



APPEARANCES (Continued):

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MR. STAMETS: Case 5464.

MR. CARR: Case 5464. Application of Petro-Lewis Corporation for a unit agreement, Sandoval County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin of Kellahin and Fox, appearing for the Applicant. I would suggest that Case 5464 be consolidated for the purposes of the record with Case 5465 which relates to the same matter.

MR. STAMETS: Is there any objection to the consolidation of these cases?

MR. HUNKER: No objection.

MR. STAMETS: Please call Case 5465, and these two cases will be consolidated for purposes of testimony.

MR. CARR: Case 5465. Application of Petro-Lewis Corporation for a pressure maintenance project, Sandoval County, New Mexico.

MR. HUNKER: George Hunker, Hunker, Fedric and Higginbotham, Roswell, New Mexico, appearing on behalf of John K. Reimer and R. E. McKenzie, Jr.

MR. STAMETS: Are there any other appearances in this case? You may proceed, Mr. Kellahin.

(Witnesses sworn.)

JOHN SOMERS

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A John Somers.

Q By whom are you employed and in what position, Mr. Somers?

A Petro-Lewis Corporation. I am the Division Production Superintendent.

Q For the Examiner, would you spell your last name, please?

A S-O-M-E-R-S.

Q Have you ever testified before the Oil Conservation Commission or one of its Examiners and made your qualifications a matter of record?

A Yes, I have.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

BY MR. KELLAHIN:

Q Mr. Somers, are you familiar with the Applications

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of Petro-Lewis Corporation in Cases 5464 and 5465?

A Yes, I am.

Q Briefly, what is proposed by the Applicant in these two cases?

A Acceptance of the unit agreement to cover the Media Entrada Unit for installation of a pressure maintenance project, and also approval of our proposed plan of injection.

Q Now, the form of unit agreement, is that the instrument that has been marked as Applicant's Exhibit No. 1 in the consolidated cases?

A Yes, it is.

Q Is that the unit agreement in the form that has heretofore been approved by the United States Geological Survey and this Commission?

A Yes, it is.

Q Has it been submitted to the Department of Interior for approval?

A Yes, it has.

Q What is the status of it at the present time?

A It has been given preliminary approval by the Roswell Office of the U.S.G.S. and sent on to their Denver Office for preliminary approval, and we have had indication from the Denver Office that it will receive preliminary

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approval designation this week.

Q Now, what acreage does the unit agreement cover?

A It covers 580 acres of the four drilling proration units which comprise the Media Entrada Pool, which would be the southwest quarter of Section 14, the south half of the northwest quarter of Section 14, the southeast quarter of Section 15 and south half of the northeast quarter of Section 15, the north half of the northeast quarter of the northeast quarter of Section 22 and the north half of the northwest quarter of Section 23, all lying in Township 19 North, Range 3 West.

Q Is all of this acreage Federal acreage?

A Yes, it is.

Q There is no State or fee acreage?

A No.

Q In your opinion, does the unit effectively cover the producing formation of the Media Entrada Pool?

A Yes, it does.

Q As it has been defined by the Commission?

A Yes.

Q At the present time this pool is being operated on 160-acre spacing and proration units, is it not?

A That's correct.

Q What happens to this in terms of the unit agreement?

A At the request of the U.S.G.S., those communiti-  
zation agreements will be dissolved when the unit becomes  
effective, so it is basically on a participation --  
participation is basically on a tract basis, with the tracts  
comprised of the Federal leases within the unit boundary.

Q That is at the direction of the U.S.G.S.?

A Yes.

Q Is that the provision you made?

A Yes.

Q What is the participation factor or formula  
based on?

A The formula is based on 50-percent floodable  
acre-feet and 25-percent cumulative production to May 31st,  
1974, and 25-percent production prior to the installation  
of five-volume submersible pumping equipment.

Q In your opinion, would that fairly allocate the  
production from the unit among the various interest owners?

A Yes, it would.

Q What percentage of the working-interest owners  
have agreed with this?

A 100 percent.

Q And the royalty interest is entirely federal,

is that correct?

A That is correct.

Q The overriding royalties, are there a number of overriding royalties?

A Yes, there are. The overrides average slightly over 16-percent in these leases and 50-percent of the overrides are in agreement with unitization.

Q Subsequent to the preparation of the form of unit agreement, has the Applicant acquired or the associates acquired any of the royalty, overriding royalty interest?

A Yes, we have.

Q What percentage was that?

A It is the percentage which was held by Odds-On (sic) Oil Company, and it varies, as you can see on Exhibit B from 2.7, all the way up to 12.6 percent, so it varies from tract to tract.

Q Now, referring to what has been marked as Applicant's Exhibit No. 2, would you identify that exhibit?

A Exhibit No. 2 is a plat showing the proposed unit area, the injection wells with red arrows designating the injection wells, the proposed unit boundary, and then a border of two miles around that unit boundary where we have posted all of the wells which have been drilled in

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that area and we have listed all of the lessees within the area. It also shows the producing formation which -- each producing well -- either it has produced from or is presently producing from. In other words, in parenthesis underneath these wells, you will see a JE, which would be Jurassic-Entrada, or a KG, which would be Cretaceous-Gallup or a KM which would be Cretaceous-Mesa Verde. So, basically, it shows that there are three productive horizons in this area. It also shows the ownership and the wells which we intend to use as injection wells, as well as all other producing wells or former producing wells in the area.

Q Is there an error on the Exhibit in regard to the 8 Federal Media?

A There was, but I corrected it. 8 Federal Media, in some of these wells have been shown as abandoned producers. They are actually productive wells. 8 Federal Media is producing from the Menefee and 7 Federal Media is producing from the Gallup.

Q What is the unitized horizon?

A The Entrada, which is the deeper horizon.

Q So, the other wells are not included in the unit?

A No, they aren't.

Q Now, referring to Exhibits Nos. 3, 4, and 5,

would you identify those exhibits?

A Exhibits 3, 4 and 5 are copies of the electric and porosity logs that have been run on each of the wells which are to be used as injection wells, and these are the Federal Media No. 4, Fluid Power Pump No. 4, and Fluid Power Pump No. 2. In addition to the logs themselves, the top of the Entrada has been marked on each of these logs because it is very difficult, for example, on the induction electric log because of the low resistivity to pick the top of the Entrada. It is relatively easy, however, on the density or sonic logs to determine the top.

Q Now, as I understand, you propose to inject fluid into those three wells?

A That is correct.

Q What fluid would you inject?

A We would be injecting produced Entrada water as well as the water which we intend to get back out of the Gallup. Up until this time and up until the unit is effective, we have been using the Gallup formation for disposal of produced water, and it has pressured this formation up. We intend to relieve the pressure on the Gallup and reinject that water which has been disposed in the Gallup back into the Entrada.

Q Referring to what has been marked as Exhibit No.5, would you identify that exhibit?

A That is an exhibit which shows the diagram of each of the wells to be used for injection, the casing, tubing and cementing information on those wells. It also shows that the base of each of those wells, the zone that we are going to be injecting into, the top of that zone, the fluid that we will be injecting, and the anticipated injection rate and pressure.

Q Do you anticipate that you will have any pressure initially?

A No, we don't expect any pressure initially because of the very high porosity and permeability of the formation and the relatively low pressure in the formation. The present reservoir pressure is approximately 1700 PSI. The hydrostatic head would be more than sufficient to inject into the formation.

Q Now, you will be injecting through tubing and under the packer. Will the annulus be filled with inert fluid?

A Yes, it will. It will be filled with an inhibited fluid to prevent any corrosion and we will also be installing pressure gages to check annulus pressure to

make sure that no leaks occur, or if leaks do occur, that we can correct any such problem.

Q You say it shows on your diagrammatic sketch the cementing information. Does it show the cement tops?

A No, it doesn't. There was no temperature log or other cement top available on the well records that we have, so we have taken the information as to the hole size, casing size and casing weight and the volume of cement which is shown on the diagrams and calculated the fill-up. The fill-up indicates that they apparently were trying to fill this up over the Gallup formation, so we have cement clear back to anywhere from 2700 feet to 3600 feet.

Q Will the cement top be above the packer you propose to set?

A Yes, it will.

Q Are you going to use the internally coated tubing?

A Yes, we will.

Q Will the proposed completion as you propose to make it prevent any contamination of any producing zones or fresh-water zones that might exist in --

A (Interrupting) Yes, it will.

Q Refer to Exhibit No. 7 and identify that exhibit, please?

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A This is a water analysis which we had run last summer on the produced Entrada water within the Media Dome area itself. It shows that the chlorides are very low, but this is relatively fresh water.

Q In spite of that, you do propose to use an internally-coated tubing in the well?

A That is correct.

Q In your opinion, will the formation of this unit and the proposed pressure maintenance project as you have proposed it result in the recover of oil that not otherwise would be recovered?

A Yes, it will.

Q Do you know what amount?

A Our engineering study indicated that we will recover over 600,000 barrels of additional oil by this pressure maintenance project.

Q You will be injecting relatively high volumes of water, will you not?

A Yes, we will.

Q Just briefly, would you review the testimony in regard to the necessity for producing the reservoir at high rates?

A We have found, with the installation of submersible

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pumping equipment that with increased rates of production, we are going to achieve higher recoveries from the Entrada, and I have found from our plots of water cut versus cumulative production that we will substantially increase the ultimate recovery of oil from the reservoir.

Q Has this manner of producing this reservoir caused any changes in the fluid level or pressures within the various wells?

A Yes, it has. It has caused drawdown and this is the reason for our desire to reinject the produced Entrada water back into the formation.

Q In order to do this, it is necessary to unitize the entire pool, is it not?

A That is correct.

Q In your opinion, will the reinjection of water equalize the pressure throughout the pool?

A It should.

Q Would that make for better production from the pool?

A Yes.

Q And a greater ultimate recovery?

A Yes, it should.

Q Were Exhibits 4 through 7 prepared by you or

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under your supervision?

A Yes, they were.

Q And Exhibit No. 1 is the form of unit agreement of what is proposed?

A Yes.

MR. KELLAHIN: At this time I would like to offer into evidence Exhibits 1 through 7.

MR. STAMETS: Without objection, they will be admitted into evidence.

(Whereupon, Applicant's Exhibits Nos. 1 through 7 were marked for identification, offered and admitted into evidence.)

MR. KELLAHIN: That is all we have.

MR. STAMETS: Are there questions of this witness?

CROSS EXAMINATION

BY MR. HUNKER:

Q Does Petro-Lewis intend to abandon the 160-acre spacing units that were established by the O.C.C. earlier in connection with this pool?

A As we said, the U.S.G.S. has requested that the 160-acre communitization units be dissolved. That is, those which were established within the proposed unit boundary. So, those four will be dissolved.

Q In connection with the unit, a provision is made in the agreement for the expansion of the unit under certain circumstances, and the circumstances are not delineated. Can you tell the Examiner under what circumstances the unit might be expanded?

A At this point in time, we have no plans or anticipation of expansion of this unit, and it is difficult to conceive that it would be expanded. It is just a standard provision in the Federal form.

Q There is also a provision in the unit for a gas injection. Is this also a provision that is more or less standard in this type of thing?

A Yes, it is another provision within the standard Federal form.

Q Are you aware at this time that there could be any other working interest owners other than the two that are named in the unit agreement at this time? In other words, do you anticipate that the Fluid Power Pump Company might dispose of its interest so that there would be other working interest owners?

A Not to our knowledge.

MR. HUNKER: I have no further questions,  
Mr. Examiner.

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CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Somers, do you have any estimate of the daily volume you will be getting out of the Gallup?

A No, we really don't. We haven't had an opportunity to backflow the Gallup to determine what volume would be anticipated. We have injected almost 2 million barrels of water into the Gallup.

Q Would the operator report any leaks from or around the injection wells or producing wells or plugged and abandoned wells to the Commission?

A Yes.

Q If there would be no surface pressure, how will you use a gage to detect any leak in the injection tubing?

A Well, we would be putting a pressure gage on the annulus and would assume it would pressure-up. Again, that may not be the case. That is a very good point. It is a very good point.

Q Perhaps the wording should be an acceptable leak-detection device.

A Yes.

Q Do you anticipate that the injection of this additional fluid would cause any of the wells to exceed the

productive limits set out in the pool rules for this Media Entrada Pool?

A No.

Q So, the allowable will not be any problem?

A No, it should not be.

Q So, any report that you would file relative to this project would not have to set out any allocation formula for transferring allowables between wells or nothing like this?

A No, it shouldn't.

MR. STAMETS: The witness may be excused. Is there anything further in this case?

(Witness dismissed.)

MR. HUNKER: I have nothing.

MR. STAMETS: If there is nothing further, we will take the case under advisement.

