CASE 4092: Appli. of PHILLIPS for a capacity allowable, Lea County, New Mexico.

Case Number.

4092

Application

Transcripts.

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 9, 1969

IN THE MATTER OF:

Application of Phillips Petroleum Company for a capacity allowable, Lea County, New Mexico.

Case No. 4092

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE , NEW MEXICO

Hearing Date APRIL 9, 1969 TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
R. J. Motter	Cities Service Oil Co.	Midland, Tex
M. H. [illegible]	Phillips [illegible]	Odessa, Tex
[illegible]	[illegible]	[illegible], N.M.
Jason Kellahin	Kellahin & Fox	Santa Fe
[illegible]	Petroleum Consultants [illegible]	Albuquerque
[illegible] Buell	[illegible]	Santa Fe
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	SF. Austin
Paul Eaton	[illegible]	Roswell
Wm. E. [illegible]	[illegible]	[illegible]
Rex [illegible]	[illegible]	[illegible]
Jerry I [illegible]	BTA	Midl
[illegible]	Shell Oil Company	Midland, Tex
[illegible]	[illegible]	Albuquerque

MR. NUTTER: The first case this morning will be Number 4092.

MR. HATCH: Case 4092, application of Phillips Petroleum Company for a capacity allowable, Lea County, New Mexico.

MR. KELLAHIN: Jason Kellahin of Kellahin and Fox, Santa Fe, appearing for the Applicant, and we have one witness. I think there may be some other appearances.

MR. NUTTER: We will call for other appearances in this case.

MR. BUELL: Sumner Buell, appearing on behalf of Shell Oil Company.

MR. MOTTER: I am Gene Motter with Cities Service. I will have a statement to make. I will not testify.

(Whereupon Applicant's Exhibits 1 through 16 were marked for identification.)

H. H. McCONNELL

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q State your name, please.

A H. H. McConnell.

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

A Phillips Petroleum Company. I am Regional Reservoir Engineer from Odessa, Texas.

Q Have you testified before the Oil Conservation Commission and made your qualifications a matter of record?

A Yes, sir.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. NUTTER: They are.

Q Mr. McConnell, are you familiar with the application of Phillips Petroleum Company in Case 4092?

A Yes, sir.

Q Briefly, what is proposed by Phillips in this application?

A We propose that our U.S. Minerals Well No. 4, which has recently been completed, be permitted to produce at capacity in order to prevent waste.

Q Now, referring to the exhibits which have been marked in connection with this case, would you identify the first series of exhibits?

A We have only listed these exhibits which have been the forms filed with the Oil Conservation Commission and with the Department of Interior, the regular completion

forms. I don't have any comments to make on them. They are here simply for the Commission's convenience.

The first exhibit which I would comment on is the --

Q I believe that has been marked as Exhibit No. 10, the cross-section.

A The cross-section and structure map is on the same plat.

Q Referring to that exhibit, would you identify that exhibit, please?

A On the left hand side of this exhibit is a structure map. You see a north-south line drawn through this map that cuts through Section 30 and Section 31, and about half way down on that line is Phillips U. S. Minerals No. 4 Well.

It is actually located in the southwest quarter of the southeast quarter of Section 30. Now, that cross-section which you see the trace drawn, is on the right hand portion of this map. I will comment on that later.

You will see that the outline of the southeast Maljamar Grayburg-San Andres unit is shown there. It constitutes most of the eastern half of Section 30, except for our well. It constitutes all of Section 29, except the

extreme northeast 40-acre tract, and it constitutes portions of the north half of Section 32.

You will also see the extreme eastern portion of Continental's Maljamar Grayburg-San Andres unit shown there as portions of the west half of Section 30.

This exhibit shows Grayburg producing wells in the large circles, Grayburg water injection wells with the squares. These two projects generally are developed on a five-spot injection pattern, where half of the wells are injection wells.

Now, referring to Phillips U. S. Minerals No. 4, you will note that the north offset, and also the east offset, are water injection wells in the Cities Service operated southeast Maljamar Grayburg-San Andres unit.

Now, if you will refer to the cross-section which runs north-south, our well, the U. S. Minerals No. 4, is the well in the center of this cross-section. It is the second well from the left, and the third well from the right side of the cross-section. The producing sands are outlined on this cross-section. The north offset is an injection well. We don't have a conventional electric log, because none was run on the well. This is sort of a sample log shown on here. But it is an injection well into these Grayburg

sands.

U. S. Minerals No. 4 produces from these sands, and you will see considerably down dip, these sands are also present in the extreme left hand well, which was a well drilled by Carper Drilling Company, and it is now used as a water disposal well by Aqua, Incorporated. It is a well at the south end of the cross-section.

Now, if you will refer back to the structure map, and looking at our well, I have commented that the north offset and the east offset are water injection wells. If you will look at the west offset, a 40-acre tract to U. S. Minerals No. 4, you will note that there are two dry holes on that tract. One is a deep dry hole, and one is a dry hole at a depth of 4,860 feet. If you will look at the southwest diagonal offset to our well, which would be the northeast quarter of the northwest quarter of Section 31, there also is a dry hole in that 40-acre tract.

Now, in the direct south offset to our well, there is no Grayburg Well located. There are deeper wells that are not shown on this map, deeper producing wells. But two locations south is the well I referred to earlier that is shown on the cross-section, the well which presently is the Aqua, Incorporated water disposal well. Now, that

well did produce at one time with considerable amounts of water in the upper portion of the San Andres Formation, but not from the Grayburg sands, which our well produces from.

Now, if you will look at the 40-acre tract which is the southeast diagonal to our well, you will see there are two plugged wells on that tract. The No. 1 well, which is in the center of the 40-acre tract, was completed in 1944. The record shows that that well produced 4,986 barrels of oil, and was plugged in March of 1950.

Q What formation was it producing from?

A It was producing from the Grayburg sands.

MR. NUTTER: And it was completed in 1944?

THE WITNESS: In 1944. It did produce 4,986 barrels, and it was plugged in March of 1950. Now, the following month, in April, 1950, the operator sputted the No. 2 well. He apparently was trying to locate a well farther updip and eliminate some of his water production problems. Now, the record shows that the No. 2 well produced 7,312 barrels, and was plugged in 1957.

Q It also produced from the Grayburg?

A Yes, sir.

Q Mr. McConnell, when was the Phillips U. S.

Minerals No. 4 Well drilled?

A That was completed in February of 1969.

Q And it is offset by two injection wells in the Cities Service southeast Maljamar Grayburg unit?

A Yes, sir. These wells have been injecting since the latter part of 1967. I have a later exhibit that shows the injection history on those wells.

Q At the time the Phillips well was drilled, did it show a response to the water flood project, in your opinion?

A Probably so, yes.

Q Now, with reference to Exhibit 10 and the map there, in the event oil is swept past the Phillips U. S. Minerals No. 4 Well, would it be recovered?

A You can see on the map and from the discussion I have made of the tracts, in the portion of the reservoir west, southwest, and south of this, the direction in which the oil would be driven, there are no wells completed in the Grayburg Formation to recover any oil that is displaced past U. S. Minerals No. 4. And the position we take is that any oil that is displaced past this well, if it's not produced as it passes this well, will be displaced to a portion of the reservoir where it cannot be recovered,

and this will constitute waste. This will constitute loss of reserves.

Q Now, Phillips is a participant in the Cities Service southeast Maljamar unit?

A Yes, sir. We own 24.74 percent of it, and I believe the remaining interest is owned by Cities Service and Shell.

Q At the time this unit was formed, did you propose to include the acreage underlying your present No. 4 well in the unit?

A At one time, that 40-acre tract was included in the proposed unit outline. We took it out of the unit outline, because the participation for determining equity in this unit did not give it sufficient credit for the reserves which were under that tract, because there were no wells drilled, and there had been no oil recovered from that 40-acre tract. It received only very nominal token equity, would have received only token equity in the unit.

Q And that is the reason that Phillips proposed, elected to drill it, themselves?

A That is the reason we elected to hold it out of the unit, and then drill it, ourselves, because this is the only way that the primary and secondary reserves under this 40-acre tract could be recovered by the owners of the tract.

Q At what rate is the well presently producing?

A It is producing at its allowable, which during April is 62 barrels per day.

Q Would it produce in excess of that amount?

A It would produce at the present time in excess of that amount. We don't know really how much. The only information we have for sure is that it did produce its allowable for the last few days of February, and it produced its allowable for the month of March. Its allowable for the month of March was 60 barrels per day.

Q Would you anticipate that that production rate would continue for any long period of time?

A Well, we don't know how long it will continue, because there are certain hazards. In the first place, this is a drive from the north and from the east, from the injected water, and it is not backed up on the west or on the south. And unless we can produce this at capacity, this oil will be driven past the well, and the well may water out prematurely. There are other hazards in this field which we will dwell on with later exhibits.

Q Does that complete your discussion of Exhibit 10?

A That completes my discussion, unless there are

questions.

Q Referring to what has been marked as Exhibit Number 11, would you identify that exhibit?

A Exhibit 11 lists the injection volumes in the two southeast Naljamar unit water injection wells, which offset the U. S. Minerals No. 4. Well 1-1 has injected to February first of 1969, a cumulative injection of 119,045 barrels. Well No. 1-3, which is the east offset, has injected 44,355 barrels to that same date. That is all the comments I have on Exhibit 11.

Q Turning to Exhibit 12, would you identify that exhibit?

A Exhibit 12 is a chemical analysis of the produced water from the U. S. Minerals No. 4. It simply shows that this water does have a tendency to form scale. If you will look in the remarks and recommendations in the lower portion of this, it says this water could form both calcium carbonate and calcium sulfate scale; also could be corrosive due to sulfide.

Now, the particular producing problem that does exist in this field, especially under water flooding conditions, is the formation of calcium sulfate, or gypsum scale, and that tends to plug the producing formation.

Q Now, referring to Exhibit 13, would you identify that exhibit?

A The next exhibit is just a plot. It ties in with the chemical analysis of the water, and it plots the solubility of calcium sulfate scale as a function of temperature. It shows that in the temperature range from about 70 degrees to 130 degrees or so, it has maximum solubility, and it has less solubility or more tendency to form scale precipitates at lower temperature than at higher temperature in that general range.

Q Have you had experience with the scaling problem in other wells?

A Yes, we have had experience, and most other water flood operators within the Maljamar Grayburg field have had considerable difficulty with the formation of calcium sulfate scale.

Q Turning to the next exhibit, would you identify that?

A The next exhibit is a production history for at least the water flood portion of the production history of a former Phillips operated well. It is called the Kennedy State Lease. It is located in the north half of the southeast quarter of Section 2, in Township 17 South,

Range 32 East in this field. It is several miles north of the U. S. Minerals No. 4.

This well responded to water injection beginning with the latter part of 1961 and throughout 1962. It reached a peak producing rate of between 2,500 barrels per month and 2,700 or 2,800 barrels per month, and maintained that producing rate for about eighteen months, for the last half of 1963 and the first half of 1964. Now, this well did have a history of calcium sulfate scale formation, which plugged the producing formation immediately surrounding the well.

If you will look on the history, you will see that at different periods in the history of this well, we have indicated on this exhibit when different treatments were given to try to improve the productivity of the well, or to control the formation of calcium sulfate scale. There were five of these different treatments. Now, if you will look beginning in 1965, the oil producing rate declined sharply, and it was never recovered significantly. If you will also look at the dashed curve, which shows the water production, you will see that this well reached a maximum water production of about 460 barrels of water per month, which was much smaller than its maximum oil producing rate.

It did not perform like water floods normally perform when a water breakthrough occurs, increasing water volumes and decreasing oil volumes occur until the well reaches an economical limit, because the percent of oil is too low in the produced stream.

What happened here was that the sandstone formations immediately surrounding the well plugged up with calcium sulfate, and it was necessary to abandon the well, and it has been plugged and abandoned before all the potential water flood reserves could be recovered. Now, this was simply a problem that is unique in this field, and most operators have had serious problems, and various measures are performed to try to combat this. Our U. S. Minerals Well has already been treated with calcium sulfate scale inhibitor material to try to control the formation of this, and it will be treated from time to time.

If you will look at the next exhibit which we have, it simply gives details on these five treatments that were given to this Kennedy State No. 2 Well. You will see that in January, 1964, some very high powered explosive shots were detonated. The well was fracture treated with 1,000 gallons of refined oil, and it also contained walnut hulls, and a scale inhibitor.

In January, 1965, the second treatment, it was fracture treated with a larger volume, and also a scale inhibitor.

The third treatment in January, 1966, scale formation caused the tubing to be stuck, and the well was treated with 3,250 gallons of 15 percent regular acid, and 3,000 gallons of gypsol.

The fourth treatment in February, 1966, the well was treated again with an organic scale inhibitor.

The fifth treatment, June and August of 1966, the well was plugged off, and was shot with a very high powered explosive gun, trying to fracture through this calcium sulfate scale. Now this well has been plugged and abandoned.

Q Do you anticipate a similar history on the Phillips U. S. Minerals No. 4?

A We have the same conditions, and we see no reason why the same problem will not exist there. What this means is that because of this scale treatment, we may be faced with a limited producing life on this well.

Q Mr. McConnell, actually, the Phillips No. 4 Well has received a response, in other words, it has received a benefit because of the injection in the offsetting

wells, is that correct?

A I would say that is correct.

Q Is Phillips willing to pay its portion in the share of the cost of this injection program?

A We are willing to pay a reasonable proportionate share of the cost of the injection into the offset wells. We do not have any arrangement worked out with the operators or the owners of the offset injection wells, but we certainly are willing to agree to participate in the cost of the injected water which might tend to benefit our well.

Q I believe I referred to the map as Exhibit Number 10, and I believe it should reflect that it was Exhibit Number 11 rather than number 10.

Were Exhibits 1 through 10, inclusive, are those the forms which have been filed with the Oil Conservation Commission and the USGS in connection with this well?

A That's correct.

Q And Exhibits 11 through 16, were those prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time, I would like to offer into evidence Exhibits 1 through 16.

MR. NUTTER: Applicant's Exhibits 1 through 16

will be admitted in evidence.

MR. KELLAHIN: That completes the direct examination of the witness.

MR. NUTTER: Are there any questions of this witness?

MR. BUELL: Mr. Examiner, I would like to ask a few questions.

CROSS EXAMINATION

BY MR. BUELL:

Q Mr. McConnell, you testified that you thought it was probably so that Phillips well No. 4 was receiving response from the injection. What evidence do you have that it is receiving this response?

A The fact that it is capable of producing at rates in excess of its present 62 barrel allowable.

Q And that is all that you base your testimony on?

A I have no way of knowing positively whether it has received response yet or not. If it hasn't yet, it certainly will sooner or later.

Q Is this well producing an excessive amount of water?

A It produces some water. I don't know what constitutes an excessive amount of water. But I think it

produces about, between 30 and 40 percent water.

Q Is this common for a well of this type?

A It certainly is common for a well here that is on the structurally low edge of the field, and there is some natural water in the formation, and also some injected water. Now, the water can be a combination of formation water and injected water, one or the other.

Q Do you know whether the water in this well is injected or formation water?

A I don't know positively, because it seldom is able to identify that positively. It certainly has sufficient salinity as shown in the exhibit here, that some of it at least is formation water.

Q The scale formation that you testified to, is this common with all the producing wells in this field and from this zone?

A It is common certainly with the large percentage of the producing wells, and my basis for that is my contacts with the operators of different water floods in different fields.

Q In other words, this is a problem that is not unique with Phillips?

A No, sir.

Q How was this well completed?

A Well, the different producing sands were perforated, and it was fracture treated. Is that specific enough?

Q This well immediately to the south of the Phillips well, the one that you testified was owned by Aqua, and I guess it is point A on the north-south line, do you know the volumes of water that are being injected into that well now as a water disposal well?

A No, I do not.

Q If that well is receiving large volumes of water, would it also tend to have an effect of encouraging a secondary recovery in Phillips No. 4?

A I'm sure the answer to that is no, because I don't know the specific injection interval, except that I do know it is not the Grayburg producing interval that it would be producing from. It is not being injected into the Grayburg sands.

MR. BUELL: I have nothing else, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. McConnell, what is the producing history of your No. 3 well there immediately east? It is structurally

approximately the same position as your No. 4. I wonder what its early life was like.

A The well that is now an injection well?

Q Yes.

A Well, it was a good producer, and it produced. I have the scout ticket in my file, if you want the complete date and potentials.

Q Did it have an early producing life similar to this one, if it made 30 or 40 percent water during its early life?

A I don't have its producing history. The only answer I would have to that question is its initial potential. Its initial potential is listed as 125 barrels of oil flowing, no water in 12 hours. What did I say? I should have said 125 barrels of oil.

Q That is what you said, and no water. That was in 12 hours?

A In 12 hours.

Q According to this form, Exhibit Number 2 here, when you completed your No. 4 well, it was tested for eight hours, and during that eight-hour period made 80 barrels of oil and 48 barrels of water, is that right?

A Yes, that is a test that was taken during March.

Q So then extrapolating that to a 24-hour period, you would have a potential of 240 barrels of oil and 144 of water?

A That's correct.

Q And this would be in the neighborhood of 30 to 40 percent water on the IP on that one?

A Yes.

Q Has the water cut changed on this well since it was put on production?

A Not that we are aware of.

Q What is the later test you have done on the well?

A This is the later test I have.

Q It hasn't been tested since --

A We have tests, but the well has produced intermittently. As you see here, it has capacity in excess of its 62 barrels allowable, and it has not produced continuously. It did produce for the month of March its full allowable for that month.

Q Is it flowing into a tank battery by itself?

A Yes.

Q Actually, it is on continuous test when it is producing?

A That's right.

Q What was your production during March, oil and water?

A I only have a gross figure of oil. It is not corrected for BS and W now, but it is slightly over 1,900 barrels.

Q Do you have the amount of water produced?

A No, we don't constantly measure water. It feeds into a water disposal system, and we can only estimate it on the basis of the water cut test.

Q And you have only taken one of those?

A Yes.

Q On the initial completion?

A This was not the initial completion. This test shown on the C-116 form was subsequent to the initial completion.

Q Well, I wasn't looking at that one. I was looking at your form 9330, and the date of that test was February 21st. And you did this later test on the C-116, which was March 11th.

A Yes. On the oil and water volumes on those two tests are very close, not exact, but very close.

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

Do you have any other witnesses?

MR. KELLAHIN: That is all I have, Mr. Hutter.

ROGER FELT

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

DIRECT EXAMINATION

BY MR. BUELL:

(Whereupon Opponent's Exhibit 1 was marked for identification.)

Q State your name, please.

A Roger Felt.

Q Would you tell the Examiner by whom you are employed, and where, and in what capacity?

A I am employed by Shell Oil Company in Midland, Texas, currently as a Reservoir Engineer.

Q Would you briefly give the Examiner a synopsis of your educational background and work experience?

A I graduated from Texas A & M University in January of 1965, with a Bachelor of Science in mechanical engineering. In January, 1965, I went to work for Shell Oil Company as an exploitation engineer. The first two years with the company, I did general field work, and then generally got positions of increasing responsibility, as far as general well surveillance, submitting recommendations

on drilling wells, and advice of that nature.

Then I was assigned to the Reservoir Engineering Section in Houston, and during this time I worked for the Reservoir Engineering Section. In January of last year, I was transferred to Midland, Texas, and assigned to the Secondary Recovery Reservoir Section. During these past four years I have worked for Shell, during various times I have attended specialty schools during about a seven-month period, and these were concentrating in the reservoir engineering, geology, and petrophysics.

MR. BUELL: Are the witness's qualifications acceptable?

MR. NUTTER: Yes, they are.

Q Are you familiar with what Phillips Petroleum Company seeks in this application in Case 4092?

A Yes, I am.

Q Are you familiar with the general operation in the water flood in this Maljamar unit?

A Yes, I am.

Q Referring you to what has been marked as Opponent's Exhibit Number 1, would you briefly describe what that is?

A This is a plat of the southeast Maljamar unit.

It is outlined by the hatchered lines on the very outside, and it encompasses parts of Sections 29, 30, 32, in Township 17 South, Range 33 East.

Q And the subject well, Phillips Minerals Well No. 4, is shown on this?

A Yes, I am familiar with this well.

Q It is shown on this plat, is it not?

A Yes, it is.

Q Are you familiar with the drilling or production history of the Lane Bryant Well No. 1 that is located in the northeast corner of the northwest corner of Section 31?

A Yes, I am. From our scout reports, it was reported that a water show was encountered in this well from a subsea depth of 304 feet to 411 feet, which was the total depth on this well.

Q Would you describe also what the water shows were on the well which is located in the southeast corner of the southeast corner of Section -- southwest corner of Section 30?

A This well was drilled by Johnny Cogburn, and from our data, it had a reported water show subsea depth from 232 feet to 267 feet.

Q Are you familiar with the shows of water in

wells no. 1-1, 1-2, and 1-3, all located in the southeast corner of Section 30?

A Yes, I am. These three wells were all completed initially water free.

Q And what depths were they completed?

A The lowest subsea interval open to production or injection at this time in these wells, number 1-1 is 215 feet; number 1-2 is 207 feet; and 1-3 is 229 feet.

Q Are you familiar with the water shows in the drilling of the Williams Well No. 1?

A Yes, I am. This well --

MR. NUTTER: Which is that one?

A This well is located in Section 31, in Unit A.

Q Northeast of the Northeast corner.

A This well encountered a water show from subsea depth of 299 to 305 feet.

Q Have you reviewed the form C-104, by Phillips on their subject well?

A Yes, I have.

Q At what depth did they encounter water?

A Their perforations subsea, they have four sets of perforations in their well, and starting from top to bottom these are all subsea depths, top set of perforations is 210 to 220, second set is 244 to 256, the third set is 272 to 284, and the bottom set 300 to 310.

Q Could this type of completion explain the large amount of water being produced in this well at this time?

A Yes, it could.

Q In what way?

A When this was completed according to our **scout** reports, it was initially acidized with 500 gallons of acid, and it swabbed 60 gallons of load water and

12 barrels of acid water, and shortly after that they report that they rigged up, and fracture treated this well, and then we have the initial potential tests as reported on Form C-104. I believe this test has been in reference before where the well underwent an 8 hour test, it produced 80 barrels of oil, and 48 barrels of water, and 80.3 Mcf of gas.

Q Would this indicate to you that this lower set of perforations probably is producing from the formation water level.

A Based on the data that I have seen on these offset wells, on these water shows on these offset wells, I would say that their perforations are below the water level.

Q Are you familiar with the production history on Well 1-2 which diagonally offsets the Phillips Well No. 4?

A Yes, I am.

Q Can you tell me what the initial gas-oil ratio was on that well?

A The initial gas-oil ratio on their well was 840 cubic feet per barrel. It's gas-oil ratio in

February of 1969 is 652 cubic feet per barrel.

Q Are you familiar with the gas-oil ratio of Phillips Well No. 4?

A Yes, sir, I am. This ratio was 1,030 cubic feet per barrel, as calculated from the numbers reported on Form C-104.

Q Is this significant to you in any way?

A Well, it appears to me that the Phillips U.S. Minerals Well No. 4, based on the production history of its diagonal offset, 1-2, is undergoing solution gas drive.

Q You earlier testified as to the type of treatment of the Phillips No. 4 on its completion. How is this significant to you?

Q Well, when they first acidized the well, if there was a large quantity of oil there being swept in this direction, I think that it would have started flowing or producing immediately, but in order to kind of get this well kicked off, they had to rig up and fracture treat it with refined oil and sand.

Q Are you familiar with the injection rates in wells 1-1 and 1-3, the offsets to the north and the

east of this Phillips No. 4?

A Yes, I am. 1-1, January of 1969, has averaged roughly 150 barrels per day. 1-3, January of 1969, it roughly averaged 100 barrels a day of water.

Q Does this seem to be a reasonable rate to you?

A Yes, these rates seem to be reasonable, and if anything, they are a little modest.

Q Do you feel that granting the Phillips application, in your opinion, would tend to prevent waste and protect correlative rights?

A There has been no information given that there will be any significant waste. Certainly the capacity allowable will most probably affect Shell's and the other owners' correlative rights by drainage.

Q Was Exhibit I prepared by you or under your supervision?

A Yes, it was.

MR. BUELL: I move the introduction of Exhibit 1.

MR. NUTTER: Shell's Exhibit No. 1 will be admitted in evidence.

(Thereupon, Opponent's Exhibit No. 1 was admitted in evidence.)

MR. BUELL: I have nothing else.

MR. NUTTER: Any question of this witness?

Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q In reference to the Exhibit, to the Well 1-2, located, I believe, in Unit I of Section 30, what is the production from that well?

A Today?

Q Yes.

A It is approximately 75 barrels of oil and 3 barrels of water.

Q What is the production in the entire unit, do you know?

A It is approximately 10,000 barrels of oil per month.

Q Let's get on the same basis. How much per day, then?

A Well, I believe I have some data that already has this rate in barrels per day.

In December, 1968 production for the unit was

9,624 barrels, and this is slightly over 300 barrels per day, about 308 barrels per day.

Q 1-2 is one of the better wells in the flood?

A That's correct.

Q Has the production increased from that well since the water injection indicated?

A Yes, it has.

Q Then that well has received a response from the flood?

A Yes, it has.

Q It would be reasonable to presume that the Phillips U. S. Minerals Well No. 4 would likewise receive a response, would it not?

A At a later date, probably, it is reasonable that this would happen.

Q Why would you say a later date?

A When this area was under production, all these wells here were under production, and when water injection was initiated in 1-3 and 1-1, we were continually producing from 1-1 and in all these other offset wells. And one would tend to believe the first water injected into these two wells, 1 and 3, would tend to migrate

into an area of lower pressure.

Q If we assume that the Phillips well has received a response or will receive response, which I understand and is your testimony, is it not?

A Well, I indicated that it is very likely that it would receive response at a later date.

Q If we assume that is the case, what would happen to the oil that would be swept past the Phillips well by your water flood project?

A Well, we are not sure that oil would be swept by this well. There is no evidence that the oil would be swept by this well.

Q Certainly, if it was granted a capacity allowable, it wouldn't be, would it?

A If it was granted a capacity allowable, and allowed to produce openly and form a large pressure sinkaround this well, it would. It would probably drain off from the unit.

Q What part of the unit?

A Well from --

Q From the injection wells?

A No, sir, from the area between the two injection

wells, 1-1 and 1-3.

Q Your 1-2 has been on production ever since the flood was initiated, has it not?

A Right.

MR. KELLAHIN: That is all I have.

MR. BUELL: May I ask you a few more questions?

REDIRECT EXAMINATION

BY MR. BUELL:

Q The Well 1-2 that Mr. Kellahin mentioned is offset by four injection wells?

A That's correct.

Q And the Phillips No. 4 is only offset by two injection wells?

A That's correct.

A That's correct.

Q And this would in and of itself encourage more production out of 1-2, wouldn't it?

A That's correct.

MR. BUELL: I have nothing else.

MR. NUTTER: Does anyone have a question of this witness? You may be excused.

MR. BUELL: We have nothing else.

MR. KELLAHIN: I would like to recall Mr.

McConnell, if I may.

MR. NUTTER: Go ahead.

M. H. McCONNELL

recalled as witness by the Applicant, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. McConnell, you heard the testimony that was presented by Mr. Felt in connection with the question of protection of correlative rights of Shell Oil Company. Do you have any observations on that testimony?

A Well, Mr. Felt apparently tried to establish that all the wells west and south of our U. S. Minerals No. 4 had produced water. We certainly have no quarrel with the fact that the reservoir does contain water as you go south and west.

If you will refer to our cross section, which is Exhibit 11, it does show that the sands are very well developed in the very low well, which is the water disposal well located in the southwest quarter of the northeast quarter of Section 31.

If you will also look on the structure map over in Section 32, you will see a number of producing wells at very low structural depths. These wells produce as low as 450 feet of depth on the top of the sand, and this is more than 250 feet low to the U. S. Minerals

No. 4.

Now, these sands are probably vendicular and have different water levels and different sands, but we have no quarrel with the fact that there is some water in some of these wells, and probably the produced water from our well, at least a portionof it, is probably formation water rather than injection water.

Well 1-2, which is the Unit Well, it has been previously testified that it has responded. Now, that well was a Phillips operated well when it entered the Unit, and was producing at fairly low rates, certainly less than 20 barrels of oil per day at the time it entered the Unit. As was testified, the well was presently producing apparently 75 barrels of oil per day. It is one of the biggest producers in the field. It has responded from injected water.

It really doesn't make too much difference whether the present production from U. S. Minerals No. 4 is all due to injection or only a part due to injection. The fact remains that if this well is not able to produce at capacity, the injected water will push oil past that well, so long as it has capacity in excess of its producing capacity.

MR. KELLAHIN. That's all I have.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. McConnel, isn't it a characteristic of waterflood operations that the GOR goes down as water is injected down into the reservoir?

A Yes, sir.

Q But the GOR on your well is higher than the GOR up here in the Unit area, is that not true?

A That is true.

Q Which would seem to indicate that this might be primary production you are getting from your well?

A I think someof it is primary production. This does not change the fact that the well is only a direct offset to two injection wells that is completely correlative to the same injection zones, and undoubtedly this initial production didhave some gas saturation. There was no way that it could have been displaced away, or it had not been displaced away as you appraoch liquid fillup.

Q You didn't have to achieve any fillup in this area, because it had never been completed?

A We have no way of knowing to what extent it was depleted. Certainly, it suffered some depletion during the primary production from the rest of the wells in the area. Towhat extent, I don't know.

Q Has there been an evidence -- you say there is formation water present here, and evidently as you get down the structures, there is an increased quantity of water. Is there any evidence this is a water drive and the water is moving up structure?

A There is no evidence that it is a significant water drive.

Q Has the Maljamar drive beenregarded as a solution drive?

A Yes.

MR. NUTTER: Does anyone have any questions of Mr. McConnell?

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. McConnell, in regard to the 1-1 injection well, when was that initially completed? Do you have that?

A Completion date for the well, oh, I have it

if you let me look up.

Completed in December, 1943.

Q When did it go on injection?

A Went on injection in the latter -- last half of 1967. Do you want a more specific date?

Q No. How about 1-3, the same dates, do you have those?

A Yes. 1-3 was completed in March, 1944.

Q And went on injection?

A Also in the last half of 1967.

Q When did you complete your No. 4 well?

A February, 1969.

MR. UTZ: That is all I have.

MR. NUTTER: If there are no further questions, the witness may be excused.

I would like to direct a question toboth attorneys. Do either of you know if the provisions of the Southeast Maljamar Agreement include a provision for the subsequent assignment to the Unit area of acreage that was outside the Unit area when the Unit was approved?

MR. MOTTER: We do have such a provision.

MR. KELLAHIN: There is such a provision.

MR. McCONNELL: We have talked with Cities Service about possible enlargement to include the U.S. Minerals No. 4 in the Southeast Maljamar unit. We would like to do this. Our talks with them have discouraged us on the possibility of this, and frankly there is not any good reason for them to do this, to take their side, because there is no further exploitation or development of the waterflood that they can bring about by coming in with this well. There would be no additional wells to convert to injection, and the amount of work involved in an enlargement to include just one well is considerable. I assume thatthis is the reason why Cities Service prefers not to enlarge the unit to include our well.

Now, regarding equity, the problem of what is the fair equity for this well in the Unit, the best way to determine that is to let us produce the well at capacity for 2 or 3 months, and see what it can do. Now, as a practical matter, if we produce it at capacity and it shows a severe decline, which it may well do, then other owners in the unit are going to say, well, we are not really interested in enlarging to include

this Unit, this additional well. Now, if it produces at capacity andproduces at a stabilized rate, then I am sure they would be interested in obtaining this well in the Unit, because if it were in the Unit, because of the fact the Unit does have a project type allowable, then this well would have whatever it could produce, whatever it needs to produce.

MR. NUTTER: This is the only 40 that Phillips owns anywhere that is not in the unit? Is that correct?

MR. McCONNELL: That is correct.

MR. NUTTER: I will take closing statements.

MR. BUELL: Mr. Examiner, our position is, as Mr. McConnell's testimony shows, that there is really no evidence that oil is being swept past this. Certainly, one could reasonably expect some response from the water flood in the Phillips No. 4 well, but there has been no evidence to indicate how much response, if any. The GOR indicates that probably that it is still on primary production.

We feel that if a capacity allowable were granted at this time, it would probably create a pressure

sink in the area, having an adverse effect on the water flood project.

As far as Mr. McConnell's suggestion of allowing it to produce a capacity allowable for several months, we feel that this would be akin to closing the door after the horse has left. We feel there is no testimony now before the Commission to justify a capacity allowable There is nothing more than best guesses and speculations. As the well continues to produce under its proper allowable, perhaps this necessary information could be gathered, but it is not present at this time to justify this.

MR. KELLAHIN: If the Examiner please, the Applicant in this case, I think, has presented a strong showing that the Phillips U. S. Minerals Well No. 4 has already received some response from the waterflood project. Certainly, the evidence clearly shows that the Unit well, 1-2, in the Unit I of Section 30, has received a substantial response. Being located as it is, of course, it is offset by four injection wells, as was pointed out.

But, at the sametime, if that well has

received a response, it is only reasonable to assume that the PHillips well has received some response, and will continue to receive an increasing response from the water injection. If that be true, and its capacity is well in excess of the daily allowable of 62 barrels, certainly I think the scientific fact is that water will be swept past that well, and if so, it certainly will not be recovered, there being no other wells in the area which can possibly recover it. This would constitute waste, and is one of the things which this Commission -- the primarily duty of this Commission is the prevention of waste, and certainly waste should be prevented in this case.

Now we come to the question of corrclative righs. If the oil is over on Phillips lease in the first instance, certainly nobody's correlative rights are going to be impaired. The waterflood project is having effect on Phillips, and Phillips is recognizing this, and is willing to pay its proportionate share of the cost. It is willing to put its unit, its well into the unit on some reasonable basis. But to deny them the right to produce the allowable that is moving

past that wellbore would constitute waste, and we submit the Commission should grant the capacity allowable for this well.

MR. NUTTER: Thank you. I have one more question. It may have been answered and I didn't jot it down. What is the present producing capacity of 1-2? Did you offer that figure a while ago?

MR. KELLAHIN: Approximately 70 barrels a day.

MR. NUTTER: And that is 70 out of 308?

MR. KELLAHIN: The testimony was 75, is what his testimony was.

MR. NUTTER: We will take the case under advisement.

I N D E X

WITNESSES

EXHIBITS

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, SAMUEL MORTELETTE, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcriptof Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Samuel Mortelette

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4092 heard by me on 4/9, 1969

Examiner
New Mexico Oil Conservation Commission

Memo

10:45 am
5/22

From

D. S. NUTTER
CHIEF ENGINEER

To Case 4092

Called Melba and advised her today is last day for capacity allowable. Asked her to notify Frosty Morgan at Buckeye that Supplemental allowable to TUA producing for pool was being issued. Also to call pipeline

CITIES SERVICE OIL COMPANY

CITGO

Box 4906
Midland, Texas 79701
Telephone: 915 MU 4-7131

May 7, 1969

Phillips Petroleum Company
Phillips Building
Odessa, Texas 79760

Attention: Mr. C. G. Eaheart

Gentlemen:

Some discussion with representatives of Phillips Petroleum Company has been held recently with our engineers relative to enlargement of the Cities Service Oil Company operated Southeast Maljamar Grayburg-San Andres Unit to include the newly completed Phillips' U. S. Minerals No. 4, SW/4 of SE/4, Section 30, T-17-S, Range 33-E, Lea County, New Mexico.

If Phillips desires the subject well be considered for entry into the Unit under provisions of the Unit Agreement, please submit well logs, completion data, potential test and production (oil and water since completion) to fully evaluate this well and establish its relative position to the Unit. Daily production (oil and water) is requested also during the thirty (30) day period authorized by New Mexico Oil Conservation Commission Order R-3735.

Please send this data as soon as available to Cities Service Oil Company, P. O. Box 4906, Midland, Texas, attention Mr. James Relph.

Yours very truly,

Sam J. Matthews
Manager, Southwestern Region
Production Division

SJM:EPM:mfg

cc: Shell Oil Company
P. O. Box 1509
Midland, Texas 79701
Attn: Mr. Ed Nestor

New Mexico Oil Conservation Comm.
P. O. Box 2088
Santa Fe, New Mexico 87501
Attn: Mr. A. L. Porter, Jr.

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. 4092
Order No. R-3735

APPLICATION OF PHILLIPS PETROLEUM
COMPANY FOR A CAPACITY ALLOWABLE,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 9, 1969, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 22nd day of April, 1969, 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, Phillips Petroleum Company, completed its U. S. Minerals Well No. 4, located in the SW/4 SE/4 of Section 30, Township 17 South, Range 33 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, February 20, 1969.

(3) That the applicant seeks assignment of a special allowable to the subject well authorizing said well to produce at its capacity.

(4) That the subject well is adjacent to the Southeast Maljamar Unit Waterflood Project, to the north and east, operated by Cities Service Oil Company.

(5) That water injection has been conducted continuously since September, 1967, in the Southeast Maljamar Unit Well No. 1-1, located in the NW/4 SE/4 of said Section 30.

(6) That water injection has been conducted continuously since December, 1967, in the Southeast Maljamar Unit Well No. 1-3, located in the SE/4 SE/4 of said Section 30.

(7) That said U. S. Minerals Well No. 4 was completed with a calculated productivity of 240 barrels of oil per day and 144 barrels of water per day.

(8) That the subject well is capable of producing in excess of the current top unit allowable for a well in the Maljamar Grayburg-San Andres Pool.

(9) That there is a possibility that the subject well has received a response from the injection of water in the aforesaid Wells Nos. 1-1 and 1-3.

(10) That if the subject well is receiving a response from said injection, there is a possibility that oil will be swept past the subject well to the south and west where it may never be recovered, thereby resulting in waste.

(11) That it is not presently possible to determine that the subject well has received a response from the injection of water in the aforesaid Wells Nos. 1-1 and 1-3, located to the north and east.

(12) That there is a possibility that the SW/4 SE/4 of said Section 30 will be unitized with acreage to the north and east in the Cities Service-operated Southeast Maljamar Unit.

(13) That unitization of the SW/4 SE/4 of said Section 30 with the acreage to the north and east in the Cities Service-operated Southeast Maljamar Unit would tend to protect correlative rights and to eliminate the possibility of waste as the subject well would then be eligible to share in the Cities Service-operated Southeast Maljamar Unit Waterflood Project allowable.

(14) That in order to avert the possibility of the unrecoverable loss of oil pending negotiations for said unitization, the applicant should be allowed to produce its U. S. Minerals Well No. 4 at its maximum capacity for a temporary 30-day period.

(15) That approval of the subject application will prevent waste in permitting the production of oil that may not otherwise be recovered and will not violate correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Phillips Petroleum Company, is hereby authorized to produce its U. S. Minerals Well No. 4, located in the SW/4 SE/4 of Section 30, Township 17 South, Range 33 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, at its maximum capacity for a temporary period not to exceed 30 days from the date of this order.

(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

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

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

esr/

Docket No. 10-69

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 9, 1969

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 Elvis A. Utz, Alternate Examiner:

CASE 4092: Application of Phillips Petroleum Company for a capacity allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the assignment of a capacity allowable to its U. S. Minerals Well No. 4 located in the SW/4 SE/4 of Section 30, Township 17 South, Range 33 East, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico. Said well offsets a waterflood project operated by Cities Service Oil Company.

CASE 4093: Application of ETA Oil Producers for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation in the intervals from approximately 12,240 feet to 12,275 feet in its State "E" Well No. 1 and from approximately 12,088 feet to 12,164 feet in its State "E" Well No. 2 located, respectively, in Units F and C of Section 5, Township 10 South, Range 36 East, adjacent to the West Crossroads-Devonian Pool, Lea County, New Mexico.

CASE 4094: Application of Cayman Corporation for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4184 feet to 4274 feet in its Hondo-State Well No. 1 located in Unit F of Section 31, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

CASE 4095: Application of Tom Schneider for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Rustler formation in the perforated interval from approximately 1320 feet to 1340 feet in his SWD Well No. 1 located in Unit O of Section 16, Township 23 South, Range 36 East, Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico.

CASE 4096: Application of Kersey & Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project

(Case 4096 continued)

by the injection of water into the Seven Rivers formation through four wells located in Units C, D, and F of Section 25, Township 17 South, Range 28 East, Aid (Yates-Seven Rivers) Pool, Eddy County, New Mexico.

CASE 4097: Application of Western States Producing Company for a dual completion and salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Smelting-State Well No. 1, located in Unit F of Section 9, Township 12 South, Range 34 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the East Bagley-Pennsylvanian Pool and the disposal of produced salt water through the intermediate casing-production casing annulus into the San Andres, Glorieta, Tubb, Abo, and possibly other formations in the interval from approximately 4199 feet to 8931 feet.

CASE 4098: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Walter J. Nelson and all other interested parties to appear and show cause why the Walter J. Nelson Lee Burns "A" Well No. 1 located in Unit P of Section 31, Township 6 North, Range 8 East, Torrance County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 4078: (Continued from the March 26, 1969 Examiner Hearing)
Application of J. Gregory Merrion for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Devils Fork-Gallup Pool and an undesignated Mesaverde oil pool in the well-bore of his NCRA State Well No. 3 located in Unit L of Section 16, Township 24 North, Range 6 West, Rio Arriba County, New Mexico.

OIL CONSERVATION COMMISSION

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

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

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

April 22, 1969

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

Re: Case No. 4092
Order No. R-3735
Applicant:
Phillips Petroleum Company

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 Mr. Sumner Buell and Mr. E. F. Motter

NEW MEXICO OIL CONSERVATION COMMISSION
GAS – OIL RATIO TESTS

C-116
Revised 1-1-65

Operator	Pool	County
Phillips Petroleum Company	Maljamar - Grayburg/San Andres	Lea

Address: Room B-2, Phillips Building, Odessa, Texas 79760

TYPE OF TEST – (X): Scheduled [ ] 30 day after Completion [X] Special [ ]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS – OIL RATIO CU.FT/BBL
U. S. Minerals ✓	4	O	30	17-S	33-E	3-11-69	P			60	8	52	37.6	79	83.3	1055

OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO. 1092

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

W. J. Mueller
(Signature)

Associate Reservoir Engineer
(Title)

3-14-69
(Date)

Form 9-330
(Rev. 5-63)

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 601

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

7. UNIT AGREEMENT NAME: -

8. FARM OR LEASE NAME: U. S. Minerals

9. WELL NO.: 4

10. FIELD AND POOL, OR WILDCAT: Maljamar-Grayburg/San Andres

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec.30, T-17-S, R-33-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: Phillips Petroleum Company

3. ADDRESS OF OPERATOR: Room B-2, Phillips Building, Odessa, Texas 79760

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 660' FS and 1980' FE lines
At top prod. interval reported below
At total depth

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
-	11-25-68	Lea	N. 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
1-15-69	1-25-69	1-30-69	4040' DF - reference	4032.4' Gr.

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
4381 (-341)	4354 (-314)	-	→	0-4381	-

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
Grayburg - top 4250 (-210'), bottom 4350 (-310)'

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN
BHC Acoustic, caliper, GR, laterolog, microlaterolog

27. WAS WELL CORED: No

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

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9-5/8"	36#	355'	12-1/4"	350 sx Class H, Circ 125 sx	-
4-1/2"	11.6#	4381'	7-7/8"	145 sx Class H w/40% DD and 125 sx Class H neat. TOC @ 2550')	-

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
-				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	4325	-

31. PERFORATION RECORD (Interval, size and number)
4250-60', 4284-96', 4312-24', 4340-50', 2-1/2" holes/foot = 88 holes.

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4250-4350'	500 gals 15% H @ A acid
4250-4350'	31500 gals ref. oil w/22000# 20-40 mesh sand.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
2-8-69	Insert pump 2" x 1-1/2" x 12	producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
2-21-69	8	-	→	80	60.3	48	1004

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
40#	200#	→	240	240.96	144	37.2

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
Vented - to be connected to PPCo. gathering system

TEST WITNESSED BY: C. W. Kosoman

35. LIST OF ATTACHMENTS
-

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

SIGNED W. J. Mueller TITLE Associate Reservoir Engineer DATE 2-24-69

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

Cpy. No. 2
4092

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.
Redbeds	0	135	
Redbeds, shells	135	355	
Redbeds	355	860	
Redbeds, Anhydrite, Salt	860	2494	
Anhydrite	2494	2784	
Anhydrite, sand	2784	3051	
Anhydrite	3051	3232	
Anhydrite, gyp	3232	3351	
Anhydrite, lime	3351	3642	
Lime	3642	3722	
Lime, Anhydrite	3722	3926	
Lime	3926	4031	
Lime, Dolomite	4031	4196	
Lime, Sandylime	4196	4381	

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
Rustler	1210	+2830
Yates	2598	+1442
Queen	3575	+ 465
Grayburg	4035	-5
San Andres	4370	-330

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

NEW MEXICO
OIL CONSERVATION COMMISSION

BOX 1980
HOBBS, NEW MEXICO

February & March 1969

NO. 142

SUPPLEMENT TO THE OIL PRORATION SCHEDULE

DATE February 26, 1969

PURPOSE: ALLOWABLE ASSIGNMENT FOR A NEW WELL

Effective February 20, 1969, an allowable of 58 barrels of oil per day is hereby assigned to the Phillips Petroleum Company, U. S. Minerals, 4-O, 30-17-33, Maljamar (G-SA) Pool.

February Total	522 Barrels
March Total @ 60 BOPD	1860 Barrels

[illegible] T NO. 3
CASE NO. 4092

JDR/vho

Phillips

Admiral

OIL CONSERVATION COMMISSION

SUPERVISOR, DISTRICT NO. 1

OPERATOR'S COPY

NO. OF COPIES RECEIVED			
DISTRIBUTION			
SANTA FE			
FILE			
U.S.G.S.			
LAND OFFICE			
TRANSPORTER	OIL		
	GAS		
OPERATOR			
PRORATION OFFICE			

NEW MEXICO OIL CONSERVATION COMMISSION
REQUEST FOR ALLOWABLE
AND
AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C-110
Effective 1-1-65

I. Operator: Phillips Petroleum Company

Address: Room B-2, Phillips Bldg., Odessa, Texas 79760

Reason(s) for filing *(Check proper box)*
- New Well ☐
- Recompletion ☐
- Change in Ownership ☐
- Change in Transporter of: Oil ☐ Casinghead Gas ☐ Dry Gas ☐ Condensate ☐
- Other *(Please explain)*

If change of ownership give name and address of previous owner —

II. DESCRIPTION OF WELL AND LEASE

Lease Name	Well No.	Pool Name, Including Formation	Kind of Lease (State, Federal or Fee)	Lease No.
U. S. Minerals	4	Maljamar-Grayburg San Andres	XXX XX	LC 601

Location: Unit Letter O ; 1980 Feet From The East Line and 660 Feet From The South

Line of Section 30 Township 17-S Range 33E, NMPM, Lea County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Phone 915 682-1889

Name of Authorized Transporter of Oil ☐ or Condensate ☐	Address *(Give address to which approved copy of this form is to be sent)*
Admiral Crude Oil Company X	Box 1713, Midland, Texas 79701
Name of Authorized Transporter of Casinghead Gas ☐ or Dry Gas ☐	Address *(Give address to which approved copy of this form is to be sent)*
Phillips Petroleum Company	Room B-2, Phillips Building, Odessa, Texas

If well produces oil or liquids, give location of tanks.	Unit	Sec.	Twp.	Rge.	Is gas actually connected?	When
	O	30	17-S	33E	No.	—

If this production is commingled with that from any other lease or pool, give commingling order number: —

IV. COMPLETION DATA

Designate Type of Completion – (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Res'v.	Diff. Res'v.
	X		X					

Date Spudded	Date Compl. Ready to Prod.	Total Depth	P.B.T.D.
1-15-69	1-30-69	4331	4354

Elevations *(DF, RKB, RT, GR, etc.)*	Name of Producing Formation	Top Oil/Gas Pay	Tubing Depth
4040' DF	Grayburg/San Andres	4035'	4325'

Perforations	Depth Casing Shoe
4250-60', 4284-96', 4312-24', 4340-50'	4331

TUBING, CASING, AND CEMENTING RECORD

HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT
~~12-1/4"~~	~~8-5/8"~~	~~355'~~	~~350 sx Class A, Circ 125~~
~~7-7/8"~~	~~4-1/2"~~	~~4331'~~	~~11.5 sx Class H w/40% D3~~ & 125 sx Class H neat.

V. TEST DATA AND REQUEST FOR ALLOWABLE

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

OIL WELL

Date First New Oil Run To Tanks	Date of Test	Producing Method *(Flow, pump, gas lift, etc.)*	
2-20-69	2-21-69	Pumping - 2" x 1-1/2" x 12'	
Length of Test	**Tubing Pressure**	**Casing Pressure**	**Choke Size**
8	40#	200#	—
Actual Prod. During Test	**Oil-Bbls.**	**Water-Bbls.**	**Gas-MCF**
	80	48	80.3

GAS WELL

Actual Prod. Test-MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
—			
Testing Method *(pitot, back pr.)*	**Tubing Pressure (Shut-in)**	**Casing Pressure (Shut-in)**	**Choke Size**
—			

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

H. J. Mueller
(Signature)
Associate Reservoir Engineer
(Title)
2-24-69
(Date)

OIL CONSERVATION COMMISSION

APPROVED _____, 19 _____

BY _____

TITLE _____

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

STATE OF NEW MEXICO

INCLINATION REPORT

ONE COPY MUST BE FILED WITH EACH COMPLETION REPORT

Field Name Maljamar-Grayburg San Andres County Lea

Operator Phillips Petroleum Company Address Room B-2, Phillips Bldg. City Odessa, Texas

Lease Name U. S. Minerals Well No. 4

Location Unit Letter O, 1980 feet from the east line and 660 feet from South line of Section 30, Township 17-S, Range 33-E

RECORD OF INCLINATION

Depth (feet)	Angle of Inclination (degrees)	Depth (feet)	Angle of Inclination (degrees)
355	1/2		
804	1		
1301	1/2		
1800	3/4		
2292	1-1/2		
2494	2-1/4		
2749	2-3/4		
3232	2-1/2		
3642	3-1/4		
3966	3-1/4		
4123	2-3/4		
4381	2-1/2		

4092

I hereby certify that I have personal knowledge of the data and facts placed on this form, and that such information given above is true and complete.

W. J. Mueller
Signature and Title of Affiant
Associate Reservoir Engineer

Sworn and Subscribed to before me, this the 11th day of February, 1969.

J. C. Minott
Notary Public in and for Ector County, Texas.

NO. OF COPIES RECEIVED		
DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
TRANSPORTER	OIL	
	GAS	
OPERATOR		
PRORATION OFFICE		

NEW MEXICO OIL CONSERVATION COMMISSION
REQUEST FOR ALLOWABLE
AND
AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C-110
Effective 1-1-65

I. Operator

Phillips Petroleum Company

Address

Room D-2, Phillips Building, Odessa, Texas 79760

Reason(s) for filing (Check proper box)

New Well [X]
Recompletion [ ]
Change in Ownership [ ]
Change in Transporter of: Oil [ ] Dry Gas [ ] Casinghead Gas [ ] Condensate [ ]

Other (Please explain)

Move 1000 barrels test production

If change of ownership give name and address of previous owner _____

II. DESCRIPTION OF WELL AND LEASE

Lease Name	Well No.	Pool Name, Including Formation	Kind of Lease	Lease No.
U. S. Minerals	4	Maljamar-Grayburg-San Andres	~~State~~ Federal ~~Fee~~	LC-061

Location

Unit Letter O ; 1980 Feet From The East Line and 660 Feet From The South

Line of Section 30 Township 17-S Range 33-E , NMPM, Lea County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil [X] or Condensate [ ]	Address (Give address to which approved copy of this form is to be sent)
Permian Corporation (Shell Crude Oil Corp.)	Box 3119, Midland, Texas 79701 Box 1713
Name of Authorized Transporter of Casinghead Gas [ ] or Dry Gas [ ]	Address (Give address to which approved copy of this form is to be sent)
Phillips Petroleum Company	Room D-2, Phillips Building, Odessa, Texas 797[illegible]

If well produces oil or liquids, give location of tanks.	Unit	Sec.	Twp.	Rge.	Is gas actually connected?	When
	O	30	17-S	33-E		

If this production is commingled with that from any other lease or pool, give commingling order number: _____

IV. COMPLETION DATA

Designate Type of Completion – (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Resv.	Diff. Resv.

Date Spudded	Date Compl. Ready to Prod.	Total Depth	P.B.T.D.
Elevations (DF, RKB, RT, GR, etc.)	Name of Producing Formation	Top Oil/Gas Pay	Tubing Depth
Perforations			Depth Casing Shoe

TUBING, CASING, AND CEMENTING RECORD

HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT

V. TEST DATA AND REQUEST FOR ALLOWABLE

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

OIL WELL

Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	Tubing Pressure	Casing Pressure	Choke Size
Actual Prod. During Test	Oil-Bbls.	Water-Bbls.	Gas-MCF

GAS WELL

Actual Prod. Test-MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
Testing Method (pitot, back pr.)	Tubing Pressure (Shut-in)	Casing Pressure (Shut-in)	Choke Size

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

(Signature)

Production Clerical Supervisor

(Title)

February 11, 1969

(Date)

OIL CONSERVATION COMMISSION

APPROVED _____, 19 _____

BY _____

TITLE _____

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

NO. OF COPIES RECEIVED		
DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
TRANSPORTER OIL		
TRANSPORTER GAS		
OPERATOR		
PRORATION OFFICE		

NEW MEXICO OIL CONSERVATION COMMISSION

REQUEST FOR ALLOWABLE
AND
AUTHORIZATION TO TRANSPORT OIL AND NATURAL GAS

Form C-104
Supersedes Old C-104 and C-110
Effective 1-1-65

I.
Operator
Phillips Petroleum Company

Address
Room B-2, Phillips Building, Odessa, Texas 79760

Reason(s) for filing (Check proper box)
New Well [X]   Recompletion [ ]   Change in Ownership [ ]
Change in Transporter of: Oil [ ]   Casinghead Gas [ ]   Dry Gas [ ]   Condensate [ ]

Other (Please explain)
Move 1000 barrels test production

If change of ownership give name and address of previous owner ______

II. DESCRIPTION OF WELL AND LEASE

Lease Name	Well No.	Pool Name, Including Formation	Kind of Lease State, Federal or Fee	Lease No.
U. S. Minerals	4	Maljamar-Grayburg-San Andres	Federal	[illegible]-801

Location
Unit Letter O ; 1980 Feet From The East Line and 660 Feet From The South
Line of Section 30 Township 17-S Range 33-E, NMPM, Lea County

III. DESIGNATION OF TRANSPORTER OF OIL AND NATURAL GAS

Name of Authorized Transporter of Oil [X] or Condensate [ ]	Address (Give address to which approved copy of this form is to be sent)
Permian Corporation Admiral Crude Oil Corp.	Box 3119 Midland, Texas 79701 Box 1713

Name of Authorized Transporter of Casinghead Gas [ ] or Dry Gas [ ]	Address (Give address to which approved copy of this form is to be sent)
Phillips Petroleum Company	Room B-2, Phillips Building, Odessa, Texas 797[illegible]

If well produces oil or liquids, give location of tanks.	Unit	Sec.	Twp.	Rge.	Is gas actually connected?	When
	O	30	17-S	33-E		

If this production is commingled with that from any other lease or pool, give commingling order number:

IV. COMPLETION DATA

Designate Type of Completion – (X)	Oil Well	Gas Well	New Well	Workover	Deepen	Plug Back	Same Res'v.	Diff. Res'v.

Date Spudded	Date Compl. Ready to Prod.	Total Depth	P.B.T.D.
Elevations (DF, RKB, RT, GR, etc.)	**Name of Producing Formation**	**Top Oil/Gas Pay**	**Tubing Depth**
Perforations			**Depth Casing Shoe**

TUBING, CASING, AND CEMENTING RECORD

HOLE SIZE	CASING & TUBING SIZE	DEPTH SET	SACKS CEMENT

V. TEST DATA AND REQUEST FOR ALLOWABLE

(Test must be after recovery of total volume of load oil and must be equal to or exceed top allowable for this depth or be for full 24 hours)

OIL WELL

Date First New Oil Run To Tanks	Date of Test	Producing Method (Flow, pump, gas lift, etc.)	
Length of Test	**Tubing Pressure**	**Casing Pressure**	**Choke Size**
Actual Prod. During Test	**Oil-Bbls.**	**Water-Bbls.**	**Gas-MCF**

GAS WELL

Actual Prod. Test-MCF/D	Length of Test	Bbls. Condensate/MMCF	Gravity of Condensate
Testing Method (pitot, back pr.)	**Tubing Pressure (Shut-in)**	**Casing Pressure (Shut-in)**	**Choke Size**

VI. CERTIFICATE OF COMPLIANCE

I hereby certify that the rules and regulations of the Oil Conservation Commission have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

(Signature)

Production Clerical Supervisor
(Title)

February 11, 1969
(Date)

OIL CONSERVATION COMMISSION

APPROVED ______, 19__

BY ______

TITLE ______

This form is to be filed in compliance with RULE 1104.

If this is a request for allowable for a newly drilled or deepened well, this form must be accompanied by a tabulation of the deviation tests taken on the well in accordance with RULE 111.

All sections of this form must be filled out completely for allowable on new and recompleted wells.

Fill out only Sections I, II, III, and VI for changes of owner, well name or number, or transporter, or other such change of condition.

Separate Forms C-104 must be filed for each pool in multiply completed wells.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR: Phillips Petroleum Company

3. ADDRESS OF OPERATOR: Room B-2, Phillips Bldg., Odessa, Texas 79760

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 660' FS and 1980' FE lines

5. LEASE DESIGNATION AND SERIAL NO.: NM301

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: -

7. UNIT AGREEMENT NAME: -

8. FARM OR LEASE NAME: U. S. Minerals

9. WELL NO.: 4

10. FIELD AND POOL, OR WILDCAT: Maljamar - Grayburg/San And

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 30, 17-S, 33E

12. COUNTY OR PARISH: Lea 13. STATE: New Mexico

14. PERMIT NO.: -

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4040' DF

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[X]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Leatherwood drilled 7-7/8" hole f/355' to 4381'. Reached TD at 10 AM, 1-25-69. Conditioned mud. Ran Dresser-Atlas BHC acoustic, claiper, GR, laterlog and micro-laterolog logs. Set ~~137~~ 137 jts 4-1/2" 11.6# J-55, A condition casing at 4381' on 1-27-69. Dowell cemented with 145 sx Class H w/40% DD and 125 sx Class H neat. Plug to 4365' w/250 gals 10% acetic acid and 52 BW. Max press 2000#. Job completed 1:27 PM, 1-26-69. Rotated casing. Released rig at 3 PM, 1-26-69, on 1-28-69, ran temperature survey, TOC outside casing at 2550'. Tested csg w/1500# for 30 minutes, okey.

Oppl 4092 7

18. I hereby certify that the foregoing is true and correct

SIGNED W. J. Mueller TITLE Associate Reservoir Engineer DATE 2-3-69

(This space for Federal or State office use)

APPROVED BY _____ TITLE APPROVED DATE _____

CONDITIONS OF APPROVAL, IF ANY:

FEB 6 1969

J. L. GORDON
ACTING DISTRICT ENGINEER

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
Rm. B-2, Phillips Bldg., Odessa, Texas 79760

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
660' FS and 1980' FE lines.

5. LEASE DESIGNATION AND SERIAL NO.
NM 801

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
U. S. Minerals

9. WELL NO.
4

10. FIELD AND POOL, OR WILDCAT
Maljamar-Grayburg/San Andr

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
30, 17-S, 33E

12. COUNTY OR PARISH
Lea

13. STATE
New Mexico

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
Later

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[X]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Leatherwood Drilling Company spudded 12-1/4" hole at 7 P.M., 1-15-69. Drilled to 355'. Set 11 jts. 9-5/8" casing (36#, J-55 ST&C, A cond.) at 355' on 1-16-69, Dowell cemented with 350 sx Class H cement w/2% CaCl2. Plug to 320', maximum pressure 300#. Circulated 125 sx cement. Job complete 10:30 A.M., 1-16-69. WOC 18 hours, tested csg. w/1000# for 30 minutes, okay. Drlg. cement 319' to 355', started drilling ahead at 355' in 7-7/8" hole.

Cyd 4092 8

18. I hereby certify that the foregoing is true and correct

SIGNED W. J. Mueller TITLE Associate Reservoir Engr. DATE 1-17-69

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

APPROVED
JAN 23 1969
J. L. GORDON
ACTING DISTRICT ENGINEER

*See Instructions on Reverse Side

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

NM 601

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL ☐ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER — SINGLE ZONE ☐ MULTIPLE ZONE ☐

2. NAME OF OPERATOR: Phillips Petroleum Company

3. ADDRESS OF OPERATOR: Room B-2, Phillips Bldg., Odessa, Texas 79760

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 660' FS and 1980' FE lines, Sec. 30
At proposed prod. zone: Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 4 Miles Southeast of Maljamar, New Mexico

5. LEASE DESIGNATION AND SERIAL NO.: —

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: —

7. UNIT AGREEMENT NAME: U. S. Minerals

8. FARM OR LEASE NAME: 4

9. WELL NO.: Maljamar (Grayburg)

10. FIELD AND POOL, OR WILDCAT: (San Andres)
Sec. 30, T-17-S, R-33-E

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

12. COUNTY OR PARISH: 40 Lea

13. STATE: New Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
—	4300	Rotary
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	19. PROPOSED DEPTH	20. ROTARY OR CABLE TOOLS
		December 2, 1968

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

22. APPROX. DATE WORK WILL START*

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11"	8-5/8"	32# and 24#	335'	Sufficient to circ.
7-7/8"	4-1/2"	9.5# to 10.5#	4300'	Cover all prod. zones.

Drill with fresh water, mud additives as required for control.

BE[illegible] BY A[illegible]
GJ 4092-9

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.
SIGNED W. J. Mueller TITLE Associate Reservoir Engineer DATE 11-20-68

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

APPROVED
NOV 25 1968
A. R. BROWN
DISTRICT ENGINEER

*See Instructions On Reverse Side

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Supersedes C-123
Effective 1-1-65

All distances must be from the outer boundaries of the section.

Operator	Lease	Well No.
Phillips Petroleum Company	U. S. Minerals	4

Unit Letter	Section	Township	Range	County
O	30	17-S	33-E	Lea

Actual Footage Location of Well:
660 feet from the south line and 1980 feet from the east line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
Later	Grayburg-San Andres	Maljamar - Grayburg/San Andres	40 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

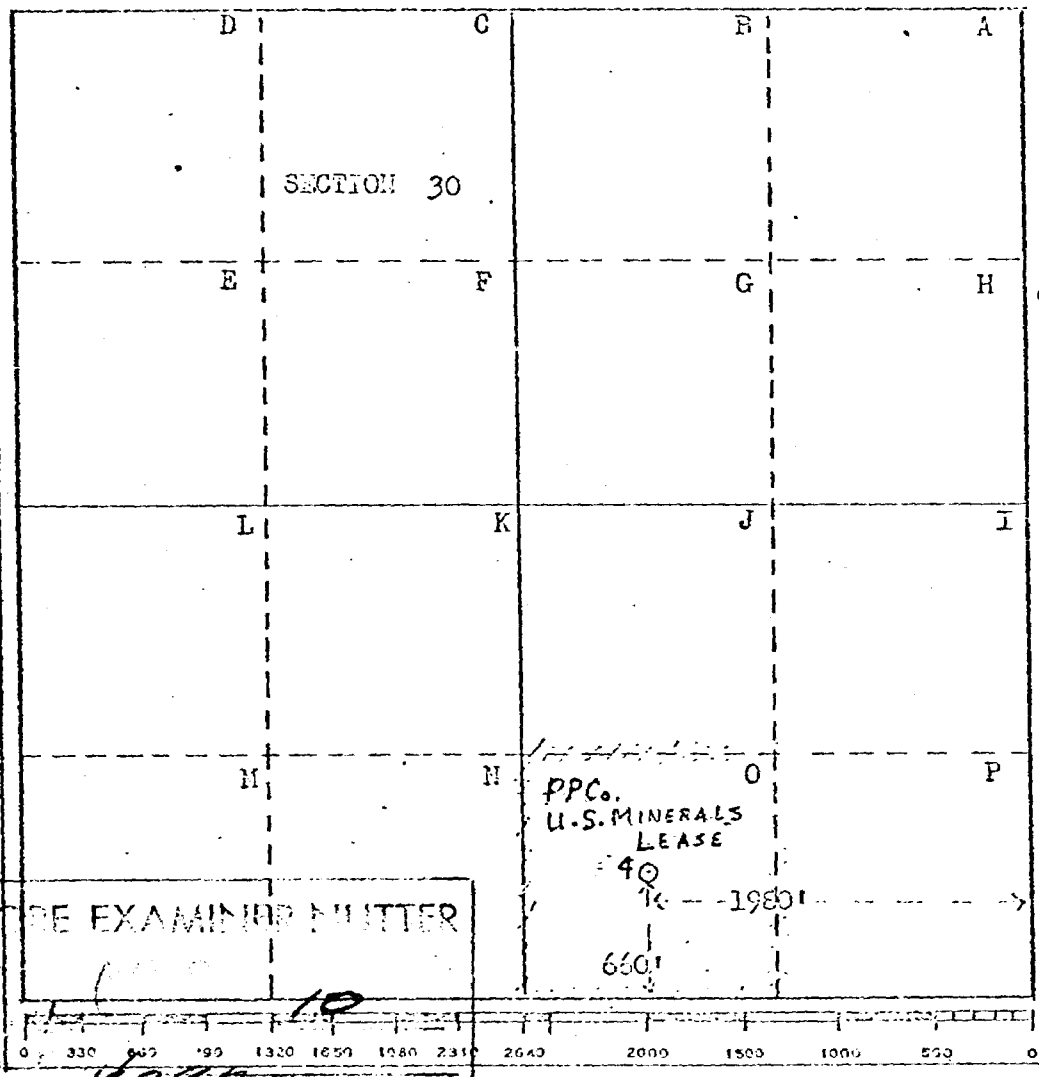
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 10
CASE NO. 4092

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: W. J. Huellen

Position: Associate Reservoir Engineer

Company: Phillips Petroleum Company

Date: November 21, 1968

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

November 21, 1968

Date Surveyed

Roger L. Leffler

Registered Professional Engineer and/or Land Surveyor

Roger L. Leffler

Certificate No. 4357

SOUTHEAST MALJAMAR UNIT

WATER INJECTION VOLUMES--BARRELS

Date	Well No. 1-1 Loc. J-30-17-33	Well No. 1-3 Loc. P-30-17-33
1967		
September	7,424	
October	12,700	
November	8,000	
December	7,681	5,280
1968		
January	8,695	1,925
February	5,670	5,535
March	9,275	4,010
April	8,475	4,070
May	6,790	2,540
June	7,205	6,995
July	4,910	1,590
August	5,670	125
September	4,720	1,480
October	5,215	2,980
November	6,025	2,410
December	5,985	2,365
1969		
January	4,605	3,050
Cumulative Injection to February 1, 1969	119,045	44,355

BAROID DIVISION
NATIONAL LEAD COMPANY

PETROLEUM INDUSTRY CHEMICALS

WATER ANALYSIS TEST REPORT

SHEET NUMBER

CO. ANY: Phillips Pet. Co.

DATE: 2-24-69

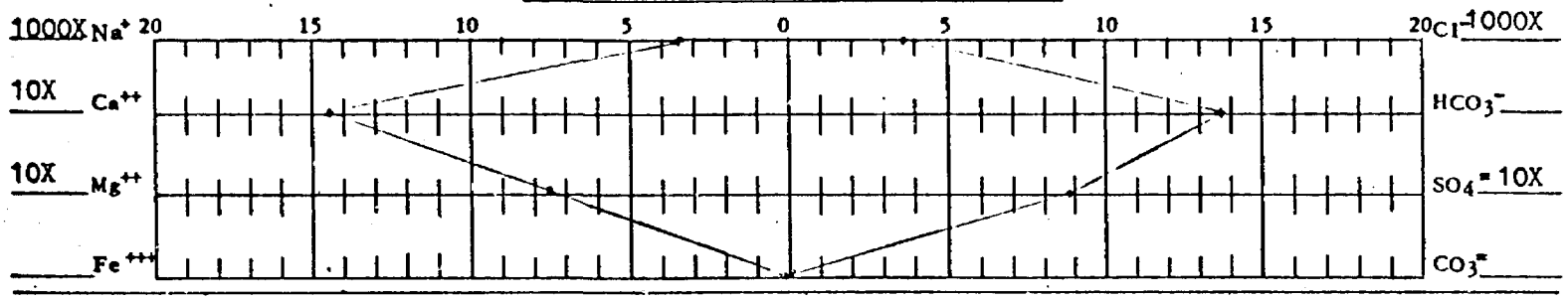
FIELD	COUNTY OR PARISH	STATE
		N. M.

LEASE OR UNIT	WELL(S) NAME OR NO.	WATER SOURCE (FORMATION)
U. S. Minerals	No. 4	Grayberg - San Andres

DEPTH, FT.	BHT, F	SAMPLE SOURCE	TEMP, F	WATER, BBL/DAY	OIL, BBL/DAY	GAS, MMCF/DAY

TYPE OF OIL	API GRAVITY	TYPE OF WATER
	°	☐ PRODUCED WATER ☐ INJECTION WATER OTHER _____

WATER ANALYSIS PATTERN
(NUMBER BESIDE ION SYMBOL INDICATES me/l * SCALE UNIT)



DISSOLVED SOLIDS

CATIONS	me/l *	mg/l *
Total Hardness	222.	
Sodium, Na^+ (calc.)	3439.	79097
Calcium, Ca^{++}	146	2920
Magnesium, Mg^{++}	76	912
Iron (Total), Fe^{+++}	.16	3
ANIONS		
Chloride, Cl^-	3549.	126,000
Sulfate, $SO_4^=$	89	4250
Carbonate, $CO_3^=$	NP	
Bicarbonate, HCO_3^-	13.6	830.
Hydroxyl, OH^-	NP	
Sulfide, $S^=$	9.	143
Phosphate - Meta, PO_3^-		
Phosphate - Ortho, $PO_4^{\equiv}$		

DISSOLVED GASES

Hydrogen Sulfide, H_2S	_____	mg/l *
Carbon Dioxide, CO_2	_____	mg/l *
Oxygen, O_2	_____	mg/l *

PHYSICAL PROPERTIES

pH	6.3	
Eh (Redox Potential)	_____	MV
Specific Gravity	_____	
Turbidity, JTU Units	_____	
Total Dissolved Solids (Calc.)	_____	mg/l *
Stability Index @ 50 F	+0.56	
@ 158 F	+2.42	
$CaSO_4$ Solubility @ 68 F	5965	mg/l *
@ 176 F	5380	mg/l *
Max. $CaSO_4$ Possible (Calc.)	6061	mg/l *
Max. $BaSO_4$ Possible (Calc.)	_____	mg/l *
Residual Hydrocarbons	_____	ppm (Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide ☐ Iron Oxide ☐ Calcium Carbonate ☐ Acid Insoluble ☐

REMARKS AND RECOMMENDATIONS:

This water could form both Calcium Carbonate and Calcium Sulfate Scale. Also could be corrosive due to Sulfide.

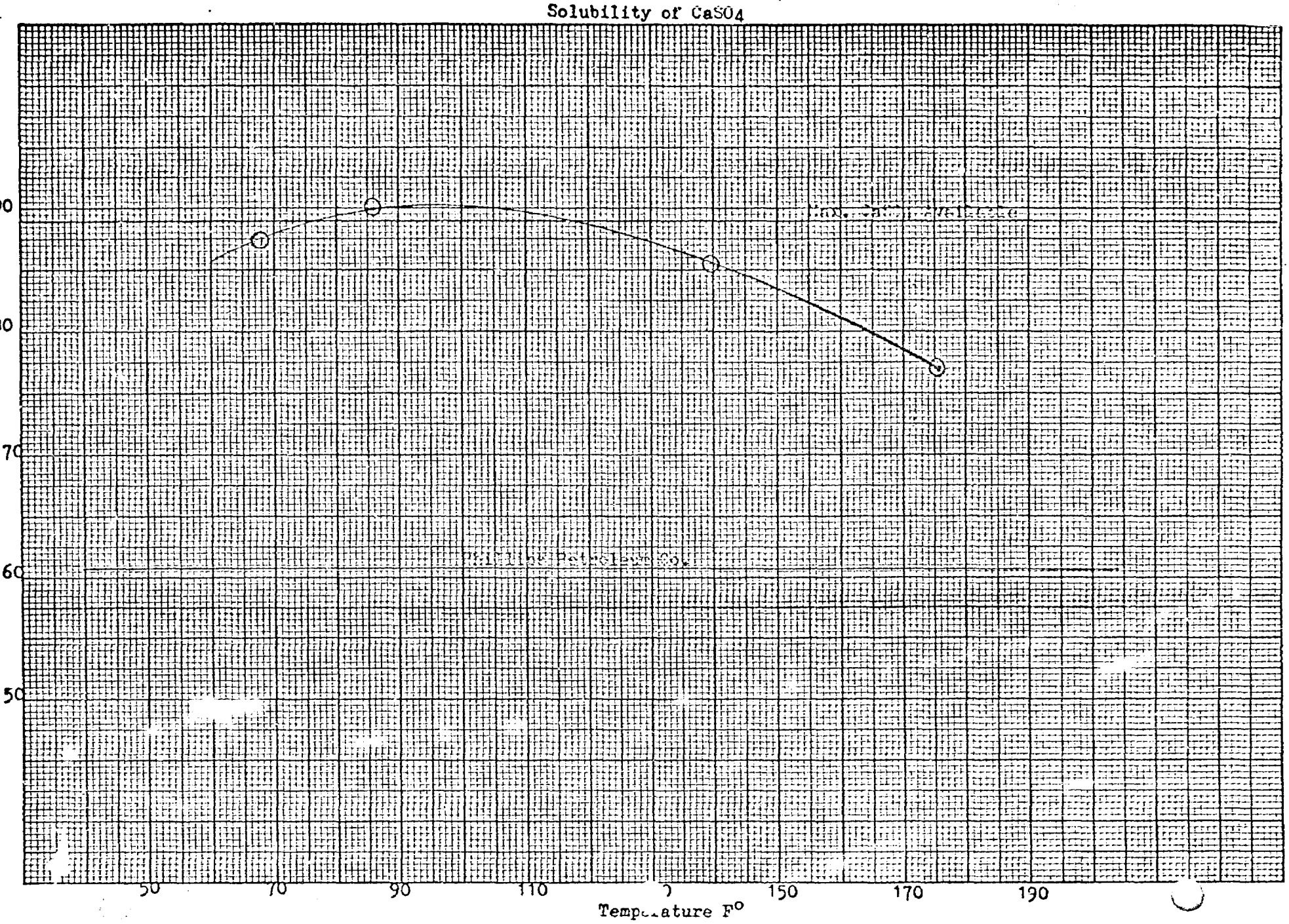
* NOTE: me/l and mg/l are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

PIC ENGINEER	DIST. NO.	ADDRESS	OFFICE PHONE	HOME PHONE
E. A. Fine	21	Box 1799, Hobbs, N. M.	393-8622	392-6307

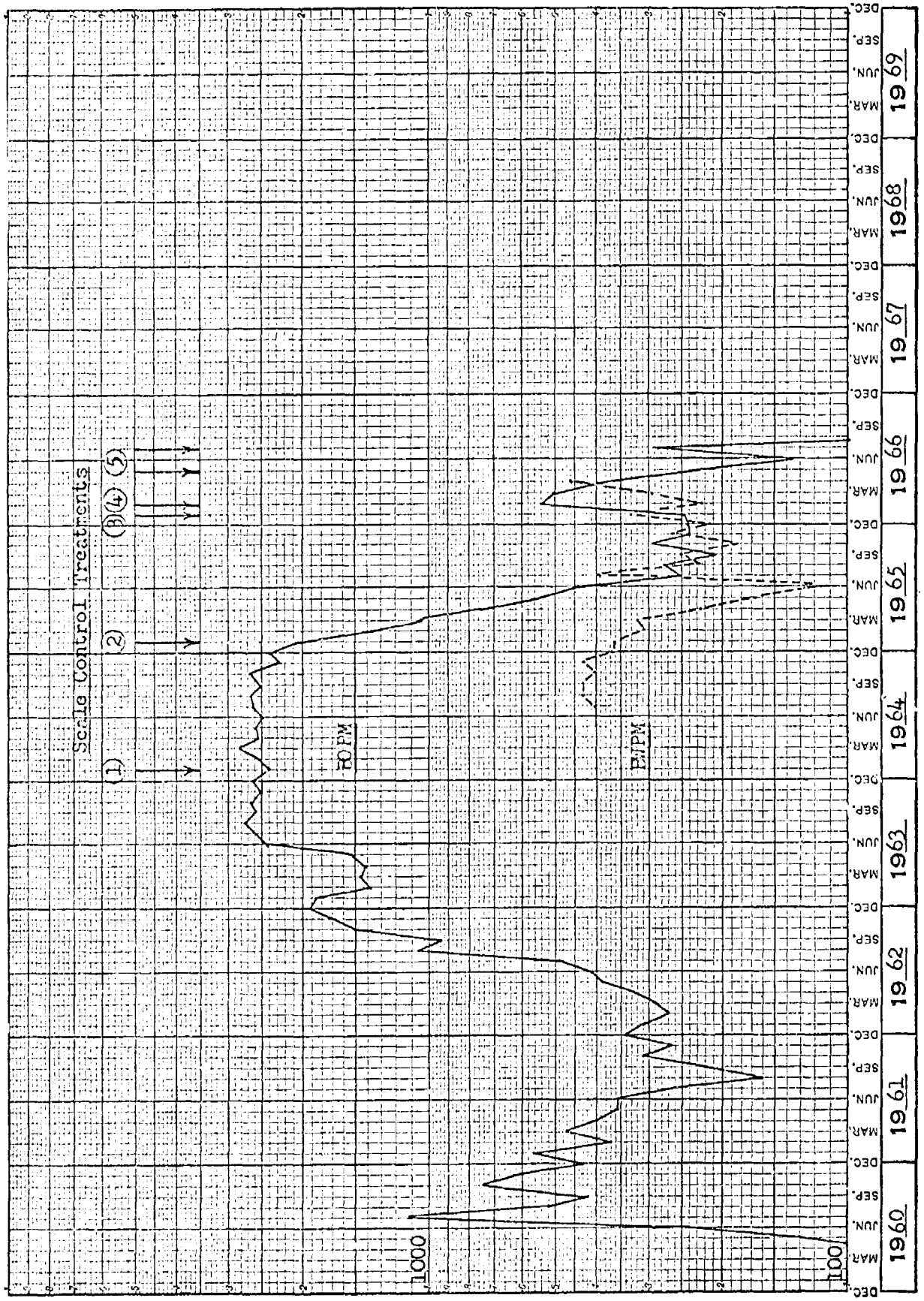
TESTED BY	DATE	DISTRIBUTION
E. A. Fine	2-24-69	☒ CUSTOMER ☐ AREA OR ☐ DISTRICT OFFICE ☐ PIC ENGINEER OR ☐ PIC LAB ☒ PIC SALES SUPERVISOR

FORM RBR-2149A

Solubility of $CaSO_4$



PHILLIPS PETROLEUM COMPANY
KENNEDY STATE LEASE
(N/2, SE/4 OF SEC. 2, T-17-S, R-32-E)
MALJAMAR (G.-S.A.) FIELD, LEA CO., N.M.



PHILLIPS PETROLEUM COMPANY
KENNEDY STATE NO. 2

(N/2, SE/4 OF SEC. 2, T-17-S, R-32-E)
MALJAMAR (G.-S.A.) FIELD, LEA CO., N.M.

SCALE CONTROL TREATMENT HISTORY

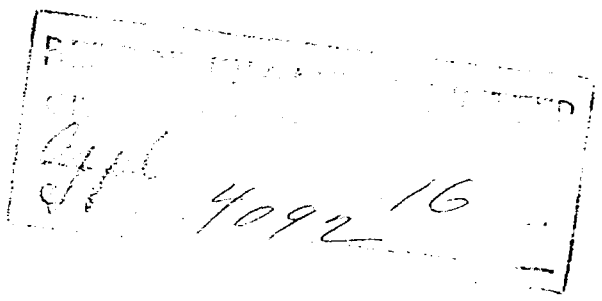
1. January, 1964: Ran 200 gram and 300 gram string shots over perforated interval, reperforated Grayburg section with two jet holes per foot, and fraced with 1,000 gallons refined oil containing 500# Halliburton SCP-2 polyphosphate and 500# 12-20 walnut hulls.

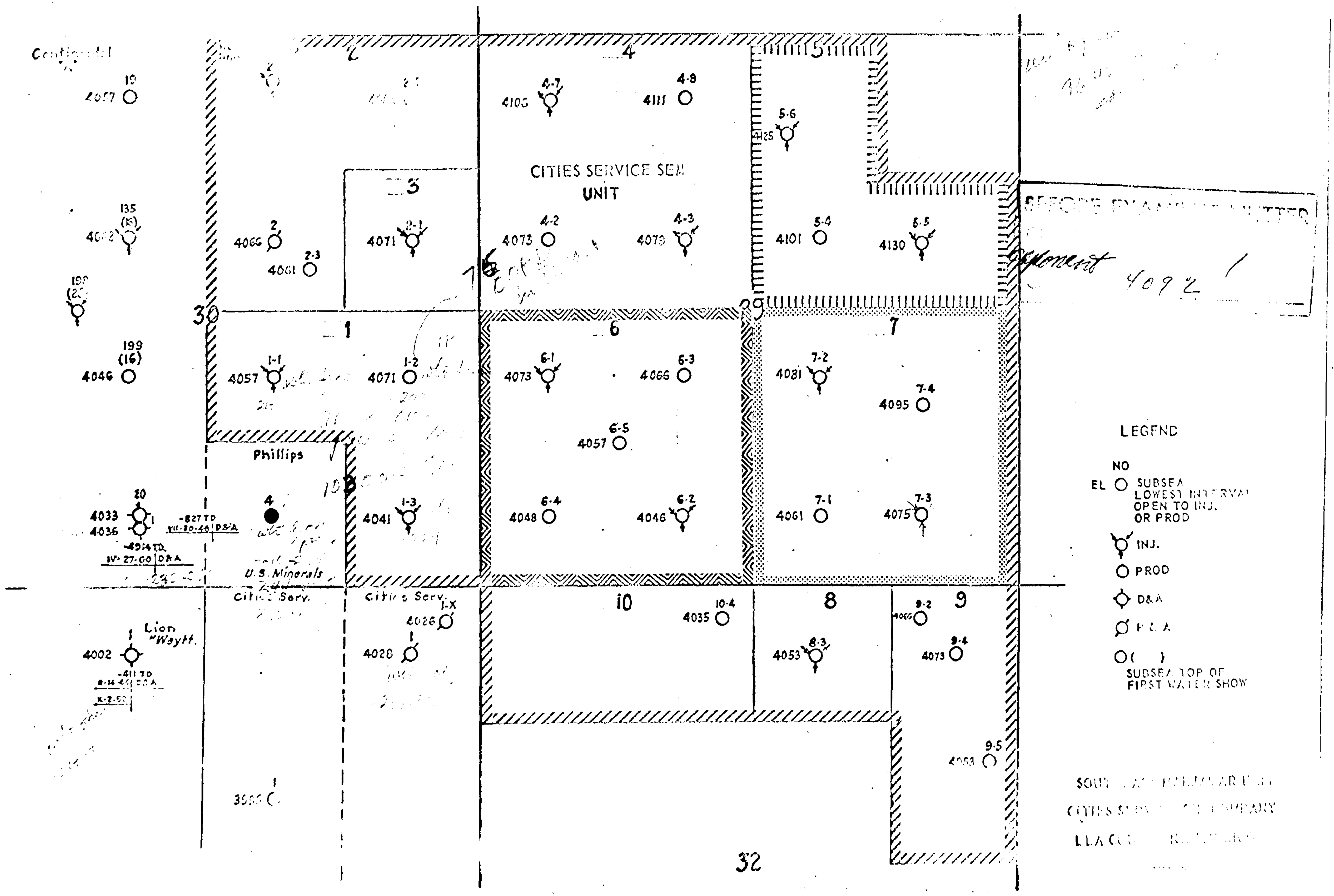
2. January, 1965: Fraced with 2,000 gallons refined oil containing 500# SCP-2 and 500# walnut hulls.

3. January, 1966: Tubing stuck above perforations and well was treated with a total of 3,250 gallons 15 per cent regular acid and 3,000 gallons Halliburton Gypsol.

4. February, 1966: Treated well with Halliburton LP-53 (organic acid scale inhibitor).

5. June and August, 1966: Well plugged off and was shot with Welex Bear gun projectile.




CITIES SERVICE SEM
UNIT
Phillips
U.S. Minerals
Cities Serv.
Lion
"Wayt.
Exponent
4092
LEGEND
NO
EL
SUBSEA
LOWEST INTERVAL
OPEN TO INJ.
OR PROD
INJ.
PROD
D&A
SUBSEA TOP OF
FIRST WATER SHOW
CITIES SERVICE
LEA

JASON W. KELLAHIN
ROBERT E. FOX

KELLAHIN AND FOX
ATTORNEYS AT LAW
54½ EAST SAN FRANCISCO STREET
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

TELEPHONE 982-4315
AREA CODE 505

March 14, 1969

Case 4092

New Mexico Oil Conservation Commission
Post Office Box 2088
Santa Fe, New Mexico

Re: Phillips Petroleum
Application for granting of capacity allowables
Maljamar Grayburg-San Andres Pool, Lea County,
New Mexico

Gentlemen:

Enclosed please find original and two copies of the above application, which please set for hearing as soon as possible.

Yours very truly,

Jason W. Kellahin

JASON W. KELLAHIN

jwk;peg
Enc. as stated

DOCKET MAILED
Date 3/27/69

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF PHILLIPS PETROLEUM COMPANY FOR
GRANTING OF CAPACITY ALLOWABLES,
MALJAMAR GRAYBURG-SAN ANDRES POOL,
LEA COUNTY, NEW MEXICO

Case No. 92

A P P L I C A T I O N

Comes now PHILLIPS PETROLEUM COMPANY and applies to the Oil Conservation Commission of New Mexico for an order granting capacity allowables for its U. S. Minerals Well No. 4, located in the Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the operator of the Phillips Petroleum Company U. S. Minerals Well No. 4, located in the SW¼ SE¼ of Section 30, Township 17 South, Range 33 East, N.M.P.M.

2. The U.S. Minerals Well No. 4 is a direct 40-acre offset to two water injection wells in the Cities Service Southeast Maljamar Unit, and is receiving stimulation from injection into these offset wells.

3. There are no existing wells to produce oil which is displaced past the U.S. Minerals Well No. 4, and unless a capacity allowable is granted for said well, oil reserves will be swept past said well and will be lost to production, thereby causing waste.

4. Approval of this application will prevent waste, and will protect correlative rights of applicant and other operators in the area.

WHEREFORE, applicant prays that this application be

set for hearing at the earliest possible date, and that after notice and hearing as required by law, the Commission enter its order approving capacity allowables for the U.S. Minerals Well No. 4, as prayed for.

Respectfully submitted,

PHILLIPS PETROLEUM COMPANY

BY: Jason W. Kellahin

Kellahin & Fox
Post Office Box 1769
Santa Fe, New Mexico

ATTORNEYS FOR APPLICANT

DRAFT

GMH/esr
April 21, 1969

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. 4092

Order No. R- 3735

APPLICATION OF PHILLIPS PETROLEUM
COMPANY FOR A CAPACITY ALLOWABLE,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 9, 1969, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of April, 1969, 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, Phillips Petroleum Company, completed its U. S. Minerals Well No. 4, located in ~~the SW/4 SE/4~~ unit O the SW/4 SE/4 of Section 30, Township 17 South, Range 33 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, February 20, 1969.

(3) That the applicant seeks assignment of a special allowable to the subject well authorizing said well to produce at its capacity.

(4) That the subject well is adjacent to the Southeast Maljamar Unit Waterflood Project, to the north and east, operated by Cities Service Oil Company.

(5) That water injection has been conducted continuously since September, 1967, in the Southeast Maljamar Unit Well No. 1-1, located in the NW/4 SE/4 ~~Unit J~~ of said Section 30.

(6) That water injection has been conducted continuously since December, 1967, in the Southeast Maljamar Unit Well No. 1-3, located in the SE/4 SE/4 ~~Unit P~~ of said Section 30.

(7) That said U. S. Minerals Well No. 4 was completed with a calculated productivity of 240 barrels of oil per day and 144 barrels of water per day.

(8) That the subject well is capable of producing in excess of the current top unit allowable for a well in the Maljamar Grayburg-San Andres Pool.

(9) That there is a possibility that the subject well has received a response from the injection of water in the aforesaid Wells Nos. 1-1 and 1-3.

(10) That if the subject well is receiving a response from said injection, there is a possibility that oil will be swept past the subject well to the south and west where it may never be recovered, thereby resulting in waste.

(11) That it is not presently possible to determine that the subject well has received a response from the injection of water in the aforesaid Wells Nos. 1-1 and 1-3, located to the north and east.

(12) That there is a possibility that the SW/4 SE/4 of said Section 30 will be unitized with acreage to the north and east in the Cities Service -operated Southeast Maljamar Unit.

(13) That unitization of the SW/4 SE/4 of said Section 30 with the acreage to the north and east in the Cities Service -operated Southeast Maljamar Unit would tend to protect correlative rights and/to eliminate the possibility of waste as the subject well would

then be eligible to share in the Cities Service Southeast Maljamar Waterflood Project allowable.

(14) That in order to avert the possibility of the unrecoverable loss of oil pending negotiations for said unitization, the applicant should be allowed to produce its U. S. Minerals Well No. 4 at its maximum capacity for a temporary 30-day period.

(15) That approval of the subject application will prevent waste in permitting the production of oil that may not otherwise be recovered and will not violate correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Phillips Petroleum Company, is hereby authorized to produce its U. S. Minerals Well No. 4, located in the SW/4 SE/4 of Section 30, Township 17 South, Range 33 East, NMPM, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico, at its maximum capacity for a temporary period not to exceed 30 days from the date of this order.

(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.