SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS

SIMULTANEOUS

Gamma Ray-Neutron

COUNTY Lea
FIELD or LOCATION Langlie Mattix
WELL Lanehart # 1-A
COMPANY Leonard Oil Co.

COMPANY LEONARD OIL CO.

WELL LANEHART # 1-A

FIELD LANGLIE MATTIX

LOCATION SEC. 21-25S-37E

COUNTY LEA

STATE NEW MEXICO

Location of Well
2310'F N & E/L
Sec. 21-25S-37E

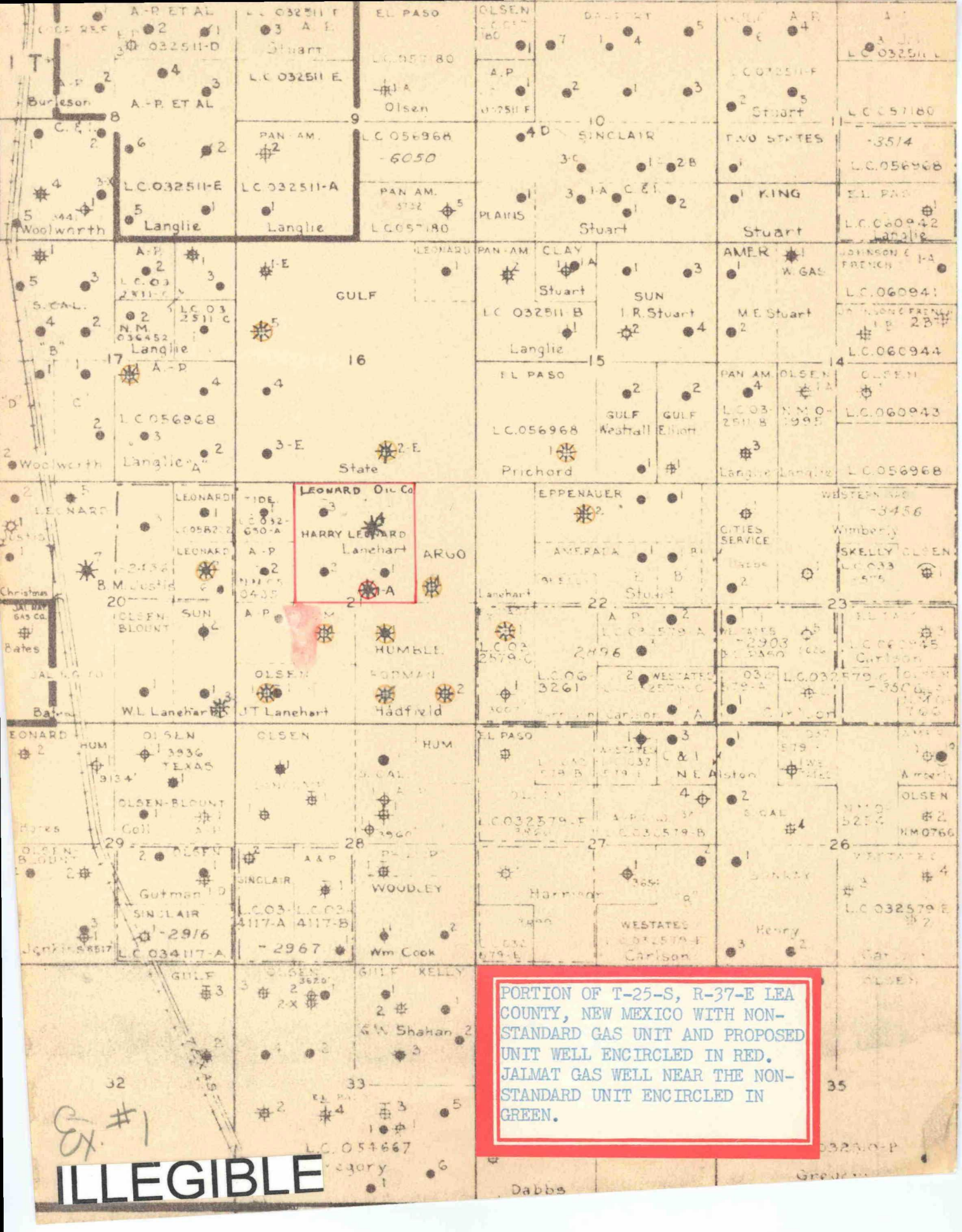
GRN

Elevation: D.F.:
K.B.:
CEE or G.L.:

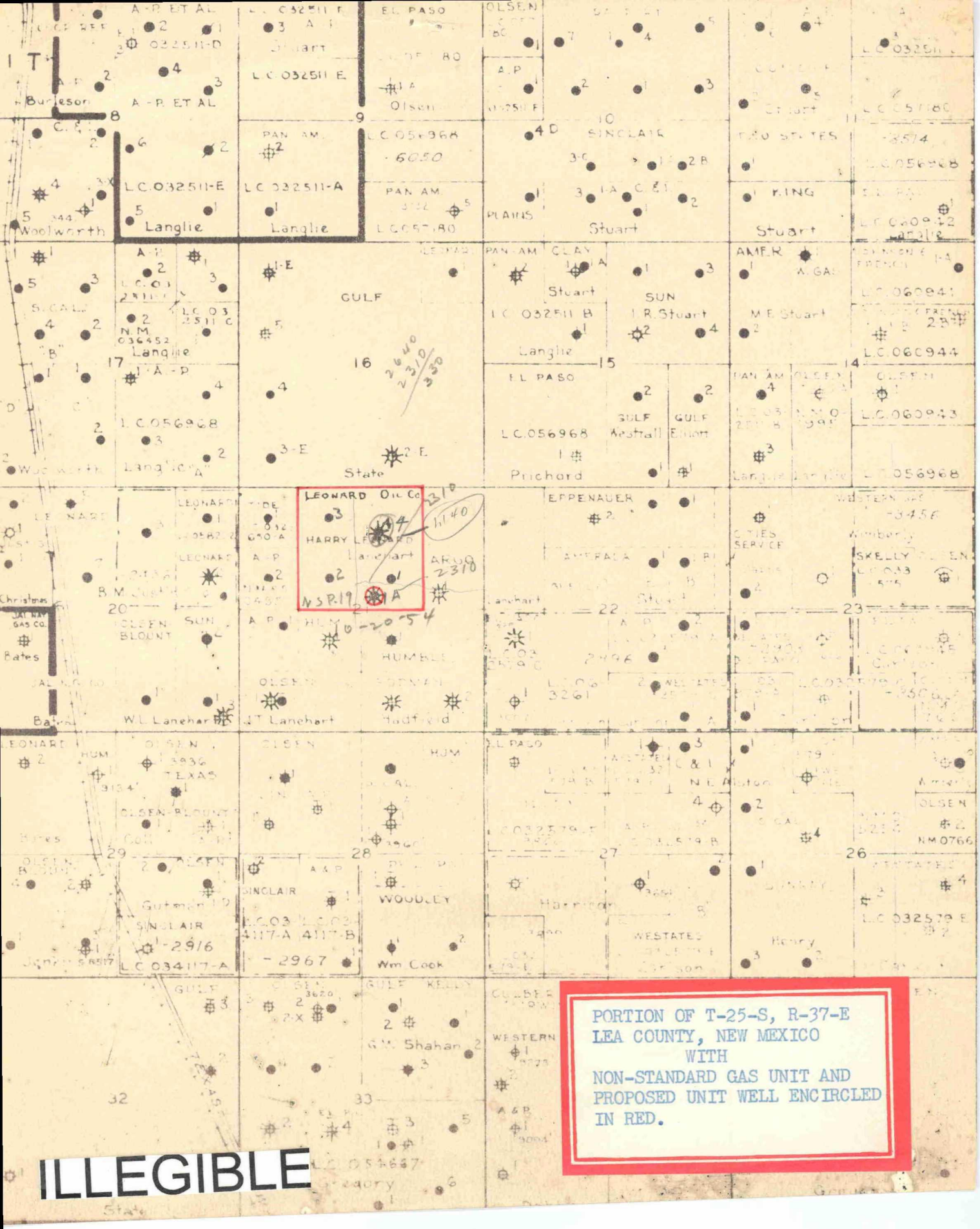
FILING No.

RUN NO.		1	
Date		9-30-55	
Depth Reference		KB 11.7' Abv. GL	
First Reading		3147	
Last Reading		267	
Footage Measured		2880	
Max. Depth Reached		3148	
Bottom Driller		3143	
Maximum Temp. °F.		107	
Mud: Nature		Oil Base	
" Density			
" Viscosity			
" Resistivity		@ °F.	@ °F.
Casing Size &	1	7" to 2754	to
Weight	2	to	to
Open Hole	1	6¼ to	to
	2	to	to
Fluid Level		267	
Recording Speed (ft/hr)		2000 & 4000	
Sensitivity Tap		GR) 140 N) 400	GR) N)
Time Constant		1.4 1	
Panel		GNP-B # 42	
Opr. Rig Time		2 HRS	
Sonde Size & Type		3 5/8"	
Truck No.		1762-Hobbs	
Observer		Mahoney	

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 1815
APP.



PORTION OF T-25-S, R-37-E LEA COUNTY, NEW MEXICO WITH NON-STANDARD GAS UNIT AND PROPOSED UNIT WELL ENCIRCLED IN RED. JALMAT GAS WELL NEAR THE NON-STANDARD UNIT ENCIRCLED IN GREEN.


LEONARD Oil Co.
HARRY LEONARD
NSP 19
A
2310
1140
10-20-54
PORTION OF T-25-S, R-37-E
LEA COUNTY, NEW MEXICO
WITH
NON-STANDARD GAS UNIT AND
PROPOSED UNIT WELL ENCIRCLED
IN RED.
ILLEGIBLE

NEW MEXICO OIL CONSERVATION COMMISSION
One-point Back Pressure Test for Gas Wells
(Deliverability)

Form C-122-C
4-1-54

Pool Jalmat Formation Yates County Lea
Initial ____ Annual ____ Special X Date of test 10-5/10-6-59 *
Company Leonard Oil Co. Lease Lanehart Well No. 1-A
Unit G Sec. 21 Twp. 25 Rge. 37 Purchaser None
Casing 7 Wt. 20.0 I.D. ____ Set at 2755 Perf. ____ To ____
Tubing 2 Wt. 4.7 I.D. 1.995 Set at 2910 Perf. ____ To ____
Gas Pay: From 3094 To 3110 L 2910 x G .650 = GL 1891 Bar.Press. 13.2
Producing Thru: Casing ____ Tubing X Type Well Single
Single- Bredenhead-G.G. or G.O. Dual

FLOW DATA

Started Date	Started time	Taken Date	Taken time	Duration Hours	Type Taps	Line Size	Choke Size	Choke Press.	Differential	Flow Temp.
10-5	AM 4:00 PM	10-6	AM 1:00 PM	21	POSITIVE CHOKE Nipples		.375	328		63

FLOW CALCULATIONS

Choke Pressure P_f	Differential h_w	Meter Extension $\sqrt{P_f h_w}$	24-Hour Coefficient	Gravity Factor F_g	Temp. Factor F_t	Compressability F_{pv}	Rate of Flow MCF/Da. @ 15.025 psia Q
341.2			3.0300	.9608	.9971	1.033	1,023

SHUT-IN DATA / FLOW DATA

Shut-in Date	Shut-in Time	Press. Taken Date	Press. Taken Time	Duration Hours	Wellhead Pressure (P_c) psia Tubing	Wellhead Pressure (P_c) psia Casing	W.H. Working Pressure (P_w) and (P_t) psia Tubing	W.H. Working Pressure (P_w) and (P_t) psia Casing
10-6	AM 1:00 PM	10-9	AM 1:00 PM	72	433.2		341.2	

FRICTION CALCULATIONS(if necessary)

$P_w^2 = 341.2^2 + (9.936 \times 1.023)^2 \quad (.122) = 129.0$

DELIVERABILITY CALCULATIONS

P_w 359.2 P_c 433.2 $P_w \div P_c$ .8292

$1 - \frac{P_w}{P_c}$ .1708 $1 + \frac{P_w}{P_c}$ 1.829 $\left|1 - \frac{P_w}{P_c}\right| \left|1 + \frac{P_w}{P_c}\right| = M$ .3124

.36 + M 1.152 Log .06145 x (n) .771 ** = .04738 +

SUMMARY

P_c = 433.2 psia
Q = 1,023 MCF/Da.
P_w = 359.2 psia
P_d = 346.6 psia
D = 1141 MCF/Da.

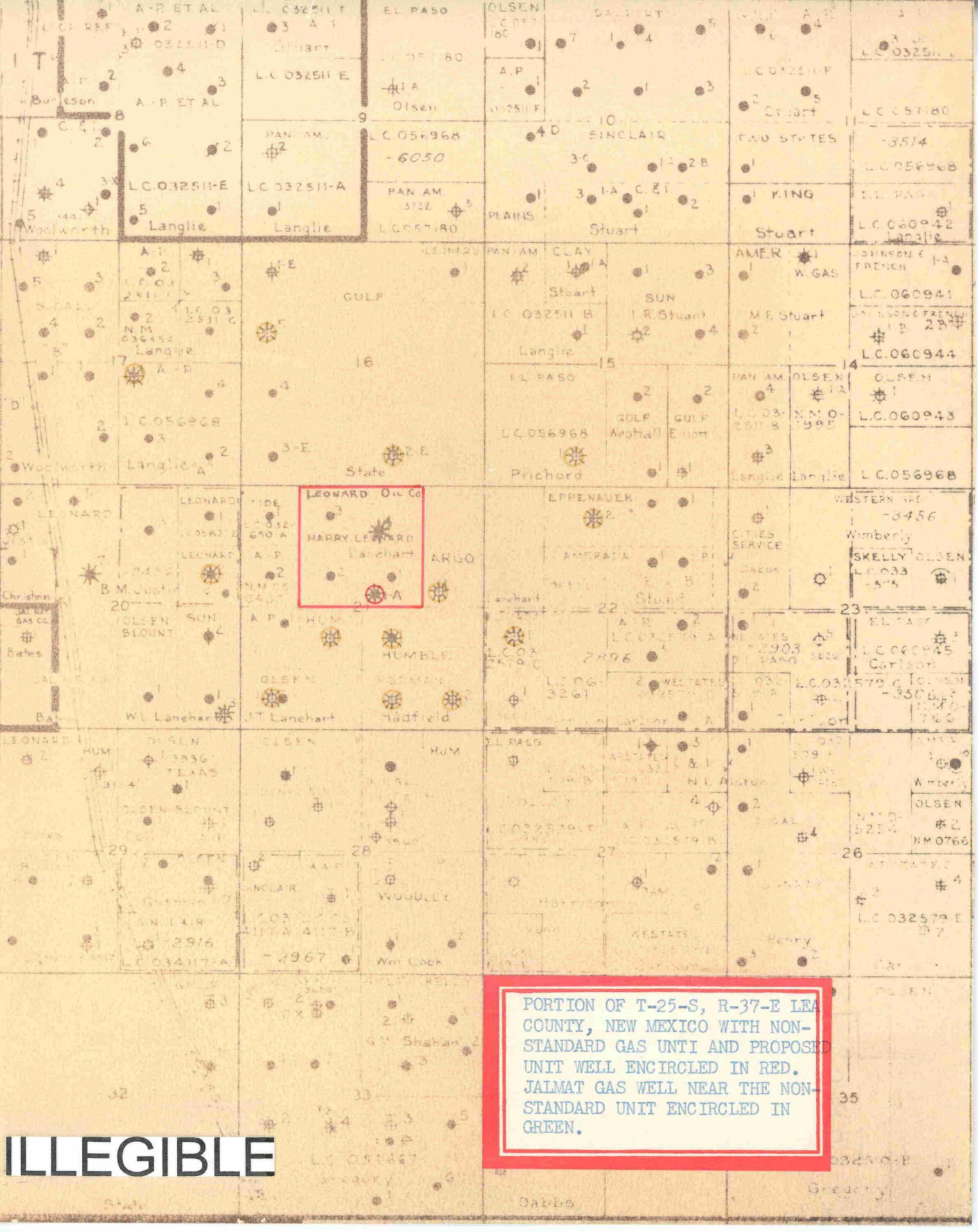
Log Q = 3.00987
Log D = 3.05725
Antilog = 1141. = D

COMPANY Leonard Oil Co.
ADDRESS P.O. Box 706, Roswell, New Mexico
AGENT and TITLE Fowler Hix, Gen. Manager
WITNESSED Herbert H. Kerby
COMPANY El Paso Natural Gas Co.

REMARKS

* Deliverability Test data calculated from 21 hour point on Multi-Point Test dated 10-5-6-1959
** Average Jalmat Slope

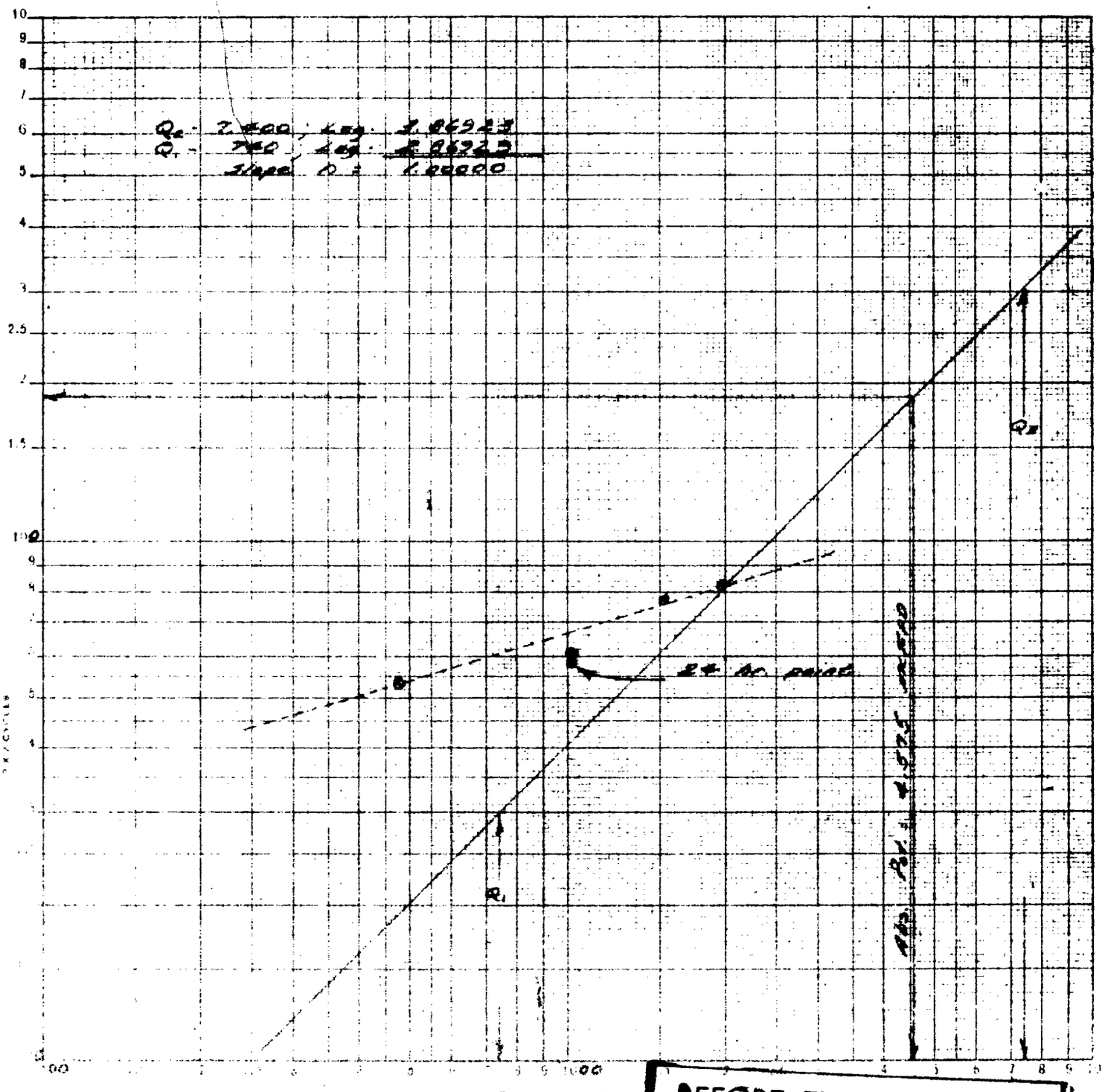
#4


LEONARD Oil Co
HARRY LEONARD
Lanehart
ARGO
PORTION OF T-25-S, R-37-E LEA COUNTY, NEW MEXICO WITH NON-STANDARD GAS UNTI AND PROPOSED UNIT WELL ENCIRCLED IN RED. JALMAT GAS WELL NEAR THE NON-STANDARD UNIT ENCIRCLED IN GREEN.

ILLEGIBLE

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
APP. EXHIBIT NO. 1
CASE NO. 1815

LEONARD OIL CO.
LANEHART #A
UNIT G, SEC. 21-25-37, LEA CO., N.M.
10-7-59



LOGARITHMIC 359-110
KEUFFEL & ESSER CO.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
DPP. EXHIBIT NO. 3
CASE NO. 1815

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-1

Revised 12-1-5

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Jalmat Formation Yates County Lea

Initial ____ Annual ____ Special X Date of Test 10-5/10-6-59

Company Leonard Oil Company Lease Lanehart Well No. 1-A

Unit G Sec. 21 Twp. 25 Rge. 37 Purchaser None

Casing 7 Wt. 20 I.D. ____ Set at 2755 Perf. ____ To ____

Tubing 5½ Liner Wt. ____ I.D. ____ Set at 2910 (Assumed) Perf. 2704-3143 To ____

Gas Pay: From 3094 To 3110 L 2910 xG .650 -GL 1891 Bar.Press. 13.2

Producing Thru: Casing ____ Tubing X Type Well Single Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: 9-30-55 Packer 2910 Reservoir Temp. ____

OBSERVED DATA

Tested Through ~~(Prover)~~ (Choke) ~~(Meter)~~ Type Taps ____

No.	Flow Data ~~(Prover)~~ (Line) Size	Flow Data (Choke) ~~(Orifice)~~ Size	Flow Data Press. psig	Flow Data Diff. h_w	Flow Data Temp. °F.	Tubing Data Press. psig	Tubing Data Temp. °F.	Casing Data Press. psig	Casing Data Temp. °F.	Duration of Flow Hr.
SI						420				72
1.	2	.250	349		64	349				3
2.	2	.375	325		63	325				3
3.	2	.500	272		65	272				3
4.	2	.625	223		61	223				3
5.	2	.375	328		63	328				21

FLOW CALCULATIONS

No.	Coefficient (24-Hour)	$\sqrt{h_w p_f}$	Pressure psia	Flow Temp. Factor F_t	Gravity Factor F_g	Compress. Factor F_{pv}	Rate of Flow Q-MCFPD @ 15.025 psia
1.	1.3309		362.2	.9962	.9608	1.036	478.0
2.	3.0300		338.2	.9971	.9608	1.033	1014
3.	5.4315		285.2	.9952	.9608	1.027	1520
4.	5.5417		236.2	.9990	.9608	1.023	1980
5.	3.0300		341.2	.9971	.9608	1.033	1023

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio * cf/bbl. Specific Gravity Separator Gas ____

Gravity of Liquid Hydrocarbons ____ deg. Specific Gravity Flowing Fluid ____

P_c 9.936 $(1-e^{-s})$ .122 P_c 433.2 P_c^2 187.7

No.	P_w Pt (psia)	P_t^2	F_cQ	$(F_cQ)^2$	$(F_cQ)^2$ $(1-e^{-s})$	P_w^2	$P_c^2-P_w^2$	Cal. P_w	$\frac{P_w}{P_c}$
1.	362.2	131.2	4.750	22.56	2.752	133.9	53.8	365.9	.84
2.	338.2	114.4	10.07	101.4	12.37	126.8	60.9	356.1	.82
3.	285.2	81.3	15.10	228.0	27.82	102.1	78.6	330.3	.76
4.	236.2	55.8	19.67	386.9	47.20	103.0	84.7	320.9	.74
5.	341.2	116.4	10.16	103.2	12.59	129.0	58.7	359.2	.82

Absolute Potential: 4,575 MCFPD; n 1.000

COMPANY Leonard Oil Company

ADDRESS Box 708; Roswell, New Mexico

AGENT and TITLE Fowler Hix - General Manager

WITNESSED H.H. Kerby

COMPANY El Paso Natural Gas Company

REMARKS

* The well produced a slight amount of fluid - unable to measure. If well is tied into system, a complete test will be conducted

Fair point alignment, but slope greater than 1.000 slope of 1.000 drawn thru point corresponding with highest rate of flow.

NEW MEXICO OIL CONSERVATION COMMISSION
One-point Back Pressure Test for Gas Wells
(Deliverability)

Form C-122-C
4-1-54

Pool Jalmat Formation Yates County Lea
Initial ____ Annual ____ Special X Date of test 10-5/10-6-59 *
Company Leonard Oil Co. Lease Lanehart Well No. 1-A
Unit G Sec. 21 Twp. 25 Rge. 37 Purchaser None
Casing 7 Wt. 20.0 I.D. ____ Set at 2755 Perf. ____ To ____
Tubing 2 Wt. 4.7 I.D. 1.995 Set at 2910 Perf. ____ To ____
Gas Pay: From 3094 To 3110 L 2910 x G .650 = GL 1891 Bar.Press. 13.2
Producing Thru: Casing ____ Tubing X Type Well Single
Single- Bredenhead-G.G. or G.O. Dual

FLOW DATA

Started Date	Started time	Taken Date	Taken time	Duration Hours	Type Taps	Line Size	Choke Size	Choke Press.	Differential	Flow Temp.
10-5	AM 4:00 PM	10-6	AM 1:00 PM	21	POSITIVE CHOKE Nipples		.375	328		63

FLOW CALCULATIONS

Choke Pressure P_f	Differential h_w	Meter Extension $\sqrt{P_f h_w}$	24-Hour Coefficient	Gravity Factor F_g	Temp. Factor F_t	Compressability F_{pv}	Rate of Flow MCF/Da. @ 15.025 psia Q
341.2			3.0300	.9608	.9971	1.033	1,023

SHUT-IN DATA / FLOW DATA

Shut-in Date	Shut-in Time	Press. Taken Date	Press. Taken Time	Duration Hours	Wellhead Pressure (P_c) psia Tubing	Wellhead Pressure (P_c) psia Casing	W.H. Working Pressure (P_w) and (P_t) psia Tubing	W.H. Working Pressure (P_w) and (P_t) psia Casing
10-6	AM 1:00 PM	10-9	AM 1:00 PM	72	433.2		341.2	

FRICTION CALCULATIONS(if necessary)

$P_w^2 = 341.2^2 + (9.936 \times 1.023)^2 \quad (.122) = 129.0$

SUMMARY

P_c = 433.2 psia
Q = 1,023 MCF/Da.
P_w = 359.2 psia
P_d = 346.6 psia
D = 1141 MCF/Da.

DELIVERABILITY CALCULATIONS

P_w 359.2 P_c 433.2 $P_w \div P_c$ .8292

$1 - \frac{P_w}{P_c}$ .1708 $1 + \frac{P_w}{P_c}$ 1.829 $\left|1 - \frac{P_w}{P_c}\right| \left|1 + \frac{P_w}{P_c}\right| = M$ .3124

.36 + M 1.152 Log .06145 x (n) .771 ** = .04738 +

Log Q = 3.00987
Log D = 3.05725
Antilog = 1141. = D

COMPANY Leonard Oil Co.
ADDRESS P.O. Box 708, Roswell, New Mexico
AGENT and TITLE Fowler Hix, Gen. Manager
WITNESSED Herbert H. Keeler
COMPANY El Paso Natural Gas Co.

REMARKS

* Deliverability Test data calculated from 21 hour point on Multi-Point Test dated 10-5-6-1959
** Average Jalmat Slope

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122
Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Jalmat Formation Yates County Lea

Initial ____ Annual ____ Special X Date of Test 10-5/10-6-55

Company Leonard Oil Company Lease Lambert Well No. 1-A

Unit G Sec. 21 Twp. 25 Rge. 37 Purchaser None

Casing 7 Wt. 20 I.D. ____ Set at 2755 Perf. ____ To ____

Tubing 2" 5½ Liner Wt. ____ I.D. ____ Set at 2910 Perf. 2704-3143 (Abandoned) To ____

Gas Pay: From 3094 To 3130 L 2910 xG .650 -GL 1891 Bar.Press. 13.2

Producing Thru: Casing ____ Tubing X Type Well Single Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: 9-30-55 Packer 2910 Reservoir Temp. ____

OBSERVED DATA

Tested Through (~~Prover~~) (Choke) (~~Meter~~) Type Taps ____

No.	Flow Data (~~Prover~~) (Line) Size	(Choke) (~~Orifice~~) Size	Press. psig	Diff. h_w	Temp. °F.	Tubing Data Press. psig	Tubing Data Temp. °F.	Casing Data Press. psig	Casing Data Temp. °F.	Duration of Flow Hr.
SI						1120				72
1.	2	.250	309		64	309				3
2.	2	.375	325		63	325				3
3.	2	.500	272		65	272				3
4.	2	.625	223		64	223				3
5.	2	.375	328		63	328				21

FLOW CALCULATIONS

No.	Coefficient (24-Hour)	$\sqrt{h_w p_f}$	Pressure psia	Flow Temp. Factor F_t	Gravity Factor F_g	Compress. Factor F_{pv}	Rate of Flow Q-MCFPD @ 15.025 psia
1.	1.3309		362.2	.9962	.9608	1.036	478.8
2.	3.0300		338.2	.9971	.9608	1.033	1014
3.	5.4315		285.2	.9952	.9608	1.027	1550
4.	5.5417		236.2	.9990	.9608	1.023	1980
5.	3.0300		341.2	.9971	.9608	1.033	1023

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio * cf/bbl.
Gravity of Liquid Hydrocarbons ____ deg.
F_c 9.936 $(1-e^{-s})$ .122

Specific Gravity Separator Gas ____
Specific Gravity Flowing Fluid ____
P_c 433.2 P_c^2 187.7

No.	P_w P_t (psia)	P_t^2	F_cQ	$(F_cQ)^2$	$\frac{(F_cQ)^2}{(1-e^{-s})}$	P_w^2	$P_c^2-P_w^2$	Cal. P_w	P_w P_c
1.	362.2	131.2	4.750	22.56	2.752	133.9	53.8	365.9	84
2.	338.2	114.4	10.07	101.4	12.37	126.8	60.9	356.1	82
3.	285.2	81.3	15.10	228.0	27.82	109.1	78.6	330.3	76
4.	236.2	55.8	19.67	386.9	47.20	103.0	84.7	320.9	74
5.	341.2	116.4	10.16	103.2	12.59	129.0	58.7	359.2	83

Absolute Potential: 4,575 MCFPD; n 1.000

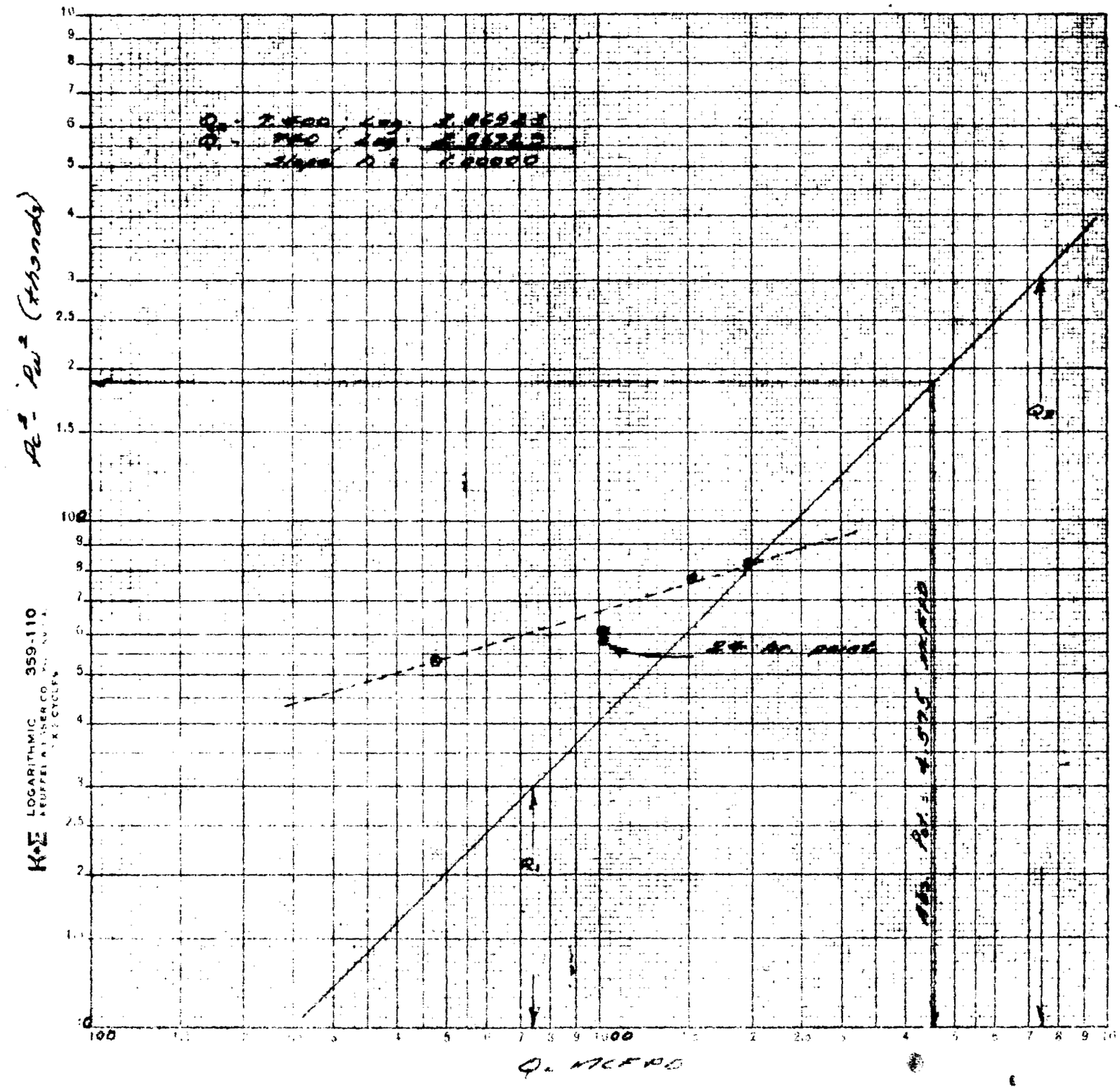
COMPANY Leonard Oil Company
ADDRESS Box 760, Hobbs, New Mexico
AGENT and TITLE Fowler Nix - General Manager
WITNESSED L.E. Kerby
COMPANY El Paso Natural Gas Company

REMARKS

* The well produced a slight amount of fluid - unable to measure. If well is tied into system, a complete test will be conducted

Poor point alignment, but slope greater than 1.000 slope of 1.000 drawn thru point corresponding with highest rate of flow.

LEONARD OIL CO.
LANEHART #A
UNIT G, SEC. 21-25-37, LEA CO., N.M.
10-7-59



Leonard Oil Company

BOX 708
Roswell, New Mexico

ROBERT J. LEONARD
PRESIDENT

November 2, 1959

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Gentlemen:

Please find enclosed three copies of our application for an unorthodox gas well location and for its approval as the unit gas well for a non-standard gas proration unit. This unit has already been approved by the Oil Conservation Committee.

Very truly yours,

LEONARD OIL COMPANY

Fowler Tidwell

General Manager

/m

enc.

Mailed Nov. 12, 1959

NO. 40-59

DOCKET: EXAMINER HEARING NOVEMBER 24, 1959

Oil Conservation Commission - 9 a.m., Mabry Hall, State Capitol, Santa Fe, New Mexico

The following cases will be heard before Elvis A. Utz, Examiner, or A. L. Porter, Jr., Secretary.

CASE 1811: Application of The Atlantic Refining Company for permission to commingle the production from three separate pools from three separate leases. Applicant, in the above-styled cause, seeks an order authorizing it to commingle the Tubb, Blinebry, and Drinkard production from three Federal leases in Section 14, Township 25 South, Range 37 East, Lea County, New Mexico.

CASE 1812: Application of Gulf Oil Corporation for permission to commingle the production from two separate leases. Applicant, in the above-styled cause, seeks permission to commingle the production from the Eumont Pool from its Ramsay (NCT-D) Lease consisting of the NE/4 of Section 35 and from its Ramsay (NCT-J) Lease consisting of the SW/4 SW/4 of Section 25, both in Township 20 South, Range 37 East, Lea County, New Mexico.

CASE 1813: Application of Gulf Oil Corporation for a gas-oil dual completion and for permission to commingle the production from two separate pools. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Travis Well No. 1, located 1980 feet from the South line and 660 feet from the East line of Section 21, Township 23 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of gas from an undesignated Abo gas pool and the production of oil from the Teague Pool. Applicant further seeks permission to commingle the oil produced from the Teague Pool from said well with the distillate produced from an undesignated Abo gas pool from said well.

CASE 1814: Application of Leonard Latch for two water flood projects. Applicant, in the above-styled cause, seeks an order authorizing it to institute two water flood projects in the Empire Pool in Eddy County, New Mexico. In one project, applicant proposes to inject water into the Seven Rivers formation through ten wells located in the N/2 of Section 19, Township 17 South, Range 28 East. In the other project, applicant proposes to inject water into the Seven Rivers formation through seven wells located in the S/2 SE/4 of Section 12 and the NE/4 of Section 13, Township 17 South, Range 27 East.

CASE 1815: Application of Leonard Oil Company for an unorthodox gas well location. Applicant, in the above-styled cause, seeks an order authorizing an unorthodox gas well location in the Jalmat Gas Pool at a point 2310 feet from the North and East lines of Section 21, Township 25 South, Range 37 East, Lea County, New Mexico. Applicant proposes that said well serve as the unit well for a non-standard gas proration unit in the Jalmat Gas Pool consisting of the E/2 NW/4 and W/2 NE/4 of said Section 21.

CASE 1816: Application of Shell Oil Company for permission to commingle the production from several separate pools from several separate leases. Applicant, in the above-styled cause, seeks permission to commingle the production from an undesignated Atoka pool and an undesignated San Andres pool from two separate leases in Sections 23, 26, and 35, Township 19 South, Range 35 East, Lea County, New Mexico, and to transport said production from said leases

prior to measurement and to commingle such production with the commingled Pearl-Queen production authorized by Order No. R-1101. Applicant further seeks authorization to expand the automatic custody transfer system authorized by said Order No. R-1101.

CASE 1817: Application of Sunray Mid-Continent Oil Company for an automatic custody transfer system and for permission to produce more than sixteen wells into a common tank battery. Applicant, in the above-styled cause, seeks an order authorizing it to install an automatic custody transfer system to handle the production from all Bisti-Lower Gallup Oil Pool wells on its Central Bisti Unit comprising certain acreage in Townships 25 and 26 North, Range 12 West, San Juan County, New Mexico.

CASE 1818: Application of Texaco Inc., for a gas-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its State "BN" Well No. 1, located in the NW/4 SW/4 of Section 25, Township 11 South, Range 32 East, Lea County, New Mexico, in such a manner as to produce gas from the Moore-Wolfcamp Gas Pool and to produce oil from the Moore-Pennsylvanian Pool through the casing-tubing annulus and tubing respectively.

CASE 1819: Application of Hamilton Dome Oil Company, Ltd., for an order authorizing the commingling of production from two separate pools. Applicant, in the above-styled cause, seeks permission to commingle the Blinebry and Tubb production from a lease consisting of the S/2 SE/4 of Section 25, Township 25 South, Range 37 East, Lea County, New Mexico.

CASE 1820: Application of Carper Drilling Company, Inc., and T. J. Sivley for permission to commingle the production from two separate leases. Applicant, in the above-styled cause, seeks permission to commingle the Empire-Abo Pool production from that portion of State Lease B-1483 consisting of lot 2 of Section 2 and that portion of State lease 2029 consisting of lot 3 of said Section 2, Township 18 South, Range 27 East, Eddy County, New Mexico.

CASE 1821: Application of Cities Service Oil Company for establishment of a water flood project allowable. Applicant, in the above-styled cause, seeks an order establishing a project allowable for its Drickey Queen Sand Unit in Chaves County, New Mexico, and providing for the conversion of wells to water injection at the operator's election.

CASE 1822: Application of Cities Service Oil Company for approval of automatic custody transfer facilities. Applicant, in the above-styled cause, seeks an order authorizing the installation of automatic custody transfer facilities to handle the Caprock-Queen Pool production from the Drickey Queen Sand Unit in Chaves County, New Mexico.

ig/

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 11-27-59

CASE 1815 Hearing Date 11-25-59

My recommendations for an order in the above numbered cases are as follows:

Grant Leonard Oil as follows:

1. Permit change in well dedication for NSP-19, consisting of W/2 NW and E/2 NE sec. 21-25S-37E. Present well is Leonard-Lanehart #4. Leonard-Lanehart #1-A, 2310/N & 2310/E lines sec. 21 25S-37E to be the omit well.
2. The #1-A well must be completed in the 3100 foot zone of Jalmat pool. in order to be dedicated!

Staff Member