BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Wednesday, October 31, 1973

IN THE MATTER OF:	
Application of Coquina Oil Corporation for an unorthodox oil well location, Lea County, New Mexico. 1325 feet from the South line and 660 feet from the East line of Section 27, Township 14 South, Range 34 East, High Plains-Pennsylvanian Pool, Lea County, New Mexico.	Case No. 5089

BEFORE: RICHARD L. STAMETS
Examiner

TRANSCRIPT OF EXAMINER HEARING

MR. STAMETS: Call next Case 5086.

MR. DERRYBERRY: Case 5086, Application of Skelly Oil Company for a Unit Agreement, Lea County, New Mexico.

MR. STAMETS: At this point, I would like to state that Case 5088, the Amini Case, will be heard after the coffee break this morning. Call for appearances in Case 5086.

MR. BLODGETT: C. E. Blodgett, Tulsa, representing Skelly Oil Company, and I believe you have heretofore been given an Entry of Appearance, copy of it, from Louis White, L. C. White.

MR. STAMETS: Mr. Blodgett, I notice Case 5087 concerns the same area, would you like those consolidated?

MR. BLODGETT: Yes, we would like to have those consolidated for purposes of hearing.

MR. STAMETS: Cases 5086 and 5087 will be consolidated for purposes of testimony. Are there any other appearances in these cases?

(No response.)

MR. BLODGETT: We have two witnesses.

MR. STAMETS: They may stand and be sworn, please.

FRANK D. McATEE,

a witness, having been first duly sworn according to law, upon

his oath testified as follows:

DIRECT EXAMINATION

BY MR. BLODGETT:

MR. BLODGETT: Before we get into the formal part of this hearing, I would like to note that in Application 5087 we had listed 84 wells as injection wells, and we wanted to add one, delete one, in our listing.

MR. STAMETS: Is that in the form of an exhibit or just an Application?

MR. BLODGETT: It's in the Application and it will go the same way. I've made the ink notation on one of the exhibits that I will hand to you, but we will add it--

MR. STAMETS: You do have an exhibit that reflects this?

MR. BLODGETT: Yes.

MR. STAMETS: We will just take it up at that time.

Q (By Mr. Blodgett) All right. Will you please state your name, your occupation, and by whom you are employed?

A Frank D. McAtee, employed by Skelly Oil Company in its West Central District Office at Midland, Texas. I'm a Senior Production Engineer for Skelly.

Q Mr. McAtee, have you testified before this Commission a previous time and your qualifications been accepted?

A Yes, they have.

Q What are your duties and responsibilities of your

position with Skelly Oil Company?

A My principal duties are handle unitization work for Skelly Oil Company in Texas and in New Mexico. I act as the expeditor where Skelly is going to operate the unit and I act as the company's representative in all instances where other companies will operate the units.

Q Are you familiar with the Unit Agreement which is proposed for the Langlie-Mattix Unit Area, Meyers Langlie-Mattix Unit?

A Yes, I am.

Q Was it prepared by you or under your direction and supervision?

A Yes, sir.

Q Should the Commission approve that Unit Agreement, what kind of operation will be conducted with respect to the Langlie-Mattix formation?

A Initially, it would be a water injection project for additional recovery of oil in the Langlie-Mattix Reservoir.

Q Now, in your position with Skelly, are you familiar with that agreement that is being proposed in the unitization project?

A Yes, sir, I am.

Q Was this Unit Agreement prepared specifically for this Meyers Langlie-Mattix Unit?

A Yes.

Q I hand you a copy or call to your attention an instrument that has been marked Exhibit Number 1, and I ask you what that is?

A Exhibit Number 1 is the Unit Agreement for the Meyers Langlie-Mattix Unit, an instrument to which we've previously made reference.

Q Did all of the Lessees who have committed their interest to the plan do so by ratifying this Unit Agreement?

A Yes, sir.

Q I call your attention to what has been marked as Exhibit Number 2 and ask you what that is?

A Exhibit Number 2 is a map showing each individual tract within the area of the proposed unit, along with the schedule showing the percent of working interest and the percent of royalty interest in each tract that's been assigned and committed to this unit.

Q That percentage is outlined what, on the right-hand side of that exhibit?

A That's right.

Q Was this exhibit prepared by you or under your direction and supervision?

A Yes, it was.

Q What percentage of the Lessees of record on the surface acreage basis have signed or ratified the Unit Agreement?

A We've secured signature of 87 one-half percent of the Lessee ownership of the surface acreage and this would represent 92 percent of the unit participation as of this time.

Q What percent of the royalty owners have signed this or ratified this Unit Agreement?

A We have both Federal, State, and additional fee land in the unit; 45 percent are Federal lands, 16 percent are State lands, and the agencies responsible for those lands have extended preliminary approval subject to final approval after approval of the unit by this Commission. The remaining 28 percent of acreage is owned in fee and we have secured approximately 88 percent of the signatures for the fee royalty.

Q Does that Unit Agreement designate the area that is covered thereby?

A Yes, the Unit Agreement has an exhibit marked Exhibit A, which is a plat showing the unit boundary and the area within the boundary. Exhibit B in the Unit Agreement describes each of the separately owned tracts in the unit area and the entire area outlined by the proposed unit boundary comprises 9,923.68 acres.

Q How many separately-owned tracts are covered by the Unit Agreement?

A There are 82, and each of these tracts are shown and

numbered on Exhibits A and B of the Unit Agreement.

Q Will all of these tracts that are included in Exhibit A and B be qualified for inclusion on the effective date of the unit?

A No, they will not.

Q Will this adversely affect the unit operations?

A No, we don't anticipate that it would do so. In those areas where nonjoinder could have an adverse effect on our operations, we have secured indication from each of the working interest owners there that they are willing and would like to execute lease line injection agreements and compensating objections.

Q Does the unit provide for such agreement?

A Yes, that provision is made in Section 40 of the Unit Agreement.

Q How will the operations of the unit be managed?

A The actual operations in the unit area will be carried on by the unit operator who will be under the supervision of the working interest owners in the unit at all times.

Q Who has been designated in the Unit Agreement as the initial unit operator?

A Skelly Oil Company.

Q What authority will the working interest owners have over the unit operator?

A The unit operator at all times will be acting under the supervision and direction and subject to the approval of the working interest owners.

Q Does the Unit Agreement establish a method for allocations of unit production among and to the separately-owned tracts in the unit?

A Yes, the method of allocating unitized substances is described in detail in Section 16 of the Unit Agreement.

Q Are the tract participation percentages shown in the Unit Agreement?

A Percentages of tract participation are expressed in Exhibit C to the Unit Agreement and this exhibit will be revised to account for those tracts that may not qualify on the effective date. We will revise those participation factors using the same factors and the same formula that was used to arrive at the present Exhibit C.

Q How will the unit production allocated to the separately-owned tract be distributed to the individual owners of the royalty and the Lessees in that tract?

A Unit participation allocated in any separately-owned tract will be distributed among the various interest owners in that tract on the same basis as if the allocated production were actually produced from that tract.

Q Who pays the cost and expenses of the unit?
A All unit costs and expenses will be borne solely by the working interest owners.
Q Under the terms of the Unit Agreement, is the owner of the normal royalty interest obligated to pay any part of the unit or expenses?
A No.
Q When will the Unit Agreement become effective if the Commission issues an order approving it?
A On the first day of the month next following the date when final approval has been secured from the Commissioner of Public Lands and from the United States Geological Survey.
Q Does the Unit Agreement provide for a method by which the unit shall or may be dissolved and its affairs wound up?
A Yes, provision is made for that in Section 24 of the Unit Agreement.
Q Are you familiar with the formula for allocating unit production for the separately-owned tracts within the unit?
A Yes, I am.
Q Would you explain that formula, please?
A Phase I Tract Participation percentages represent 100 percent of the ratio which is oil and gas income attributed to each tract during the year 1968, bears to

the oil and gas income attributed to all the tracts during the year 1968. However, the term of Phase I has not expired and Phase II will be effective on the effective date of the unit. Phase II Tract Participation percentages represent the sum of 85 percent of the ratio which the ultimate primary oil volume attributed to all tracts, or to each tract, bears to the total for all tracts, plus 10 percent of the ratio which accumulative oil production, attributed to each tract as of July 1, 1966, bears for the accumulative oil production to all tracts as of July 1, 1966, plus five percent of the ratio which tract acreage bears to the acreage of all the tracts in the unit.

Q Does that formula which you have just explained give weight and take into account, either directly or indirectly, all the factors that should be considered?

A Yes, the formula gives consideration and weight to the contribution of each tract to the unit in relation to the contribution made by all other tracts in the unit.

Q And will the formula that you have explained apportion and allocate to each separately-owned tract within the unit that tract's fair, equitable, and reasonable share of the unit production or the benefits from the unit production?

A Yes, in my opinion, the formula will allocate to each

tract its fair, reasonable, and equitable share of the unit participation.

Q Mr. McAtee, in your opinion, will this Unit Agreement protect the correlative rights of all parties concerned, and the operators, and the operations, in accordance therewith, increase the recovery of the oil from the properties covered?

A In my opinion, it will.

MR. BLODGETT: We move the admission of Exhibits 1 and 2, and we pass the witness.

MR. STAMETS: Without objection, these exhibits will be admitted. Are there any questions of this witness?

(No response.)

MR. STAMETS: He may be excused.

CHARLES W. DEER,

a witness, having first been duly sworn according to law, upon his oath testified as follows:

MR. BLODGETT: We also have an Entry of Appearance by Mr. White in this case as local counsel. I believe you have the original in your files.

DIRECT EXAMINATION

BY MR. BLODGETT:

Q Would you please state your name, your occupation, by whom you are employed?

A My name is Charles Deer and I'm employed by Skelly Oil Company as an Advance Petroleum Engineer in their West Central District.

Q Have you heretofore testified before this Commission and your qualifications been accepted?

A Yes, sir.

Q I call your attention to what has been marked Exhibit Number 3 and ask you what that is and what it shows.

A Exhibit 3 is a map showing the proposed unit area. It shows the Lessees, the location of the wells included in the project, location of the proposed injection wells, and all other wells within a radius of two miles from the proposed injection wells. This exhibit also shows the formation from which these wells are producing or have produced. The exhibit was presented with the Application for Permit to inject into the 84 wells.

Skelly proposes to inject into the Langlie-Mattix formation on a full-scale basis, to stimulate recovery of secondary reserves.

New Mexico Oil Conservation Commission nomenclature designates the limits of the Langlie-Mattix pool as those formations between the lower 100 feet of the Seven Rivers formation and the base of the Queen formation, and this is our primary proposed unitized interval. The proposed injection pattern is primarily

an 80-acre five-spot which has been modified along the unit boundaries and the areas of decreased development.

I might mention that there are 36 undrilled locations within the proposed unit. The proposed pattern will require converting 84 wells into injection wells. The injection rate anticipated is 27,300 barrels per day or an average of 325 barrels of water per injection well. Maximum well head pressures of approximately 2,000 pounds are anticipated.

You might also include on this exhibit the waterflood projects in the area which have already been approved by the Commission and are currently in operation. In the southern portion of your map, you might note the George Buckles Knight-Jamison waterflood which was started back in April of 1964, and also the Shell Oil Company black waterflood in the Langlie-Mattix waterflood unit. This was also started in 1964. In the northwestern part of your map is the Continental Oil Company's Langlie Lynn Queen Unit and this was initiated in August of this year. Also, the Samedan which is in the northern part of your map, the Samedan Langlie-Mattix, Penrose Queen San Andres Unit, and it was started in April of '73. Then, one other unit that borders the proposed unit is the Reserve Cooper Jal Unit, and this is the Jalmat Unit, and they are producing from

the Yates and Upper Seven Rivers formation.

Q Now, Mr. Deer, you mentioned there would be 84 injection wells, and you are familiar with the Application that Skelly filed in this case, are you not?

A Yes.

Q Now, is there any difference between the wells that were outlined in the Application and the 84 wells that are marked on this Exhibit Number 3?

A Yes, sir, there is three changes.

Q Would you outline those changes, please?

A Yes, the first one is the Continental Oil Company Strawn B Number 3, B-1 Number 3, excuse me. That should be included.

Q That's added?

A That is added.

MR. STAMETS: That's in Section 1 of 24,36?

THE WITNESS: Yes, sir.

A Then, the Skelly Oil Company J. W. Cooper lease, that should be the Number 1 Well instead of the Number 2 Well, and the unit on that is Unit K in the same section and township, range.

MR. STAMETS: Then Number 1-K is substituted for Number 2-K?

THE WITNESS: Yes.

A And then one well should be deleted, and that's the

Texas Pacific Oil Company Blinebry Federal-A Number 3, that's in Unit L of Section 29, Township 23 South, Range 37 East.

MR. STAMETS: The net result is you still have 84 wells scheduled for injection?

A Yes, sir.

Q Mr. Deer, I call your attention to what has been designated Exhibit Number 4. Would you outline what that is and shows?

A Yes, sir, Exhibit 4 is downhole diagramatic sketches of three typical proposed injection wells. The first sketch shows a typical injection well with an openhole completion. The second sketch is a typical injection well with a cased hole completion, and the third is a dually completed injection well with a Jalmat gas zone.

All three of these sketches show all the casing strings, diameters, setting depths, quantity of cement used, tops of cement, perforated or openhole intervals, the tubing strings including the diameters and setting depths, and also the type and location of the packer. These sketches were presented with the Application for the permit to inject.

Q Where will the injected fluid be confined?

A Injected fluid will be confined to the unitized interval. Injection will be down internally-lined tubing set on a

packer approximately 50 feet above the casing seat or uppermost perforation. Periodic injectivity surveys will be run to monitor injection and check for channels behind the pipe. The spacing between the tubing and casings in the completed wells will be filled with inhibited fluid. Any mechanical failure that we note downhole will be promptly repaired when it is detected.

Q I call your attention to Exhibit Number 5. Would you explain what that is, please?

A Exhibit 5 is well completion data for wells in the unit area, and shown in this tabulation are the operator, the current operator, the lease and well number, completion date, location, elevation, well total depth, casing data, and their diameter and weight and setting depth, volume of cement used, top of cement, whether it's calculated or whether it was actual measure, top of cement, present completion intervals, and the type of well proposed.

We list here 198 proposed unit wells, and out of these, 139 are completed openhole intervals, 55 are completed through perforations, four are completed with both perforations and openhole sections. We anticipate that 29 of these wells will be dually completed with the Jalmat gas zone and 11 of these will be injection wells.

Q I call your attention to what has been marked as Skelly's Exhibit Number 6. Would you explain what that is, please?

A Exhibit 6 is the primary performance graph for the unit area. This graph shows average monthly oil production from the unit area for the years 1967 through 1972, and also actual oil production by months for January through July 1973.

Development history of the Langlie-Mattix Zone within the unit area began on March 1, 1936, with a completion of Crown Centrals, which was formerly M & G Carter, M. A. Herrin Number 1. A total of 206 wells have been completed in the Langlie-Mattix Zone in the proposed unit area. R. W. Cal Number 2 was completed on March 9, 1966, and this was the last well drilled in the unit area.

Of the 206 wells completed in the Langlie-Mattix interval, 87 wells are currently producing, 81 wells are shut-in or temporarily abandoned, 29 wells are producing from the Jalmat Gas Zone, one well is servicing as an injection well, and eight wells have been plugged and abandoned. The monthly oil production rate for the unit area for July of 1973 was 4,423 barrels, and this is an average of 1.6 barrels of oil per day per producing well. Primary recovery in the unit area is considered to be approximately 100 percent complete, ultimate primary was established at 8,691,311 barrels of oil by the Engineering Subcommittee Study in February

of 1966. Cumulative production from the unit area to August 1, 1973, has been 8,732,391 barrels of oil, or 42,390 barrels per well.

Q You state, then, that this zone is in a state of depletion at this time, is that correct, as far as primary recovery is concerned?

A Yes, sir.

Q I call your attention to Exhibit 7, what does that show?

A Exhibit 7 is completion well data showing the completion data, initial current producing rates, and cumulative oil production to January 1, 1973, for all wells in the unit area. Current daily oil production from producing oil wells in the unit area ranges from zero to 6.5 with an average of 1.6 barrels of oil per day per well. This also shows the cumulative oil production to January 1 of 1973 to be 8,699,406 barrels.

Q I call your attention to what has been marked as Exhibit 8, and would you explain that, please?

A Exhibit 8 is available well logs on the proposed injection wells.

Q Have you made a tabulation of those wells?

A Yes, sir.

Q I call your attention to what has been marked Skelly's Exhibit Number 9. Would you tell us what those exhibits are?

A Yes, the Exhibit 9 is an analysis of produced water from the unit area from the water supply source. The water supply source is Skelly's Jal Water System, and this system is presently delivering produced water from the Seven Rivers Formation and Capitan Reef Formation to several units and projects in the immediate area. The Seven Rivers water is produced in association with oil production from wells located in Section 3 and the Capitan Water Reef is produced from supply wells located in Sections 4, 9, and 16, and all these wells are located in Township 23 South, Range 36 East. The Jal Water System facility is located approximately four miles west of the proposed unit area.

MR. BLODGETT: Mr. Examiner, we move the admission of Exhibits 3 through 8 and pass the witness.

MR. STAMETS: Without objections, these exhibits will be admitted.

CROSS-EXAMINATION

BY MR. STAMETS:

Q Mr. Deer, would it be possible for Skelly to furnish us with another listing of the proposed injection wells putting on there the unit name and the unit well number as well as the original name and number?

A Yes, sir.

Q Okay. If you would furnish that to us as soon after the

as possible, that would be very helpful. I believe you stated where the packers would be set. Did you say within 100 feet?

A 50 feet. That would be above the casing seat or the uppermost perforation.

Q Mr. Deer, if the Commission's District Supervisor was not satisfied with the completion of any of these particular wells as far as the casing and cementing goes, would Skelly have any objections to working with him to get the completion up to standards before starting injection?

A Yes, sir, we would certainly comply with what he requested.

Q As far as you know, they are all in good shape, as you have indicated here on your exhibits?

A Well, all we know is just what their completion intervals are and the cement that was used and this sort of stuff.

Q Okay. Turning to your Exhibit Number 4, the first page of that does show a completion in a well with an openhole interval. In this case, you would have 2 and 3/8-inch tubing internally coated, the annulus would be loaded, packer would be within 50 feet of casing shute?

A Yes, sir.

Q The second page of that shows with cased hole and this is completed essentially the same way except for casing

perforations and the annulus would be loaded in this hole as well?

A Yes, sir.

Q In the third instance, you show one that is dually completed. In this case, there would be no fluid in the annulus?

A No, sir. In this particular case, it would produce from the Jalmat Gas Zone through the casing tubing annulus, which has been practiced in that particular area.

Q And the leak would be detected in this case by finding water in your gas line?

A Yes, sir, the well loading up or something like that.

Q If that should happen, you would notify the District Office of the Commission?

A Yes, sir.

Q How many of these injectivity surveys do you anticipate that you will be running in a normal year?

A Well, initially, I'm sure that we will run injectivity profiles on every well that we convert to injection.

Q Would it be possible to furnish a copy of this to the District Office of the Commission?

A Yes, if they requested it.

Q They would be available?

A Yes, sir.

Q The maximum pressure you exhibit is 2,000.

A 2,000 pounds.

MR. STAMETS: Are there any other questions of this witness?

REDIRECT EXAMINATION

BY MR. BLODGETT:

Q Mr. Deer, in your opinion, will the proposed waterflood project prevent waste by enabling the recovery of additional oil that would otherwise not be recovered?

A Yes, sir.

Q Do you have any information or estimate of how much more oil would possibly be recovered by this waterflood project?

A The secondary oil reserves by waterflood of proposed Meyers Langlie-Mattix Unit have been estimated at 6.9 million barrels. These reserves assume that recoverable secondary oil will be close to 80 percent of the estimated primary recovery. Waterflood performance is estimated to yield a peak producing rate of 2,460 barrels of oil per day in three years after starting injection, and the life of the waterflood project is estimated to be 15 years.

MR. BLODGETT: I have no further questions.

MR. STAMETS: Are there any other questions of the witness?

(No response.)

MR. STAMETS: Take the case under advisement.

Is there anything further in this case?

(No response.)

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C E R T I F I C A T E

I, JOHN DE LA ROSA, a Court Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

John De La Rosa
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5089 heard by me on October 31, 1973.

Richard L. Stamets, Examiner
New Mexico Oil Conservation Commission

I N D E X

E X H I B I T S