CASE 5422: HILLIARD OIL & GAS, INC., for special pool rules, Lea County, New Mexico

CASE No.

5422

Application,

Transcripts,

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
March 17, 1976

EXAMINER HEARING

IN THE MATTER OF:

Case 5422 being reopened pursuant to the provisions of Order No. R-4981, which order established special rules and regulations for the EK-Bone Springs Pool, Lea County, New Mexico.

CASE 5422 (Reopened)

BEFORE: Daniel S. Nutter, 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: W. Thomas Kellahin, Esq.
KELLAHIN & FOX
Attorneys at Law
500 Don Gaspar
Santa Fe, New Mexico

I N D E X

EXHIBIT INDEX

MR. NUTTER: We will call Case Number 5422, reopened.

MR. CARR: Case 5422 in the matter of Case 5422 being reopened pursuant to the provisions of Order No. R-4981, which order established special rules and regulations for the EK-Bone Springs Pool, Lea County, New Mexico, including a provision for eighty-acre spacing.

MR. KELLAHIN: Tom Kellahin of Kellahin and Fox, Santa Fe, New Mexico appearing on behalf of Hilliard Oil and Gas, Inc. and I have one witness to be sworn.

(THEREUPON, the witness was duly sworn.)

DAROL K. RAMEY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Please state your name, by whom you are employed and in what capacity?

A. My name is Darol K. Ramey, I'm employed by Hilliard Oil and Gas and I'm Vice President and Manager of drilling and production.

Q. Mr. Ramey, have you previously testified before this Commission?

A. No, I have not.

Q. Would you state briefly your educational background?

A. I have a B.S. degree from the University of Oklahoma, I graduated in 1953.

Q. Since graduation where have you been employed and in what capacity?

A. I have worked for various major and independent oil companies in the capacity of in the drilling and production end of the business.

Q. How long have you been employed by Hilliard Oil and Gas?

A. It will be four years.

Q. Have you made a study of and are you familiar with the facts surrounding this particular matter in hearing?

A. Yes, I am familiar with it.

MR. KELLAHIN: If the Examiner please, are the witness's qualifications acceptable?

MR. NUTTER: He didn't state what his degree was in.

THE WITNESS: Yes, it was a B.S. in petroleum engineering.

MR. NUTTER: Okay, thank you.

Q. (Mr. Kellahin continuing.) Would you please refer to Exhibit Number One, identify it and explain to the Examiner what information it contains.

A. Exhibit Number One is a structural contour map of the area in question. The contours are drawn on the top of the

Second Bone Springs sand, which is the primary pay in this field that is under consideration. This is basically the same map that was presented in the original hearing. The discovery well was located in Section 30, the Hilliard Oil & Gas McElvain Federal No. 1. Since the original hearing two additional wells have been drilled in the field. The second well drilled was the Hilliard Oil & Gas Union State No. 1 located in Section 32. The third well drilled was the Hilliard Oil & Gas McElvain Federal No. 2 located in Section 31. The line drawn connecting these wells to a dry hole to the south is the line of a cross section to be presented at a later time.

The significance of this exhibit is to show that this is basically a stratigraphic and the structure has no control on the trapping and also it indicates these spacings that have been held to in the drilling. We have so far drilled only one well per quarter section but drilling them on a pattern that would lend itself to eighty-acre spacing.

The shaded area indicates the acreage that is included in property under the control of Hilliard Oil & Gas and our partners.

Q. Please refer to Exhibit Number Two and identify it.

A. Exhibit Number Two is an electric log, a detail of the pay section in the discovery well, the McElvain Federal No. 1 and it is presented primarily to make available to the Commission the data on this pay zone which is the Second

Bone Springs sand. It was presented originally in the original hearing, the only significant change is the addition of accumulative production which is highlighted on the right-hand side.

MR. NUTTER: This is from the one well only?

A. This is from the No. 1 Well only, that is correct.

Q. (Mr. Kellahin continuing.) Let me put Exhibit Three on the board here and have you testify by making your comments directly to this exhibit.

A. Exhibit Number Three that we have presented is an electric log cross section of the area and this is the cross section that I referred to as the cross section AA prime that is shown on Exhibit Number One and is also shown on the land plat on the index map here on the side.

It is hung on the top of the Second Bone Springs sand so it is a stratigraphic cross section. The main thing that we feel that is of significance, we have hung on this cross section, we have put our porosity logs, one inch scale and then indicated the drill stem test and production data that was available, all of which is listed below the log and color coded and number coded to the log.

The main thing of significance here that we would like to call to the Commission's attention is that the nature of the Bone Springs is that it normally does not have consistent reservoir development. The only zone that develops fairly

consistently is the Second Bone Springs, it is producing in and this is the McElvain Federal No. 1, it's producing there. The second well drilled was the Union State, it was present but very poorly developed on our third well which is the McElvain Federal No. 2. which we have not completed in that zone at this time but the drill stem test information indicates that we should be able to make a completion in that zone that would be comparable to the No. 1.

The log on the Humble Oil Mescalero Unit No. 1, which is on the south, although they did not test it, the zone appears to be present and the log analysis indicates that it is possibly productive.

The other zones have appeared. There have been zones appear in other wells in the area, all of which have indicated to be of limited areal extent. We on our Union State No. 1 attempted completion and actually did complete and produce oil from the First Bone Springs sand. It is actually a sand body and it was testing at about twenty barrels of oil, twenty-two barrels of oil and about eight barrels of water per day and we came up the hole and completed in a Bone Springs lime and we have been testing, we have been having some mechanical problems with that well at the present time.

The McElvain Federal No. 2 had the Second Bone Springs sand, it appears that we can make a commercial completion and we have a zone develop right there at the very base of the

Bone Springs and that is where the well is presently completed and we are installing production equipment at the present time.

I believe that is basically what the exhibit is about.

MR. NUTTER: While you are there I might ask you a couple of questions about this exhibit, Mr. Ramey. It would appear then that the first well on the exhibit, which is the McElvain No. 1, is producing from the top of the Second Bone Springs?

A. That's right, the sand by the top of the Second Bone Springs.

MR. NUTTER: The second well on the exhibit, the McElvain No. 2, is producing from the very base of the Second Bone Springs?

A. That is correct.

MR. NUTTER: And then the third well on the exhibit, the Union State is producing from the Upper Bone Springs formation, well above the top of the First Bone Springs sand?

A. That is correct.

MR. NUTTER: So all three of the wells in the pool are completed in different intervals of the overall Bone Springs formation?

A. At the present time that is correct. The pressure data on this well here, on this zone --

MR. NUTTER: Indicate for the record which one.

A. Okay, that is the McElvain Federal No. 2. Pressure data on the zone at ten thousand, four hundred, approximately, indicates that it is a very limited extent, it would probably not exceed five thousand barrels ultimate from that zone.

MR. NUTTER: So then I presume you would recomplete on the top of the Second Bone Springs?

A. As soon as we deplete this zone we plan to complete in the Second Bone Springs sand.

MR. NUTTER: Which is correlative to the producing interval in the No. 1 McElvain?

A. That is correct. We don't believe we can make a completion in the Second Bone Springs sand in the Union State No. 1, it is too tight, too poorly developed.

MR. NUTTER: Okay, thank you.

Q. (Mr. Kellahin continuing.) Please refer to Exhibit Number Four and identify it?

A. Exhibit Number Four is core analysis data on the Second Bone Springs sand in a core taken in the Union State No. 1 which is the third well on the cross section there on Exhibit Three and it is presented largely because it is the only core data available and it does indicate though, the porosity permeability that is available in the better developed sand in the Second Bone Springs. We did not believe that this zone was drill stem tested, there was drill stem test data over this and the core data in the logs indicated that we would

not be able to make a commercial completion in it.

Q. Please refer to Exhibit Number Five and identify it?

A. Exhibit Number Five is a reserve estimate, a volumetric reserve estimate, prepared prior to the original hearing of a year ago, at which time we had little or no production history available and made just a volumetric estimate based on the indicated net pay on the logs and the log data of porosity, assumed water saturations and Beta factor and assuming twenty-feet of net pay we calculated that an eighty-acre drainage area would make available a hundred and fifteen thousand, two hundred barrels of oil.

Q. Exhibit Number Six?

A. Exhibit Number Six is raw production data from the McElvain Federal No. 1, which is the only well completed in the Second Bone Springs sand, which is the primary and only continuous producing zone in the area.

Q. All right, sir, Exhibit Number Seven.

A. Exhibit Number Seven is a production decline curve based on the raw data presented in Exhibit Six and it shows that -- it is a semi-log plot of barrels per month and actually there is an error on that. That's indicated as barrels per day on the side there and that should be BOPM. It's barrels per month and a semi-log plot. It exhibits a twenty-six percent per year decline rate and assuming a hundred and fifty barrel per month or approximately five barrel per day economic

limit, would give an ultimate recovery of approximately a hundred and thirty-one thousand barrels which is the purpose to illustrate that a volumetric estimate of an eighty-acre drainage would be a hundred and fifteen thousand. This well indicates after one year of production that it will ultimately produce a minimum of a hundred and thirty-one thousand.

As an experience factor on this type of decline curve, a decline curve drawn during the early life of the well, particularly like during the first year as this is done, is usually a conservative estimate of the ultimate recovery. The tendency is for the decline rate to flatten out with time and the ultimate to exceed the early reserve estimate.

Q. Exhibit Number Eight?

A. Exhibit Number Eight is a cost estimate and authority for expenditure which we presented to our management and our partners prior to drilling the Union State No. 1. This was the first well in the area drilled specifically to test the Bone Springs. The McElvain Federal No. 1 was actually drilled as a Devonian and Morrow test.

The significance of the exhibit is the cost of drilling a well in this area. We had estimated a completed cost of four hundred and five thousand dollars. Our actual cost reported by our accounting department was five hundred and seven thousand, seven hundred and forty dollars, partially due to the mechanical problems in the drilling and inflation.

Q. Exhibit Number Nine?

A. Exhibit Number Nine is a cost estimate and authority for expenditure, again that was presented to our management and partners for drilling the McElvain Federal No. 2. It was also drilled spedifically to be a test of the Bone Springs. The well is not completed, however, we did not have the mechanical problems and had a better control, we believe that we will have the well on production for approximately the cost shown which is four hundred and sixty-eight thousand dollars on the AFE.

Q. In your opinion, Mr. Ramey, can you economically drill a well in this particular area based upon less than an eighty-acre unit?

A. No, I believe that anything less than an eighty-acre unit would be economically unfeasible.

Q. Based upon your production information and on your production curve, do you have an opinion with regards to the ability of one well to drain at least an eighty-acre unit?

A. Yes, I do. I believe that I can say that a well in the -- the No. 1 McElvain Federal is definitely draining at least eighty acres, perhaps more.

Q. Would you recommend to the Commission at this time that the temporary rules for this pool be made permanent?

A. Yes, I would.

Q. Were Exhibits One through Nine either compiled by

you directly or under your direction and supervision?

A. They were.

Q. In your opinion, Mr. Ramey, will the approval of this application be in the best interests of conservation, prevention of waste and the protection of correlative rights?

A. Yes, it will.

MR. KELLAHIN: We move the introduction of Exhibits One through Nine.

MR. NUTTER: Applicant's Exhibits One through Nine will be admitted into evidence.

(THEREUPON, Applicant's Exhibits One through Nine were admitted into evidence.)

Q. (Mr. Kellahin continuing.) Are there ary other pool rules that exist for this pool that you desire to have changed?

A. No, I believe that all of the other pool rules that are in existence would be acceptable.

MR. KELLAHIN: We have nothing else.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Now, Mr. Ramey, according to your Exhibit Number Six, the McElvain Federal No. 1 has presently produced about forty-two thousand, six hundred and seventy barrels of oil?

A. As of February 1 that is correct.

Q. How about the other two wells, what has the history been on those, I realize they are both newer wells?

A. Yes, they are both newer. The McElvain Federal No. 1 is just at the completion stage right now, we are installing production equipment so it has no production history.

Q. The McElvain Federal No. 2, you mean?

A. Yes, the McElvain Federal No. 2 has no production history. The Union State Comm No. 1 has -- I don't have that production. Well, I do too, come to think about it.

As of January 1 it had a cumulative oil of thirteen thousand, six hundred and sixty-two.

Q. When was the well completed?

A. In July, first production was in July of '75. It was exhibiting and has exhibited severe pressure decline. It is apparently completed in a limited reservoir.

Q. Now, it has already been recompleted too, hasn't it?

A. It was initially tested in the First Bone Springs sand and then a retrievable bridge plug set above it and we perforated and produced.

Q. So it wasn't actually completed down there, just tested?

A. No, just tested.

Q. Do you anticipate that it will be recompleted down there in the top of the First Bone Springs?

A. Yes, it will be.

Q. Now, you mentioned here on this Exhibit Eight, I think, that although your AFE was for four hundred and five thousand dollars, the well cost five hundred and seven thousand. Did it go to the Morrow or test the Morrow?

A. No, it only went to approximately ninety-six or ninety-seven hundred feet and it bottomed in the Second Bone Springs interval.

Q. Which well went to the Morrow?

A. The No. 1, the McElvain Federal No. 1.

Q. What did the Morrow look like in that well?

A. It was tight and non-commercial. We didn't go to the Devonian, we stopped in the Mississippian because we were running low, we didn't take it below the Mississippian.

Q. Do you have any idea yet what the productivity of the McElvain No. 2 is going to be?

A. No, the indications, the zone that we have perforated at the present time at the base of the Bone Springs is a lime zone. The drill stem test pressure charts indicate that it is a limited reservoir. We elected to set pipe through it and test it prior to coming back up to the Second Bone Springs sand. Production tests have verified the limited nature. We anticipate that probably it will not exceed five thousand barrels cumulative ultimate out of the Lower Bone Springs lime.

Q. What did the drill stem test in the Second Bone Springs

look like?

A. The drill stem test in the Second Bone Springs was similar to the drill stem test in the McElvain Federal No. 1 in that same interval. We believe that we can make a comparable well.

Q. Which would really be only your second good well in the whole thing?

A. That is correct.

MR. NUTTER: Are there any further questions of Mr. Ramey?

MR. KELLAHIN: No, sir.

MR. NUTTER: He may be excused.

(THEREUPON, the witness was excused.)

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case 5422?

MR. CARR: Mr. Examiner, we received some correspondence concerning this case, a telegram from Mr. C. W. Trainer, urging the Commission to continue the field rules for an additional year. He states in this telegram that he hopes to drill two more wells during the next year and should be able to give data concerning permanent rules in a year.

We received a telegram from Jake L. Hamon urging

the Commission to continue the special rules for a year.

A telegram from Marvin C. Gross urging the Commission to extend the temporary rules for an additional year and we have a letter from Union Oil Company of California and it reads in part: (Reading.) Union Oil Company of California has operating interest in the captioned pool, the EK-Bone Springs Pool, and respectfully requests that the Commission establish permanent eighty-acre spacing provisions in the special rules and regulations they operate thereof. (End of reading.) It is signed by L. F. Thompson, District Operations Manager, the Midland District of Union Oil Company.

MR. NUTTER: Thank you. Is there anything further in Case 5422?

If there is nothing further we will take the case under advisement and the hearing is adjourned.

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. 5422, heard by me on 3/17, 1976.

....., Examiner
New Mexico Oil Conservation Commission

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 19, 1975

EXAMINER HEARING

IN THE MATTER OF:

Application of Hilliard Oil and Gas Incorporated, for special pool rules, Lea County, New Mexico.

Case No. 5422

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: Thomas Derryberry, Esq.
Legal Counsel for the Commission
State Land Office Bldg.
Santa Fe, New Mexico

For the Applicant: Thomas Kellahin, Esq.
Kellahin & Fox
500 Don Gaspar
Santa Fe, New Mexico

I N D E X

RICHARD W. SCHULTZ

E X H I B I T S

	Marked	Admitted
Applicant's Exhibits Nos. 1 through 4	--	11

MR. NUTTER: We call Case No. 5422.

MR. DERRYBERRY: Case 5422. Application of Hilliard Oil and Gas, Incorporated, for special pool rules, Lea County, New Mexico.

MR. KELLAHIN: Tom Kellahin of Kellahin & Fox, Santa Fe, appearing on behalf of the Applicant. I have one witness to be sworn.

(Witness sworn.)

RICHARD W. SCHULTZ

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, by whom you are employed and in what capacity?

A My name is Richard W. Schultz; I'm employed by Hilliard Oil and Gas as Exploration Manager.

Q Mr. Schultz, have you previously testified before this Commission and had your qualifications as an expert witness accepted and made a matter of record?

A Yes.

Q And are you familiar with the facts surrounding this particular Application?

A Yes.

MR. KELLAHIN: If the Examiner please, are the Witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

BY MR. KELLAHIN:

Q Mr. Schultz, will you please refer to what has been marked as Applicant Exhibit No. 1, identify it, and state briefly what the Applicant is seeking?

A This Exhibit No. 1 is basically subsurface contour map on top of EK-Bone Spring pay that we request 80-acre spacing on with the privilege of being able to locate your well in either 40-acre tract within the 80.

Q Please refer to what has been marked as Exhibit No. 2 and identify it.

A Right. Exhibit No. 2 is a composite of the logs run in the well and an ownership map of the area showing which acreage we now control at the present time as working interest operator.

Q I was going to ask you what conclusions that you drew from Exhibit No. 2?

A Well, from Exhibit 2 it has data on the DST pressures, log analysis, and how the well was completed.

Q Please refer to what has been marked as Exhibit

No. 3 . Begin first with identifying the composite parts of Exhibit 3.

A Okay. There may be more data here than necessary but the first several pages are the well history with all the drill stem tests and completion data day by day; the next one is our USGS completion form which has the completion data as filed, drill stem tests and tops, and the third is a copy of the data from the DST No. 1 which was taken over the Bone Springs producing sand. You'll note here that it has good pressures but it recovered only 10 foot free oil and is obviously a sand of low permeability.

Q Please refer now to the well-performance data.

A The well-performance data is a day by day tabulation of the production from this well in which when it was originally completed we didn't think it would perform as well as it has; although it is a low-volume producer relative to this depth, it has performed well. The next chart on the next page is a tabulation of that day by day data, and the well currently is producing approximately 11,000 barrels of oil.

Q Based upon this information, Mr. Schultz, do you have an opinion with regard to whether this well can efficiently and economically drain an area of not less than

80 acres?

A Well, we certainly hope so; we don't have accurate data at the present time to say this, but hopefully within the next year, and reservoir pressure tests, and new wells, and drill stem tests--and we plan to core the next well--by that time we will have data to substantiate this. We do think it may be a blanket sand, however the nature of the formation is really right now not known too well, but we think it should have, and our production has indicated it does have, reservoir continuity.

Q Because of your limited information at this time, Mr. Schultz, you would request the Commission that the temporary -- that the rules for the pool be made for a temporary period of one year, is that correct?

A Right.

Q Please refer now to your reserve estimate sheet.

A Here again we don't have enough data to accurately predict the reserves so we used a volumetric method and we come out with the total of 115,000 barrels on an 80-acre tract, if it will drill an 80-acre tract, and in connection with that the next page is an AFE for our anticipated next well, and it becomes obvious that this is a low profit basis, even on 80 acres. In connection with this

the next page is the log on the Union Well, which is located about a mile and a half south and east of this, possibly two miles. This well was not tested, however it has very similar log analysis to our well and it is 200 foot structurally low.

Q In your opinion, Mr. Schultz, would it be economically feasible for your company to develop this area on less than 80-acre spacing?

A No, I don't think so, and this brings up another point. When you are looking at marginal economics, and the last page just shows a random shot out of Martin County, Texas, and the Sprayberry trend, which is being developed on 160 acres, and with that, hopefully we will have enough data to come back within this year and request 160-acre spacing.

Q How does this Sprayberry of Texas relate to the Bone Springs, New Mexico?

A Well, there are some differences as to sections. Sprayberry Deeds section as producing over there is a similar depositional environment, and an exact time correlation with the Bone Springs Formation in New Mexico.

Q Please refer to what has been marked as Exhibit No. 4 and identify it for the Examiner.

A This is the complete set of electric logs on the well, with the tops on it. Now, the drill stem tests are not on there and the completion tests are not on the big log but they are in Exhibit 2 and in the well history.

Q Were Exhibits 1 through 4 prepared by you directly or under your direction and supervision?

A Yes, they were.

Q In your opinion, Mr. Schultz, will the granting of this Application be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A Yes, I sure do. I think it is important, even though we have a price increase on our crude oil, that we start looking at things like this.

MR. KELLAHIN: That concludes our direct examination, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Schultz, it appears from the decline curve -- granted it's not a long period of time -- but the well has leveled off and shows very stable production at the rate of around 100 barrels a day, is that correct?

A Correct, and we decided to run pipe on this well because we didn't know what it would do, and we were on the drill stem test the computer analysis, or what have you, indicated the well would have a capacity of making 12 barrels a day. This is very surprising to us and encouraging.

Q Is the well flowing?

A Flowing and pumping, a combination.

Q Has it been on that status since it was first put on production?

A Yes. It would -- if you shut it in it will flow for a couple of days and then finally it just doesn't have the permeability there to continue flowing, and with this combination it will produce at this rate.

Q Now this AFE you had was for a second well. Now that as I understand it will be in the northwest northwest of Section 32, is that correct?

A Yes, correct.

Q When do you expect that that well will be drilled?

A Well, right now we were waiting on this production data, and when you're looking at $400,000 and $500,000 which includes the pumping unit, our partners, Jake Hamon and Union of Cal, all wish to watch the production, but

it will be within the next month, I would say.

MR. NUTTER: Are there any further questions of the Witness? He may be excused. Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. NUTTER: Let's see, we didn't get your Exhibits here.

MR. KELLAHIN: Sir?

MR. NUTTER: You didn't offer your Exhibits.

MR. KELLAHIN: I'm sorry. We tender Exhibits 1 through 4.

MR. NUTTER: Okay. Exhibit No. 3 is this complete report?

MR. KELLAHIN: That's right.

MR. NUTTER: And Exhibit 4 would be the set of logs?

MR. KELLAHIN: That's right.

MR. NUTTER: Applicant's Exhibits Nos. 1 through 4 will be admitted into evidence.

(Whereupon, Applicant's Exhibits Nos. 1 through 4 were admitted into evidence.)

MR. NUTTER: Does anyone have anything they

wish to offer in Case 5422? We will take the Case under advisement.

STATE OF NEW MEXICO)
) SS.
COUNTY OF SANTA FE)

I, RICHARD L. NYE, Court 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.

RICHARD L. NYE, Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5422, heard by me on 2/19, 1975.

, Examiner
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 · SANTA FE
87501

March 11, 1975

I. R. TRUJILLO
CHAIRMAN

LAND COMMISSIONER
PHIL R. LUCERO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY – DIRECTOR

Mr. Tom Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 5422
ORDER NO. R-4981

Applicant:

Hilliard Oil & Gas, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other

Docket No. 10-76

Dockets Nos. 11-76 and 12-76 are tentatively set for hearing on March 31, 1976 and April 14, 1976. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 17, 1976

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for April, 1976, from seventeen prorated pools in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.

(2) Consideration of the allowable production of gas for April, 1976, from five prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 5636: (Continued & Readvertised)

Application of Julian Ard for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled in the center of the SW/4 SE/4 of Section 32, Township 9 South, Range 37 East, West Sawyer-San Andres Pool, Lea County, New Mexico, in exception to the provisions of Rule 4, Order No. R-3650.

CASE 5641: (Continued from March 3, 1976, Examiner Hearing)

Application of John Yuronka for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced water by injection to the Queen formation through the open-hole interval from approximately 3800 to 3875 feet in his State JC "T" Well No. 1 located in Unit B of Section 16, Township 23 South, Range 36 East, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 5645: Application of Amoco Production Company for suspension of Rules 14A and 15A of the gas proration rules, Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks suspension for a period of one year from April 1, 1976, of those provisions of Rule 14A and 15A of the General Rules and Regulations for the prorated gas pools of Southeastern New Mexico promulgated by Order No. R-1670, as amended, that provide for the cancellation of underproduction and the shutting-in of overproduced wells, as applied to the Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico.

CASE 5646: Application of Southern Union Gas Company for suspension of Rules 14A and 15A of the gas proration rules, Catclaw Draw-Morrow Gas Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks suspension for a period of one year from April 1, 1976, of those provisions of Rules 14A and 15A of the General Rules and Regulations for the prorated gas pools of Southeastern New Mexico promulgated by Order No. R-1670, as amended, that provide for the cancellation of underproduction and the shutting-in of overproduced wells, as applied to the Catclaw Draw-Morrow Gas Pool, Eddy County, New Mexico.

CASE 5647: Application of Griffin & Burnett, Inc. for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Hagood Unit Area comprising 3,147 acres, more or less, of State and Federal lands in Township 26 South, Range 35 East, Lea County, New Mexico.

CASE 5648: Application of Depco, Inc. for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its DHF State Well No. 1, located in Unit F of Section 23, Township 19 South, Range 28 East, Eddy County, New Mexico, to produce gas from the Wolfcamp and Morrow formations.

CASE 5649: Application of Harrington Transportation, Inc. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Llano, Inc. Leavitt Well No. 1, to be drilled 1980 feet from the North line and 1650 feet from the West line of Section 13, Township 18 South, Range 26 East, Eddy County, New Mexico, the W/2 of said Section 13 to be dedicated to the well.

CASE 5650: Application of Robinson Resource Development Company, Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the formations of Pennsylvanian age or older underlying the N/2 of Section 18, Township 21 South, Range 25 East, Eddy County, New Mexico, to be dedicated to a well to be drilled at a previously approved unorthodox location in Unit H of said Section 18. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of the applicant as operator of the well and a charge for the risk involved in drilling said well.

CASE 5651: Application of Burmah Oil & Gas Co. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled 1780 feet from the South line and 660 feet from the West line of Section 11, Township 24 South, Range 28 East, Eddy County, New Mexico, the W/2 of said Section 11 to be dedicated to the well.

CASE 5652: Application of Continental Oil Company for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Basin-Dakota gas and Otero-Gallup oil production in the wellbores of the following wells on its Northeast Haynes Lease in Township 24 North, Range 5 West, Rio Arriba County, New Mexico:

No. 1 in Unit L of Section 9
No. 2 in Unit D of Section 16
No. 3 in Unit P of Section 16
No. 4 in Unit E of Section 21
No. 5 in Unit E of Section 22
No. 6 in Unit D of Section 15
No. 7 in Unit L of Section 19
No. 8 in Unit P of Section 15

CASE 5653: Application of Mathis, Spencer & Hutson for pool creation and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Permo-Penn production, Lea County, New Mexico, and the promulgation of special pool rules therefor, including a provision for 160-acre spacing and proration units.

CASE 5654: Application of Continental Oil Company for a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 480-acre non-standard gas proration unit comprising the N/2 and SE/4 of Section 2, Township 22 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, said unit to be simultaneously dedicated to applicant's State J-2 Wells Nos. 9 and 12, located in Units G and D, respectively, of said Section 2.

CASE 5422: (Reopened)

In the matter of Case 5422 being reopened pursuant to the provisions of Order No. R-4981, which order established special rules and regulations for the EK-Bone Springs Pool, Lea County, New Mexico, including a provision for 80-acre spacing. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

April 1, 1976

Mr. Tom Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 5422
ORDER NO. R-4981-A

Applicant:

Hilliard Oil & Gas, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 5422 (REOPENED)
Order No. R-4981-A

IN THE MATTER OF CASE 5422 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF ORDER NO. R-4981, WHICH ORDER
ESTABLISHED SPECIAL RULES AND REGULATIONS
FOR THE EK-BONE SPRINGS POOL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 17, 1976, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 30th day of March, 1976, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-4981, dated March 11, 1975, temporary special rules and regulations were promulgated for the EK-Bone Springs Pool, Lea County, New Mexico, establishing temporary 80-acre spacing units and proration units.

(3) That pursuant to the provisions of Order No. R-4981, this case was reopened to allow the operators in the subject pool to appear and show cause why the EK-Bone Springs Pool should not be developed on 40-acre spacing units.

(4) That the evidence establishes that one well in the EK-Bone Springs Pool can efficiently and economically drain and develop 80 acres.

(5) That the Special Rules and Regulations promulgated by Order No. R-4981 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil and gas in the pool.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the EK-Bone Springs Pool, promulgated by Order No. R-4981, shall remain in full force and effect until further order of the Commission.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

SEAL

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 5422
Order No. R-4981

APPLICATION OF HILLIARD OIL & GAS
INC., FOR SPECIAL POOL RULES, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 19, 1975, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 11th day of March, 1975, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Hilliard Oil & Gas Inc., seeks the promulgation of special rules and regulations for the EK-Bone Springs Pool, Lea County, New Mexico, including a provision for 80-acre proration units, and wells to be located in the approximate center of either quarter-quarter section.

(3) That in order to prevent the economic loss caused by the drilling of too many wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations should be promulgated for the EK-Bone Springs Pool.

(4) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained by one well.

(5) That this case should be reopened at an examiner hearing in March, 1976, at which time the operators in the subject pool should be prepared to appear and show cause why the EK-Bone Springs Pool should not be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That temporary Special Rules and Regulations for the EK-Bone Springs Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
EK-BONE SPRINGS POOL

RULE 1. Each well completed or recompleted in the EK-Bone Springs Pool or in the Bone Springs formation within one mile thereof, and not nearer to or within the limits of another designated Bone Springs Oil Pool, shall be spaced, drilled, operated, and produced in accordance with the special rules and regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the footage requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director

may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. Top unit allowable for a standard proration unit (79 through 81 acres) shall be based on a depth bracket allowable of 355 barrels per day, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the EK-Bone Springs Pool or in the Bone Springs formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before April 1, 1975.

(2) That, pursuant to Paragraph A. of Section 65-3-14.5, NMSA 1953, contained in Chapter 271, Laws of 1969, existing wells in the EK-Bone Springs Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 65-3-14.5, existing wells may have non-standard spacing or proration units established by the Commission and dedicated thereto.

Failure to file new Forms C-102 with the Commission dedicating 80 acres to a well or to obtain a non-standard unit approved by the Commission within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the EK-Bone Springs Pool or in the Bone Springs formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in March, 1976, at which time the operators in the subject pool may appear and show cause why the EK-Bone Springs Pool should not be developed on 40-acre spacing units.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman

Phil R. Lucero

PHIL R. LUCERO, Member

A. L. Porter, Jr.

A. L. PORTER, Jr., Member & Secretary

S E A L

jr/

RESERVE ESTIMATE

McElvain-Federal #1
EK Bone Spring Field
Lea County, New Mexico

Pressure history is not available at this time and production history is too short to use for reserve estimation. Therefore a volumetric calculation of reserves is all that is available at this time.

It is assumed that the reservoir energy is primarily solution gas. Gas Oil Ratio is measured at approximately 500/1. Other estimates are made from log data.

$$OIP = \frac{7758\ (\emptyset)\ (1-Sw)}{B}$$

Where: OIP = Stock Tank Oil in place B/ac. ft.
$\emptyset$ = 13% from log data
Sw = 50% from log data
B = 1.4 estimated

$$OIP = \frac{7758\ (.13)\ (.50)}{1.4} = 360 \text{ B/ac. ft.}$$

Recovery Factor (Solution Gas Drive) - 20% Estimate

Recoverable Oil in place - 360 X 20 = 72 B/ac. ft.

Pay thickness - 20 ft. - based on log data

Reserves per 80 ac. - 72 B/ac. ft. X 20 ft. X 80 ac. = 115,200 Bbls.

HILLIARD OIL & GAS, INC.

COST ESTIMATE & AUTHORITY FOR EXPENDITURE

Date 1-23-75 AFE. No.

Lease & Well No. UNION-STATE #1 Field or Area E-K Bone Spring
Location 660' FNL & 660 FWL, Sec. 32, T-18-S, R-34-E
County Lea State New Mexico Projected TD 9700'
Spud Date Requirement As soon as possible
Classification: Exploratory ( ) Development (X) Oil (X) Gas ( )

Justification: Drill development well to productive zone in McElvain-Federal #1.

	ESTIMATED GROSS COST			
Tangible Lease & Well Equip.	Drilling	Completion	Total	Remarks
1. Surface Casing	$ 6,250	$	$ 6,250	350' - 13-3/8" 54.5# K-55
2. Intermediate Casing	47,000		47,000	5200' - 8-5/8" 24&32#, K-55
3. Production Casing		21,500	21,500	4800' - 4-1/2" Liner
4. Tubing		22,500	22,500	9600' - 2-3/8" 4.7#, N-80
5. Wellhead Equipment	2,500	2,500	5,000	Series 900
6. Artificial Lift Equip.		35,000	35,000	Beam unit w/gas engine
7. Flow Line		750	750	500' - 2" i.P.
8. Process & Storage Equip.		23,000	23,000	2 - 500's & Treater
9. Power Supply Equipment				Not included
10. Packers, Anchors, Misc.	250	2,750	3,000	Baker Model "R" & etc.
Total Lease & Well Equip.	$ 56,000	$108,000	$164,000	
Intangibles				
Mi, RU & RD				
1. a. ~~Footage~~ ft @	$ 16,000	$	$ 16,000	
b. Daywork WDP 35 Day @ 3000	105,000		105,000	
c. Daywork WODP ____ Day @ ____				
d. Service Rig		6,000	6,000	10 days @ $600/Day
e. Fuel & Water	5,000	500	5,500	
f. Mud & Chemicals	7,500		7,500	
2. a. Supervision	3,000	2,000	5,000	Includes overhead
b. Geol. and/or Anal.	2,000		2,000	
c. Well Surveys	7,200	1,500	8,700	DIL, FDC-CNL, CBL
d. Drill Stem Tests	1,400		1,400	1 DST
e. Coring Equipment	1,000		1,000	1 50' Core
3. a. Cement & Service	5,000	3,200	8,200	
b. Floating Equipment	500	5,500	6,000	Includes liner hanger
c. Welding	250	250	500	
4. a. Perforating		1,200	1,200	
b. Fracturing & Service		12,000	12,000	30,000 gal 2% KCL
c. Acidizing & Service		2,500	2,500	3000 gal Morrow Flow
5. a. Location & Roads	8,500	2,000	10,500	
b. Transp. & Freight	500	2,000	2,500	
c. Roustabout Labor	300	2,500	2,800	Fence pit, set prod. equip.
6. a. Bits & Rental Tools	25,000	2,000	27,000	
b. Miscellaneous	5,850	3,850	9,700	
Total Intangibles	$194,000	$ 47,000	$241,000	
TOTAL	$250,000	$155,000	$405,000	

Grand Total $405,000

H.O.G., Inc. 50 % $ 202,500

Others 50 % $ 202,500

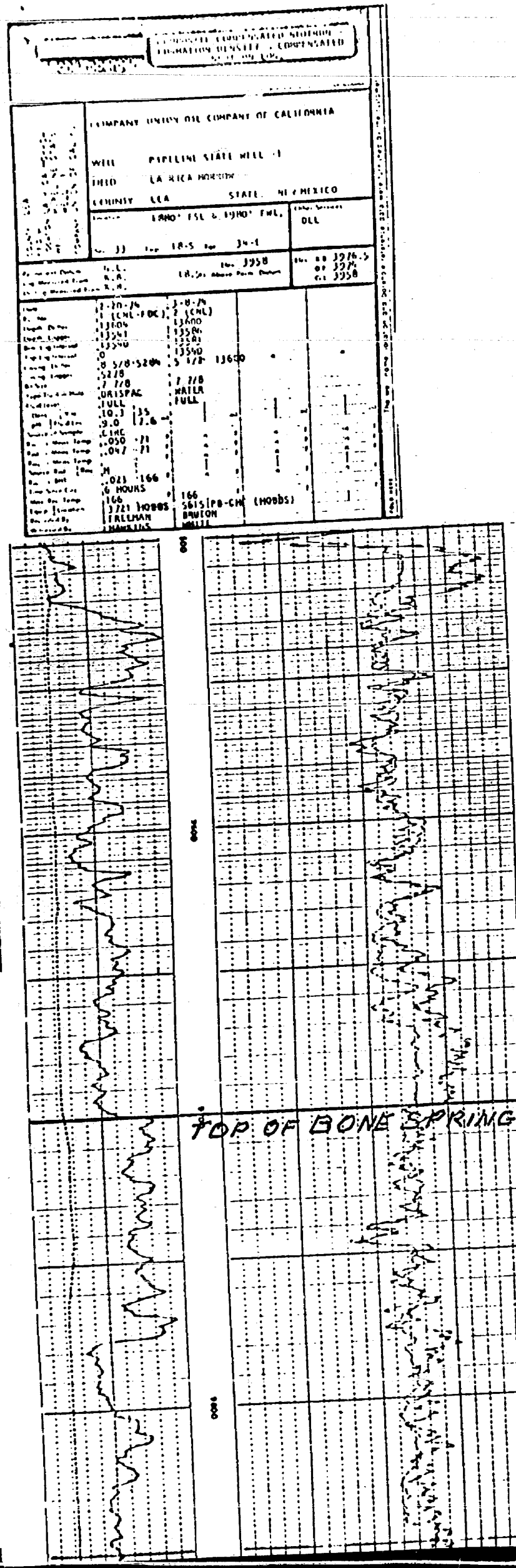
Prepared by: Darol K. Ramey
Darol K. Ramey

(Proposed Procedure & Details on reverse side)

APPROVALS

H.O.G., Inc. Date

Others Date

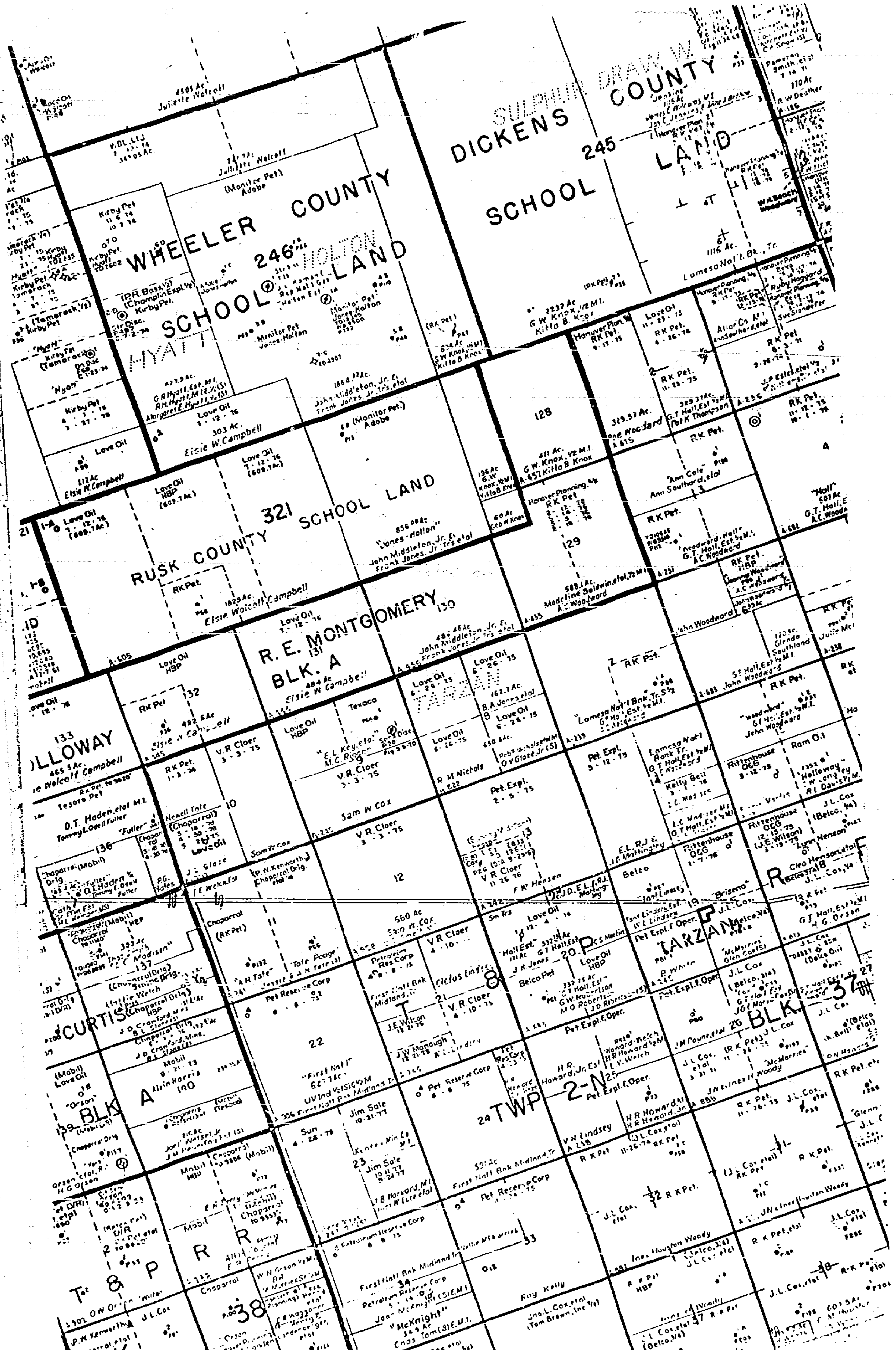


LOG ANALYSIS

SAND PAY 9700 (-5723)

9725-9729 ϕ 6% Sw 52%
9740-9743 ϕ 10.5% Sw 59%
9745-9747 ϕ 13% Sw 67%
9756-9759 ϕ 7% Sw 54%

No Test



MARTIN CO. TX. — 160 Ac. SPACING

WELL PERFORMANCE DATA

McElvain-Federal #1
EK Bone Spring Field
Lea County, New Mexico

Nov. 74 Day	Prod. Bbls. Oil	Dec. 74 Day	Prod. Bbls. Oil	Jan. 75 Day	Prod. Bbls. Oil	Feb. 75 Day	Prod. Bbls Oil
2	74	1	99	1	87	1	105
3	214	2	133	2	99	2	110
4	124	3	93	3	93	3	110
5	103	4	140	4	85	4	102
6	115	5	89	5	65	5	98
7	102	6	110	6	97	6	98
8	146	7	105	7	85	7	102
9	132	8	104	8	98	8	113
10	112	9	104	9	99	9	112
11	118	10	107	10	99	10	110
12	130	11	111	11	22		
13	121	12	114	12	133		
14	107	13	113	13	104		
15	109	14	107	14	57		
16	110	15	108	15	116		
17	118	16	110	16	116		
18	111	17	109	17	118		
19	117	18	104	18	105		
20	121	19	105	19	107		
21	106	21	102	20	101		
22	110	21	94	21	99		
23	115	22	104	22	86		
24	110	23	97	23	93		
25	112	24	99	24	91		
26	121	25	89	25	101		
27	109	26	99	26	104		
28	110	27	94	27	105		
29	115	28	94	28	107		
30	108	29	98	29	112		
		30	99	30	98		
		31	97	31	99		

EXHIBIT #3

ADDITIONAL DATA

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Hilliard EXHIBIT NO. 3
CASE NO. 5422

HILLIARD OIL & GAS, INC.
DRILLING & COMPLETION REPORT

OPERATOR:	HILLIARD OIL & GAS, INC.	TD:	14,075'
WELL:	McELVAIN-FEDERAL #1 (La Rica North)		
FIELD:		PBTD:	9650'
COUNTY:	LEA STATE: NEW MEXICO	ELEV. RKB:	3921'
LOCATION:	1980' FSL & 1980' FEL, Sec. 30, T-18S, R-34E	GR:	3903'
		SPACING:	18'
CONTRACTOR:	Tri Service Drilling Company Rig #6		

15,000' Devonian

5-29-74 Road & location complete - WORT
5-30-74 WORT
5-31-74 MI & RURT. Prep to spud well today.
6- 1-74 Spudded well @ 10:00 AM 6-1-74. 355' Redbed. Dev. ½ @ 331'. Mud 9.0#, Vis 33. Bit #1 - 17½" Hughes OSC3AJ-re-tip, in @ surface. Top of Redbed @ 105'. Ran 9 jts (358.45') 13-3/8" 54.50#, K-55, ST&C csg. Set @ 355' w/370 sx Class "C", 2% CaCl. Cmt circ. Plug down @ 8:30 PM. WOC & Nippling up.
6- 2-74 1521' Anhy. Dev. ½ @ 840', ½ @ 1340'. Mud 9.5#, Vis 33. Bit #2 - 11" Hughes OSC3AJ, in @ 355'. Finished nippling up. Tested 13-3/8" csg w/800# for 30 min held ok.
6- 3-74 1834' Anhy & Gyp. 1¼ @ 1777'. Mud 10.2#, Vis 32. Bit #2 - 11" Hughes, OSC3AJ, in @ 355'.
6- 4-74 2997' Anhy & Salt. Dev. 1 @ 2274', 1 @ 2777'. Mud 10.4#, Vis 33. Bit #3 - 11" Security M4N, in @ 1834'.
6- 5-74 3258' Anhy. Dev. 1¼ @ 3174'. Mud 10.4#, Vis 33. Bit #3 - 11" Security M4N, in @ 1834'. Bit #4 - 11" Smith V2J, in @ 3197'.
6- 6-74 3558' Anhy. Dev. ½ @ 3274'. Mud 10.5#, Vis 33. Bit #4 - 11" Smith V2J, in @ 3197'.
6- 7-74 3693' Anhy. Dev. 1 @ 3645'. Mud 10.5#, Vis 33. Bit #4 - 11" Smith V2J, out @ 3585'. Bit #5 - 11" Smith 5JS, in @ 3585'.
6- 8-74 3888' Anhy. No dev. surv. Mud 10.5#, Vis 33. Bit #5 - 11" Smith 5JS, in @ 3585'.
6- 9-74 4098' Anhy. Dev. ½ @ 4051'. Mud 10.6#, Vis 33. Bit #5 - 11" Smith 5JS, in @ 3585'.
6-10-74 4304' Anhy. No dev. surv. Mud 10.6#, Vis 33. Bit #5 - 11" Smith 5JS, in @ 3585'.
6-11-74 4431' Anhy. Dev. ½ @ 430'. Mud 10.6#, Vis 33. Bit #5 - 11" Smith 5JS, out @ 4320'. Bit #6 - 11" Smith 5JS, in @ 4320'.
6-12-74 4606' Anhy. No dev. surv. Mud 10.7#, Vis 33, added 40 Bbls oil to mud. Bit #6 - 11" Smith 5JS, in @ 4320'.
6-13-74 4764' Anhy. No dev. surv. Mud 10.7#, Vis 34. Bit #6 - 11" Smith 5JS, in @ 4320'.
6-14-74 4876' Anhy. Dev. ¼ @ 4803'. Mud 10.6#, Vis 33. Bit #6 - 11" Smith 5JS, out @ 4787'. Bit #7 - 11" Smith 6JS, in @ 4787'.
6-15-74 5020' Anhy. No dev. surv. Mud 10.7#, Vis 33. Bit #7 - 11" Smith 6JS, in @ 4787'.
6-16-74 5120' Dolo. Dev. ½ @ 4083'. Mud 10.6#, Vis 33. Bit #7 - 11" Smith 6JS, out @ 5120'. Running 8-5/8" csg.
6-17-74 5120' Dolo. Ran 145 jts - 8-5/8" csg as follows:

	Halliburton Guide Shoe	1.00
1 jt	- 8-5/8", 32#, K-55, ST&C	30.40
	Halliburton Insert Float	0.00
88 jts	- 8-5/8" 32#, K-55, ST&C	2697.40
56 jts	- 8-5/8" 24#, K-55, ST&C	2396.40
145 jts	& equipment	5125.20
	Less above RKB	-10.20
Csg set	@	5115.00
	Less shoe jt	-31.40
Insert Float	@	5083.60

Csg stuck 5' above bottom (acted as if stuck shallow in RedBeds). Preceeded cmt w/200 Bbls Baroid Casing Pack. Cmtd w/300 sx Halliburton "Light", 8# salt/sx, followed w/200 sx Class "C", 0.5% CFR-2. Plug down @ 12:00 Noon. Nippled up head & 10" BOP's. Tested 8-5/8" csg w/1500# for 30 min - held ok. Ran Temperature Survey - top of cmt @ 2750'. Going in hole w/7-7/8" bit & 6" drl collars. Top of San Andres 5080' (-1159).
6-18-74 5381' LI. Dev. ½ @ 5115'. Mud-wtr, 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, in @ 5120'. Correction on 6-17-74 report - Top of cmt 2300'.

McELVAIN-FEDERAL #1 HILLIARD OIL & GAS, INC.

6-19-74 5683' Li. Dev. ¼ @ 5566'. Mud-wtr 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, in @ 5120'.
6-20-74 5955' Sd & Dolo. No dev. surv. Mud-wtr 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, in @ 5120'.
6-21-74 6251' Li, Sh & Sd. Dev. 3/4 @ 6001'. Mud-wtr 8.4#, Ph 10.5.Bit #8 - 7-7/8" Hughes J-55, in @ 5120'.
6-22-74 6565' Li & Sd. Dev. ¼ @ 6466'. Mud-wtr 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, in @ 5120'.
6-23-74 6910' Li & Sd. No dev. surv. Mud-wtr 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, in @ 5120'.
6-24-74 7273' Li, Sd. & Sh. Dev. 3/4 @ 6903'. Mud-wtr 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, in @ 5120'.
6-25-74 7501' Li & Sd. Dev. ½ @ 7274'. Mud-wtr 8.4#, Ph 10.5. Bit #8 - 7-7/8" Hughes J-55, out @ 7303'. Bit #9 - 7-7/8" Hughes JD 8, in @ 7303'.
6-26-74 7738' Li. Dev. ½ @ 7661'. Mud-wtr 8.4#, Ph 10.5. Bit #9 - 7-7/8" Hughes JD8, out @ 7690'. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
6-27-74 8131' Li. No dev. surv. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
6-28-74 8484' Li & Sd. Dev. ½ @ 8132'. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
6-29-74 8765' Li & Sh. Dev. 1¼ @ 8630'. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
6-30-74 8955' Li & Sh. Dev. 1 @ 8786'. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
7- 1-74 9152' Li & Sh. Dev. 3/4 @ 8943'. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
7- 2-74 9382' Li & Sh. No dev. surv. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, in @ 7690'.
7- 3-74 9469' Li & Sh. Dev. 3/4 @ 9350'. Mud-wtr 8.4#, Ph 10.5. Bit #10 - 7-7/8" Hughes J-55, out @ 9382'. Bit #11 - 7-7/8" Hughes J-55, in @ 9382'.
7- 4-74 9607' Li & Sh. Dev. ½ @ 9591'. Mud - wtr. 8.4#, Ph 10.5. Bit #11 - 7-7/8" Hughes J-55 in @ 9382'. Running DST #1.
7- 5-74 9708' Li & Sh. No dev. surv. Mud - wtr, 8.4#, Ph 10.5. Bit #11 - 7-7/8" Hughes J-55 in @ 9382'. DST #1 (Bone Springs) 9500-9607' (107') 15" IF, 90" FF, 30" ISI, 120" FSI. Tool opened w/very weak blow. Tool re-opened w/very weak blow incr to good blow in 30". Rec 2615' GIDP & 10' free oil (Gr 38.5 deg. @ 85 deg. F.) & 170' GCDF (16,000 ppm cl - may be wtr cut also - Resistivity 1.55 ohms @ 78 deg. F) Sample chamber 0#, 980 cc oil, 920 cc drlg fluid. ISIP 3171#, FSIP 3882#, IFP 100-112#, FFP 125-138#, IHP 4174#, FHP 4174#, BHT 139 deg. F.
7- 6-74 9937' Li & Sh. No dev. surv. Mud - wtr, 8.4#, Ph 10.5. Bit #11 - 7-7/8" Hughes J-55, in @ 9382'.
7- 7-74 10,148' Li & Sh. Dev. 3/4 @ 10,050'. Mud - Kcl Brine, 10.2#, Ph 9.5. Bit #11 7-7/8" Hughes J-55 in @ 9382'.
7- 8-74 10,363' Li & Sh. No dev. surv. Mud - Kcl Brine 10.2#, Ph 10.0. Bit #11 - 7-7/8" Hughes J-55 in @ 9382'.
7- 9-74 10,593' Li, Sh & Sd. No dev. surv. Mud - Kcl Brine, 10.2#, Ph 9.5. Bit #11 7-7/8" Hughes J-55 in @ 9382'.
7-10-74 10,700' Li, Sh & Sd. No dev. surv. Mud - Kcl Brine, 10.1#, Ph 9.5. Bit #11 7-7/8" Hughes J-55 out @ 10,611'. Bit #12 - 7-7/8" Hughes J-55 in @ 10,611'.
7-11-74 10,876' Li & Sh. No dev. surv. Mud 10.1#, Vis 35, WL 10, FC 1/32, Ph 9.5. Bit #12 - 7-7/8" Hughes J-55 in @ 10,611'.
7-12-74 11,012' Li & Sh. No dev. surv. Mud 10.0#, Vis 34, WL 10.2, FC 1/32, Ph 9.5. Bit #12 - 7-7/8" Hughes J-55 in @ 10,611'.
7-13-74 11,158' Li & Sh. No dev. surv. Mud 10.0#, Vis 34, WL 10.8, FC 1/32, Ph 10. Bit #12 - 7-7/8" Hughes J-55, in @ 10,611'.
7-14-74 11,207' Li, Sh & Sd. Dev. 2° @ 11,174'. Mud 10.0#, Vis 34, WL 12.2, FC 1/32, Ph 9.5. Bit #12 - 7-7/8" Hughes J-55, out @ 11,186'. Bit #13 - 7-7/8" Hughes J-55, in @ 11,186'.
7-15-74 11,278' Li & Sh. No dev. surv. Mud 9.9#, Vis 34, WL 10.0, FC 1/32, Ph 9.5. Bit #13 - 7-7/8" Hughes J-55, in @ 11,186'.
7-16-74 11,376' Li, Sh & Sd. No dev. surv. Mud 9.9#, Vis 33, WL 9, FC 1/32, Ph 9.5. Bit #13 - 7-7/8" Hughes J-55, in @ 11,186'.
7-17-74 11,507' Li & Sh. No dev. surv. Mud 9.9#, Vis 33, WL 9, FC 1/32, Ph 10.5. Bit #13 - 7-7/8" Hughes J-55, in @ 11,186'.

7-18-74 11,620' Li & Sh. No dev. surv. Mud 10.0#, Vis 34, WL 9.0, FC 1/32, Ph 9.5. Bit #13 - 7-7/8" Hughes J-55, in @ 11,186'.

7-19-74 11,699' Li & Sh. Dev. 3/4° @ 11,643'. Mud 10.0#, Vis 34, WL 8.2, FC 1/32, Ph 10.0. Bit #13 - 7-7/8" Hughes J-55, out @ 11,669'. Bit #14 - 7-7/8" Hughes J-55, in @ 11,669'.

7-20-74 11,751' Sh. No dev. surv. Mud 10.0#, Vis 36, WL 8.2, FC 1/32, Ph 9.5. Bit #14 - 7-7/8" Hughes J-55, in @ 11,669'.

7-21-74 11,849' Li & Sh. No dev. surv. Mud 10.0#, Vis 35, WL 7.2, FC 1/32, Ph 9.5. Bit #14 - 7-7/8" Hughes J-55, in @ 11,669'.

7-22-74 11,938' Li, Sh & Sd. No dev. surv. Mud 10.0#, Vis 35, WL 8.2, FC 1/32, Ph 10.0. Bit #14 - 7-7/8" Hughes J-55, in @ 11,669'.

7-23-74 12,007' Li & Sh. No dev. surv. Mud 10.0#, Vis 35, WL 8.0, FC 1/32, Ph 10. Bit #14 - 7-7/8" Hughes J-55, in @ 11,669'.

7-24-74 12,072' Li & Sh. Dev. 0° @ 12,048'. Mud 10.0#, Vis 34, WL 8.0, FC 1/32, Ph 10. Bit #14 - 7-7/8" Hughes J-55, out @ 12,072'.

7-25-74 12,126' Sh. No dev. surv. Mud 10.0#, Vis 34, WL 9.0, FC 1/32, Ph 10. Bit #15 - 7-7/8" Hughes J-55, in @ 12,072'.

7-26-74 12,209' Li & Sh. No dev. surv. Mud 10.0#, Vis 34, WL 9.2, FC 1/32, Ph 10. Bit #15 - 7-7/8" Hughes J-55, in @ 12,072'

7-27-74 12,278' Li & Sh. No dev. surv. Mud 10.0#, Vis 33, WL 8.0, FC 1/32, Ph 10.0. Bit #15 - 7-7/8" Hughes J-55, in @ 12,072'.

7-28-74 12,397' Li & Sh. No dev. surv. Mud 10.1#, Vis 33, WL 8.5, FC 1/32, Ph 10.5. Bit #15 - 7-7/8" Hughes J-55, in @ 12,072'.

7-29-74 12,507' Li & Sh. No dev. surv. Mud 10.0#, Vis 33, WL 8.6, FC 1/32, Ph 10. Bit #15 - 7-7/8" Hughes J-55, in @ 12.072'.

7-30-74 12,554' Sh. No dev. surv. Mud 10.1#, Vis 33, WL 9.5, FC 1/32, Ph 10. Bit #15 - 7-7/8" Hughes J-55, in @ 12,072'.

7-31-74 12,605' Li & Sh. Dev. ½° @ 12,539'. Mud 10.1#, Vis 35, WL 9.6, FC 1/32, Ph 10.5. Bit #15 - 7-7/8" Hughes J-55, out @ 12,575'. Bit #16 - 7-7/8" Hughes J-44, in @ 12,575'.

8- 1-74 12,744' Li & Sh. No dev. surv. Mud 10.1#, Vis 34, WL 9.6, FC 1/32, Ph 10. Bit #16 - 7-7/8" Hughes J-44, in @ 12,575'.

8- 2-74 12,898' Li, Sh & Sd. No dev. surv. Mud 10.1#, Vis 34, WL 9.8, FC 1/32, Ph 10. Bit #16 - 7-7/8" Hughes J-44, in @ 12,575'.

8- 3-74 13,005' Li & Sh. No dev.surv. Mud 10.2#, Vis 34, WL 9.0, FC 1/32, Ph 10. Bit #16 - 7-7/8" Hughes J-44, in @ 12,575'.

8- 4-74 13,149' Li & Sh. No dev. surv. Mud 10.1#, Vis 34, WL 8.6, FC 1/32, Ph 10. Bit #16 - 7-7/8" Hughes J-44, in @ 12,575'.

8- 5-74 13,235' Li, Sh & Sd. Dev. 3/4° @ 13,209'. Mud 10.1#, Vis 35, WL 8.0, FC 1/32, Ph 10.5. Bit #16 - 7-7/8" Hughes J-44, out @ 13,235'. Bit #17 - 7-7/8" Hughes J-44, in @ 13,235'.

8- 6-74 13,286' Li, Sd & Sh. No dev. surv. Mud 10.3#, Vis 37, WL 5.6, FC 1/32, Ph 10. Bit #17 - 7-7/8" Hughes J-44, in @ 13,235'. Taking DST #2 - 13,130' to 13,286' (156').

8- 7-74 13,291' Li, Sh & Sd. No dev. surv. Mud 10.2#, Vis 36, WL 6.0, FC 1/32, Ph 10. Bit #18 - 7-7/8" Hughes J-55, in @ 13,286'. DST #2 - 13,130' - 13,286' (156'), 3000' wtr cushion. 30" IF, 120" ISI, 140" 2nd F, 80" 2nd SI, 120" 3rd F, 220" FSI. Tool op w/good blow, increasing to strong blow in 2 min. GTS during ISI. Tool op for 2nd flow w/strong blow of gas, 1# on ½" ck. Wtr cushion to surface in 98" total flow time, salt wtr to surface in 148" of total flow time. Flwg salt wtr & gas w/490# on ½" ck. Tool op for 3rd flow making salt wtr & gas. Well started making recognizable amounts of condensate after 209" total flow time, cutting 25-30% condensate in salt wtr to end of test, w/335# on ½" ck. Reversed out est. 8 Bbls condensate, 16 Bbls salt wtr (33,000 ppm Cl). Sample Chamber - unable to record pressure, 3.97 cu ft gas, 200 cc condensate (52° API), 520 cc salt wtr (33,000 ppm Cl). Pit sample 138,000 ppm Cl.

IHP	7094#	FFP	1676 - 2434#
IFP	1733 - 2434#	FSIP	6563#
ISIP	6828#	FHP	7037#
2nd FP	2623 - 2983#	BHT	184°F
2nd SIP	6620#		

McELVAIN-FEDERAL #1

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8- 8-74 13,369' Li & Sd.
No dev. surv.
Mud 10.2#, Vis 37, WL 5.2, FC 1/32, Ph 10.
Bit #18 - 7-7/8" Hughes J-55, in @ 13,286'.
Prep to DST #3 13,270 - 13,369'.

8- 9-74 13,369' Li & Sd.
No dev. surv.
Mud 10.0#, Vis 45, WL 4.4, FC 1/32, Ph 10.5.
DST #3 13,270 - 13,369' (99') 3000' wtr cushion. Packers failed, test was a mis-run. Went in hole to condition mud & hole. Had moderate amount of gas for 4 hrs. Raised viscosity to 45. Circ. Prep. for DST #4 13,251 - 13,369'.

8-10-74 13,369' Li & Sd.
No dev. surv.
Mud 10.0#, Vis 44, WL 4.2, FC 1/32, Ph 10.0.
C & C hole. Made short trip & had bridge 105' off bottom. Cleaned out & C & C hole. Made short trip & had bridge 65' off bottom. Cleaned out & cond hole. Made short trip, no bridge, no fill. C & C hole. Made short trip, no bridge, no fill. POH. Picked up test tools. Taking DST #4.

8-11-74 13,389' Sh.
No dev. surv.
Mud 10.2#, Vis 48, WL 4.0, FC 1/32, Ph 9.5.
Bit #18 - 7-7/8" Hughes J-55, in @ 13,286'.
DST #4, 13,251' - 13,369' (118'), 3000' WC, 20" IF, 70" ISI, 60" FF, 120" FSI. Tool op w/weak blow, continued weak through IF. Tool re-op w/fair blow incr slowly, to bottom of 5 gal bucket in 15". Incr slowly to end of test. Blow continued through FSI - GTS in 96" of FSI. Max flow rate est @ 17.5 MCF/D (34 psi on 1/8" ck). Attempted to re-open for third flow. Apparently stuck above test tools; could not operate tester. Pulled loose & POH. Rec 10,000' GIDP, 3000' GCWC, 210' GCDF, no wtr indicated. Sample chamber - no recovery (hydraulic tool was damaged when pulling loose & allowed tester to op above floor).

IHP	7176'	FFP	1512 - 1512#
IFP	1494 - 1494#	FSIP	6658#
ISIP	5425# & building	FHP	7176#
		BHT	184°F.

8-12-74 13,495' Li & Sh.
No dev.
Mud 10.1#, Vis 45, WL 6.0, FC 1/32, Ph 10.
Bit #18 - 7-7/8" Hughes J-55, in @ 13,286'.

8-13-74 13,545' Sh.
No dev. surv.
Mud 10.2#, Vis 44, WL 4.0, FC 1/32, Ph 10.
Bit #18 - 7-7/8" Hughes J-55, in @ 13,286'.

8-14-74 13,621' Li, Sh & Sd.
No dev. surv.
Mud 10.2#, Vis 44, WL 4.6, FC 1/32, Ph 10.
Bit #18 - 7-7/8" Hughes J-55, in @ 13,286'.

8-15-74 13,629' Li & Sh.
Dev. 3/4° @ 13,610'.
Mud 10.2#, Vis 46, WL 4.2, FC 1/32, Ph 10.
Bit #19 - 7-7/8" Hughes J-44, rerun, in @ 13,629'.
Bearing out of rotary table. Repaired same.

8-16-74 13,708' Li & Sh.
No dev. surv.
Mud 10.3#, Vis 44, WL 4.0, FC 1/32, Ph 10.
Bit #19 - 7-7/8" Hughes J-44 rerun, in @ 13,629'.
Sample top of Upper Mississippian Ls 13,630' (-9709)
49' low to Aztec Fed "M"
131' low to Pan Am #5 Buffalo Unit
8' high to Humble #3 Mescalero Unit
77' low to Union Pipeline Fed
138' low to Continental Tonto Unit

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McELVAIN-FEDERAL #1

8-17-74 13,768' Sh.
No dev. surv.
Mud 10.3#, Vis 45, WL 4.0, FC 1/32, Ph 10.
Bit #19 - 7-7/8" Hughes J-44, rerun, In @ 13,629'.

8-18-74 13,795' Sh.
No dev. surv.
Mud 10.3#, Vis 45, WL 4.6, FC 1/32, Ph 10.5.
Bit #19 - 7-7/8" Hughes J-44, out @ 13,768'.
Bit #20 - 7-7/8" Hughes J-8, In @ 13,768'.

8-19-74 13,876' Sh.
No dev. surv.
Mud 10.3#, Vis 44, WL 4.8, FC 1/32, Ph 10.
Bit #20 - 7-7/8" Hughes J-8, In @ 13,768'.

8-20-74 13,921' Sh.
No dev. surv.
Mud 10.3#, Vis 46, WL 4.2, FC 1/32, Ph 10.
Bit #20 - 7-7/8" Hughes J-8, out @ 13,892'.
Bit #21 - 7-7/8" Smith FS, In @ 13,892'.

8-21-74 13,990' Sh.
No dev. surv.
Mud 10.3#, Vis 44, WL 4.6, FC 1/32, Ph 10
Bit #21 - 7-7/8" Smith F-5, In @ 13,892'.

8-22-74 14,060' Sh.
No dev. surv.
Mud 10.2#, Vis 44, WL 6, FC 1/32, Ph 10.
Bit #21 - 7-7/8" Smith F5, In @ 13,892'.

8-23-74 14,075' Li & Sh.
No dev. surv.
Mud 10.2#, Vis 45, WL 6.2, FC 1/32, Ph 10.5.
Bit #21 - 7-7/8" Smith F-5, out @ 14,075'.
Running open hole logs.
Log Top of Lower Mississippian Limestone 14,027' (-10,106')
127' low to Continental Tonto Deep Unit
137' low to Union Pipeline Federal
51' low to Humble #3 Mescalero Unit
413' low to Pan American #5 Buffalo Unit

8-24-74 14,075' Li & Sh Td
No dev. surv.
Mud 10.2#, Vis 45, WL 6.2, FC 1/32, Ph 10
Finished running Schlumberger DLL, BHC-Sonic, FDC-CNL, MLL & Velocity Survey.
Went in hole & conditioning mud. WOO

8-25-74 14,075' Li & Sh TD
Mud 10.2#, Vis 45, WL 6.2, FC 1/32, Ph 10
Plugged back to set casing @ 9560'.
Set cement plugs as follows:
50 sx cmt plug @ 12,950' - 13,100'
55 sx cmt plug @ 10,300' - 10,450'
75 sx cmt plug @ 9,700' - 9,900'
WOC & Waiting on csg delivery.

8-26-74 9650' PBTD
Mud 10.2#, Vis 46, WL 4.6, FC 1/32, Ph 10
Tagged cmt @ 9548'. Drilled plug to 9650'. Casing on loc. WO parts for liner hanger.

8-27-74 9650' PBTD
Waited on Liner Hanger Equip. until 4:00 PM
Ran 148 jts 4½" csg as liner as follows:

	Halliburton Float Shoe	1.70'
1 jt	4½", 11.60#, K-55, LT&C	32.76'
	Halliburton Float Collar	1.40'
	TIW hatch collar	0.80'
147 jts	4½", 11.60#, K-55, LT&C	4728.72'
	5½" X 4½" 8 Rd Crossover	0.80'
	TIW Type "EJ", 8-5/8" X 5½" Liner Hanger	5.16'
	6-5/8" X 5½" 8 Rd Crossover	1.11'
	TIW Packoff w/tie-back sleeve, 7-9/16" OD X 6" ID	6.88'
148 jts.	& equipment	4779.33'
	Plus below RKB	4869.67'
	Liner Shoe set @	9649.00'
	Less Shoe jt.	-36.66'
	Top of Float Collars @	9612.34'
	Less liner & hanger assembly	-4742.67'
	Top of Liner Hanger & Tie-back sleeve	4869.67'

cmtd w/500 sx Class "H", 50-50 Pozmix, 2% gel, 8.6# salt/sx, 3/10% HR-7. Plug down @ 2:30 AM. Set Packoff. Circ mud out of 8-5/8" csg w/fresh wtr. Laying down drillpipe.

8-28-74 Finished laying down drl pipe. Removed BOP's. Cleaned pits. Rel Tri-Service Rig 6 @ 4:00 PM 8-27-74. Waiting on compl.

8-29-74 WO Completion - Unable to MORT due to wet weather and lack of trucks.
8-30-74 WO Completion - Unable to MORT due to wet weather and lack of trucks.
8-31-74 WO Completion
thru
9- 5-74
9- 6-74 MI & RU Select Well Service. Starting completion.
9- 7-74 Nippled up wellhead & BOP's. Ran 310 jts. tbg. Tagged bottom @ 9570'. Pulled up & set tbg @ 9525', prep to circ hole w/treated wtr & spot acid on bottom. SDFN.

9- 8-74 Displaced hole w/2% Kcl wtr. Spotted 100 gal 7½% Morrow Flow acid fr 9375-9525'. Pulled tbg. RU Schlumberger & attempted to run CBL-Gamma Collar Log. Two sets of tools failed to operate. SDFN.

9- 9-74 SD for Sunday.
9-10-74 Ran CBL-Gamma Ray & Collar Logs. Log indicated adequate bond thru zone of interest. Perf 9498-9512' & 9518-24' w/1 shot/ft. Ran tbg & pkr as follows:

2 jts.	2-3/8" 4.70#, N-80, EUE 8 Rd		60.95'
	Baker Model "D" Double Grip Pkr		6.00'
	Seating Nipple - 1-25/32"		1.00'
301 jts.	2-3/8" 4.70#, N-80, EUE 8 Rd		9309.24'
303 jts.	Tbg & Equip.		9377.19'
	Plus below RKB	+	14.00'
	Tbg set @		9391.19'
	Minus	-	66.95'
	Top of pkr @		9324.24'

Removed BOP's, set pkr w/15,000# compression, nippled up wellhead & SION.

9-11-74 Swbd well down & dry. Waited 2 hrs - had 200' fluid accumulation. Swbd well dry again - no show of oil or gas.

McELVAIN-FEDERAL #1 HILLIARD OIL & GAS, INC.

9-12-74 SITP 0#, on slight vacuum. Ran swb, 1000' fluid in hole, rec 400' wtr, NSO&G. Dropped swb mandrel in tbg while changing swb cups. Fished same out of hole. Ran swb - found 1000' fluid in hole, rec 400' wtr, NSO&G. RU Halliburton & treated perfs 9498-9512' & 9518-24' w/3000 gal 7½% Morrow Flow acid, split into 6 stages w/five drops of 6 ball sealers. Initial Treating press 3900# @ 4.5 BPM. Pressure increased by 100-200# on each stage of ball sealers. Final treating pressure 4500# @ 4.2 BPM. Avg press 4200# @ 4.3 BPM. ISIP 3100#, 5" SIP 2800#, 15" SIP 2400#. Blead off press & started swbg. Fluid level dropped steadily to 6700' & then began to get fluid out of formation. Fluid level began to hold @ 6000'. Fluid from formation began cutting hihg percentage of oil almost immediately. Acid gas & formation gas sufficient to scatter fluid from 3000' to 9000'. On last run of swb, solid fluid level 8400', pulled from seating nipple @ 9324'. Rec 3.5 BF, 75% oil, 25% spent acid wtr. Have rec 60 Bbls of 110 Bbls acid & load wtr.

9-13-74 SITP 600#. Op well on 1" choke. Flwd 25 BF - 10% wtr & died. Ran swb, found fluid scattered in hole. Made 3 runs & rec 6 BF - 50% wtr. SD 1 hr - FL 6000'. Swbd 6 BF, 100% oil. SD 1 hr - FL 8100', swbd 3 BF, 100% oil. Continued swbg & recovering approx 3 BF/hr - 90-100% oil. SDON.

9-14-74 SITP 800#. Opened well on 20/65 ck. Pressure bled off & well started flwg by heads. Flwd est 25 BO, no wtr, to pit. Ran swb & found scattered fluid in hole. Swbd 3 BF/hr - 90-100% oil. SD, unable to get frac equipment.

9-15-74 SITP 700#. Opened on 20/64 ck. Bled off pressure & well flwd about 20 BO to pit. Ran swb & found scattered fluid, rec 10% wtr. RU Halliburton & fraced w/30,000 gal gelled 2% Kcl wtr (low-gel system) & 31,500# 20/40 sand. Avg treating press 6600# @ 10 BPM down 2-3/8" tbg. ISIP 3400#, 5" SIP 3300#, 15" SIP 3100#. Total Load - 950 Bbls. Left well SION.

9-16-74 18 hr SIP 400#. Opened well on 20/64 ck. Pressure bled off to 0# rapidly. Started swbg, rec 40 BLW, FL 3700'. SD due to heavy rain. 910 BLWTR. SDON.

9-17-74 SITP 300#. Bled off press. Ran swb & found FL @ 300'. Swbd well down to seating nipple w/little fluid feed in. After 2 hrs, fluid started feeding in. Having trouble w/swb cups tearing up. At end of day FL 7500' making 20% oil. Swbd 85 BLW; 825 BLWTR. SION.

9-18-74 SITP 500#. Opened on 20/64 ck & flwd 15 BO & died. Ran swb, found FL @ 6500'. Continued swbg, recovering 4 BF/hr, 10% wtr. Rec 55 BF - est 50 BO, 5 BLW. 820 BLWTR. SION.

9-19-74 SITP 650#. Opened well on 20/64 ck. Flwd 10 BO. Ran swb, found FL @ 5500'. Swbd & flwd 55 BF, 10% wtr. Fluid level went down to seating nipple. SD @ 5:00 PM due to heavy rain. Put well on 16/64 ck. Well flwd 35 BF over night. TP 0# & dead this AM.

9-20-74 Swbd 45 BF in 10 hrs, 95% oil, 5% load wtr. Fluid level 7000'± & scattered. Left well open on 16/64 ck. Flwd 30 BF to tank over night. TP 0#, gassing lightly.

9-21-74 Rel pkr. Pulled tbg & pkr. Went in hole w/tbg & tbg anchor. Tagged sd @ 9504'. SDON.

9-22-74 SD for wet weather. Prep to wash out sand fill.

9-23-74 SD for Sunday & wet weather.

McELVAIN-FEDERAL #1 HILLIARD OIL & GAS, INC.

9-24-74 RU pump truck & washed out sd fill up from 9504' to 9545'. Pulled up & set tbg @ 9519' as follows:

1 jt - 2-3/8", 4.7#, N-80, EUE 8 Rd	30.12'
Pump Seating Nipple - 1-25/32"	1.00'
2 jts - 2-3/8", 4.7#, N-80,EUE 8 Rd	61.20'
Guiberson TM Anchor-Catcher	2.50'
304 jts - 2-3/8", 4.7#, N-80, EUE 8 Rd	9401.82'
307 jts & equip.	9496.64'
Plus below RKB when set	+22.36'
Tubing set @	9519.00'
Minus	-31.12'
Pump Seating Nipple @	9487.88'
Minus	-63.70'
Tubing Anchor set @	9424.18'

Set tubing anchor w/54" stretch (18,000# tension). Hooked up well head. SD due to rain.

9-25-74 Swbd 250 Bbls wtr. SD for night.

9-26-74 Swbd 175 Bbls fluid, running 30% oil by end of day. FL 7500'. Prep to run rods & pump.

9-27-74 SITP 300#, SICP 300#. Swbd 135 BF, 10 hrs. At end of day, fluid was 80% oil, 20% load wtr. FL about 6500'. Good gas volume. Rods & pump arrived on location late. Will run rods & pump today.

9-28-74 Ran 2" X 1¼" pump on 7/8" & 3/4" rod string. Rel Select Well Service. WO pumping unit installation.

9-29-74 thru 10-1-74 WO pumping unit installation.

10-2-74 WO pumping unit installation - engine overhaul to be completed today.

10-3-74 thru 10-10-74 WO pumping unit installation.

10-11-74 Set American 228-212-86 pump unit w/Fairbanks Morse AC 739 gas engine. Hooking up fuel gas system.

10-12-74 Hooked up well head. SITP 500#, SICP 1100#. Cracked valves on csg & tbg to bleed off pressure.

10-13-74 Flwd 180 BO, 20 BLW, 24 hrs. After 24 hrs, TP 0-50#, CP 60#, flwg oil by heads. Shut well in w/storage full.

10-14-74 Well shut in. Storage full. Unable to move oil due to wet weather.

10-15-74 Well shut in. Storage full. Unable to move oil due to wet weather.

10-16-74 Moved oil from test tank. Will re-open well today & start up pump unit.

10-17-74 Treating oil in test tank & moving today. Will start pump tomorrow.

10-18-74 Re-treating oil in test tank.

10-19-74 Re-treated oil. Will empty test tank today.

10-20-74 Emptied test tank. SITP 500#, SICP 900#. Cracked tbg & csg valves to bleed off pressure. Left well flwg.

10-21-74 Flwd 260 BO, 20 BLW, 24 hrs. TP 0 - 50#, CP 60#. Plan to start up pump unit today.

McELVAIN-FEDERAL #1 HILLIARD OIL & GAS, INC.

10-22-74 F: 110 BO, 10 BW, 18 hrs, valves cracked, TP 0 - 50#, CP 100#, flwg by heads. Shut well in. Storage full. Will have to treat oil.

10-23-74 SI - treating oil in test tank.

10-24-74 Unable to move oil from storage tank due to wet weather.

10-25-74 Moving oil today. Should be able to open up well this PM.

10-26-74 Moved oil & opened up well.

10-27-74 F: 280 BO, 20 BW, 24 hrs. TP 0 - 50#, CP 100#. No choke on well head, flwg through cracked valves.

10-28-74 SI - treating oil in test tank. Tank pad built, prep to set battery tanks & treater.

10-29-74 Re-treating oil in test tank. Setting tank battery and treater.

10-30-74 thru 11- 2-74 Building tank battery. Well SI.

11-3-74 F: 214 BO, 18 BW, 24 hrs. TP 0 - 50#, 24/64" ck.

11-4-74 Completing tank battery. No report on production.

11-5-74 F: 120 BO, 12 BW, 24 hrs, 24/64" ck. TP 0-50#, CP 250#. Battery completed. Started pumping @ 3:00 PM, 11-4-74.

11-6-74 P: 130 BO, 12 BW, 24 hrs.

11-7-74 P: 103 BO, 5 BW, 24 hrs.

11-8-74 P: 101 BOPD, 6 BWPD, 24 hrs.

11-9-74 P: 146 BO, 10 BW, 24 hrs, CP 300#.

11-10-74 P: 112 BO, 8 BW, 24 hrs, CP 350#.

11-11-74 P: 132 BO, 9 BW, 24 hrs, CP 400#.

11-12-74 P: 119 BO, no wtr, 24 hrs, CP 420#.

11-13-74 P: 130 BO, 1 BW, 24 hrs, CP 400#, 24/64" ck. Initial Potential: 11-11-74: P: 132 BO, 9 BW, 54.7 MCF, GOR 414. Oil gravity 35 API, TP 30#, CP 400#. Final Report.

Form 3160
(Nov. 6 683)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE (See other instructions on reverse side)

Form approved. Budget Bureau No. 42 R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM 0245247
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
7. UNIT AGREEMENT NAME:
8. FARM OR LEASE NAME: McElvain-Federal
9. WELL NO.: 1
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 30, T-18-S, R-34-E

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other
b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: HILLIARD OIL & GAS, INC.

3. ADDRESS OF OPERATOR: 906 Building of the Southwest, Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 1980' FEL & 1980' FSL
At top prod. interval reported below: random
At total depth: random

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
	5-17-74	Lea	New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
6-1-74	8-22-74	10-27-74	GR 3903, RKB 3921	3903

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
14,075'	9570'		→	0-14,075'	--

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 9498' - 9524' Bone Spring Sand

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: DLL, BHC-Sonic, FDC-CNL, MLL

27. WAS WELL CORED: No

23. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8"	54.40#	355	17½"	370 sx Class "C"	None
8-5/8"	24 & 32#	5115	11"	300 sx Hal Lite, 200 sx "C"	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
4-1/2"	4870'	9649'	500	No

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	9515'	Anchor @ 9420'

31. PERFORATION RECORD (Interval, size and number)
9498-9512' (15 - 0.40" shots)
9518-9524 (7 - 0.40" shots)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
9498-9524	3000 gal 7½% acid
	Fraced w/30,000 gal gelled 2%
	KCL water & 31,500# Sd.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
10-27-74	Pumping - 2"X1½" Rod pump	Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
11-11-74	24	Open		132	54.7	9	414

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
	400#		132	54.7	9	35

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): fuel & vented

TEST WITNESSED BY: G. L. McCormick

35. LIST OF ATTACHMENTS: Logs, DST reports, Mud Log, Geological Report furnished under separate cover

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Mgr. of Operations DATE 11-12-74

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "*Sacks Cement*": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Bone Springs	9500'	9607'	DST #1 15" IF, 30" ISI, 90" FF, 120" FSI. Rec. 2615' GIDP, 10' Free oil, 170' GCDF. IHP 4174#, IFP 100-112#, ISIP 3171#, FFP 125-138#, FSIP 3882#, FHP 4174#.
Morrow	13130'	13286'	DST #2 30" IF, 120" ISI, 140" 2nd F, 80" 2nd SI, 120" FF, 220" FSI. GTS during ISI. Flowed gas, cond. & water. Sample Chamber - 3.97 cu ft gas, 200 cc cond., 520 cc water. IHP 7094#, IFP 1733-2434#, ISIP 6828#, 2nd FP 2623-2983#, 2nd SIP 6620#, FFP 1676-2434#, FSIP 6563#, FHP 7037#.
Morrow	13270'	13369'	DST #3 Mis-Run
Morrow	13251'	13369'	DST #4 20" IF, 70" ISI, 60" FF, 120" FSI. Flowed gas at max. rate 17.5 MCF/D. Tools stuck. Rec 3000' WC, 210' GCDF. IHP 7176#, IFP 1494#. ISIP 5425#, FFP 1512#, FSIP 6658#, FHP 7176#.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Anhydrite	1697'	
Top of Salt	1900'	
Base of Salt	2950'	
Yates	3200'	
San Andres	5064'	
Delaware	5678'	
Bone Spring	7611'	
Wolfcamp	10446'	
Strawn	12240'	
Atoka	12479'	
Morrow	13124'	
Miss. Lime	14027'	

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683636

671-233

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SURFACE INFORMATION

Description (Rate of Flow)	Time	Pressure (P.S.I.G.)	Surface Choke
Opened Tool	0514	0	1/8"
VERY WEAK BLOW			
CLOSED FOR INITIAL SHUT-IN	0529	0	"
FINISHED SHUT-IN	0559	0	"
RE-OPENED TOOL	0600	0	"
VERY WEAK BLOW INCREASING TO GOOD BLOW			
OPENED ON 1" CHOKE	0635	0	1"
BLOW DIED	0640	0	"
CLOSED CHOKE	0640	0	CLOSED
BLOW INCREASED TO GOOD BLOW			
CLOSED FOR FINAL SHUT-IN	0730	0	"
FINISHED SHUT-IN	0930	0	"
PULLED PACKER LOOSE	0932	-	-

Cushion Type	Amount	Pressure	Bottom Choke
	-		Size 5/8"

MUD DATA

Mud Type FRESH WATER — Wt. 8.4
Viscosity 28 — Water Loss - C.C.
Resist. of Mud 1.55 @ 78 °F. of Filtrate 1.55 @ 78 °F
Chloride Content 1600 PPM

EQUIPMENT & HOLE DATA

Type Test M.F.E. OPEN HOLE
Formation Tested PENNSYLVANIAN
Elevation -
Net Productive Interval - Ft.
Estimated Porosity - Ft.
All Depths Measured From KELLY BUSHING %
Total Depth 9607
Main Hole/Casing Size 7 7/8" Ft.
Rat Hole/Liner Size -
Drill Collar Length 600' I.D. 2.25"
Drill Pipe Length 8863' I.D. 3.8"
Packer Depth(s) 9494' & 9500 Ft.

MULTI-FLOW EVALUATOR FLUID SAMPLE DATA

Sampler Pressure 0 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas 0
cc. Oil 980
cc. Water 920
cc. Mud -
Tot. Liquid cc. 1900
Gravity 36.7°API @ 60 °F.
Gas/Oil Ratio - cu. ft./bbl.

		RESISTIVITY	CHLORIDE CONTENT
Recovery Water	2.1 @ 84 °F.	1700	ppm
Recovery Mud	- @ - °F.		
Recovery Mud Filtrate	- @ - °F.	-	ppm
Mud Pit Sample	1.55 @ 78 °F.		
Mud Pit Sample Filtrate	1.55 @ 78 °F.	1600	ppm

RECOVERY DESCRIPTION	FEET	BARRELS	% OIL	% WATER	% OTHERS	API GRAVITY	RESISTIVITY	CHL. PPM
GAS	2615	-				@ °F.	@ °F.	
FREE OIL	10	0.05				36.7@ 60 °F.	@ °F.	
DRILLING FLUID	170	0.83				@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	

Remarks:

Address 906 BUILDING OF THE SOUTHWEST; MIDLAND, TEXAS 79701

Company HILLIARD OIL & GAS, INC.
Well MC ELVAIN-FEDERAL #1
Test Interval 9500' TO 9607' — Location SEC. 30-T18S-R34E — Field WILD CAT
Test # 1 — Date 7-4-74
County LEA — State NEW MEXICO
Technician HART(HOBBS) — Test Approved By MR. ELMER S. LYNN

Field Report No. 05545 C
No. Reports Requested 20(9 x's)

JOHNSTON ...found a better way

PRESSURE DATA

Instrument No.	J-112			
Capacity (P.S.I.G.)	6400			
Instrument Depth	9601'			
Instrument Opening	INSIDE			
Pressure Gradient P.S.I./Ft.				
Well Temperature °F.	139			

Field Report No. 05545 C

					Time Given	Time Computed
Initial Hydrostatic Mud	A	4216.9				
Initial Shut-in	B	* 3200.4			30 Mins.	31 Mins.
Initial Flow	C	100.1			15 Mins.	16 Mins.
	C-1	107.7			- Mins.	- Mins.
	C-2	142.0			- Mins.	- Mins.
Final Flow	D	162.4			90 Mins.	88 Mins.
Final Shut-in	E	* 3919.2			120 Mins.	121 Mins.
Final Hydrostatic Mud	F	4225.8				

Remarks:

INCREMENTAL BREAKDOWN DONE ON FOLLOWING PAGE.

*Shut in pressure did not reach static reservoir pressure.

Clock Travel 0.02078 inches per min.

PRESSURE INCREMENTS

Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$	Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$	Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$

Docket No. 5-75

Dockets Nos. 6-75 and 7-75 are tentatively set for hearing on March 5 and March 19, 1975. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - FEBRUARY 19, 1975

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM, STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for March, 1975, from seventeen prorated pools in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico.

(2) Consideration of the allowable production of gas for March, 1975, from five prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

(3) Consideration of purchaser's nominations for the one-year period beginning April 1, 1975, for both of the above areas.

CASE 5402: (Continued from the January 22, 1975 Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Tyra & Tyra, Fidelity and Deposit Company of Maryland and all other interested parties to appear and show cause why the Tyra & Tyra BTA Lulu Well No. 1 located in Unit C of Section 22, Township 9 South, Range 35 East, Lea County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 5415: Application of Burk Royalty Co. for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Double L Queen Unit Area, comprising 2670 acres, more or less, of Federal, State, and fee lands in Townships 14 and 15 South, Ranges 29 and 30 East, Chaves County, New Mexico.

CASE 5416: Application of Tesoro Petroleum Corporation for a unit agreement, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Coal Creek Unit Area comprising 11,225 acres, more or less, of State and Federal lands in Township 23 North, Ranges 12 and 13 West, San Juan County, New Mexico.

CASE 5409: (Continued from the February 5, 1975, Examiner Hearing)

Application of Atlantic Richfield Company for a non-standard gas proration unit, an unorthodox gas well location, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 320-acre non-standard gas proration unit comprising the SE/4 of Section 12 and the NE/4 of Section 13, both in Township 24 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its George W. Toby WN Wells Nos. 4, 1, and 1-A, located, respectively, in Units A and H of said Section 12 and in Unit A of said Section 13.

CASE 5417: Application of Atlantic Richfield Company for a non-standard gas proration unit, two unorthodox locations, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 640-acre non-standard gas proration unit comprising the S/2 of Section 24 and the N/2 of Section 25, both in Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to its McDonald State WN Wells Nos. 12 and 24, located, respectively, at unorthodox locations in Unit M of Section 24, and in Unit E of Section 25.

CASE 5418: Application of Joel B. Burr, Jr. and William J. Cooley for permission to flare casinghead gas, McKinley County, New Mexico. Applicants, in the above-styled cause, seek an exception to Order No. R-4070, to permit the flaring of casinghead gas produced by their Coleman Well No. 2, located in Unit C of Section 8, Township 17 North, Range 8 West, Lone Pine Dakota D Oil Pool, McKinley County, New Mexico.

CASE 5419: Application of J. Gregory Merrion & Robert L. Bayless for downhole commingling, Rio Arriba County, New Mexico. Applicants, in the above-styled cause, seek authority to commingle Gavilan-Pictured Cliffs and Blanco-Mesaverde production in the wellbore of their North Lindrith Unit Com Well No. 1, located in Unit M of Section 20, Township 26 North, Range 2 West, Rio Arriba County, New Mexico.

CASE 5420: Application of Texaco, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to convert its New Mexico "DM" State (NCT-1) Well No. 1, located in Unit N of Section 21, Township 13 South, Range 33 East, Lazy J Pennsylvanian Pool, Lea County, New Mexico, to dispose of produced salt water into the Pennsylvanian formation through the perforated interval from approximately 9742 to 9792 feet.

CASE 5421: Application of Texaco, Inc., for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Justis Tubb-Drinkard and North Justis-Fusselman production in the wellbore of its G. L. Erwin "B" Federal Well No. 3, located in Unit I of Section 35, Township 24 South, Range 37 East, Lea County, New Mexico.

CASE 5422: Application of Hilliard Oil and Gas, Inc., for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of temporary special rules for the EK-Bone Springs Pool, in Township 18 South, Range 34 East, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.

CASE 5122: (Reopened) (Continued from the January 22, 1975, Examiner Hearing)

In the matter of Case 5122 being reopened pursuant to the provisions of Order No. R-4693, which order established temporary special pool rules for the East Lusk-Wolfcamp Oil Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and a limiting gas-oil ratio of 4000 to 1. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing and proration units with a limiting gas-oil ratio of 2000 to 1.

CASE 5423: Application of Cities Service Oil Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in formations of Pennsylvanian age or older underlying the W/2 of Section 29, Township 21 South, Range 27 East, Eddy County, New Mexico, to be dedicated to a well to be drilled at an orthodox location within the spacing unit. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the designation of the applicant as the operator of the well and a charge for the risk involved in drilling said well.

CASE 5424: Application of Cities Service Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Dark Canyon Unit Area, comprising 2560 acres, more or less, of State lands in Township 23 South, Range 25 East, Eddy County, New Mexico.

CASE 5425: Application of Continental Oil Company for an unorthodox location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a non-standard 480-acre gas proration unit comprising the W/2 of Section 13 and the E/2 E/2 of Section 14, Township 21 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to its Lockhart B Wells Nos. 4 and 8, located at unorthodox locations in Units H and P, respectively, of Section 13, and to its Lockhart B Well No. 7, at an unorthodox location in Unit D of said Section 14. Applicant further seeks approval for the simultaneous dedication of a 320-acre non-standard gas proration unit comprising the S/2 of Section 12, Township 19 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to its State KN-12 Wells Nos. 1 and 2, located at unorthodox locations in Units P and N, respectively, of said Section 12.

CASE 5426: Application of Continental Oil Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Bell Lake Unit Well No. 16 to be drilled 660 feet from the North and East lines of Section 7, Township 24 South, Range 34 East, South Bell Lake-Morrow Gas Pool, Lea County, New Mexico, the N/2 of said Section 7 to be dedicated to said well.

CASE 5427: Application of Penroc Oil Corporation for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Allied B Com Well No. 1, located in Unit K of Section 27, Township 20 South, Range 27 East, Eddy County, New Mexico, in such a manner as to produce oil from the Bone Springs formation through tubing and gas from the Morrow formation through the casing-tubing annulus by means of a cross-over assembly.

CASE 5428: Application of Amax Chemical Corporation for the extension of the Potash-Oil Area, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the extension of the Potash-Oil Area in Eddy County, New Mexico, as defined by Order No. R-11-A, as amended, by the addition of the following described lands:

TOWNSHIP 19 SOUTH, RANGE 29 EAST
Section 13: S/2 SE/4
Section 14: W/2 SW/4
Section 23: N/2 NW/4, SE/4 NW/4, S/2 NE/4
Section 24: NW/4, W/2 NE/4, NE/4 NE/4

TOWNSHIP 19 SOUTH, RANGE 30 EAST
Section 14: W/2 NE/4
Section 18: SW/4

Case 5422

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF HILLIARD OIL & GAS, INC., FOR
ADOPTION OF POOL RULES, LEA COUNTY,
NEW MEXICO.

A P P L I C A T I O N

COMES NOW HILLIARD OIL & GAS, INC., an applies to the Oil Conservation Commission of New Mexico for the adoption of pool rules for the development and operation of the EK-Bone Springs Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units, with wells to be located in either forty-acre tract dedicated to the Well, and in support thereof would show the Commission:

1. Applicant has completed its Hilliard Oil & Gas, Inc., McElvain Federal Well No. 1, located in Unit J of Section 30, Township 18 South, Range 34 East, N.M.P.M., for production from the Bone Springs formation. The subject well is located 1980 feet from the South and East lines of the Section.

2. On the basis of information available from the drilling of this well, applicant believes that one well will efficiently and economically drain and develop not less than 80 acres, the formation being comparable to other areas where spacing has been established at 160 acres.

Case 5422

3. Wells located on 80 acres in this pool will not be economical, and unless wider spacing is established, fewer wells will be drilled, resulting in the loss of oil that could otherwise be recovered.

4. The spacing proposed is in the interest of conservation and the prevention of waste, and will protect the correlative rights of all owners in the pool.

5. Because of the nature of the formation, well locations should be permitted in either forty-acre tract of the 80 acres dedicated to the well.

WHEREFORE applicant prays that this application be set for hearing before the Commission or the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission enter its order establishing temporary rules for the EK-Bone Springs Pool as requested, for a period of one year, until further reservoir information may be obtained.

Respectfully submitted,

HILLIARD OIL & GAS, INC.

BY W. F. Kellahin

KELLAHIN & FOX
POST OFFICE BOX 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

DRAFT

TWE/jl

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 5422

Order No. R-4981

APPLICATION OF HILLIARD OIL & GAS, INC., FOR SPECIAL POOL RULES, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 19, 1975 at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of March, 1975, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Hilliard Oil & Gas, Inc., seeks the promulgation of special rules and regulations for the EK-Bone Springs Pool, Lea County, New Mexico, including a provision for 80-acre proration units, and wells to be located in the approximate center of either quarter-quarter section.

(3) That in order to prevent the economic loss caused by the drilling of too many wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations should be promulgated for the EK-Bone Springs Pool.

(4) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained by one well.

(5) That this case should be reopened at an examiner hearing in March, 1976, at which time the operators in the subject pool should be prepared to appear and show cause why the EK-Bone Springs Pool should not be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That temporary Special Rules and Regulations for the EK-Bone Springs Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
EK-BONE SPRINGS POOL

RULE 1. Each well completed or recompleted in the EK-Bone Springs Pool or in the Bone Springs formation within one mile thereof, and not nearer to or within the limits of another designated Bone Springs oil pool, shall be spaced, drilled, operated, and produced in accordance with the special rules and regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section.

RULE 3. The Secretary-Director of the Commission may grant

an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the footage requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection ~~the~~ to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. Top unit allowable for a standard proration unit (79 through 81 acres) shall be based on a depth bracket allowable of 355 barrels per day, and in the event there is more than one

well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the EK-Bone Springs Pool or in the Bone Springs formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before April, 1, 1975.

(2) That, pursuant to Paragraph A. of Section 65-3-14.5, NMSA 1953, contained in Chapter 271, Laws of 1969, existing wells in the EK-Bone Springs Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 65-3-14.5, existing wells may have non-standard spacing or proration units established by the Commission and dedicated thereto.

Failure to file new Forms C-102 with the Commission dedicating 80 acres to a well or to obtain a non-standard unit approved by the Commission within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the EK-Bone Springs Pool or in the Bone Springs formation witnin one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in March, 1976, at which time the operators in the subject pool may appear and show cause why the EK-Bone Springs Pool should not be developed on 40-acre spacing units.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

DRAFT

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 5422 (Reopened)

Order No. ~~4981-A~~

IN THE MATTER OF CASE 5422 BEING REOPENED
PURSUANT TO THE PROVISIONS OF ORDER NO. R-4981,
WHICH ORDER ESTABLISHED SPECIAL RULES AND REGULATIONS
FOR THE EK-BONE SPRINGS POOL, LEA COUNTY, NEW MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 17, 19 76, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter

NOW, on this ____ day of March, 19 76, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-4981, dated March 11, 19 75 temporary special rules and regulations were promulgated for the EK-Bone Springs Pool Pool, Lea County, New Mexico, establishing temporary 80-acre spacing units and proration units, ~~and a limiting gas-oil ratio of ____ to ____~~

(3) That pursuant to the provisions of Order No. R-4981, this case was reopened to allow the operators in the subject pool to appear and show cause why the EK-Bone Springs Pool should not be developed on 40-acre spacing units, ~~and a limiting gas-oil ratio of ____ to ____~~

(4) That the evidence establishes that one well in the EK-Bone Springs Pool can efficiently and economically drain and develop 80 acres.

(5) That the Special Rules and Regulations promulgated by Order R-4981 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil and gas in the pool.

~~(6) That this case should be reopened at an examiner hearing in March, 19 77, at which time the operators in the subject pool should appear and show cause why the EK-Bone Springs Pool should not be developed on less than 40 acre proration units with a limiting oil-gas ratio of to .~~

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the EK-Bone Springs Pool, promulgated by Order No. R-4981, shall remain in full force and effect ~~for an additional period of one year~~. until further order of the Commission.

~~(2) That this case shall be reopened at an examiner hearing in March, 1977, at which time the operators in the subject pool shall appear and show cause why the EK-Bone Springs Pool should not be developed on less than 40 acre proration units with a limiting oil-gas ratio of to .~~

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

Telegram

WU AGENCY SANA

631P DVB275(1915)(1-034597A075)PD 03/15/76 1913

ICS IPMDDTF DAL

06225 DALLAS TX 83 03-15 424P CST

PMS STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

STATE LAND OFFICE BLDG POBOX 2088

SANTA FE NM 87501

RE: DOCKET NO. 10-76 CASE NO. 5422 (REOPENED)

IN SUPPORT OF HILLIARD OIL AND GAS, INC. AND AS A WORKING INTEREST OWNER IN THE E-K BONE SPRINGS POOL OF LEA COUNTY, N. M. T18S R33 AND 34 E, I URGE THE STATE OF NEW MEXICO OIL CONSERVATION COMMISSION TO CONTINUE THE SPECIAL RULES AND REGULATIONS NOW IN EFFECT FOR AN ADDITIONAL YEAR.

W T LA GRONE ATTORNEY FOR JAKE L HAMON

NNN

COST ESTIMATE & AUTHORITY FOR EXPENDITURE

Date 1-23-75 AFE. No.

Lease & Well No. UNION-STATE #1 Field or Area E-K Bone Spring
Location 660' FNL & 660 FWL, Sec. 32, T-18-S, R-34-E
County Lea State New Mexico Projected TD 9700'
Spud Date Requirement As soon as possible
Classification: Exploratory ( ) Development (X) Oil (X) Gas ( )

Justification: Drill development well to productive zone in McElvain-Federal #1.

	ESTIMATED GROSS COST			
Tangible Lease & Well Equip.	Drilling	Completion	Total	Remarks
1. Surface Casing	$ 6,250	$	$ 6,250	350' - 13-3/8" 54.5# K-55
2. Intermediate Casing	47,000		47,000	5200' - 8-5/8" 24&32#,K-55
3. Production Casing		21,500	21,500	4800' - 4-1/2" Liner
4. Tubing		22,500	22,500	9600' - 2-3/8" 4.7#, N-80
5. Wellhead Equipment	2,500	2,500	5,000	Series 900
6. Artificial Lift Equip.		35,000	35,000	Beam unit w/gas engine
7. Flow Line		750	750	500' - 2" L.P.
8. Process & Storage Equip.		23,000	23,000	2 - 500's & Treater
9. Power Supply Equipment				Not included
10. Packers, Anchors, Misc.	250	2,750	3,000	Baker Model "R" & etc.
Total Lease & Well Equip.	$ 56,000	$108,000	$164,000	
Intangibles				
MI, RU & RD				
1. a. Footage ft @	$ 16,000	$	$ 16,000	
b. Daywork WDP 35 Day @ 3000	105,000		105,000	
c. Daywork WODP Day @				
d. Service Rig		6,000	6,000	10 days @ $600/Day
e. Fuel & Water	5,000	500	5,500	
f. Mud & Chemicals	7,500		7,500	
2. a. Supervision	3,000	2,000	5,000	Includes overhead
b. Geol. and/or Anal.	2,000		2,000	
c. Well Surveys	7,200	1,500	8,700	DIL, FDC-CNL, CBL
d. Drill Stem Tests	1,400		1,400	1 DST
e. Coring Equipment	1,000		1,000	1 50' Core
3. a. Cement & Service	5,000	3,200	8,200	
b. Floating Equipment	500	5,500	6,000	Includes liner hanger
c. Welding	250	250	500	
4. a. Perforating		1,200	1,200	
b. Fracturing & Service		12,000	12,000	30,000 gal 2% KCL
c. Acidizing & Service		2,500	2,500	3000 gal Morrow Flow
5. a. Location & Roads	8,500	2,000	10,500	
b. Transp. & Freight	500	2,000	2,500	
c. Roustabout Labor	300	2,500	2,800	Fence pit, set prod. equip.
6. a. Bits & Rental Tools	25,000	2,000	27,000	
b. Miscellaneous	5,850	3,850	9,700	
Total Intangibles	$194,000	$ 47,000	$241,000	Actual Cost to Dril & Cmpl. $507,740.00 Darol K Ramey
TOTAL	$250,000	$155,000	$405,000	

Grand Total $405,000 Completed Producer

H.O.G., Inc. 36.9897 % $ 149,808

Others 63.0103 % $ 255,192

Prepared by: Darol K. Ramey
Darol K. Ramey

(Proposed Procedure & Details on reverse side)

APPROVALS

H.O.G. Inc. Date

Others Hilliard Date 8

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Hilliard EXHIBIT NO.
CASE 5442

Exhibit #8

Lease & Well No. UNION-STATE #1 AFE. No.

Field EK Bone Spring County Lea State New Mexico

(1) Justification (Continued)
(2) Proposed Procedure
(3) Details of Interests Owned by Others

(2) Proposed Procedure

1. Drill 17½" hole to 350'. Set 13-3/8" csg & cement to surface.
2. Drill 11" hole to 5200' & set 8-5/8" csg. Cement back to 3000'.
3. Drill 7-7/8" hole to TD.
4. Mud Program
   - 0 - 350' Spud mud
   - 350 - 5200' 10# brine & brine gel system
   - 5200 - 9400' Fresh water
   - 9400 - TD Fresh water gel - low solids
5. Evaluation Program
   - Mud Logger or Wellsite Geologist - 7500' to TD.
   - Core - one 50' core in primary zone of interest
   - DST - one DST in primary zone of interest
   - Open hole Logs - DIL, FDC-CNL
6. Elect to complete or P & A based on information obtained.
7. Set 4½" liner & cement to 1000' above top of upper zone.
8. Move out Rotary Tools.
9. MI & RU completion rig.
10. Run CBL - if ok, proceed to 11. If not, correct w/squeeze.
11. Perforate zone of interest w/1 jet/ft.
12. Run tubing & packer.
13. Acidize w/3000 gal Morrow-Flo acid.
14. Swab back & test.
15. Frac w/30,000 gal 2% KCL water & 40,000# sd down 2-3/8" tubing.
16. Swab back & test.
17. Set production equipment.

(3) Details of Interests Owned by Others

	Interest	Drilling	Completion	Total
Hilliard Oil & Gas, Inc.	36.9897%	$92,475.	$57,335.	$149,810.
Jake L. Hamon	32.3661%	80,915.	50,168.	131,083.
Union Oil Co. of Calif.	9.7809%	24,452.	15,160.	39,612.
Marvin C. Gross	5.4132%	13,533.	8,390.	21,923.
C. W. Trainer	5.4132%	13,533.	8,390.	21,923.
Miller Oil Company	5.4132%	13,533.	8,390.	21,923.
Don O. Chapell	4.6237%	11,559.	7,167.	18,726.
	100.0000%	$250,000.	$155,000.	$405,000.

Estimated Payout

100 BOPD X 30 days = 3000 BOPM
3000 BOPM X 0.75 NRI = 2250 BOPM Net
2250 BOPM X $10.80/bbl. = $24,300/month net after tax

$\frac{\$405,000}{24,300/\text{month}}$ = 16.7 months to payout

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company HILLIARD OIL AND GAS INCORPORATE Formation BONE SPRINGS File 623-3661
Well UNION STATE NO. 1 Core Type DIAMOND 4 1/4" Date Report 5-10-75
Field E.K. BONE SPRINGS Drilling Fluid WATER BASE MUD Analysts BOONE"
County LEA State N.M. Elev. 3901 GL Location 660 FNL & FEL SEC 32-18-34

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM	DOLOMITE-DOL CHERT-CH GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SDY SHALY-SHY LIMY-LMY	FINE-FN MEDIUM-MED COARSE-CSE	CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL	BROWN-BRN GRAY-GY VUGGY-VGY	FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY	SLIGHTLY-SL/ VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
		CONVENTIONAL ANALYSIS				
	9541.0-52.0					SAND, SHY
1	9552.0-53.0	<0.1	4.2	0.0	76.2	SAND, SHY
2	53.0-54.0	5.4	14.7	10.2	22.4	SAND
3	54.0-55.0	0.6	8.5	2.4	38.8	SAND
4	55.0-56.0	4.9	14.1	10.6	21.3	SAND
5	56.0-57.0	<0.1	3.0	0.0	73.3	SAND, SHY
	9557.0-59.0					SAND, SHY
6	9559.0-60.0	<0.1	5.8	0.0	51.7	SAND, SHY
7	60.0-61.0	5.5	14.4	13.2	25.7	SAND
8	61.0-62.0	1.4	10.4	8.7	27.9	SAND
9	62.0-63.0	2.2	12.6	10.3	30.2	SAND
10	63.0-64.0	<0.1	6.2	0.0	58.1	SAND, SHY
11	64.0-65.0	<0.1	6.2	0.0	51.6	SAND, SHY
12	65.0-66.0	<0.1	3.6	0.0	80.6	SAND, SHY
13	66.0-67.0	<0.1	4.7	0.0	70.2	SAND, SHY
14	67.0-68.0	<0.1	3.9	0.0	79.5	SAND, SHY
15	68.0-69.0	<0.1	3.9	0.0	79.5	SAND, SHY
16	69.0-70.0	<0.1	3.4	0.0	73.5	SAND, SHY
17	70.0-71.0	<0.1	3.0	0.0	72.7	SAND, SHY
18	71.0-72.0	<0.1	4.7	19.1	46.8	SAND, SHY
19	72.0-73.0	<0.1	4.5	0.0	68.9	SAND, SHY
20	73.0-74.0	0.1	5.4	16.7	61.1	SAND, SHY
21	74.0-75.0	<0.1	3.7	0.0	73.0	SAND, SHY
22	75.0-76.0	<0.1	3.9	12.8	69.2	SAND, SHY
	9576.0-02.0					SAND, SHY

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Hilliard EXHIBIT NO. 4
CASE NO. 5442

Exhibit #4

RESERVE ESTIMATE

McElvain-Federal #1
EK Bone Spring Field
Lea County, New Mexico

Pressure history is not available at this time and production history is too short to use for reserve estimation. Therefore a volumetric calculation of reserves is all that is available at this time.

It is assumed that the reservoir energy is primarily solution gas. Gas Oil Ratio is measured at approximately 500/1. Other estimates are made from log data.

$$OIP = \frac{7758\ (\emptyset)\ (1-Sw)}{B}$$

Where: OIP = Stock Tank Oil in place-B/ac. ft.
$\emptyset$ = 13% from log data
Sw = 50% from log data
B = 1.4 estimated

$$OIP = \frac{7758\ (.13)\ (.50)}{1.4} = 360\ B/ac.\ ft.$$

Recovery Factor (Solution Gas Drive) - 20% Estimate

Recoverable Oil in place - 360 X .20 = 72 B/ac. ft.

Pay thickness - 20 ft. - based on log data

Reserves per 80 ac. - 72 B/ac. ft. X 20 ft. X 80 ac. = 115,200 Bbls.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Holland EXHIBIT NO. 5
CASE NO. 5442

Prepared 2-17-75 for original hearing on application for Special Pool rules

Mark K Ramey

Exhibit #5

HILLIARD OIL & GAS, INC.

Well Production Data
McELVAIN-FEDERAL #1
E-K Bone Spring Field
Lea County, New Mexico

YEAR	MONTH	OIL/BBL.	GAS/MCF
1974	October	1049	343
	November	3481	1743
	December	3214	1607
	TOTAL 1974	7744	3693
1975	January	3005	1503
	February	2908	1454
	March	2713	1357
	April	3086	1278
	May	2855	1182
	June	2742	1957
	July	2662	2189
	August	2720	1909
	September	2616	2183
	October	2707	2211
	November	2098	1455
	December	2444	1630
	TOTAL 1975	32556	20308
	CUMULATIVE	40300	24001
1976	January	2370	1588

42670 thru Jan

Mc # 2 no good test

Union St as of 1-1-76

13662

Compl in July 75

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Hilliard EXHIBIT NO. 6
CASE NO. 5442

Exhibit #6

NO 3157. TEN YEARS BY MONTHS X 2 3-INCH CYCLES RATIO RULING.

CODEX GRAPH PAPER ® IN STOCK DIRECT FROM CODEX BOOK CO. INC. NORWOOD, MASS. 02 PRINTED IN U.S.A.

PRODUCTION CURVE

McELVAIN-FEDERAL #1

E-K BONE SPRING FIELD

ESTIMATED RESERVES	
Cum. Prod. to 1-1-76	40,300 Bbls.
Est. Future Prod.	90,700 Bbls.
Est. Ultimate Recovery	131,000 Bbls.

26% Decline

Ec. Limit

10,000
1,000
100

DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC.

1974 1975 1976 1977 1978 1979 1980 1981 1982 1983

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Hilliard EXHIBIT NO. 7
CASE NO. 5442

Exhibit #7

HILLIARD OIL & GAS, INC.

COST ESTIMATE & AUTHORITY FOR EXPENDITURE

Date 8-25-75 AFE. No.

Lease & Well No. McELVAIN-FEDERAL #2 Field or Area E-K Bone Springs
Location 660' FNL & 1980' FEL, Sec. 31, T-18-S, R-34-E
County Lea State New Mexico Projected TD 10,500'
Spud Date Requirement
Classification: Exploratory ( ) Development (X) Oil (X) Gas ( )

Justification:

	ESTIMATED GROSS COST			
Tangible Lease & Well Equip.	Drilling	Completion	Total	Remarks
1. Surface Casing	$ 6,000	$	$ 6,000	350' 13-3/8", 48#, H-40
2. Intermediate Casing	50,000		50,000	5200' 8-5/8" design
3. Production Casing Prod. liner		23,000	23,000	5100' 4-1/2" design
4. Tubing		26,400	26,400	10,000' 2-3/8", 4.70#, N-80
5. Wellhead Equipment	1,000	4,000	5,000	Series 900
6. Artificial Lift Equip.		35,000	35,000	Beam Unit w/gas engine
7. Flow Line		750	750	500' - 2" L.P.
8. Process & Storage Equip.		23,000	23,000	2-500's & treater
9. Power Supply Equipment				Not included
10. Packers, Anchors, Misc.		2,850	2,850	
Total Lease & Well Equip.	$ 57,000	$ 115,000	$ 172,000	
Intangibles				
MI - RU - RD				
1. a. XXXXXXXXXXXXXXXXXXXXXXXXX	$ 25,000	$	$ 25,000	
b. Daywork WDP 40 Day @ 3000	120,000		120,000	
c. Daywork WODP Day @				
d. Service Rig		7,500	7,500	10 days @ $750/D
e. Fuel & Water	10,000	500	10,500	
f. Mud & Chemicals	10,000		10,000	
2. a. Supervision	4,000	2,500	6,500	Includes Overhead
b. Geol. and/or Anal.	7,500		7,500	
c. Well Surveys	10,000	1,500	11,500	
d. Drill Stem Tests	6,000		6,000	4 DST's
e. Coring Equipment				None anticipated
3. a. Cement & Service	5,000	3,200	8,200	
b. Floating Equipment	500	4,500	5,000	
c. Welding	250	250	500	
4. a. Perforating		1,200	1,200	One zone
b. Fracturing & Service		16,000	16,000	30,000 gal - 40,000# frac
c. Acidizing & Service		2,500	2,500	3000 gal Morrow Flo
5. a. Location & Roads	10,000	2,000	12,000	
b. Transp. & Freight	500	2,000	2,500	
c. Roustabout Labor	500	3,000	3,500	Fence pits - build battery
6. a. Bits & Rental Tools	25,000	3,000	28,000	Inc. BOP's, test tanks, etc
b. Miscellaneous	8,750	3,350	12,100	
Total Intangibles	$ 243,000	$ 53,000	$ 296,000	Not Complete Actual Cost about as AFE
TOTAL	$ 300,000	$ 168,000	$ 468,000	Darol K. Rahey

Grand Total $468,000 for Comp. Pumping Well

H.O.G., Inc. 36.9897 % $ 173,111.79

Others 63.0103 % $ 294,888.21

Prepared by: Darol K. Rahey
DAROL K. RAHEY

(Proposed Procedure & Details on reverse side)

APPROVALS

H.O.G. Inc. Date

Others Date

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Hilliard 9
CASE 5442

Exhibit #9

Lease & Well No. McELVAIN-FEDERAL #2 AFE. No.

Field E-K Bone Spring County Lea State New Mexico

(1) Justification (Continued)
(2) Proposed Procedure
(3) Details of Interests Owned by Others

(2) Proposed Procedure

1. Drilled 17½" hole to 350'. Set 13-378" csg. & cement to surface.
2. Drill 11" hole to top of San Andres at 5100'±.
3. Set 8-578" casing @ 5100'±. Cement back up to 2500'.
4. Drill 7-7/8" hole to TD @ 10,500'±.
5. Drilling Fluid Program:
   - 0 - 350' Fresh water spud mud.
   - 350 - 5100' 10.1 - 10.2# Saturated Potash Brine
   - 5100 - 8000' Fresh water
   - 8000 - TD Low Solids, 9.0#, Vis 35, WL 10±
6. Evaluation Program:
   - Mud Logger - 5100' to TD
   - Wellsite Geol. - Through zones of interest from 5100' to TD.
   - DST's - All significant shows of oil or gas.
   - Cores - None anticipated.
   - Open Hole Logs - DIL, FDC-CNL
7. Elect to complete well or P&A based on evaluation data.
8. Set 4½" production liner from 4900' to below lowest zone of interest. Pump plug w/2% KCL water.
9. MORT
10. MICU
11. Run CBL. Perforate zone of interest.
12. Acidize w/3000 gal. 10% Morrow Flow Acid.
13. Swab back & test.
14. Frac w/30,000 gal 2% KCL water & 40,000# sand.
15. Swab back & test.
16. Set pumping equipment.

(3) Details of Interests Owned by Others

	INTEREST	DRILLING	COMPLETION	TOTAL
HILLIARD OIL & GAS, INC.	.369897	$110,969.10	$ 62,142.69	$173,111.79
JAKE L. HAMON	.323661	97,098.30	54,375.05	151,473.35
UNION OIL CO. OF CALIF.	.097809	29,342.70	16,431.91	45,774.61
MARVIN C. GROSS	.054132	16,239.60	9,094.18	25,333.78
C. W. TRAINER	.054132	16,239.60	9,094.18	25,333.78
MILLER OIL COMPANY	.054132	16,239.60	9,094.17	25,333.77
DON O. CHAPELL	.046237	13,871.10	7,767.82	21,638.92
	1.000000	$300,000.00	$168,000.00	$468,000.00

case 5422
3/17/76
vote

Union Oil and Gas Division: Central Region

Union Oil Company of California
500 North Marienfeld, Midland, Texas 79701
Telephone (915) 682-9731

union

Midland District

March 12, 1976

Oil Conservation Commission
State of New Mexico
P.O. Box 871
Santa Fe, NM 87501

Gentlemen:

SUBJECT
Case No. 5422 (Reopened)
E. K. Bone Springs Pool
Lea County, New Mexico

Union Oil Company of California has operating interest in the captioned pool and respectfully request that the Commission establish permanent 80-acre spacing provisions in the special rules and regulations for the operation thereof.

We believe that the establishment of 80-acre spacing will prevent economic waste and provide for orderly development and exploitation of hydrocarbons from these properties and is in the best interest of all concerned.

Your favorable consideration in this matter will be most appreciated.

Yours very truly,

L. F. Thompson
District Operations Manager

HRW:dw

western union Telegram

WU NSR SAMA
N
WU TL DVR
P
WUTLA005
VHB29(2224)(2-058664E075)PD 03/15/76 2224

1976 MAR 16 AM 8:07

ICS IPMMNCZ CSP
5122558104 TDMN AUSTIN TX 65 03-15 1024P EST
PMS THE NEW MEXICO OIL CONSERVATION COMMISSION, DLR
STATE LAND OFFICE BLDG
SANTA FE NM 87501
RE DOCKET 10-76 CASE 5402 REOPENED
GENTLEMEN

I OWN AN INTEREST IN THE 3 HILLIARD WELLS IN THE EK BONE SPRINGS POOL AND SOME SURROUNDING ACREAGE. I RESPECTFULLY REQUEST THE TEMPORARY 80 ACRES FIELD RULES BE CONTINUED FOR AN ADDITIONAL YEAR. WE WILL PROBABLY DRILL AT LEAST 2 MORE DRILLS AND THIS NEXT YEAR WHICH SHOULD GIVE DATA TO INDICATE THE BEST PERMANENT SPACING RULE

C W TRAINER

NNNN

MGMABQA ABQ
2-034135E075 03/15/76
ICS IPMBNGZ CSP
5056233539 MGM TDBN ROSWELL NM 100 03-15 0339P EST

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UNITED STATES POSTAL SERVICE

MAR 15 1976
OIL CONSERVATION COMM.
Santa Fe

Case 5422

OIL CONSERVATION COMMISSION
STATE LAND OFFICE
SANTA FE NM 87501

REFERENCE DOCKET #10-76 CASE 5422

I AM AN INTEREST OWNER IN THE EK BONE SPRINGS FIELD AND FOR ECONOMIC REASONS I URGE THE COMMISSION TO EXTEND THE TEMPORARY 80 ACRE SPACING FOR AN ADDITIONAL YEAR.

MARVIN C GROSS
BOX 358
ROSWELL NM 88201

1539 EST

MGMABQA ABQ

TO REPLY BY MAILGRAM, PHONE WESTERN UNION TOLL FREE ANY TIME, DAY OR NIGHT:

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Areas 212, 516 & 914	800 257 2211
Except Manhattan	962 7111
Bronx	962 7111
Queens	459 8100
Brooklyn	459 8100
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OHIO	800 325 5300
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OREGON	800 648 4100
PENNSYLVANIA	
Areas 215 & 717	800 257 2211
Areas 412 & 814	800 257 2221
RHODE ISLAND	800 257 2221
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