Nucorp Energy, Inc. 1250 N.E. Loop 410, Suite 400 • San Antonio, Texas 78209-1181 • (512) 828-8027
(TEXAS)

July 24, 1984

New Mexico Oil Conservation Division
New Mexico Land Office Building
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Attention: Mr. Richard L. Stamets

Re: Case No. 8258 - Ronadero Company, Application to Dually Complete and Downhole Comingle Pennsylvanian and Devonian Production in the Ronadero Co.- Rob Clay State No. 1

Dear Sir:

In reference to the above case, Nucorp Energy, Inc. filed opposition, by telegram, on July 10, 1984. Nucorp responded in this manner because notification of the July 11, 1984 hearing was not received until July 9, 1984. Essentially, Nucorp needed time to study the Ronadero Company's request and decide it's affect, if any, on the Nucorp Energy, Inc. well in the same section and completed in the same reservoir.

After evaluating data supplied by Natural Resources Engineering Inc., agents for Ronadero Co., Inc., Nucorp concludes that the request made by the Ronadero Co. is not injurious to Nucorp's interest. Nucorp Energy would like to hereby remove its objection to the above referenced case.

Your attention to this matter is appreciated.

Sincerely,

Lloyd Towers

Lloyd Towers
Geologist

LT/gc

cc: R.H. Denman
Joe T. Janica

8/7/84

Dick,

THE METHOD OF GAS LIFT PRODUCTION DESCRIBED IN THE LETTER IS A STANDARD METHOD WITHIN THE INDUSTRY. THE ONLY EXCEPTION IS BEING THE SOURCE OF "LIFT" GAS, AND IN THIS CASE THE OPERATION IS CONSIDERED MORE EFFICIENT BECAUSE GAS DOESN'T HAVE TO BE PIPED IN OR COMPRESSED TO RUN THE LIFT VALVES. CALCULATIONS SHOW SUFFICIENT GAS TO LIFT THE FLUIDS BUT NOT TOO MUCH SO THAT THE RESERVOIR ENERGY IS WASTED.

Looks Good!

Gilbert

NOTE: THIS IS A CONTINUOUS LIFT METHOD.

RONADERO COMPANY INC
P. O. Box 430
Roswell, New Mexico 88201

August 1, 1984

AUG 2 1984
RECEIVED

Mr. Dick Stamets
Oil Conservation Department
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Ronadero Company, Inc., Application to Commingle

Dear Mr. Stamets:

Thank you for visiting with me on the subject application.

Recognizing your concern for the production of Penn oil from the casing annulus I understand what you have been requesting.

Referring to the C-116 filed on the Rob-Clay State #1, the producing rate per day from the Penn would be 18 bbls of 48 gravity oil and 822 mcf gas per day.

Ronadero Company, Inc. would propose the following completion and production procedures.

1. Pull tubing and install the proposed gas life valves and nipples as listed below:

   a. Baker "lok-set" packer at 11,040'

   b. Baker "F" nipple at 11,036'

   c. Otis sliding sleeve at 10,241'

   d. Flopetrol Johnston Schlumberger gas lift valves at:

      1. 9,000' - 8/64" w/check valve
      2. 4,500' - 8/64" 650 psi
      3. 4,000' - 8/64" 650 psi
      4. 3,500' - 8/64" 650 psi
      5. 3,000' - 8/64" 680 psi
      6. 2,500' - 8/64" 700 psi
      7. 2,000' - 8/64" 720 psi

2. Set tubing and packer as shown in the previously submitted well bore sketch.

3. Set blanking plug in Baker "F" nipple at 11,036'.
4. Open sliding sleeve at 10,241'.
5. Swab in Penn zone and clean up.
6. Close sliding sleeve.
7. Pull blanking plug from "F" nipple at 11,036'.
8. Maintain 800 psi on annulus by choking flow on tubing.
9. Test well to tanks.

Assuming a 47° API gravity oil from Devonian zone the hydrostatic pressure at the top valve, 2000', would be:

47° API = 0.7927 S.G.
0.7927 x 8.33 = 6.603 lbs/gal
6.603 lbs/gal x .052 = .3434 psi/ft
0.3434 psi/ft x 2000' = 686.73 psi

The 2000' valve will be set to open at 720 psi.

Other valves will open as fluid level decreases.

The valve at 9,000' will not have a set opening pressure. It will be installed with an 8/64" orifice and also check valve.

By maintaining 800 psi on the casing tubing annulus the maximum fluid column that could occur would be as follows:

H.H. of 48° API gravity = 0.7919 x 8.33 x .052

0.7919 S.G. x 8.33 lbs/gal x .052 = 0.3430 psi/ft

800 psi + (0.3430) x ft = 1747 psi

1747 psi - 800 psi = 947 psi

947 psi ÷ .3430 psi/ft = 2,761' ft.

Swab tests on the Rob-Clay State #1 indicate that the fluid level of the Devonian will not go below 1,700'. From this information we would assume that gas from the Penn would operate the valves at 3,500'-4,000'.

Again, the casing-tubing annulus pressure will be maintained at 800 psi with all production from the Penn commingling with the Devonian production through the 2 7/8" tubing.

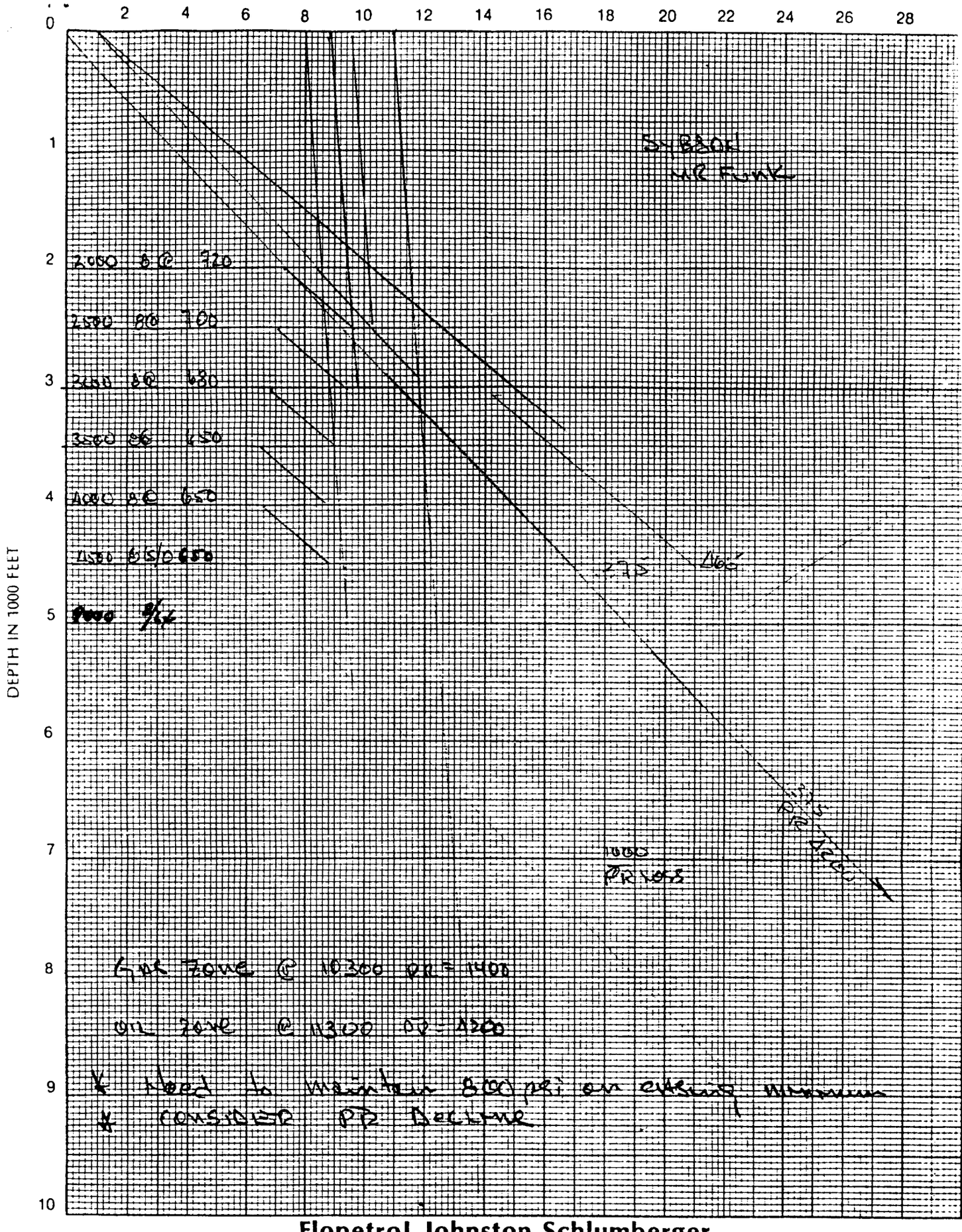
I sincerely hope the above information will be satisfactory for your approval of the commingling application.

Yours very truly,

Rabey J. Funk

Rabey J. Funk, P.E.

RJF/drs



HOME 933-5332

natural resources engineering inc.

July 20, 1984

Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Richard Staments

RE: Case 8258, Ronadero Co., Inc.
For Commingling and
Dual Completion

Dear Dick:

I have received your request to furnish you with the frictional pressure losses of flowing high ratio gas up a 5-1/2" x 2-7/8" casing annulus. I have researched this quite thoroughly and am not able to come up with anything I can definitely defend. The calculations used to estimate these pressure losses are quite complex, and some of the required variables are not readily available.

Based on some actual tests that we have done on the Penn zone at four stabilized rates, differences between the flowing bottom hole pressure and flowing tubing pressure are tabulated below.

RATE	STABILIZED BHFP	STABILIZED FTP	DIFFERENCES
1	1496	1000	496 psi
2	1464	960	504 psi
3	1382	840	542 psi
4	1295	740	555 psi

From the above table it would appear that the pressure drop would be less than 540 psi, flowing at rate number three (820 MCFPD). The 540 psi differential would be higher in the tubing because its cross sectional flow area (4.7 in^2) is less than the casing tubing annulus flow area (12.3 in^2). This pressure drop is the combination of all variables which do effect the flow.

phone (505) 397-6319 • 201 e. sanger • p. o. box 2188 • hobbs, new mexico 88240

I hope this will aid you in making your decision on this case. If I can be of any further assistance, please call me.

Sincerely yours,

Joe T. Janica
NRE, Agents for
Ronadero Company, Inc.

Enclosures

cc: file
chrono
B. Hanagan
O. Lopez

July 18, 1984

Hinkle, Cox, Eaton, Coffield & Hensley
P. O. Box 2068
Santa Fe, New Mexico 87504-2068

Attention: Mr. Owen M. Lopez

RE: Ronadero Company, Inc.
Rob Clay State #1
R002-001-001

Dear Mr. Lopez:

Attached please find a copy of a computer printout stating where the gas lift valves will be installed in the tubing of the Rob Clay State #1.

Also attached are copies of letters received from three offset operators stating non-opposition to our proposed commingling of the Penn and Devonian formations.

I will be talking with you in a day or so.

Sincerely yours,

Joe T. Janica
Natural Resources Engineering, Inc.
Agents for Ronadero Company, Inc.

Enclosures

cc: file
chrono
B. Hanagan

THE FOLLOWING RESULTS WERE OBTAINED USING A CAMCO PROGRAM FOR THE DIGITAL COMPUTER.

********** INPUT FOR PRODUCTION PRESSURE OPERATED CONT. FLOW DESIGN **********

COMPANY :NATURAL RES. ENG. FIELD: ROB CLAY WELL # 1 DATE : 15 JUN 84

CAMCO TYPE JR-20 VALVES TO BE USED .IF PRESSURE CHARGED, THEN SET AT 60 DEG. F. IN TESTER.

WELL DATA:

DEPTH OF UPPER PACKER.....	10860 FEET	TOTAL DEPTH.....	11210 FEET
TUBING.....	2.441 INCH		
AVAILABLE GAS INJECTION VOLUME.....	1000 MCFD	SPECIFIC GRAVITY OF OIL.....	.802
DESIRED TOTAL LIQUID DAILY PROD.RATE...	250 BLPD	SPECIFIC GRAVITY OF WATER.....	1.08
UNLOADING WELLHEAD PRESSURE.....	50 PSIG	SPECIFIC GRAVITY OF GAS.....	.7215
FLOWING WELLHEAD PRESSURE.....	50 PSIG	WATER FRACTION.....	.1
KICK-OFF INJECTION PRESSURE.....	1000 PSIG	VALVE BELLOWS AREA.....	.77 SQR INCH
OPERATING INJECTION PRESSURE.....	850 PSIG	MIN.PORT SIZE AVAILABLE OF VALVES.....	.125 INCH
STATIC FLUID LEVEL.....	0 FEET	MAX.PORT SIZE AVAILABLE OF VALVES.....	.25 INCH
STATIC GRADIENT OF LOAD FLUID.....	.465 PSI/FT	INCREMENTAL CHANGE OF VALVE.....	.0625 INCH
BOTTOM HOLE TEMP.AT TOTAL DEPTH.....	190 DEG.F	DESIRED PRESSURE DROP ACROSS VALVES....	50 PSIG
FLOWING WELLHEAD TEMPERATURE.....	85 DEG.F	TEMP.OF INJECTION GAS @ SURFACE.....	80 DEG.F
STATIC BOTTOM HOLE PRESS.....	0 PSIG	FORMATION G L R	0

VALVES ARE NITROGEN PRESSURE CHARGED. BOTTOM VALVE IS INJECTION PRESSURE OPERATED.

CALCULATIONS ARE FOR PRODUCTION PRESSURE OPERATED TUBING FLOW WITH AN UNKNOWN PI.
FLOWING GRADIENTS ARE BASED ON POETTMANN & CARPENTER CORRELATIONS.

********** OUTPUT **********

VALVE #	VALVE DEPTH	P N	PRESS @ L	P O @ L	TEMP	REQ GLR	PORT SIZE	GAS REQ	GAS PASS	T.R.O.	SURFACE CLOSING	P ST/ P BT
1	2043	438	909	438	104	148	.1250	37	285	415	387	446
2	3006	527	936	527	113	240	.1250	60	290	488	448	534
3	3829	603	960	603	121	348	.1250	87	291	548	499	609
4	4532	668	980	668	127	472	.1250	118	287	598	543	673
5	5133	723	997	723	133	612	.1250	153	280	640	580	728
6	5646	770	1012	770	138	773	.1250	193	271	675	612	775
7	6084	811	1024	811	142	982	.1250	245	261	705	640	814
8	6459	845	1035	845	145	1303	.1875	326	566	748	667	853
9	6779	875	1044	875	148	1600	.1875	400	544	769	687	881

* BOTTOM VALVE IS INJECTION PRESSURE OPERATED.

natural resources engineering inc.

RE: Ronadero Company, Inc.
Rob Clay State #1
SE 1/4 of NW/14
1980' FWL, 1650' FNL
Sec. 23, T-12-S, R-32-E

Mobil Producing does not oppose Ronadero Company, Inc.'s proposed dual completion and downhole commingling of the Pennsylvanian and Devonian formations on the Rob Clay State #1.

MOBIL PRODUCING TX & NM INC.

J A Morris

[redacted] Turrentine
[redacted]

7/10/84
Date

phone (505) 397-6319 • 201 e. sanger • p. o. box 2188 • hobbs, new mexico 88240

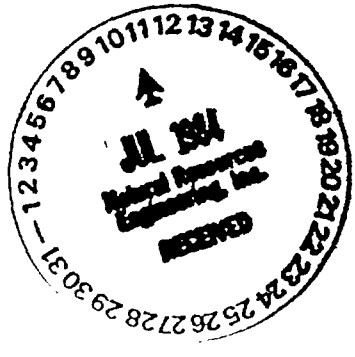
natural resources engineering inc.

RE: Ronadero Company, Inc.
Rob Clay State #1
SE 1/4 of NW/14
1980' FWL, 1650' FNL
Sec. 23, T-12-S, R-32-E

Wagner & Brown does not oppose Ronadero Company, Inc.'s proposed dual completion and downhole commingling of the Pennsylvanian and Devonian formations on the Rob Clay State #1.

Ed Lilley
Wagner & Brown

7-9-84
Date



phone (505) 397-6319 • 201 e. sanger • p. o. box 2188 • hobbs, new mexico 88240

natural resources engineering inc.

RE: Ronadero Company, Inc.
Rob Clay State #1
SE 1/4 of NW/14
1980' FWL, 1650' FNL
Sec. 23, T-12-S, R-32-E

Texas American Oil does not oppose Ronadero Company, Inc.'s proposed dual completion and downhole commingling of the Pennsylvanian and Devonian formations on the Rob Clay State #1.

Fred H. Wetendorf, Jr.
Vice President of Land & Exploration
Texas American Oil

7-13-84
Date