CASE 3167: Application of IMC DRILLING MUD for an amendment of COMMISSION RULE 107.

CASE NO.
3167

Application,
Transcripts,
Small Exhibits
ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 15, 1964

EXAMINER HEARING

IN THE MATTER OF:

APPLICATION OF IMC DRILLING MUD, A DIVISION OF INTERNATIONAL MINERALS AND CHEMICAL CORPORATION FOR AN AMENDMENT OF RULE 107

Case No. 3167

BEFORE:

DANIEL S. NUTTER

TRANSCRIPT OF HEARING

MR. NUTTER: We will call Case Number 3167--application of IMC Drilling Mud, a division of International Minerals and Chemical Corporation, for an amendment of Rule 107.

MR. SPERLING: I am J. E. Sperling, of Modrall, Seymour, Sperling, Roehl & Harris, Albuquerque, New Mexico, appearing on behalf of the applicant. We have two witnesses--first, Mr. Lloyd. Before we proceed with testimony, Mr. Examiner, in view of the somewhat unusual nature of this application, a preliminary statement might be in order for the purpose of clarifying exactly what it is we have in mind in coming to the Commission at this time.

As the Examiner stated, the application is signed on behalf of IMC Drilling Mud, and involves Rule 107, which is the casing and tubing requirements insofar as the Commission's general rules are concerned, and with particular reference to cementing requirements which are a part of that rule. It should be made clear at the outset that it isn't intended by the applicant to recommend to the Commission a relaxation of the rules insofar as cementing is concerned, or to suggest that the product which will be expounded upon at this hearing is intended as a replacement for cement. However, as the testimony will develop, it seems apparent to those who have used the product and who are familiar with its application in the field, that there are many instances in which a saving can be effected,

primarily by reason of the facility of removal of the casing in certain instances, which seems to be an inducement to operators to make a greater effort and greater expenditure in the quest for oil and gas, if they know that at least a portion of their costs may be recovered.

It will also be developed that the particular product has great use in connection with the protection of fresh water sands as well as protection of downhole equipment against corrosive action, and serves a number of purposes as far as protection of fresh water sands from non-potable water.

In trying to make application of the instances in which the particular product which will be under discussion might be used, it seems that there is some latitude already present insofar as Commission field personnel is concerned, insofar as authorizing deviation from the general rule requirements is concerned, and I call your attention to paragraph 2 of the rule, which states: "Sufficient cement shall be used on surface casing to fill the anular space back of the casing to the back hole. Authorized field personnel of the Commission may at their discretion allow deviation from the foregoing requirement when known conditions in a given area render the same practicable." Apparently this takes notice of the fact that in certain conditions in a particular area it is impossible to circulate cement by reason of loss to the formation. A part of

the discussion which will follow will be directed to that particular problem, and an explanation will be made to the effect that the material under discussion offers a distinct advantage, by reason of the properties of the material itself, over cement in those instances, and we feel that at least the suggestion has already been made in the rule itself, that a variation from the requirements might already be in the rule. However, as a matter of clarification, and having in mind that only cement as such is mentioned in connection with casing and tubing requirements, it might be necessary to expand the rule to at least give recognition to the fact that there are other products superior to cement in some instances where it cannot be used, and for that reason the rule should be clarified to include the use of the product under conditions which appear to be warranted, upon administrative application to the Commission itself.

We are not suggesting that operators have the right to indiscriminate use of the material--it would, in each instance, as I think the application states, be subject to control by the Commission itself, either under the rule as it presently exists or whatever amendment or expansion of language that is indicated in order to make it clear to field personnel that this is a circumstance which might well be used to advantage by operators under certain conditions.

With that preliminary statement I think we may pro-

ceed, unless the Examiner has some question of me as to what we are trying to do.

MR. NUTTER: Yes, sir. Is it your intent to offer an amendment, or amended rule, at this hearing today?

MR. SPERLING: Well, you come to the problem of identification of what you're talking about. We're not suggesting to the Commission--I think it would be wholly improper to suggest to the Commission endorsement by the Commission of a brand name. However, not all of the competitive products have the same properties, so it is difficult to reach a definition which isn't--which doesn't require a whole page in order to explain what these properties are. We struggled with this last night at some length, and it's difficult to say exactly what this is which would not be all-inclusive of the competitive products on the market.

MR. NUTTER: In your opinion is the identificiation of "oil-base casing packing material" as given in the advertisement of this case, proper?

MR. SPERLING: Since I was the author of the application, it satisfies me. It doesn't satisfy the scientists and engineers who work with this. For reasons which we will expand upon, it seems to me that--at least as a suggestion--where the word "cement" is used, it might be followed by "or other material," subject of course to administrative approval. "Other

materials" certainly would be all-inclusive, and I would assume this would not include in the logical administration of the rule, the use of cottonseed.

MR. NUTTER: It might include toothpaste.

MR. SPERLING: Or mashed potatoes. But to be more definitive of that, I think, depending upon how well received the application is by the Commission, some additional work on the language is going to have to be done, in consultation with the Commission staff and the representatives of the applicant. To be specific, and following on that harangue, the answer to the question is no, we do not have an amendment ready at this time.

MR. NUTTER: I see. Proceed, Mr. Sperling.

D O N A L D D. L L O Y D, the witness, having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q State your name, please, by whom you are employed, and your place of residence.

A Donald D. Lloyd, Ken Corporation, Long Beach, California.

Q In what capacity are you employed?

A Development engineer.

Q As I understand, the applicant in this case is IMC

Drilling Mud, a division of International Minerals and Chemical Corporation. What if any connection is there between Ken Corporation and the applicant?

A IMC Drilling Mud distributes a material we manufacture.

Q You are suppliers, then, to IMC, who is the distributor and actually the seller of the product for its use in the field?

A Yes.

Q You have not previously testified before the Commission, have you, Mr. Lloyd?

A No.

Q Would you give us a resume of your formal educational background and experience background, with particular reference to engineering.

A I obtained a BE in petroleum engineering at the University of Southern California in 1950; worked as a well logging engineer for Formation Logging Service Company a year and a half; National Lead Company, Baria division, as sales and service engineer for a year and a half; sales and service engineer at Ken Corporation starting in 1953, through 1958; laboratory engineer and development engineer from 1958 to the present date.

Q The particular product, as my preliminary statement indicated, Mr. Lloyd, suggests an explanation of its properties

--of what it is composed and exactly what it was, or what it is, and what it is intended to do. Would you proceed with such an explanation at this time.

A The product is generally defined in its patent and in all sales and field application or engineering purchases as an oil base compound which develops high ultimate sheer strength. It is not water-soluble; it is acid-resistant. Basically it is composed of a continuous oil phase, specifically containing asphaltines, either from a refined asphaltine oil or an asphalt base crude. It includes gell-building pollamers and salts of alkaline earth. Do you want me to describe the various component exhibits we have?

Q You have lined up before you Exhibits 1 through 5, which consist generally of samples of the material, as I understand it, in various stages. It might be helpful to identify each of these and its place in the product itself.

A The specified amount of the active chemical or concentrate is added to an oil such as a bunker fuel or Number 5 fuel oil, or low gravity asphalt base oil. In this condition it is delivered to the well location. At this time it is fluid. It would be similar to a thick drilling fluid, or to the viscosity of the oil itself.

Q Can any hydrocarbon base material which would be used as a mixing agent for this product, produce the end product?

A I would reserve the paraffin base oils as not applicable here. Asphalt could be added to a paraffin base to form this material, as has been done.

Q Is the oil which forms the base of this material exclusively a product of Ken Corporation, or is it obtained locally when an application is contemplated?

A The oil used in this material is obtained on a local basis from refineries that have a continuing stock of the particular oils. The oils used in our particular packer fluid are checked by the Ken Corporation or IMC, or both, to make sure on a laboratory basis that they will perform successfully in the field. There is no special additive to the oil other than the product we manufacture, and IMC distributes, with the exception of the catalyst, which in this case is an alkaline earth and, in our specific case, quicklime, which forms the gelling agent or creates the gelling properties and the high sheer strength. Until this catalyst is added to the combined oil and concentrate there is no thickening. Once it has been added a sheer strength develops. Exhibit 1 is a Ken pack manufactured concentrate, and the oil mixed. Exhibit 2 is the catalyst. Exhibit 3 is the typical packer fluid with the formula specified on the label of 91% of typical fuel oil from a refinery in Artesia, New Mexico and 9% of the concentrate manufactured by Ken Corporation and distributed by IMC, and six pounds per barrel of the cata-

lyst. This pack is weighted to ten pounds per gallon with barium sulphate. The reason for weighting the packing is obvious--some operators require a hydrostatic head between casing and formation, and between strings of casing or above a packer. I will not expand on that because the other witness will discuss it. Exhibit 4 is a recent downhole sample of a packer material engineered and sold by IMC to an operator in Texas. This material was weighted to 15.5 pounds per gallon, barium sulphate, and is typical of, I would say, three to four years' operation or history of operation in South Texas. Exhibit 5 is a packer fluid made with normal formulation of concentration and crude bottoms, the crude bottoms being from a refinery in Fort Worth. The pack was made up and allowed to build up sheers, and then removed from its glass container by breaking the container, and put into a 4% sodium chloride brine for approximately one month at 120 degrees Farenheit while it was ageing. It has been at room temperature since it was brought from California.

Q Does that conclude your discussion of the exhibits?

A I might further expand on this Kenpack. Obviously it is floating in the water, which indicates that the Kenpack can be made up with a density of less than one. A weight of 8.1 or 8.2 pounds per gallon is not unusual, and it is capable of being weighted above 16 pounds per gallon, and has been, in the field.

Q I'll move these down, if the Examiner cares to inspect them. Now, you mentioned earlier in your discussion, Mr. Lloyd, in your definition of the product and its properties, that it was resistant to corrosive material. Has this conclusion been reached as a result of actual application in the field, or as a result of laboratory experimentation, or how has that particular property been concluded to be one of this product?

A Basically it has been in the field--out in the field since 1949. It originated in California, because that's where the company was formed. It was used as a prctection for casing in a subsidence area in the Wilmington Field in southern California. There it was the practice to under-ream a section approximately between 1900 to 2300 subsurface to 22 to 30 inches diameter and pack this bell hole or enlarged hole with some material that would prevent communication of lateral movement of the very weak shale structure in the Wilmington Field. Earthquakes in the 1948 to 1953 period had destroyed or damaged approximately 160 wells for one operator and 140 for another, and the wells that were packed with this material were not damaged. There was no sheer of the casing, no collapse of the casing or rupture of the tubing or sucker rods. This material was also applied in the Lake Markibo area for the same problem--subsidence. Specifically, for corrosion inhibiting, there are many case histories from 1953 to the present in the state of

Kansas and in northwest and north Texas, in which Kenpack has been applied across known corrosive water sands. Accurate records of these wells are available from the operators that applied the material, and in investigating these records as much as we were allowed, it was obvious that those wells that had not used this material failed within several years, as compared to an average record of packed wells of 11 to 14 years without casing damage or repair. The presentation of these records would further our case immensely, but the information that is available to the company is not complete, and I felt that it would not be definitive enough to present.

Q Now, it was mentioned earlier by me, I believe, that it had been demonstrated that this product had great utility in those instances where cement in the course of circulation in connection with the setting of tubing or casing, had been lost to the formation, and that this product was able to overcome those difficulties. Would you elaborate on that to the extent you feel necessary.

A Since the practical weight of useful cement that would conform to API standards or to local regulations is of necessity not less than 10 pounds per gallon, surely, and usually 12 to 13 pounds per gallon, it has a tendency to seek the path of least resistance into a thief zone or weak zone. The packer fluid we are proposing is, as shown in one of the exhib-

its, capable of being made to a density of less than one. Specific gravity of less than one has been used on occasion by applying through a bradenhead down the anulus, and in some cases forcing what water is in the anulus ahead of the packer material back into the weak formation, and then standing in the anulus and developing the high sheer strength that it has, providing a pack or a sealing advantage for the anulus across the weak zone. This application has been limited, and one of the reasons for this hearing is so that we can have the opportunity to use it in this specific instance again. The cost of the material is comparable to cement. The practice of re-cementing in case of a failure is common. The practice of re-packing in case of a failure is not common. If a pack should for some reason fail, due to improper formulation or improper application, it would not be advisable from an engineering standpoint to re-cement, so that cost is only based on the initial application.

Q You have demonstrated during the course of your discussion that this material in the state it is in when it is delivered to the well, is readily pumpable. Would you explain the action or reaction that takes place which causes the material to develop the sheer strength you have mentioned.

A The chemicals included in the concentrates are similar to those use to develop grease--heavy industrial grease. They are partially--the fluid is partially fixotropic. I might

qualify that. It is fixotropic on moving; with agitation it is quite fluid. On quiescence it develops a lattice--you have a long chain pollamer assault team which forms a lattice, and there is a filler agent which fills in the holes or spongy gaps between this lattice to provide impermeable grease. The nature of the chemical is such that time and temperature have an effect on the ultimate sheer strength. We have shown in the field and in laboratory tests, and the holder of the patent test has shown in his work for the patent issue, that the ultimate sheer strength is attained within--90% of the ultimate sheer strength is attained within 24 hours.

Q How does the material react to high downhole temperatures?

A It would have a tendency to attain its high sheer strength at a more rapid rate, and maintain it. Specifically, we are using it in an area at 400 degrees Farenheit, with no pressures, and it maintains its characteristics--it does not become fluid, it has the high sheer requirements necessary to keep it in place, which is one of the main requirements for a packer fluid--that it should not migrate of its own volition, or be forced to migrate from oil pressure or gas.

Q Mention was also made of the use of this material to facilitate casing recovery. Would you explain how this is possible.

A This packer fluid has been on occasion, over the last

eight or ten years, placed in the anulus between casing and open hole, and should a well prove to be dry or non-productive, the casing can be cut above the cement point and worked or moved up and down to partially break down some of the high-gell strength adjacent to the pipe. This movement allows the pipe to work free and be pulled and salvaged. In most cases the packer material has been weighted to the same weight or above the weight of that required for the drilling fluid, when running casing. The success ratio has been extremely high, and the economics is very advantageous on large diameter, expensive casing. Should the well be productive and the operator chose to pack it for casing recovery, he automatically has an insulating material that will prevent normal corrosion from corrosive water sands.

Q Is this material normally used across productive zones?

A No, it isn't.

Q Do you have anything further you would like to add, Mr. Lloyd?

A Just to that question--unless the productive zone was intentionally meant to be shut off. The Kenpack would do that job.

Q Is there anything further?

A Nothing further.

MR. SPERLING: That's all we have on direct at this time. Are there any questions of Mr. Lloyd?

MR. NUTTER: Mr. Lloyd, as I understand it, you've got a product here which is composed of a fuel oil, an alkaline earth and some gell-building pollamers, essentially?

A Yes.

Q You've got limestone here, or quicklime, and fuel oil. Now, the concentrate is the gell-building pollamers?

A Yes. The sample we have is a combination.

Q This has a concentrate in it?

A Yes.

Q Are similar gell-building pollamers manufactured and used by other companies than Kenpack, or instead of saying "similar gell-building pollamers," should I say pollamers which would cause quicklime and fuel oil to set?

A Similar products are manufactured. I don't know what is in those packer materials.

Q There are other packing materials that you are aware of, which use quicklime and fuel oil?

A Some of them do, yes, sir.

Q The catalyst for causing setting is the quicklime, isn't it?

A Yes.

Q And in addition to fuel oil, quicklime and the concentrate, you can or cannot add other materials?

A Yes, sir.

Q Are lining materials ever added?

A Yes, sir, pearlite and salt has been added. Gilsonite could be added.

Q You stated that if a well were cemented with portland cement and the cement failed, it could be re-cemented. You also stated that if you had packing material failure for some reason it would not be recommended to try to remedy that. What would you do then?

A Well, I said it ordinarily wouldn't be done. It was a safe statement, because we haven't had any packs that have failed.

Q Well, we might have one some day. What would your recommended procedure be to repair a packing failure?

A Here we're trying to present something that will solve a failure of cement. I don't know anything that would solve a failure of packer fluid, unless it would be one of these plastic materials that Halliburton and some of these companies have.

Q Have you ever used this where you perforated and squeezed the material?

A Yes.

Q And if you held the pressure for 24 hours and then released the pressure, would the stuff stay there or flow back in the well?

A In cases where we did this they were directly on

the bottom of the well. We wanted to shut off perforations and do work above the packer. They went in and set the packer material, and as soon as they made a round trip, 5500 feet, they were able to work above the zone they had isolated without any production from below them. The amount of concentration can be adjusted to give a higher sheer rate, so that you could have 90% of the ultimate sheer strength within two or three hours. The statement that it attains 90% of its sheer strength within 24 hours is more broad and would cover more normal applications of Kenpack.

Q The application of temperature to the packing material after the packing material has set does not reduce its sheer strength?

A No, it would have a tendency to either increase it or stabilize it.

Q And the high temperatures increase the setting time, also, is that right?

A Yes.

Q But high temperatures don't detract from the sheer strength after it's set?

A That's right. In the case of New Mexico oils, I might mention that since a lot of heavy gravity oils will set to packing consistency at cool temperatures, we make it a practice of heating the finished packer fluid so we know the packing

property is coming from the chemical and not from the oil.

Q In the event a string of pipe were cemented in a well with 200 feet of portland cement at the bottom of the production string, and then 1,000 feet of packing material above that, and that there was a productive zone not known to exist in the interval where the packing material was, what would be the procedure if it was discovered that this pay zone was there, for clearing the zone so it could be produced at that interval?

A If the packer fluid was put in place with a DV tool and that DV tool could be reopened, it could be circulated out with extreme pressures. It would take--this has not been done. Packs have been in place and the DV failed to close, in which case the operator chose to circulate out the pack and cement, because there was some doubt in his mind as to how effective the Kenpack job was.

Q In the event that packing material had been pumped down the casing ahead of the cement, and you had packing material coming in the upper anulus, and you didn't have the DV tool in there, and you found out later that this pay was there and you perforated into the pay, could you circulate the packing material out above that?

A It has never been done--I would say it would not be readily possible. It's there to stay, ordinarily. There has

been one instance where the casing and packer fluid have been perforated, and gas has been produced from behind a Kenpack.

Q Without attempting to move the Kenpack out--just perforate it?

A Yes. This is the only instance I know of--there may be others, but operating companies of course don't follow up this type of information back to a supplier.

Q I realize this is non-soluble in salt and fresh water, and resistant to acids; but is it non-soluble in hydrocarbons?

A Once it is in place it isn't readily moved by any force. The tests we have made have been static only, in applying distillate or crude oil, such as stinking lake crude or 31 gravity crude, putting them in a high temperature seal to apply pressure, and gave them sufficient temperature similar to bottom hole temperature, and when the seals were cooled and pressure released there was no tackiness between the crude and the pack. But those tests could be made to prove this point. That was a static test, a dynamic test--the Kenpack has not been ordinarily placed across a productive interval, only across gas or corrosive water or fresh water, so I couldn't record any success or failure across a productive interval.

Q Do you have any knowledge of the resistance of the material where it was placed across an aquifer, where there was movement of the water?

A Only in a case where it has been placed across an aquifer in Kansas or north Texas. There has been no communication outside the casing, and where there was corrosive water there was no corrosion.

Q Have any laboratory tests been conducted to measure the material's resistance to erosion by moving water?

A No, because in each instance--in each area the packer material would be made with a different type of oil and at a different weight, and subjected to a different bottom hole temperature, and if this test was required it would be run.

Q Is there an actual measurement of this ultimate sheer strength this material attains?

A Yes, we have measured the sheer strength by the regular sheerometer, the mud sheerometer used in drilling mud, and also used in packer fluid, and we have used metal tabs with a known area placed into a pack, and pulled at various periods of time by a known weight over a frictional bearing system, and then worked back to the sheer strength necessary to move these tabs, expressed in pounds per hundred square feet, which is the API measurement of the sheer strength.

Q What is the sheer strength with a mud sheerometer?

A In some cases where you don't require a high sheer, as low as 250 pounds per hundred square feet. In cases where you want an extremely high sheer, 600 to 800 pounds per hundred

square feet.

Q It isn't recommended by Kenpack or International Minerals that this material be used in lieu of cement on surface pipe, is it?

A It is not.

MR. NUTTER: I believe, Mr. Sperling, that the paragraph you are referring to, where it mentions exceptions which can be granted by the field Commission, is limited to surface pipe, so this paragraph would not be applicable if the product was not used on the surface. I'm familiar with the reasoning behind that particular paragraph, and there is an area in Eddy County where it is impossible to use this, and that was put in with that one particul- area in mind. Mr. Lloyd, in your experience have you found, in cementing production pipe and preceding the cement with the packing material, that there is any prudent limitation as to the distance in which this material should come to the upper perforation? In other words, you have cement around the shoe and pipes and then you have perforations in the pipes and then at some point above that is the top of the cement, and above that the packing material. In your experience have you formed any opinion as to the desired height above the perforation?

A No, it hasn't been our jurisdiction to determine that.

Q You don't make a recommendation as to how close this

should come to the pay?

A No, Ken Corporation has not been required to do that. It may be just that in the area where I have had my experience, the programs are well defined; the people are sufficiently conversant or knowledgeable that they know where they want to put it.

Q In California this application was used in a reamed section, 19-2300?

A Yes, and for shutting off the gas in the bottom of the well, or water in the bottom of the well. We don't have the problems you have here--in most instances we recommend that it be brought up to the next string or into the surface casing, and in many instances we recommend that it be circulated completely around--positive displacement, in other words.

Q Is it possible to ascertain the top of this material by a temperature or other survey?

A I would have to forego that answer, because the other witness would have that answer from field experience.

Q Is heat generated by the setting process?

A I think there would be a compensating effect. The oil as it is delivered is usually hot, and as it cools and as reaction of the catalyst accelerates, they must pass a point where one cools faster. I wouldn't put any importance on the heat.

Q Have the bonding logs been run opposite this material?

A Yes.

Q With positive results?

A Yes, for casing recovery they have determined this.

MR. NUTTER: Are there any other questions of Mr. Lloyd? ... He may be excused.

MR. SPURLING: The next witness is Mr. Purvis.

D E L P U R V I S, having been duly sworn, took the stand, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q State your name, place of residence and occupation, Mr. Purvis.

A Del Purvis, 6050 Warm Springs, Houston, Texas.

Q By whom are you employed?

A IMC Drilling Mud.

Q In what capacity?

A Production manager. In charge of all special products.

Q That includes the product that has been under discussion in the course of this hearing?

A Yes, sir.

Q Have you testified before the Commission at a hearing here prior to this occasion?

A No, sir.

Q Would you outline for us briefly your educational and experience background, with particular reference to matters under consideration here.

A Three and a half years at the Petroleum Engineering School, University of Oklahoma; four years as acidizer tester and engineer for Halliburton; I have been with a distributor of these products for the past eight years in a sales and service engineering capacity.

Q What do your duties include in connection with the use of this product through your employer?

A I do all the promotional material, plus having a staff of engineers who report to me to see that materials are properly serviced in the field.

Q Have you been working with this particular product in its field application for the eight-year period you have mentioned?

A Yes, sir, I have been, in the state of Texas, Louisiana and some experience in the southeastern corner of New Mexico, and Oklahoma and Kansas.

MR. SPERLING: Are Mr. Purvis's qualifications acceptable?

MR. NUTTER: Yes, sir.

MR. SPERLING: Mr. Purvis, discussion of this particular product by Mr. Lloyd has been with particular reference

to its component parts, its properties, its resistance to certain instances, and it is our proposal in the presentation of your testimony to place as a part of this record, the uses of this particular material in actual field application, in the light of the background of your field experience which you have mentioned. I would like for you at this time to advise the Examiner of the recommended procedures in the instances where you would recommend use of this, in order to accomplish the purposes which are set forth so far as Rule 107 of the New Mexico Oil Conservation Commission Rules are concerned, with particular reference to protecting adequately the oil or natural gas bearing strata to be produced, and in addition thereto, the use of this material as necessary in order to seal off the oil, gas and water strata which may be encountered in the well.

A First of all I'd like to say that we do not recommend use of this material or this type of material to be placed across oil or gas producing strata. For the matter of record, we are making recommendations only for the water strata or shale sacs, or other strata other than oil and gas producing zones. For protection of water strata we recommend procedures for application of oil base casing pack, subject to administrative approval: One, displace oil drilling fluid from the anulus with oil base pack from top of the cement back to surface. Two, displace oil drilling fluid from 500 feet below

from 500 feet below the bottom water strata to the surface with oil base packing material through a stage tool. Three, circulate sufficient oil base packing material by volume ahead of a mud spacer followed by cement to fill from 500 feet below the bottom water strata to surface, with a retainer basket on the casing at the bottom of the oil base pack. Other methods of application may be used, subject to administrative approval of the New Mexico Conservation Commission. It would be almost impossible to bring up every situation that may arise in the field. This could be bradenhead squeeze or perforation, and circulation back, or running a vent string macaroni strip down the outside and circulating the Kenpack back. These are circumstances that will come up from time to time, but it would be under the administrative approval of the Commission.

Q Do you have available for inclusion in the record, diagrams which would be illustrative of the processes you have described?

A I have a diagram showing complete displacement with Kenpack from the top of the cement back to the surface.

Q That is Number 1, I think?

A That's right. The second diagram shows the use of a staging tool. However, it could be used also to explain the third application, by eliminating the staging tool which is colored in red, and showing displacement around the shoe with drilling mud between the cement and the Kenpack. Drilling

mud is colored yellow; the Kenpack is black; the cement is gray and the casing brown.

Q Before you continue, let's get the last diagram marked.

(Exhibit 7 marked for identification.)

Q Now, you have explained these applications--what would they do--what is their designed purpose?

A The designed purpose of each application--the first application would be for recovery of casing and also protection of all water strata from the bottom of the surface casing down to the top of the cement. The second application use, or the third application, whichever might be applicable at the time, indicates a lot of wells which have to have casing set in order to test and find out if they are productive; and by using Kenpack at this time they are able to recover the casing if they are not productive; and also they have complied with field rules and regulations in protecting water strata if it is productive. Also it has been used in other areas to eliminate long surface strings.

Q Now, would application as you have described it represent any departure from the cementing requirements as they presently exist, as you understand them?

A Not if sufficient surface pipe was set, they would not deviate from the field rules. I would like to make, if I might, as a matter of record, an answer to two of the questions

the Examiner asked of the other witness, at this time. One was as to placing this type of material over a producing formation. The answer to that is block squeeze. This is just about the only answer, and it has been done quite a number of times.

MR. NUTTER: With cement?

A Yes--perforate above and below the producing zone and block squeeze, and perforate the producing zone itself.

Q And the material would be in between the two cemented sections after you squeezed above and below; or do you presume the cement would come together?

A We have found with high pressures that we have been able to force the pack back down the formation, or up and down enough to block squeeze; but we have been successful in about 25 cases of block squeezing. The other alternative has been to remove the large diameter casing and go in and set a small diameter casing in the hole. But normally a block squeeze is the answer, and then perforate directly into the pay. The other is on the temperature survey--you asked about that. We have in the past on numerous occasions run temperature surveys. However, you are limited to about four hours from the time the material is in place to get your temperature gradients on the log, to definitely show a top and bottom to this type of material.

Q If you cement it according to your third method, you would have cement at the bottom and then a mud interval and then packing material above that. The temperature survey would show the top of the cement and the bottom of the packing material and the top of the packing material.

A Yes, if it was run within four hours, or just as soon after pumping.

Q That might be a little early, but you could run a temperature survey later for cement?

A Yes, by the time you checked your packing material you could run a temperature survey on the bottom cement.

MR. SPERLING: Would you explain the procedure referred to by Mr. Lloyd in connection with the loss of circulation so far as initial cementing is concerned, and your actual field application of this material in those instances where cement could not be circulated?

A Well, the density of this type of material ranges anywhere from eight pounds, and we have on one occasion gone up to 17½ pounds per gallon. Therefore we have been able to circulate this material by known loss circulation zone areas. The cement that would be sufficient to set up and pass the test as set forth by the standards would not go by the zone, and we have been able to protect a lot of fresh water sands in this manner, and we have also gone in old sands and done a braden-head squeeze job where loss of circulation has occurred with

the cement. There has been another application not too far from the Texas-New Mexico line with a salt water flow, where this type material is circulated ahead of the cement, which usually is 500 feet or 1,000 feet of the cement on the bottom of the production string with this type of material to come back of the salt water flow; then from the top sufficient packing material was pumped down to get to this salt water flow, squeezed back into it, and it has formed a definite positive shut-off in this water, and in several cases casing has been pulled and the pack has held the water flow in check by just squeezing the pack into the formation.

Q Would it be possible to perform the same operation with cement?

A It is doubtful that cement would go down the outside --that you would be able to pump it down the outside and get it where you wanted it. This type of operation is not the best, for any time you braidenhead squeeze you have upper zones that are subject to breaking down--there is always this possibility, so it's one of the risks involved in this type of application.

MR. SPERLING: I believe that's all the questions I have at this time.

MR. NUTTER: Mr. Purvis, I asked Mr. Lloyd a while ago if Kenpack recommended any minimum distance at which the top of the cement should come above the uppermost perforation

in the well. Does IMC make any recommendation to its clients in this regard?

A We normally recommend at least 500 feet of cement from the bottom of the pipe and two to 300 feet above the top of the perforations. We don't have any basis for this, other than just past experience, and the cement itself has a scouring effect on the casing, removing oil substance which normally clings to the pipe, so we feel that the more cement is used, the better possibility of a good bond you will have to the pipe and the formation, and in most cases we recommend more cement than operators are required to run.

Q In other words, you recommend 500 feet above the casing shoe, or 200 feet above the perforations, whichever is higher?

A A minimum of 200.

Q Now this mud plug which comes in between the cement and the packing material should be approximately what length?

A It will be from the top of the cement up to the Ken-pack.

Q You recommend a mud spacer, and you do not recommend that cement and packing material be run in conjunction with each other?

A No, sir, because the quicklime used in that material could flash that cement, so we always use five barrels of some-

thing, either diesel water or mud, depending on the casing and the temperature.

Q Five barrels of insulating material?

A Yes.

Q And of course if you were using in the zone on Exhibit 7, the amount of mud would be--

A That would be, in that case, 150 barrels, but in any event, we recommend a minimum of five barrels between the oil base pack and the cement.

Q You have been selling this stuff in Texas?

A Yes, sir.

Q You've got some pretty high temperature sands down in the southern part of the state?

A Yes, sir.

Q Is the product used in the southern part of the state?

A Yes.

Q Has there been any difference in the performance of the material in a comparatively cool formation, as opposed to a hot formation?

A The only difference is in the thermal expanse of the material itself. After being circulated back to the surface it indicates a surface pressure between the surface casing and the production string which reads off to zero in a matter of two to eight hours.

Q This pressure resulted from the therman expansion?

A Yes. We have packed 14,000 feet at bottom hole temperatures in excess of 250 degrees, with no adverse conditions.

MR. NUTTER: Are there any questions by anybody of Mr. Purvis? He may be excused. Mr. Sperling, do you have anything further?

MR. SPERLING: Only to offer Exhibits 1 through 7, Mr. Examiner.

MR. NUTTER: Exhibits 1 through 7 will be admitted into evidence. Does anyone have anything further they wish to offer in Case Number 3167?

MR. TSCHIRLEY: If you please, sir, my name is Tschirley and I am with the Baroid Division of National Drilling Company.

MR. NUTTER: What is your full name?

MR. TSCHIRLEY: Norman K. Tschirley. If the examiner please, I should like to give formal expression to our support for this application.

MR. NUTTER: Thank you. Does anyone else have anything further to offer? I think we might have a letter--we had been advised by the State Engineer that there was a letter forthcoming regarding this case; however, it doesn't seem to have arrived yet.

MR. SPERLING: The hearing is concluded?

MR. NUTTER: Let me look in the case file and see if there is anything in the case file. If there is nothing further in Case Number 3167, we will take the case under advisement.

* * *

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do certify that the foregoing transcript in Case Number 3167, made by me, is a true and accurate record of proceedings to the best of my knowledge, skill and ability.

Witness my hand and seal this 22nd day of December, 1964.

Elizabeth K. Hale
Notary Public and Court Reporter

My commission expires

May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3167, heard by me on 12/15, 1964.

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

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico

Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER

P. O. BOX 871
SANTA FE

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

December 29, 1964

Mr. James E. Sperling
Modrall, Seymour, Sperling,
Roehl & Harris
Attorneys at Law
1200 Simms Building
P. O. Box 466
Albuquerque, New Mexico

Re: Case No. 3167
Order No. R-2856
Applicant:
IMC DRILLING MUD

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.

A. L. PORTER, Jr.
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC x
OTHER Mr. Norman K. Tschirley - Baroid Division
National Lead Co., Midland, Texas

LAW OFFICES OF
MODRALL, SEYMOUR, SPERLING, ROEHL & HARRIS
SIMMS BUILDING
P. O. BOX 466
ALBUQUERQUE, NEW MEXICO 87103
AREA CODE 505
TELEPHONE 243-4511

J. R. MODRALL
AUGUSTUS T. SEYMOUR
JAMES E. SPERLING
JOSEPH E. ROEHL
GEORGE T. HARRIS, JR.
DANIEL A. SISK
LELAND S. SEDBERRY, JR.
ALLEN C. DEWEY, JR.
FRANK H. ALLEN, JR.
JAMES P. SAUNDERS, JR.

JAMES A. PARKER
HENRY G. COORS

JOHN F. SIMMS (1885-1954)

'64 DEC 24 AM 10

December 23, 1964

Called Sperling 12/29: no conference will be necessary
12/29

Mr. Daniel S. Nutter
Chief Engineer
New Mexico Oil Conservation Commission
Post Office Box 2088
Santa Fe, New Mexico

Re: Case No. 3167, Application of IMC Drilling Mud, a Division of International Minerals and Chemical Corporation, for Amendment of Commission Rule 107.

Dear Mr. Nutter:

As you know, this matter was heard by you at an Examiner Hearing on December 15, 1964, at which time inquiry was made by you as to whether the applicant desired to submit specific language relating to the proposed rule amendment. At that time, you were advised that the applicant had no specific language to submit, and the suggestion was made that if the applicant received a favorable consideration, a conference with Commission staff personnel might be arranged for the purpose of arriving at, through collective thinking, satisfactory language to be included as a part of the Rule.

The purpose of this letter is to restate the position of the applicant in this regard. Should it appear that the application is favorably received, I, as attorney for the applicant as well as technical personnel employed by the applicant, will be most happy to confer with you and such other members of the Commission staff as might be appropriate to the end that proper language within the limitation of the Commission's decision might be drafted. Such a conference will be arranged at your convenience.

Best wishes to you and the other members of the Commission staff.

Sincerely yours,

James E. Sperling

cc: Mr. Del Purvis

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

December 14, 1964

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

'64 DEC 16 AM

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the Application of IMC Drilling Mud which seeks a revision of Commission Rule No. 107, which is docketed as Case 3167.

This office offers no objection to the granting of the application provided the following language is stricken from paragraph 2:

"that said materials will adequately protect the oil, natural gas or water bearing strata encountered in the course of drilling a given well" and substitute in lieu thereof the following language:

"that said materials will confine the oil, natural gas or water to the strata in which it is encountered except the oil, natural gas or water proposed to be produced from the subject well."

Yours truly,

S. E. Reynolds
State Engineer

By: Frank E. Irby
Frank E. Irby
Chief
Water Rights Div.

FEI/ma
cc-F.H.Hennighausen w/c of
Application

DOCKET No. 33-64

DOCKET: EXAMINER HEARING - TUESDAY - DECEMBER 15, 1964

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 3154: (Continued from the November 24th examiner hearing) Application of Atlantic Refining Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Culwin Queen Unit Area comprising 820 acres, more or less, of State and Federal lands in Townships 18 and 19 South, Ranges 30 and 31 East, Eddy County, New Mexico.

CASE 3155: (Continued from the November 24 examiner hearing) Application of Atlantic Refining Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Shugart Pool in its Culwin Queen Unit Area by the injection of water into the Queen formation through six injection wells in Section 36, Township 18 South, Range 30 East, Section 31, Township 18 South, Range 31 East, Section 1, Township 19 South, Range 30 East, and Section 6, Township 19 South, Range 31 East, Eddy County, New Mexico.

CASE 3163: Application of Gulf Oil Corporation for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 120-acre non-standard gas proration unit comprising the E/2 SE/4 of Section 28, and the NE/4 NE/4 of Section 33, Township 21 South, Range 37 East, Blinebry Gas Pool, Lea County, New Mexico. Said unit to be dedicated to its J. N. Carson Well No. 6 located in Unit P of said Section 28.

CASE 3164: Application of Gulf Oil Corporation for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its W. A. Ramsay (NCT-A) waterflood project, South Eunice Pool, to include one additional water injection well to be located approximately 1320 feet from the South and West lines of Section 34, Township 21 South, Range 36 East, Lea County, New Mexico.

CASE 3165: Application of Sam Boren & Major & Giebel Oils for a non-standard proration unit, Lea County, New Mexico. Applicants, in the above-styled cause, seek approval of a 104.18 acre non-standard oil proration unit comprising all of lots 1 and 2 of Section 1, Township 11 South, Range 33 East, South Lane Pool, Lea County, New Mexico, to be dedicated to a well to be drilled within 150 feet of the center of said lot 1.

CASE 3166: Application of Tenneco Oil Company for four non-standard proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of the following four non-standard oil proration units in the South Lane Pool:

Unit No. 1, 93.61 acres comprising the E/2 SE/4 and Lot 1 of Section 6, dedicated to applicant's State "E" Well No 1 located in Unit P of Section 6;

Unit No. 2, 93.24 acres comprising the W/2 SE/4 and Lot 2 of Section 6, dedicated to applicant's State "E" Well No. 2 located in Unit J of Section 6;

Unit No. 3, 92.87 acres comprising the E/2 SW/4 and Lot 3 of Section 6, dedicated to applicant's State "F" Well No. 1 located in Unit K of Section 6;

Unit No. 4, 81.76 acres comprising Lots 4, 5, and 6 of Section 6, dedicated to a well to be drilled 100 feet North of the center of Lot 5 of Section 6, all in Township 11 South, Range 34 East, Lea County, New Mexico.

CASE 3167: Application of IMC Drilling Mud, a division of International Minerals and Chemical Corporation for an amendment of Rule 107. Applicant, in the above-styled cause, seeks an amendment to Rule 107 of the Commission Rules and Regulations to provide an administrative procedure whereby oil-base casing packing material could be used in lieu of a portion of the portland cement normally used in cementing oil well casing.

CASE 3168: Application of Jake L. Hamon for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres, Glorieta and Yeso formations through the open hole interval from 5000 feet to 9000 feet in its Fannye M. Holloway Well No. 1 located in Unit B of Section 13, Township 17 South, Range 38 East, South Knowles Devonian Pool, Lea County, New Mexico.

CASE 3169: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the E/2 of Section 14, Township 29 North, Range 11 West, San Juan County, New Mexico.

CASE 3170: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the E/2 of Section 8, Township 30 North, Range 13 West, San Juan County, New Mexico.

CASE 3171: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the S/2 of Section 23, Township 29 North, Range 11 West, San Juan County, New Mexico.

CASE 3172: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the S/2 of Section 21, Township 29 North, Range 10 West, San Juan County, New Mexico.

CASE 3173: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the S/2 of Section 31, Township 30 North, Range 12 West, San Juan County, New Mexico.

CASE 3174: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the N/2 of Section 28, Township 29 North, Range 10 West, San Juan County, New Mexico.

CASE 3175: Application of Pan American Petroleum Corporation for an amendment of Order No. R-2424, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Order No. R-2424, Special Pool Rules for Fowler Blinebry Pool to provide a limiting gas-oil ratio for oil wells in said pool of 6000 cubic feet of gas per barrel of oil.

CASE 3176: Application of Texaco Inc. for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the triple completion (tubingless) of its C. C. Fristoe "b" (NCT-2) Well No. 9, located in Unit C of Section 35, Township 24 South, Range 37 East, Lea County, New Mexico, to produce oil from the Langlie Mattix, Justis Blinebry and North Justis Tubb-Drinkard Pools through 2-7/8 inch casing cemented in a common wellbore.

CASE 3177: Application of Sinclair Oil & Gas Company for an amendment of Order No. R-1148, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-1148, which order authorized a 160-acre non-standard Tubb gas pool proration unit comprising the W/2 SW/4, SE/4 SW/4, and SW/4 SE/4 of Section 26, Township 21 South, Range 37 East, Lea County, New Mexico, to be dedicated to its J. R. Cone Well No. 1 located in Unit M of said Section 26. Applicant seeks the rededication of said unit and the allowable accrued thereto to its J. R. Cone Well No. 2 located in Unit L of said Section 26.

CASE 3178: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) A Unit Area comprising 16,895 acres, more or less, of Federal, State and Fee lands in Townships 6 and 7 South, Ranges 25 and 26 East, Chaves County, New Mexico.

CASE 3179: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) B Unit Area comprising 20,456 acres, more or less, of Federal, State and Fee lands in Township 7 South, Range 26 East, Chaves County, New Mexico.

CASE 3180: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) C Unit Area comprising 15,081 acres, more or less, of Federal, State and Fee lands in Townships 7 and 8 South, Range 25 East, Chaves County, New Mexico.

CASE 3181: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) D Unit Area comprising 15,925 acres, more or less, of Federal, State and Fee lands in Township 8 South, Ranges 25 and 26 East, Chaves County, New Mexico.

CASE 3182: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) E Unit Area comprising 12,323 acres, more or less, of Federal, State and Fee lands in Townships 8 and 9 South, Range 25 East, Chaves County, New Mexico.

CASE 3183: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) F Unit Area comprising 22,049 acres, more or less, of Federal, State and Fee lands in Townships 8 and 9 South, Ranges 25 and 26 East, Chaves County, New Mexico.

CASE 2660: (Reopened and continued from the November 12, 1964 examiner hearing) In the matter of Case No. 2660 being reopened pursuant to the provisions of Order No. R-2348-A, which continued the original order establishing 80-acre proration units for the Middle Lane-Pennsylvanian Pool, Lea County, New Mexico, for an additional year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units. Midwest Oil Corporation also requests that the Middle Lane-Pennsylvanian Pool Rules, in addition to being made permanent, be amended to provide the definition of the vertical limits of said pool and the deletion of the fixed well location requirements as provided by said Order No. R-2348.

CASE 3184: Application of Benson-Montin-Greer Drilling Corporation for an amendment of Order No. R-2565, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-2565 to permit the shutting-in of wells for interference tests, to permit the accumulation and transfer of back allowables for said shut-in wells, and to permit a transfer well to produce its own allowable plus a transferred allowable up to 100% of 1 top unit allowable for the Puerto Chiquito-Gallup Oil Pool at anytime during the period of one year after the original assignment of said allowable.

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF IMC DRILLING MUD, A DIVISION OF INTERNATIONAL MINERALS AND CHEMICAL CORPORATION, RELATING TO THE REVISION OF COMMISSION RULE NO. 107 TO PROVIDE FOR THE USE, UPON ADMINISTRATIVE APPROVAL, OF OIL BASE MATERIALS IN CONJUNCTION WITH THE SETTING OF CASING AND TUBING STRINGS.

Case No. 217

APPLICATION

1. IMC Drilling Mud, a division of International Minerals and Chemical Corporation of Houston, Texas, requests the revision of Commission Rule No. 107 to permit, following administrative approval by the Commission, the use of oil base materials in conjunction with the setting of casing and tubing in wells drilled for oil or natural gas.

2. Applicant requests the promulgation of an Order revising Rule No. 107 to provide that, upon proper application to the Commission, administrative approval may be granted for the use of said oil base materials upon a proper showing, as a basis for such administrative approval, that said materials will adequately protect the oil, natural gas or water bearing strata encountered in the course of drilling a given well.

3. Applicant requests that this matter be set for hearing in accordance with the rules of the Commission and the laws of the State of New Mexico, and that following such hearing, administrative approval be authorized upon proper application and the furnishing of such information as the Commission may require for the use of such oil base materials.

DOCKET MAILED

Date

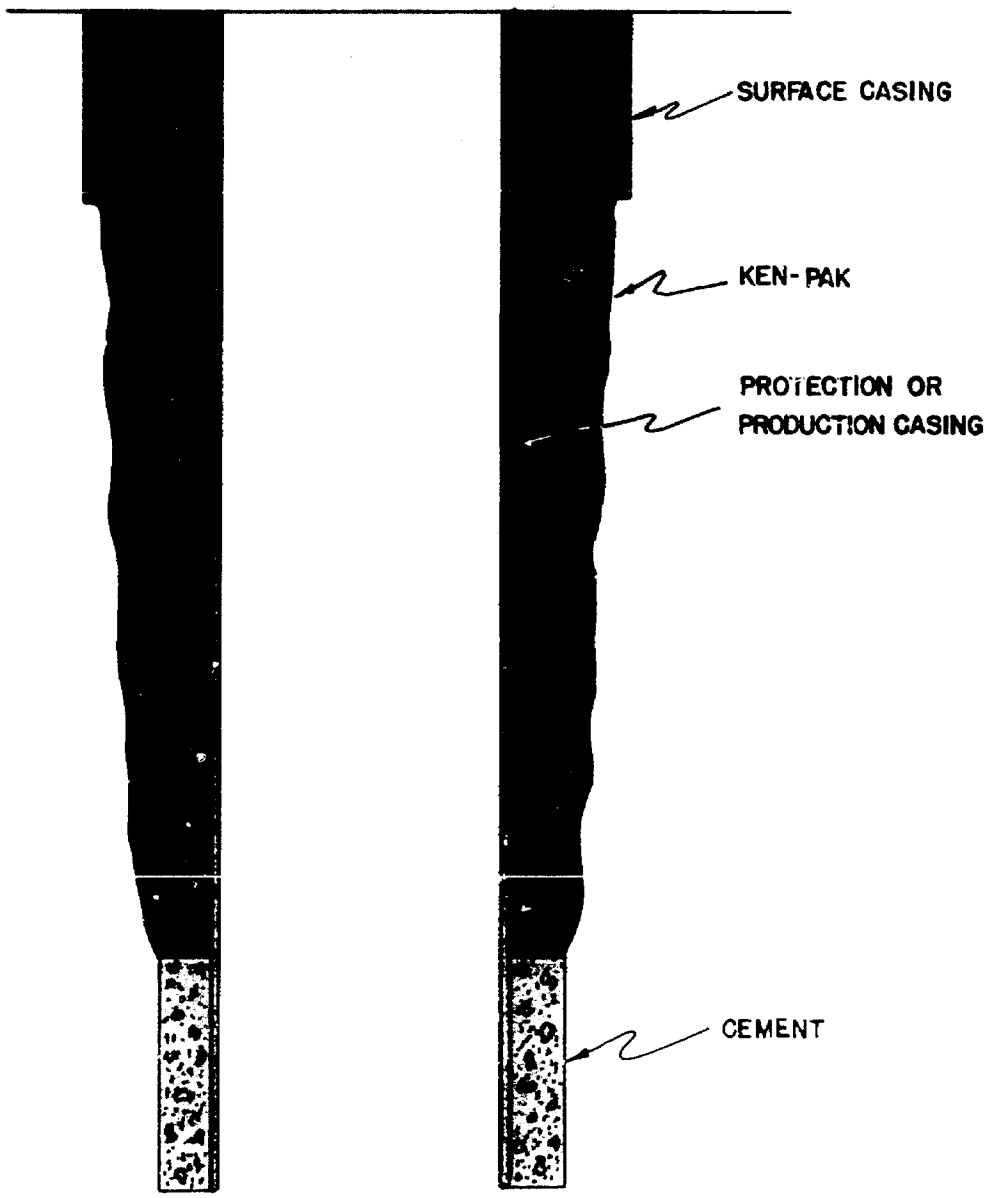
IMC DRILLING MUD, a division of INTER-
NATIONAL MINERALS AND CHEMICAL CORPORATION

BY MODRALL SEYMOUR SPERLING ROEHL & HARRIS

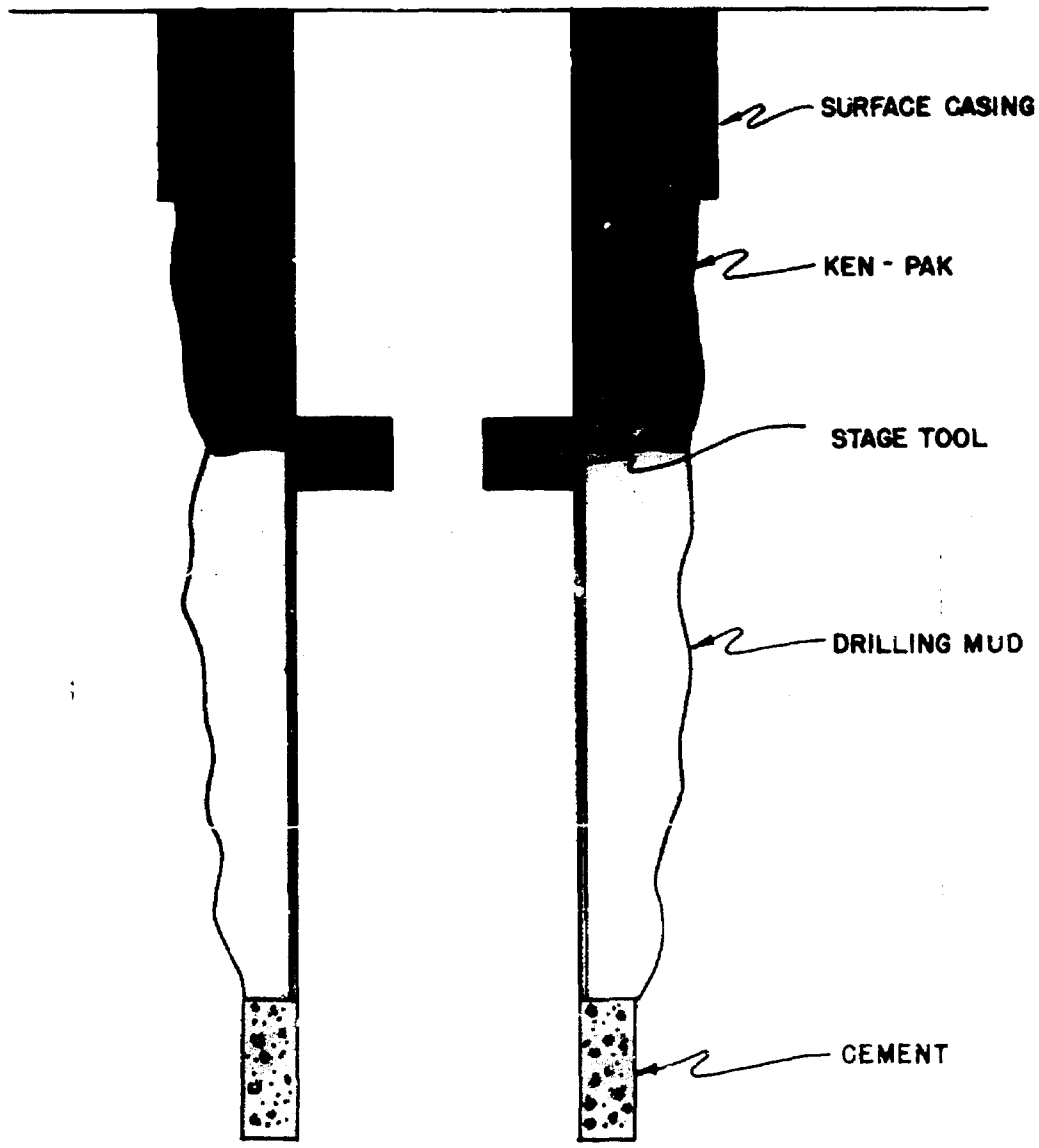
By _____

Attorneys for Applicant
1200 Simms Building
P. O. Box 466
Albuquerque, New Mexico

CASING RECOVERY
CORROSION PROTECTION OF WATER SANDS



PROTECTION OF WATER SANDS



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. 3167
Order No. R-2856

APPLICATION OF IMC DRILLING MUD,
A DIVISION OF INTERNATIONAL MINERALS
AND CHEMICAL CORPORATION FOR AN
AMENDMENT OF RULE 107.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on December 15, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 29th day of December, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That certain oil-base casing packing materials have been developed and are available to the oil and gas industry for use in cementing oil and gas well casing in the wellbore.

(3) That it appears that the use of such materials in lieu of conventional-type hard-setting cements is, under certain conditions, particularly effective in sealing off water producing zones and preventing casing corrosion.

(4) That under such conditions the use of such materials will prevent waste; that such materials should be authorized for use in cementing intermediate and production casing strings.

IT IS THEREFORE ORDERED:

(1) That Section (a) of RULE 107, CASING AND TUBING REQUIREMENTS, of the Commission Rules and Regulations be amended

to read in its entirety as follows:

"(a) Any well drilled for oil or natural gas shall be equipped with such surface and intermediate casing strings and cement as may be necessary to effectively seal off and isolate all water-, oil-, and gas-bearing strata and other strata encountered in the well down to the casing point. In addition thereto, any well completed for the production of oil or natural gas shall be equipped with a string of properly cemented production casing at sufficient depth to ensure protection of all oil- and gas-bearing strata encountered in the well, including the one(s) to be produced.

Sufficient cement shall be used on surface casing to fill the annular space behind the casing to the top of the hole, provided however, that authorized field personnel of the Commission may, at their discretion, allow exceptions to the foregoing requirement when known conditions in a given area render compliance impracticable.

All cementing shall be by pump and plug method unless some other method is expressly authorized by the Commission.

All cementing shall be with conventional-type hard-setting cements to which such additives (lighteners, densifiers, extenders, accelerators, retardars, etc.) have been added to suit conditions in the well.

Authorized field personnel of the Commission may, when conditions warrant, allow exceptions to the above paragraph and permit the use of oil-base casing packing material in lieu of hard-setting cements on intermediate and production casing strings; provided however, that when such materials are used on the intermediate casing string, conventional-type hard-setting cements shall be placed throughout all oil- and gas-bearing zones and throughout at least the lowermost 300 feet of the intermediate casing string. When such materials are used on the production casing string, conventional-type hard-setting cements shall be placed throughout all oil- and gas-bearing zones and shall extend upward a minimum of 500 feet above the uppermost perforation or, in the case of an open-hole completion, 500 feet above the production casing shoe.

All casing strings shall be tested and proved satisfactory as provided in paragraph (c) below."

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell

JACK M. CAMPBELL, Chairman

E. S. Walker

E. S. WALKER, Member

A. L. Porter, Jr.

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

ir/