

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 11, 1960

EXAMINER HEARING

IN THE MATTER OF:)

Application of Gulf Oil Corporation for)
permission to commingle the production)
from four separate pools and for approval)
of an automatic custody transfer system to)
handle said commingled production. Ap-)
plicant, in the above-styled cause, seeks)
permission to commingle the production)
from the Blinebry, Drinkard, Paddock, and)
Penrose-Skelly Pools from all wells lo-)
cated on its C. L. Hardy lease comprising)
the SW/4 of Section 20, Township 21 South,)
Range 37 East, Lea County, New Mexico,)
after separately metering only the produc-)
tion from the Blinebry Pool and to allo-)
cate the Drinkard Paddock and Penrose-)
Skelly Pool production without prior meter-)
ing or measurement but on the basis of)
monthly individual well tests. Applicant)
further seeks approval of an automatic)
custody transfer system to handle the said)
commingled production from all wells on the)
said C. L. Hardy lease.)

Case 1961

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please.

We'll take next Case 1961.

MR. PAYNE: "Application of Gulf Oil Corporation for
permission to commingle the production from four separate pools
and for approval of an automatic custody transfer system to handle

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said commingled production."

MR. KASTLER: Bill Kastler appearing on behalf of Gulf Oil Corporation. Our only witness is Mr. John Hoover.

JOHN HOOVER

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

DIRECT EXAMINATION

BY MR. KASTLER:

Q Will you please state your name, your employer?

A John Hoover, employed by Gulf Oil Corporation, Roswell, New Mexico as a production engineer.

Q Have you previously appeared before the Oil Conservation Commission and qualified as an expert witness?

A Yes, I have.

Q As a production engineer? A Yes, sir.

Q Are you familiar with Gulf's application in Case 1961?

A Yes, sir.

Q Will you briefly outline what Gulf is seeking in this application?

A We're asking for approval for an automatic custody transfer system and a request for permission to commingle from the Blinebry, Drinkard, Paddock, and Penrose-Skelly Pools underlying our C. L. Hardy Lease comprising the SW/4 of Section 20, Township 21 South, Range 37 East, Lea County, New Mexico.



Q Do you have a lease plat which has been prepared for introduction here as Exhibit No. 1?

A Yes, I do.

(Whereupon, Gulf's Exhibit No. 1 was marked for identification.)

Q Referring to Gulf's Exhibit No. 1, would you please describe the boundaries of the lease, or describe the lease?

A Yes, on this plat which we have marked Exhibit 1, the C. L. Hardy lease is outlined with hashered marks and outlined in red and as previously described it's the Southwest Quarter of Section 20, Township 21 South, Range 37 East of Lea County.

Q Is this State, Federal or fee lease?

A This is a fee lease.

Q Is the royalty ownership common through the 320 acres of the lease?

A Yes, it is.

Q What wells does Gulf have on this lease?

A At the present time we have three Drinkard wells, two Paddock wells, two Penrose-Skelly wells and one Blinebry oil well.

Q A total of eight wells?

A A total of eight wells. The Blinebry oil well has been a gas well, but on the recent GOR test it will be classified as an oil well.

Q Will you kindly identify the wells beginning with Well



No. 1 as shown on Exhibit No. 1?

A Yes.

Q And state what pay or pays they are completed in.

A Well No. 1 is completed in the Penrose-Skelly, Well No. 2 is completed in the Drinkard and Paddock, Well No. 3 is a Drinkard well, Well No. 4 is a Penrose-Skelly Paddock, and Well No. 5 is the Blinebry-Drinkard well.

Q What present facilities does Gulf have on this lease for handling its production?

A At the present time we have one low 500 barrel tank with a separator for the Penrose-Skelly Pool production. We have two low 500's with a heater treater, and production and test separator for the Drinkard production. We have two 210 barrel tanks for the Blinebry production and we have one test tank for the Paddock production with the oil being trucked to the pipeline.

Q As I understand it then, you have four separate tank facilities for each of the four pays?

A Yes.

Q Are the present facilities satisfactory?

A No. They aren't. We need additional tankage. To go to a conventional battery to handle this production adequately, we would need two low 500's for the Penrose-Skelly with a heater treater, that makes one more 500 barrel tank plus a heater treater that we need on Penrose-Skelly. On the Drinkard, we are



all right there. We have the two low 500's and the heater treater and the separator on the Blinbry production. We need two 250 barrel tanks in place of the 210 barrel tanks which we propose to use on Tubb gas production at a later date, which is not involved in this commingling. On the Paddock we need two 500's with a heater treater in place of the test tank.

Q What would be the approximate cost of a conventional battery setup as you have outlined here for a conventional battery now?

A A conventional battery of the size that I've mentioned there that we need would cost about \$23,000 dollars to install.

Q Could lease operations be improved and would the operation as well be made more economical by installing the proposed system as you have shown on Exhibit No. 2?

A Yes, we believe it would.

Q I wish to call your attention to Exhibit No. 2 at this time. Would you please explain what the facilities for producing the four pays are as shown on Exhibit 2?

A Exhibit 2 is a production and test flow diagram of the proposed battery, central battery that we will have. I would like to make a correction on that where I do not designate the size of tank, that is a low 500 on the storage tank.

Q Common surge tank is a low 500?

A Common surge tank, yes, sir. We will have production



facilities which will include a production separator, atmospheric production heater treater with a B.S. and W. monitor and a re-circulating pump that would be for all four pays. For the Drinkard, Paddock and Penrose-Skelly pays we will come into a header at the tank battery to a test pressure operated heater treater which will have a dump type meter for measuring the oil, a water meter for measuring any water and a gas meter for measuring the gas.

Our Blinebry, we propose to come in through a low pressure metering separator, which will meter the Blinebry oil. The production from the Blinebry will be commingled with the Drinkard, Paddock and Penrose-Skelly production ahead of the atmospheric production heater treater and then all four pays will go through this heater treater and a B.S. and W. monitor and facilities.

Q In other words, briefly, you would propose the installation of lease automatic custody transfer apparatus to facilitate installing a low 500 barrel surge tank where all pays would be commingled and the oil would proceed directly into the pipeline?

A Yes, and the automatic custody transfer meter run will be of the conventional type that we have used on our other automatic custody transfer batteries which have been approved and it meets the specification of the pipeline, the purchaser in that it has a pump strainer, deaerator, P. D. meter and the necessary connections for testing the meters. It's the standard automatic custody



transfer equipment.

Q Would this equipment also contain fail safe provisions, proper shut on and shut off valves and safety switches?

A Yes, it would. Of course it would have a high and low level switch on the low 500 barrel storage tank which would start and stop, and stop the pipeline pump and then there would be a high level switch above those switches which would shut in the lease in the event that there was a high level in that tank. Also a high level in the production separators, the heater treaters would also shut in the valve.

This lease valve is shown on this drawing as a little square which is on the production and test lines for the various pays. The shut in valve for that Blinbry pay would be at the well. The reason for that is since the high pressure gas is going to a pipeline through a high pressure separator and then the oil in the case now, or distillate as it was before, would come to the low pressure separator, so failing safe on that particular pay would be at the well. On the others it would close a valve at the header which would in turn accuate the shut in valve at the well to shut the well in and shut the pumps down.

Q Is it a fact then that Gulf's application, if approved, would provide for the installation of a single production heater treater and a single test heater treater to process all of the oil produced on this lease?



A Yes.

Q So, therefore, the point of commingling would actually be before the heater treater, is that correct?

A That's correct.

Q And insofar as the test heater treater facilities are concerned, the Drinkard, Paddock and Penrose-Skelly pays would pass through a header for separate testing operation, is that correct?

A Yes, for individual well testing in the various pays.

Q At what intervals do you propose that well tests be taken?

A We propose at least monthly, monthly well tests.

Q Is there any testing facility installed or proposed to be installed in connection with the Blinebry pay?

A The Blinebry production, we only have one well in the Blinebry and it will be in effect on test all the time in that we'll be metering that production.

Q What is the status of production as to the production of your full allowable or less than the allowable of the various wells involved?

A Based on the May, 1960 unit allowable of 33 barrels of oil per day, and correcting this figure to the depth range of our various pays, the Blinebry Pool would have a top unit allowable of 44 barrels, the Drinkard would have a top unit allowable of 58 barrels, the Paddock a top unit allowable of 44 barrels, and the



Penrose-Skelly would have 33 barrels.

The only well that we have that is capable of producing in excess of its top unit allowable was the Blinebry gas well or Blinebry oil well now, or Hardy No. 5. On the recent test, it produced 83 barrels of oil, 1922 MCF of gas, which gave it a GOR of 3,157, which according to the regulation, would classify it as an oil well. This would be penalized to approximately 11 barrels. The Drinkard, the three wells in the Drinkard Pool being the Hardy No. 2, No. 3 and No. 5, the No. 2 on the most recent gas-oil ratio test produced five barrels of oil. The No. 3, five barrels of oil, that's by pump, both of those by pump. The No. 5, 16 barrels of oil.

Q That production in the three wells completed to the Drinkard zone is approximately five barrels against an allowable of 58 barrels?

A Yes, sir, the Drinkard top unit allowable is 58.

Q So the wells are very marginal?

A They are marginal. In the Paddock Pool we have the Hardy No. 2 and 4, the Hardy No. 2 produced 18 barrels of oil by pump. The No. 4, 24 barrels of oil by pump as compared to the Paddock allowable of 44 barrels. In the Penrose-Skelly Pool we have two wells, the Hardy No. 1 and No. 4. The No. 1 pumped five barrels, the No. 4 pumped 22 barrels. So the only well we have that is capable of producing in excess of top allowable is our



Hardy No. 5, the Blinebry oil which we propose to meter.

Q That is the reason you propose to separately meter the Blinebry pay, is it not, to insure that that well will not be overproduced?

A Yes, sir, that is correct.

Q The metering will be carried on at the separator?

A Yes, sir, at the metering separator.

Q The other pay zones are to be commingled, proposed to be commingled without separate metering, is that correct?

A That is correct.

Q But nevertheless, after they are commingled they will be jointly heater treated?

A Yes.

Q And passed into the surge tank?

A That's correct.

Q What is the cost of the proposed installation?

A We estimate that we can install this for about \$13,000 as compared to \$23,000 for the conventional battery as previously mentioned.

Q If required to install separate metering facilities and separation facilities for each pay zone, what would be your approximate cost?

A We estimate it would be approximately \$24,000.

Q Is the oil from all of these four pays of such quality



that it can be commingled, it's compatible? You wouldn't be commingling sweet oil with sour oil, would you?

A Yes. Some of this is classified as sour and some sweet. However, in this particular area there is no differential between sweet and sour, it all goes into the same line. It all gets the same price.

Q Would there be any material loss by the commingled gravity over separate gravities?

A No, there wouldn't. In fact, there would be a gain. Based on our March, 1960 runs, we have found that the average gravity in the Paddock is about 35.2 degrees. The Penrose-Skelly, 34.7 degrees; the Blinbry, 47.4 degrees; and the Drinkard 37.1. Using these gravities and the price for that gravity and using our March runs individually, we estimate, now this was a gross figure which does not take out royalty owner taxes or anything like that, a gross figure. It comes out to a gross value of about \$8857.00. If we commingle this gravity we would have a weighted gravity of approximately 39.7 degrees. Using this price for this gravity and our total runs for March we come up with a gross value of about \$9,120.00.

Q Who is the pipeline purchaser of this lease?

A Shell Oil Company.

Q Has Shell considered this application and entered any objection?



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A To my knowledge they have not.

Q Mr. Hoover, is it true by the placing of a single tank with the installation of lease automatic custody apparatus there would be less loss of oil from weathering or evaporation loss?

A Yes, there would be.

Q And, in your opinion, would this amount to a definite economic improvement?

A In my opinion it definitely would.

Q Would it operate in the prevention of waste?

A Yes, sir.

Q Would there be any material improvement in the basic sediment and water situation?

A I believe that it would be a better control in that on a conventional battery. Of course, as we now have it, we don't have the heater treater, so it requires a certain amount of treating in the tank and rolling and so forth, but if we went to a conventional battery where you had heater treaters, you have no, nothing on them that controls the B.S. and W. coming out of them. So, if your B.S. and W. in your tank climbs, you have to go treat it again by either, in most cases you run it back through your heater treater, but on the ACT equipment where you are running it to the pipeline continuously as you produce it, we install, I believe it's standard practice that we have a B.S. and W. monitor that sets it at a predetermined point, and if the B.S. and W. is



below that point it is pipeline oil and it runs right on to the pipeline.

If the B.S. and W. gets above that point it closes the valve, starts a recirculating pump, goes back to the heater treater, when it gets to the preset B.S. and W., then it opens the valve and goes on to the pipeline run. In my opinion that's much better control than any kind of manual treating.

Q In your opinion, since you have only one well and one pay that is now producing its top allowable, would there be any necessity to make a calculation by subtraction if this commingling were allowed to insure against overproduction in any of the other pays?

A Yes, there would be a difference there. However, we are allocating the production from the other wells on the basis of well tests which are made monthly. We should have a very accurate estimate of that production without even subtracting. However, it would be a pipeline run volume against the Blinebry meter volume, would be the volume of the Drinkard, Paddock and Penrose-Skelly pays.

Q Isn't it true that you could not possibly exceed the total allowables for all the wells or for any well due to their marginal character, other than the Blinebry well that is presently being metered or proposed to be metered?

A We could not, because none of the wells are anywhere capable of producing top allowable.



Q So, then, this application isn't one in which you would try to make the calculation against total production by subtraction, but it's merely to allow the total production you now have for the Drinkard, Paddock and Penrose-Skelly pays to be commingled and sold to the pipeline without separate metering?

A Yes, sir.

Q Is that correct?

A That's correct, yes.

Q There is no danger, in your opinion, of there being any excess of allowables produced, is that correct?

A That's correct.

Q I believe you have already testified that the royalty ownership was common throughout?

A Yes, it is.

Q Have the offset operators been notified?

A Yes, they have.

Q Have any objections been received?

A To my knowledge, none have been received.

Q If granted, would Gulf comply with all testing and operating requirements of the Oil Conservation Commission?

A Yes, they would.

Q In your opinion does the granting of this application intend to impair correlative rights in any way?

A No, it does not impair correlative rights.

Q Were Exhibits No. 1 and 2 prepared by you or at your



direction and under your supervision?

A Yes, they were.

MR. KASTLER: This concludes the questions I have on direct testimony at this time.

MR. NUTTER: Does anyone have any questions of the witness?

MR. PAYNE: Yes, sir.

MR. NUTTER: Mr. Payne.

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Hoover, as I understand it, you propose to commingle the Penrose-Skelly, Paddock and Drinkard without separate metering inasmuch as all of the wells producing from those pays on the subject lease are marginal, low marginal wells?

A That's right.

Q And you do propose to separately meter the Blinebry production inasmuch as that well is a top allowable well?

A Yes, sir, it's capable of producing in excess of top allowable.

Q Now, how do you determine how much shrinkage you are going to charge against the Blinebry zone?

A We believe that in this installation that we won't have the shrinkage.

Q In that case you would be willing to take the allowable

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as determined by the meter reading from the Blinebry?

A Yes, sir, that should be very close.

Q Gulf would be willing to install separate meters for any of these zones if the wells from that zone become capable of making top unit allowable?

A Yes, sir. We would be willing to set the meter on any top allowable well.

Q I believe you testified that taking a weighted gravity would actually increase the value of the oil by the process of commingling?

A Yes.

Q Will the pipeline pay on this weighted gravity?

A Yes, that's on the weighted gravity as the gravity of the commingled oil. What I mean by weighted, it's given the weight to the volume of oil so that would be about the gravity of the oil that would be run to the pipeline when they're commingled and they pay on that gravity.

Q Mr. Hoover, you don't have a schematic diagram of your automatic custody installation?

A No, sir, I don't, Mr. Payne.

Q But you will have adequate safeguards to prevent the overflow or undue waste of oil in the event of malfunction or flow line break?

A Yes, sir, it has all the safety features to protect it

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on the pipeline. We do not plan on putting in valves at the wells to protect against flow line breaks in this particular installation because the wells are all on pump and we're expecting very low pressure on the flow lines.

Q Will there be a man on this lease?

A Yes. He will be in the vicinity and will inspect the lease. His time spent on the lease will be reduced, that's one of the purposes of ACT is to utilize his time over maybe a wider area, but there will be inspection on the lease.

Q And you do have a high level switch which will shut in the wells at the header?

A Yes, sir, except on the Blinbry, it's not at the header, it's right at the well.

Q Yes.

MR. PAYNE: That's all.

MR. NUTTER: Any further questions of the witness?

BY MR. NUTTER:

Q Mr. Hoover, you stated that Gulf takes monthly tests on its wells. Is it your intention, and you will take tests monthly, on these wells?

A Yes, sir, we will. In fact, we plan on this installation to put an automatic programmer which will program the wells for testing. We will get at least one test a month.

Q As I recall, in your testimony you said on the Penrose-



Skelly you now have one 500 barrel tank and you need two 500's, is that correct?

A Yes, sir, that's correct.

Q On the Drinkard you have two 500's so you are all right on that zone?

A Yes.

Q On the Blinebry you have two 110's?

A Two 210's.

Q Two 210's? A Yes, sir.

Q You need two 250's? A Yes.

Q At the present time you have one test tank on the Paddock and what size is that tank?

A I believe it's, let me see if I have got that. No, sir, it would be a 500.

Q You have one 500 barrel tank on there?

A Yes.

Q And you need two 500's?

A Yes, sir.

Q Well, now, just going into this matter, you said it would cost \$23,000 to equip the lease the way you feel it should be equipped. Why do you need two 500 barrel tanks on the Penrose-Skelly, for instance, which has much less allowable than the Blinebry, when you have two 250's on the Blinebry?

A You would have to have two tanks.



Q You would have two tanks on each installation? The Blinebry has more allowable and you need only two 250's and you do need two 500's on the Penrose-Skelly?

A Yes, but I believe when I mentioned the GOR of 13,055, the well would be penalized to 11 barrels a day.

Q Oh, I see, the Blinebry doesn't have a top allowable 44, but it can make 88 barrels a day of liquids?

A Yes. We will be penalized and that will put it back and the two 250 barrels, We have to have at least two tanks on each pay, while we are producing into the one we run into the other. If we do not, if we have one tank we have to close in the production and on marginal wells you never get it back.

Q You would have to shut in your production while you are running a tank of oil?

A Yes, sir.

Q So assume that you need \$23,000 to fully equip, now your proposed installation costs \$13,000?

A Yes, sir.

Q If you had to install separate meters and separators and separate heater treaters you would run this cost up to \$34,000, or just what would it take to run it up to \$34,000?

A Yes, this \$34,000 is the cost that we would have to spend. It is the money we would have to spend to put this same installation of a heater treater and a separator on each of the



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four pays plus.

Q A heater treater and a metering separator?

A No, sir, I mean a heater treater, a production separator and a dump type meter and a B.S.W. monitor and recirculating pump on each one of the pays.

Q How many of the pays must pass through a heater treater?

A At the present time, three. The Blinebry does not necessarily need it, but we anticipate that it will.

Q I see.

A But the other three definitely have to have it.

Q Now, would you go into some detail as to how the common surge tank, this low 500 is turned on and turned off, as far as production into the automatic custody transfer system is concerned?

A It has a high and low level switch which starts and stops the pump; on our ACT installation we have a pump, a strainer, a deaerator and then the meter, and the high and low level switch start and stop the pump.

Q What are the levels of those two switches?

A I don't have actually the footage, but it's, as I recall, on other installations it was shut off around three feet and started about maybe six.

Q How high is the low 500?

A I believe it's eight feet. I'm not sure on that.

Q Assuming that you had a working level of three to six



feet. Then you would have eight feet of available storage, but you wouldn't plan to use that storage at all if the fluid level built up to the six-foot level, is that where you'll shut in your lease or is there another high level emergency switch above that?

A No, sir, there's another one above that, just where they are, whether it's three, six and seven, I'm not sure. But there's another switch above the normal high level switch that starts and stops the pump. The top switch, if something goes wrong on delivering it to the pipeline, or not being taken fast enough, and it builds up to this high level switch, then that accuates the lease shut in valves.

Q Those are valves at the header?

A Yes, on the Drinkard, Paddock and Penrose-Skelly. But the Blinebry, that will accuate a switch at the well.

Q The three are pumping wells?

A Yes, with the exception of one well on the Drinkard, and it's a flowing well.

Q What happens to the wells themselves when you shut them in at the header, does the pump unit keep on pump?

A No, the shut in valve shuts the well in and accuates a switch to turn the power of the pumping unit.

Q Is there a pressure build up in the lead line which accuates a switch over at the engine?

A Yes, there is.



Q Or the motor on the well?

A It would be low pressure. We would be operating these at say 25 pounds on flow lines and the shut in valves would probably be set maybe 10, 15, 20 pounds above that, I think roughly would be that figure. Any time it closed the valve at the well on the pumping well it would shut in the pump.

Q The Blinebry is a flowing well?

A The Blinebry is a flowing well.

Q When your high level emergency switch and your surge tank shuts in the header, it shuts in a valve at the header on the Blinebry?

A No, it shuts in the valve at the well.

Q There's no valve there at the header that's shut in first?

A No, sir, because on that particular well, since it's been a gas well, it goes through a high pressure separator at the well in which the liquids are separated and the gas goes on to the pipeline and then from the high pressure separator the liquids are dumped through a dump float valve to this low pressure separator, so if we closed in the valve at the header then we would be building up a high pressure on that line and we don't want to shut in downstream from the high pressure separator. We have to go back to the well because if we shut in downstream the high pressure separator, then all we do, the liquids would go on down to the gas line.

Q Now, how is the valve there at the well actually



activated?

A From the high level switch.

Q This is an electric control?

A Well, haven't, I believe it's a solnoid operated valve and it will have a cable running along the flow line back to the well.

Q So it's actually electrically controlled right back to the well head?

A It's actually controlled at the well head.

Q So actually all four of the zones will be shut in at the well if you considered shutting in the pump wells?

A Yes, shut in at the well.

Q Now, in response to a question by Mr. Payne I believe you stated that you didn't expect any loss of liquids due to shrinkage from the Blinebry zone, so that you would accept the meter reading as being the allowable reading for the Blinebry, is that correct?

A Yes, sir, at the time being that well is, could get by without a heater treater, but we think it might and we would like to put it in ahead of the heater treater, and at such time that it would indicate that the B.S. and W. was coming up, then we would probably want to connect that low pressure metering separator back around through the test heater treater separator.

Q Well, in the event that your Blinebry production needed



treating, then you would route it through the test heater treater?

A Only for testing, but it would be, still be tied in through the regular production heater treater.

Q I see. What kind of a meter is that on that metering separator, Mr. Hoover?

A I believe that they have different types. I think they have either dump type or P. D. meters. You can get them either way, but it would be either a dump type or P. D. meter.

Q Do you know if that is a meter that gives you a cumulative total of all the production that has gone through there or one that's turned back to zero each month?

A I am not positive on that, I couldn't say. I could find out.

MR. PAYNE: Would Gulf be willing to install one that does keep a cumulative total and is one that can not be run back to zero?

A On the Blinebry?

MR. PAYNE: Yes.

A Yes, sir, I believe we would.

MR. PAYNE: That's all.

MR. NUTTER: Does anyone have any further questions of Mr. Hoover? He may be excused.

(Witness excused.)

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

MR. KASTLER: Other than to request that Exhibits 1 and




2 be made a part of the record.

MR. NUTTER: Gulf's Exhibits 1 and 2 will be entered.
Does anyone have anything further for Case 1961? We'll take the case under advisement and take next Case 1963.

STATE OF NEW MEXICO)
: SS
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

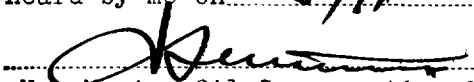
IN WITNESS WHEREOF I have affixed my hand and notarial seal
this day of May, 1960.


Notary Public-Court Reporter

My commission expires:

June 19, 1963.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 1961,
heard by me on 5/11, 1960.

, Examiner
New Mexico Oil Conservation Commission

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