCKLEY - LEVERETT FRONTAL DISPLACEMENT METHOD
ALL PERMEABILITIES CALCULATED USING
WYLIE'S EMPIRICAL RELATIVE PERMEABILITY EQUATIONS
PROJECTED RECOVERY OF OIL-IN-PLACE WITH GAS INJECTION PROBABLY COMPLETE WHEN GAS SATURATION S 15.4%
PROJECTED RECOVERY 13.2% OIL-IN-PLACE
PROJECTED RECOVERY RANGE OF STOCK TANK OIL-IN-PLACE BY DEPLETION MECHANISM 10.8% TO 13%
CRITICAL GAS SATURATION S_g = 10.5%
FRACTIONAL GAS FLOW f'_g
GAS SOLUTION (S_g) FRACTION

PLATE 11

RELATIVE PERMEABILITY DATA
HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
Computed using Wyllie's Empirical Relative Permeability Equations for oolitic and vugular lime.
Values used in Wyllie's Equation:
S_o - Oil Saturation - 76%
S_w - Interstitial Water Saturation - 24%
S_{wi} - Irreducible Interstitial Water Saturation - 15%
RELATIVE PERMEABILITY K_o AND K_w
RELATIVE PERMEABILITY $\frac{K_w}{K_o}$
TOTAL SATURATION (%)

PLATE 12

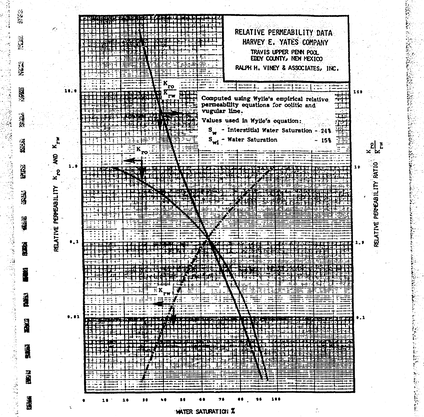

RELATIVE PERMEABILITY DATA
HARVEY E. YATES COMPANY
TRIVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
Computed using Wyle's empirical relative permeability equations for colitic and vugular line.
Values used in Wyle's equation:
S_{wi} - Interstitial Water Saturation - 24%
S_{wl} - Water Saturation - 15%
RELATIVE PERMEABILITY K_{ro} AND K_{rw}
RELATIVE PERMEABILITY RATIO $\frac{K_{ro}}{K_{rw}}$
WATER SATURATION %

PLATE 13

HARVEY E. YATES COMPANY
PROJECTED PERFORMANCE
TRAVIS DEEP UNIT WELLS NO. 2 AND 3; STATE COMM WELL NO. 1
NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES
OF PRODUCTION AND PRESSURE DATA
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

Date	Well Name and No.		Reservoir Pressure psig	Cumulative Production Oil-Barrels	Gas-MCF	Reservoir Voidage - Barrels Oil	Gas	Total
9- 8-77	TDU	2	3729	-	-	-	-	-
11- 1-77	TDU	2	3538	16,361	18,017	23,966	3,313	27,279
6-17-79	State Com	1	2513	194,090	254,725	285,000	85,000	370,000
11-12-79	TDU	3	2359	361,370	360,986	383,000	130,000	500,000
11-30-79	State Com	1	2431	372,835	378,815	402,000	133,550	535,340
6-17-80	North Travis 13-1		2720	319,786	430,055	470,600	155,000	625,300
8-13-80	Travis 13 State	1	2079	398,689	444,971	477,839	174,071	651,900

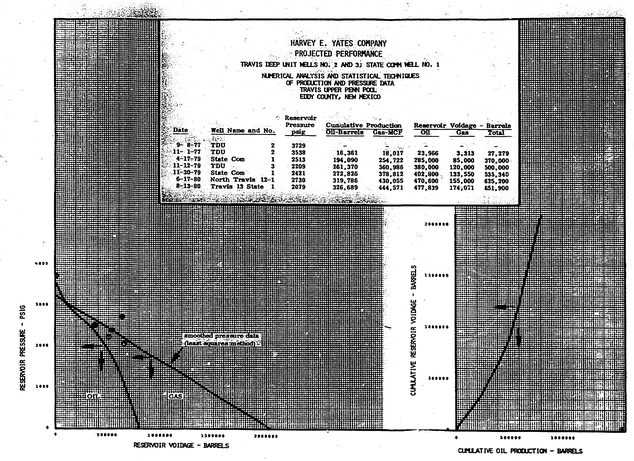


PLATE 16

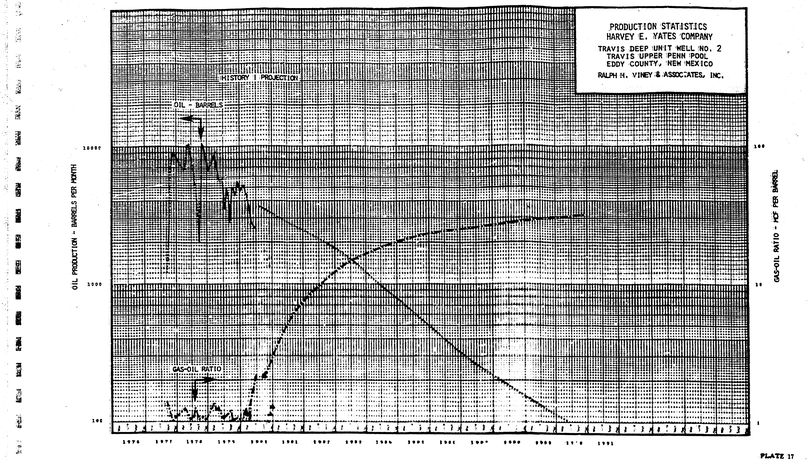

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 2
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
HISTORY
PROJECTION
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL

PLATE 17

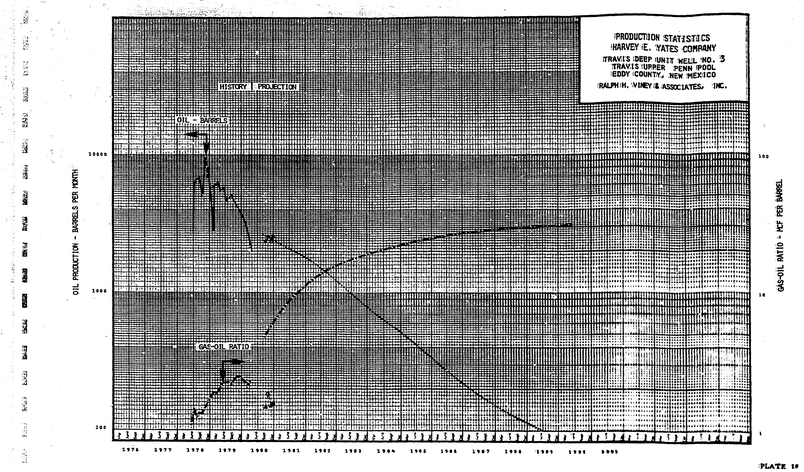

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 3
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
HISTORY
PROJECTION
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
100
10
1
1974
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1995

PLATE 18

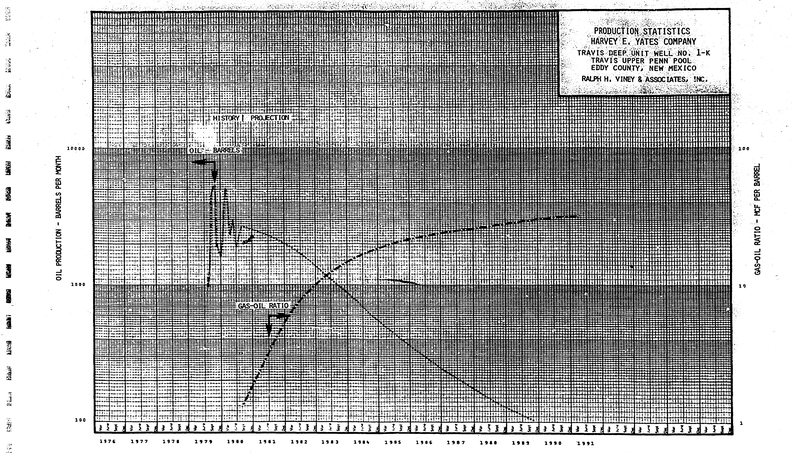

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 1-K
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
HISTORY | PROJECTION
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
10
1
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PLATE 10

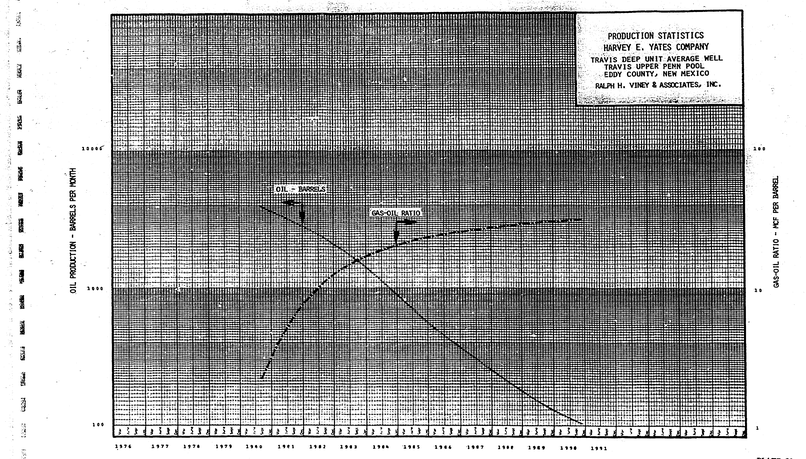

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT AVERAGE WELL
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
100
10
1
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991

PLATE 20

SUMMARY TABLE 6
HARVEY E. YATES COMPANY
PRODUCTION HISTORY BY WELL AND RESERVOIR TOTALS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Vinsy & Associates, Inc.
Engineering Consultants

		Travis Deep Unit Well No. 2						Travis Deep Unit Well No. 3						Travis Deep Unit Well No. 1-K						Reservoir Totals					
		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel	
Year	Month	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
1977	August	1,238	1,238	1,733	1,733	1400	1400	-	-	-	-	-	-	-	-	-	-	-	-	1,238	1,238	1,733	1,733	1400	1400
	September	6,476	7,714	7,352	9,085	1135	1178	-	-	-	-	-	-	-	-	-	-	-	-	6,476	7,714	7,352	9,085	1135	1178
	October	8,624	16,338	8,932	18,017	1035	1103	-	-	-	-	-	-	-	-	-	-	-	-	8,624	16,338	8,932	18,017	1035	1103
	November	23	16,361	-	18,017	-	1103	-	-	-	-	-	-	-	-	-	-	-	-	23	16,361	-	18,017	-	1103
	December	-	16,361	-	18,017	-	1103	-	-	-	-	-	-	-	-	-	-	-	-	-	16,361	-	18,017	-	1103
1978	January	-	16,361	13	18,030	-	1102	-	-	-	-	-	-	-	-	-	-	-	-	-	16,361	13	18,030	-	1102
	February	-	16,361	-	18,030	-	1102	-	-	-	-	-	-	-	-	-	-	-	-	-	16,361	-	18,030	-	1102
	March	6,867	23,228	8,516	26,546	1240	1143	-	-	-	-	-	-	-	-	-	-	-	-	6,867	23,228	8,516	26,546	1240	1143
	April	10,456	33,684	11,382	37,928	1184	1156	-	-	-	-	-	-	-	-	-	-	-	-	10,456	33,684	11,382	37,928	1184	1156
	May	10,593	44,277	11,096	50,024	1047	1130	2,730	2,730	2,976	2,976	1090	1090	-	-	-	-	-	-	13,323	47,007	14,072	53,000	1058	1127
	June	8,709	52,986	9,003	59,027	1038	1135	6,649	9,379	9,432	12,408	1419	1323	-	-	-	-	-	-	14,858	61,865	18,435	71,435	1241	1155
	July	6,312	58,298	8,379	67,306	1296	1143	6,465	15,844	7,989	20,397	1236	1287	-	-	-	-	-	-	12,777	74,642	16,168	87,603	1265	1174
	August	4,167	62,965	4,381	71,587	1051	1137	7,184	23,030	9,486	29,883	1318	1297	-	-	-	-	-	-	11,351	86,071	13,867	101,470	1221	1180
	September	2,981	65,946	1,920	73,507	923	1120	4,965	28,003	6,452	36,335	1300	1298	-	-	-	-	-	-	7,946	93,049	8,372	109,842	1188	1180
	October	10,974	76,020	11,858	85,365	1080	1123	9,635	37,638	14,044	50,379	1458	1338	-	-	-	-	-	-	20,609	113,658	25,902	135,744	1257	1194
	November	8,666	84,686	9,143	94,508	1055	1116	7,619	45,257	11,817	62,196	1551	1374	-	-	-	-	-	-	16,285	129,943	20,960	156,704	1287	1206
	December	7,016	91,702	8,208	102,716	1170	1120	5,764	51,021	10,350	72,546	1796	1422	-	-	-	-	-	-	12,780	142,723	18,558	175,262	1452	1228
1979	January	7,326	99,028	9,197	111,913	1255	1130	2,749	53,770	5,176	77,722	1883	1445	-	-	-	-	-	-	10,075	152,798	14,373	189,635	1427	1241
	February	8,660	107,688	11,446	123,359	1322	1143	6,307	60,077	11,709	89,431	1857	1489	-	-	-	-	-	-	14,967	167,765	23,155	212,790	1547	1268
	March	9,533	116,221	10,826	134,185	1269	1152	6,388	66,465	12,230	101,651	1915	1529	-	-	-	-	-	-	14,921	182,686	23,046	240,836	1544	1291
	April	5,632	121,853	7,120	141,305	1264	1158	5,772	72,237	11,766	113,417	2038	1570	-	-	-	-	-	-	11,404	194,090	18,886	254,722	1656	1312
	May	5,829	127,682	6,367	147,672	1092	1155	5,840	78,077	13,221	126,638	2264	1623	-	-	-	-	-	-	11,669	205,759	19,588	274,310	1679	1333
	June	3,529	131,211	3,929	151,601	1113	1154	4,903	82,980	11,051	137,689	2254	1659	-	-	-	-	-	-	8,432	214,191	14,980	289,290	1777	1351
	July	5,984	136,295	6,736	157,337	1125	1153	5,025	88,005	11,123	148,812	2214	1691	-	-	-	-	-	-	10,109	224,300	16,859	306,149	1668	1365
	August	2,771	139,066	3,354	160,691	1210	1154	5,086	93,091	10,780	159,592	2120	1714	991	991	762	762	769	769	8,848	233,148	14,896	321,045	1684	1377
	September	5,000	144,116	5,059	165,750	1002	1149	4,648	97,739	10,326	169,918	2223	1738	4,458	5,449	2,979	3,741	668	687	14,156	247,304	18,364	339,409	1297	1372
	October	4,475	148,591	4,681	170,431	1046	1145	4,278	102,017	10,685	180,603	2498	1770	5,313	10,762	6,211	9,952	1169	925	14,066	261,370	21,577	360,986	1534	1381
	November	5,315	154,186	5,805	176,236	1049	1143	3,959	105,976	9,594	190,197	2423	1795	1,962	12,724	2,427	12,379	1237	973	11,456	272,836	17,826	378,812	1556	1388
	December	4,862	158,988	2,977	179,213	612	1126	SI	105,976	SI	190,197	-	-	SI	12,724	SI	12,379	-	973	4,862	277,688	2,977	381,789	612	1375
1980	January	5,184	164,172	5,242	184,455	1019	1122	SI	105,976	26	190,223	-	1795	1,687	14,411	793	13,172	470	914	6,871	284,559	6,061	387,850	882	1363
	February	4,728	168,900	5,576	190,031	1179	1124	2,950	108,926	5,977	196,200	2026	1801	5,263	19,674	2,793	15,965	531	812	12,941	297,500	14,346	402,196	1109	1252
	March	4,092	172,992	2,553	192,584	888	1118	2,072	110,998	4,670	200,870	2254	1810	3,832	23,506	2,193	18,158	572	773	9,906	307,498	10,416	417,612	1052	1342
	April	2,800	175,792	4,311	197,895	1540	1125	SI	110,998	SI	200,870	-	1810	2,384	25,890	2,765	20,923	1165	809	5,174	312,580	7,076	419,688	1368	1343
	May	2,548	178,250	6,561	203,456	2183	1140	SI	110,998	SI	200,870	-	1810	2,688	28,578	2,866	23,789	956	825	5,246	317,826	8,427	428,115	1606	1347
	June	101	178,351	368	203,824	3644	1143	SI	110,998	SI	200,870	-	1810	1,859	30,437	1,974	25,763	1060	846	1,960	319,786	2,342	430,457	1195	1346
	July	-	178,351	-	203,824	-	1143	SI	110,998	SI	200,870	-	1810	2,462	32,899	2,598	28,361	1060	862	2,462	322,243	2,598	432,055	1055	1344
	August	717	179,068	2,244	206,068	3130	1151	1,037	112,035	6,166	207,036	5950	1848	2,687	35,586	3,106	31,467	1160	884	4,441	326,689	11,516	444,571	2593	1361

SUMMARY TABLE 7
HARVEY E. YATES COMPANY
WELL DATA
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Winey & Associates, Inc.
Engineering Consultants

Operator / Lease Name	Location	Section	Township	Range	Elevation	Total Depth	Casing Size	Weight	Depth	Cement	Producing Zone	Perforations	Completion Date	Initial Potential Test Data: Test Date	Choke Size	Oil Bbls/Day	Gas MCF/Day	Gravities: Oil °API	Gravities: Gas Sp. Gr.	Gas-Oil Ratio Cubic Ft/Bbl	Pressures (psig): Tubing	Pressures (psig): Casing	Remarks
Harvey E. Yates, Inc.																							
Travis Deep Unit Well No. 2	1980' FNL & 1780' FEL	13	18-S	28-E	3616' GL 3633' KB	11,270' 11,223' PB	12-3/8" 8-5/8" 5-1/2"	34# 24# 28# 17#	360' 3,502' 11,268'	425 Sks 300 Sks 950 Sks	Canyon (Cisco)	9924', 28', 31', 33' 9935', 37', 41', 44' 9950', 52', 54', 57' 9962', 65', 68', 71' 9978', 83', 94', 98' 9998', 03' 22 shots	8-18-77	8-24-77	18/64"	433	631	0	45.6	0.69	1450	965	Packer	Packer to shut off upper Morrow perforations at 10,579'. Production packer @ 9772'. Cisco Canyon treated with 250 gallons 10% acetic acid and 4000 gallons HCL.
														Production tubing string reported to be 2-3/8" EUE									
Travis Deep Unit Well No. 3	1980' FEL & 660' FNL	13	18-S	28-E	3639' GL 3654' KB	11,270' 10,994'	12-3/4" 8-5/8" 5-1/2"	50# 24# 28# 17#	376' 2,900' 11,280'	475 Sks 300 Sks 900 Sks	Canyon (Cisco)	9830-40' 6 shots 9864-75' 6 shots 9891-94' 6 shots 9911-20' 6 shots	5-16-78	5-13-78	24/64"	684	889	Some Acid Water	45/6		1298	580	Packer	Cisco perforations treated with 500 gallons acetic acid and 3500 gallons 15% DS-30.
														Production tubing string reported to be 2-7/8" EUE									
Travis State Com Well No. 1	1780' FSL & 2080' FWL	13	18-S	28-E	3645' GL 3997' KB	11,661' KB 10,528' PB CIBP	13-3/8" 8-5/8" 5-1/2"	48# 32,36# 17#	388' 2,838' 11,661'	475 Sks 2050 Sks 1190 Sks	Upper Penn (Cisco)	9816'-24', 9830'-38' 9838'-47', 9852'-62' 2 shots per foot	7-11-79	7-12-79	24/64"	412	413	2	45.0		1100	330		DST #1: interval 9816'-9900' Upper Penn initial hydrostatic 4473 psi, 30 mins initial flow pressure 155-217 psi; 60 mins initial shut-in pressure 2380 psi; 120 mins final flow pressure 196-370 psi; 240 min final shut in pressure 2477 psi. Final hydrostatic 4551 psi. Acidized with 6000 gallons DS-30 Acid.

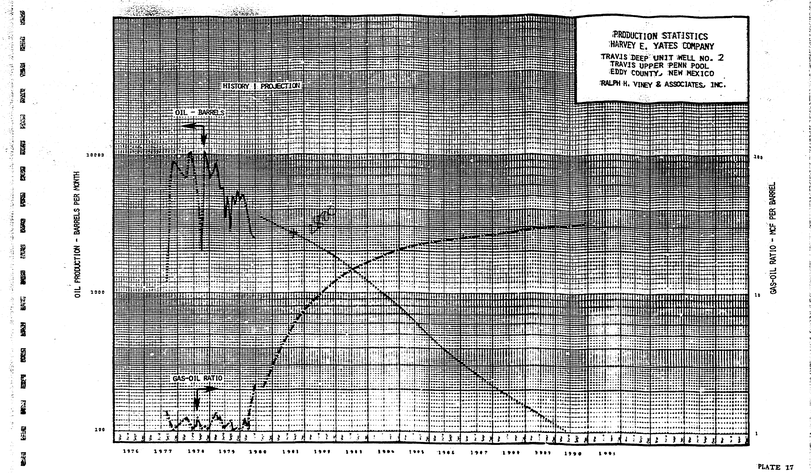

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 2
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
HISTORY | PROJECTION
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
10
1
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PLATE 17

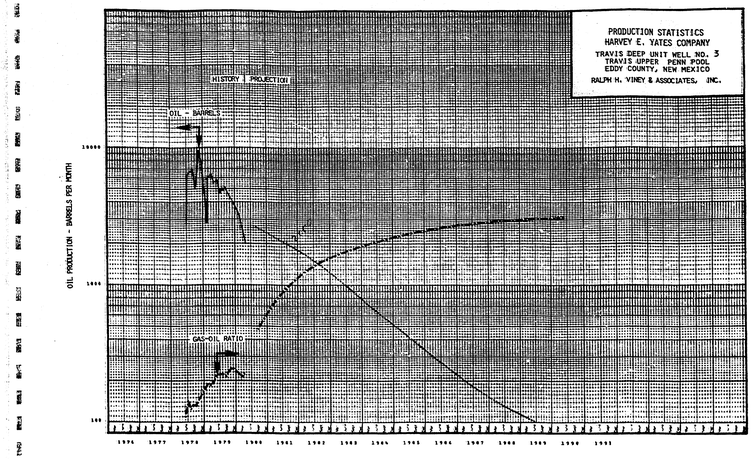

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 5
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
HISTORY | PROJECTION
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
100
10
1
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PLATE 13

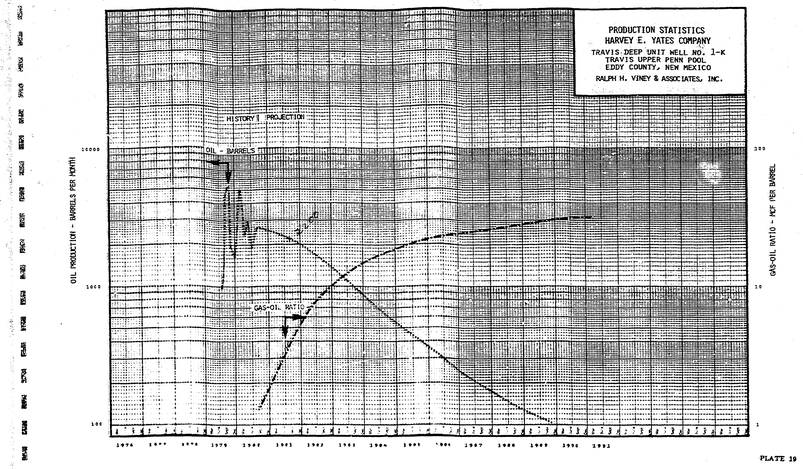

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT WELL NO. 1-K
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
HISTORY | PROJECTION
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
100
10
1
1974
1975
1976
1977
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1979
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1985
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1991

PLATE 19

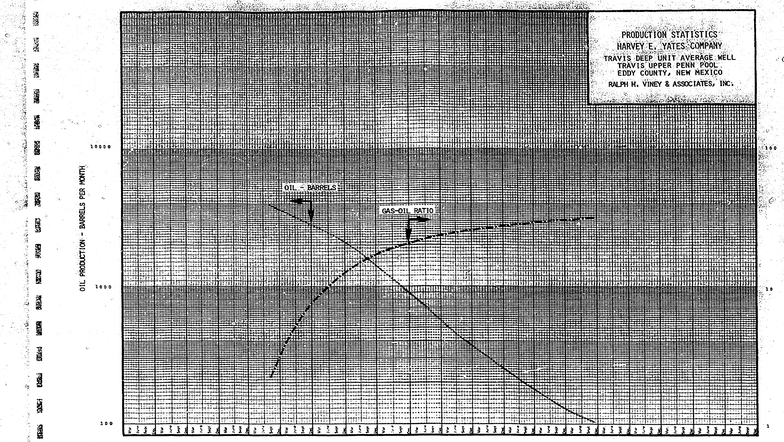

PRODUCTION STATISTICS
HARVEY E. YATES COMPANY
TRAVIS DEEP UNIT AVERAGE WELL
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
RALPH H. VINEY & ASSOCIATES, INC.
OIL - BARRELS
GAS-OIL RATIO
OIL PRODUCTION - BARRELS PER MONTH
GAS-OIL RATIO - MCF PER BARREL
10000
1000
100
100
10
1
1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

PLATE 20

SUMMARY TABLE 6
HARVEY E. YATES COMPANY
PRODUCTION HISTORY BY WELL AND RESERVOIR TOTALS
TRAVIS UPPER PENN POOL, EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

		Travis Deep Unit Well No. 2						Travis Deep Unit Well No. 3						Travis Deep Unit Well No. 1-K						Reservoir Totals					
		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel		Oil - Barrels		Gas - MCF		Gas-Oil Ratio Cubic Feet/Barrel	
Year	Month	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
1977	August	1,238	1,238	1,733	1,733	1400	1400	-	-	-	-	-	-	-	-	-	-	-	-	1,238	1,238	1,733	1,733	1400	1400
	September	6,476	7,714	7,352	9,085	1135	1178	-	-	-	-	-	-	-	-	-	-	-	-	6,476	7,714	7,352	9,085	1135	1178
	October	8,624	16,338	8,932	18,017	1035	1103	-	-	-	-	-	-	-	-	-	-	-	-	8,624	16,338	8,932	18,017	1035	1103
	November	23	16,361	-	18,017	-	1103	-	-	-	-	-	-	-	-	-	-	-	-	23	16,361	-	18,017	-	1103
	December	-	16,361	-	18,017	-	1103	-	-	-	-	-	-	-	-	-	-	-	-	-	16,361	-	18,017	-	1103
1978	January	-	16,361	13	18,030	-	1102	-	-	-	-	-	-	-	-	-	-	-	-	-	16,361	13	18,030	-	1102
	February	-	16,361	-	18,030	-	1102	-	-	-	-	-	-	-	-	-	-	-	-	-	16,361	-	18,030	-	1102
	March	6,867	23,228	8,516	26,546	1240	1143	-	-	-	-	-	-	-	-	-	-	-	-	6,867	23,228	8,516	26,546	1240	1143
	April	10,456	33,684	12,382	38,928	1184	1156	-	-	-	-	-	-	-	-	-	-	-	-	10,456	33,684	12,382	38,928	1184	1156
	May	10,593	44,277	11,096	50,024	1047	1130	2,730	2,730	2,976	2,976	1090	1090	-	-	-	-	-	-	13,323	47,007	14,072	53,000	1056	1127
	June	8,209	52,486	9,003	59,027	1096	1125	6,649	9,379	5,432	12,408	1419	1323	-	-	-	-	-	-	14,858	61,865	14,435	71,435	1241	1155
	July	6,312	58,798	8,179	67,206	1296	1143	6,465	15,844	7,988	20,397	1236	1287	-	-	-	-	-	-	12,777	74,642	16,168	87,603	1265	1174
	August	4,167	62,965	4,281	71,487	1051	1137	7,184	23,028	9,486	29,883	1318	1297	-	-	-	-	-	-	11,351	86,003	13,767	101,470	1221	1180
	September	2,081	65,046	1,920	73,407	923	1130	4,965	27,993	6,452	36,335	1300	1298	-	-	-	-	-	-	7,046	93,049	8,372	109,842	1188	1180
	October	10,974	76,020	11,858	85,265	1080	1123	9,635	37,628	14,044	50,379	1458	1338	-	-	-	-	-	-	20,609	113,658	25,902	135,744	1257	1194
	November	8,666	84,686	9,143	94,408	1055	1116	7,619	45,257	11,817	62,196	1551	1374	-	-	-	-	-	-	16,285	129,943	20,960	156,704	1287	1206
	December	7,016	91,702	8,208	102,716	1170	1120	5,764	51,021	10,350	72,546	1796	1422	-	-	-	-	-	-	12,780	142,723	18,558	175,262	1452	1228
1979	January	7,306	99,008	9,197	111,913	1255	1130	2,749	53,770	5,176	77,722	1883	1445	-	-	-	-	-	-	10,075	152,778	14,373	189,635	1427	1241
	February	8,660	107,668	11,446	123,359	1322	1143	6,307	60,077	11,709	89,431	1857	1489	-	-	-	-	-	-	14,967	167,745	23,155	212,790	1547	1268
	March	8,533	116,221	10,826	134,185	1269	1152	6,368	66,465	12,220	101,651	1912	1525	-	-	-	-	-	-	14,921	182,686	23,046	246,836	1544	1291
	April	5,632	121,853	7,120	141,305	1264	1158	5,772	72,237	11,766	113,417	2038	1570	-	-	-	-	-	-	11,404	194,090	18,886	254,722	1656	1313
	May	5,829	127,682	6,367	147,672	1092	1155	5,840	78,077	12,721	126,138	2264	1622	-	-	-	-	-	-	11,669	205,759	19,588	274,310	1679	1333
	June	3,529	131,211	3,959	151,631	1111	1154	4,903	82,980	11,051	137,189	2254	1658	-	-	-	-	-	-	8,432	214,191	14,980	289,290	1777	1351
	July	5,084	136,295	5,736	157,237	1135	1153	5,025	88,005	11,123	148,812	2214	1691	-	-	-	-	-	-	10,109	224,300	16,859	306,149	1668	1365
	August	2,771	139,066	3,354	160,691	1210	1154	5,086	93,091	10,740	159,592	2120	1714	991	991	762	762	769	769	8,848	233,148	14,896	321,045	1684	1377
	September	5,050	144,116	5,059	165,750	1002	1148	4,648	97,739	10,326	169,918	2222	1738	4,458	5,449	2,979	3,741	668	687	14,156	247,304	18,364	339,408	1297	1372
	October	4,475	148,591	4,681	170,431	1046	1147	4,278	102,017	10,685	180,603	2498	1770	5,313	10,762	6,211	9,952	1169	925	14,066	261,370	21,577	360,986	1534	1381
	November	5,535	154,126	5,805	176,236	1049	1147	3,959	105,976	9,584	190,187	2423	1795	1,962	12,724	2,427	12,379	1237	973	11,456	272,826	17,826	378,812	1556	1388
	December	4,862	158,988	2,977	179,213	612	1126	SI	105,976	SI	190,187	-	-	SI	12,724	SI	12,379	-	973	4,862	277,688	2,977	381,789	612	1375
1980	January	5,184	164,172	5,242	184,455	1012	1122	SI	105,976	26	190,223	-	1795	1,697	14,411	792	13,172	470	914	6,871	284,559	6,061	387,849	882	1363
	February	4,738	168,910	5,576	190,031	1178	1124	2,950	108,926	5,977	196,200	2026	1801	5,263	19,674	2,793	15,965	531	812	12,941	297,500	14,346	402,196	1109	1352
	March	4,002	172,912	3,553	193,584	888	1118	2,072	110,998	4,670	200,870	2254	1810	3,832	23,506	2,193	18,158	572	773	9,906	307,406	10,416	412,612	1052	1342
	April	2,800	175,702	4,311	197,895	1540	1125	SI	110,998	SI	200,870	-	1810	2,384	25,890	2,765	20,923	1165	899	5,374	312,580	7,076	419,688	1368	1343
	May	2,548	178,250	5,561	203,456	2182	1140	SI	110,998	SI	200,870	-	1810	2,698	28,578	2,866	23,789	956	825	5,246	317,826	8,427	429,115	1606	1347
	June	101	178,351	368	203,824	3644	1143	SI	110,998	SI	200,870	-	1810	1,859	30,437	1,974	25,763	1060	846	1,960	319,786	2,342	430,457	1195	1346
	July	-	178,351	-	203,824	-	1143	SI	110,998	SI	200,870	-	1810	2,462	32,899	2,598	28,361	1060	862	2,462	322,248	2,598	433,055	1055	1344
	August	737	179,088	2,244	206,068	3130	1151	1,037	112,035	6,166	207,036	5950	1848	2,687	35,586	3,106	31,467	1160	884	4,441	326,689	11,516	444,571	2593	1361

SUMMARY TABLE 6

SUMMARY TABLE 7
HARVEY E. YATES COMPANY
WELL DATA
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
Ralph H. Viney & Associates, Inc.
Engineering Consultants

Operator Lease Name	Location	Section	Township	Range	Elevation	Total Depth	Casing Size	Weight	Depth	Cement	Producing Zone	Perforations	Completion Date	Initial Potential Test Data: Test Date	Choke Size	Oil Bbls/Day	Gas MCF/Day	Water	Gravities: Oil °API	Gravities: Gas Sp. Gr.	Gas-Oil Ratio Cubic Ft/Bbl	Pressures (psig): Tubing	Pressures (psig): Casing	Remarks
Harvey E. Yates, Inc.																								
Travis Deep Unit Well No. 2	1980' FNL & 1780' FEL	13	18-S	28-E	3618' GL 3633' KB	11,270' 11,223' PB	12-3/4" 8-5/8" 5-1/2"	34# 24# 28# 17#	460' 3,500' 11,268'	475 Sks 300 Sks 950 Sks	Canyon (Cisco)	9024', 28', 31', 33' 9035', 37', 41', 44' 9950', 53', 54', 57' 9963', 65', 68', 71' 9976', 83', 94', 96' 9998', 03' 22 shots	8-19-77	8-24-77	18/64"	433	631	0	45.6	0.69	1450	965	Packer	Packer to shut off upper Morrow perforations at 10,579'. Production packer @ 9772'. Cisco Canyon treated with 250 gallons 10% acetic acid and 4000 gallons HCL.
														Production tubing string reported to be 2-3/8" EUE										
Travis Deep Unit Well No. 3	1980' FEL & 660' FNL	15	18-S	28-E	3639' GL 3654' KB	11,270' 10,904'	12-3/4" 8-5/8" 5-1/2"	50# 24# 28# 17#	376' 2,960' 11,290'	475 Sks 300 Sks 950 Sks	Canyon (Cisco)	9830-40' 6 shots 9864-75' 6 shots 9891-98' 6 shots 9911 20' 6 shots	5-16-78	5-13-78	24/64"	684	889	Some Acid Water	45/6		1298	580	Packer	Cisco perforations treated with 500 gallons acetic acid and 3500 gallons 15% DS-30.
														Production tubing string reported to be 2-7/8" EUE										
Travis State Com Well No. 1	1780' FSL & 2080' FWL	13	18-S	28-E	3585' GL 3597' KB	11,061' KB 10,338' PB CIBP	13-3/8" 9-5/8" 5-1/2"	48# 32.3# 17#	388' 2,938' 11,061'	475 Sks 2050 Sks 1190 Sks	Upper Penn (Cisco)	9816'-24', 9830'-36' 9838'-47', 9850'-62' 2 shots per foot	7-11-79	7-13-79	24/64"	412	413	2	45.0		1100	330		DST #1: interval 9810'-9900' Upper Penn initial hydrostatic 4473 psi, 30 mins initial flow pressures 152-217 psi; 60 mins initial shut-in pressure 2390 psi; 120 mins final flow pressure 196-370 psi; 240 min final shut in pressure 2477 psi. Final hydrostatic 4551 psi. Acidized with 6000 gallons DS-30 Acid.

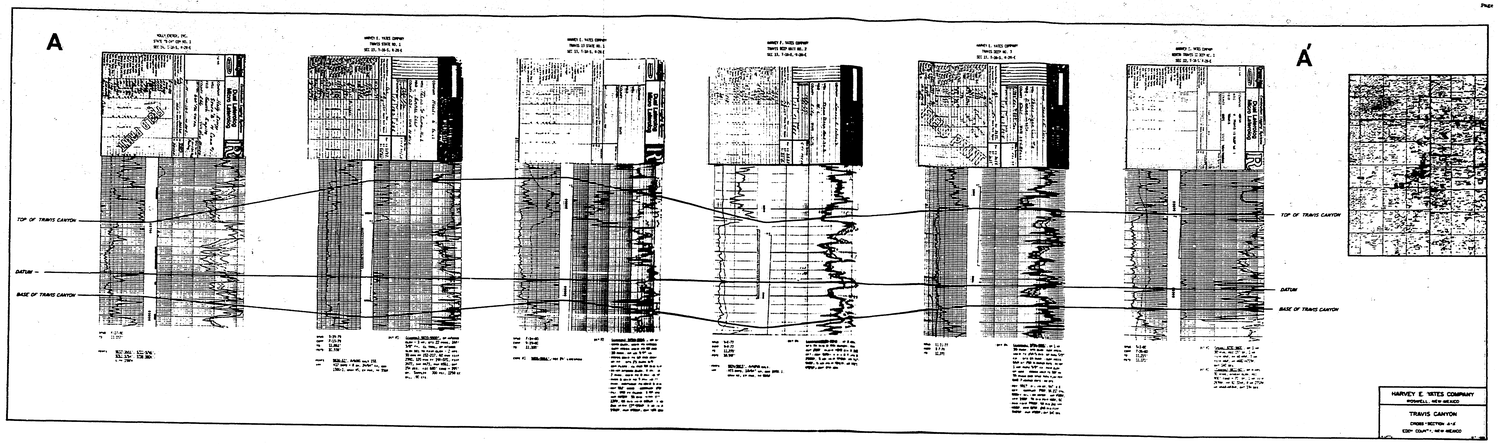

A
A'
TOP OF TRAVIS CANYON
DATUM
BASE OF TRAVIS CANYON
TOP OF TRAVIS CANYON
DATUM
BASE OF TRAVIS CANYON
HARVEY E. YATES COMPANY
ROSWELL, NEW MEXICO
TRAVIS CANYON
CROSS SECTION A-A'
EDDY COUNTY, NEW MEXICO

PLATE 1

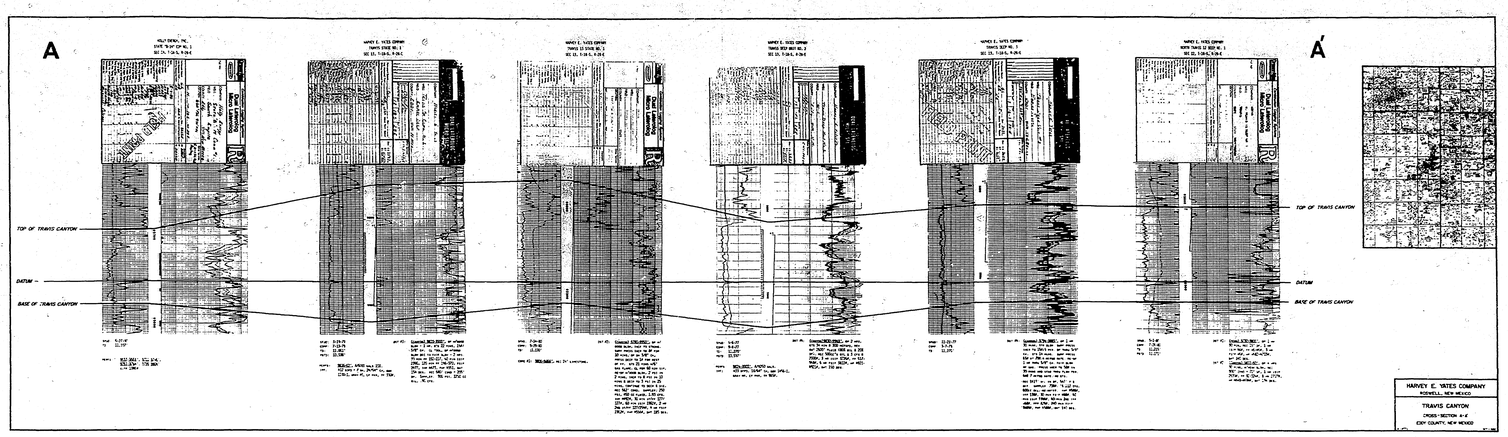

A
A'
TOP OF TRAVIS CANYON
DATUM
BASE OF TRAVIS CANYON
TOP OF TRAVIS CANYON
DATUM
BASE OF TRAVIS CANYON
HARVEY E. YATES COMPANY
ROSWELL, NEW MEXICO
TRAVIS CANYON
CROSS - SECTION A-A'
EDDY COUNTY, NEW MEXICO

PLATE 4

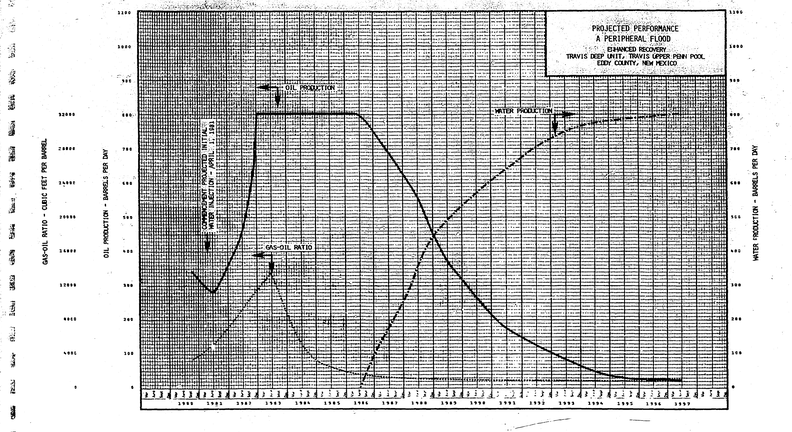
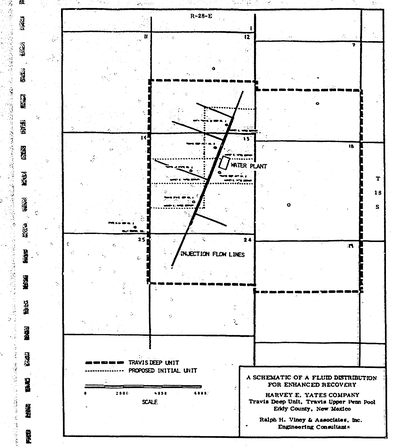

PROJECTED PERFORMANCE
A PERIPHERAL FLOOD
ENHANCED RECOVERY
TRAVIS DEEP UNIT, TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO
OIL PRODUCTION
WATER PRODUCTION
GAS-OIL RATIO
CONVENTIONAL PROJECTED INITIAL WATER INJECTION (4,000 BWPD)
GAS-OIL RATIO - CUBIC FEET PER BARREL
OIL PRODUCTION - BARRELS PER DAY
WATER PRODUCTION - BARRELS PER DAY
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997

PLATE 6



A SCHEMATIC OF A FLUID DISTRIBUTION FOR ENHANCED RECOVERY

HARVEY E. YATES COMPANY
Travis Deep Unit, Travis Upper Penn Pool
Eddy County, New Mexico

Ralph H. Viney & Associates, Inc.
Engineering Consultants

PLATE 7

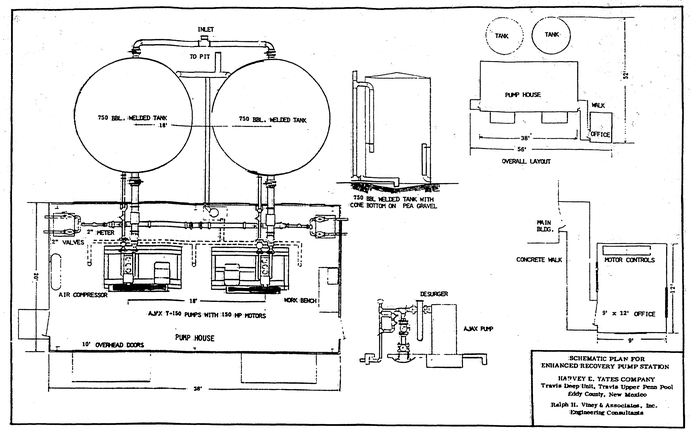

INLET
TO PIT
750 BBL. WELDED TANK
18'
750 BBL. WELDED TANK
2" VALVES
2" METER
AIR COMPRESSOR
18'
WORK BENCH
AJAX T-156 PUMPS WITH 150 HP MOTORS
PUMP HOUSE
10' OVERHEAD DOORS
38'
750 BBL WELDED TANK WITH CONE BOTTOM ON PEA GRAVEL
DESURGER
AJAX PUMP
TANK
TANK
PUMP HOUSE
WALK
OFFICE
38'
50'
52'
OVERALL LAYOUT
MAIN BLDG.
CONCRETE WALK
MOTOR CONTROLS
9' x 12' OFFICE
9'
SCHEMATIC PLAN FOR
ENHANCED RECOVERY PUMP STATION
HARVEY E. YATES COMPANY
Travis Deep Unit, Travis Upper Penn Pool
Eddy County, New Mexico
Ralph H. Viney & Associates, Inc.
Engineering Consultants

PLATE 6

HARVEY E. YATES COMPANY
TRAVIS UPPER PENN POOL
EDDY COUNTY, NEW MEXICO

FRACTIONAL FLOW FORMULA
BUCKLEY - LEVERETT METHOD

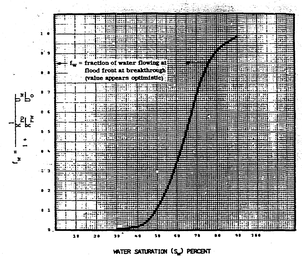
S_w	$\frac{K_{ro}}{K_{rw}}$	$\frac{U_w}{U_o}$	f_w
30	699.000	0.88	0.001668
40	60.000	0.88	0.018587
50	9.000	0.88	0.132108
60	2.100	0.88	0.551126
70	0.475	0.88	0.905339
80	0.110	0.88	0.911743
90	0.020	0.88	0.982706

FRACTIONAL FLOW AND DISPLACEMENT
CAUDLE, DYERS AND ERICKSON METHOD

$$\text{Mobility Ratio (M)} = \frac{\frac{K_{rw}}{U_w}}{\frac{K_{ro}}{U_o}}$$

Where: $S_{wi} = 0.67$: $K_{ro} = 0.600$
$S_{of} = 0.26$: $K_{rw} = 0.245$
$U_w = 0.35$ cp : $U_o = 0.400$ cp

$M = 0.47 \div \frac{1}{M} = 2.14$



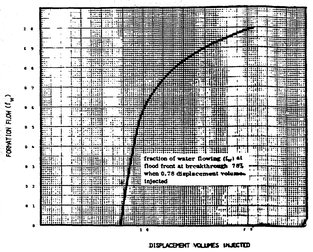


PLATE 10