

MARTIN YATES, III
1912 - 1985
FRANK W. YATES
1936 - 1986



105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210

TELEPHONE (505) 748-1471

CONSERVATION DIVISION
RECEIVED

S. P. YATES
CHAIRMAN OF THE BOARD
JOHN A. YATES
PRESIDENT
PEYTON YATES
EXECUTIVE VICE PRESIDENT
RANDY G. PATTERSON
SECRETARY
DENNIS G. KINSEY
TREASURER

September 25, 1991

State of New Mexico
OIL CONSERVATION DIVISION
P. O. Box 2088
Santa Fe, NM 87501
ATTN: Mr. David Catanach

Dear Mr. Catanach,

Enclosed are the necessary documents for obtaining approval for the downhole commingling of the Trigg AIN Federal #1 located in H of Section 28, Township 20 South, Range 29 East.

Should you have any questions, please feel free to contact me at (505) 748-1471. Thank you.

Sincerely,

Brian Collins
Petroleum Engineer

BC/th

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September 26, 1991

BUREAU OF LAND MANAGEMENT
P. O. Box 1778
Carlsbad, NM 88220
ATTN: Richard Manus, Area Manager

Dear Mr. Manus,

Enclosed for your information is the data necessary to obtain approval for the downhole commingling of the following well:

TRIGG AIN FEDERAL #1
Unit H Sec 28-T20S-R29E
Eddy County, New Mexico
Operator: Yates Petroleum Corporation

Any objections may be submitted within the next 20 days to the New Mexico Oil Conservation Division, State Land Office Building, P. O. Box 2088, Santa Fe, NM 87504. Thank you.

Sincerely,

Brian Collins
Petroleum Engineer

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TREASURER

September 26, 1991

Yates Energy Company
Sunwest Bank Bldg. Suite 1010
Roswell, NM 88201

Gentlemen:

Enclosed please find a copy of the application for commingling the Trigg AIN Federal #1 located in H of Section 28-T20S-R29E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOCD Rule 303 D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Brian Collins
Petroleum Engineer

BC/th

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TREASURER

September 26, 1991

Harvey E. Yates Company
P. O. Box 1933
Roswell, NM 88201

Gentlemen:

Enclosed please find a copy of the application for commingling the Trigg AIN Federal #1 located in H of Section 28-T20S-R29E. This copy of the application to commingle fulfills our requirement to notify offset operators per NMOC Rule 303 D (10).

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Brian Collins
Petroleum Engineer

BC/th

Application For Downhole Commingling
Trigg AIN Federal #1
Unit H Sec. 28-T20S-R29E
Eddy County, New Mexico

Reason For Application: Yates Petroleum Corporation respectfully requests approval to commingle the Atoka from 11081' to 11090' with the Strawn yet to be tested. Our intention is to maximize gas recovery from the Atoka and prevent mineral resource waste. As will be demonstrated in this application, the Atoka reservoir is limited in size and is depleting rapidly.

1> Name and Address of the Operator:

Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
ATTN: Brian Collins

2> Lease Name, Well Number, Well Location, Name of the Pools to be commingled:

Trigg AIN Federal #1
Unit H Sec 28-T20S-R29E
1980' FNL & 660' FEL
Pools: East Burton Flat Strawn
East Burton Flat Atoka

3> A plat of the area showing the acreage dedicated to the well and the ownership of all offsetting leases.

See Attachment A (map)

4> A current (within 30 days) 24-hour productivity test on Division Form C-116 showing the amount of oil, gas, and water produced from each zone.

See attached production plot.

5> A production decline curve for both zones showing that for a period of at least one year a steady rate of

decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed with in the case of a newly completed or recently completed well which has little or no production history. However, a complete description of treating, testing, etc., of each zone, and a prognostication of future production from each zone shall be submitted.)

See attached production plot and completion summary. See also the attached reserve estimate derived from the P/Z versus cumulative production technique.

Material balance (P/Z) reserve estimation results in an EUR of 300 MMCF for the Atoka. An EUR of 300 MMCF was derived using the exponential decline curve analysis to estimate reserves. Both reserve estimation techniques support our contention that the Atoka is a limited reservoir.

The Atoka will deplete in approximately 6 to 8 months based on the current production trend.

We propose to test the Strawn 10582'-10611' and commingle with the Atoka. We want to commingle the Atoka with the Strawn to maximize drainage from the Atoka and prevent the waste of mineral resources. We won't know what the Strawn will produce until we've tested it.

- 6> Estimated bottom-hole pressure for each artificially lifted zone. A current (within 30 days) measured bottom-hole pressure for each zone capable of flowing.

The original Atoka BHP was 6065 psi. Last Atoka BHP was 4239 psi taken 9-9-91. Estimated BHP for the Strawn is 4642 psi from a drill stem test (Attached)

- 7> A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

Both Atoka and Strawn will produce sweet gas. Don't anticipate any compatibility problems.

- 8> A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

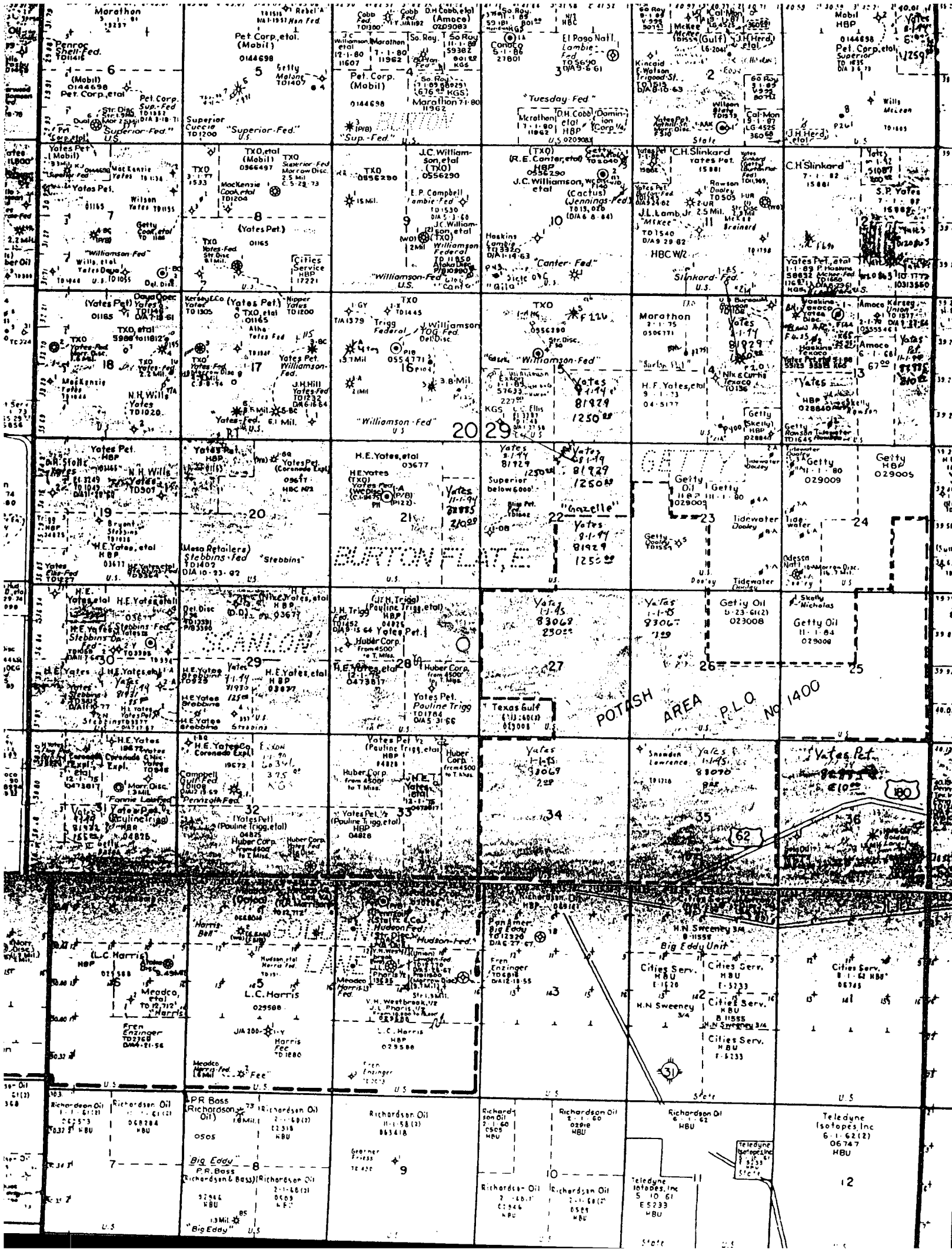
Both Atoka and Strawn will produce sweet gas. The value of the gas will not be affected by commingling.

- 9> A formula for the allocation of production to each of the commingled zones and a description of the factors or data used in determining such formula.

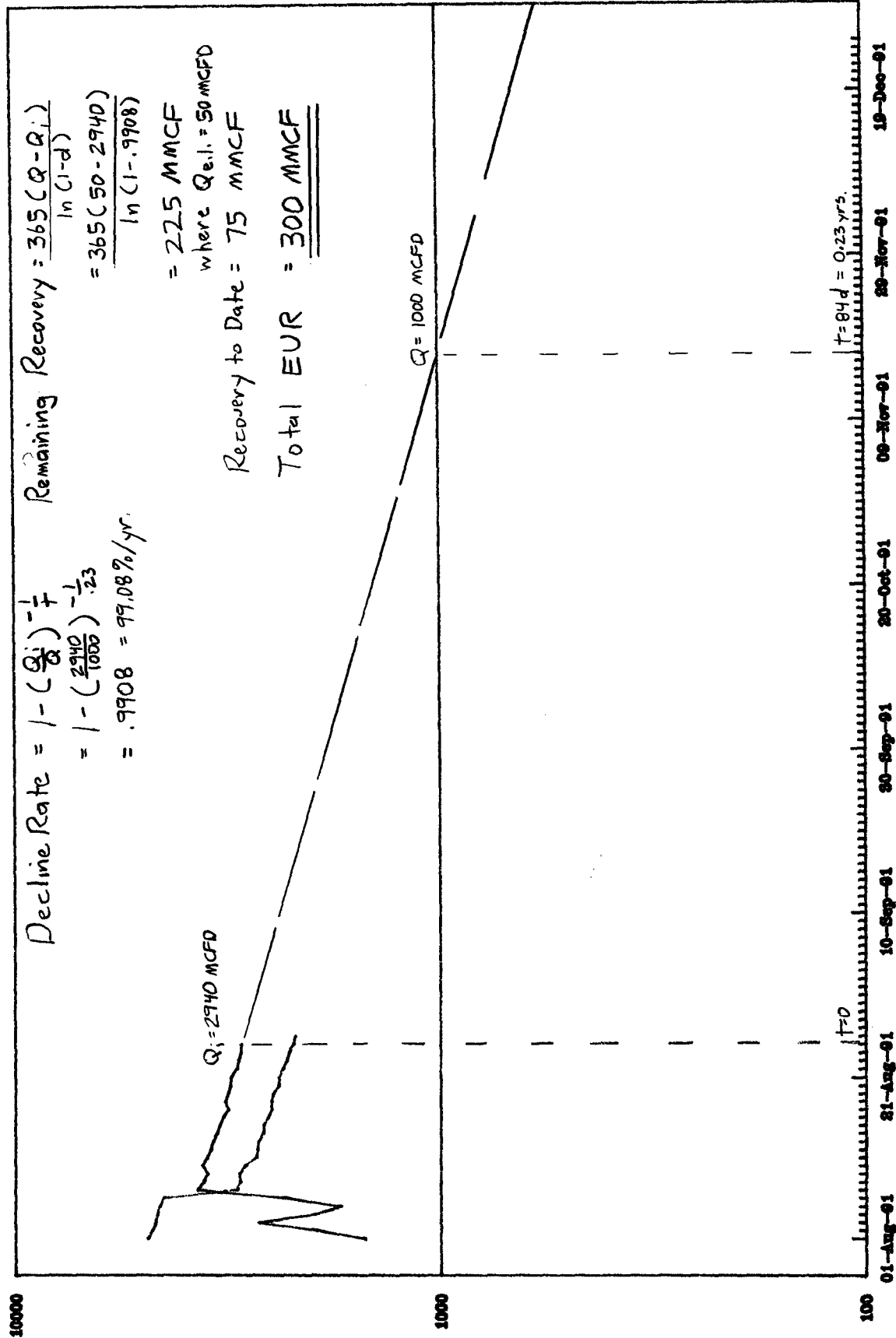
We propose to test the Strawn before recommending an allocation formula. As soon as the Strawn has been tested, we will submit an allocation formula.

- 10> A statement that all offset operators and, in the case of a well on federal land, the US BLM, have been notified in writing of the proposed commingling.

The Offset Operators for this area and the BLM were notified of the proposed commingling of the Trigg AIN Federal #1



TRIGG AIN FEDERAL #1



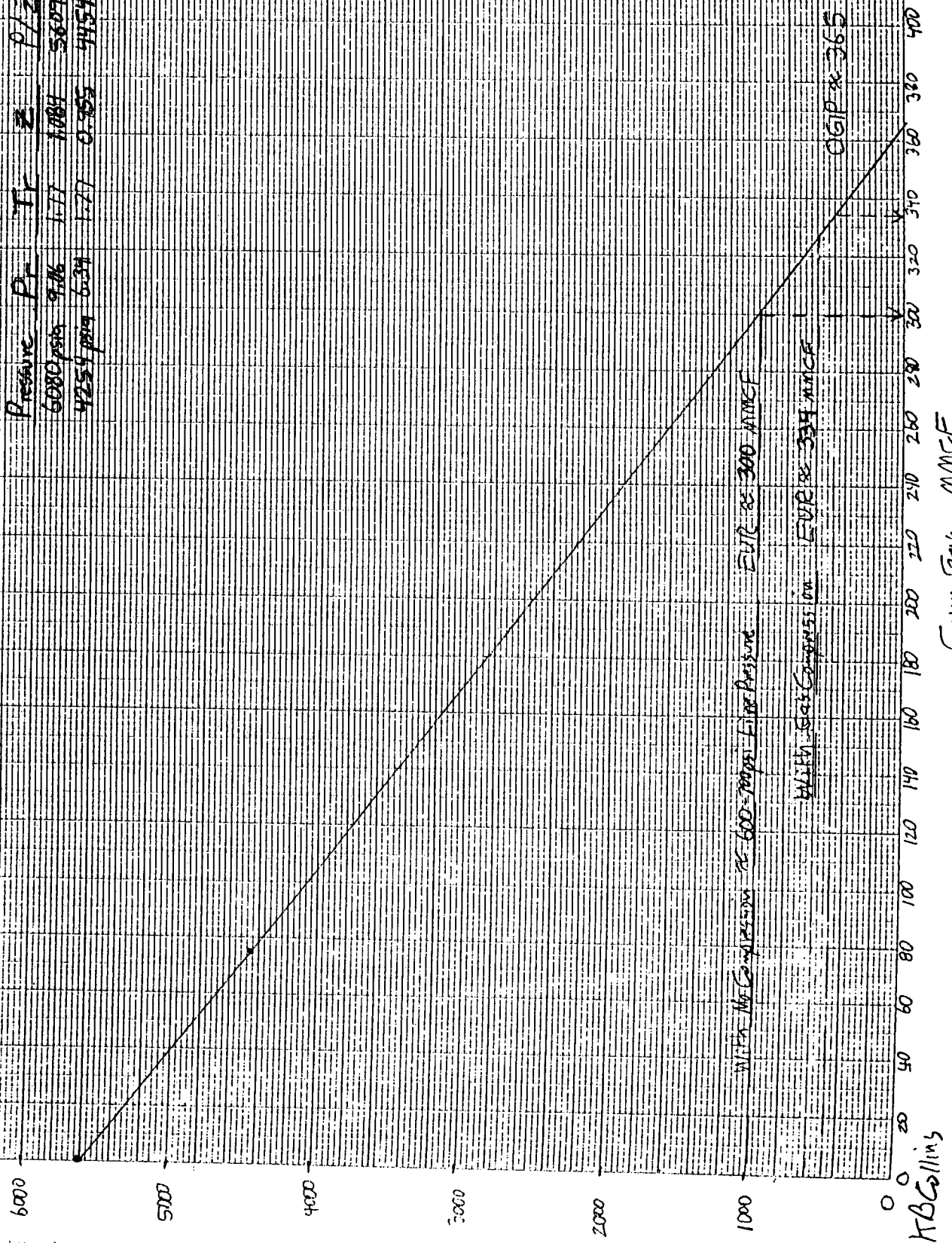
P/Z psia

P/Z Plot

TRIG AM Feb. 1
7-11-91

Pressure	P _r	T _r	Z	P/Z	Cum.
6080 psia	9.76	1.17	1.084	5607	0.333 MMCF
4254 psia	6.34	1.17	0.955	4454	15.462 MMCF

T = 113°F = 630°R
T_c = 857°R
P_c = 671 psia
γ_g = 0.596



COMPANY: BENNETT-CATHEY
CLIENT: YATES PETROLEUM
GAUGE NUMBER: 25676
WELL NAME: TRIGG "AIN" FED
WELL NUMBER: #1
TEST NUMBER: 1
LOCATION: EDDY COUNTY N.M.
TEST OPERATOR: JIM SMITH
COMMENTS: STATIC W/ GRADIENT STOPS
BHT = 173 F.

Original Atoka

DEPTH ft	dDEPTH ft	PRESSURE psig	dPRESSURE psig	GRADIENT psig/ft
0		4876.58		
2000	2000	5086.36	209.78	0.105
4000	2000	5297.56	211.20	0.106
6000	2000	5507.16	209.60	0.105
8000	2000	5716.68	209.52	0.105
10000	2000	5924.59	207.91	0.104
10870	870	6016.47	91.88	0.106
10970	100	6039.06	22.59	0.226
11085		6065.05		

JARREL SERVICES, INC.
Box 1230
Hobbs, New Mexico 88240

<<Static Gradient Survey>>

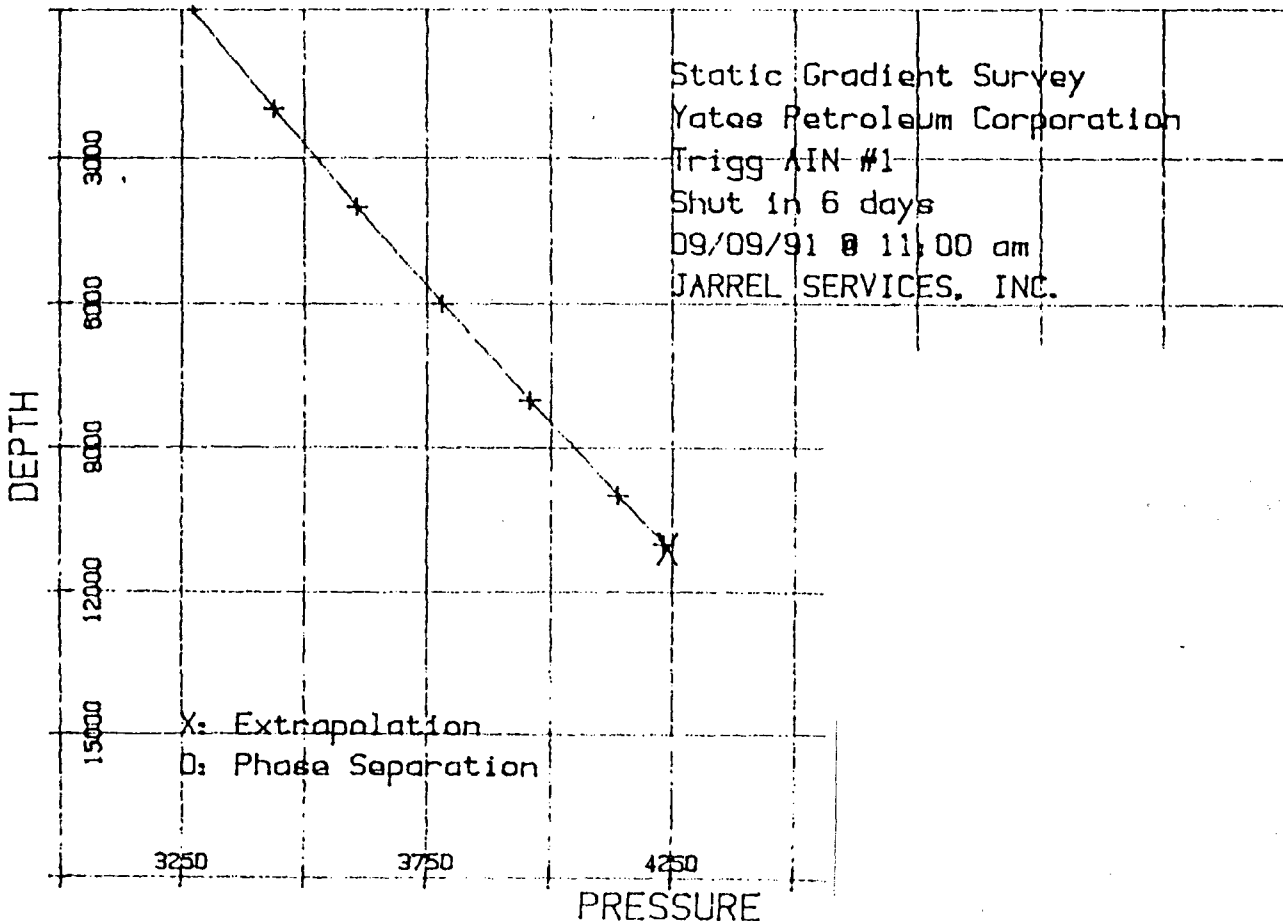
COMPANY: Yates Petroleum Corporation
LEASE: Trigg AIN
FIELD:
COUNTY: Eddy
STATUS: Shut in 6 days
PERFORATIONS FROM: 11081 ft
DEPTH: 11000 ft

Date: 09/09/91 @ 11:00 am
CONTACT: Ed Perry
WELL: #1
ZONE: Atoka
STATE: New Mexico
OPERATOR: Harrah
TO: 11090 ft
TEMPERATURE: 168°F

TABULAR DATA

DEPTH (ft)	PRESSURE (psi)	GRADIENT (psi/ft)	EXPLANATIONS
0	3273		
2000	3439	0.083	
4000	3607	0.084	
6000	3781	0.087	
8000	3957	0.088	
10000	4137	0.090	
11000	4231	0.094	
11085	4239	0.094	<=Extrapolated BHP

NOTE: Explanations are included to clarify calculated data points.





BAKER SERVICE TOOLS

DRILL STEM TESTING OPERATION REPORT

Brian
Strawn DST

P.1

Lyness District Hobbs NM B4765 Date 6-2 Field Ticket 1971 258-75184
Operator Kate Petroleum Corp
Address 103 South 4th Street
Ocala NM B8210
Well Name & Number Tring AIN Federal #4 DST No. 4 Est. Porosity 8%
Contractor Zindrill Net FL Pay 9
Rig No. 2 Top Choke 1 Bottom Choke 3/4
Size Hole 7 7/8 Size Rat Hole ---
Casing Size & Wt. 8 5/8
Size & Wt. D. P. or Tying 4 1/2 x 16 (10+20)
Size Wt. Pipe ---
I. D. of D. C. 2 1/4
Length of D. C. above Tool 1660'
Total Depth 10657
Interval Tested 10360 - 10657
Interval Perforated ---
Type of Test Bottom Hole Conn.
Flow No. 1 5 Min.
Shut-in No. 1 60 Min.
Flow No. 2 66 Min.
Shut-in No. 2 120 Min.
Flow No. 3 66 Min.
Shut-in No. 3 --- Min.
Bottom Hole Temp. 178°
Mud Weight 9.3
Gravity ---
Viscosity 31
Tool Opened @ 0612

Caliper Log Run Prior to Test: Yes ☐ No ☒
Calipered Hole Size @ Top Pkr. --- @ Bottom Pkr. ---
Did well flow gas yes in 32 mins.
Did well flow oil no in --- mins.
Did well flow water no in --- mins.
If well did flow, during which flow or shut-in period did gas/liquid reach surface?

2nd Flow Period

BOTTOM HOLE SAMPLER

Pressure in Sampler: 250 PSIG
Total Volume of Sampler: 2600 cc.
Total Volume of Sample: 950 cc.
Where was Sample drained? Rig Floor
Oil: 500 cc.
Water: 450 cc.
Mud: --- cc.
Gas: 125 cu. ft.
Other: ---
Sample R. W.: 0.68 at 60° 87,000 PPM/cbl
Gravity: --- Gas/Oil Ratio ---
Make Up Water R. W.: ---
Mud Pit Sample R. W.: 0.62 at 60° 109,000 PPM/cbl

Bottom of Top Packer 10551
Bottom of Second Packer 10560
Top of Straddle Packer ---
Top of Fourth Packer ---
Length of Test Interval 97'
Test Interval: Anchor 37 Collars 91.79 DP ---
Below Straddle: Anchor --- Collars --- DP ---
Was tool plugged? no Was anchor plugged? no
Did straddle pkr. hold? --- Press. below straddle ---
REMARKS:

Good Mechanical Test

Gas 25178 ran above
Shut in Tool

Recorder No. --- Ran Under Straddle Pkr. ---

Type	No.	Clock	Type	No.	Clock	Type	No.	Clock
K3	22722	26508	K3	22719	20182	DMR	1754	---
Cap. 6225	Loc. 10540	---	Cap. 6725	Loc. 10571	---	Cap. 10000	Loc. 10571	---
Inside X	Outside	Hrs. 24	Inside	Outside X	Hrs. 24	Inside	Outside X	Hrs. 1K
Press.	Field	Corrected	Press.	Field	Corrected	Press.	Field	Corrected
IM	A	5013	IM	5040	---	IM	5050	---
PH	K	5006	PH	5040	---	PH	5062	---
IF-1	B	496	IF-1	516	---	IF-1	520	---
FF-1	C	523	FF-1	540	---	FF-1	542	---
IF-2	E	380	IF-2	397	---	IF-2	406	---
FF-2	F	462	FF-2	480	---	FF-2	490	---
IF-3	H	413	IF-3	435	---	IF-3	440	---
FF-3	I	462	FF-3	490	---	FF-3	500	---
SIP-1	D	4562	SIP-1	4613	---	SIP-1	4622	---
SIP-2	G	4573	SIP-2	4620	---	SIP-2	4642	---
SIP-3	J	---	SIP-3	---	---	SIP-3	---	---

BST TECHNICIAN

RESERVOIR ANALYST yes

WELL OWNERS REPRESENTATIVE (Please Print Legibly)

Benny Fisher
FORM 500 & 5070-37 (4/87)

No. Final Copies 12

Craig Huber

FORM DISTRIBUTION: (1) WHITE, DST DEPT. COPY; (2) CANARY, DISTRICT COPY; (3) PINK, CUSTOMER COPY; (4) GOLD, HOUSTON AREA

DRILLING REPORT

Page 8

Yates Pet. - Trigg "AIN" Federal #1 (Unit H) 28-20S-29E Eddy Co., NM

11,849-901' gas 85 units
 11,906-911' gas 58 units
 11,923-929' gas 152 units
 11,931-939' gas 70 units
 11,941-949' gas 156 units
 11,958-963' gas 185 units

Anticipated TD 12,150'. DMC \$1639; CMC \$114,616; DC \$7089; CC \$649,957

6-20-91 Drilling 12,077' lime and shale. Made 116' in 23-3/4 hours, 4.8'/hr. MW 10.8, Vis 38, PV 10, YP 8, Gels 6/18, pH 11.5, Wl 12.5, FC 1/32, Cl 120000, Solids 14-1/2, Sand trace, Calcium 200. BGG 18, Max 35 units. WOB 50000#, RPM 60, PP 1800#. DMC \$640; CMC \$115,256; DC \$6290; CC \$656,247

6-21-91 TD 12,135' shale. POH for logs. Made 58' in 14-3/4 hours, 4'/hr. MW 10.9, Vis 39, PV 11, YP 8, Gels 7/16, pH 11, Wl 9, FC 1, Cl 110,000, Solids 12%, Calcium. WOB 50000#, RPM 60, PP 1800#. Reached TD 2:45 PM 6-20-91. DMC \$3581; CMC \$118,837; DC \$9001; CC \$665,248

6-22-91 TD 12,135' shale. Circulating to lay down drill pipe. MW 10.9, Vis 39, PV 11, YP 8, Gels 7/16, pH 11, Wl 15, FC 2/32, Cl 110000. Ran logs. TIH and circulated. Washed 70', no fill. CMC \$118,837; DC \$31,140; CC \$696,388

6-23-91 TD 12,135'. Circulating casing. MW 11, Vis 39, Wl 15. Ran 5-1/2" casing and cemented. CMC \$118,837; DC \$144,961; CC \$841,349

6-24-91 TD 12,135'. Rig released. Ran 280 joints 5-1/2" casing as follows:

66 joints 20# N-80	2870'
188 joints 17# N-80	8138'
26 joints 20# N-80	1136'
TOTAL	12,144'

Casing set 12,135'. Float shoe set 12,135'. Float collar set 12,091'. Marker Joint 11041-11002'; 10,609-573'. DV tool set 9091'. Cemented in two stages as follows: Stage I - 840 sxs "H" with 5#/sx CSE, 10#/sx Gilsonite and 1.25% CF-14 (yield 1.21, weight 15.6). PD 3:00 AM 6-23-91. Circulated 83 sacks on first stage. Circulated through DV tool 3 hours. Stage II - 970 sxs Super "H" + 3% Salt (yield 2.3, weight 11.5). Tailed in with 100 sacks "H" with 5#/sx CSE + .9% CF-14 (yield 1.21, weight 15.6). PD 9:40 AM 6-23-91. Rig released 6:00 PM 6-23-91. CMC \$118,837; DC \$2875; CC \$844,224

6-25-91 Waiting on completion unit.

6-26-91 Cleaned location and set anchors. Moved in and rigged up pulling unit. Unload tubing. Prep to TIH with bit and collars. DC \$41,200

6-27-91 Put on 10K tubinghead. TIH with 4-5/8" bit, stabilizer and 6 - 3-1/2" drill collars. Tag at 9078'. Drilled out DV tool 9086'. Circulate clean. TOH, removed stabilizer. TIH with bit, scraper and collars. Tag at 12,040'. Displace hole with 9# brine with 10# KCL/bbl and corrosion inhibitor. Prep to trip and log cased hole. DC \$6064; CC \$47,264

6-28-91 TOH with tubing. Laid down drill collars. Rigged up Schlumberger and ran GR/CBL from PBTD to 4000'. TIH with Vann System TCP guns to perforate 11,081-90'. Prep to log guns into position. DC \$1956; CC \$49,220

6-29-91 Correlate guns on depth with respect to CNL log. Space out, set packer and flange up 10K tree. Test to 7000 psi. Drop tube. Open vent device. Dry detonating bar and fired Vann Guns to perf 11,081-90' (4 SPF) with 37 - 0.42" holes with 4000' fluid blanket. Fluid to surface in 4 minutes. Gas to surface in 7 minutes. Flowed 30 minutes on 18/64" choke with 3900 psi (8 MMCFPD). Shut well in. Padlock valves. Turn to production. DC \$21,473; CC \$100,553

6-30/7-1-91 Shut in.

7-2-91 Shut in.

7-3-91 Shut in.

7-4-8-91 Shut in.

7-9-91 Shut in.

7-10-91 Shut in.

DRILLING REPORT

Page 9

Yates Pet. - Trigg "AIN" Federal #1 (Unit H) 28-20S-29E Eddy Co., NM

7-11-91

Shut in.

7-12-91

TD 12,135'; PBTD 12,040'. On a 24 hour Official Potential test taken 6-29-91, well flowed 3900 psi on a 18/64" choke = 8000 MCFGPD, through perfs 11,081-11,090' Atoka.

SIWOPLC. FINAL REPORT.

8-14-91

Rigged up Jarrel Services. Made dummy run with 1.84" gauge ring. WIH with Otis Bottom Hole choke assembly with .1875" choke bean. Back on line at 5:00 PM.