NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS Revised 12-1-55

Poo	Pool Undesignated Yates Formation Yates County Lea										
Ini	tialX		_Annu	al		Spec	ial		_Date of	Test_1	0-19-60
Com	pany <u>Wester</u>	n Natu	ral G	as Com	pany	Lease_S	State McI	Donald Ac/	2We]	1 No	21
Uni	Unit A Sec. 24 Twp. 22-S Rge. 36-E Purchaser None										
Cas	Casing 4 1/2 Wt. 9.5 I.D. Set at 3474 Perf. 2720 To 3290										
Tub	ing 2 3/8 W	it. <u>4.</u>	<u>7</u> 1.	.D	Se	t at2	.675 Pe	erf		То	
Gas	Tubing 2 3/8 Wt. 4.7 I.D. Set at 2675 Perf. To Gas Pay: From 2720 To 3290 L 2675 xG * 0.650 -GL 1739 Bar.Press. 13.2										
Pro	ducing Thru: Re-comp	Cas	ing		Tu	bing	Х	Type We	11 Sir	ngle	
Date	Re-comp e of &complet	letion konx	10	-2-60	Packe	r26	51r 543	ngle-Brade Reservo	nhead-G. ir Temp.	G. or G	G.O. Dual
							ED DATA				
Test	ted Through	(Prov	<u>er) ((</u>	Choke)	(Marker)				Type Tap	os	-
		F	low Da	ata			Tubing	z Data	Casing I	ata	·
No	(Prover) (kkee)	(Cho	ke)	Press	Diff.	Temp.		Temp.	Press.	Temp.	Duration of Flow
Ī	Size	Si	.ze	psig	h _w	° _F .	psig	°F.	psig	[⊃] F•	Hr.
SI				061			1269		Pkr	Į	72 SI
	2" x 1/8" 2" x 3/16			961	 -	64 65	961 881	 	11	 	3
<u>3.</u>	Z X 3/16	2 x 6			╁╧┈	60	696		11	 	3
4. 5.		2 x 6			-	61	511		- 11		3
5. 1		<u> </u>					<u> </u>	<u> </u>		<u>}</u>	<u> </u>
						FLOW CAL	CIT ATTOR	JC			
	Coeffici	ent		Pı	ressure	Flow	Temp	Gravity	Compre	ss.	Rate of Flow
No.					}	Fac	tor	Factor F _g	Facto	r	Q-MCFPD
	(24-Hou	r)	√ h _w r	Pf	psia	F	t '	* Fg	Fpv		@ 15.025 psia
1.	0.3418				974.2	0.996	2	0.9608	1.11	1	354.1
2.	0.7851				894.2			0.9608	1.093_		733.7
3.	1.4382				709.2			0.9608	1.078		1056.4
4. 5.	2.3674				524.2	0.999	-	0,9608	1.05	5	1256.7
irav:	PRESSURE CALCULATIONS Fas Liquid Hydrocarbon Ratio not measured cf/bbl. Specific Gravity Separator Gas Specific Gravity Flowing Fluid Specific Gravity Flowing Fluid Pc 1282.2 Pc 1644.0										
No.	Pt (psia)	Pt ²	F	,Q	$(F_cQ)^2$	(F	cQ) ² -e ^{-s})	P _w 2	$P_c^2 - P_w^2$		Pw Pc
1.	974.2	949.1		.518	12.376		•4	950.5	693.5	974.	9 0.7603
2.		799.6		.290	53.144		.0	805.6	838.4	897.	5 0.6999
	709.2	502.9			110.166		.4	515.3	1128.7	717	
4. 5.	524.2	274.8	12	486	155.900		.6	292.4	1351.6	540.	7 0.4217
Abso	olute Pocent	ial:_ TERN NA			OMPANY	MCFPD;	n_ 1.0)88			
ADDI	RESS 823	Midlaga	d Tow	et, Min		exas					
AGE	NT and TITLE	2/	57	2011/		W	. B. Scc	tt, Petro	leum Engi	neer	
	NESSED <u>J.</u> PANY E1			01 000	Commit						
COM.	EI	raso	Natura	aı çaş	Company		ARKS	·			· · · · · · · · · · · · · · · · · · ·

INSTRUCTIONS

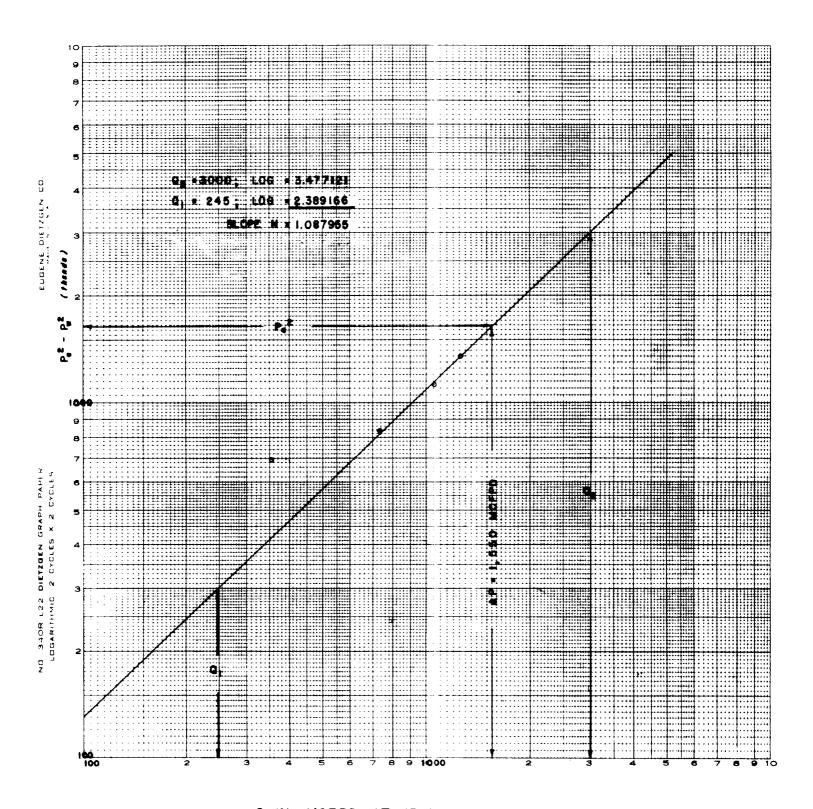
This form is to be used for reporting multi-point back pressure tests on gas wells in the State, except those on which special orders are applicable. Three copies of this form and the back pressure curve shall be filed with the Commission at Box 871, Santa Fe.

The log log paper used for plotting the back pressure curve shall be of at least three inch cycles.

NOMENCLATURE

- Q \equiv Actual rate of flow at end of flow period at W. H. working pressure (P_W). MCF/da. @ 15.025 psia and 60° F.
- P_c= 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater. psia
- Pw Static wellhead working pressure as determined at the end of flow period. (Casing if flowing thru tubing, tubing if flowing thru casing.) psia
- Pt Flowing wellhead pressure (tubing if flowing through tubing, casing if flowing through casing.) psia
- Pr Meter pressure, psia.
- hw Differential meter pressure, inches water.
- Fg Gravity correction factor.
- Ft Flowing temperature correction factor.
- F_{DV} Supercompressability factor.
- n I Slope of back pressure curve.
- Note: If P_w cannot be taken because of manner of completion or condition of well, then P_w must be calculated by adding the pressure drop due to friction within the flow string to P_t .

WESTERN NATURAL GAS COMPANY STATE-MSDONALD A/C 2 NO.21 UNIT A, SEC 24, T-22-S, R-36-E OCTOBER 19, 1960

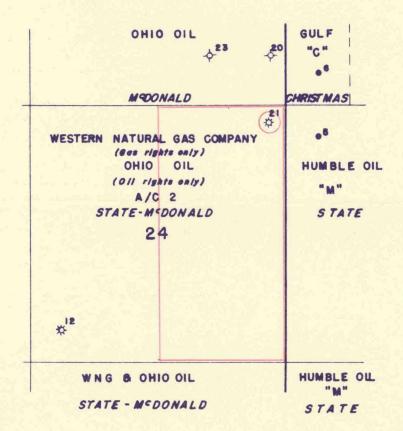


Q IN MCFPD AT 15.025 & 60°F

WESTERN NATURAL GAS COMPANY ACREAGE DEDICATION FOR STATE McDONALD #21

24-22-36 Lea County, New Mexico Scale 1" = 2000'

Plat Accompanying Application for 320-Acre Non-Standard Gas Unit and Unorthodox Location (Yates Undesignated)



002/14

Revised 12-1-55

				MULTI	-POINT B	ACK PRES	SURE TI	EST FOR GAS	WELLS		I.EVIS	eu 10-1 //
Poo	l <u>Undesig</u> n	ated Ya	ates	F	ormation	Yate	s		_County	Lea		
Initial X Annual Special Date of Test 10-19-60												
Com	pany <u>Wester</u>	n Natu	ral Ga	as Com	pany	Lease_S	tate Mo	Donald Ac/	2 Wel	1 No	21_	
Uni	Company Western Natural Gas Company Lease State McDonald Ac/2 Well No. 21 Unit A Sec. 24 Twp. 22-S Rge. 36-E Purchaser None											
Cas	ing 4 1/2 W	t. 9.5	5 I,	.D	Se	tat_3	474 j	Perf. 27	20	To 3	290	
	ing 2 3/8 W				-					 To		
	Pay: From_							·			.ss	13.2
Pro	ducing Thru:	Casi	ing		Tu	bi.ng	х	Type We	ell Sin	gle		
Dat.	ducing Thru: Re-comp e of &capket	letion	10	-2-60	Packe	r 26	S:	ingle-Brade	enhead-G.	G. or G	.0.	Dual
Dat	C OI Remissione	⊅ bes t			r acke				`TI Tendr∙"			
						OBSERV	ED DATA	•				
Tes	ted Through	(Prove	er) ((Choke)	(Maker)				Type Tap	s	<u>-</u>	
		F)	Low Da	ata			Tubir	ng Data	Casing D	ata	-	
No.	(Prover) (kkma)	(Outsite)	koe k		1 1	·	Press	Temp.	Press.	Temmp.		Duration of Flow
SI	Size	Siz	ze	psig	h _w	°F.		°F.	psig	[⊃] F•		Hr.
	2'' x 1/8''	 		961	 	64	1269 961		Pkr	 		2 SI 3
	2" x 1/8			881	-	65	881		11	 	- -	3
3.	7	2 × 6				60	696		11			3
<u>4.</u> 5.		2 x 6			ļ	61	511		11		L	3
<u> </u>		L			<u> </u>	- 	<u> </u>			<u> </u>	L	
						FLOW CAL	CULATIO	ONS				
	Coeffici	ent		P		Flow	Temp.	Gravity	Compre	ss.		of Flow
No.		_ \	/ h =		: -	Fac	tor	Factor	Facto		Q-M	
	(24-Hou	r) -	√ h _w r	°f	psia	F.		* Fg	F _{pv}		6 15.	.025 psia
1. 2.					974.2	0.996		0.9608	1.11			354.1
2• 3.	0.7851		_ -		894.2 709.2	0.995 1.000		0.9608 0.9608	1.09			733.7
	1.4382 2.3674		— <u> </u>		524.2	0.999		0.9608	1.07			056.4 256.7
4. 5.												
Jas Grav	PRESSURE CALCULATIONS Gas Liquid Hydrocarbon Ratio not measured cf/bbl. Specific Gravity Separator Gas Specific Gravity Flowing Fluid											
°с	9.936		(]	L-e ^{-s})	0.113			Pc_1	282.2	_P ² 1	644.0)
No.	Pt (psia)	Pt ²	F	,Q	$(F_cQ)^2$	(F)	cQ) ² -e ^{-s})	P _w 2	$P_c^2 - P_w^2$	Ca P		P _W P _C
	974.2	949.1		.518	12.376	I	•4	950.5	693.5	974.		0.7603
2.		799.6		290	53.144		.0	805.6	838.4	897.		0.6999
3. 4.	709.2	502.9 274.8			110.166 155.900		.4	515.3	1128.7	717		0.5598
5.	524.2	614.8	++	400	חחגיניי		.6	292.4	1351.6	540.		0.4217
Abs COM ADD AGE With	Absolute Potential: 1550 MCFPD; n 1.088 COMPANY WESTERN NATURAL GAS COMPANY ADDRESS 823 Midland Tower, Midland, Texas AGENT and TITLE W. B. Scott, Petroleum Engineer WITNESSED J. B. Murray COMPANY E1 Paso Natural Gas Company											
J J. 1	<u></u>				Company		ARKS					
	*NOTE: Gas Gravity was assumed.											

INSTRUCTIONS

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- F_{nv} Supercompressability factor.
- n I Slope of back pressure curve.
- Note: If $P_{\rm W}$ cannot be taken because of manner of completion or condition of well, then $P_{\rm W}$ must be calculated by adding the pressure drop due to friction within the flow string to $P_{\rm t}$.

WAIVER

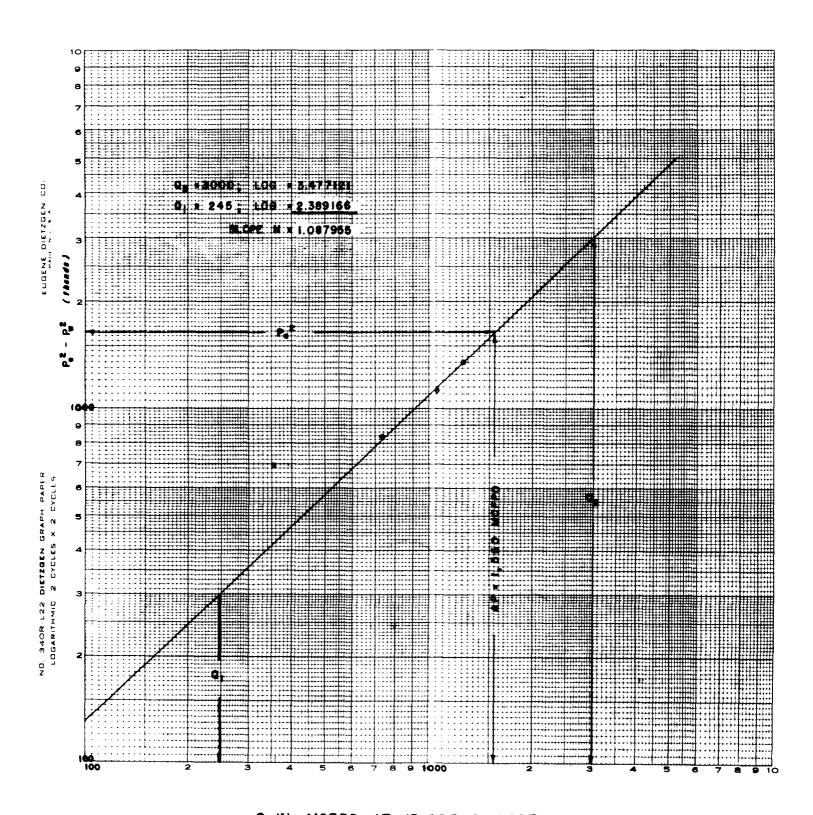
WE HAVE BEEN advised of an application of the Western Natural Gas Company for a 320-acre non-standard gas proration unit, consisting of the E/2 of Section 24, T-22-S, R-36-E, Lea County, New Mexico, and an unorthodox location for the State McDonald Ac 21 well, an undesignated Yates well, 330' FN and E lines of the Section. This is to indicate that we have no objection to this application

Company:	Humble Oil & Refining Co.
Date:	2.7. 25, 1760
	44 5 44

BE COE EXAMINER UTZ

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WESTERN NATURAL GAS COMPANY STATE-MSDONALD A/C 2 NO.21 UNIT A, SEC 24, T-22-S, R-36-E OCTOBER 19, 1960



Q IN MCFPD AT 15.025 & 60°F

WESTERN NATURAL GAS COMPANY ACREAGE DEDICATION FOR STATE McDONALD #21

24-22-36
Lea County, New Mexico
Scale 1" = 2000'

Plat Accompanying Application for 320-Acre Non-Standard Gas Unit and Unorthodox Location (Yates Undesignated)

Nep	BEFORE EXAMINER U OIL CONSERVATION COMMISS Tun Hat EXHIBIT NO. / CASE NO. 2114	TZ ION

4	**** **** ***	±6
6 a OHIO OIL	OHIO OIL	GULF AMERADA HUMBLE
STATE - M COONALD	MODONALD W.	CHRISTMAS STATE
	WESTERN NATURAL GAS COMPANY	** /
CONTINENTAL OIL	(Goe rights only) OHIO OIL (OII rights only)	HUMBLE OIL
MEYERS	STATE-MEDONALD	
23	24 E- S 22	19
**	***	
WNG & OHIO OIL	WNG & OHIO OIL	HUMBLE OIL
STATE-MCDONALD	*10	STATE
26	25	30

The Chie Cil Co.

P. O. BOX 552 MIDLAND, TEXAS October 21, 1960

Mr. R. H. McKoy Western Natural Gas Company 823 Midland Tower Building Midland, Texas

Dear Sir:

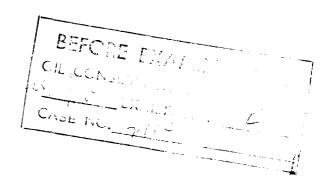
We have received a copy of your application to the New Mexico Oil Conservation Commission for a 320-acre non-standard gas proration unit and unorthodox location for your State McDonald A/C No. 21 well in Section 24 of Township-22-South, Range-36-East. You are asking that said well be designated as a Jalmat gas well.

The Ohio Oil Company has reviewed your application and has no objection.

Yours very truly,

Coe S. Mills District Manager

MR



FILE N	10.	cc	MPANY_UE	STER	N N	A TURA	L GAS	COM	PANY	
,	BEF	ORE W	ELL ST	ATE MOJE	MC	DONAL	D NO.	21		
1/6	CASE	21.4 200	WELL STATE NO. MELD EUMONT COUNTY LEAS LOCATION: 7				STATE NEW			
		100	COUNTY LEAS STATE NE LOCATION: 7 /300 FN & EL®S of						Other Services B/P & K/P	
		SEC	<u>24 rv</u>							
Perma	nent Datur	n	C. H. F.		1	Elev.	3436		Elevations:	
Log M	easured fro	om	C. H. F.	0,	t. Ab	ove Perm	anent Dat	um	DF	
	g Measure				·	· · · · · ·		_[GL <u>3436</u>	
Date			9-20-60		9-	20-60		-		
Run N						ONE O. W.				
Туре			GANNA RAY			NEUTRON				
	-Driller		3716			3716				
	-Logger		3501			3501				
	n Logged I		3488			3500 SURFACE			·····	
	ogged Inte		SURFACE							
	Fluid in Ho		OIL			<u>L</u>				
	nity Ppm C		-							
	sity Lb./Go	a1.	•							
Leve	ei Rec. Temp.	Deg. F	60 60							
	Rig Time	Jey. I	2 1/2 HRS. 2 1/2 HRS.							
	ded By	*****	DAVIS	<u> </u>		VIS	4100			
	ssed By		MR. ARMS	TRONG		MR. C	OOK			
Run Bore Hole			Record			(Casing Rec	ord		
No.	Bit	From	То	Siz	e	Wgt.	Fron	1	То	
	4 3 /1		3514	41	/2 ¹	9.5	SURFA	CE	3514	
1_	6 3/4			 4 -/	<u> </u>	7.2	SOME	ندن	1 22.44	
1	3 7/8	3514	3716	 				_		
				1			·			
-				 		 				

FILE NO. COMPANY WESTERN NATURAL GAS COMPANY								
	21							
	FIELD							
	COUNTY	NEV	MEXICO					
	LOCATION:	330° F	N &	EL S	of		Other Services B/P & K/P	
	SEC 24		,					
Permanent Datum	С. Н.	F.	E	lev	3436	_ k	Elevations: B	
Log Measured from		<u>F. </u>	. Abo	ve Perm	anent Datu	ım D	f	
Drilling Measured from						_ G	st <u>3436</u>	
Date	9-20-6	0	9-2	20 60				
Run No.		OME O. W.			W			
Type Log	GAMMA	GAMMA RAY						
Depth-Driller	3716	3716						
Depth-Logger	3501	3501						
Bottom Logged Interval			3500 SURFACE					
Top logged Interval		SURFACE						
Type Fluid in Hole	OIL	+						
Salinity Ppm Cl.								
Density Lb./Gal.	8 2	- ED					· · · · · · · · · · · · · · · · · · ·	
Level			-					
Max. Rec. Temp. Deg. F		*****	2 1/2 HRS.					
Opr. Rig Time							·····	
Recorded By		DAVIS DAVIS MR. ARMSTRONG & MR. COOK						
Witnessed By	Mr. Ar	Montam	ot .	mn. C	CUA			
Run Bore H	ole Record				Casing Reco	ord		
	om To	Size		Wgt.	From		То	
a i	<i>7.11</i> 10	Size	-	77 <u>G</u> 1.	110m		 	
1 6 3/1	3514	41/	2"	9.5	SURFA	CE	3514	
1 3 7/8 351		7		191			1	
2 17 17 371								
	. 1	1			l		1	

FILE NO.	$\int cc$	MPANY_V	ESTER	N N	TURA	LGAS	COMP	ANY
	W	21						
	FIE	LDE	TKOMU				· 	
	cc	DUNTYL	NEV	MEXICO				
	100	CATION:	30° F	N &	EL'S	of		Other Services B/P & K/P
	SEC	<u> 24 </u>			•			
Permanent Datum Log Measured from		С. Н. F.			Elev	3436	ĸ	Elevations:
Log Measured from Drilling Measured from		C. H. F.		t. Ab	ove Perm	anent Dat	um D	F GL_31436
Date		9-20-60		9-	20-60			
Run No.		OME O. V.			ONE O. W.			
Type Log		GAMMA RAY			NEUTRON			
Depth-Driller		3716	3716					
Depth-Logger		3501	3501					
Bottom Logged Interva		31,88	3500					
Top Logged Interval		SURFACE	SURFACE					
Type Fluid in Hole		OIL	OI	L				
Salinity Ppm Cl.		-	-					
Density Lb./Gal.		60	-					
Level								
Max. Rec. Temp. Deg. f	•	- 70 1170			76 "	TD C		
Opr. Rig Time		2 1/2 HF	1/2 H VIS					
Recorded By		MR. ARMS	TOTAL CHIEF		MR. C	OOK		
Witnessed By		Mr. Arms	DMOUTE	oc	mn. U	OOK		
Run Bore	lole i	Record		L	(Casing Re	ord	
	om	То	Siz	e	Wgt.	Fron		To
			1					1
1 6 3/4		3514	41/	/2"	9.5	SURFA	CE	3514
3 7/8 35	14	3716						
		1						
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