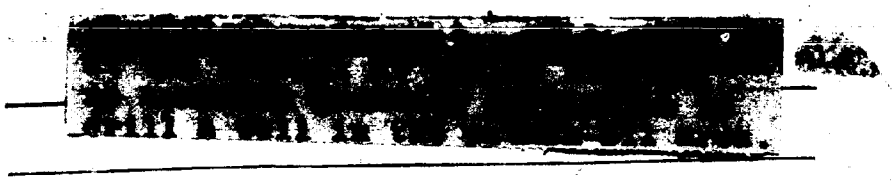

Case No.

2183

Application, Transcript,

Small Exhibits, Etc.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 15, 1961

IN THE MATTER OF:

Application of the Oil Conservation Commission on its own motion, at the request of Earl G. Colton, to consider granting permission to drill a well in the potash-oil area. In the above-styled cause, Earl G. Colton seeks permission to drill an exploratory test well in the NE/4 SE/4 Section 29, Township 20 South, Range 34 East, adjacent to the Lynch-Yates Pool, Lea County, New Mexico, which well would be located within the potash-oil area as defined by Order No. R-111-A, as amended. Case 2182

IN THE MATTER OF:

Application of the Oil Conservation Commission on its own motion, at the request of Cities Service Petroleum Company, to consider granting permission to drill a well within the potash-oil area. In the above-styled cause, Cities Service Petroleum Company seeks permission to drill its Jewett McDonald AA Well No. 3 to be located 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East, North Lynch Pool, Lea County, New Mexico, which well would be located within the potash-oil area as defined by Order R-111-A, as amended. Case 2183

BEFORE:

Honorable Edwin L. Mechem
Mr. A. L. Porter
Mr. E. W. Walker

TRANSCRIPT OF HEARING

MR. PORTER: Hearing will come to order, please. We will get back to the salt mines -- this time, literally. Case 2182. I would like to call for appearances in the case first.

MR. BRATTON: Howard Bratton, Hervey, Dow & Hinkle, in behalf of Earl G. Colton.

MR. BLACKMAN: Earl Blackman, Carlsbad, appearing for the Potash Company of America.

MR. LOSEE: A. J. Losee, Losee & Stewart, Artesia, intervening on behalf of Carper Drilling Company, T. J. Silvey, Western Development Company of Delaware, Wilson Oil Company and Yates Drilling Company.

MR. PORTER: Anyone else who desires to make an appearance in this Case 2182?

MR. KELLAHIN: Jason Kellahin, Kellahin & Fox, Santa Fe, appearing for the Cities Service Petroleum Company. I would like, at this time, to move that Case 2183 be consolidated with the hearing on Case 2182 in that substantially the same questions are involved in the case, and if it would facilitate the hearings I ask they be consolidated solely for the purpose of making the record, but would request that separate orders be issued.

MR. PORTER: Does anyone wish to offer an objection or comment on the motion to consolidate?

MR. BLACKMAN: Potash Company of America would like to join in the motion.

MR. BRATTON: Earl G. Colton will join in the motion.

MR. LOSEE: Intervenors join in the motion.

MR. PORTER: Cases 2182 and 83 will be consolidated for the purposes of taking testimony.

MR. KELLAHIN: I would like to enter my appearance for the applicant in Case 2183.

MR. BRATTON: Howard Bratton, appearing on behalf of Earl G. Colton. I would like to make a preliminary statement as to how this matter came on to be heard before the Oil Conservation Commission. Earl G. Colton filed a notice of intention to drill an oil well in the NE of the NE of the SE of Section 29, Township 20 South, Range 34 East. Notice of intention to drill was dated on December 17th, 1960. That area is within the area covered by Order R-111-A of the Oil Conservation Commission of New Mexico. Pursuant to that order notice was furnished to the potash operators in the area. By an objection dated December 29th, 1960, Potash Company of America entered its objection, stating that the drilling of the test well in the tract specified will result in waste of potash deposits of substantial value.

Pursuant to the provisions of R-111-A, this matter came on for arbitration by the Secretary-Director of the Oil Conservation Commission, and arbitration being unfruitful, the matter was set down for hearing before the full commission in accordance with the rules.

At this time I would like to offer certain matters as to which I believe there can be stipulation. The first would be that Earl G. Colton is the owner of the operating rights under an oil and gas lease from the United States of America, dated May 1, 1950, which was based on a previous oil and gas lease and permits over 20

years old. That lease bears an expiration date of March 31, 1962, having been extended two years pursuant to partial segregation. The lease covers the S/2 of the SE/4 and the NE/4 of the SE/4 of Section 29, Township 20 South, Range 34 East, NMPM. Earl G. Colton is the approved owner of the operating rights and the right to drill under that oil and gas lease.

I would also ask that the Commission take judicial notice of its own Order R-111-A, if judicial notice is required of its own orders. I would like further to ask the Commission take judicial notice of the order of the Secretary of the Interior, dated October 18th, 1951, published in 16 Federal Register 10669.

At this time if the Potash Company of America has any stipulations it would like to offer we would receive those.

MR. BLACKMAN: If the Commission please, I should like to request consent of the stipulation of Potash Company of America as the owner of a potash lease from the United States government dated June 1st, 1958, carrying Serial N.M.029243, which covers, among other property, Section 29, Township 20 South, Range 34 East. We will consent to the stipulation as proposed by Mr. Bratton.

MR. BRATTON: We would consent to the Potash Company's stipulation and I don't believe I gave our serial number. That is N.M. 01130-V.

MR. PORTER: Mr. Bratton, the Commission will take administrative notice of the subjects that you have mentioned. My attorney advises me that we take administrative notice instead of judicial

notice as we don't act in a judicial capacity.

MR. BRATTON: Yes, sir.

MR. KELLAHIN: If the Commission please, Cities Service Petroleum Company would like to join in the statements which have been made by Mr. Bratton, and the stipulations in regard to the records and orders. Insofar as Cities Service Petroleum Company is concerned, they are the holder of a lease which was based on the prospecting permit dating back more than 20 years which was converted into an oil and gas lease in September of 1931. This lease is held by production. On January 13th a notice of intention to drill the location, 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East in the North Lynch Pool, was filed with the Commission, this being within the area covered by Order R-111-A. A copy of the notice was forwarded to Potash Company of America. Pursuant to that notice, Potash Company of America, on January 18th, 1961, filed their objection to the location with the Oil Conservation Commission, and pursuant to the regulations of Order R-111-A, arbitration was held without success, and the matter was then set for hearing before the commission.

MR. BLACKMAN: Potash Company of America would join in the stipulation suggested by Mr. Kellahin concerning the oil and gas lease and offer for his consent the suggested stipulation that Potash Company of America is the owner of a potash lease, bearing serial N.M. 029246, which covers, among other lands, the property

in Section 18, Township 20 South, Range 34 East where Cities Service proposes to drill its well.

MR. PORTER: Do you consent?

MR. KELLAHIN: We consent to the stipulation.

MR. BRATTON: If the Commission please, before proceeding further we would like to state our position with reference to the conduct of these proceedings, and, quite frankly, the burden of proof.

This matter is advertised as the application of the Oil Conservation Commission at the request of Earl G. Colton, to consider granting permission to drill a well in the potash-oil area. The provisions of Order R-111-A, Paragraph 7, provide that the operator of an oil and gas lease, before it commences drilling operations, will furnish to the potash operators in the area notice, and he will furnish proof to the Commission he has so notified the potash company, and unless the potash company objects, if no objection to the location of the proposed well is made by a potash operator within ten days after receipt, the Commission may approve the notice of intention. If the location is objected to by the potash operator, the matter is referred to the Secretary-Director for arbitration and if a settlement cannot be reached, the Secretary-Director of the Commission shall refer the matter to a hearing before the Commission after due notice, and a decision either approving or denying the operator's plans to drill shall be entered by the Commission.

It is the position of Earl G. Colton that in this matter, at this posture of it, the burden of going forward and the burden of proof as to why this oil and gas well should not be drilled is on the potash company. We have a legitimate right to drill that oil and gas well, absent of proof by potash company as to why we should not drill that well.

We bring this matter up at this time because, as I say quite frankly, we believe that the burden of proof in a matter of this type is on the potash company. While we have no objection to proceeding first we think that in the orderly process the person who has the burden of proof should open and close, and that is the procedure we suggest to this Commission.

MR. BLACKMAN: If the Commission please, Potash Company of America accepts the burden of going forward. We reserve the right to make further statement on the burden of proof at the end of the case. We do not accept Mr. Bratton's feeling on that question. We are perfectly willing to proceed first.

MR. PORTER: Mr. Blackman, would you have your witnesses come forward and be sworn, please?

Let's have all the witnesses sworn at this time, please.

(Witnesses sworn.)

EVERETT C. JOURDAN

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

DIRECT EXAMINATION

BY MR. BLACKMAN:

Q Mr. Jourdan, will you state your full name please, your occupation, your position and how long you have held it?

A Everett C. Jourdan, Mining Engineer for Potash Company of America, employed by that company since 1946 in various engineering capacities. At the present time I am in charge of the Mine Engineering Department.

Q Mr. Jourdan, have you previously testified before this Commission in the capacity of a mining engineer in other cases?

A I have.

Q Would you tell us where you received your education?

A Texas College of Mines and Metallurgy, El Paso.

Q Your degree?

A Bachelor of Science, Mining Engineering.

Q Prior to working for Potash Company of America, what other companies did you work for?

A Kennecott Copper, Cananea Consolidated Copper in Mexico.

Q Are you familiar with the potash reserve area held by the Potash Company of America in Lea County, New Mexico?

A I am.

Q Would you state for the Commission the approximate extent of the leases held by Potash Company of America, limiting it, to start with, to the Federal leases?

A Approximately 10,000 acres. I don't have an exact figure.

That is a rough figure.

Q This reserve to which you refer is situated substantially or entirely on the area of the Federal leases, is that true?

A Part of it is outside the Federal lease. We have, I think, two State leases. The rest is in the Federal area.

Q Approximately how deep is the potash deposit in this area?

A Approximately 2500 feet in depth.

Q Are you familiar with the location of the well proposed by Mr. Colton?

A I am.

Q And are you familiar with the location of the well proposed by Cities Service Oil Company?

A I am.

Q Is this location within the commercial ore limits of potash ore as delineated by the United States Geological Survey?

A It is.

(Potash Company's Exhibit 1, Case 2182, and Exhibit 2, Case 2183, Marked for Identification.)

Q Mr. Jourdan, I hand you a document marked for identification as Potash Company of America's Exhibit No. 1, Case No. 2182, and ask you to identify that document, please.

A This is a letter from R. S. Fulton, the Regional Supervisor of the United States Geological Survey in Carlsbad, stating that the proposed Colton well is 2100 feet inside the potash ore body

as delineated to the cut-off limits of four feet at 14% K_2O.

Q Mr. Jourdan, I hand you a copy of a document marked for identification as Potash Company's Exhibit No. 2, Case No. 2183, and ask you what that document is.

A It is a letter from Mr. Fulton stating that the proposed Cities Service Petroleum Company well would penetrate commercial quality ore, if drilled.

Q Are those letters substantially identical?

A They are.

Q Mr. Jourdan, would you describe the general character of the ore body to which we have been referring?

A The potash ore body in Lea County to which these letters refer are flatlying deposits 2300 feet in depth, and vary from approximately three and a half feet commercially, to approximately five and a half to six feet, within the area.

The grade of the ore varies anywhere from 14% to up to as high as 21 or 22% in some holes.

Q Mr. Jourdan, will you describe the mining methods which are in general use in the potash mines now in operation in Eddy and Lea Counties, New Mexico?

A The present potash mines are at a depth of approximately a thousand feet. That would be the average, I would say, for the five mines in the basin. They are all mined substantially in the same manner, room and pillar method, in which approximately 60 to 65% at that depth is recovered on first mining, and the remaining

pillars are extracted in some mines immediately after, and some mines at a later date to approximately 85 to 90% extraction.

Q Let's back up just a little bit and describe a room and pillar method of mining.

A A series of entries, perhaps five, depending on the method, are driven, with approximately 65, 75, 80 foot centers, whichever mine has determined the method, and break through to what we call rooms. Some pillars are square and some rectangular, 75 and 80 feet as the case may be, leaving a proportion of the ore in the pillars on first mining.

Q This method of mining leaves a gridlike appearance when completed, is that true?

A That's correct.

Q To repeat a little bit, you stated that at the approximate depth of 1,000 feet, which is the average depth in the Eddy County area, approximately 60 to 65%, I believe you said, was recovered on first mining?

A That's correct.

Q What would you calculate would be a safe percentage of recovery on first mining if the area were 2300, if the deposits were at 2300 feet rather than a thousand feet?

A I would say 45% on first mining because of the increased pressures .

Q Approximately what additional percentage on second mining at the 2300 foot depth?

A You would probably get 30% more for a total extraction of possibly 75%.

Q On first mining, then, Mr. Jourdan, the rooms are taken out leaving the pillars to support the roof; is that correct?

A That's correct.

Q And on second mining a portion of the pillars are removed, allowing the roof to descend to the floor tothe extent permitted by the pillars remaining; is that correct?

A That is correct.

Q Would you describe whether those pillars are crushed at the time second mining takes place?

A The pillars are crushed down. Eventually, as you move back with your line of retreat your back, or the roof, would settle until eventually it would touch the floor of the mine. If it was six feet high it would take longer than four feet, but eventually the two would meet as you retreated backwards on your mining.

Q Will you explain whether it is necessary to leave a pillar around any oil and gas wells which may be drilled through the potash deposit; explain the necessity for that if you will, please?

A At a thousand foot depth we leave approximately 100 foot radius pillar. There are several reasons. One is to protect the well from the slight movements that we have on first mining; two is because in the surveys of the well, and our mine surveys, there is a possibility of deviation. Three, there is a possibility of gas and seepage from the well if it was hit. Then, with our mining

methods we couldn't come right up to the well and mine it without getting into trouble.

Q Is it possible, Mr. Jourdan, under the mining methods used here to mine that pillar at all on first mining?

A We could mine it, yes.

Q Why do you not mine it?

A For protection, safety reasons, mainly.

Q Do you think it would be safe practice to mine it on first mining?

A Normally I would say not.

Q Would it be safe practice to mine it at all on first mining if any oil or gas were ever encountered?

A In my opinion, no.

Q Would you describe the size of pillar considered necessary at 2300 feet?

A I would assume that in this area you would have 2.3 -- which is 2300 feet depth -- 2.3 times the area of the present pillars in our mines plus a safety factor because of the fact the ore in Lea County is not strong. It is shot through with small clay seams. We don't figure it is as strong as the present sylvanite ore bed in Eddy County.

Q What is the minimum pillar required to be left?

A 200 feet in radius.

Q At what depth?

A At 2300 feet.

Q And is that based upon your calculations of strength necessary?

A Yes. We used the figures released by the United States Geological Survey, and I believe most of the mines in this area, mining engineers are in concurrence with this. As a matter of fact, one mine in our basin leaves 250 feet at a thousand feet.

(Potash Company's Exhibit 3, Cases 2182 & 2183, marked for Identification.)

Q I hand you the document marked for convenience Potash Company's Exhibit 3 in Case 2183-3, and ask you if you will identify that document, please?

A It is a letter from the same Mr. Fulton of the United States Geological Survey evaluating the potash bed as four feet thick, 14% K_2O at a mining extraction of 45%, milling efficiency of 90% on an average price of 35 cents per unit of K_2O.

Q Would you explain why four feet of 14% K_2O is used as a standard in evaluating the value of potash in place?

A That is the figure which was used to delineate the R-111-A area in '55, I believe, and it is also the agreed-upon commercial ore established by the U. S. Geological Survey at that time.

Q Why is the mining extraction of 45% used?

A Because of the depth of this particular deposition, 2300 feet, which I mentioned previously. We would not take out as much as we would at a thousand feet.

Q Do you consider it reasonable that 45% extraction would

be made on first mining at this depth?

A I believe it reasonable.

Q Will you explain the use of the milling efficiency of 90%?

A Well, there is a certain amount of loss in the ore in refinery inefficiency and mechanical losses, so we would actually recover probably 90% of the ore. That is a generally agreed upon recovery figure, I think, in the potash basin; some places a little higher, some a little less.

Q I will also ask if 35 cents per unit of K_2O is the approximate average price of potash?

A That is approximately correct. It is the average of the different products that our company has for sale at the present time.

Q It is also true, is it not, that the price of potash varies slightly during different seasons of the year?

A That is true.

Q Sometimes it is higher than 35 cents, and sometimes it is slightly lower; is that correct?

A That's correct.

Q Would you go through the calculations necessary to determine the value of one ton of potash ore of a minimum grade of 1½% K_2O?

A You would calculate your cubic feet in the ore bed or area that you were speaking of, and you would divide that cubic feet by 16 cubic feet equal one ton, which Mr. Fulton has done here, which has been determined by the U.S.G.S. and various mining companies

to be the specific weight of the potash ore. Then you would take 45% of that and use your 90% refinery efficiency times your value per unit times 100, and you would come up with $4.41, which Mr. Fulton has here, as recoverable value per ton at 45% extraction, mill efficiency 90% and that is per ton, and then you would take the recoverable tons per acre and you come up with $21,611.10.

Q Mr. Jourdan, if I may ask the question which you answered in advance, the value per acre of potash at an average grade of 14% and an average height of four feet, and a recovery on first mining of 45%, assuming a mill efficiency of 90%, would be approximately $21,000; is that correct?

A That's correct.

Q Will you then go through the calculations, Mr. Jourdan, to determine the number of tons of ore in a pillar 200 feet in radius, having a thickness of four feet on the average?

A You would determine the area of a circle 200 feet in radius, multiply that by four, which would give you the total cubic feet, and you would divide that, then, by 16, which would give you a tonnage figure, and Mr. Fulton here has calculated it as 31,416 tons in the 200 foot radius pillar.

Q If you had 31,416 tons, and multiplied that by $4.41 per ton, would you then testify as to how much the ore in the pillar would be worth?

A It would be worth approximately $138,000.

Q And if 45% could be recovered on first mining, what would

be the value of that 45%?

A $26,000.

Q Mr. Jourdan, will you testify, in your opinion, if the evidence and information set forth in Exhibits 1, 2 and 3 previously handed to you are reasonable?

A They are very reasonable.

MR. BLACKMAN: I will offer in evidence Potash Company's Exhibits 1, 2 and 3.

MR. PORTER: Any objection to the Exhibits 1, 2 and 3? No objection. The exhibits will be admitted to the record.

MR. BLACKMAN: If the Commission please, I believe this constitutes the evidence of Potash Company of America on direct examination.

MR. PORTER: Anyone have a question of Mr. Jourdan?

CROSS EXAMINATION

BY MR. BRATTON:

Q How far are the two wells, well locations in question here, from the present PCA shaft?

A I would say 12 miles as a guess, probably a little more than that.

Q If any mining operations were to take place in this area it would require a new shaft; is that correct?

A That's correct.

Q Mr. Jourdan, in accordance with the provisions of Rule R-111-A, have you filed with the C mmission a projected three

to five-year development plan?

A We have.

Q How recently?

A As of January the 1st; I think it was sent in about the 8th of January as to my knowledge.

Q Does that plan encompass mining operations in the area of the two well locations in question in these cases?

A It does not.

Q Mr. Jourdan, if you can state, is it the intention of Potash Company of America to object to every location in this area, every oil and gas location?

A We consider each oil and gas location individually. I can't answer that question in a broad statement.

Q Mr. Jourdan, is the area of these two proposed well locations included in the Secretary of the Interior's area as designated in his order of October 18th, 1951?

A I do not believe they are.

Q Therefore, the only impediment, if impediment, to the drilling of an oil and gas well in the area is contained in the provisions of Rule R-111-A of this Oil Conservation Commission?

A To the best of my knowledge that's right.

Q Mr. Jourdan, does your company now have any presently developed plans to mine in this area?

A Not to my knowledge.

MR. BRATTON: I have no further questions.

MR. PORTER: Anyone else?

BY MR. KELLAHIN:

Q Mr. Jourdan, as I understood your testimony you said that Potash Company of America was mining approximately 12 miles from this area?

A That's correct.

Q Where is that location?

A That is in Township 20 South, Range 30 East, Eddy County.

Q Is all of the land within the vicinity of these wells held by leases, Potash Company of America?

A I believe there are a couple of blanks in there.

Q You don't have all of the subject area under lease then, at the present time?

A Not to my knowledge, no.

Q Now, the valuation of the ore, as I understand your testimony, is based solely upon the letters that were submitted in evidence; is that correct?

A Plus a knowledge of the potash industry.

Q Have you done any drilling in this area?

A Yes, sir.

Q How many cores have you drilled?

A Drilled approximately 40 core drill tests at a cost of about half a million dollars.

Q How large an area does that cover?

A Approximately ten thousand acres, in general.

Q Have you any core holes within the immediate vicinity of the Lynch Pool?

A I can't answer that question for sure. I haven't checked that.

Q You don't know of your own knowledge whether there is any commercial ore there or not?

A Only from a broad knowledge of the characteristics of the deposit.

Q How do you arrive at this 14% figure?

A I think I answered that previously in that the 14% is of cores, projected from drill hole to drill hole, and it is an average. This 4 feet at 14 actually is rather conservative. I think the overall average of that ore body would run much higher than that.

Q Is there good continuity of the ore body shown in the cores drilled?

A Reasonably, yes.

Q What do you mean by reasonably? Do you have variations?

A You have variations within the thickness and the grade. You don't have an even four foot deposit, nor do you have an even 20%. Some holes may be 23%, some may be six feet in thickness, but, in general, you can reach an average for determining the mining.

Q Did you encounter any of less than four feet?

A Certainly. We had a cut off in the ore in salt beds, some more narrow, outside the limits of our leases.

Q Did you encounter any ore of less than 14%?

A It depends on how you project your ore figures. You can get six feet at say 12%, or if you are going to mine seven feet high you would probably get it down to around five or six; depends on what you use for a cut off and method of calculation.

Q Under the methods of calculation which appear to have been used by the U.S.G.S. did you encounter any less than 14%?

A We had saltholes outside the ores which we did not go to lease on.

Q How large were those salt holes?

A How large were the cores?

Q I am talking about the area covered.

A As I recall we drilled most of that portion in New Mexico in Lea County along with other mines in the area.

Q That would lie a long way from the acreage which is the subject of this hearing?

A That's correct.

Q Would that have any bearing on this at all? Did you encounter salt holes in this area?

A Not to my knowledge, in this one particular deposit. We take leases on the area we feel has ore in it. By our core drilling and projection of those thickness and grade analyses we determined a cut off which we felt was commercial and took leaseson that area.

MR. KELLAHIN: That is all the questions I have.

MR. PORTER: Mr. Losee.

BY MR. LOSEE:

Q Mr. Jourdan, you testified that these exhibits of the Potash Company, in addition to representing what they state, were correct, in your opinion?

A That's right.

Q I refer you to Exhibit 1, which is the statement that the Colton well would penetrate the commercial potash ore if drilled, and that the proposed test is approximately 2100 feet inside of the potash ore body. Would you tell me in which direction the exterior of that ore body is?

A I am not prepared for that information right off. I can explain that by saying that this area is -- the geology is within our geology department and I have looked at it but I could not testify factually as to the exact location of that line. I think the four feet at 14 map which is on file with the Commission would show that.

Q You don't know whether the exterior body that Mr. Fulton is referring to, exterior line, runs east from this location or west or south?

A I couldn't say right offhand. I would rather not. It would be only a guess.

Q You mentioned that one of the potash companies in Eddy County made it a practice, at a thousand feet, of leaving pillars of 200 to 250 feet; is that Southwest Potash Company?

A I believe that's right.

Q Do you know whether or not Southwest Potash Company is conducting mining operations at present surrounding an abandoned oil well?

A Not to my knowledge. I don't know. You know, our companies are rather close about interchange of information, but the testimony which I gave previously was true about a year ago. They told me about a year ago. They were leaving approximately 250-foot barriers. I believe that is the Benson Pool they are mining there.

Q Did they state to you at the time they were mining around an abandoned well?

A No.

Q If they were mining around any abandoned wells, would they have to leave a larger pillar, in your opinion, than what they presently leave?

A I can't answer for Southwest. It depends on the policy of management.

Q I asked, in your opinion, from a safety factor?

A When you get into safety that is a hard question to answer. We feel our hundred-foot radius barrier at a thousand feet is adequate.

Q Then, would it be your testimony that if Southwest was mining around a well and was leaving a 200-foot pillar around it that would be adequate for this abandoned well?

A I would say offhand at that depth it would be adequate in my opinion because our company is leaving that hundred-foot radius

at the present time around the wells in our area.

Q I believe you stated on cross examination by Mr. Bratton that it was not the Potash Company's position to protest each location made under R-111-A, and that you would consider each location as it came up; is that correct?

A That is the way we have been handling it in the past.

Q Has your company protested any locations of wells which were to be drilled in full compliance with Order R-111-A prior to these two applications?

A Yes, we have.

Q How many?

A Four wells in the Velma case that I recall.

Q How far were those wells located from your present mining operations?

A One well was within the actual mining operations, and the other wells at the present time would have been mined out by present mining.

Q Have you protested any locations of wells drilled under this order in which the location was ten miles or more from your present mine?

A I don't recall any protest that we made.

Q Why, if you know, Mr. Jourdan, did your company protest these two applications in which the wells are located a mile and a half apart?

A I can't answer that question. You will have to refer that

to Mr. Blackman.

Q In view of their protest of these two wells which are located a mile and a half apart, would you expect your company to protest any other wells drilled in either of these pools?

A I would assume that we would.

Q On what do you base that assumption?

A We protested these two. This is not a personal thing with the drillers of the wells. It is a problem we are trying to call to the attention of the Commission.

MR. LOSKE: I have no further questions.

BY MR. PORTER:

Q Mr. Jourdan, in the case which was heard August 16th, 1956 in which you testified we were dealing with potash ore bodies in the neighborhood of 750 to 800 feet I believe?

A That's correct.

Q At that time you testified that at that depth you would expect about 65% primary recovery and possibly 25% on secondary?

A That's correct.

Q And I believe you also mentioned at that time that there was being worked on a technique which might allow the removal of up to 85 or 90% under primary recovery. Do you recall that testimony?

A Yes, sir, I do. That was the Velma case as I recall.

Q What progress has been made on that?

A We have not started our secondary recovery in our existing mines for the principal reason, we are still surrounded on all

sides by ore. If we started our recovery at the present time we would preclude the possibility of getting the ore on the other side of our existing work. In other words, our mine is not worked out in all directions, so if we began to subside the ground we would endanger the rest of the ore body, so the decision has been -- we still have plans and are continually working on it at the present time. We have not pulled any pillars.

Q Do you think at any time in the future you might be able to recover a greater percentage on primary recovery than you are now recovering?

A That is one possibility we have considered. You can increase your extraction on first mining in areas where pillar recovery would probably be uneconomical. We could take, say 75% rather than 65, but it would also make your pillar recovery a little more expensive, so it is a matter of economics as to what you would take and let the ground subside.

BY MR. PAYNE:

Q Mr. Jourdan, when you go back in and do your secondary mining operation do you pull all the pillars?

A Our company doesn't pull any of them at the present time.

Q What are you doing on secondary mining?

A As I made the statement a minute ago, we have not started our secondary mining at the present time.

Q When you do your secondary mining, do you contemplate all the pillars will be pulled?

A No. Approximately ten percent of the pillars will be remaining in the mine after we have gone in and recovered the ones available, not in the middle of an oil field.

Q Do you leave pillars around your core holes?

A Yes, a hundred-foot radius, same as an oil well.

Q Whether any oil or gas wells are drilled there will still be pillars left after secondary mining operations?

A That's correct.

Q Now, Mr. Jourdan, do you feel that the casing program set forth in R-111-A protects the potash deposit while the oil and gas wells are being drilled?

A I would hate to get in that argument with a bunch of oil and gas people. I am no authority on casing. I will have to rely on the judgment of the people that set forth R-111-A, because I understand it took about two or three years to get the casing program established.

Q What I am trying to get at, where your objection lies, whether it lies at the time the well is being drilled, or whether what you are worried about is that ultimately the well might be sheared?

A Probably in the ultimate would be the principal objection.

MR. PAYNE: Thank you.

MR. BLACKMAN: If the Commission please, I would like to state, as far as the Potash Company of America is concerned in this case, we are concerned with the loss on first mining in this parti-

cular pillar; we are not concerned and not objecting on the basis of secondary mining, which is lost in this area inasmuch as these two holes are both in areas which have already been denied to secondary mining by reason of oil and gas wells already drilled. The area of effect, a particular oil and gas well at 2300 feet extends approximately 2300 feet out in advance. As long as you only step out a quarter or half a mile at a time you are always within the area of the previously drilled well. That is the situation in both of these cases. No argument can be made or will be made before the Commission in these two cases on the basis of secondary mining losses. It is primary mining only, only in the pillar necessary to be left for the protection of the oil well.

MR. PORTER: Even if one of the locations offsets an existing well? One of the proposed offsets an existing well, doesn't it?

MR. BLACKMAN: I think both of them do. I thought both of them did. I am not sure what you mean by offset, but they are quite close.

MR. PORTER: In the next 40-acre unit?

MR. BLACKMAN: I think that is true; close to other existing wells.

BY MR. PAYNE:

Q In view of the fact there are existing wells, can you conduct primary mining operations even if these two wells aren't drilled?

A That is a question I can't answer because it depends on

the economics at the time and the cost involved. I couldn't say yes or no without an intent study of it. The price of potash at the time of mining, the cost of the shafts, labor -- it is really a difficult one to say one way or the other.

Q Let's assume there was an oil well on every 40 acres. Could you conduct any primary mining?

A I would say no.

MR. PORTER: Anyone else have a question?

BY MR. KELLAHIN:

Q In view of the statement made by Mr. Blackman in regard to primary recovery, what size pillars did you say you left on your primary recovery?

A At the Eddy County mine?

Q I mean, what you contemplate at the 2300-foot level in this area?

A We would leave approximately a 200-foot radius around the well.

Q Without regard to the well, assume there was no well in there, you have to have pillars for support?

A Take a room 20 feet wide and probably an 80-foot center, that would probably have a pillar left of 40 by 40, between 35 by 35 and 40 by 40, however it calculates out.

Q How would that compare with your 200-foot pillar in regard to tonnage?

A We would get 45% out of those pillars where you wouldn't

get any out of the 200-foot radius.

Q Would you still leave the pillars in there; there would be no secondary recovery?

A No.

Q That would be a loss then?

A It would be a loss, yes.

Q Then the calculation which appears on your Exhibit No. 3 would not be accurate insofar as recoverable ore, would it?

A The recoverable value of the ore is -- the total value is $138,000. The recoverable value would be, if mined, $62,000. The way it is put there is correct.

Q Are you still talking about primary recovery?

A 45%, I believe; a 45% extraction.

MR. PORTER: Anyone else have a question? Witness may be excused. Does that conclude your evidence, Mr. Blackman?

MR. BLACKMAN: That concludes the evidence in both cases.

MR. BRATTON: I know it is the customary practice of this Commission to take these matters under advisement, and I realize that I am asking a departure from that procedure. However, I believe it is justified in this case.

We are prepared to go forward with additional evidence in the case. I don't believe the case calls for it or warrants further evidence. Mr. Jourdan has stated that this area is not within their projected three to five-year program filed with this Oil Conservation Commission. He has stated they have no present development

plans to mine in this area. He has stated that the reason they have objected to these applications is to call the problem to the attention of the Commission. I think he has done that. I think he has called the problem to the attention of the Commission. However, I think that at this point it is in order for the Commission to grant the application of Colton and Cities Service to drill these wells.

As Mr. Jourdan pointed out, Order R-111-A was in the making for two or three years. It involved a great deal of effort, work and compromise on the part of all concerned. I believe the objections filed in these cases are completely outside of the scope of, or the intent of, or the spirit of Order R-111-A.

It has further been stated that there is no impediment to the drilling of these wells other than such as might exist in Order R-111-A, and I submit there has been presented to this Commission no reason under Order R-111-A why these should not be granted.

MR. KELLAHIN: We would like to join in the motion made by Mr. Bratton, and I would like to further point out in connection with the values of the ore testified to here, the valuation is based solely on a letter from the Department of the Interior of the United States Geological Survey as to the Colton well. It states it is within the potash ore body as delineated by the geological survey. As to the Cities Service well, it doesn't even go that far, and merely says that the well drilled there would encounter commercial ore. There is nothing further in the record to substantiate either

one of those statements.

On cross examination the witness testified he did not know how many cores, if any, were drilled in the North Lynch Pool. There is no testimony showing that there is any ore under the North Lynch Pool whatsoever in the record as it now stands. The witness further testified, as Mr. Bratton pointed out, they have no plans for mining in that area at the present time, and he further testified on cross examination by Mr. Payne that he could not say at the present time whether mining would be economical in this area, whether or not these wells are drilled.

Certainly I don't think they made any case which would support a denial of our permit to drill.

MR. LOSEE: If the Commission please, we would, as intervenors, join in Mr. Bratton's motion for a granting of the application at this time and I won't elaborate any further on the lack of substantial evidence to support the protest of the Potash Company, unless they are taking a position that the order which was prepared over this long period of time, and after their consent, is not now equitable and needs changing, and if so, the protesting of any applications is obviously not the place to change the order.

MR. BLACKMAN: If the Commission please, in the first instance, with respect to the character of the proof offered as to the existence of a commercial ore body in this area, I call your attention to the statements of the Commission in the first instance, that it takes administrative notice of its own order. Order R-111-A

defines and delineates an area in which it is presumed commercial potash exists. The United States Geological Survey filed with the Commission at the time Order R-111-A was promulgated, a map and supporting data which shows the existence of the presumed potash ore bodies in this area. It is quite true, as brought out by cross examination, that the character of the evidence which is present, as available at the present time, is rather sketchy. As Mr. Jourdan pointed out, Potash Company of America has spent something over half a million dollars in gathering information as to the location of the potash ore body, but we would not state here we have sufficient information to know the exact location of the particular thicknesses and grades in ore in particular places. Some of these interpolations are between wells that are quite widely separated. Nonetheless, as stated by the U.S.G.S., presented by them to the Commission in the first instance, this is an area in which the potash ore body is presumed to extend. Beyond that we cannot go. The information is simply not available.

I think this is a problem in conservation, really, because we don't get into the big problem here of secondary mining because this particular ore body, as it is affected by these two wells, has already been denied the secondary mining because of the existence of the wells already there. I say that for the reasonable future, down the road far enough, if the wells are completely pumped out and it is possible to go in and replug all of those wells, clean them out and plug them so you are assured of getting a cut-

off of both oil and gas below all the potash benches, so you safely can take out the ore, it might be possible. Mr. Jourdan is correct when he says we can't say whether it will be commercial or not. This is an economics problem. To try to project ten or fifteen years in advance would be guesswork. As of now, we do not know.

We have presented a case in which we have stated a positive, definite loss which we can show on first mining of approximately $65,000 on the pillars necessary to protect either one of these wells. No evidence has been presented whatever on behalf of the persons who are requesting permission to drill the well as to the value or the hoped-for value of the oil well they propose to drill.

Rather than make a complete and final argument now I think we have made a prima facie case which is entitled to consideration by the Commission.

MR. BRATTON: I would like to say just one further word, if the Commission please. I think this thing boils down simply to this: This Commission determined, in Order R-111-A, that these are prospective commercial potash areas. Now, if the Potash Company of America has made a case here today, by what they have stated, if this Commission should deny our applications on the basis of the evidence presented here today, it would be, in effect, a determination that the entire potash area determined by Order R-111-A is a prohibited area insofar as oil and gas drilling is concerned. It just boils down as simply as that to me. I don't think that was ever the intention of Order R-111-A. It certainly never was the

intention or understanding of the oil and gas industry when we cooperated in working out Order R-111-A, and I don't think it was the intention or understanding of this Commission. On that basis we ask our application be granted at this time.

MR. PORTER: Mr. Bratton, the Commission rules it would like to continue with the case and hear the testimony of the applicant at this time.

MR. BRATTON: If the Commission please, we request about a five-minute recess to put exhibits on the board.

(Short recess.)

MR. PORTER: Meeting come to order, please. Mr. Bratton.

RANDALL MONTGOMERY

called as a witness, having been previously sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, address and occupation?

A Randall Montgomery, Geologist, Hobbs, New Mexico.

Q Have you previously testified before this Commission as an expert witness and are your qualifications a matter of public record?

A They are.

Q Have you made a study of the subject area involved in Case No. 2182, the application of Earl G. Colton?

A Yes, I have.

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

MR. PORTER: Yes, sir, they are.

Q (By Mr. Bratton) Mr. Montgomery, have you been employed by Mr. Colton to make a study of the area in connection with his proposed well in the NE/4 of the SE/4 of Section 29, Township 20 South, Range 34 East?

A I have.

Q Will you please refer to what has been marked as Colton's Exhibit No. 1 and explain to the Commission what it shows?

A Exhibit No. 1 is a map outlining the areas of Order R-111-A and the area of the Secretary of the Interior's order of October, 1951. In this exhibit the Secretary of the Interior's area is outlined in a heavy line, and Order R-111-A is in a lighter line colored in yellow. On this map I have indicated the shafts of the various operating mines in the area. I have also located the position of the Colton well with a dark blue dot, and also the Cities Service well with a dark blue dot.

Q Both the Colton well and the Cities Service well are outside of the Secretary of the Interior's potash area order of October 18,1951, is that correct?

A That's correct, yes, sir.

Q They are within the area covered by Order R-111-A as amended?

A That's correct.

Q How close are these proposed locations to the present PCA shaft?

A To the present PCA shaft it is about 25 miles.

Q As a matter of fact, it is the farthest west of the present potash mines, is it not?

A Yes, sir, that's correct.

Q There is not a shaft within what, ten miles?

A Approximately eleven miles, in the five-year development plan of National's, located at the upper center dot.

Q Is there anything else you care to explain in connection with your Exhibit No. 1, Mr. Montgomery?

A No. That is all.

Q Refer to your Exhibit No. 2 and explain what it reflects.

A Exhibit No. 2 is an ownership map of the various potash leases. In the various colors I have depicted the seven major leaseholders of potash leases in the oil-potash area. The protestant, being PCA, is colored in yellow. The yellow color indicates their various leaseholdings in the oil and gas potash area. I would like to point out on Exhibit 2, the N/2 of Section 28, which immediately offsets our oil and gas lease, 933 feet to our proposed well is unleased as far as potash is concerned, and also, all of Section 31, which is less than a mile away, and the S/2 of the S/2 of Section 30, all being in Township 20 South, Range 34 East.

Q Referring to the easterly block of PCA leases, not the block around their present shaft, that block covers some of the area in Order R-111-A and some outside, does it not?

A That's correct.

Q And it covers some that is within the Secretary's area and some that is not?

A That's correct.

Q Actually, the large block of that leaseholding is to the south of either of these proposed locations?

A Yes, sir, it is. I have again indicated the location of the two wells, and they are in the northern portion of this block of acreage.

Q Also, that exhibit reflects the present oil and gas wells, does it not, in the immediate area, Mr. Montgomery?

A Yes, sir, it does. All oil and gas wells and dry holes that have been drilled up to Janary 1, 1961, are shown.

Q Those are further reflected in your Exhibits 3 and 4, are they not?

A They are, yes, sir.

Q Is there anything you further care to point out in connection with your Exhibit No. 2?

A That is all in Exhibit 2.

Q Please refer, then, to your Exhibit No. 3, Mr. Montgomery, and explain what it is?

A Exhibit No. 3 is the Yates contour map, contour interval, 50 feet. On this base map I have indicated the outlines of Order R-111-A that cover the area of this map. They are outlined with a red line running in a direction such as I am indicating right now on the board. The large yellow color in the area is a circle that

has been struck with a radius of 2300 feet. The small red circle depicts an area with a radius of 200 feet. The purpose for doing this is, as Mr. Jourdan testified earlier, this ore occurs in this area at about a depth of 2300 feet. Based on previous testimony in previous cases heard before this Commission, the mining witnesses have testified that they can do no secondary mining around a well beyond an area equal to the radius of the depth of the potash.

Q That is generally in accord with the testimony of Mr. Jourdan and Mr. Blackman in this case this morning?

A Yes, sir, exactly.

Q The red circles, having a radius of 200 feet, that is again in accordance with the testimony we have heard this morning, and what size pillar they felt they had to leave around each well drilled in the area, and core tests?

A Yes, sir.

Q Go ahead and explain the significance of this and the conclusions you draw from it.

A The conclusions I draw indicate that in Section 28 and in Section 29, where we are particularly concerned about our well, it appears that no secondary mining operations can be performed in there at the present time, which, again, was corroborated by Mr. Jourdan's and Mr. Blackman's testimony this morning. Therefore, the question of secondary mining is a moot question and I come back to the area of the pillars, and the testimony we heard this morning indicated the value of the pillars in this area was about $63,000

and they went on to state that they would have to leave certain pillars in the area anyway, and it is not just partly because it is around an oil well they need the pillar. If there weren't any oil wells they would need the pillars.

Q On that exhibit you have denoted the producing wells by the black circle?

A I have, and the dry holes by a conventional dry hole symbol.

Q You have drawn your radius, 2300-foot radius, around both the producing wells and dry holes in this immediate area. Would you explain to the Commission why you did that?

A We heard this morning that they stated they could not mine any secondary mining within the radius of a pillar that is equal to the depth of the ore body, and they could only perform primary mining in that area. They did not pull the pillars.

Q And actually, the dry holes in this area are old dry holes, is that correct?

A Some of them are plugged, and all of them that have a dry hole symbol are plugged and abandoned. I have checked all available records on file in the New Mexico Oil Conservation Commission, and certain information came to light that was not on file with the Oil Conservation Commission, and that was the oil in the NE/4 of Section 30. That particular well was drilled back in the 30's, and when the well was cable-tooled oil rolled some 700 feet in the well bore. They could not bail oil below the 900-foot level. How-

ever, the well was plugged and abandoned due to economic reasons at that time, cheap price of oil and other commitments.

Q Are the plugging practices indicated in these old or dry holes such that, in your opinion, they were plugged so that mining operations could now be conducted through them?

A The wells were not plugged in accordance with Order R-111-A.

Q They were wells drilled and plugged before that order?

A Yes, sir, that is, with the exception of one well in Section 28. The three dry holes in Section 28 were plugged in accordance with Order R-111-A, but none of the other wells in the area were. Those three wells were drilled during the time Order R-111-A was in effect.

Q Is there anything further you would care to point out in connection with that exhibit, Mr. Montgomery?

A That is all I have.

Q Before proceeding to your Exhibit No. 4, what would you say with reference to the value of the potash in the pillars or in the proposed primary or secondary mining in this area, particularly with reference to Mr. Jourdan's testimony of this morning?

A Mr. Jourdan's testimony indicated the pillars had a value in potash of about $62,000.

Q And you are using that computation in connection with your computation as to the prospective value of the oil in the same size pillars?

A Yes, sir, I will.

Q Now, before going on to Exhibit No. 4, are you familiar with the notice of intention to drill filed by Mr. Colton in this case?

A I am.

Q That states he will comply with all of the provisions of Order R-111-A?

A It does.

Q You are familiar with Mr. Colton's lease and the term of that lease?

A I am.

Q That lease terminates March 31st, 1962?

A That's correct.

Q That lease encompasses what area, Mr. Montgomery?

A It is the W/2 of the SE/4 and the N/2 of the SE/4 of Section 29.

Q 120 acres, including the proposed location?

A Yes, sir.

Q Is there any production on that lease?

A No, sir, there is not.

Q In the absence of production that lease will terminate a year from now?

A That's correct.

Q Refer to your Exhibit 4, now, Mr. Montgomery.

A Exhibit 4 is a Yates structure contour map on which I have

contoured the top of the Yates formation and indicated my interpretation of what the structure in this area indicates. You will notice in Section 29, at the location of the proposed Colton well, it is our interpretation that we expect to encounter oil reserves of a considerable magnitude. This is the old Lynch Pool over in the center right-hand portion. The North Lynch is up in the northeast portion of the map, and the test pool is continuous in this area. Regionally, we have a ridge that runs from the test pool on down into the Lynch Pool area. The Lynch Pool was discovered back in the late 20's, it was developed, for all practical purposes, in the 30's until about 1958, operators began to drill on the margins of this pool and as of January 1, 1958, there were 32 wells in the pool. As of January 1, 1960, there were 54 wells in the pool.

Q The proposed Colton location is a half mile step out from the Lynch Pool; is that correct?

A Yes, sir, it is.

Q There is one well located a half mile directly east of the proposed location?

A That is an abandoned location, and I have entered a conventional abandoned symbol there. However, I understand the people are interested in developing the acreage.

Q There is a well to the southeast, is that right?

A That's correct.

Q Approximately one-half mile away?

A Yes, sir.

Q What computations have you made as to the estimated value of the production from the proposed location, and particularly with reference to the pillar which might be required to be left to support this well location?

A To be redundant, the pillar is worth about $62,000 as testified earlier. The Lynch Pool, accurate reservoir data is difficult to accumulate because of the wells drilled back in the early 20's. Some of the later developments have been drilled in recent times under modern technology. However, this pool is so prolific most of the operators drill to the top of the pay and barely scratch it, don't go on and drill all the way through the pay. Calculating the reserves on the pool with normal engineering data is not particularly valid. However, I think the acid test is what has the field done in thepast 30 years. Actually, it is one of the most prolific fields in New Mexico, if I might throw out the Hobbs pool. There are only four wells in New Mexico that have produced over a million barrels of oil. Three happen to be in this Lynch pool. There are only three wells in New Mexico that have produced over two million barrels. All three happen to be in this Lynch pool. It is a Seven Rivers reef, encountered at about 3700 feet. The discovery of this pool focused the interest on the potentials of New Mexico and is, in my opinion, one of the major reasons why the operators began to move into New Mexico. Prior to that time discoveries in this part of the Permian Basin had been relatively insignificant as far as productivity is concerned, just as it was

the drilling of an oil well which caused the discovery of the potash in the potash area. Perhaps that is philosophical, but interesting.

Up until January 1, 1958, this pool had recovered almost ten million barrels of oil, and that made an average, per well, taking the poor and good together, of about 186,000 barrels of oil per well. Many of these wells are still producing, and probably have produced half or three-quarters of their reserves. Taking oil at $3.00 a barrel, in presuming that we just get an average well for the pool, and not an above-average well, we expect an income from this well of $558,000.

Q Based on an estimate of $62,000 worth of potash in the pillar which would be required, that is approximately 20,000 barrels of oil?

A That's correct.

Q And in drilling this well you would hope to be talking about obtaining in the neighborhood of 200,000 barrels of oil?

A That's correct.

Q Have you calculated it down to the pillar, to the value of the oil in that pillar, Mr. Montgomery?

A It would be equivalent to about 20,000 barrels of oil.

Q Actually, the pillar itself would have as much value in oil as it would have in potash?

A Many times more. Actually, we are talking about the value of the pillar. Presume they could take all the pillar out -- which

they state they wouldn't anyway -- presume they took it all out. We are talking about an average well; we are talking about three to four times return.

Q In the location itself it is hoped that you would obtain recoveries in the neighborhood of 200,000 barrels of oil?

A Or more. We have the potential. The best well in the field produced 2,700,000-odd barrels of oil. At present day value, if we are fortunste enough to get a well of that character, that would be an income of excess of $8,000,000.

Q Based upon your geologic interpretation you think there is a reasonable probability of obtaining an oil well in this location?

A Yes. As previously testified, indicated, the well in the NE/4 of the NE/4 of Section 30 actually, under present day conditions, would be a producer. This well is on trend with the Lynch pool and there is adequate structure control in there that Mr. Colton is willing to gamble a sizeable investment to drill the well.

Q In the absence of drilling a well, that location would terminate March 31st, 1962?

A Yes, sir, that's correct.

Q In the drilling of that well, Mr. Colton has agreed to abide by all the provisions of R-111-A; that would include plugging in the circumstances that it should be a non-commercial well or a dry hole?

A That's correct. We just want to drill the well.

Q Is there anything further you care to state with reference to any of your exhibits, Mr. Montgomery?

A That is all I have.

Q Were Exhibits 1 through 4 prepared by you?

A They were.

MR. BRATTON: We offer Earl Colton's Exhibits 1 through 4 in evidence.

MR. PORTER: Without objection Exhibits 1 through 4 will be admitted into the record.

Just one question, Mr. Montgomery. Then we will recess for lunch. What is the projected depth of this well?

A 3750.

MR. PORTER: Thank you. Hearing will recess until 1:30 at which time the witness will be recall for cross examination.

(Whereupon, the hearing was adjourned until 1:30 P.M.)

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MR. PORTER: Hearing come to order. We ask Mr. Montgomery to take the stand, please.

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

CROSS EXAMINATION

BY MR. BLACKMAN:

Q You testified that in your opinion the pool there that I think is named the Yates Pool would probably join up or connect with the test pool. I wonder if you would explain that a little

A I was speaking more on regional tectonics, actually, than physically connecting up by actual production. I meant that the test pool and the Lynch Pool were on the same positive geologic trend. That was what I meant to convey.

MR. BLACKMAN: That is all.

MR. PORTER: Anyone else have a question of the witness?

BY MR. PAYNE:

Q Mr. Montgomery, what is the drive mechanism in the Lynch Pool?

A It is water drive, most of the wells water drive mechanism.

Q The area we are discussing here today, is that also water drive?

A In our opinion it probably will be. There are a few wells in the Lynch area that are probably gas solution drive. There are some stringer sands that produce around the Lynch from the reef proper. Of course, we are hoping to hit the reef.

Q If oil and gas wells were drilled in here, and if they were plugged in accordance with the provisions of R-111-A, is it your feeling that from a safety standpoint, at least, the potash deposits would be protected, leaving aside this factor of having to leave pillars which might hurt economically?

A I don't believe there has ever been anypast history to base an answer on such a thing.

Q In your opinion, if you plug a hole from top to bottom with cement, one of these special kinds of cement such as Dow Chemi-

cal Company puts out, do you feel there is much likelihood of oil and gas escaping out of that plugging job if any oil and gas remain after the well is abandoned?

A I would say probably not. I think it would be a very speculative answer for anyone to make, but I believe probably not.

Q The wells that have been drilled in this area, I believe you testified some were rather old?

A Yes, sir.

Q These wells weren't drilled in accordance with the casing program set forth in R-111-A?

A No, sir, they were not.

Q Do you, of your own knowledge, have any evidence that the potash deposit itself was damaged by the drilling of these wells?

A No.

BY MR. BLACKMAN:

Q I would like to ask just one question. Would you care to qualify your answer any about the quality of the seal job in an oil well using all the newest techniques on condition that you got a good cement job and knew you had good contact with the cement, both inside the pipe and outside the pipe

A I would say it would be perfectly safe.

Q If you got that kind of contact you would be perfectly safe, but if you didn't you probably wouldn't?

A Possibly not.

MR. PORTER: Anyone else have a question. Witness may be

excused.

MR. BRATTON: I believe that concludes our case.

MR. PORTER: Mr. Kellahin.

MR. KELLAHIN: I would like to call Mr. Motter.

MR. PAYNE: Were you sworn this morning, Mr. Motter?

THE WITNESS: Yes, sir, I was.

E. F. MOTTER

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A E. F. Motter.

Q By whom are you employed and in what position?

A Cities Service Petroleum Company, Division Engineer, Hobbs Division.

Q That is the same as Cities Service Oil Company?

A Yes, sir. We had an official name change the first of this year.

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

A Yes, I have.

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

MR. PORTER: They are.

Q (By Mr. Bratton) Mr. Motter, are you familiar with the application which was filed in behalf of Cities Service Petroleum Company in Case 2183?

A Yes, sir, I am.

Q Would you outline for the Commission the steps which led to the filing of this application?

A Yes. I think as you pointed out earlier this morning, we filed an intent to drill January 13th. Copy of that application, along with the letter and a location plat, was submitted to the Potash Company of America, the holder of the potash lease, on the 18th of January. We received a copy of a protest which had been filed by the Potash Company of America with the Oil Conservation Commission and on January 27th, after unsuccessful arbitration, we filed an application for hearing.

Q Mr. Motter, you heard the testimony which was presented this morning by Mr. Montgomery in behalf of both Cities Service and the Earl G. Colton applications, did you not?

A Yes, I did.

Q Are you in agreement with the testimony which was presented by Mr. Montgomery?

A Yes, I am.

Q Referring to what has been marked as Exhibit No. 1, would you outline the situation as it exists in regard to the Cities Service wells?

A Yes. I think Randall pointed out earlier that our lo-

cation is right here at this blue dot in Section 18 South, 34 East. Referring to Exhibit 2, if I may go on, this again points it out. I would like to explain that that is a direct offset to a well which we have had producing for a number of years. It is offset to the east by this older well, offset to the north by a well which has been producing approximately three years. There is a dry hole to the south of it, and we have one additional well about two diagonal locations northwest. We have drilled several wells in the test pool. All this is under leases held by Potash Company of America. This is our first protest to any of these wells.

Q The area involved on the Cities Service application is within the oil-potash area as defined by Order R-111-A?

A Yes, it is.

Q Is it in the area set out by the Secretary?

A No. It is approximately one and a half miles from the eastern edge of the Department of Interior area.

Q What is the location of the proposed well?

A The proposed location for the Jewett McDonald AA No. 3 is 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East.

Q Is that a standard location under the rules and regulations of the Oil Conservation Commission?

A Yes, sir. It is being drilled in the center of a 40.

Q Do you have any other comment to make on any of the exhibits which have heretofore been offered?

A I believe not. I think Mr. Montgomery covered those quite completely.

Q In connection with your filing of your notice of intention to drill, do you propose to comply with all the requirements of Order R-111-A?

A Yes, sir, we certainly do. That was stipulated in our intent to drill, the size of casing and the approximate depth at which we would seat that. It complies fully with R-111-A.

Q Have you prepared an exhibit showing the casing program which you propose in this well?

A Yes. This is rather small, but we propose to set a 9 5/8-inch casing at approximately --

Q You are pointing to what has been marked as Exhibit No. 5?

A Right. We will set a 9 5/8 approximately 1500 feet, and that will be cemented to the surface. Seven-inch casing to 3300 feet, which is below the base of the salt and into the top of the Tansill dolomite. That, again, will be completely cemented to the surface. It is our plan to run a 5 1/2-inch liner from inside the 7-inch to total depth, and that will be cemented up to the 7-inch. As far as I am concerned that completely complies with Rule R-111-A. We have also put on there our estimated tops and the base of the salt, 1590, the top, 3190, the base, and I think it has been heretofore testified, the potash is probably found at 2300 feet, so that will be completely sealed off by both casing and cement.

Q In your opinion, would that completely protect the

potash zone?

A Yes, I think it would.

Q Have you prepared a structure map of the area involved in this application?

A Under my supervision our geologist prepared this map.

Q Is that exhibit marked as Exhibit No. 6?

A Yes. We have a red circle there indicating the proposed location. This structure map is made on top of the Yates and has a contour interval of 50 feet.

Q Does that substantially coincide with the contours as depicted by Mr. Montgomery?

A Yes, substantially. Of course, there is always probably a little difference of opinion on geology, but this agrees very well, I believe.

Q Have you made any study of the upper Yates formations and prepared an exhibit marked as Exhibit No. 7?

A I have. This particular area we have been able to define two pays in there, the upper and lower Yates. The upper Yates is found productive in the Cities Service Jewett McDonald No. 1, the east offset. It is also productive in our No. 1-C, Jewett McDonald No. 1-C, two diagonal locations to the northwest. This map indicates that at this particular interval we can probably expect some 30 feet of net pay at this location. I have calibrated that in this particular 40 in the upper Yates and we anticipate approximately 1,025 acre feet of pay. This pay has been determined by core analyses and

electric logs of Cities Service 1-C, and also the two thicknesses, we have sample logs on our old well, Jewett McDonald No. 1. We have checked the electric logs against the core and found very close relationship from which we went ahead and made our calculations as to oil in place. On the upper pay this was broken down into about four different porosity and permeability streaks along with a little variance in water saturation, and I came up with 1100 barrels of oil in place per acre foot.

Q That was in the upper zone?

A That's correct.

Q Does that complete your testimony, then, as to the upper Yates formation for the moment?

A Yes, it does, for the moment.

Q Referring to what has been marked as Exhibit No. 8, will you discuss that exhibit?

A No. 8 is the lower Yates pay, and again, in the 40 acres on which the well is to be located I have estimated 925 acre feet of pay, with the pay at the well location being approximately 25 feet of net. Again, this was interpreted from electric logs and core analysis. The oil in place on this lower pay calibrates 975 barrels per acre foot; applying those figures, if I may go on a little further -- the old Jewett McDonald Well which has been there quite sometime has 2,021,000 barrels of oil in place under that lease. We do not have the exact formation volume factor, so I have used one that is acceptable in this pay of 1.25, giving 1,610,700

barrels stock tank oil in place. This Jewett Mc Donald No. 1, on January 1, 1961, has produced 178,858 barrels of oil. At the decline rate, which has been fairly constant for the last four to five years, it is estimated there is a remaining primary down to an economic limit of some 90 barrels of oil per month, of 64,400, which, added together, indicates that we should recover a total of 243,258 barrels stock tank oil from this well. Dividing that by the oil in place we come up with primary recovery factor of slightly over 15%. I have applied some of these figures to a couple of other wells in the area, for instance, the Hutchins well, taking the accumulated production and what we anticipate it will produce, we have actually come up with about 23% of oil in place. Using the lowering value of primary recovery, I have calculated that the proposed location, the Jewett McDonald AA No. 3, we should recover some 244,000 barrels primary oil at a cost of about $3.00. This indicates $733,000.

Q Is that the return, then, you would anticipate on the proposed well?

A That would be the gross return, yes.

Q Have you any other production history figures you would care to give?

A I think I have pretty well discussed all the production history we have used on this. Like I say, this well is an offset to these two wells, and I feel that is fairly reliable information.

Q Do you have a per acre valuation?

A Well, yes. At this proposed location that calculates out

to $18,300 per acre gross value.

Q That is related to primary recovery, is it not?

A That's correct.

Q In your opinion is there any chance for secondary recovery in this area?

A Well, yes. From our experience in the Permian Basin and looking the thing over as a whole, I find no place where we can say there has been a failure in secondary recovery in this type of formation. Although this is a somewhat smaller area there may be substantial development. I shouldn't say substantial, enough, another three or four wells in the future, so that it would quite likely pay us to go with a secondary recovery program. If that were true I think we could safely expect another 15%, which, again, is a minimum figure in my estimation.

Q What would the gross values be on the acreage involved?

A Well, that would be primary and secondary, considering secondary equal to primary, that would be some $1,466,000 or a little over $36,000 per acre.

Q Do you have any further information on valuations?

A I believe that I all. I have made numerous other valuations in the area, but I think these are the most pertinent to this particular well.

Q Were Exhibits 5, 6, 7 and 8 prepared by you or under your supervision?

A Yes, they were.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits 5, 6, 7 and 8.

MR. PORTER: If there is no objection the exhibits will be admitted to the record.

Q (By Mr. Kellahin) Mr. Motter, what is the situation as to the lease held by Cities Service Petroleum Company at the present time?

A It is being held by production.

Q Is that a new lease or old lease?

A That lease was taken as a prospecting permit, I think in 1926 or 1927. It was converted to an oil and gas lease in September, 1931.

Q And it is presently an oil and gas lease?

A Yes, sir, it is.

Q Do you have anything else to add, Mr. Motter?

A Nothing pertinent, I don't believe.

MR. KELLAHIN: That is all the questions I have, Mr. Porter.

MR. PORTER: Does anyone have any questions of Mr. Motter?

BY MR. PAYNE:

Q Mr. Motter, do you believe there is communication between the upper Yates and the lower Yates in this area?

A No. I have the logs here. They are some 35 to 40 feet apart. I don't believe there is any communication, not the type of completions we have today, setting a liner and perforating. I

don't believe there is any communication. There may be if we fracture a zone. You could, oftentimes, fracture into communication but I frankly doubt it.

Q Cities Service doesn't have any present plan to dually complete any wells?

A No, sir. This production is all permissible under the North Lynch rules to produce from all the Yates.

Q What do you consider to be the drive mechanism in this area?

A Down in the Lynch Pool we have evidence of a fairly active water drive. In our particular area, the North Lynch, I don't believe we have a very active water drive. We do produce some small amounts of water, but due to the fact that the Jewett McDonald No. 1 has produced such a long time at fairly low rates, I don't think we can say there is a real active water drive in this area.

Q If you did waterflood in this area and at the end of your secondary recovery operations you plugged the wells in accord with R-111-A, could you shut off this water effectively?

A I think you could with your current cements. I think you could get an adequate bonding to shut off this bottom water.

Q This designation of the potash area by the Secretary of the Interior, what date was that that this area was delineated?

A I think Mr. Bratton pointed out, I think it is 1951.

Q As you are undoubtedly aware the Oil Conservation Com-

mission has, from time to time, extended the potash-oil area upon request of the potash companies. Do you know if the Secretary of the Interior has ever extended his original delineation?

A I do not know of any extension. I have been told this is a deletion right in here.

Q Do you know if he has ever been requested to make an extension?

A I have been advised there would probably be a revision made sometime. When, I do not know, am not able to tell you.

Q Inasmuch as your lease was executed back in the early 1930's, I assume it contains no potash-oil stipulations?

A There is no potash stipulation on our lease.

MR. PORTER: Anyone else have a question?

BY MR. NUTTER:

Q Do you believe the drilling and casing program as outlined in Rule 111-A contemplates the use of a string of pipe set at 3300 feet and then a liner installed in that, or would it require a full length of production pipe?

A Frankly, my interpretation is that this particular proposal fulfills the obligation. It is my understanding that the oil zone shall be cemented off with casing to the surface. The type of liners which we use are completely packed off in this 7-inch pipe so, as far as I am concerned, you might consider that one continuous string of pipe.

Q What is the length of overlap on the two strings of pipe?

A Probably about 50 feet.

MR. PORTER: Anyone else have a question? Witness may be excused. Does that conclude your testimony?

MR. KELLAHIN: That concludes our testimony, Mr. Porter.

MR. PORTER: Does anyone else desire to present testimony in the case?

MR. BRATTON: I would like just to state for the record, our lease does not have a potash stipulation either as it was also executed prior to the potash area designation of the Secretary.

MR. BLACKMAN: If the Commission please, I would like to state also that the two potash leases involved in this area do not contain the so-called oil clause since all of them are outside of the Federal designated area.

MR. PORTER: Anyone have any statements to make in the case?

MR. LOSEE: I would like to read a statement in the record which is made in support of the application of these two oil operators in Case 2182 and 83, to drill wells in compliance with Order R-111-A of the Commission. The statement represents the positions of my clients with reference to the matter.

The Order R-111-A was adopted by the Commission in its present form on October 15, 1955, after voluminous records and lengthy testimony from both industries. At that time both of the industries voiced satisfaction with the order, and although the drilling program provided for by the order required additional expenditures by

the oil operators, the oil industry has complied with this order from the date of its promulgation. A large number of wells have been drilled and completed within the potash oil area since 1955 and as long as no exception was requested under R-111-A, and as long as the location was not within an active withdrawal area, the potash industry had not protested the drilling of any of these wells.

It now appears that at least one potash company will object to the drilling of any wells in the potash-oil area, even though full compliance with R-111-A is proposed, and require the matter to be heard before the Commission. This seemingly arbitrary position of the potash company, or companies, will impose additional expense and delay in the drilling of wells in the area. From this position, my clients wonder if they are to assume, whether this potash company now desires to repudiate Order R-111-A. If these arbitrary objections to the drilling of wells a great distance away, in this case some 15 miles from the closest potash mine operation, is continued by the potash industry, then it seems there will be no alternative other than request an amendment to Order R-111-A which would delete the right of protest by the potash company unless the proposed location was within a reasonable distance of actual mine operation.

In view of the long-standing satisfactory relationship of the two industries, it is hoped that this alternative will not have to be resorted to. I think, as Mr. Bratton said earlier, the oil operators represented by this statement hope the potash industry

will see fit in the future to comply with the intent and spirit of Order R-111-A by not making arbitrary objections to all proposed locations in thepotash-oil area.

MR. KELLAHIN: If the Commission please, without repeating the matters which were raised in our motion to dismiss the protest of the Potash Company a few moments ago, I would like to point out that what we are really dealing with here is the efforts on the part of one potash company, which is mining some 23 miles away from the present site, to block any further development in a pool which has already been developed on the basis of the highly speculative and conjectural proposition they may, at some future date, want to develop it. They have admitted by their own witness they have no development program outlined for the area involved here. They have admitted by their own witness, as of this date they do not even know if it would be economic to mine thia area under its present condition with the oil wells which have already been drilled in the area.

Therefore, they are asking the oil companies to wait on a speculative basis, for an indefinite length of time, until they finally determine what they want to do. Meanwhile the owners of the oil leases are ready and willing and anxious to go ahead with development.

MR. BRATTON: If the Commission please, as Mr. Kellahin has said, we will not go into our motion in detail. I would like to point out very briefly one or two salient facts. What has been

referred to as the Secretary's area, the area outlined in black on Exhibit No. 1, was withdrawn entirely from oil and gas leasing in 1939 by the Secretary of the Interior. That was a complete withdrawal for the setting aside for the purpose of potash development. That order was revoked by the order previously referred to of October 18th, 1951, which started off that the purpose of the order is to provide for concurrent operations in the prospecting for and the development and production of oil and gas and potash deposits owned by the United States within the area herein designated. That was the Secretary's solution in that area. He abandoned the complete withdrawal and went to the concurrent development.

There are, of course, areas of State lands and fee lands in addition, and, as has been pointed out, over many, many months and much blood, sweat, toil and tears, Order R-111-A was hammered out. As this Commission is well aware, it was stated in Order R-111-A that the object of these rules and regulations is to prevent waste, protect correlative rights, assure maximum conservation of dl, gas and potash resources of New Mexico, and permit the economic recovery of oil, gas and potash minerals in the area hereinafter defined.

As has been pointed out, the denial of our applications and the granting of Potash Company of America's application in this instance in effect makes Order R-111-A a complete withdrawal of something over 200,000 acres for speculative future potash development.

Now, insofar as my client is concerned, we are talking about protecting his correlative rights. If we are denied indefinitely he

won't have any correlative rights because his lease is going to run out a year from now. As a matter of fact, I would like to urge this Commission to act as speedily as it can in this matter as the operating agreement under which my client is operating would have terminated today, other than for a short extension granted. We believe that, clearly, it never was the intention of this Commission or the potash industry, and certainly not of the oil and gas industry, that this be turned into a complete potash reserve.

MR. BLACKMAN: If the Commission please, this seems to me to be a problem in conservation that, on account of the past actions both of the Secretary of the Interior and of the Oil Conservation Commission, certain rulings and regulations have been set up, and we feel that this protest is made within the purview of the rules and regulations, particularly R-111-A, in order to give the Commission an opportunity to see just what the problem is, and just what is happening, and what has happened in the past.

I don't want to go back over the argument I made in opposition to their motion for dismissal in the middle, but I would like to point out that an effort has been made to make this appear that this is a potash pillar valued at some $65,000 related to an oil and gas well of some $250,000 barrels, or maybe even in excess of that. I wanted to point out to the Commission that we here have evidence in the record which indicates that if the value of potash, based on the minimums, I may say, are something in excess of $20,000 per acre. This is on first mining. On second mining the valuation was

testified to be two-thirds of that amount or $13,300 valuation per acre. If you project on the basis of the 2300-foot radius circle that has been shown up there on Exhibit No. 3, you take in some approximately 600 acres of area which is denied to secondary mining on the basis of the drilling, the actual drilling of the well. We are not talking about the small values here, gentlemen, we are talking about the valuation in the entire area in the neighborhood of $12,000,000 on first mining and an a ditional $8,000,000. We are not here today making an argument on secondary mining, because it happens these leases are within an area to which secondary mining has already been denied. It is very doubtful if this area is drilled out and we get a well on each 40-acre tract in here, whether there will be any economic value left in the potash, and this, from the point of view of the State of New Mexico, it would be a very sad situation.

We are not able to state now -- I wish it were possible -- but we are not able now to state when this will be mined and developed, or whether it will ever be mined and developed. It is probably now marginal. Nobody can tell you as of now what it is, but the overall valuation of it, based on the previous testimony of the approximate area of 10,000 acres, with an approximate valuation of $20,000 per acre on first mining, is some $200,000,000, and on first and second mining together is some $333,000,000. So it is not just a small problem. It is a very real problem, a very real problem for the solution of the Commission, and we submit it to you gentlemen hoping

you will see the problem Potash Company of America is faced with and the State of New Mexico is faced with if the reserves in this particular area are completely denied.

MR. PORTER: Anyone else have anything to say in this case, either one of the cases?

MR. PAYNE: We received a communication from John Trigg, in both cases, concurring with the application of the oil operators to drill these wells.

MR.PORTER: If there is nothing further to be offered in the case we will take it under advisement and take up next Case 2184.

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

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

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 23rd day of February, 1961.

June Paige
Notary Public - Court Reporter

My Commission expires:

May 11, 1964.

I N D E X

E X H I B I T S

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 829
Carlsbad, New Mexico

January 31, 1961

Mr. R. H. Blackman, Jr.
Resident Counsel
Potash Company of America
P. O. Box 31
Carlsbad, New Mexico

Ex 1

Dear Mr. Blackman:

Recently you requested the opinion of this office as to whether or not an oil test proposed to be drilled by Earl C. Colton in the NE¼SE¼ Section 29, T. 20 S., R. 34 E., N.M.P.M., New Mexico, would penetrate commercial quality potash ore if drilled.

The records of this office show that the proposed oil test is located approximately 2,100 feet inside the potash orebody as delineated by the Geological Survey to cutoff limits of 4 feet of 14% K_2O for minimum commercial mineralization.

Please feel free to use this opinion concerning the proposed oil test location in any manner you wish.

Very truly yours,

R. S. Fulton

R. S. Fulton
Regional Mining Supervisor

RSF:mb

GOVERNOR
JOHN BURROUGHS
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
MURRAY E. MORGAN
MEMBER

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

P. O. BOX 871
SANTA FE

February 22, 1961

Mr. James Kellahin
Kellahin & Fox
Box 1713
Santa Fe, New Mexico

Re: Case No. 2163
Order No. R-1885
Applicant:
(OCC)
Cities Service

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

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other Mr. Roy Hinchman
Mr. A. J. Losee

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 829
Carlsbad, New Mexico

IN REPLY REFER TO:

February 2, 1961

Potash Company of America
P. O. Box 31
Carlsbad, New Mexico

Gentlemen:

Recently you requested that this office compile tonnage and value data relative to recoverable potash ore under the following fixed conditions:

1. Ore 4 feet thick of 14% K_2O grade.
2. Mining extraction of 45%.
3. Milling efficiency of 90%.
4. Average price of 35 cents per unit of K_2O.

You also requested that similar data be compiled for a 200-foot radius ore pillar left to protect a producing oil well. Recoverable values are determined by using the following formula:

Recoverable value per acre = 2,722.5 x thickness of ore in feet x grade of ore in % K_2O x mining extraction x mill efficiency x units of K_2O per ton x price per unit of K_2O. The constant, 2,722.5, reflects the ore tonnage contained in one acre-foot, using 16 cubic feet = 1 ton. Following are the values determined:

	Recoverable Value Per Ton	Recoverable Tons Per Acre	Recoverable Value Per Acre
Total Mining (extraction 45% mill efficiency 90%)	$ 4.41	4,900.5	$ 21,611.10

The following reflects the tonnage, and recoverable potash value in a 200-foot radius pillar:

Tons of ore in pillar	=	31,416
Recoverable value per ton	=	$ 4.41
Total value of ore in pillar	= $	138,544.56
Recoverable value of ore in pillar (at 45% extraction, if could be mined)	= $	62,345.05

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT NO. 3
CASE 2182-3

Very truly yours,
R. S. Fulton

R. S. Fulton
Regional Mining Supervisor

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 829
Carlsbad, New Mexico

January 31, 1961

Mr. R. H. Blackman, Jr.
Resident Counsel
Potash Company of America
P. O. Box 31
Carlsbad, New Mexico

Dear Mr. Blackman:

Recently you requested the opinion of this office as to whether or not an oil test proposed to be drilled by Cities Service Petroleum Company in the SW¼SE¼ Section 18, T. 20 S., R. 34 E., N.M.P.M., New Mexico, would penetrate commercial quality potash ore if drilled.

The records of this office show that the proposed oil test is located well within the potash orebody as delineated by the Geological Survey to cutoff limits of 4-feet of 14% K_2O for minimum commercial mineralization.

Please feel free to use this opinion concerning the proposed oil test location in any manner you wish.

Very truly yours,

R. S. Fulton

R. S. Fulton
Regional Mining Supervisor

RSF:nb

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Potash Co EXHIBIT No. 2
CASE 2183

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

1201 (4-60)

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter

NL = Night Letter

LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA228 SSF274

1961 APR 14 PM 3 29

L RWA090 PD=ROSWELL NMEX 14 257P MST=

:A L PORTER JR=

NEW MEXICO OIL CONSERVATION COMMISSION SANTA FE NMEX=.

IN KEEPING WITH THE PROVISIONS OF ORDER NO R-111A WE STRONGLY URGE THAT THE RIGHTS OF OIL AND GAS OPERATORS BE PROTECTED BY YOUR COMMISSION AS THEY HAVE BEEN IN THE PAST AND THAT THEIR LOCATIONS TO DRILL IN THE POTASH AREA BE APPROVED WITH THE SAME REGULARITY AS THEY HAVE BEEN HERETOFORE=

JOHN H TRIGG.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 829
Carlsbad, New Mexico

January 31, 1961

Mr. R. H. Blackman, Jr.
Resident Counsel
Potash Company of America
P. O. Box 31
Carlsbad, New Mexico

Dear Mr. Blackman:

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Please feel free to use this opinion concerning the proposed oil test location in any manner you wish.

Very truly yours,

R. S. Fulton

R. S. Fulton
Regional Mining Supervisor

RSF:nb

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
PotashCo EXHIBIT NO. 2
CASE 2183

POTASH COMPANY OF AMERICA

GENERAL SALES OFFICES · 1625 EYE STREET · N · W · WASHINGTON 6 · D · C ·
SOUTHERN SALES OFFICE · 408 · 9 CANDLER BLDG · ATLANTA · GA ·
MIDWESTERN SALES OFFICE · FIRST NATIONAL BANK BLDG · PEORIA · ILL ·

Case 2153

REPLY TO: EXECUTIVE OFFICES
MINES AND REFINERY
CARLSBAD · NEW MEXICO

January 18, 1961

R. H. BLACKMAN, JR.
RESIDENT COUNSEL

Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Enclosed find three copies of our protest to the drilling of Jewett - McDonald AA No. 3 in SW SE-18-20-34.

Very truly yours,

R. H. Blackman
Resident Counsel

RHB:es
Enc. (3)

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE NOTICE
OF INTENTION TO DRILL A TEST
WELL IN THE SW 1/4 SE 1/4 OF
SECTION 18, T. 20S., R. 34E.,
LEA COUNTY, NEW MEXICO
FILED BY CITIES SERVICE
PETROLEUM COMPANY

CASE NO. 2193

OBJECTION OF POTASH COMPANY OF AMERICA

Potash Company of America, a Colorado Corporation, authorized to do business in the State of New Mexico hereby objects to the drilling of an exploratory test well in the SW 1/4 SE 1/4 of Section 18, T. 20S., R. 34E., Lea County, New Mexico and hereby states:

1. The land described above is within the oil-potash area as set forth in Order No. R-111-A, as amended in Case No. 278 before the O. C. C.

2. Potash Company of America is the owner and holder of a U. S. Government potash lease covering said land.

3. Drilling of a test well in the tract specified will result in waste of potash deposits of substantial value.

Respectfully submitted

Dated: January 18, 1961

Potash Company of America

By _____
R. H. Blackman, Resident
Counsel

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. 2183
Order No. R-1885

APPLICATION OF THE OIL CONSERVATION
COMMISSION ON ITS OWN MOTION, AT THE
REQUEST OF CITIES SERVICE PETROLEUM
COMPANY, TO CONSIDER GRANTING PERMIS-
SION TO DRILL AN EXPLORATORY TEST WELL
IN THE POTASH-OIL AREA, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 15, 1961, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 22nd day of February, 1961, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, Cities Service Petroleum Company, seeks permission to drill an exploratory test well 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico, which acreage is included within the potash-oil area as delineated by Commission Order No. R-111-A and subsequent amendments thereto.

(3) That the applicant's proposed casing program is to be in accordance with the requirements of said Order No. R-111-A.

(4) That the Potash Company of America objected to the proposed location, arbitration proved unsuccessful, and, as provided by said Order No. R-111-A, the matter was then heard by the Oil Conservation Commission.

(5) That the proposed oil well location is approximately twelve (12) miles from the nearest active potash operations, and,

further, it is speculative and conjectural as to when, if ever, the area in which the location is proposed will be mined for potash, and, inasmuch as there are no present plans for such mining, the oil and gas lessee should be allowed to drill the subject well and produce it to depletion, at which time, as reflected by the evidence, said well could be plugged in such a manner as to protect the potash reserves.

(6) That in view of the circumstances set forth in the preceding finding, denial of the right to drill the subject exploratory test well would result in an impairment of the oil and gas lessee's correlative rights, particularly since a number of oil wells have long since been drilled in the general area.

(7) That the applicant should be permitted to drill the subject well.

IT IS THEREFORE ORDERED:

That the applicant, Cities Service Petroleum Company, is hereby permitted to drill an exploratory test well 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico.

PROVIDED HOWEVER, That the subject well shall be completed and plugged in full compliance with the requirements set forth in Commission Order No. R-111-A.

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

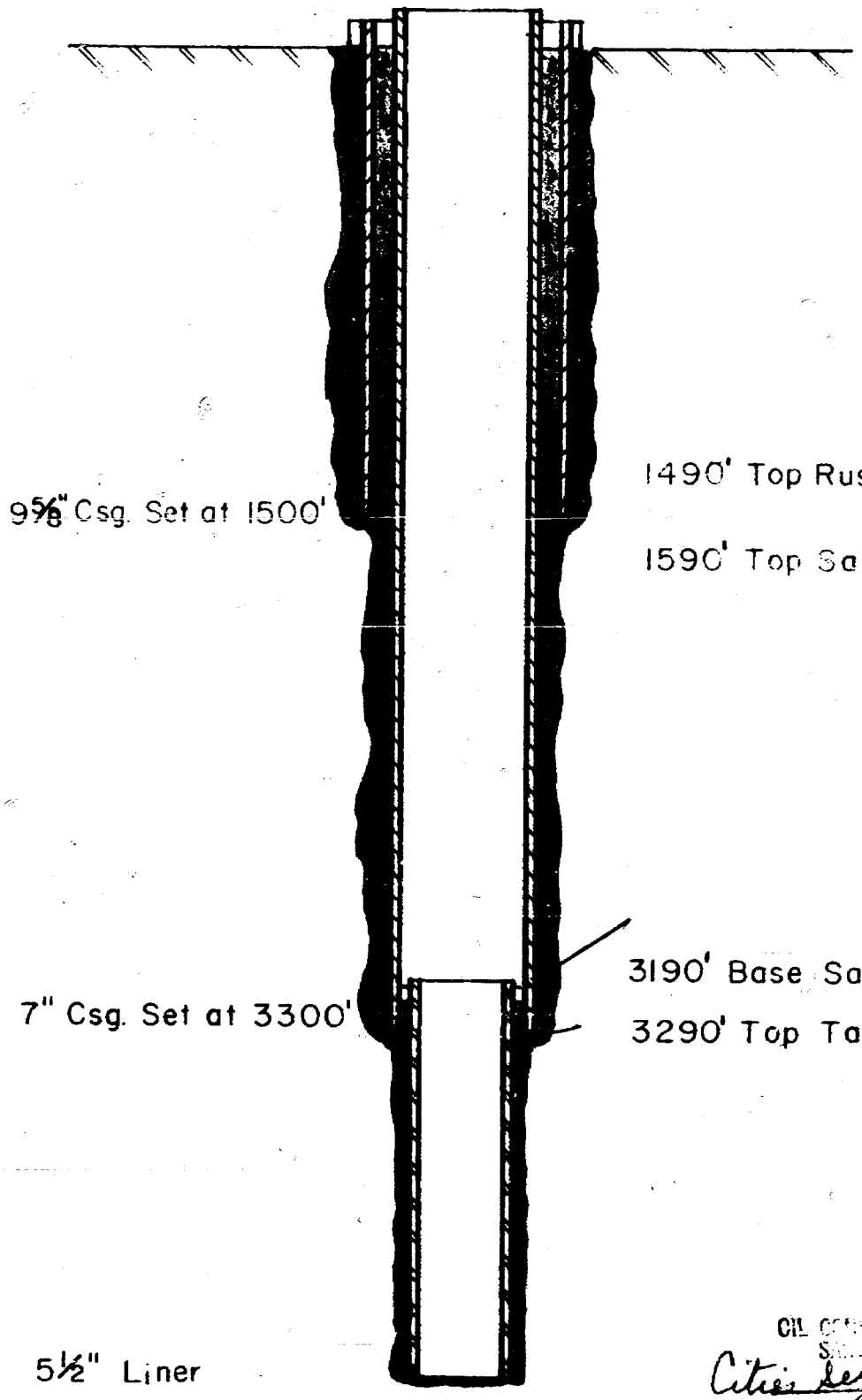
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

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

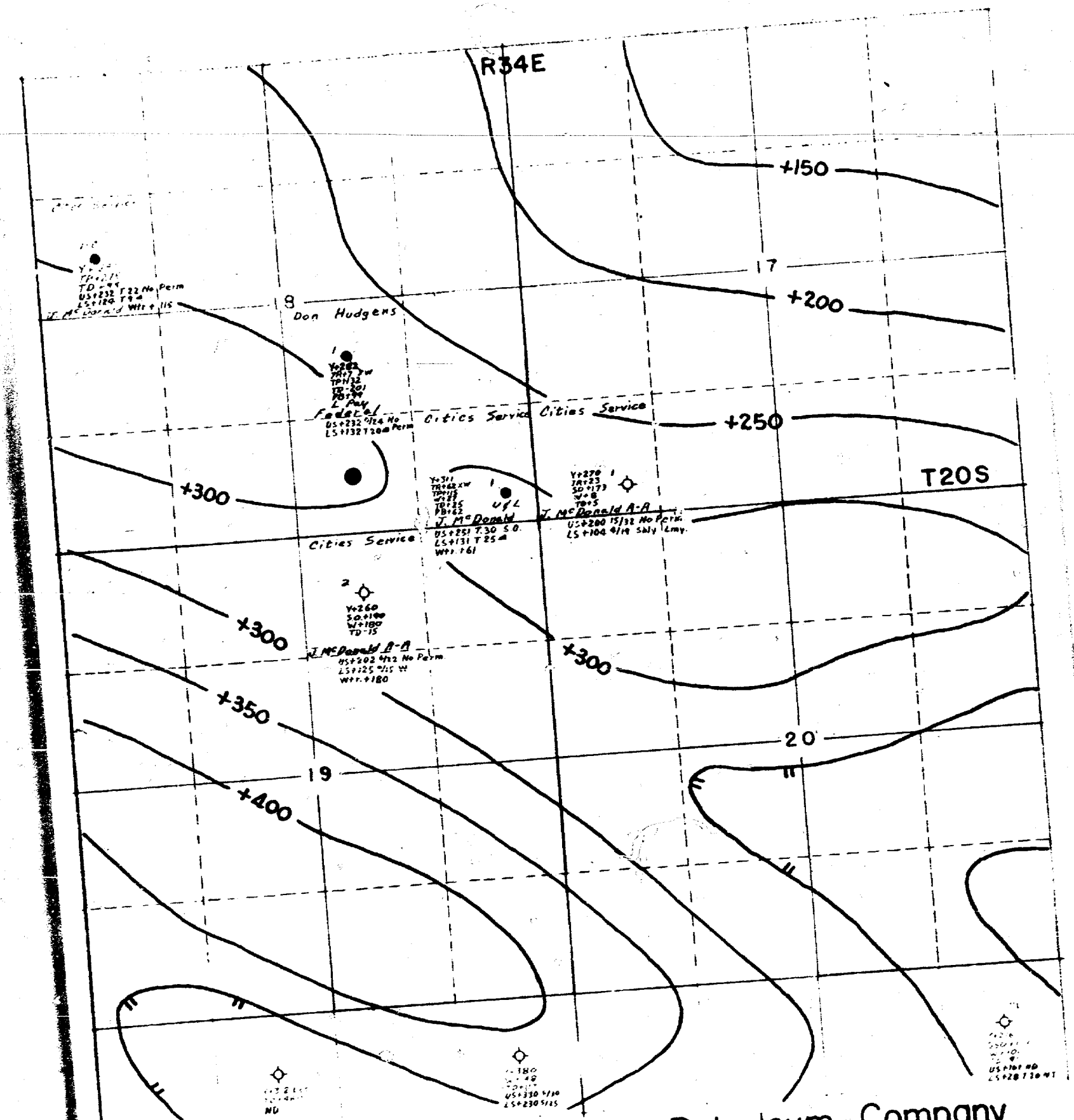
esr/



BEFORE THE
OIL CONS.
S...
Cities Serv... EXHIBIT NO. 5
CASE 2182-3

Cities Service Petroleum Company

North Lynch Pool, Lea County, N. M.
Proposed Casing Program

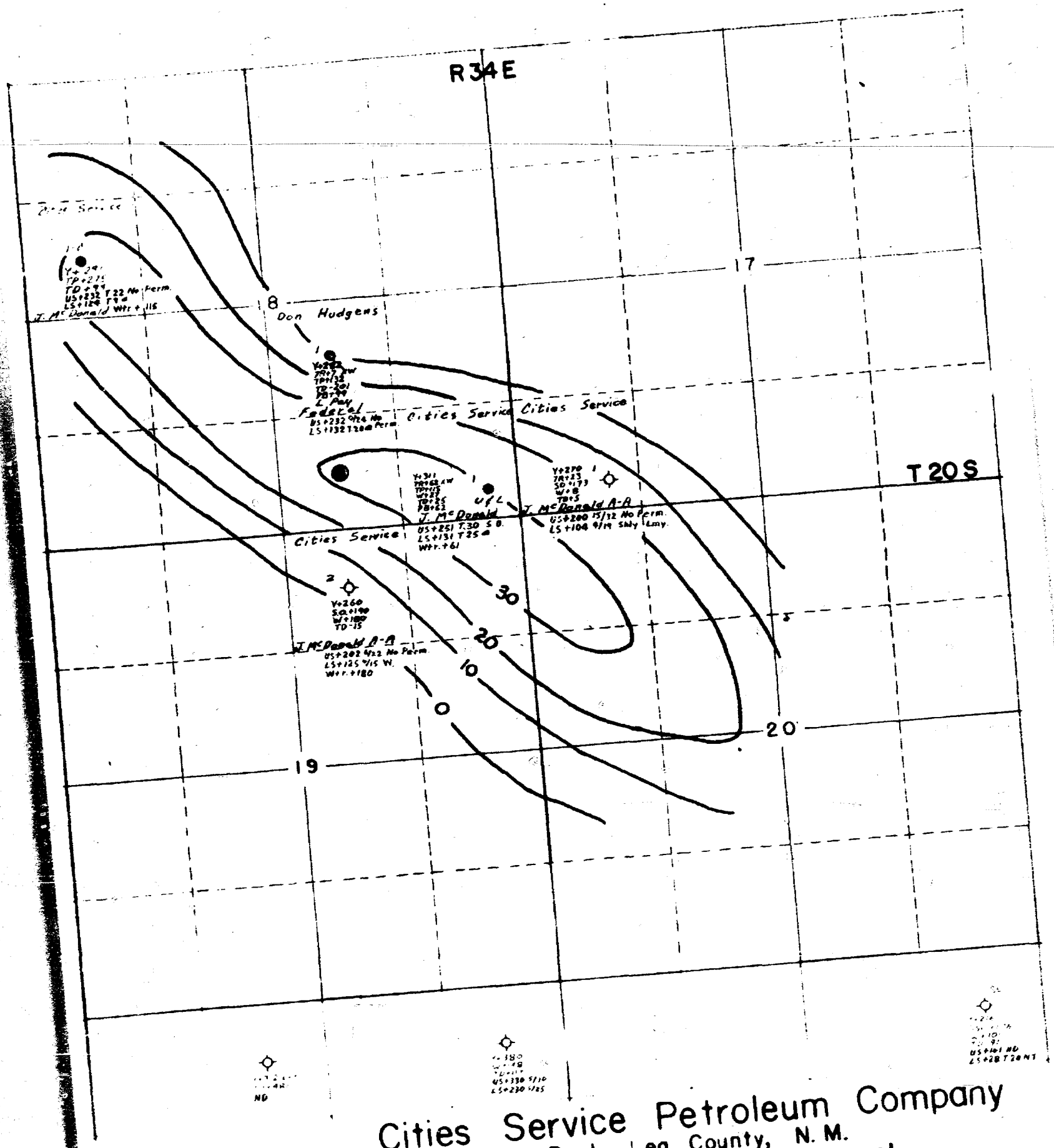


Cities Service Petroleum Company

North Lynch Pool, Lea County, N. M.

Structure Map - Top of Yates 50'

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 6
CASE 2182-3

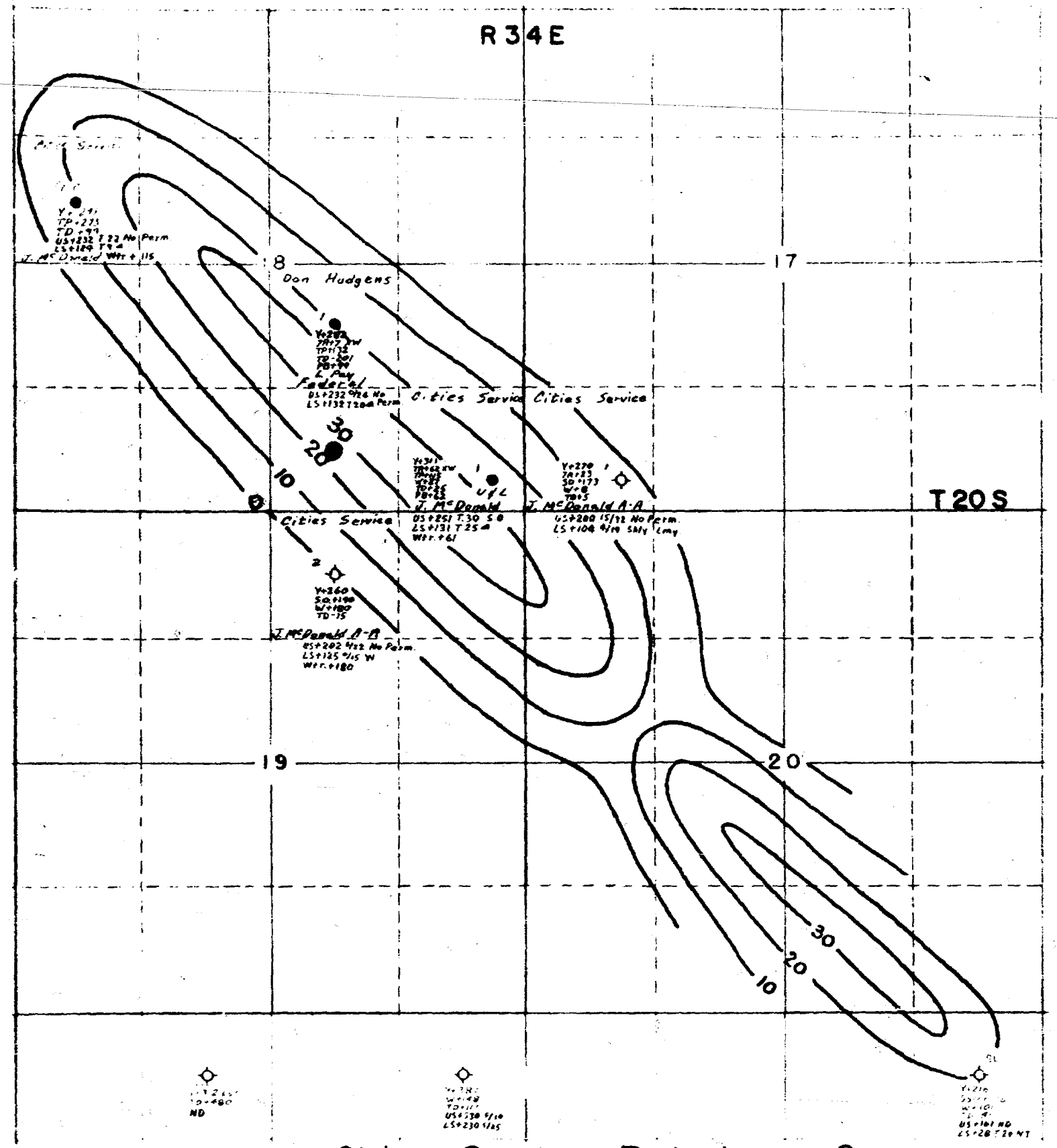


Cities Service Petroleum Company

North Lynch Pool, Lea County, N. M.

Upper Yates Pay Thickness C.I. = 10'

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Cities Service EXHIBIT No. 7
CASE 2182-3



BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Cities Serv. Exhibit 8
CASE 2182-3

Cities Service Petroleum Company

North Lynch Pool, Lea County, N. M.
Lower Yates Pay Thickness C. I. = 10'

Case 2183

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF CITIES SERVICE PETROLEUM COMPANY FOR PERMISSION TO DRILL A WELL IN SECTION 18, TOWNSHIP 20 SOUTH, RANGE 34 EAST, NORTH LYNCH POOL WITHIN THE POTASH-OIL AREA.

A P P L I C A T I O N

Comes now Cities Service Petroleum Company and applies to the Oil Conservation Commission of New Mexico for permission to drill a well to be designated as its Jewett McDonald AA No. 3 to be located 1980 feet from the East line and 660 feet from the South line of Section 18, Township 20 South, Range 34 East, in the North Lynch Pool within the potash-oil area as defined by Commission Order No. R-111-A, as amended; and in support thereof would show:

1. That notice of intention to drill was heretofore filed with the Commission.

2. Objection to said well location was filed with said Commission by Potash Company of America.

3. Arbitration has been had with the Commission as required by the provisions of Order No. R-111-A, as amended, without success.

Docketed 9-6-61

WHEREFORE, applicant prays that this application be set for hearing as provided by the rules, regulations and orders of the Commission and that after notice and hearing as provided by law, the Commission enter its order approving the well location as applied for.

Respectfully submitted,

CITIES SERVICE PETROLEUM COMPANY

By Jason W. Kellahin

KELLAHIN & FOX
P. O. Box 1713
Santa Fe, New Mexico

ATTORNEYS FOR APPLICANT

DRAFT

OEP/esr
February 21, 1961

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. ~~2182~~ 2183

Order No. R- 1885

APPLICATION OF THE OIL CONSERVATION COMMISSION ON ITS OWN MOTION, AT THE REQUEST OF ~~[illegible]~~ Cities Service Petroleum Company, TO CONSIDER GRANTING PERMISSION TO DRILL AN EXPLORATORY TEST WELL IN THE POTASH-OIL AREA, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on **February 15**, 1961, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this_____ day of **February**, 1961, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, ~~East Caprock~~ Cities Service Petroleum Company, seeks permission to drill an exploratory test well ~~in the NW/4 NE/4~~ 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico, which acreage is included within the potash-oil area as delineated by Commission Order No. R-111-A and subsequent amendments thereto.

(3) That the applicant's proposed casing program is to be in accordance with the requirements of said Order No. R-111-A.

(4) That the Potash Company of America objected to the proposed location, arbitration proved unsuccessful, and, as provided by said Order No. R-111-A, the matter was then heard by the Oil Conservation Commission.

(5) That the proposed oil well location is approximately

twelve (12) miles from the nearest active potash operations, and, further, it is speculative and conjectural as to when, if ever, the area in which the location is proposed will be mined for potash, and, inasmuch as there are no present plans for such mining, the oil and gas lessee should be allowed to drill the subject well and produce it to depletion, at which time, as reflected by the evidence, said well could be plugged in such a manner as to protect the potash reserves.

(6) That in view of the circumstances set forth in the preceding finding, denial of the right to drill the subject exploratory test well would result in an impairment of the oil and gas lessee's correlative rights, particularly since a number of oil wells have long since been drilled in the general area.

(7) That the applicant should be permitted to drill the subject well.

IT IS THEREFORE ORDERED: Cities Service Petroleum Company

That the applicant, ~~Earl E. Tinsley~~, is hereby permitted to drill an exploratory test well ~~in the NE/4 SW/4 of Section 18~~, 660 feet from the South line and 1980 feet from the East line of Section 18, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico, ~~at a point 1980 feet from the South line and 330 feet from the East line of said Section 18~~.

PROVIDED HOWEVER, That the subject well shall be completed and plugged in full compliance with the requirements set forth in Commission Order No. R-111-A.

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