BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 15, 1976

EXAMINER HEARING

IN THE MATTER OF:

Application of Global Survey, Inc. for a unit agreement, Eddy County, New Mexico.

CASE 5758

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: William F. Carr, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

For the Applicant: George H. Hunker, Jr., Esq.
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I N D E X

EXHIBIT INDEX

MR. STAMETS: We will call next Case 5758.

MR. CARR: Case 5758, application of Global Survey, Inc. for a unit agreement, Eddy County, New Mexico.

MR. HUNKER: George H. Hunker, Junior of the firm of Hunker-Fedric, Roswell, New Mexico, appearing on behalf of the applicant, Global Survey. I have one witness and one exhibit.

(THEREUPON, the witness was duly sworn.)

ARMAND F. FREDERICKSON

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

DIRECT EXAMINATION

BY MR. HUNKER:

Q. Doctor Frederickson, will you identify yourself for the record, please?

A. My name is Armand F. Frederickson, my residence is 500 Wichita, Number 31, McAllen, Texas.

Q. Have you ever testified before the Oil Conservation Commission?

A. I have not.

Q. Would you give us a resume of your education and experience as related to oil and gas matters?

A. I have a Bachelor's degree in mining engineering

from the University of Washington, Seattle; a Master's degree in metallurgical engineering from the Montana School of Mines at Butte, Montana; a Doctor's degree in geology from MIT. While at MIT obtaining my Doctor's degree I taught in the physical metallurgy department. After leaving MIT I became a full professor in geological engineering at the Washington University in St. Louis. During that time I also had a research Fulbright professorship in Norway where we did considerable geology in the North Sea and North Africa.

On leaving Washington University I became the research supervisor for exploration research for Stanolind Oil and Gas Company at Tulsa, Oklahoma. Stanolind later became Pan American. During that time we were involved in the normal exploration-types of research but also worked closely with the production department, characterizing reservoirs and studying the special problems related to waterflooding and other types of petroleum engineering systems.

Subsequent to that I became the professor and chairman of the earths and planetary science department at the University of Pittsburgh where we taught a great deal of geophysics and worked closely with Gulf Research and Development and people from England and Japan.

Subsequent to that I have been involved as a consultant and an engineer in a number of oil companies. I was a senior advisor in exploration for Pemex, covering the

Paleozoic in the northern third of Mexico and had for them and a number of other Central American companies consulting and related types of duties.

MR. HUNKER: Are the qualifications of the witness acceptable?

MR. STAMETS: The witness is eminently qualified.

Q. (Mr. Hunker continuing.) Are you familiar with the application of Global Survey, Inc. for approval of the unit agreement in Eddy County?

A. I am.

Q. What is your position with Global Survey, Inc.?

A. I'm the President of Global Survey.

Q. Have you prepared an exhibit in connection with this matter before the Examiner?

A. I have.

Q. We have marked this as Exhibit Number One and I would like for you to briefly tell the Examiner what the purpose of your application is and present your geological report, if you will?

A. While I'm discussing this may I refer you to figure one? Figure one outlines in Eddy County the boundaries of the proposed unit. Six sections are in Township 25 South, Range 27 East and one-and-a-half sections are in 25, 26. With respect to these the ownership of these and the interests of Global, we have from El Paso a farmout for the acreage in the

northern half of 4 and all of 6 and 7. Global and its associates have acquired Section 9, 5 and 8 are up for simultaneous drawing and in 25 and 26 we have contacted Gulf for Section 1 and the east half of Section 12.

Q. Is there one State tract involved in this unit?

A. The State tract is 9, that belongs to Global.

Q. All of the rest of the land is Federal land, is that correct?

A. That is correct.

Q. Turning to your figure two attached to your geological report, what does that show?

A. Figure two is a seismic map prepared on the top of the Devonian. There are a number of wiggly lines as well as contour lines on this. Global has done a detailed gravity study of approximately twelve hundred square miles in Eddy County and has made a considerable effort to work out some of the structure in the area, combining both the geology, the gravity information and the seismic information.

Q. Has this information been presented to the United States Geological Survey?

A. It has.

Q. Has the USGS designated this area as being logical for unitization?

A. They have.

Q. Has an application been made to the Commissioner of

Public Lands of the State of New Mexico for approval of your unit?

A. Such an application has been made.

Q. Do you believe that this proposed area embodies substantially all of the geological feature that is here involved in this proposed unit?

A. The answer to the question is, yes. We have discussed this in detail with the U. S. Geological Survey, El Paso and a number of other people and I think the conclusion of all has been "yes".

Q. Turn, if you will, to figure three attached to your report and tell the Examiner what this figure shows.

A. Referring back to figures one and two, figure three is a cross section across the proposed unit. We are showing on figure three, Wells 4, 4-A and 5.

Q. What wells are those, can you identify them?

A. Those are Coquina wells, the 4 and the 4-A are the Jake State Wells in Section 26 of 24, 26 and 5 is in Section 20, it's the Cottonwood Draw Well, Coquina. The Cottonwood Draw Well, the No. 5 in figure three, has small production in the Atoka and found some forty-three hundred feet of formation watered in a fifty-five foot section in the Morrow and in a hundred-and-fifty-eight foot section found eleven thousand feet of formation water. This information to us indicates that at least in the location of Well 5 there is a considerable

amount of porosity in the Morrow.

In Wells 4 and 5 the Morrow was tight. In Well 4 the Strawn was tight and in Well 4-A it potentialed at ten point seven million in the Strawn. Since the Strawn was missing or tight in 4 and the beginning of porosity is developing in 4-A, we anticipate considerable Strawn porosity in the area of the proposed unit.

Since there is a lot of porosity in the Morrow in 5 and none in 4 and 4-A, we are also confident that if we get above the water table, which would put us someplace within the unit area, we will encounter some Morrow production.

Q. Would you discuss for the Examiner again the construction of the Devonian structure map that you have attached to it as an exhibit?

A. In this area there are only really two good reflectors, one of them is the Delaware and there is a set of three that are frequently identified as the top of the Devonian. It's a simple matter to measure the time between the Delaware reflector and the most consistent of the Devonian reflectors which we have taken as the middle one as the top of the Devonian. It is difficult to construct from seismic information alone, a good structure map in this area because of the porosity problems in the Delaware and above and other problems related to the evaporites so what you basically do is, because of the large amount of drilling through the

Delaware for Delaware oil, we pick the Delaware logs, make an isopach and structure map for the Delaware, then add the interval between the Delaware to the top of the Devonian to end up with a structure map such as we have in figure two.

There is a great deal of subjectivity, needless to say, in making maps of this sort and for this reason we do not consider the depths as shown to be very reliable. However, the pattern, I think, is quite reliable and it coincides to a good degree with some of the other types of geophysical information, such as the gravity maps.

The control for the seismic is shown, all of the shot-hole points are shown as black dots on the map. So within our area we have reasonable seismic controls so we think the pattern pretty well describes what the geometry of the area is.

Q. In addition to the Morrow tests, what other zones do you contemplate testing in this well, in the proposed well?

A. We will most certainly test the Atoka and the Morrow and there are Strawn and Wolfcamp possibilities in the area as well.

MR. HUNKER: Mr. Examiner, in my application in paragraph six, I take credit for having made a mistake. The test well that is described should be a well which is going to be drilled to a depth sufficient to penetrate the Upper Mississippian, parenthesis, Barnett shale formation, where I

stated Pennsylvanian. Will you please for the record, correct my application in that regard?

MR. STAMETS: We will correct that, Mr. Hunker.

Q (Mr. Hunker continuing.) Does the unit agreement provide for the drilling of a test well, Doctor Frederickson?

A. It does, the description of the drilling requirements is given in the exhibit. It will test all of the Pennsylvanian and penetrate the upper part of the Barnett.

Q. In the event that oil and gas is discovered on the land within the unit area, is it your opinion that the field can be developed more economically under a unit agreement?

A. That is my opinion.

Q. Is this unit agreement in the interest of conservation and the prevention of waste?

A. It most certainly is, in my opinion.

Q. Will copies of the agreements that are entered into between the parties be furnished to the Commission after they have been fully signed and the final approval of the USGS has been received, be furnished to the Examiner?

A. They will.

MR. HUNKER: We have no further questions. I would like to offer in evidence Applicant's Exhibit Number One.

MR. STAMETS: Exhibit Number One will be admitted.

(THEREUPON, Applicant's Exhibit Number One was admitted into evidence.)

MR. STAMETS: Are there any questions of the witness? He may be excused.

(THEREUPON, the witness was excused.)

MR. STAMETS: Is there anything further in this case? The case will be taken under advisement.

REPORTER'S CERTIFICATE

I, SIDNEY F. MORRISH, a Certified Shorthand Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Sidney F. Morrish, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5758 heard by me on 9-15 1976.

Richard L. Stamets, Examiner
New Mexico Oil Conservation Commission

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