

BEFORE EXAMINER NOTED
OIL CONSERVATION COMMISSION
CASE NO. 2788-7
NEW MEXICO OIL CONSERVATION COMMISSION
MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Form C-122
Revised 12-1-55

Pool Wilcox Formation Norway Sand County Eddy
Initial 8 Annual _____ Special _____ Date of Test 1/10-11/1953
Company Ralph L. Co. Lease Tecoma Basin "A" Well No. 1 (Lower)
Unit 1 Sec. 2 Twp. 33N Rge. 20E Purchaser None
Casing 2 Wt. 40 I.D. 3.062 Set at 9285 Perf. 9115 To 9285
Tubing 10-20 Wt. 40 I.D. 3.062 Set at 9053 Perf. _____ To _____
Gas Pay: From 9115 To 9053 L 1053 xG 1053 -GL 5504 Bar.Press. 13.2
Producing Thru: Casing _____ Tubing _____ Type Well Cas-Geo Dual
Single-Bradenhead-G. G. or G.O. Dual
Date of Completion: _____ Packer _____ Reservoir Temp. 171

OBSERVED DATA

Tested Through (Prover) (Choke) (Meter) _____ Type Taps Flare

Flow Data						Tubing Data		Casing Data		Duration of Flow Hr.
No.	(Prover) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h _w	Temp. °F.	Press. psig	Temp. °F.	Press. psig	Temp. °F.	
SI						2410				over 72
1.	3.062		100	17.0	73	2407				6
2.	3.062		100	18.5	75	2473				6
3.	3.062		100	18.0	77	2651				6
4.	3.062		100	20.0	73	2536				6
5.										

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.	20.15	17.0		1.000	.9575	1.003	2193
2.	20.15	17.0		1.000	.9575	1.003	3241
3.	20.15	17.0		1.000	.9575	1.003	4327
4.	20.15	17.0		1.000	.9575	1.001	5360
5.							

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 1.0 cf/bbl.
Gravity of Liquid Hydrocarbons 55 deg.
C 6.935 (1-e^{-s})
Specific Gravity Separator Gas .603
Specific Gravity Flowing Fluid .7665
P_c 2982.2 P_c 2893.5

No.	P _w P _t (psia)	P _t ²	F _c Q	(F _c Q) ²	(F _c Q) ² (1-e ^{-s})	P _w ²	P _c ² -P _w ²	Cal. P _w	P _w P _c
1.	2270.2	5133.8	1.000	1.000	1.000	5133.8	505.3	2385.1	.9711
2.	2285.2	5160.5	1.000	1.000	1.000	5160.5	498.1	2404.2	.9537
3.	2300.2	5280.8	1.000	1.000	1.000	5280.8	3215.3	2772.3	.9235
4.	2315.2	5359.3	1.000	1.000	1.000	5359.3	1507.7	2879.1	.9051
5.									

Absolute Potential: _____ MCFPD; n _____
COMPANY _____
ADDRESS _____
AGENT and TITLE Arthur P. Finn _____
WITNESSED _____
COMPANY _____

REMARKS

ILLEGIBLE

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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 = 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
- P_w = Static wellhead working pressure as determined at the end of flow period.
(Casing if flowing thru tubing, tubing if flowing thru casing.) psia
- P_t = Flowing wellhead pressure (tubing if flowing through tubing, casing if
flowing through casing.) psia
- P_f = Meter pressure, psia.
- h_w = Differential meter pressure, inches water.
- F_g = Gravity correction factor.
- F_t = Flowing temperature correction factor.
- F_{pv} = Supercompressability factor.
- n = 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 .

NEW MEXICO OIL CONSERVATION COMMISSION

Form G-122

Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Wildcat Formation Morrow Sand County Eddy
Initial X Annual _____ Special _____ Date of Test 1/10-11/1963
Company Ralph Lowe Lease Indian Basin "A" Well No. 1 (Lower)
Unit J Sec. 22 Twp. 21S Rge. 23E Purchaser None
Casing 7 Wt. 26.0 I.D. 6.276 Set at 9385 Perf. 9118 To 9266
Tubing 2"10-RD Wt. 4.70 I.D. 1.995 Set at 9053 Perf. _____ To _____
Gas Pay: From 9118 To 9266 L 9053 xGMix = .608 -GL 5504 Bar.Press. 13.2
Producing Thru: Casing _____ Tubing X Type Well Gas-Gas Dual
Single-Bradenhead-G. G. or G.O. Dual
Date of Completion: 12-24-62 Packer Baker "K" 7280 Reservoir Temp. 171
Baker "D" 9050
OBSERVED DATA

Tested Through (Proven) (Choke) (Meter) Type Taps Flange

No.	Flow Data					Tubing Data		Casing Data		Duration of Flow Hr.
	(Proven) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h _w	Temp. °F.	Press. psig	Temp. °F.	Press. psig	Temp. °F.	
SI						2969				Over 72
1.	3.068	1.750	900	11.0	55	2857				6
2.	3.068	1.750	905	24.0	57	2773				6
3.	3.068	1.750	900	43.0	57	2651				6
4.	3.068	1.750	900	67.0	63	2515				6
5.										

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.	20.15	100.23		1.0048	.9975	1.083	2193
2.	20.15	148.45		1.0029	.9975	1.083	3241
3.	20.15	198.16		1.0029	.9975	1.083	4327
4.	20.15	247.35		.9971	.9975	1.081	5360
5.							

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 530,560 cf/bbl.
Gravity of Liquid Hydrocarbons 53° @ 60 deg.
P_c 9.936 (1-e^{-s}) .315
Specific Gravity Separator Gas .603
Specific Gravity Flowing Fluid .7669
P_c 2982.2 P_c 8893.5

No.	P _t (psia)	P _t ²	F _c Q	(F _c Q) ²	(F _c Q) ² (1-e ^{-s})	P _w ²	P _c ² -P _w ²	Cal. P _w	P _w P _c
1.	2870.2	8238.0	21.79	474.8	149.6	8387.6	505.9	2896.1	.9711
2.	2786.2	7762.9	32.20	1036.8	326.6	8089.5	804.0	2844.2	.9537
3.	2664.2	7098.0	42.99	1848.1	582.2	7680.2	1213.3	2771.3	.9293
4.	2528.2	6391.8	53.26	2836.6	893.5	7285.3	1608.2	2699.1	.9051
5.									

Absolute Potential: 20,000 MCFPD; n .763

COMPANY Ralph Lowe
ADDRESS P. O. Box 832, Midland, Texas
AGENT and TITLE Archie P. Farr, Petroleum Engineer
WITNESSED _____
COMPANY _____

Point No.	Distillate, bbl/day	REMARKS - Perforations:
1	3.8	9118-9130
2	7.6	9252-9266
3	7.6	
4	9.5	

INSTRUCTIONS

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

NOMENCLATURE

Q = 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

P_w = Static wellhead working pressure as determined at the end of flow period.
(Casing if flowing thru tubing, tubing if flowing thru casing.) psia

P_t = Flowing wellhead pressure (tubing if flowing through tubing, casing if flowing through casing.) psia

P_f = Meter pressure, psia.

h_w = Differential meter pressure, inches water.

F_g = Gravity correction factor.

F_t = Flowing temperature correction factor.

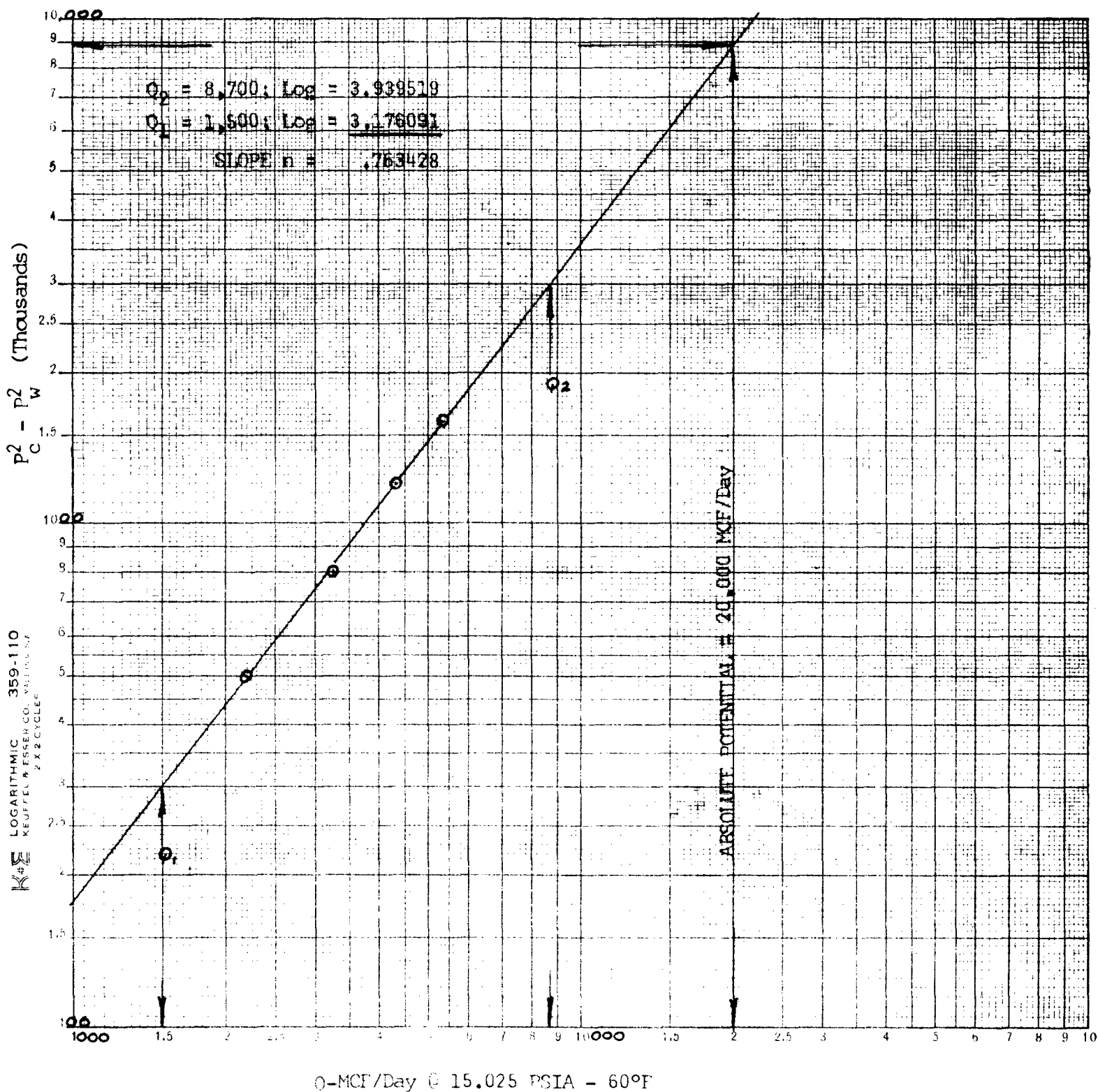
F_{pv} = Supercompressibility factor.

n = 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 .

COMPANY Ralph Lowe
 WELL Indian Basin "A" 1 (Lower)
 LOCATION J-22-21S-23E
 COUNTY Eddy
 DATE 1/10-11/1963

Case 2788



NEW MEXICO OIL CONSERVATION COMMISSION

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Re

Pool Wildcat Formation Morrow Sand County Eddy
Initial x Annual _____ Special _____ Date of Test 1/10/51
Company Ralph L. Jones Lease Tulsa Basin "A" Well No. 1
Unit _____ Sec. 22 Twp. 23N Rge. 23E Purchaser None
Casing 7 Wt. 20.15 I.D. 1.750 Set at 9285 Perf. 9118 To 9285
Tubing 2.375 Wt. 1.750 I.D. 1.687 Set at 9053 Perf. _____ To _____
Gas Pay: From 9118 To 9200 L 9053 x G.M.P. 508 -GL 5504 Bar. Press. 13
Producing Thru: Casing _____ Tubing x Type Well Cas-Cas Dual
Single-Bradenhead-G. G. or G.O. Dual
Date of Completion: 12/28/50 Packer Baker "D" 7200 Reservoir Temp. 171
Baker "D" 9050
OBSERVED DATA

Tested Through (Prover) (Choke) (Meter) Type Taps Flange

No.	Flow Data					Tubing Data		Casing Data		Duration of Test Hr.
	(Prover) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h _w	Temp. °F.	Press. psig	Temp. °F.	Press. psig	Temp. °F.	
SI						2984				Over 72
1.	3.068	1.750	900	11.0	55	2857				6
2.	3.068	1.750	905	24.0	57	2773				6
3.	3.068	1.750	900	33.0	57	2851				6
4.	3.068	1.750	900	67.0	63	2535				6
5.										

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.	20.15	104.23		1.0013	0.975	1.083	2193
2.	20.15	143.45		1.0029	0.975	1.083	3241
3.	20.15	148.15		1.0029	0.975	1.083	4327
4.	20.15	247.35		0.9971	0.975	1.081	5360
5.							

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 530,560 cf/bbl.
Gravity of Liquid Hydrocarbons 53° 5' 50" deg.
'c 9.936 (1-e^{-s}) .315
Specific Gravity Separator Gas 0.6
Specific Gravity Flowing Fluid 0.6
P_c 2982.2 P_c² 8893.5

No.	P _t (psia)	P _t ²	F _c Q	(F _c Q) ²	(F _c Q) ² (1-e ^{-s})	P _w ²	P _c ² -P _w ²	Cal. P _w
1.	2970.2	8822.1	47.34	2238.5	2238.5	8832.6	505.4	2951.1
2.	2975.0	8850.6	50.00	2500.0	2500.0	8832.6	20.0	2974.9
3.	2970.2	8822.1	47.34	2238.5	2238.5	8832.6	100.0	2960.2
4.	2535.0	6427.2	25.35	642.7	642.7	8832.6	6297.4	2535.0
5.								

Absolute Potential: _____ MCFPD; n _____
COMPANY _____
ADDRESS _____
AGENT and TITLE Arthur L. Jones
WITNESSED _____
COMPANY _____

REMARKS

ILLEGIBLE

INSTRUCTIONS

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NOMENCLATURE

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MCF/da. @ 15.025 psia and 60° F.
- P_c = 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater.
psia
- P_w = Static wellhead working pressure as determined at the end of flow period.
(Casing if flowing thru tubing, tubing if flowing thru casing.) psia
- P_t = Flowing wellhead pressure (tubing if flowing through tubing, casing if flowing through casing.) psia
- P_f = Meter pressure, psia.
- h_w = Differential meter pressure, inches water.
- F_g = Gravity correction factor.
- F_t = Flowing temperature correction factor.
- F_{pv} = Supercompressibility factor.
- n = 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 .

LARGE FORMAT
EXHIBIT HAS
BEEN REMOVED
AND IS LOCATED
IN THE NEXT FILE

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 2788
Order No. R-2468

APPLICATION OF RALPH LOWE
FOR A DUAL COMPLETION, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 10, 1963, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 18th day of April, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Ralph Lowe, seeks authority to complete his Indian Basin "A" Well No. 1, located in Unit J of Section 22, Township 21 South, Range 23 East, NMPM, Eddy County, New Mexico, as a dual completion (conventional) to produce gas from the Indian Basin-Upper Pennsylvanian Gas Pool and the Indian Basin-Morrow Gas Pool through parallel strings of 2 3/8-inch tubing, with separation of zones by a packer set at approximately 9050 feet.

(3) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

(4) That approval of the subject application will neither cause waste nor impair correlative rights.

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CASE No. 2788
Order No. R-2468

IT IS THEREFORE ORDERED:

(1) That the Applicant, Ralph Lowe, is hereby authorized to complete his Indian Basin "A" Well No. 1, located in Unit J of Section 22, Township 21 South, Range 23 East, NMPM, Eddy County, New Mexico, as a dual completion (conventional) to produce gas from the Indian Basin-Upper Pennsylvanian Gas Pool and the Indian Basin-Morrow Gas Pool through parallel strings of 2 3/8-inch tubing, with separation of zones by a permanent type packer set at approximately 9050 feet.

PROVIDED HOWEVER, That the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order.

PROVIDED FURTHER, That the applicant shall take packer-leakage tests upon completion and annually thereafter during the Annual Testing Period for the Indian Basin-Morrow Gas Pool.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

E. S. Walker
E. S. WALKER, Member

A. L. Porter, Jr.
A. L. PORTER, Jr., Member & Secretary

