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NEW XICO OIL CONSERVATION COMMSS

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65
C-122

RECEIVED
FEB 2 1976
O. C. C.
ARTESIA, OFFICE

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date: 1/21/76	
Company: Atlantic Richfield Company		Connection: None			
Pool: Avalon Morrow		Formation: Morrow		Unit:	
Completion Date: 1/21/76	Total Depth: 11050	Plug Back TD: 11005	Elevation: 3283'GL	Farm or Lease Name: State BR Com	
Csg. Size: 5½ / Wt.: 15.5 & 17 / d: 4.892 / Set At: ~~11049~~ 11049		Perforations: From ~~10667~~ 10667 / ~~10714~~ 10714 To 10921		Well No.: No. 2	
Tbg. Size: 2.875 / Wt.: 6.5 / d: 2.441 / Set At: 10628		Perforations: From Open Ended To		Unit: C / Sec.: 16 / Twp.: 21s / Rge.: 26e	
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single		Packer Set At: 10628		County: Eddy	
Producing Thru: Tubing	Reservoir Temp. °F: 168 @ 10600	Mean Annual Temp. °F: 60	Baro. Press. – P_a: 13.2	State: New Mexico	

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
10804	-	0.637	1.128	1.010	0.000		x	F

	FLOW DATA					TUBING DATA		CASING DATA		
NO.	Prover Line Size	X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Press. p.s.i.g. DWT	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI						2936				90.0
1.	4	1.50	595.2	10.24	72	2605	62	Packer		1.0
2.	4	1.50	692.4	16.00	72	2342	62			1.0
3.	4	1.50	595.2	26.01	68	2222	68			1.0
4.	4	1.50	626.8	30.25	70	2000	64			1.0
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1.	10.84	78.93	608.4	0.9887	1.253	1.050	1113.0
2	10.84	106.25	705.6	0.9887	1.253	1.058	1509.6
3	10.84	125.80	608.4	0.9924	1.253	1.052	1783.9
4	10.84	139.14	640.0	0.9905	1.253	1.053	1971.1
5							

NO.	P_r	Temp. °R	T_r	Z
1	0.90	532	1.48	0.907
2	1.05	532	1.48	0.893
3	0.90	528	1.47	0.904
4	0.95	530	1.48	0.902
5				

Gas Liquid Hydrocarbon Ratio: Dry Gas Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons: -- Deg.
Specific Gravity Separator Gas: 0.637 XXXXXXXXXX
Specific Gravity Flowing Fluid: XXXXX
Critical Pressure: 675 P.S.I.A. -- P.S.I.A.
Critical Temperature: 359 R -- R

P_c 3753.2 P_c^2 14086.5

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		3373.2	11378.5	2708.0
2		3114.2	9698.2	4388.3
3		2885.2	8324.4	5762.1
4		2673.2	7146.0	6940.5
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 5.2018$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 2.807$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 3125$

Absolute Open Flow: 3125 Mcfd @ 15.025
Angle of Slope θ: 57°58'
Slope, n: 0.626

Remarks: * BHP @ (-7521) 10804' used for pressure calculations

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	Coleman Petr. Engr. Co.	Joe A. Coleman	L. C. Hudry

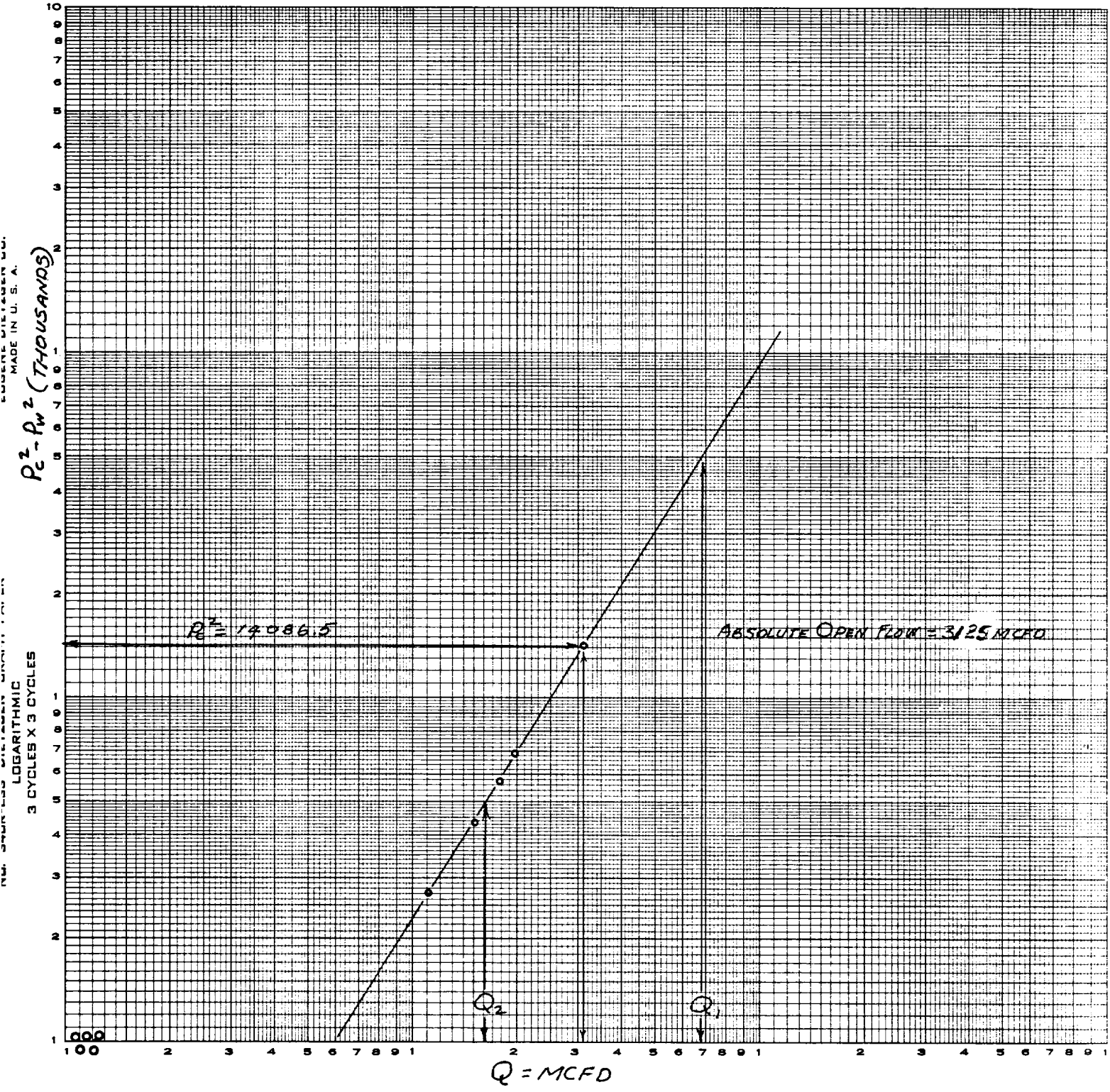
COMPANY Atlantic Richfield Company

WELL State BR Com, No. 2

LOCATION Unit C, Sec 16 21s 26e

COUNTY Eddy, New Mexico

DATE January 21, 1976



$Q_1 = 6800$ MCFD; LOG $Q_1 = 3.832508$

$Q_2 = 1610$ MCFD; LOG $Q_2 = 3.206826$

$n = 0.625682 = 0.626$

COLEMAN PETROLEUM ENGINEERING COMPANY

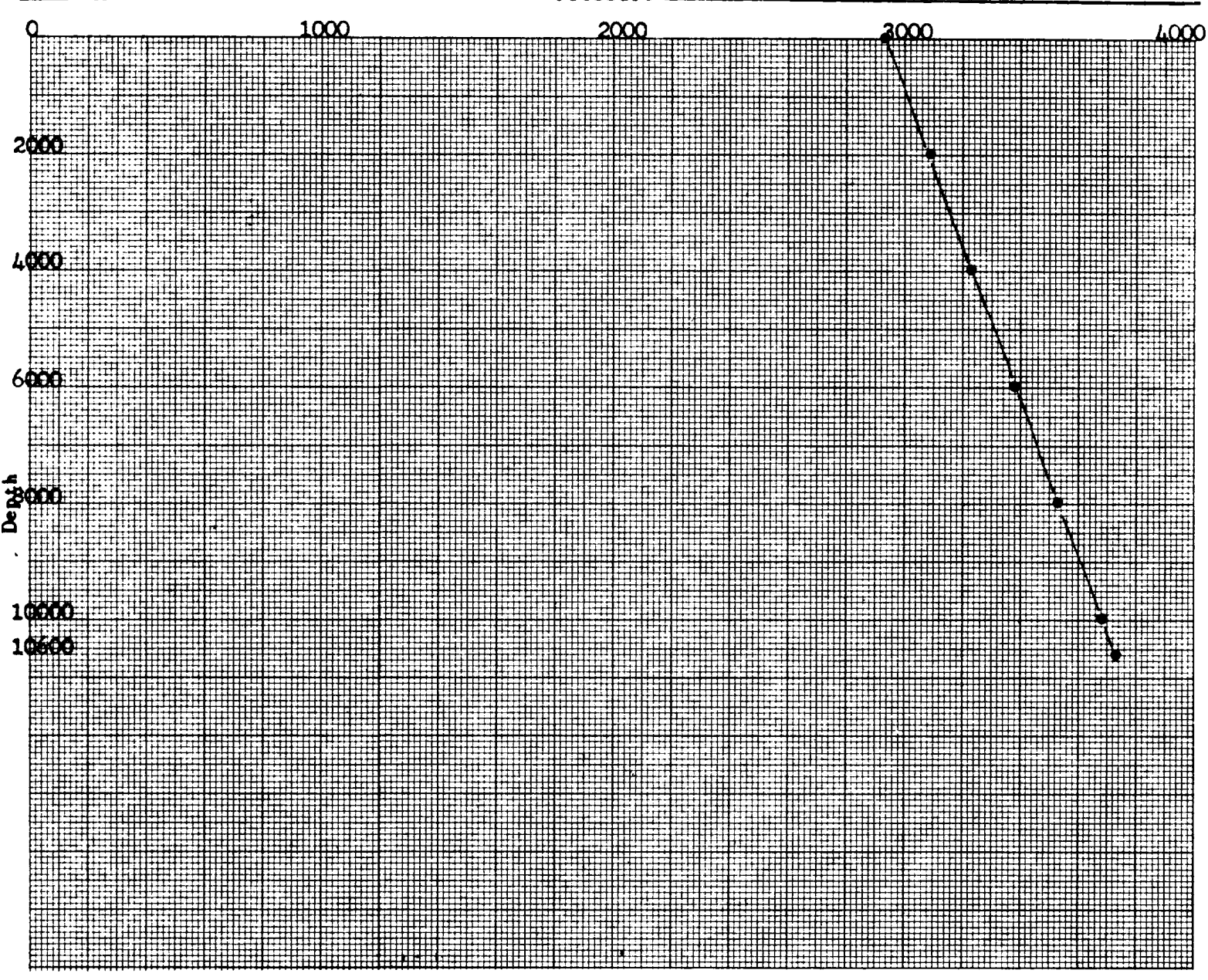
PHONE 393-3813 3713 W. MARLAND ST. P. O. BOX 1829 HOBBS, NEW MEXICO 88240

BOTTOM HOLE PRESSURE RECORD

OPERATOR Atlantic Richfield Company
FIELD Avalon FORMATION Morrow
LEASE State BR Com WELL No. 2
COUNTY Eddy STATE New Mexico
DATE 1-21-76 TIME 10:00 Am
Status Shut in Test depth 10600'
Time S. I. 90 Hrs Last test date Initial
Tub Pres. 2936 DWT BHP last test -
Cas. Pres. Packer BHP change -
Elev. 3283' GL Fluid top None
Datum (-7521)** Water top None
Temp. @ 168°F Run by Loper - Peacock
Cal. No. A2602N Chart No. 1

Depth	Pressure	Gradient
0	2936	-
2000	3084	.074
4000	3232	.074
6000	3380	.074
8000	3530	.075
10000	3680	.075
10600	3725	.075
10804(-7521)	3740* **	(.075)

* Extrapolated Pressure
** MidPoint of Casing Perforations



COLEMAN PETROLEUM ENGINEERING COMPANY

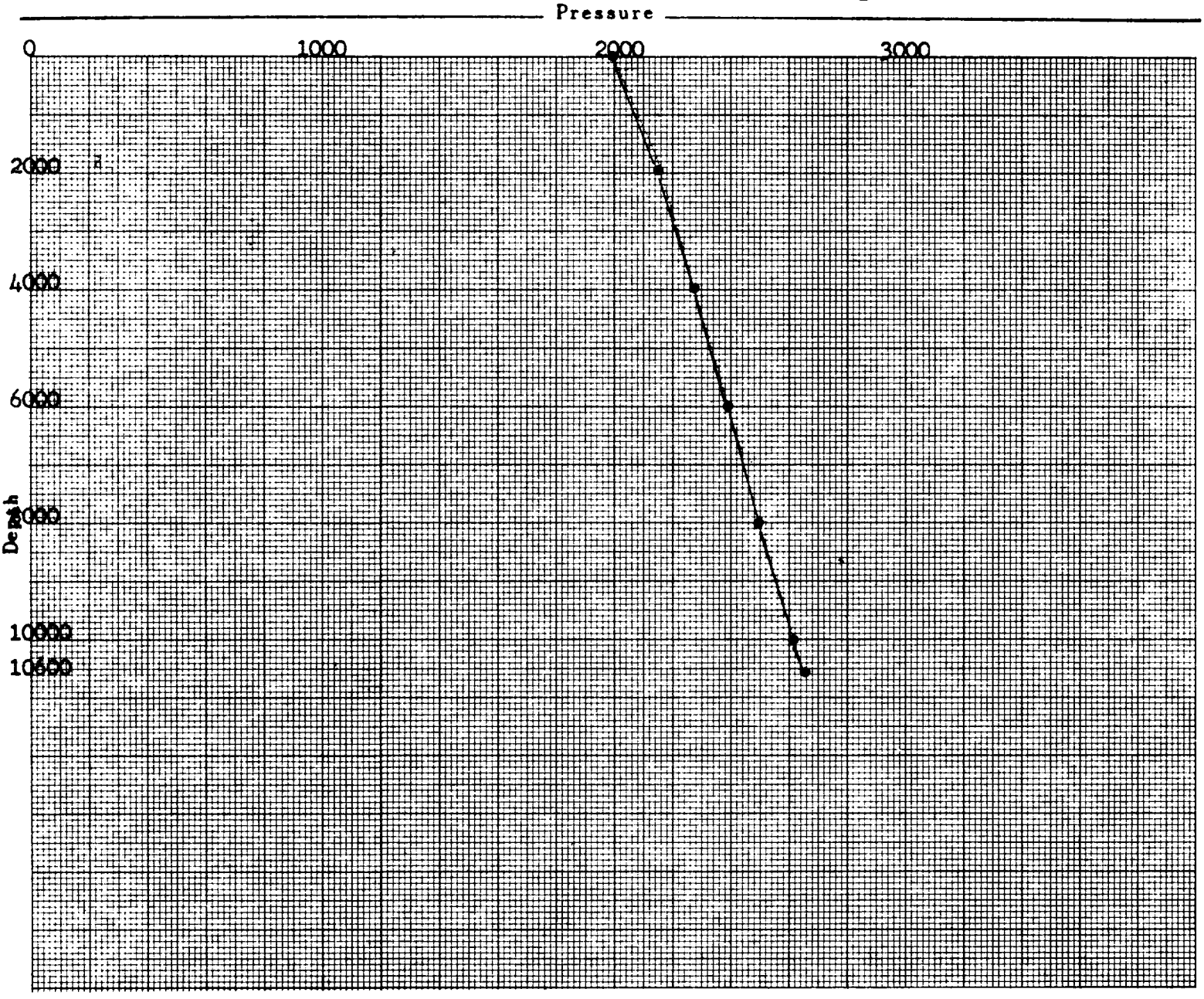
PHONE 393-3813 3713 W. MARLAND ST. P. O. BOX 1829 HOBBS, NEW MEXICO 88240

BOTTOM HOLE PRESSURE RECORD

OPERATOR Atlantic Richfield Company
FIELD Avalon FORMATION Morrow
LEASE State BR Com WELL No. 2
COUNTY Eddy STATE New Mexico
DATE 1-21-76 TIME 3:00 Pm
Status Flowing Test depth 10600'
Time S. I. - Last test date -
Tub Pres. 2000 DWT BHP last test -
Cas. Pres. Packer BHP change -
Elev. 3283'GL Fluid top Flowing
Datum (-7521)** Water top -
Temp. @168°F Run by Loper - Peacock
Cal. No. A2602N Chart No. 2

Depth	Pressure	Gradient
0	2000	-
2000	2156	.070
4000	2276	.060
6000	2390	.057
8000	2495	.053
10000	2613	.059
10600	2648	.058
10804(-7521)	2660* **	(.058)

* Extrapolated Pressure
** MidPoint of Casing Perforations



COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3813 3713 W. MARLAND ST. P. O. BOX 1829 HOBBS, NEW MEXICO 88240

January 26, 1976

Atlantic Richfield Company
P.O. Box 1710
Hobbs, New Mexico 88240

Re: Avalon Morrow
State BR Com, No. 2
Eddy, New Mexico
4-Point Back Pressure Test,
Gas Sample and Analysis

Gentlemen:

In compliance with your instructions, a 4-Point Back Pressure Test was conducted, and the absolute open flow potential was calculated to be 3125 MCF/day. The average production was recorded to be 1594.2 MCF/day with 0.00 bbls D/day.

The sample taken during the test yielded component percentages as follows:

Carbon Dioxide	1.128
Nitrogen	1.010
Methane	91.587
Ethane	3.035
Propane	1.333
Iso-Butane	.160
N-Butane	.390
Iso-Pentane	.210
N-Pentane	.174
Hexanes	.169
Heptanes	.804
Total	100.000
Calculated Sp. Gr.	0.6367
Calculated BTU Dry	1094
Calculated BTU Wet	1075

Very Truly Yours,

Joe A. Coleman

JAC/me
Enclosures

UNITED CHEMICAL CORPORATION

OF NEW MEXICO

P. O. BOX 1499 PHONE (505) 393-7751

HOBBS, NEW MEXICO 88240

No. 4501
Run No.
Date of Run 1-23-76
Date Secured

CERTIFICATE OF ANALYSIS

Sample of Atlantic Richfield Co. - State BR Com #2
ecured from Coleman Engineering Co.
t Box 1829 Secured by
Hobbs, New Mexico 88240 Time Date
ampling conditions Press
Temp. Morrow Gas

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
arbon Dioxide	1.128		
ir			
itrogen	1.010		
xygen			
ydrogen sulfide			
ydrogen			
ethane	91.587		.809
hane	3.035		.367
ropane	1.333		
utanes			
o-Butane	.160		.052
-Butane	.390		.123
entanes			
o-Pentane	.210		.077
l-Pentane	.174		.063
exanes	.169		.069
eptanes	.804		.342
OTAL	100.000		1.902

Calc. Sp. Gr.— 0.6367
Calc. A.P.I.—
Calc. Vapor Press.— PSIA
Sp. Gr.
Mol. Wt. 18.53

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.367
Butanes Calc. G.P.M.	.175
Pentanes Plus. G.P.M.	.551
Ethane Calc. G.P.M.	.809
RVP Gasoline G.P.M.	

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.

Dry Basis	1094
Wet Basis	1075

Sulfur Analysis by Titration Gr./100 Cu. Ft.

Hydrogen Sulfide	
Mercaptans	
Sulfides	
Residual Sulfur	
Total Sulfur	

un by Sylvia Brant Checked by D. Simpson Approved by

Additional Data and Remarks

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OPERATOR		

Form C-105
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease: State [X] Fee [ ]

5. State Oil & Gas Lease No.: L-6705

1a. TYPE OF WELL

b. TYPE OF COMPLETION: OIL WELL [ ] GAS WELL [X] DRY [ ] OTHER
NEW WELL [X] WORK OVER [ ] DEEPEN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] OTHER

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O. C. C.
ARTESIA, OFFICE

7. Unit Agreement Name:

8. Farm or Lease Name: State BR Com.

2. Name of Operator: Atlantic Richfield Company

9. Well No.: 2

3. Address of Operator: P. O. Box 1710, Hobbs, New Mexico 88240

10. Field and Pool, or Wildcat: Avalon Morrow Gas

4. Location of Well

UNIT LETTER C LOCATED 1830 FEET FROM THE West LINE AND 660 FEET FROM THE North LINE OF SEC. 16 TWP. 21S RGE. 26E NMPM

12. County: Eddy

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Cashinghead
11/14/75	12/18/75	1/18/76	3283' GR	

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
11,050'	11,005'		→	0-11,050'	

24. Producing Interval(s), of this completion — Top, Bottom, Name: 10,714-10,825' & 10,867-10,921' Morrow Gas

25. Was Directional Survey Made: No

26. Type Electric and Other Logs Run: CNL-GR log, FDC log, DLL MSFL w/GR & GR-Corr log

27. Was Well Cored: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8" OD	54.50#	500'	17½"	360 sx.	
8-5/8" OD	24#	2500'	12¼"	1450 sx cmt, 9 yds Redi-mix	
5-1/2" OD	15.5# & 17#	11049'	7-7/8"	20 bbls SAM-4 Mud Spacer & 1000 sx cmt	

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
2-7/8" OD	10,628'	10,628'

31. Perforation Record (Interval, size and number)

10,867, 86, 88, 92, 95, 99, 10,919, 921' = 8 - .32" holes.
10,714, 17, 20, 81, 83, 86, 89, 91, 10823, 10,825' = 10 - .32" holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
10867-10921'	2500 gals 7½% MSA cont'g 1000 SCF N2/bbl.
10714-10825'	3500 gals 7½% MSA cont'g 1000 SCF N2/bbl.

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping — Size and type pump)	Well Status (Prod. or Shut-in)
1/6/76	Flowing	Shut-in

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Gas — Oil Ratio
1/21/76	4	Variable		-	266	-	-

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Oil Gravity — API (Corr.)
2292#	Pkr		-	1596	-	-

34. Disposition of Gas (Sold, used for fuel, vented, etc.): To be sold - Waiting on pipeline connection

Test Witnessed By: Joe Coleman

35. List of Attachments: Logs as listed in Item 26 above & Deviation Test Record.

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED [signature] TITLE Dist. Drlg. Supv. DATE 1/29/76

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon		T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	9680	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka	10073	T. Pictured Cliffs		T. Penn. "D"	
T. Yates		T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen		T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg		T. Montoya		T. Mancos		T. McCracken	
T. San Andres		T. Simpson		T. Gallup		T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware ~~Sand~~ Lime	2215	T. Entrada		T.	
T. Abo		T. Bone Springs	4300	T. Wingate		T.	
T. Wolfcamp	8236	T. Leonard	7882	T. Chinle		T.	
T. Penn.	9208	T. Morrow Clastics	10562	T. Permian		T.	
T Cisco (Bough C)		T.		T. Penn. "A"		T.	

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	500	500	Surface & Red Beds				
500	765		Lime				
765	935		Lime & Sand				
935	1120		Lime				
1120	2530		Lime & Sand				
2530	7789		Lime				
7789	7945		Lime & Sand				
7945	8200		Lime				
8200	8257		Lime & Shale Sand				
8257	8393		Lime				
8393	8559		Lime & Sand				
8559	8706		Lime				
8706	8823		Lime				
8823	8946		Lime & Shale Sand				
8946	9457		Lime & Sand				
9457	9527		Lime & Shale Sand				
9527	9988		Lime & Shale				
9988	9941		Lime & Shale Sand				
9941	10947		Lime & Shale				
10947	11008		Lime, Shale & Sand				
11008	11015		Lime & Shale				
11015	11028		Lime, Shale & Sand				
11028	11050		Lime & Shale				
	TD						

WELL NAME AND NUMBER b.r. Com. #2

LOCATION 660' FNL & 1830 FWL, Section 16, T-21-S, R-26-E, Eddy County, New Mexico
(New Mexico give U,S,T & R; Texas give S,Blk.,Sur.& Twp.when required)

OPERATOR Atlantic Richfield Company

DRILLING CONTRACTOR McVay Drilling Company

The undersigned hereby certifies that he is an authorized representative of the drilling contractor who drilled the above-described well and that he has conducted deviation tests and obtained the following results:

Degrees @ Depth	Degrees @ Depth	Degrees @ Depth	Degrees @ Depth
3/4° 200	1° 5994		
½° 490	½° 7118		
¼° 810	1½° 7682		
¼° 1300	1½° 8150		
2 3/4° 1727	1½° 8652		
1½° 1850	1° 9128		
1¼° 2150	1 3/4° 9591		
½° 2490	1 3/4° 9950		
1¼° 2986	1½° 10,465		
1½° 3480	1½° 10,610		
1½° 3989	3/4° 11,000		
3/4° 4490			
3/4° 4992			
3/4° 5494			

RECEIVED
JAN 30 1976
O. C. C.
ARTESIA, OFFICE

Drilling Contractor McVay Drilling Company

By [signature]

Subscribed and sworn to before me this 23rd day of December, 19 75

[signature]
Notary Public
Lea County, New Mexico

My Commission Expires:
4-28-79

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NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease: State [X] Fee [ ]

5. State Oil & Gas Lease No.: L-6705

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

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JAN 30 1976
O. C. C.
ARTESIA, OFFICE

1. OIL WELL [ ] GAS WELL [X] OTHER-

7. Unit Agreement Name:

2. Name of Operator: Atlantic Richfield Company

8. Farm or Lease Name: State BR Com

3. Address of Operator: P. O. Box 1710, Hobbs, New Mexico 88240

9. Well No.: 2

4. Location of Well: UNIT LETTER C, 1830 FEET FROM THE West LINE AND 660 FEET FROM THE North LINE, SECTION 16 TOWNSHIP 21S RANGE 26E NMPM.

10. Field and Pool, or Wildcat: Avalon Morrow

15. Elevation (*Show whether DF, RT, GR, etc.*): 3283' GR

12. County: Eddy

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG AND ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [ ]	
OTHER [ ]		OTHER Perforate, acidize & complete [X]	

17. Describe Proposed or Completed Operations (*Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work*) SEE RULE 1103.

PBD 11,005'. On 1/4/76 ran GR-Corr log 9400-11,005'. Ran 5½" Otis WB Permpkr on WL @ 10,830' w/2.313 "X" nipple & 2.255 "N" nipple below pkr. WIH w/"WB" seal assy & 5½" Otis "PL" retr pkr on 2-7/8" EUE 8rd N-80 tbg. Latched seal assy into WB pkr @ 10,830'. Displaced wtr w/N_2 & bled press to 500#. Perforated Morrow selectively w/2-1/8" OD thru tbg gun @ 10,867, 86, 88, 92, 95, 99, 10919 & 10921' = 8 - .32" holes. No GTS. Acidized Morrow perfs 10867-10921' w/2500 gals 7½% MSA cont'g 1000 SCF N_2/bbl. MP 7800#, Min 6900#, AIP 7350#, ISIP 3500#, 10 min SIP 2450#, 20 min SIP 2050#. Dropped 6 ball sealers w/good ball action. Flwd well 19½ hrs to pit, rate by ck coefficient w/150# FTP on 3/4" ck @ 7:00 AM 1/6/76, 2.2 MMCFPD. Set Otis "SN" blanking plug in "N" nipple @ 10,851' & bled gas from tbg. Loaded tbg w/4% KCL wtr. Tested blanking plug to 4000#, OK. Unlatched tbg from pkr @ 10,830' & spotted 125 gals 10% acetic acid 10,670-10,825'. Set "PL" pkr w/on-off tool @ 10,628' w/14,000# comp. Installed well head. Displaced wtr from tbg w/N2. Bled N_2 press to 500#. Perf'd Morrow selectively w/2-1/8" OD tbg gun @ 10714, 17, 20, 81, 83, 86, 89, 91, 10823 & 10,825' = 10 - .32" JS. Trtd Morrow perfs 10,714-825' w/3500 gals 7½% MS acid cont'g 1000 SCF N_2/bbl. Flushed w/41 bbls 4% KCL wtr. MP 7400#, Min 6200#, ATP 7300# @ 9.5 BPM, ISIP 3850#, 5 min SIP 3600#, 15 min SIP 3250#. Flwd well back 1 hr, rec approx 20 BLW & died. Made 3 trips w/swab to 7000' & well began flwg. Flwd 14 hrs ARO 580 MCFPD on 3/4" ck, 40# FTP. Set blanking plug in on-off tool above "PL" pkr @ 10,628'. POH w/2-7/8" tbg. RIH w/2-7/8"EUE 8rd N-80 tbg w/modified tbg cplgs, latched tbg onto PL pkr @ 10628'. Rem blanking plug from "X"nipple @ 10,628' & flanged up wellhd. Ran 4 pt test 1/21/76. After 90hrs SIP 2936 DWT, AOF = 3125 MCFPD. Completed as gas well from perfs 10714-825' & 10867-921' in Avalon Morrow Gas Pool. Shut-in waiting on pipeline connection. Final Report.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED J. E. Dunn TITLE Dist. Drlg. Supv. DATE 1/29/76

APPROVED BY W. A. Gressett TITLE SUPERVISOR, DISTRICT II DATE FEB 3 1976

CONDITIONS OF APPROVAL, IF ANY: