

STATE OF NEW MEXICO  
OFFICE OF STATE GEOLOGIST  
SANTA FE, NEW MEXICO

June 26, 1947

The Artesia Advocate  
Artesia, New Mexico

RE: Cases 103,104,106,107 and 108 -  
Notice For Publication.

Gentlemen:

Please publish the enclosed notice once, immediately.  
Please proof-read the notice carefully and send a copy of the  
paper carrying such notice.

UPON COMPLETION OF THE PUBLICATION, PLEASE SEND PUBLISHER'S  
AFFIDAVIT.

For payment please submit statement in duplicate, accompanied  
by voucher executed in duplicate. The necessary blanks are en-  
closed.

Very truly yours,

GEORGE A. GRAHAM  
Attorney,  
Oil Conservation Commission

GAG:bsp

STATE OF NEW MEXICO  
OFFICE OF STATE GEOLOGIST  
SANTA FE, NEW MEXICO

June 25, 1947

Mr. Neil B. Watson  
Attorney At Law  
Artesia, New Mexico

RE: Case 107 - Petition of Barney  
Cockburn.

Dear Mr. Watson:

This is to advise you that Case 107 in which Barney Cockburn is petitioner has been set for 10:00 o'clock A.M. in the Coronado Room La Fonda Hotel at Santa Fe, New Mexico on the 15th day of July, 1947.

Very truly yours,

GEORGE A. GRAHAM  
Attorney,  
Oil Conservation Commission

GAG:bsp

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February 12, 1953

Re: Barney Cockburn Unit  
Agreement, Lea County,  
New Mexico, Lease B-2516

Carper Drilling Company, Inc.  
Carper Building  
Artesia, New Mexico

Gentlemen:

Reference is made to the above captioned Unit Agreement approved by this office on September 19, 1947 as per application for unitization submitted by Barney Cockburn, Inc., Artesia, New Mexico on June 20, 1947.

Our records reveal that you purchased Lease B-2516 from the Barney Cockburn Company on July 22, 1952. Since you are the sole owner of all acreage in the Barney Cockburn Unit Agreement consisting of the SW/4 of Section 29, Township 17 South, Range 33 East, and we were never notified of a transfer or dissolution was ever consummated by you and Barney Cockburn, Inc., we are requesting your advice as to the present status of this Unit Area.

An early reply will be appreciated.

Very truly yours,

E. S. WILKER  
Commissioner of Public Lands

cc: Barney Cockburn, Inc.  
Artesia, New Mexico (1)  
U. S. Geological Survey  
Roswell, New Mexico (3)  
Oil Conservation Commission ✓  
Santa Fe, New Mexico (1)

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ILLEGIBLE

October 23, 1947

Mr. Neil B. Watson  
Attorney At Law  
Artesia, New Mexico

RE: Case No. 107 - Petition of Barney  
Cockburn, Inc. for an unorthodox  
well location.

Dear Mr. Watson:

Inclosed please find two copies of Order No. 727 relating to  
the above caption case, and copy of "Certificate of Approval"  
from the Commissioner of Public Lands.

Very truly yours,

GEORGE A. GRAHAM  
Attorney  
Oil Conservation Commission

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NEIL B. WATSON  
ATTORNEY AT LAW  
ARTESIA, NEW MEXICO

June 20, 1947

Oil Conservation Commission,  
Santa Fe, New Mexico.

Gentlemen:

I am enclosing Petition of Barney Cockburn for Unorthodox Location on State Lease B-2516 in connection with Application made to the State Land Office for a unit operation on the 160 acres described herein.

I received the memorandum made by Mr. Carl Livingston, for which I thank you, and I have also gone over the matter with Mr. Shugart in connection with his conference with Mr. Dick Spurrier and trust that the Petition, with the attached Application, meets your requirements.

Yours very truly,

  
Neil B. Watson.

NBW:lve

Dear Dick:

Please advise as soon as possible if we can get this up for hearing at the July session of the commission.

NBW!

**NEIL B. WATSON**  
ATTORNEY AT LAW  
ARTESIA, NEW MEXICO

July 16, 1947

Honorable John E. Miles  
Commissioner of Public Lands  
State Land Office  
Santa Fe, New Mexico


Dear Governor Miles:


Re: Application of Barney Cockburn for unit  
operation on State Lease B-2516

Confirming the statement and request made by my attorney at the hearing on the above application, I advise that lease B-2516 as to the SW $\frac{1}{4}$  of Section 29, Township 17 South, Range 33 East, N.E.P.M., has been assigned by me to Barney Cockburn, Inc. (No Stockholders' Liability) a corporation, by assignment approved by you under date of June 18, 1947.

It is, therefore, requested that the application for unit operation be amended and that upon approval of said application Barney Cockburn, Inc. (No Stockholders' Liability) a corporation, be designated as the unit operator.

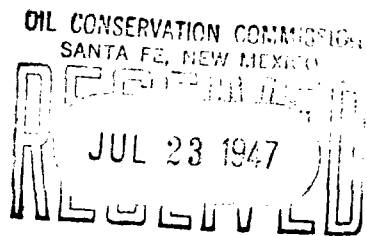
The undersigned Barney Cockburn is president and general manager of Barney Cockburn, Inc. (No Stockholders' Liability) a corporation.

  
Petitioner

  
Attorney for Petitioner

NEIL B. WATSON  
ATTORNEY AT LAW  
ARTESIA, NEW MEXICO

July 16, 1947



*Geo. Graham*

Oil Conservation Commission  
Santa Fe, New Mexico

Gentlemen:

The undersigned Barney Cockburn, who is the petitioner in an application for unorthodox state well location on State Lease B-2516, hereby advises that said lease has been transferred to Barney Cockburn, Inc. (No Stockholders' Liability) a corporation, by assignment No. 5 approved by the Commissioner of Public Lands June 18, 1947.

The undersigned petitioner hereby joins in the request made by the attorney for petitioner to amend the petition herein to request that the order permitting unorthodox well location be made in favor of Barney Cockburn, Inc. (No Stockholders' Liability), a corporation, box 115, Artesia, New Mexico.

The undersigned Barney Cockburn is president and general manager of Barney Cockburn, Inc. (No Stockholders' Liability) a corporation.

*Neil Watson*  
Attorney for Petitioner

*Barney Cockburn*  
Petitioner

#107

*Moreland J. Hartwell*

CONSULTING GEOLOGIST

P. O. BOX 593

MIDLAND, TEXAS

July 14, 1947

Mr. Barney Cockburn  
Carper Building  
Artesia, New Mexico

Dear Mr. Cockburn:

During our various discussions regarding your properties in the Maljamar Area of Lea County, New Mexico, you have requested that consideration be given as to the best efforts of producing these leases to secure the maximum production with the greatest conservation of gas or reservoir energy.

I have had considerable opportunity to check the conditions in the Maljamar Field during a number of years and I believe that a program which would call for the drilling of a fifth well in the center of each 160-acre tract that has been fully developed by one well per 40-acre unit would give the desired results.

Even better results could be obtained by the drilling of a complete five-spot pattern with a well at the center of each of the 160-acre unit boundaries as well as the middle of the 160-acre unit. However, the varying lease operators and interest holders makes such a project so difficult to promote that it is not feasible.

It is my belief that the well in the center of each 160-acre tract, as mentioned above, will greatly increase your ultimate recoveries. It is highly improbable that one well per forty acres will drain that forty acres so that the fifth well may be expected to recover



at least 80 percent as much oil as the other wells. Since it is the desire of every efficient operator to recover the maximum amount of oil from a lease, this is greatly to be recommended.

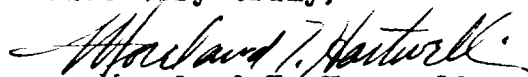
The Maljamar field is a reservoir with a number of producing horizons with varying permeability as well as the character of the horizon itself. Such a condition is not conducive to satisfactory re-pressuring by simple injection of gas into the entire producing section as channeling usually occurs. Any other method involves the use of packers, perforating of casing, etc. This latter would be found to be extremely expensive and be dependent upon too many physical conditions.

The most economical method would then be that recommended in this letter.

In addition to the above factors, a fifth well should give greater recovery with less loss of reservoir energy. The additional well should enable the operator to produce his allowable without flowing each well to such a great degree.

In accordance with the above, it is my opinion that a well should be drilled in the center of the SW/4 of Section 29, the NW/4 of Section 30, both in Township 17 South, Range 33 East; the NE/4 and the NW/4 of Section 25, Township 17 South, Range 32 East, Lea County, New Mexico.

Yours very truly,

  
Moreland T. Hartwell

MTH:e

CERTIFICATE OF APPROVAL

STATE OF NEW MEXICO

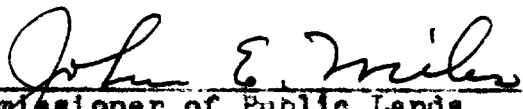
The undersigned, having this day examined the application of BARNEY COCKBURN, INC. for unit operation of State Oil and Gas Lease No. B-2516, herein termed the COCKBURN UNIT covering the SW $\frac{1}{4}$  of Section 29, Township 17 South, Range 33 East, New Mexico, N. M. P. M. all of which lands are state lands and under the same institutional ownership and in the Maljamar Pool, Lea County, New Mexico; and

WHEREAS, upon examination thereof, the Commissioner finds:

- a. That such an agreement will tend to promote the conservation of oil and gas and the better utilization of reservoir energy in said pool;
- b. That under the operations proposed, the State will receive its fair share of the recoverable oil or gas in place under the lands affected;
- c. That the agreement is in other respects to the best interests to the State;
- d. That the agreement provides for the allocation of production not in excess of the unit allowable for the Maljamar Pool.

NOW, THEREFORE, by virtue of the authority vested in me by Chapter 88 of the New Mexico Session Laws of 1943, I, the undersigned Commissioner of Public Lands of the State of New Mexico, for the purpose of more properly conserving the oil and gas resources of this State, do hereby consent to and approve the said COCKBURN UNIT application and agreement as to the state lands included therein, subject, however, to all applicable provisions of the legislative act aforesaid.

EXECUTED this 19th day of September, 1947, at Santa Fe, New Mexico.

  
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Commissioner of Public Lands  
of the State of New Mexico.

Memorandum Concerning 5-Spotting in the Center of 160 Acre Tracts  
By: Carl B. Livingston

H. W. Snowden, Ltd. is the sole owner of the working interests of certain 160 acre tracts, all under U. S. Government leases in the Square Lake pool. Each 160 acre tract here to be considered contains one well in each 40 acre tract of each 160 acre tract, or in case any 160 acre tract does not have one well to each 40 acre tract therein such 160 acre tract will have one well in each 40 acres -- making four wells to each 160 acre tract, each well located in the center of each 40 acre tract. Considering tightness of the producing formation, it is believed that the four wells described in each 160 acre tract are insufficient to make a substantially complete recovery in this.

The area in the center of each 160 acre tract tends to be incompletely drained, thereby leaving substantial amounts of oil unrecovered by the four wells in the center of each 40 of such 160 acre tract. It is believed that a fifth well in the center, or approximately so, of each such 160 acre tract would make a substantial increase in recovery of oil that would otherwise be lost, thereby effecting a saving in the prevention of underground waste.

The foregoing encounters the following obstacles:

1. The center location of 160 is in violation of the established spacing practice, but it is understood, off the record, that such spacing will be agreeable to the Oil and Gas Supervisor, subject, of course, to approval of the Secretary of the Interior.
2. The fifth well complicates the Oil Conservation Commission's well-established system of proration to each 40 acre unit, regardless of the number of wells upon such unit. The location of the fifth well in the center of the 160 would only in theory be in the exact center thereof, so as to apportion the production of the fifth well to each 40 acre unit.

**Possible Solution:**

Enlarge the proration unit to a unit of 160 acres, whose allocation could not, of course, be greater than four times the top unit allowable of the standard 40 acre proration unit. Therefore, the allocation could be to the 160 acre tract instead of to each 40 acre tract within such 160 acre tract. Most of the wells in each 160 acre tract here under consideration are marginal wells, some of which produce as low as five to seven barrels. Now should the fifth well in the center of the 160 acre tract prove to be of such capacity that for a time it could make up the difference between the sum of the four marginal wells and the proposed top unit allowable for the 160 acre tract (4 times a standard 40 acre top unit allowable), consideration should be given as to whether it would be wise to permit such high production (because of possible tendency to increase gas-oil ratio, or for other reasons). It might, therefore, be desirable for the reason named to limit the production from such fifth well as to prevent physical injury, however, an increased production is permitted for deep pools and it would seem that a stepped-up production from one well in the center of a 160 for the Square Lake pool would be no more likely to cause injury than for a stepped-up production now granted to deep pools.

The foregoing statement of facts as to a single working interest ownership and a single land ownership is of the simplest nature, and would, consequently, not seem to involve the necessity of a unitization agreement, since the one working interest ownership has no one else with whom to join in a unitization agreement. For proration reasons, obviously it would be necessary for approval of the Oil Conservation Commission by order upon petition and hearing before the Commission, as provided by law, and it would also be necessary for approval by the Secretary of the Interior, which approval could be in the nature of a proposal by the working interest, setting out the pertinent facts. As already indicated, the proposal to the Commission for approval would be upon petition, reciting the pertinent facts and the salient conservation reasons, for a hearing and for an appropriate order.

Anyone or all of such enlarged proration units may prove to be undesirable after trial, and the working interest may wish to return to the orthodox 40 acre proration unit. In the proposal to the Secretary of the Interior, provision could be made for dissolution of any one or more units upon approval by the Secretary and notification to the Commission. The order approving the enlarged proration unit could be limited to endure until the first day of the proration month next succeeding such notification to the Commission.

The dissolution of the order and the proposal brings up the disposition of the 5-spot well. Such well should not be produced as an oil well, but could be either plugged or used as an in-put well.

What is actually desired on the part of the working interest is permission to 5-spot in the center of the 160, but in order to do so spacing and proration unit involvements have to be coped with. The burden is on the working interest to overcome the long-established spacing and proration unit rule in New Mexico, and both proposal and petition should be clearly and well worked out for presentation, then the working interest or the petitioner would have to take his chances upon any opposition that might develop at the hearing, a matter which the law leaves open to any interested party to object or be otherwise heard at any hearing for the promulgation of an order.

It is reasonable to believe that similar cases will arise, but not with the simple one-man working interest ownership and the single land ownership. Where the working interest ownership and the land ownership within a 160 acre unit are varied, then doubtless the matter should take the form of a unitisation agreement, but could not be altogether on the plan of the Picacho unit agreement, since in that agreement the spacing and proration units remain orthodox.