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NEW MEXICO OIL CONSERVATION COMMISSION

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

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NOV 14 1974

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.)

1. OIL WELL ☐ GAS WELL ☒ Dual Gas/Gas OTHER		5a. Indicate Type of Lease State ☒ Fee ☐
2. Name of Operator Atlantic Richfield Company		5. State Oil & Gas Lease No. K-4334
3. Address of Operator P. O. Box 1710, Hobbs, New Mexico 88240		7. Unit Agreement Name
4. Location of Well UNIT LETTER <u>K</u> <u>1980</u> FEET FROM THE <u>South</u> LINE AND <u>1980</u> FEET FROM THE <u>West</u> LINE, SECTION <u>16</u> TOWNSHIP <u>21S</u> RANGE <u>26E</u> N.M.P.M.		8. Farm or Lease Name State BR Com.
15. Elevation (Show whether DF, RT, GR, etc.) 3285.4' GR		9. Well No. 1
		10. Field and Pool, or Wildcat Undesignated Morrow Gas Wildcat Atoka Gas
		12. County Eddy

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐
PULL OR ALTER CASING ☐
OTHER ☐

PLUG AND ABANDON ☐
CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐
COMMENCE DRILLING OPNS. ☐
CASING TEST AND CEMENT JOBS ☐
OTHER Perforate, squeeze cmt, treat ☒

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.

On 9/16/74 ran 2-3/8" tbg & pkr to 10993'. Spotted 200 gals 10% acetic acid 10992-787'. Reset pkr @ 10734', rel tbg receptacle, displaced wtr in tbg to 8000' w/N₂. Latched onto receptacle, bled N₂. Perf'd Morrow 10992, 91, 90, 86, 85, 79, 71, 70' w/8 holes (.27"). Acidized Morrow perfs 10970-992' w/1600 gals 7 1/2% MS acid & 43,000ft³ N₂ preceded by 5000 ft³ N₂. Displaced w/30 bbls KCL wtr w/1000 ft³ N₂. MP 7950#, Min 7600#, ISIP 3800#, 5 min SIP 2700#, 15 min SIP 2250#. On swab test in 4 hrs rec 80 BFW, fair show gas. POH w/2-3/8" tbg & pkr. Set cmt retr @ 10942'. Squeezed Morrow perfs w/100 sx Cl H w/.8% Halad 9 & 50 sx Cl H w/.3% HR4 & 5# sd. MP 5000#. Rev out 25 sx. WIH w/2-3/8" tbg & Lok-set pkr set @ 10930'. Spotted 160 gals 10% acetic acid 10930-766'. Set pkr @ 10735'. Displaced tbg w/N₂ to 8000'. Perf'd Morrow 10820, 22, 23, 25, 54, 57, 60, 63, 923, 25, 27, 29 (12 holes). Tested Morrow perfs 10820-10929' on 1/2" ck, bled down in 30 mins. Flowed 2 BLW & gas ARO 20 MCFPD. Acidized w/3000 gals 7 1/2 MS acid, 71000 ft³ N₂ & 8 ball sealers. Displaced w/28 bbls 2% KCL wtr w/1000 ft³ N₂/bbl. Used 5000 ft³ N₂ pad. MP 8200#, ATP 7900#, AIR 5.4 BPM, ISIP 3950#, 5 min SIP 3500#, 10 min SIP 3200#; opened well, flwd 90 BLW in 14 hrs. Gas ARO 1.725MMCF on 1/2" ck, FTP 265#. POH w/tbg, set blanking plug in recp @ 10735'. Rel "J" tool from recp. Pulled 2-3/8" tbg to 10200'. Displaced KCL wtr in hole w/250 bbls BW, 47 sx CaCl added. Pld 2-3/8" tbg, dressed "J" tool w/new seal. Ran 200 jts 2-3/8" tbg w/AR pkr. AR pkr set @ 10020' w/2-3/8" tbg @ 10,000'. Perf'd Atoka thru 2-3/8" tbg w/1-9/16" gun 10105, 06, 07 & 08' (4 - .27" holes). Ran 2-3/8" tbg to Lok-set pkr @ 10735'. Set port blanking plug in ported nipple. Pmpd down tbg w/clean (cont'd on attached

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

page)

SIGNED [Signature] TITLE Dist. Drlg. Supv.

DATE 11/5/74

APPROVED BY [Signature]
CONDITIONS OF APPROVAL, IF ANY:

TITLE OIL AND GAS INSPECTOR

DATE NOV 15 1974

Form C-103 (State BR Com #1)

November 5, 1974

Page 2

KCL wtr. Latched onto receptacle w/11,000# wt. Acidized Atoka w/1000 gals 7½% MS acid & 55,000 ft³ N₂. MP 6800#, ATP 6000#, ISIP 4200#, 5 min SIP 3500#, 15 min SIP 3200#. Flwd 49 BLW in 3 hrs on ½" ck, FTP 305#, gas ARO 2.003 MMCF for 5 hrs. Ran cross-over w/no-go on locking tool. Landed in nipple @ 10,020'. TP in 30 mins 4000#, CP 3600#. Flwd tbg (Atoka) on 20/64" ck 20 mins, FTP 1500#, CP remained 3600#. Shut in. Ran 4-point test on Morrow zone 10/16/74 and on Atoka zone 10/18/74. CAOF Morrow 2.014 MMCF. CAOF Atoka 2.261 MMCF. Shut in waiting on purchaser pipeline connections.

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

Form C-122
Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10-16-74		OCT 30 1974	
Company Atlantic Richfield Company				Connection None				O. C. C. ARTESIA, OFFICE	
Pool Undesignated				Formation Morrow				Unit	
Completion Date 10-16-74		Total Depth 11,140'		Plug Back TD 10,936'		Elevation 3283 G.L.		Farm or Lease Name State BR	
Csg. Size 5.5"	Wt. 17.0	d 4.892	Set At 11,134'	Perforations: From 10,820' To 10,929'		Well No. 1			
Tbg. Size 2 3/8"	Wt. 4.7	d 1.995	Set At 10,735'	Perforations: open ended		Unit Sec. Twp. Rge. K 16 21-S 26-E			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Gas - Gas Dual						Packer Set At 10,735'		County Eddy	
Producing Thru csg.		Reservoir Temp. °F 176@10,900		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2		State New Mexico	
L 10,820	H -	G _g 0.665	% CO ₂ 0.385	% N ₂ 0.933	% H ₂ S 0.00	Prover -	Meter Run 4	Taps Flg	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	
SI									3398	
1.	4	x	1.5	390	21	78			2335	65
2.	4	x	1.5	390	16	78			2543	65
3.	4	x	1.5	390	11	80			2757	69
4.	4	x	1.5	245	3	100			2961	74
5.										

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	10.84	92.02	403.2	0.9831	1.226	1.039	1249
2	10.84	80.32	403.2	0.9831	1.226	1.038	1089
3	10.84	66.60	403.2	0.9813	1.226	1.038	902
4	10.84	27.83	258.2	0.9636	1.226	1.021	364
5							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	None	Mcf/bbl.
1.	0.616	538	1.435	0.927	A.P.I. Gravity of Liquid Hydrocarbons	--	Deg.
2.	0.601	538	1.435	0.929	Specific Gravity Separator Gas	0.665	X X X X X X X X
3.	0.601	540	1.441	0.929	Specific Gravity Flowing Fluid	X X X X X	0.665
4.	0.385	560	1.494	0.959	Critical Pressure	670.6	P.S.I.A. 670.6
5.					Critical Temperature	374.8	R 374.8

P _c 3411.2 P _c ² 11636.3						
NO.	P _t ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.902$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.613$
1	5514.0	2349.0	5517.8	6118.5		
2	6534.2	2557.0	6538.2	5098.1		
3	7674.0	2770.7	7676.8	3959.5		
4	8845.9	2974.4	8847.1	2789.2		
5						

Absolute Open Flow 2015 Mcfd @ 15.025				Angle of Slope @ 53° - 21'		Slope, n 0.744	
Remarks:							
Approved By Commission:		Conducted By: Coleman Pet. Engr. Co.		Checked By: Joe A. Coleman		L. C. Hudry	

COMPANY ATLANTIC RICHFIELD
 WELL STATE BR #1 MORROW
 LOCATION K 16 21S 26E
 COUNTY Eddy
 DATE 10-16-74

$P_e^2 - P_w^2$ (Thousands)

P_e^2 11636.3

$n = 0.744$
 $Q = 535.21$

Q₁

ACF 2,015 MCFD

Q₂

MCFD

$Q_1 = 3020$ MCFD
 $Q_2 = 545$ MCFD

$\log Q_1 = 3.480007$
 $\log Q_2 = 2.736397$
 $n = 0.743610$
 $= 0.744$



COLEMAN PETROLEUM ENGINEERING COMPANY

PHONE 393-3813

3713 W. MARLAND ST.

P. O. BOX 1829

HOBBS, NEW MEXICO 88240

RECEIVED

October 16, 1974

OCT 20 1974

O. C. C.

ARTEBIA, OFFICE

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

RE: Undesignated Morrow Gas
State BR, No 1 K16-21-26
Eddy County, New Mexico
4 Point Back Pressure
Gas Sample 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 2014 MCFD. The average gas production was recorder to be 901.0 MCFD, with 0.00 Bbls. D/D, and the gas sample taken during the flow test yielded component percentages as follows:

Carbon Dioxide	.385
Nitrogen	.933
Methane	88.705
Ethane	5.207
Propane	1.757
Iso-Butane	.484
N-Butane	.580
Iso-Pentane	.385
N-Pentane	.253
Hexanes	.458
Heptanes	.853

TOTAL 100.000

Calculated Sp G	0.6645
Calculated BTU Dry	1158
Calculated BTU Wet	1138

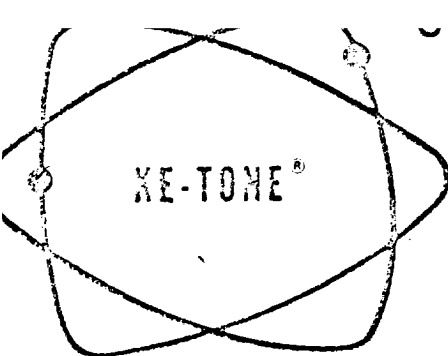
Enclosures

JAC/km

Very Truly Yours,

Coleman Petroleum Engrn. Co.

Joe A. Coleman
Joe A. Coleman

UNITED CHEMICAL CORPORATION
OF NEW MEXICO

P. O. BOX 1499

PHONE 393-7751

HOBBS, NEW MEXICO 88240

No. 3306

Run No.

Date of Run 10-14-74

Date Secured

CERTIFICATE OF ANALYSIS

A Sample of Arco - State BR#1 Morrow Gas K- 16-21-26
Secured from Coleman Engineering
At Hobbs, NM 88240 Secured by _____
Time _____ Date _____
Sampling conditions _____ Press _____
Temp. _____

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	.385		
Air			
Nitrogen	.933		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	88.705		
Ethane	5.207		1.389
Propane	1.757		.484
Butanes			
Iso-Butane	.484		.158
N-Butane	.580		.182
Pentanes			
Iso-Pentane	.385		.141
N-Pentane	.253		.091
Hexanes	.458		.188
Heptanes	.853		.363
TOTAL	100.00		2.996

Calc. Sp. Gr. 0.6645
Calc. A.P.I. _____
Calc. Vapor Press. _____ PSIA
Sp. Gr. _____
Mol. Wt. 19.32

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M. .484
Butanes Calc. G.P.M. .340
Pentanes Plus. G.P.M. .783
Ethane Calc. G.P.M. 1.389
_____ RVP Gasoline G.P.M. _____

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

Dry Basis

1158

Wet Basis

1138

Sulfur Analysis by Titration

Gr./100 Cu. Ft.

Hydrogen Sulfide

Mercaptans

Sulfides

Residual Sulfur

Total Sulfur

Run by Sylvia Bryant Checked by _____ Approved by [Signature]

Additional Data and Remarks

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LAND OFFICE	
OPERATOR	1

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NEW MEXICO OIL CONSERVATION COMMISSION

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

SEP 20 1974

O. C. C.
ARTESIA, OFFICE

5a. Indicate Type of Lease State ☒ Fee ☐	
5. State Oil & Gas Lease No. K-4334	
7. Unit Agreement Name	
8. Farm or Lease Name State BR	
9. Well No. 1	
10. Field and Pool, or Wildcat Eddy Undesignated, Morrow	
12. County Eddy	

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.)

1. OIL WELL ☐ GAS WELL ☒ OTHER- 2. Name of Operator Atlantic Richfield Company ✓ 3. Address of Operator P. O. Box 1710, Hobbs, New Mexico 88240 4. Location of Well UNIT LETTER K 1980 FEET FROM THE South LINE AND 1980 FEET FROM THE West LINE, SECTION 16 TOWNSHIP 21S RANGE 26E NMPM.

15. Elevation (Show whether DF, RT, GR, etc.)
3285.4' GR

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 ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS. ☐	PLUG AND ABANDONMENT ☐
PULL OR ALTER CASING ☐	OTHER ☐	CASING TEST AND CEMENT JOB ☒ Production string	OTHER ☒ Drill Stem Test & log

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.

Drilled 7-7/8" hole to 11,140' TD on 9/6/74. Ran DST #1 - 10740-840' Morrow. 900' WC. 15 min IF open w/weak blow, incr to strong. GTS in 48 mins. SI 1 hr. Open 1 hr w/good blow. Flwd ARO 1.275 MCF. Rev out 900' WC & gas, no condensate. 15 min IFP 532#, FFP 444#, 1 hr ISIP 4523#, 1 hr IF 532#, FFP 887#, 1 1/2 hrs SIP 4523#, HP in 5993#, out 5859#. BHT 170° F. Sampler 2.5 ft³, 600#, no fluid. DST #2 - 10860-903' Morrow. 1000' WC. Open 15 mins w/very weak blow thru out. SI 1 hr. Open 1 hr w/weak blow, incr to fair in 1 hr. No GTS. Rev out 3000' gas & 1000' WC. 15 min IFP 559#, 1 hr SIP 1711#, 1 hr IF 559#, FF 559#, 1 1/2 hr SIP 2250#. Sampler 2.5 ft³ @ 300#, no fld. HP in 6254#, out 6171#, BHT 175° F. DST #3 - 10928-11020' Morrow Gas. 1000' WC. Open 15 mins w/weak blow, incr to fair. 1 hr SI. GTS in 23 mins. Open 1 1/2 hr w/fair blow, incr to 612 MCFPD in 1 1/2 hrs. Rev out 1000' WC. SI 2 hrs 15 mins. IF 656#, FF 525#, 1 hr ISIP 4434#, 1 1/2 hr IFP 591#, FFP 1072#, 2 hr SIP 4434#. HP in 6244#, HP out 6157#, BHT 176° F. Ran BHC GR-Neutron Density, Micro laterolog and Dual Laterolog. Circ hole 2 1/2 hrs. Ran 311 jts 6839', 5 1/2" OD 17# K-55 & 4295' 5 1/2" 15.5# K-55 csg set @ 11134'. Ran csg w/guide shoe, float collar & 22 centralizers. Ran csg in hole as follows: (0-1565 17#, 1565-5860' 15.5#, 5860-11134' 17#). Cmtd w/350 sx HLW, 1/4# Flocele, .3% CFR₂ 12.4# & 500 sx Cl H w/.8% Halad 22, 5# KCL 15.1# preceded by 500 gal SAN-4 spacer, displaced w/300 bbls 2% KCL wtr. Ran temp survey, indicated TOC @ 7800'. WOC 72 hrs. Test csg to 3500# psig for 30 mins. Tested OK.

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

SIGNED H. J. Berman TITLE Dist. Drlg. Supv. DATE 9/18/74
APPROVED BY W. A. Gassett TITLE OIL AND GAS INSPECTOR DATE SEP 20 1974
CONDITIONS OF APPROVAL, IF ANY: