

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-22 *0151*
File

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 02/15/1991			
Company Yates Petroleum Corp				Connection Gas Company of New Mexico					
Pool Atoka				Formation Calabeza Draw				Unit	
Completion Date 02/13/1991		Total Depth 11301		Plug Back TD 10600		Elevation 3184		Farm or Lease Name Lake Shore XH Federal	
Csg Size 5.500	Wt. 20.000	d 4.778	Set At 11300	Perforations From 10484 To 10502		Well No. 1			
Tbg Size 2.875	Wt. 6.500	d 2.441	Set At 10400	Perforations From 10484 To 10502		Unit F		Sec. 11	Twp. 21S
Type Well Single						Packer Set At 10400		County Eddy	
Producing Thru Tubing		Resv. Temp. °F 188 @ 10980		Mean Temp °F 62		Baro. Press. - Pa 13.2		State New Mexico	
L 10400	H 10400	Gg 0.602	%CO ₂ 0.724	%N ₂ 1.321	%H ₂ S 0.000	Prover 0.000	Meter Run 2.000	Taps Flange	

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
Sl	0.000	x	0.000	0	0.0	0	1000	0			0
1	2.067	x	0.500	180	51.0	45	600	62			24
2	2.067	x	0.500	172	66.9	47	460	62			24
3	2.067	x	0.500	180	85.0	49	320	62			24
4	2.067	x	0.500	180	96.0	53	180	62			24
5		x									

RATE OF FLOW CALCULATIONS								
NO	Coefficient (24 Hour)	$\sqrt{hwP_m}$	Pressure Pm	Flow Temp Factor Ft	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd	
1	1.189	99.3	193.2	1.0148	1.289	1.017	157	
2	1.189	111.4	185.3	1.0127	1.289	1.016	176	
3	1.189	128.1	193.2	1.0108	1.289	1.017	202	
4	1.189	136.2	193.2	1.0068	1.289	1.016	214	
5								

NO	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	0	Mcf/bbl.
1	0.29	505	1.43	0.966	A.P.I. Gravity of Liquid Hydrocarbons	0.000	Deg.
2	0.28	507	1.44	0.968	Specific Gravity Separator Gas	0.602	XXXXXXXXXX
3	0.29	509	1.45	0.967	Specific Gravity Flowing Fluid	XXXXXXXXXX	0.602
4	0.29	513	1.46	0.968	Critical Pressure	673	P.S.I.A.
5					Critical Temperature	352	°R

Pc	1013.2	Pc²	1026.6
NO	Pi²	Pw	Pw²
1	376.0	613.4	376.3
2	223.9	473.6	224.3
3	111.0	333.9	111.5
4	37.3	194.6	37.9
5			

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.122$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 220$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.088$

Absolute Open Flow	220	Mcf @ 15.025	Angle of Slope	0 36	Slope, n	0.734
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Remarks:

Approved By Commission:	Conducted By: Ed Perry	Calculated By: Andrea Carpenter	Checked By:
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WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw) C-122D

DATE 02/15/1991

COMPANY Yates Petroleum Corp LEASE Lake Shore XH Federal WELL NO. 1

LOCATION: Unit F Section 11 Township 21S Range 263

L 10400 H 10400 L/H 1.000 G 0.602 %CO₂ 0.724 %N₂ 1.321 %H₂S 0.000

d 2.441 Fr 0.010495 GH 6260.8 P_{cr} 672.9 T_{cr} 351.8

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	0.157	0.176	0.202	0.214	
2 Tw(W.H.°R)	522	522	522	522	
3 Ts(B.H.°R)	648	648	648	648	
4 T = (Tw+Ts) / 2	584.7	584.7	584.7	584.7	
5 Z (Est.)	0.932	0.947	0.962	0.978	
6 TZ	545.1	553.5	562.4	571.5	
7 GH / TZ	11.486	11.310	11.133	10.955	
8 e ^s (Table XIV)	1.538	1.528	1.518	1.508	
9 1-e ^s (Table XIV)	0.350	0.346	0.341	0.337	
10 Pt	613.2	473.2	333.2	193.2	
11 Pt ² / 1000	376.0	223.9	111.0	37.3	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	5.720	5.809	5.902	5.998	
14 FcQm	0.90	1.02	1.19	1.28	
15 L / H(FcQm) ²	0.8	1.0	1.4	1.6	
16 Fw = L / H(FcQm) ² (1-e ^s)	0.28	0.36	0.48	0.55	
17 Pw ² = Pt ² +Fw	376.3	224.3	111.5	37.9	
18 Ps ² = e ^s Pw ²	578.9	342.7	169.3	57.1	
19 Ps	760.8	585.4	411.4	239.0	
20 P = (Pt+Ps) / 2	687.0	529.3	372.3	216.1	
21 Pr = (P / P _{cr})	1.02	0.79	0.55	0.32	
22 Tr = (T / T _{cr})	1.66	1.66	1.66	1.66	
23 Z (Table XI)	0.932	0.947	0.962	0.978	

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122

ASF
File

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 09/30/1983			
Company Vates Petroleum Corp				Connection Gas Company of New Mexico					
Pool Morrow				Formation Burton Flat				Unit	
Completion Date 09/23/1993		Total Depth 11301		Plug Back TD 11000		Elevation 3184		Farm or Lease Name Lake Shore XH Federal	
Csg. Size 5.500	Wt. 20.000	d 4.778	Set At 11300	Perforations From 10967 To 10974		Well No 1			
Tbg. Size 2.875	Wt. 6.500	d 2.441	Set At 10931	Perforations From 10967 To 10974		Unit F		Sec. 11	Twp. 21S
Type Well Single						Packer Set At 10931		County Eddy	
Producing Thru Tubing		Resv. Temp. °F 188 @ 10980		Mean Temp. °F 62		Baro. Press. - Pa 13.2		State New Mexico	
L 10931	H 10931	Gg 0.602	%CO ₂ 0.724	%N ₂ 1.321	%H ₂ S 0.000	Prover 0.000	Meter Run 2.000	Taps Flange	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI.	0.000	x	0.000	0	0.0	0	3300	0			0
1.	2.067	x	1.500	213	32.0	59	2250	62			24
2.	2.067	x	1.500	204	52.7	55	1571	62			24
3.	2.067	x	1.500	213	72.0	58	892	62			24
4.	2.067	x	1.500	213	80.0	57	213	62			24
5.		x									

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{hwP_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	12.760	85.1	226.2	1.0010	1.289	1.019	1427
2.	12.760	107.1	217.5	1.0048	1.289	1.018	1802
3.	12.760	127.6	226.2	1.0019	1.289	1.019	2142
4.	12.760	134.5	226.2	1.0029	1.289	1.019	2260
5.							

NO.	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	0	Mcf/bbl
1	0.34	519	1.47	0.964	A.P.I. Gravity of Liquid Hydrocarbons	0.000	Deg.
2	0.32	515	1.46	0.964	Specific Gravity Separator Gas	0.602	XXXXXXXXXX
3	0.34	518	1.47	0.964	Specific Gravity Flowing Fluid	XXXXXXXXXX	0.602
4	0.34	517	1.47	0.963	Critical Pressure	673	P.S.I.A. 673 P.S.I.A.
5					Critical Temperature	352	°R 352 °R

P _c	3313.2	P _{c'}	10977.3
NO.	P _{t'}	P _w	P _{w'}
1.	5122.1	2268.0	5143.6
2.	2509.7	1595.2	2544.7
3.	819.4	933.8	872.0
4.	51.2	338.8	114.8
5.			

(1) $\frac{P_{c'}}{P_{c'} - P_{w'}} = 1.086$

AOF = Q $\left[\frac{P_{c'}}{P_{c'} - P_{w'}} \right]^n = 2277$

(2) $\left[\frac{P_{c'}}{P_{c'} - P_{w'}} \right]^n = 1.063$

Absolute Open Flow	2277	Mcf/d @ 15.025	Angle of Slope	0 37	Slope, n	0.740
Remarks:						
Approved By Commission:		Conducted By: Ed Perry		Calculated By: Andrea Carpenter		Checked By:

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw) C-122D

DATE 09/30/1983

COMPANY Yates Petroleum Corp LEASE Lake Shore XH Federal WELL NO. 1

LOCATION: Unit F Section 11 Township 21S Range 263

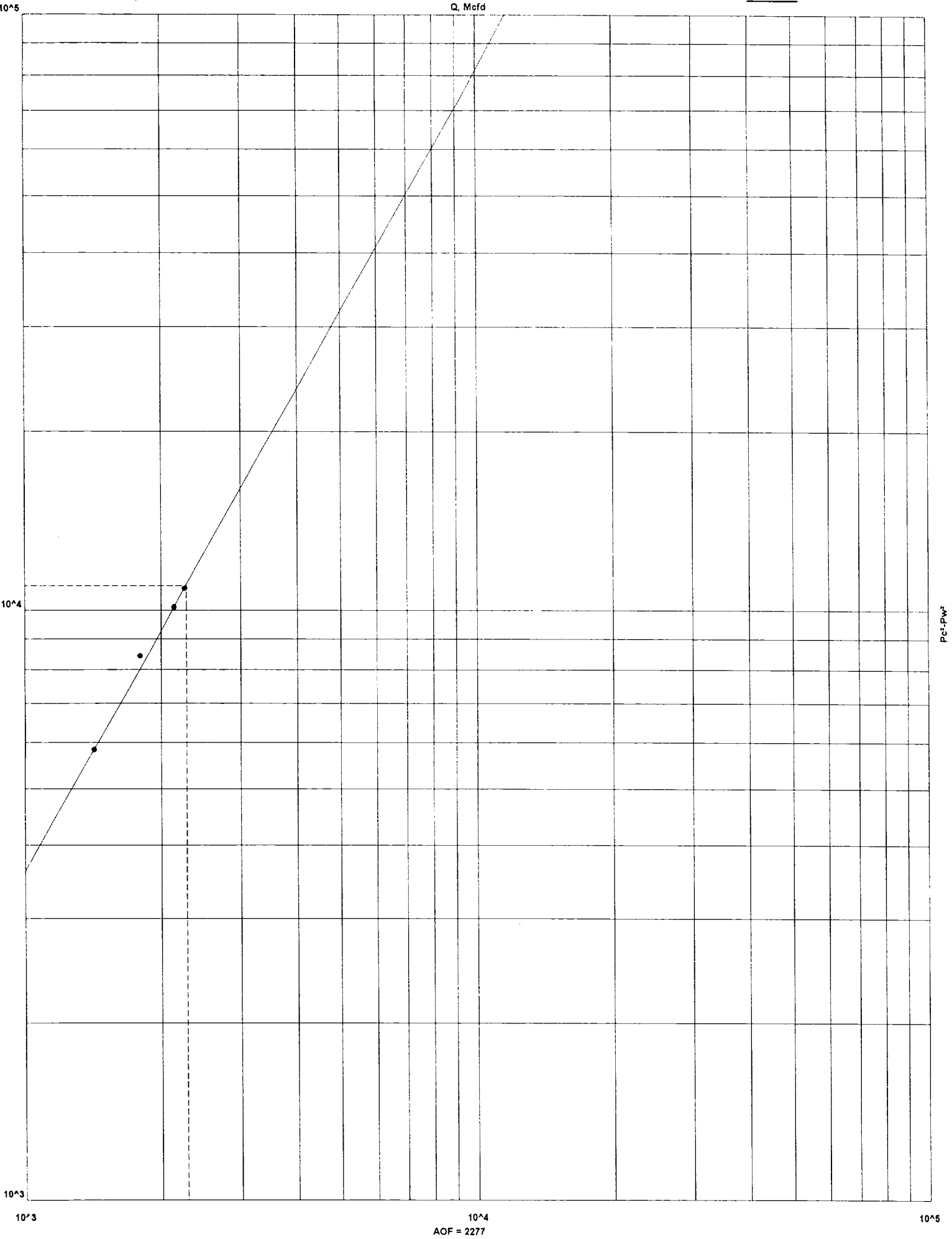
L 10931 H 10931 L/H 1.000 G 0.602 %CO₂ 0.724 %N₂ 1.321 %H₂S 0.000

d 2.441 Fr 0.010495 GH 6580.5 Pcr 672.9 Tcr 351.8

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	1.427	1.802	2.142	2.260	
2 Tw(W.H.°R)	522	522	522	522	
3 Ts(B.H.°R)	648	648	648	648	
4 T = (Tw+Ts) / 2	584.7	584.7	584.7	584.7	
5 Z (Est.)	0.847	0.858	0.903	0.967	
6 TZ	495.1	501.5	527.8	565.2	
7 GH / TZ	13.292	13.121	12.469	11.643	
8 e ^s (Table XIV)	1.646	1.636	1.596	1.547	
9 1-e ^{-s} (Table XIV)	0.393	0.389	0.373	0.354	
10 Pt	2263.2	1584.2	905.2	226.2	
11 Pt ² / 1000	5122.1	2509.7	819.4	51.2	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	5.196	5.263	5.539	5.932	
14 FcQm	7.41	9.49	11.86	13.41	
15 L / H(FcQm) ²	54.9	90.0	140.8	179.8	
16 Fw = L / H(FcQm) ² (1-e ^{-s})	21.56	34.98	52.61	63.60	
17 Pw ² = Pt ² +Fw	5143.6	2544.7	872.0	114.8	
18 Ps ² = e ^s Pw ²	8467.3	4162.1	1391.4	177.6	
19 Ps	2909.9	2040.1	1179.6	421.4	
20 P = (Pt+Ps) / 2	2586.5	1812.2	1042.4	323.8	
21 Pr = (P / Pcr)	3.84	2.69	1.55	0.48	
22 Tr = (T / Tcr)	1.66	1.66	1.66	1.66	
23 Z (Table XI)	0.847	0.858	0.903	0.967	

Company Yates Petroleum Corp
Well Lake Shore XH Federal #1
Location F 11-21S-263

County Eddy
Date 09-30-1983



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

IL COMS. 00000000
FORM APPROVED
Budget Bureau No. 04-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

YATES PETROLEUM CORPORATION (505) 748-1471

3. Address and Telephone No.

105 South 4th St., Artesia, NM 88210

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

1980' FNL & 1980' FWL of Section 11-T21S-R26E

5. Lease Designation and Serial No.

NM-3606

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and No.

Lake Shore XH Fed Com #1

9. API Well No.

30-015-24478

10. Field and Pool, or Exploratory Area

Undesignated Atoka

11. County or Parish, State

Eddy Co., NM

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☐ Notice of Intent
☒ Subsequent Report
☐ Final Abandonment Notice

TYPE OF ACTION

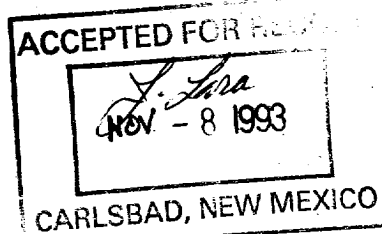
- ☐ Abandonment
☐ Recompletion
☐ Plugging Back
☐ Casing Repair
☐ Altering Casing
☒ Other Add perforations

- ☐ Change of Plans
☐ New Construction
☐ Non-Routine Fracturing
☐ Water Shut-Off
☐ Conversion to Injection
☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Moved in and rigged up. Tested backside. Dropped standing valve. Tested tubing to 2500#. Unset packer. Circulated gas to surface. Latched onto RBP. Pulled and reset at 10400'. Tested to 2000#. Pulled packer and reset at 10240'. Tested backside to 1000#. WIH w/swab and swabbed down. WIH and perforated 10311-10317' (7 holes) and 10337-10348' (12 holes) (Total of 19 .42" holes). Swab and flow test. Acidized perforations 10311-10348' with 2500 gallons 15% NEFE acid and ball sealers. Swabbed. Shut well in.



RECEIVED
OCT 10 11 20 AM '93
10-01-93
10-01-93

14. I hereby certify that the foregoing is true and correct

Signed

Rusty Klein

Title

Production Clerk

Date

October 7, 1993

(This space for Federal or State office use)

Approved by

Conditions of approval, if any:

Title

Date