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U.S.G.S.	
LAND OFFICE	
TRANSPORTER	OIL
	GAS
OPERATOR	
PRODUCTION OFFICE	

NEW MEXICO OIL CONSERVATION COMMISSION
REQUEST FOR ALLOWABLE
AND
AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C-110
Effective 1-1-65

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MAR - 4 1974

Operator Union Oil Company of California	
Address P. O. Box 671 - Midland, Texas 79701	
Reason(s) for filing (Check proper box)	
New Well ☒	Change in Transporter of:
Recompletion ☐	Oil ☐ Dry Gas ☐
Change in Ownership ☐	Casinghead Gas ☐ Condensate ☐
Other (Please explain)	

If change of ownership give name
and address of previous owner

I. DESCRIPTION OF WELL AND LEASE

Lease Name Wersell Federal	Well No. 1	Pool Name, Including Formation Undesignated Morrow Gas	Kind of Lease State, Federal or Fee Federal	NMC Case No. 0454018
Location				
Unit Letter C ; 810 Feet From The North Line and 1980 Feet From The West				
Line of Section 4 Township 22 South Range 27 East , NMPM, Eddy County				

II. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil ☐ or Condensate ☐	Address (Give address to which approved copy of this form is to be sent)
Name of Authorized Transporter of Casinghead Gas ☐ or Dry Gas ☒	Address (Give address to which approved copy of this form is to be sent)
Llano, Inc.	P. O. Box 1320 - Hobbs, New Mexico 88240
If well produces oil or liquids, give location of tanks.	Is gas actually connected? When
	Yes February 15, 1974

If this production is commingled with that from any other lease or pool, give commingling order number:

V. COMPLETION DATA

Designate Type of Completion - (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Res'v.	Diff. Res'v.
		X	X					
Date Spudded Aug. 30, 1973	Date Compl. Ready to Prod. Oct. 26, 1973	Total Depth 11,660'		P.B.T.D. 11,580'				
Elevations (DF, RKB, RT, GR, etc.) 3152' GR	Name of Producing Formation Morrow	Top Oil/Gas Pay 11,268'		Tubing Depth 11,100'				
Perforations 11,268'-272', 11,337'-348', 11,473'-477', 11,501'-505'				Depth Casing Shoe 11,660'				
TUBING, CASING, AND CEMENTING RECORD								
HOLE SIZE	CASING & TUBING SIZE	DEPTH SET		SACKS CEMENT				
17-1/2"	13-3/8" OD	400'		600				
12-1/4"	9-5/8" OD	5,262'		2400				
8-1/2"	5-1/2" OD	11,660'		900				
	2-3/8" OD	11,100'						

V. TEST DATA AND REQUEST FOR ALLOWABLE OIL WELL

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

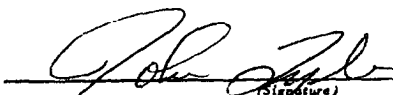
Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil - Bbls.	Water - Bbls.	Gas - MCF

GAS WELL

Actual Prod. Test - MCF/D A.O.F. 1673	Length of Test 12 Hours	Bbls. Condensate/MMCF -0-	Gravity of Condensate -
Testing Method (pilot, back pr.) Back Pressure	Tubing Pressure (Shut-in) 3000	Casing Pressure (Shut-in) Packer	Choke Size 3/4"

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

 John Tyler
(Signature)

District Production Superintendent
(Title)

March 1, 1974
(Date)

OIL CONSERVATION COMMISSION

APPROVED MAR 4 1974

BY 

TITLE OIL AND GAS INSPECTOR

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

WERSELL 1 POINT TEST
 PPESSURE VS DEPTH
 FOR STATIC CONDITIONS

SHUT IN SURFACE PPESSURE (PSIA)	3013.2000
SHUT IN BOTTOM HOLE PPESSURE (PSIA)	4022.2998
SURFACE TEMPERATURE (DEG.F)	68.0000
BOTTOM HOLE TEMPERATURE (DEG.F)	179.0000
DRY GAS GRAVITY (S.G.(AIR=1))	0.6010
CONDENSATE GRAVITY (SP. GRA OF DEG API)	1.0000
PRODUCING GAS/OIL RATIO (CU. FT./BBL)	52917.0000
WET GAS GRAVITY (S.G.(AIR=1))	0.6805
FIRST TUBING I.D. (INCHES)	1.9950
FIRST TUBING O.D. (INCHES)	0.0
FIRST TUBING LENGTH (FEET)	11386.0000
SECOND TUBING LENGTH (FEET)	11386.0000
SECOND TUBING I.D. (INCHES)	0.0
TUBING LENGTH/TOTAL DEPTH	1.0000

DEPTH (FEET)	PRESSURE (PSIA)	GRADIENT (PSI/FT)
-----	-----	-----

0.	3013.	0.0
599.	3069.	0.0927
1199.	3124.	0.0920
1799.	3179.	0.0915
2397.	3233.	0.0910
2996.	3288.	0.0906
3596.	3342.	0.0901
4195.	3395.	0.0897
4794.	3449.	0.0893
5393.	3502.	0.0889
5993.	3555.	0.0885
6592.	3608.	0.0881
7191.	3660.	0.0877
7790.	3713.	0.0873
8390.	3765.	0.0869
8989.	3817.	0.0866
9588.	3869.	0.0862
10187.	3920.	0.0859
10787.	3971.	0.0856
11386.	4022.	0.0853

FINAL Z 0.942362
 P/Z = 4269.

WERSSELL 1 POINT TEST
 PRESSURE VS DEPTH
 TUBING FLOW

FLOWING SURFACE PRESSURE (PSIA)	813.2000
FLOWING BOTTOM HOLE PRESSURE (PSIA)	1145.0432
FLOW RATE (MMCF/DAY)	1.5380
SURFACE TEMPERATURE (DEG.F)	68.0000
BOTTOM HOLE TEMPERATURE (DEG.F)	179.0000
DRY GAS GRAVITY (S.G.(AIR=1))	0.6010
CONDENSATE GRAVITY (SP. GRA OR DEG API)	1.0000
PRODUCING GAS/OIL RATIO (CU. FT./EBL)	52917.0000
WET GAS GRAVITY (S.G.(AIR=1))	0.6805
FIRST TUBING I.D. (INCHES)	1.9950
FIRST TUBING O.D. (INCHES)	0.0
FIRST TUBING LENGTH (FEET)	11386.0000
SECOND TUBING LENGTH (FEET)	11386.0000
SECOND TUBING I.D. (INCHES)	0.0
TUBING LENGTH/TOTAL DEPTH	1.0000

DEPTH (FEET)	PRESSURE (PSIA)	GRADIENT (PSI/FT)
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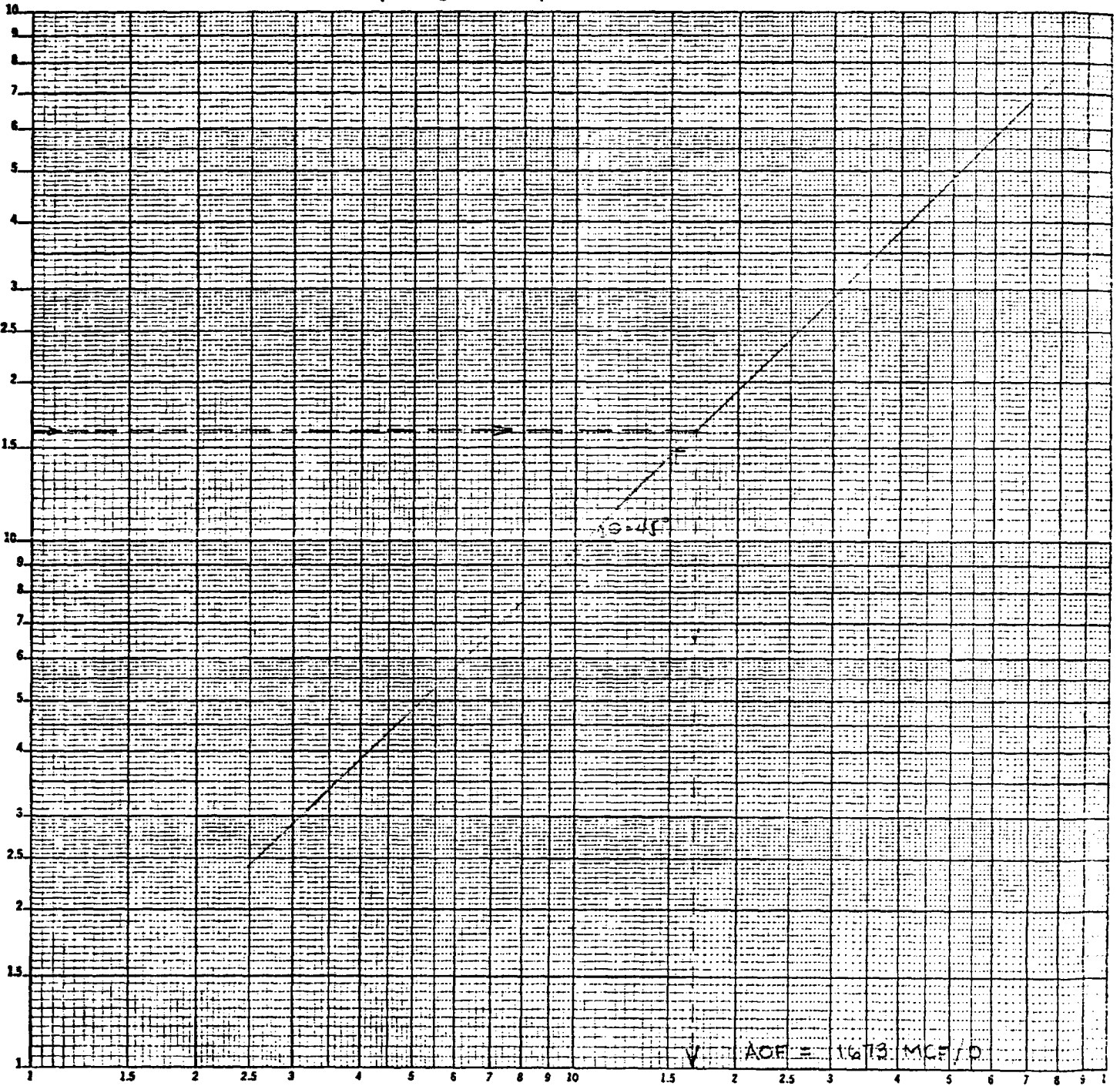
0.	813.	0.0
599.	830.	0.0282
1199.	847.	0.0284
1798.	864.	0.0285
2397.	881.	0.0286
2996.	898.	0.0287
3596.	916.	0.0288
4195.	933.	0.0289
4794.	950.	0.0290
5393.	968.	0.0291
5993.	985.	0.0292
6592.	1003.	0.0293
7191.	1020.	0.0294
7790.	1038.	0.0294
8390.	1056.	0.0295
8989.	1073.	0.0296
9588.	1091.	0.0297
10187.	1109.	0.0298
10787.	1127.	0.0299
11386.	1145.	0.0300

FINAL Z 0.921634
 P/Z = 1242.

Union Oil Company of California
 Wersell Federal Well No. 1
 810' FNL & 1980 FWL
 SEC. 4, T-22-S, R 27E
 Eddy County, New Mexico
 1 POINT TEST

$$(P_e^2 - P_w^2) \times 10^6 \text{ psi}^2$$

K-E LOGARITHMIC
 2 X 2 CYCLES
 46 7203
 MADE IN U.S.A.
 KEUPPEL & ESSER CO.



Flow Rate (MCF/D)

N MEXICO OIL CONSERVATION COMM: JN
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

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Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 10-27-73		NOV - 2 1973	
Company Union Oil Co. of California				Connection None			
Pool Undesignated Morrow Gas				Formation Morrow		Unit	
Completion Date 10-26-73		Total Depth 11660'		Plug Back TD 11580'		Elevation 3152' GR	
Farm or Lease Name Wersell Federal				Well No. 1			
Csg. Size 5 1/2"	Wt. 17#	d 4.767	Set At 11600'	Perforations: From 11268' To 11505'			
Tbg. Size 2-3/8"	Wt. 4.7#	d 1.901	Set At 11100'	Perforations: From To		Unit Sec. Twp. Rye. C 4 22S 27E	
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single				Packer Set At 11100'		County Eddy	
Producing Thru Tubing		Reservoir Temp. °F 179 @ 11660		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
State New Mexico							
L 11386'	H 11386'	G _g 0.601	% CO ₂ 1.01	% N ₂ 1.13	% H ₂ S 0	Prover	Meter Run Taps 3.826 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	3.826		1.0				3000	71			3 hrs.
1.	3.826		1.0	790	74	88	800	68	Pkr	Pkr	12 hrs.
2.											
3.											
4.											
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	4.758	243.8	803.2	0.9741	1.290	1.055	1538
2.							
3.							
4.							
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio dry gas Mcf/bbl.
1.	1.19	548	1.55	0.898	A.P.I. Gravity of Liquid Hydrocarbons dry Deg.
2.					Specific Gravity Separator Gas 0.601 XXXXXXXXX
3.					Specific Gravity Flowing Fluid XXXXX dry gas
4.					Critical Pressure 674 P.S.I.A. P.S.I.A.
5.					Critical Temperature 354 °R °R

P _c 4022* P _c ² 16176				
NO.	P _i ²	P _w	R _w ²	P _c ² - R _w ²
1		1145*	1311	14865
2				
3				
4				
5				

$$(1) \frac{P_c^2}{P_c^2 - R_w^2} = 1.088 \qquad (2) \left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 1.088$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 1673$$

Absolute Open Flow 1673 Mcfd @ 15.025	Angle of Slope 45°	Slope, n 1
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Remarks: ***SIBHP & FBHP calculated from surface data utilizing computer adapted Cullender-Smith method.**

Approved By Commission:	Conducted By: D. L. Watkins	Calculated By: A. B. Buron	Checked By: J. D. Roe
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Union Oil and Gas Division: Central Region

Union Oil Company of California
500 North Marienfeld, Midland, Texas 79701
Telephone (915) 682-9731



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NOV - 2 1973

Midland District

October 31, 1973

New Mexico Oil Conservation Commission
P.O. Drawer DD
Artesia, New Mexico 88210

Gentlemen:

Enclosed please find Form C-122 with attachments, Deviation Test Record, and copy of USGS Form 9-330, reporting completion of our Wersell Federal Well No. 1, Undesignated Morrow Gas Pool.

Calculated open flow potential herein submitted is based on a 1-point flow period. We utilized a computer program of the Cullender-Smith method for calculating bottom hole pressures from surface data in lieu of the standard C-122 worksheets. Attached are copies of the computer printout in which static and flowing bottom hole pressures were calculated at the given rate. The computer program utilizes the same procedure as the C-122 worksheets, however, we believe it allows a greater degree of accuracy due to modifications which allow a more accurate calculation and less convergence error.

A 4-point test will be submitted upon obtaining a pipeline connection.

Should you have any questions, please do not hesitate to contact us.

Very truly yours,

A handwritten signature in cursive script, appearing to read "L. F. Thompson".

L. F. Thompson
District Operations Manager

LFT:chd
Attachments

CC: USGS - Artesia