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

EXAMINER HEARING

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IN THE MATTER OF: )

Application of Global Survey, Inc. for ) CASE  
a unit agreement, Eddy County, ) 5758  
New Mexico. )  
-----

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.  
HUNKER-FEDRIC, P.A.  
Attorneys at Law  
210 Hinkle Building  
Roswell, New Mexico

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I N D E X

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ARMAND F. FREDERICKSON

Direct Examination by Mr. Hunker

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EXHIBIT INDEX

Offered

Admitted

Applicant's Exhibit One, Geological Report

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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

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

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

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

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

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

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

6 MR. STAMETS: The witness is eminently qualified.

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

10 A. I am.

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

12 A. I'm the President of Global Survey.

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

15 A. I have.

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

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

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

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

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

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

9 A. That is correct.

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

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

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

21 A. It has.

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

24 A. They have.

25 Q Has an application been made to the Commissioner of

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

3 A. Such an application has been made.

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

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

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

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

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

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

1 amount of porosity in the Morrow.

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

8           Since there is a lot of porosity in the Morrow in  
9 5 and none in 4 and 4-A, we are also confident that if we get  
10 above the water table, which would put us someplace within  
11 the unit area, we will encounter some Morrow production.

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

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

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

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

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

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

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

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

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

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

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

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

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

12 A That is my opinion.

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

15 A It most certainly is, in my opinion.

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

20 A They will.

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

23 MR. STAMETS: Exhibit Number One will be admitted.

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

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

2 He may be excused.

3 (THEREUPON, the witness was excused.)

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

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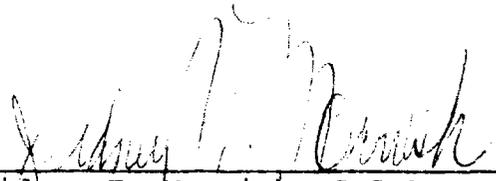
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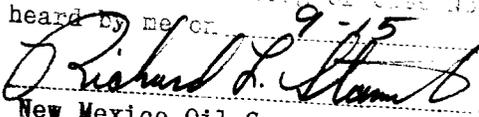
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I, SIDNEY F. MORRISH, a Certified Shorthand Reporter,  
do hereby certify that the foregoing and attached Transcript  
of Hearing before the New Mexico Oil Conservation Commission  
was reported by me, and the same is a true and correct record  
of 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's Office of Case No. 5758  
heard by me on 9-15 1976  
  
Richard L. Stamm, Examiner  
New Mexico Oil Conservation Commission

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