CASE 7412: GULF OIL CORPORATION FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO

CASE NO.

7412

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS,

ETC.

Gulf Oil Exploration and Production Company

January 13, 1982

J. M. Thacker
GENERAL MANAGER PRODUCTION
SOUTHWEST DISTRICT

P. O. Drawer 1150
Midland, TX 79702

State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Joe D. Ramey

Gentlemen:

Re: Application for De Novo Hearing
Case 7412, Order R-6859
Lea "ZD" State No. 1 SWD
Lea County, New Mexico

On December 18, 1981 the Division Director denied Gulf's application to utilize its Lea "ZD" State Well No. 1, located in Unit M of Section 30, Township 18 South, Range 35 East, NPPM, Air-Strip Field, Lea County, New Mexico, to dispose of produced salt water in the open hole interval from 4375 feet to 7452 feet.

In compliance with the 30 day time limit for filing for a de novo hearing, as set out in Rule 720, Gulf Oil Corporation respectfully requests a hearing de novo in this matter before the New Mexico Oil Conservation Commission. It is further requested that this matter not be set on the calendar until further consultation with you has been made.

Well P+A
5/5/83

Yours very truly,

F. H. Martin
Technical Manager

CFK/pr

cc: New Mexico Oil Conservation Division
P. O. Box 1980
Hobbs, New Mexico 88240

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
19 November 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Gulf Oil Corporation for salt water disposal, Lea County, New Mexico. CASE 7412

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: William V. Kastler, Esq.
The Gulf Companies
P. O. Box 3725
Houston, Texas 77001

I N D E X

E X H I B I T S

MR. STAMETS: We'll call next Case 7412.

MR. PEARCE: Application of Gulf Oil Corporation for salt water disposal, Lea County, New Mexico.

MR. KASTLER: My name is Bill Kastler. I'm a member of the New Mexico Bar, but currently residing in Houston, Texas.

I'm appearing on behalf of Gulf Oil Corporation, and also appearing this morning are Mr. Charles F. Kalteyer and C. D. Stenberg. May they be sworn at this time, please?

(Witnesses sworn.)

MR. KASTLER: Before beginning, I would like to state that the advertisement is slightly incorrect but I'm hoping that it will not require a readvertisement in this case.

In the first place, the formations to be named are the Lower Seven Rivers, the Queen, the Grayburg, and San Andres and Delaware formations.

MR. STAMETS: Instead of saying Lower Yates it should have said Lower Seven Rivers?

MR. KASTLER: Yes, sir. Now, those are the well known formations which exist at this area between

the depths of 4375 feet and 7452 feet, which is the interval at which this -- open hole interval at which this proposed well would be completed.

MR. STAMETS: Well, we'll have to see during the course of the testimony what Seven Rivers production exists in the area --

MR. KASTLER: That's right.

MR. STAMETS: -- and this may require a readvertisement.

MR. KASTLER: All right. When I get to Mr. Stenberg's testimony perhaps we enlighten the Commission on that.

MR. STAMETS: Thank you.

CHARLES F. KALTEYER

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KASTLER:

Q. Would you please state your name, your employer, the position you hold, and whether you've previously testified for Gulf?

A. My name is Charles F. Kalteyer. I'm

employed by Gulf Oil Corporation, classified as Chief Proration Engineer, Southwest District. I'm located in Midland, and I have previously testified before the OCD.

Q. What is Gulf seeking in this application?

A. We're seeking authorization to dispose of produced water from the Airstrip Field in the open hole interval 4375 to 7452 of the Lower Seven Rivers, Queen, Grayburg, San Andres, and Delaware, in our Lea "XD" State Well No. 1, located in Unit M, Section 30, Township 18 South, Range 35 East, Lea County, New Mexico.

MR. KASTLER: Mr. Examiner, are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q. Mr. Kalteyer, do you have a plat depicting the Lea "XD" State lease and the surface location of Well No. 1?

A. Yes. Exhibit One is a plat of the area and the Lea "XD" State is outlined in red and Well No. 1 is circled in yellow. We've also indicated the 1/2 mile radius circle around the well, which represents the area of review for this application.

Q. That's the area of review under Item 5 of the OCD Form C-108?

A. Yes, sir.

Q. Do you have exhibits depicting downhole particulars of all wells of public record within the area of review which penetrate the proposed injection interval?

A. Yes, sir. Our Exhibit Number Two is a 3-page exhibit which gives the particulars of the locations and the casing and cementing data of nine wells within the area.

The first -- first well is Gulf's "YH" State No. 1, located in Unit O of Section 25, 18, 34. 11-3/4 inch surface casing is set at 288 feet and cemented to the surface with 8-5/8ths at 3897, also cemented to the surface, and 5-inch set at 10,770 with a top at 7800.

The second well is Gulf's No. 2 Lea "YH" State, located in Unit P of Section 25, and it also has surface casing cemented to the surface and an intermediate string cemented to the surface, and a long string set at 10,400, top of cement at 7410.

Q. Mr. Kalteyer, you're referring to Exhibit Number Two and what's shown thereon at this time, are you not?

A. Yes, sir.

Q. Continue, please.

A. The third well is Gulf's "YH" State No. 3 and similarly it has surface casing set at 300 feet, cemented to the surface; 8-5/8ths set at -- intermediate

string set at 3475, cemented to the surface, and one long string set at 10,800 with the top of cement indicated at 7,150 feet, and that well is located in Unit J of Section 25.

The fourth well is Gulf's "YH" State 4 and it is located in Unit I of Section 25. Similarly, it has surface casing cemented to the surface, intermediate casing cemented to the surface, 5-1/2 inch set at 10,834, top of cement 7610.

The fifth well is Gulf's Lea "30" State 1, located in Unit E of Section 30. It was completed as a dry hole. No, take that out.

It was abandoned in May of 1980; had surface casing set at 300 feet, cemented to the surface; 8-5/8ths intermediate, cemented to the surface; and 5-1/2 inch set at 10,800 and that pipe has been cut and pulled.

The sixth well is the Bob L. Johnson Sinclair State Unit 1, excuse me, Sinclair State No. 1, Unit K, Section 30, and we have a schematic of that which I'll cover in a moment on Exhibit Three-A. It was abandoned in 1957 and has 13-3/8ths set at 250 with cement to the surface.

The seventh well is Bass Enterprises Production Airstrip State 1 in Unit D of Section 31. It has surface casing set at 453 feet, cemented to the surface; intermediate set at 3880 and cemented to the surface; and 7-inch

set at 10,820, top of cement indicated 5600.

The eighth well is State "HR" 2, located in Unit A of Section 36, Township 18 South, Range 34 East. It was drilled to a depth of 1613 feet and they lost the hole and it was abandoned. It has surface casing set at 302 feet with the top of cement indicated to be within 34 feet of the surface by calculation.

We also have an exhibit of that to follow.

The ninth well within the area of review is Amoco State "HR" 2-Y, also located in Unit A. It's currently temporarily abandoned. Surface casing set at 300 feet, cemented to the surface; intermediate string set at 4000 feet, cemented to the surface; 5-1/2 inch production string set at 11,670, top of cement indicated at 1825.

Q. Now would you proceed to Exhibits Three-A, Three-B, Three-C, and Three-D, and explain what they are?

A. Yes, sir. Exhibit Three-A is a schematic of the Bob L. Johnson Sinclair State No. 1, showing that the 7-inch casing was pulled. 7-inch casing had been set at 4721, and the cement plug was set from 4620 to 4733. Two 20-sack cement plugs were set at the top and the base of the salt section. The top of the salt is at approximately 2100 feet and the based of the salt is at approximately 3100 feet.

The 8-5/8ths casing, which was set at 1881 feet, was pulled. A cement, 20-sack cement plug was set at 240 feet to 285 feet, and the 250-foot of surface casing was left in the hole, 10-sack cement plug at the surface.

Txhibit Three-B is a schematic of Amoco's State "HR" Well No. 2, which was lost after reaching total depth of 1613. A fish was left in the hole and a 200-sack cement plug was set from 1216 feet to 1495. A 100-sack cement plug was set from 252 to 352 across the shoe of the 10-3/8ths surface pipe, which was set at 302 feet and cemented with 350 sacks of cement and a 20-sack cement plug was set at the surface.

Exhibit Three-C is Amoco's State "HR" Well No. 2-Y and shows a series of tests in that well with a cast iron bridge plug set in. Two of them were capped. The well is now temporarily abandoned. The perfs that still remain open without a cast iron bridge plug are at 9295 and 9303, which was in the Bone Spring. The intermediate string was set at 4000 feet and cemented with 1750 sacks of cement and the cement was circulated. Surface pipe 300 feet cemented with 400 sacks; cement was circulated.

Now Three-D is Gulf's Lea State -- Lea "30" State No. 1. This well was abandoned in May of 1980. Cement plugs and bridge plugs are set within the well up to

the plug in the stub of the 5-1/2 inch casing. There's a cast iron bridge plug at 8765 capped with 35 feet of cement and then a series of cement plugs at 7225 to 7325, 5830 to 5930, 5055 to 5155, a 40-sack cement plug across the shoe of the intermediate string at 3925 to 4050, and another plug at 1864 to 1964, and the surface pipe set at 300 feet with cement circulated to the surface.

Q. Mr. Kalteyer, from your examination of these wells in the one-half mile radius area of review, is it your opinion that there would be no unfavorable condition existing for this open hole interval salt water disposal?

A. Correct.

Q. Thank you. Do you have an exhibit showing the downhole particulars of the proposed injection well?

A. Yes, sir. Exhibit Four is a schematic diagram along with a second sheet, which is a tabular summary depicting the proposed wellbore conditions for the injection of fluids after the approval has been granted.

The tabular data is in conformance with the reverse side of instructions for Form C-108. Beginning with Item 3 --

Q. Have you finished your sentence?

A. Just a minute, no.

Item 3-A, 1, 2, 3, and 4 are indicated there on page -- the second page of Exhibit Four, giving the location, the name of the well, the casing strings that have been set in the well, the -- at this time 5-1/2 inch casing is presently set at 9450 with 250 sacks of cement. Top of cement is at 8000 by temperature survey.

We propose to cut approximately 8000 to 8800 feet of the 5-1/2 to pull and reset at approximately 4375 with 300 sacks of cement.

Prior to pulling the casing a cast iron bridge plug will be set at approximately 8870 and cement plugs set from approximately 8750 to 8850 and at 7452 to 7550 after the casing is pulled.

The tubing that we plan to use will be 2-3/8ths internally plastic-coated to be set at approximately 4325. We anticipate using a nickle-plated Baker Model C-1 tension packer, or equivalent, set at 4325.

Q. What about the injection formations?

A. The formations that we propose to inject into will be the Lower Seven Rivers, the Queen, Grayburg, San Andres, and Delaware.

Q. Are you personally familiar with the fact that there are well completions in all of these various formations in the area covered by this application?

A. Not in -- there are no wells producing from these pays in the immediate area of the well.

Q. I see. Proceed.

A. The injection interval will be the open hole interval from approximately 4375 to 7452. This well was originally drilled as a producer, to be a producer, in June of '81. It was first perforated from 9276 to 9369 in the Bone Spring and the cast iron bridge plug was set at 9250 on June 25 and new perforations shot from 9126 to 9193, and again another set of perforations was shot from 8928 to 8952; a cast iron bridge plug will be set above all these perforations at approximately 8870 prior to cutting and pulling the 5-1/2 inch casing.

Q. Will you tell the Examiner of Gulf's plans for operating the well and of the analysis and compatibility data of the liquids involved?

A. Gulf plans to inject approximately 375 -- 350 to 375 barrels of water per day and we don't anticipate a maximum rate of more than 700 barrels per day. The system will utilize -- the system will be open. The maximum surface injection pressure will be limited to .2 psi per foot to the topmost interval, which is 875 psi, approximately. We plan to take step-rate tests to determine the actual parting pressure and once that's been determined, that will be the

maximum injection pressure that we will limit ourselves to upon approval by the OCD.

The source of injection fluids will be from our adjacent Lea "YH" State Lease, producing from the Airstrip Bone Springs. An analysis of this injection water is attached as Exhibit Six-A, and note the total dissolved solids at 167,705, chlorides at 102,178 milligrams per liter.

Q. You're referring now to what is shown on Exhibit Six-A?

A. Yes, sir.

Q. Had you finished Exhibit Five as to where the zone of disposal is or is not productive of oil or gas within one mile of the proposed injection well?

A. Okay, the zone of disposal is not productive of oil or gas within one mile of the proposed injection well.

Since the disposal formations are not open at the present time in the proposed injection well, water analysis and compatibility -- compatibilities of the formation water and injection fluid must be inferred from nearby wells producing from the proposed disposal zone.

Exhibit Six-B is the result of some compatibility tests comparing our "YH" production with Queen water production from our West Pearl Queen, and from

Texaco's Central Vacuum Unit from Grayburg and San Andres production. And these indicate no incompatibility.

Q. What is the nearest offset injection well?

A. The nearest offset injection well injecting into the same basic interval to ours is ARCO's Sinclair Vacuum Salt Water Disposal Well No. 1, located in Section 16, Township 18, Range 35, which is indicated on our Exhibit Number One 3.2 miles to the northeast of our well, andthe best information we can find is that this well is being utilized and there's incompatibility problem. The June report was that it was receiving approximately 980 barrels per day at an injection pressure of 2150. We assume the source of this disposal water to be the South Vacuum Devonian and the Reeves Queen.

Q. Mr. Kalteyer, in compliance with Item Roman number XI of the OCD Form C-108, does Gulf have an exhibit giving the chemical analysis of fresh water being produced within one mile of the proposed injection well?

A. Yes, sir.

Q. What is that exhibit?

A. Our Exhibit Number Seven is a chemical analysis of the only known fresh water source within one mile of the "ZD" State 1. This source is a windmill water well which is located as shown on Exhibit One in Unit F, Section

31, Township 18, Range 35.

Q. Depicted by the red triangle?

A. Yes, sir. It is located approximately 2300 feet from the north line and 18 -- 1980 from the west line. We've been advised that it is 150 feet deep on the Snyder Ranch, producing from the Ogalalla. The base of the Ogalalla in this area, as I understand it, is approximately 200 feet.

Q. Why is Gulf requesting that this well be converted to a salt water disposal well at this time?

A. We're currently trucking some 350 barrels of water a day from our Lea "YH" State Lease at a cost of some $6000 per month.

Converting this well would facilitate disposal of water produced from this State Lease and reduce our production expense.

Q. In compliance with Item Roman number XIII of the OCD Form C-108, does Gulf have proof that the notice of this application has been furnished to the owner of the surface of land on which the well is located and the leasehold operators within one-half mile of the well location?

A. Yes, sir, our Exhibit Number Eight is a copy of our notification letter, dated November 2nd, 1981, to the surface owner, the Commissioner of Public Lands, and

two outside leasehold operators within the area of review, namely Amoco and Bass.

Page three of a four part exhibit is the U. S. Postal Service form, record of sending the certified mail, and we have received two receipts, which is page four of the four part exhibit, one from the State and from Amoco as having received the notification.

Q. Were Gulf's Exhibits One through Eight prepared by you or at your supervision and under your direction?

A. Yes, sir, they were.

Q. And are the facts depicted thereon to the best of your knowledge true and accurate and correct?

A. Yes, sir.

MR. KASTLER: This concludes my questions on direct examination of this witness, and I would like to move at this time that Exhibits One through Eight be admitted into evidence.

MR. STAMETS: Exhibits One through Eight will be admitted.

I would say at this point, this is the best application I've seen so far from the standpoint of having everything attached to it.

However, I am concerned, starting on page two, the majority of these wells have intermediate casing

run at depths of from 3 to 4000 feet and then a long string with the top of cement somewhere between 7 and 8000 feet, which would mean that the injection interval is open in essentially every well in there.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Under these conditions how can the injected fluid be confined in the zones that it's injected into?

A. We have protected -- I guess the object of our protection is to protect fresh waters; as I understand it, and our witness will testify to, the fresh waters are only found to a depth of approximately 200 feet, and all of the wells have surface casing set at greater than 200 feet and would prevent any contamination of the fresh water pays.

And other wells have intermediate string cemented to the surface.

So our main concern would be the protection of fresh waters and we think that is quite adequate.

Now as far as whether this water might migrate into a shallower depth than the 4300, approximately 4300, there might be an opportunity for that to happen, but not to migrate into the fresh water sands, and there is -- we -- I believe our witness can testify too, that those

shallower sands are also mineralized waters.

Q. In other areas the Division has observed situations like this where there's a long string which is uncemented and observed this to, unfortunately casing collapse, water flows between strings of casing, corrosion of casing strings. Is there anything which would tell us that this water is not going to move from the injection well, say, westward into the Lea "YH" State No. 2 and cause casing corrosion problems?

A. Our only approach to that would be monitoring of our well as to whether that's a, let's say, possibility.

Q. Have you given any thought to how long this well may be needed out there, how many years of injection will be likely to occur here?

A. No, sir, I have not looked at the reserve life of this -- of the Bone Springs, but I'll glad to investigate it and report back to you, if you'd so desire.

Obviously our basis for this plan originally came from the fact that ARCO was using a similar approach in their -- in their well.

Q. Where is that --

A. 3.2 miles away.

Q. Okay.

A. It's to the northeast. You'll notice it on -- on Exhibit Number One.

Q. Okay. We'll review that and see what the circumstances existed there when that was approved.

MR. KASTLER: May I ask a question?

MR. STAMETS: Yes, sir.

MR. KASTLER: Mr. Kalteyer, do you in your exhibits that you've already testified to, do they show the approximate volumes that ARCO is injecting in the Sinclair well?

A. I testified to it. I did not -- it's not tabulated, but it is a matter of record in the Commission monthly injection reports that as of June of 1981 they were injecting approximately 980 barrels a day at an average injection pressure, purported injection pressure of 2,50 pounds.

MR. KASTLER: Thank you. That's all.

MR. STAMETS: Are there other questions of this witness? He may be excused.

MR. KASTLER: Our next witness is Mr. C. D. Stenberg.

C. D. STENBERG

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KASTLER:

Q. Will you please state your name, your employer, your position, where you are located, and whether you have previously testified before the New Mexico Oil Conservation Division?

A. I'm employed by Gulf Oil Corporation in Midland, Texas. My name is C. D. Stenberg. I'm Production Geologist and I have testified before.

Q. Fine. Are you familiar with Gulf's application in this Case 3412 -- 7412?

A. Yes, sir.

MR. KASTLER: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q. Mr. Stenberg, as a professional geologist are you familiar with the fact that these various formations naming the Lower Seven Rivers, the Queen, the Grayburg, the San Andres, and the Delaware formations all exist in the area of this proposed salt water disposal well between the interval of 4375 feet to 7452 feet?

A. Yes, sir.

Q. And do you have any particular matter or

evidence by which you've refreshed your memory in this fact?

A. Yes, sir. I think first, to clear up Mr. Stamets' question about the closest production from Yates-Seven Rivers and Queen-Grayburg-San Andres, or all the formations, the closest -- starting from the top, the closest Yates I believe, is the "EK" Yates, which is in -- on the west side of Township 18, 34.

MR. STAMETS: Let me find my map here.

A. I don't know if your map -- I don't know if that plat will go over that far. It will be approximately four or five miles to the west.

MR. STAMETS: Okay, thank you.

A. But it will be -- the edge of the "EK" Yates Field comes into 18, 34. That's the closest Yates production.

And the -- that's also Seven Rivers. The closest Seven Rivers - Queen, well, there are two. There is a Reeves Queen about four miles to the east in Sections 22 and 27 of 18, 35, and also Seven Rivers - Queen down in the Pearl, which is in the bottom half of 19 South, 35 East.

Then there's Grayburg - San Andres up to the north in the Vacuum, which is about three or about three miles, four miles.

So all --

Q. Do you have section, township, and range for that?

A. Yeah, the Grayburg - San Andres, that would be in Sections 2 -- Sections 1 and 2 of 18, 34, roughly.

So all the formations from Yates through the San Andres, the production in relation to the Airstrip is approximately three, three to four miles distant.

And in the bottom formation, the Delaware Sand, there's no production for a long ways, till down in the Delaware Basin, approximately, about thirty miles south.

MR. STAMETS: Okay, why was this application not submitted administratively?

A. Well, it was just -- it was initiated in the Hobbs Area Office when it was sent to Mr. Kalteyer in Midland, and it was just inadvertently written up as Yates instead of Seven Rivers as the starting -- as the starting injection zone at the top.

In fact, I think Seven Rivers was left out of the nomenclature.

MR. STAMETS: Right. Well, the point I was getting at is you can get administrative approval if there's no production within two miles and apparently there is no production in any of these zones within two miles, is that correct?

A. Yes, sir.

MR. STAMETS: And so this was just --

A. It was just a matter of straightening out the formation names.

MR. KALTEYER: We were having these other hearings coming up. We included it on the docket. We didn't go through the public notice system.

MR. STAMETS: Okay.

MR. KALTEYER: As required with that.

MR. STAMETS: All right. Under the circumstances, then, since there is no Seven Rivers production within two miles, amending the application to reflect the Lower Seven Rivers instead of the Yates will be no problem at all.

A. Thank you.

Q. Mr. Stenberg, do you have an exhibit giving geological data on the formations in the proposed injection interval?

A. Yes, sir, I do. Exhibit Nine-A is a description of each -- of each formation in which we wish to inject water.

The depths on Exhibit Nine-A are the depths of the formation, the top and the bottom, and then in parentheses is the -- would be the thickness of the formation.

they're described there, so if we need any description, or further, I can describe it, but that should be ample.

We have the Seven Rivers dolomites and two sand members in the Queen, the Knight and the Penrose, and the Grayburg - San Andres dolomites, and of course, the Delaware, which is a sand body.

These are shown on Exhibit Ten, which is the log, the neutron density log, and with gamma ray neutron density.

Q. All right.

A. In which you have the tops, formation tops; the Yates is at 3435 and Seven Rivers is at 3945; and our estimated top of injection zone is 4375, which, as you can see on the log, is about half way through the Seven Rivers formation above the Queen.

Also at the bottom, we have formation tops on the log all the way down to the Bone Spring lime, which is at 7643 and the pay zone -- the pay section at the bottom of the log, or the objective of the well originally, the Bone Spring lime pay is down at the depth of 9300 feet, 9300 and below.

Q. What do you understand will be the stimulation program for the zones within the injection interval?

A. As mentioned on Exhibit Nine-A, 20 percent acid treatment.

Q. Do you have an exhibit giving the geological data on all underground fresh water aquifers which overlie or underlie the proposed injection interval in this area?

A. Yes, sir, that is Exhibit Nine-B, fresh water aquifers in the area.

I got this data from the Ground Water Report Number 6 by U.S.G.S., 1961 publication.

The fresh water aquifers in the area are the -- the dividing line is the Mescalero Ridge, approximately three miles south of the proposed injection well. South of the Mescalero Ridge are Triassic wells, the -- predominantly the Chinle and Santa Rosa aquifers, and north of the ridge where we are approximately three miles north of the ridge, the wells are found in the Ogallala formation, and some alluvial channels, but predominantly the Ogallala formation, Ogallala sand.

This is marked on the log on Exhibit Ten at 200 feet, that's the base of the Ogallala and the top of the Redbeds.

At the start of the Redbeds normally we have no -- we have no fresh waters. There are no -- according

to the ground water report, there are no fresh waters drilled into the Redbeds. Normally from there down they would be high -- high sulfate content or brackish water, because the Redbed precludes recharge area communication.

Q. Do you have in your application an affirmative statement made by you that Gulf Oil Corporation has examined all available geological and engineering data and finds no evidence of any hydrologic connection between the disposal zone and any underground source of drinking water?

A. Yes, sir, this is found in Exhibit Eleven.

Q. Were Exhibits Nine-A through Eleven prepared by you, or at your direction and under your supervision?

A. Yes, sir.

MR. KASTLER: And this concludes my direct examination and I would like to offer these additional exhibits, Nine-A, Nine-B, Ten, and Eleven to be admitted into evidence at this time.

MR. STAMETS: The additional exhibits are admitted.

Are there any questions of this witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7412, heard by me on 11-19 1981.

Richard L. Stamets, Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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SANTA FE, NEW MEXICO 87501
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December 18, 1981

Mr. William Keatler, Attorney
Gulf Oil Corporation
P. O. Box 3725
Houston, Texas 77001

Re: CASE NO. 7412
ORDER NO. R-6859

Applicant:

Gulf Oil Corporation

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7412
Order No. R-6859

APPLICATION OF GULF OIL CORPORATION FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on November 19, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 18th day of December, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Gulf Oil Corporation, is the owner and operator of the Lea "ZD" State Well No. 1, located in Unit M of Section 30, Township 18 South, Range 35 East, NMPM, Air-Strip Field, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Lower Yates, Queen, San Andres and Delaware formations, with injection into the open hole interval from approximately 4375 feet to 7452 feet.

(4) That within one-half mile of the proposed disposal well are at least five producing wells in which the long string has not been cemented across the injection interval.

(5) That said wells could serve as conduits for migration of the injected water to other zones or could be subject to corrosion or casing collapse as a result of such injection.

(6) That the Bob L. Johnson Sinclair State Well No. 1 located in Unit K of said Section 30 is not plugged in such a manner as to preclude the movement of injected fluid out of the injection zone to other zones.

(7) That because the fluids to be injected may be able to move out of the injection interval and because such injection may result in damage to nearby wells, the application for approval of a salt water disposal well should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of Gulf Oil Corporation to utilize its Lea "ZD" State Well No. 1, located in Unit M of Section 30, Township 18 South, Range 35 East, NMPM, Air-Strip Field, Lea County, New Mexico, to dispose of produced salt water into the Lower Yates, Queen, San Andres and Delaware formations in the open hole interval from 4375 feet to 7452 feet is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY,
Director

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

OCD

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no

II. Operator: Gulf Oil Corporation

Address: P.O. Box 1150 Midland, Texas 79702

Contact party: C. F. Kalteyer Phone: 915 - 685-4750

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: C. F. Kalteyer Title: Chief Proration Engineer

Signature: for Alan W. Bohling (Pet. Engr.) Date: November 2, 1981

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

Gulf Oil Corporation
Application for Authorization
To Inject into Lea "ZD" State
Well No. 1
Lea County, New Mexico
Case #7412
19 November 1981

Index

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. Index
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

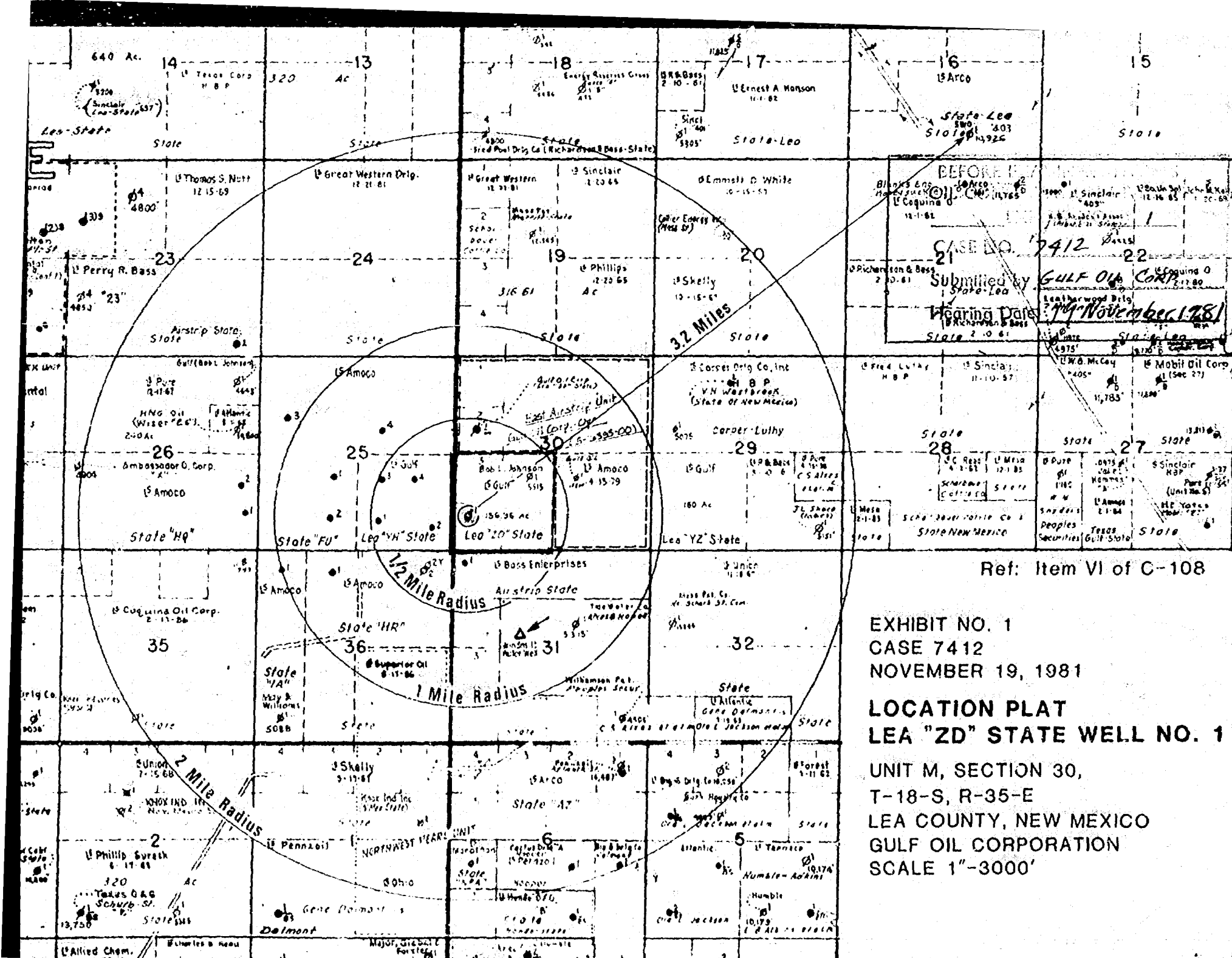


EXHIBIT NO. 1
CASE 7412
NOVEMBER 19, 1981

LOCATION PLAT
LEA "ZD" STATE WELL NO. 1

UNIT M, SECTION 30,
T-18-S, R-35-E
LEA COUNTY, NEW MEXICO
GULF OIL CORPORATION
SCALE 1"-3000'

Ref: Item VI of C-108

Tabular Summary
Wells Within One-Half Mile of
Gulf Oil Corporation Lea "ZD" State
Well No. 1

Gulf Oil Corporation	Lea "YH" State #1	760' FSL & 1980' FEL, Sec. 25, T-18-S, R-34-E Total Depth: 10,770' Completed: 3-26-79 Perforated: 9329-92'	
		Csg: 11 3/4" @ 288' w/450 sx cmt	TOC: Surface
		8 5/8" @ 3897' w/1050 sx cmt	TOC: Surface
		5 1/2" @ 10,770' w/700 sx cmt	TOC: 7800' TS
	Lea "YH" State #2	660' FSL & 660' FEL, Sec. 25, T-18-S, R-34-E Total Depth: 10,400' Completed: 10-15-79 Perforated: 9292-9350'	
		Csg: 11 3/4" @ 290' w/300 sx cmt	TOC: Surface
		8 5/8" @ 3420' w/850 sx cmt	TOC: Surface
		5 1/2" @ 10,400' w/650 sx cmt	TOC: 7410' TS
	Lea "YH" State #3	1980' FSL & 1980' FEL, Sec. 25, T-18-S, R-34-E Total Depth: 10,800' Completed: 1-12-80 Perforated: 9334-9410'	
		Csg: 11 3/4" @ 300' w/250 sx cmt	TOC: Surface
		8 5/8" @ 3475' w/1100 sx cmt	TOC: Surface
		5 1/2" @ 10,800' w/ 700 sx cmt	TOC: 7150' TS

...ETS
C... ...ISION
2
C... 7412
S... GULF OIL CORP.
Hea... Da... 19 November 19 81

W.N.M.C.F.

EXHIBIT 2
CASE #7412
November 19, 1981

Gulf Oil Corporation	Lea "YH" State #4	1980' FSL & 990' FEL, Sec. 25, T-18-S, R-34-E Total Depth: 10,834' Completed: 5-3-80 Perforated: 9368-96'
		Csg: 11 3/4" @ 300' w/500 sx cmt — TOC: Surface 8 5/8" @ 3480' w/900 sx cmt — TOC: Surface 5 1/2" @ 10,834' w/700 sx cmt — TOC: 7610' TS
	Lea "30" State #1	1980' FNL & 660' FWL, Sec. 30, T-18-S, R-35-E Total Depth: 10,800' Completed: 5-31-79 Perforated: 10,479-504', 10,176-202', 9046-9238' & 8780-8862' P & A: 5-20-80
		Csg: 11 3/4" @ 300' w/450 sx cmt — TOC: Surface 8 5/8" @ 3980' w/1100 sx cmt — TOC: Surface 5 1/2" @ 10,800' w/800 sx cmt — Cut and Pulled From 7275'
Bob L. Johnson	Sinclair-State #1	1980' FWL & 1980' FSL, Sec. 30, T-18-S, R-35-E Total Depth: 5515' Completed: P & A 5-20-57
		Csg: 13 3/8" @ 250' w/80 sx cmt — TOC: Surface 8 5/8" @ 1881' w/80 sx cmt — Pulled 5 1/2" @ 4721' w/90 sx cmt — Pulled
Bass Enterprises Production Co.	Airstrip State #1	330' FNL & 330' FEL, Sec. 31, T-18-S, R-34-E Total Depth: 10,820' Completed: 7-11-80 Perforated: 9230-9385'
		Csg: 13 3/8" @ 453' w/400 sx cmt — TOC: Surface 9 5/8" @ 3880' w/1700 sx cmt — TOC: Surface 7" @ 10,820' w/525 sx cmt — TOC: 5600' by Bass Calc.

W.N.M.O.C.C.

EXHIBIT 2
CASE #7412
November 19, 1981

Amoco Production Co.

State "HR" #2

330' FNL & 660' FEL, Sec. 36, T-18-S, R-34-E
Total Depth: 1613'
Completed: P & A 5-24-80

OK

Csg: 13 3/8" @ 302' w/350 sx cmt TOC: 34' Calc.

State "HR" #2-Y

380' FNL & 660' FEL, Sec. 36, T-18-S, R-34-E
Total Depth: 11,670'
Completed: 6-11-81
Perforated: 11,299-570', 10,584-608', 10,248-290', 10,020-40' & 9295-9303'
T & A: 7-25-81

Csg: 13 3/8" @ 300' w/400 sx cmt TOC: Surface
9 5/8" @ 4000' w/1750 sx cmt TOC: Surface
5 1/2" @ 11,670' w/1300 sx cmt TOC: 1825' TS

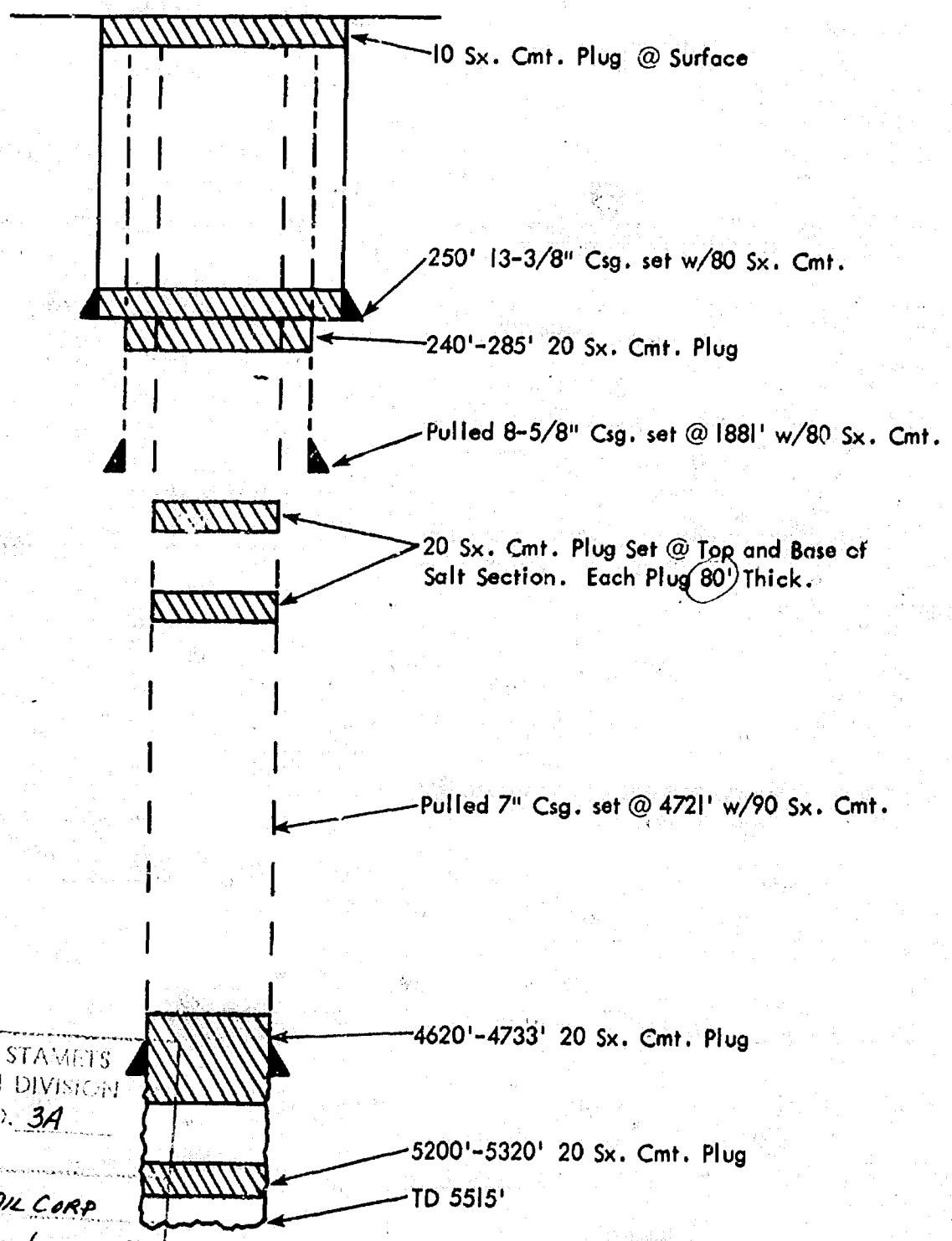
OK

W.N.M.C.F.

EXHIBIT 2
CASE #7412
November 19, 1981

Ref: Item VI of C-108

BOB L. JOHNSON
SINCLAIR-STATE WELL NO. 1
1980' FWL AND 1980' FSL
UNIT K, SECTION 30, T-18-S, R-35-E
LEA COUNTY, NEW MEXICO
P&A 5-20-57



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 3A
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 3A
CASE 7412
NOVEMBER 19, 1981

Ref: Item VI of C-108

AMOCO PRODUCTION COMPANY
STATE "HR" WELL NO. 2
330' FNL AND 660' FEL
UNIT A, SECTION 16, T-18-S, R-34-E
LEA COUNTY, NEW MEXICO
P&A 5-24-80

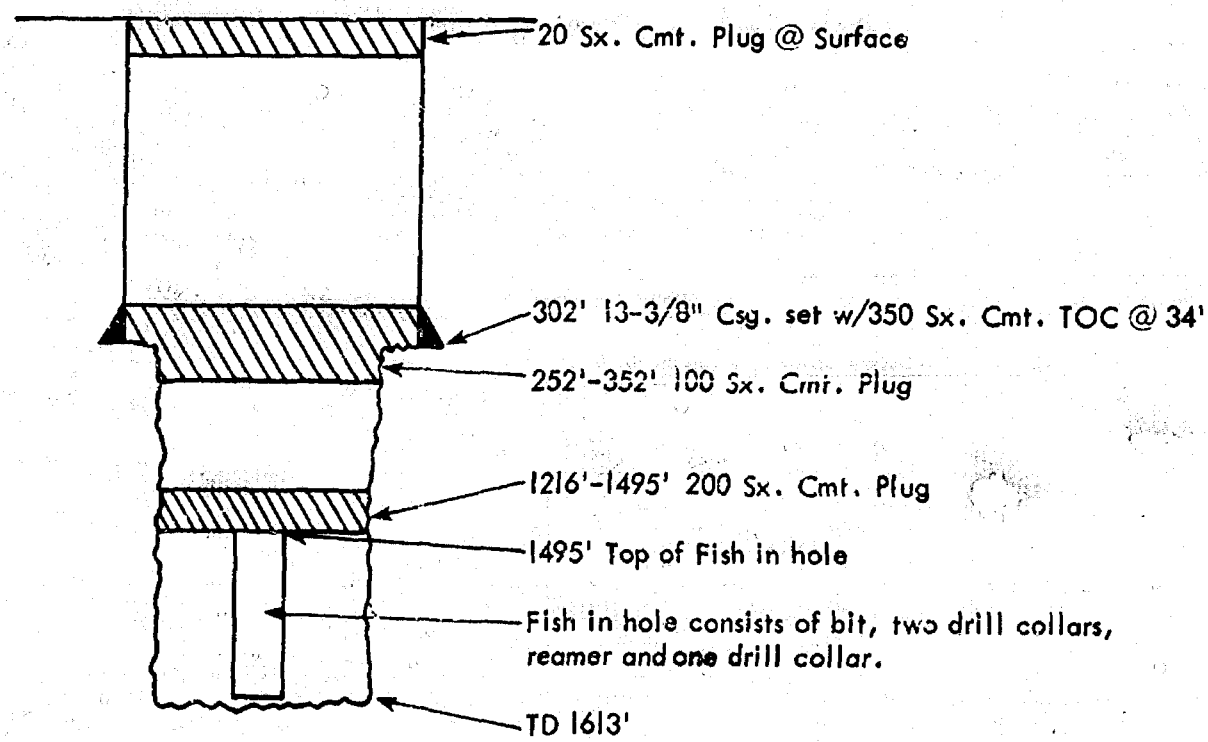
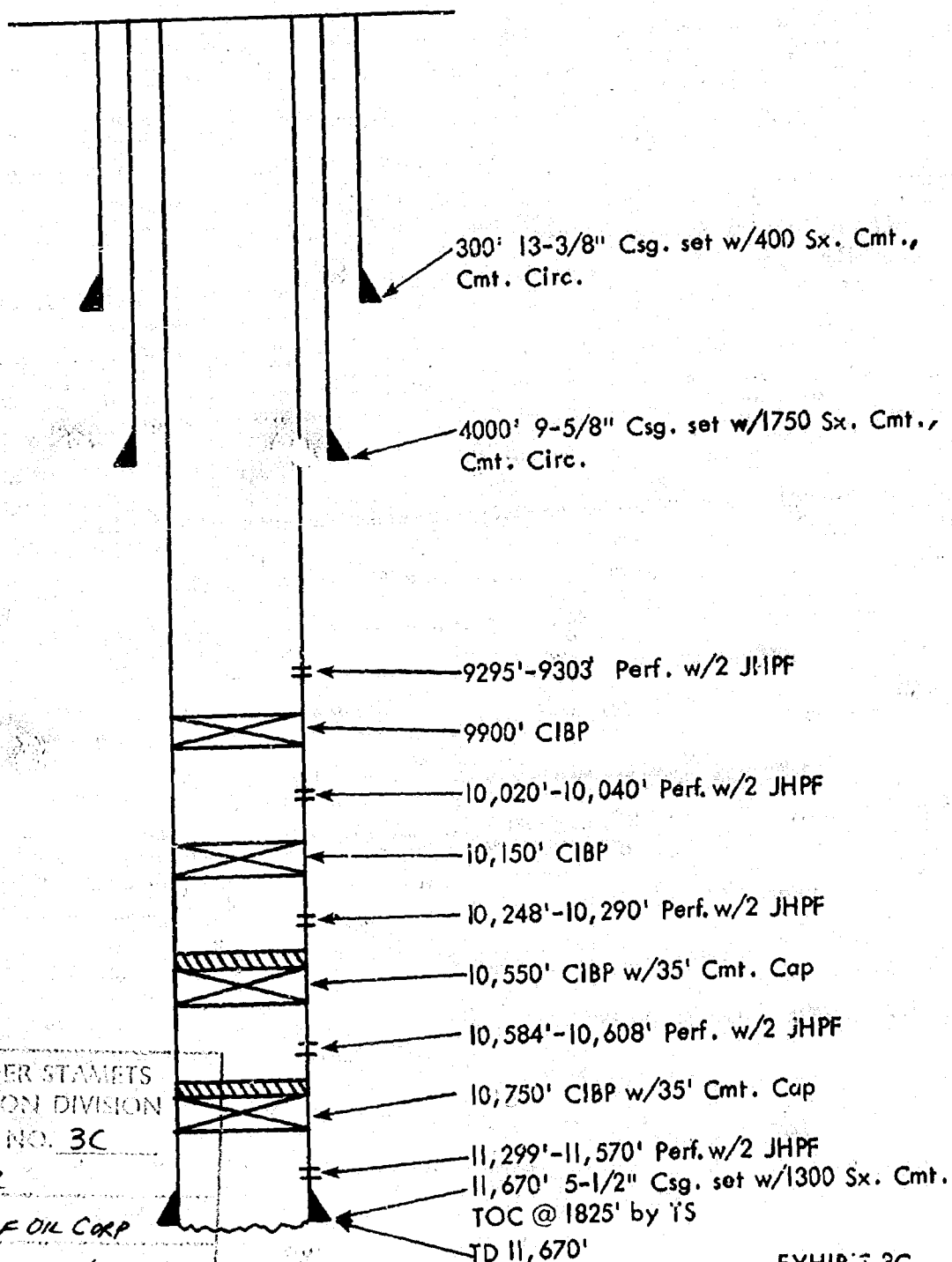


EXHIBIT 3B
CASE 7412
NOVEMBER 19, 1981

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 3B
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

Ref: Item VI of C-108

AMOCO PRODUCTION COMPANY
STATE "HR" WELL NO. 2-Y
380' FNL AND 660' FEL
UNIT A, SECTION 36, T-18-S, R-34-E
LEA COUNTY, NEW MEXICO
T&A 7-25-81



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 3C
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 3C
CASE 7412
NOVEMBER 19, 1981

Ref: Item VI of C-108

GULF OIL CORPORATION
LEA "30" STATE WELL NO. 1
1980' FNL AND 660' FWL
UNIT E, SECTION 30, T-18-S, R-35-E
LEA COUNTY, NEW MEXICO
P&A 5-20-80

BEFORE EXAMINER STA.
OIL CONSERVATION DIV.
EXHIBIT NO. 3D
CASE NO. 7412
Submitted by Gulf Oil Corp
Hearing Date 19 November 1981

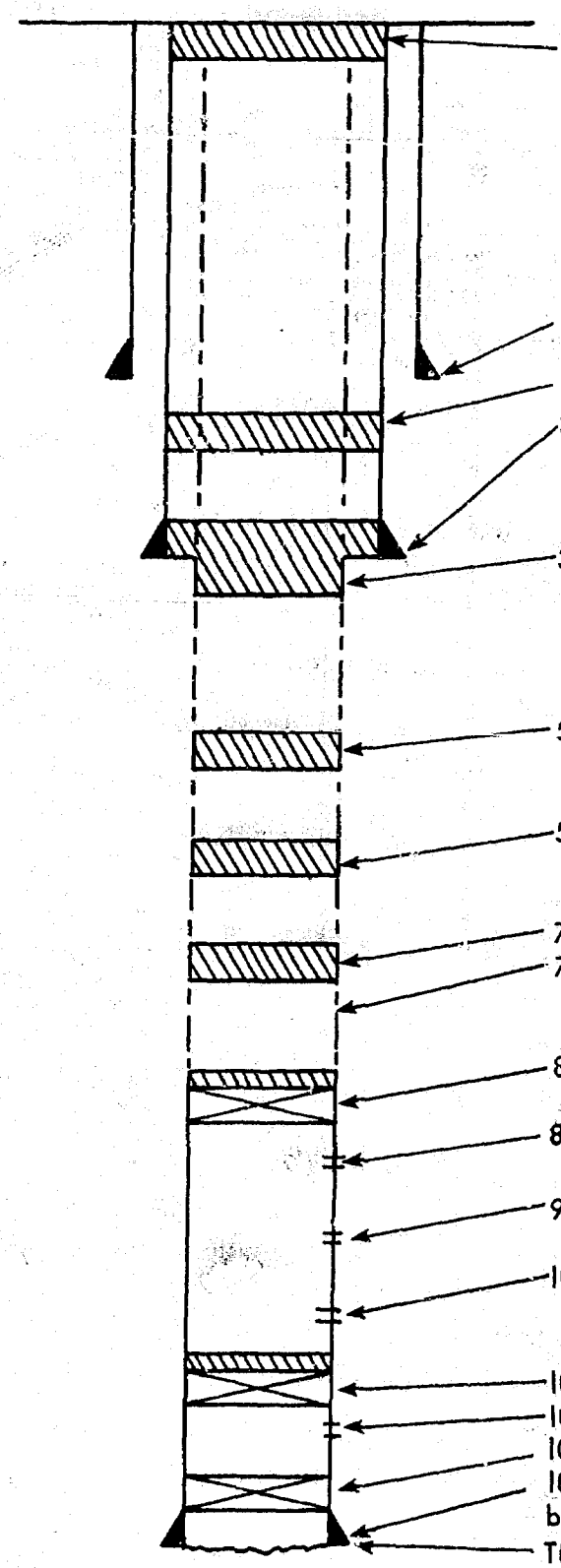


EXHIBIT 3D
CASE 7412
NOVEMBER 19, 1981

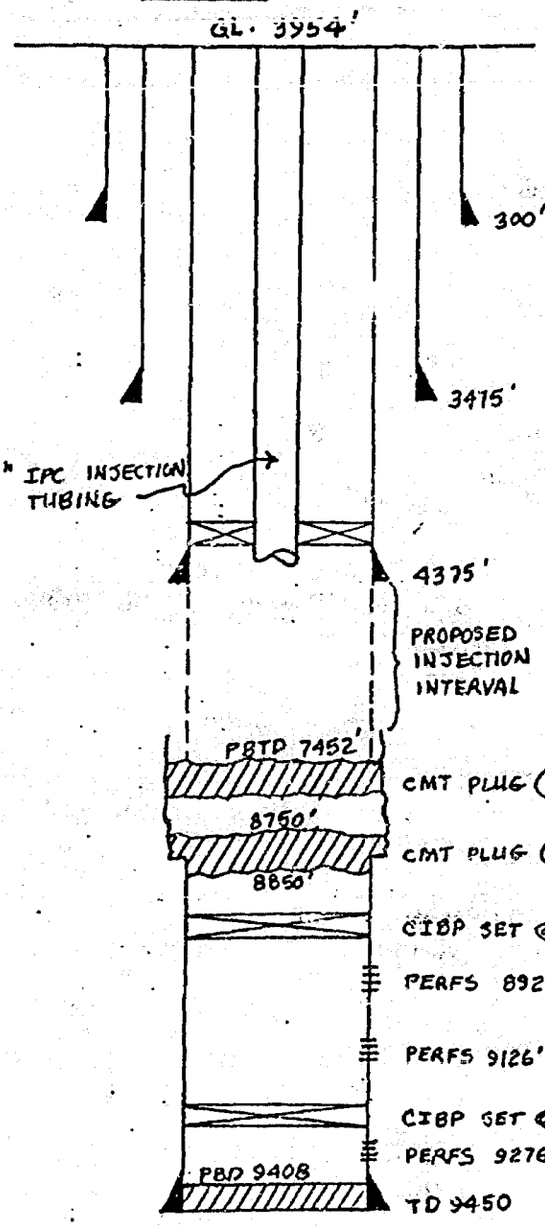
Ref: Item III of C-108

INJECTION WELL DATA SHEET

OPERATOR	LEASE			
GULF OIL CORPORATION	LEA "20" STATE			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
1	990' FSL & 330' FWL	30	18S	35E

LEA COUNTY, NEW MEXICO

Schematic



Tabular Data

Surface Casing SET @ 300'
Size 11 3/4" Cemented with 350 sx.
TOC SURFACE feet determined by CIRC. 60 SX CMT
Hole size 14 3/4"

Intermediate Casing SET @ 3475'
Size 8 5/8" Cemented with 950 sx.
TOC SURFACE feet determined by CIRC. 100 SX CMT
Hole size 11"

Long string TO BE SET @ 4375'
Size 5 1/2 To Be Cemented with 300 sx.
TOC To Be determined by CALCULATION
Hole size 7 7/8"
Total depth To PBTD OF 7452'

Injection interval
4375 feet to 7452 feet
open-hole

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 4
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

Tubing size 2 3/8" lined with IPC (material) set in a NICKEL PLATED BAKER MODEL C-1 TENSION (brand and model) packer (OR EQUIVALENT) @ 4325 feet
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation LOWER SEVEN RIVERS, ALL OF THE QUEEN, GRAYBURG, SAN ANDRES, DELAWARE.
2. Name of Field or Pool (if applicable) AIRSTRIP
3. Is this a new well drilled for injection? ☐ Yes ☒ No
   If no, for what purpose was the well originally drilled? OIL PRODUCTION
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) (SEE ABOVE SCHEMATIC)
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. NO KNOWN OVERLYING ZONES IN IMMEDIATE AREA.
   10,600' TO TOP OF WOLFCAMP FOR UNDERLYING ZONE.

EXHIBIT 4
CASE # 7412
NOVEMBER 19, 198
PAGE 1 OF 2

Ref: Item III of C-108

Tabular Summary
Injection Well Data Sheet
Gulf Oil Corporation
Lea "ZD" State Well No. 1

A (1) Gulf Oil Corporation
Lea "ZD" State Lease
Lea "ZD" State Well No. 1
Unit M, Section 30, Township 18 South, Range 35 East
990' FSL & 330' FWL of Section

A (2) Casing Strings:

1) 11 3/4" casing set at 300' with 350 sacks cement, circulated.
2) 8 5/8" casing set at 3475' with 950 sacks cement, circulated.
3) 5 1/2" casing presently set at 9450' with 250 sacks cement (top of cement at 8000' by temperature survey), will be cut at approximately 8800', pulled, and reset at 4375' with 300 sacks cement. A CIBP will be set at 8870' prior to pulling the casing and two cement plugs from approximately 8750-8850' and 7452-7550' will be set after the casing is pulled.

A (3) Tubing:
2 3/8" internally plastic coated tubing set at 4325'.

A (4) Packer:
A nickel-plated Baker Model C-1 tension packer (or equivalent) set at 4325'.

B (1) Injection formations:
Comprised of Lower Seven Rivers, all of the Queen, Grayburg, San Andres and Delaware.

B (2) Injection interval:
The open hole interval from 4375' to 7452'.

B (3) The well was originally drilled as a producer in June 18, 1981.

B (4) The well was first perforated from 9276-9369'. A CIBP was set at 9250' on June 25, 1981 and new perforations shot from 9126-9193'. On July 16, 1981 another set of perforations were shot from 8928-8952'. A CIBP will be set above these perforations at approximately 8870' prior to cutting and pulling the 5 1/2" casing string. Then once the casing string has been cut and pulled from 8800' two cement plugs will be set from approximately 8750-8850' and 7550-7450'.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 4
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 4
CASE #7412
November 19, 1981
Page 2 of 2

Ref: Item VII of C-108

Data on Proposed Operation
of Gulf Oil Corporation's
Lea "ZD" State Well No. 1

1. Proposed average and maximum daily rate and volume of fluids to be injected:

   Average daily rate of 375 BWPD
   Maximum daily rate of 700 BWPD.

2. System is (open) utilizing normal oilfield stock tanks, etc.

3. The maximum injection pressure will be limited to 0.2 PSI/ft depth to the top most interval until an actual step rate test can be taken to determine the actual parting pressure. Once the parting pressure has been determined, the maximum injection pressure will be limited to this pressure upon approval of the OCD.

4. The source of injection fluids will be from Gulf Oil Corporation's adjacent Lea "YH" State Lease. An analysis of the injection water is attached as Exhibit 6A.

5. The zone of disposal is not productive of oil and gas within one mile of the proposed injection well. Since the disposal formations are not open at the present time in the proposed injection well, water analysis and compatibilities of formation water and injection fluid must be inferred from existing nearby wells producing from the proposed disposal zone (See Exhibit 6B). The nearest offset injection well (injecting into the same basic interval as our proposed disposal zone) is Arco's Sinclair-Vacuum SWD #1, Section 16, T-18-S, R-35-E, Lea County, and it does not indicate any incompatibilities between injected fluids and formation waters (See Exhibit 1).

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 5
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 5
CASE #7412
November 19, 1981

WATER ANALYSIS REPORT

Ref: Item VII of C-108

COMPANY Gulf Oil Exploration & Prod. Co. ADDRESS Hobbs, NM DATE: 10/30/81

SOURCE YH State Battery DATE SAMPLED 10/30/81 ANALYSIS NO.

Analysis	Mg/l	*Meq/l	
1. pH	5.4		
2. H_2S (Qualitative)	Pos.		
3. Specific Gravity	1.125		
4. Dissolved Solids	167,703		
5. Suspended Solids	-0-		
6. Phenolphthalein Alkalinity ($CaCO_3$)	-0-		
7. Methyl Orange Alkalinity ($CaCO_3$)	250		
8. Bicarbonate (HCO_3)	HCO_3 305	÷61	5 HCO_3
9. Chlorides (Cl)	Cl 102,178	÷35.5	2878 Cl
10. Sulfates (SO_4)	SO_4 1500	÷48	31 SO_4
11. Calcium (Ca)	Ca 6800	÷20	340 Ca
12. Magnesium (Mg)	Mg 2430	÷12.2	199 Mg
13. Total Hardness ($CaCO_3$)	14,000		
14. Total Iron (Fe)	-		
15. Barium (Qualitative)			
16. Strontium			

*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

340	Ca	HCO_3
199	Mg	SO_4
2375	Na	Cl

5	HCO_3	Ca
31	SO_4	Mg
2878	Cl	Na

Saturation Values	Distilled Water 20°C
$CaCO_3$	13 Mg/l
$CaSO_4 \cdot 2H_2O$	2,090 Mg/l
$MgCO_3$	103 Mg/l

Compound	Equiv. Wt.	X Meq/l	= Mg/l
$Ca(HCO_3)_2$	81.04	5	405
$CaSO_4$	68.07	31	2110
$CaCl_2$	55.50	304	16,872
$Mg(HCO_3)_2$	73.17	-0-	-0-
$MgSO_4$	60.19	-0-	-0-
$MgCl_2$	47.62	199	9476
$NaHCO_3$	84.00	-0-	-0-
Na_2SO_4	71.03	-0-	-0-
NaCl	58.46	2375	138,842

REMARKS cc: Mr. R. Worley

M. Hill, G. Knorr

Respectfully submitted
TRETOLITE COMPANY
Ron Matthews

EXHIBIT 6A
CASE #7412
November 19, 1981

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 6A
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

Ref: Item VII of C-108

WOLF PETRO LAB, INC.

DIAL 915/366-9701
DIAL 915/366-7171
2411 WEST 42ND STREET
P. O. BOX 643
ODESSA, TEXAS
79760

LABORATORY REPORT

Charge Gulf
Test No. WPL-81-866
Date of Run 11/11/81
Date Received 11/7/81

A Sample of Produced Waters from Stated Leases
Secured from
At
Secured by Gulf Oil
Purpose Compatability Study Time Date 11/4/81
Sampling Conditions:

SPECIAL ANALYSIS AND TESTS

	Mixing Percentages of Source Waters	Transmission/Dwell Readings at 0hr	1hr	2hr	4hr	6hr	8hr
4	33.3% Lea "YH" Lease in Gulf West Pearl Queen	88	90	88	94	98	98
5	50.0% Lea "YH" Lease in Gulf West Pearl Queen	94	96	97	96	98	98
6	66.7% Lea "YH" Lease in Gulf West Pearl Queen	91	95	95	94	98	97
8	33.3% Lea "YH" Lease in Texaco Central Vacuum Unit	84	85	82	82	84	82
9	50.0% Lea "YH" Lease in Texaco Central Vacuum Unit	86	85	83	83	84	86
10	66.7% Lea "YH" Lease in Texaco Central Vacuum Unit	91	90	89	89	91	92

12 For the test period of 8 hours these waters are compatible.

ADDITIONAL DATA AND REMARKS

Run by: D. Hodgson Checked by: D. Hodgson Approved: D. Hodgson

COPIES

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 6B
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

EXHIBIT 6B
CASE #7412
November 19, 1981

Ref: Item XI of C-108

Chemical Analysis of Fresh Water
Within One-Mile of
Gulf Oil Corporation
Lea "ZD" State Well No. 1

The only known fresh water source within one-mile of the proposed injection well is a Windmill Water Well located in Unit F, Section 31, T-18-S, R-35-E (See Exhibit 1). A Water Analysis Report containing the following information is attached.

	Date Spld.	Chloride	Total Dissolved Solids
A Windmill Water Well in Section 31, T-18-S, R-35-E.	10-29-81	543	1072

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 7
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 7
CASE #7412
November 19, 1981

WATER ANALYSIS REPORT

COMPANY Gulf Oil Exploration & Prod. ADDRESS Hobbs, NM DATE: 10/30/81

SOURCE Windmill Waterwell in Sec. 31-T18S-R35E DATE SAMPLED 10/29/81 ANALYSIS NO.

Analysis		Mg/L		*Meq/L	
1. pH	7.8				
2. H_2S (Qualitative)	Neg.				
3. Specific Gravity	1.000				
4. Dissolved Solids		1072			
5. Suspended Solids		-0-			
6. Phenolphthalein Alkalinity ($CaCO_3$)		-0-			
7. Methyl Orange Alkalinity ($CaCO_3$)		150			
8. Bicarbonate (HCO_3)	HCO_3	183	÷61	3	HCO_3
9. Chlorides (Cl)	Cl	543	÷35.5	15	Cl
10. Sulfates (SO_4)	SO_4	50	÷48	1	SO_4
11. Calcium (Ca)	Ca	200	÷20	10	Ca
12. Magnesium (Mg)	Mg	121	÷12.2		Mg
13. Total Hardness ($CaCO_3$)		1000			
14. Total Iron (Fe)					
15. Barium (Qualitative)					
16. Strontium					

*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

10	Ca ←	→ HCO_3
9	Mg →	→ SO_4
0	Na ←	→ Cl

3		
1		
15		

Compound	Equiv. Wt.	X	Meq/L	=	Mg/L
$Ca(HCO_3)_2$	81.04		3		243
$CaSO_4$	68.07		1		68
$CaCl_2$	55.50		6		333
$Mg(HCO_3)_2$	73.17		-0-		-0-
$MgSO_4$	60.19		-0-		-0-
$MgCl_2$	47.62		9		428
$NaHCO_3$	84.00		-0-		-0-
Na_2SO_4	71.03		0-		-0
NaCl	58.46		-0-		-0-

Saturation Values Distilled Water 20°C

$CaCO_3$	13 Mg/L
$CaSO_4 \cdot 2H_2O$	2,090 Mg/L
$MgCO_3$	103 Mg/L

REMARKS cc: Mr. R. Worley

M Hill, G. Knorr

Respectfully submitted
TRETOLITE COMPANY
Ron Matthews

EXHIBIT 7
CASE #7412
November 19, 1981

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BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 7
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

Ref: Item XIII of C-108

Gulf Oil Exploration and Production Company

J. M. Thacker
GENERAL MANAGER PRODUCTION
SOUTHWEST DISTRICT

P. O. Drawer 1150
Midland, TX 79702

November 2, 1981

Surface Owner and
Offset Operators

Re: Application for Authorization
To Inject into Lea "ZD" State
Well No. 1, Lea County, N.M.

Gentlemen:

To comply with Paragraph XIII of the State of New Mexico OCD Form 108-C, Gulf Oil Corporation is furnishing the following information (see attached) concerning our proposal to convert our Lea "ZD" State Well No. 1 to a salt water disposal well. The entire application for authority to dispose of produced water into this well is scheduled to be presented at the New Mexico Oil Conservation Division Examiner Hearing Docket of November 19, 1981.

The location of our Lea "ZD" State No. 1 well is 990' FSL and 330' FWL of Section 30, Township 18 South, Range 35 East, Lea County, New Mexico. We will be requesting for authority to dispose of produced water from our Lea "YH" State Lease by injection into this well over a proposed open hole interval of 4375' to 7452' comprising part of the Lower Yates, and all of the Queen, San Andres, and Delaware formations.

Should there be any objections to this application, they should be made at the Examiner Hearing in Santa Fe.

Yours very truly,

B J Ballagher

for F.H. Martin
Technical Manager

AWB/js
Attachments

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 8
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

Gulf

A DIVISION OF GULF OIL CORPORATION

EXHIBIT 8
CASE #7412
November 19, 1981

SURFACE OWNER

Commissioner of Public Lands
P.O. Box 1148
Santa Fe, New Mexico 87501

Attn: Mr. Ray Graham

LEASEHOLD OPERATORS WITHIN ONE-HALF MILE

Amoco Production Company
P.O. Box 3092
Houston, Texas 77001

Attn: Mr. Jim C. Allen

Bass Enterprises Production Company
P.O. Box 2760
Midland, Texas 79702

Attn: Mr. Jim E. Pullig

BEFORE EXAMINER STAMPS
OIL CONSERVATION DIVISION
EXHIBIT NO. 8
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

EXHIBIT 8
CASE #7412
November 19, 1981

ACCEPTANCE OF REGISTERED, INSURED, C.O.D. AND CERTIFIED MAIL

NAME AND ADDRESS OF SENDER: Gulf Oil Co.

Indicate type of mail: ☐ Registered ☐ Insured ☐ COD ☒ Certified

I certify that we have ☐ Commercial Insurance ☐ A deductible clause of $

Affix stamp here if issued as certificate of mailing or for additional copies of this bill. POSTMARK AND DATE OF RECEIPT 11-03-81

LINE	NUMBER OF ARTICLE	NAME OF ADDRESSEE, STREET, AND POST-OFFICE ADDRESS	POSTAGE	FEE	Handling Charge	Actual Value (if Registered)	DUE SENDER IF C.O.D.	R. R. FEE	S.D. FEE	S.H. FEE	REST. DEL. FEE	REMARKS
1	24045	County Clerk	.54	.75	1.29			.60				
2		Terry County										
3		Brownfield, Tx 79316										
4												
5	24046	Commissioner of Public Lands										
6		P.O. Box 1148										
7		Santa Fe, New Mexico 87501 KM	.20	.75	1.55			.60				
8												
9	24047	Amoco Production Company	.20	.75	1.55			.60				
10		P.O. Box 3092										
11		Houston, Texas 77001										
12												
13	24048	Bass Enterprises Production Company	.20	.75	1.55			.60				
14		P.O. Box 2760										
15		Midland, Texas 79702										

BEFORE THE OIL CONSERVATION DIVISION
CASE NO. 7412
Submitted by: GULF OIL CORP
Hearing Date: 19 November 1981

EXHIBIT 8
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Page 3 of 4

TOTAL NUMBER OF PIECES LISTED BY SENDER	TOTAL NUMBER OF PIECES RECEIVED AT POST OFFICE	POSTMASTER, PER (Name of receiving employee)
4	4 Closed	

The full declaration of value is required on all domestic and international registered mail. Commercial Insurance—Payment of the full registry fee is required on articles valued up to $1,000 or the full amount of the deductible if the deductible exceeds $1,000. The maximum indemnity payable is $25,000 for registered mail, $400 for COD and $400 for insured mail. Special handling charges apply only to third- and fourth-class parcels. Special delivery service also includes special handling service.

PS Form 3877, Sept. 1979

FORM MUST BE COMPLETED BY TYPEWRITER, INK OR BALL POINT PEN ☆ U.S. GOVERNMENT PRINTING OFFICE: 1979-301-994

PS Form 3811, Jan 1979 RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered.....¢
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- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
P.O. Box 1148
Santa Fe, NM 87501

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	24046	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☑Authorized agent
Leroy Catanach

4. DATE OF DELIVERY
POSTMARK NOV 6 1981

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:
CLERK'S INITIALS

☆GPO: 1979-300-459

PS Form 3811, Jan 1979 RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☑ Show to whom and date delivered.....¢
- ☐ Show to whom, date and address of delivery....¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered.....¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
P.O. Box 3092
Houston, Tx 77001

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	24047	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☑Authorized agent

4. DATE OF DELIVERY
NOV 6 1981
POSTMARK NOV 6 1981

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:
CLERK'S INITIALS

GPO WS

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 8
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

EXHIBIT 8
CASE #7412
November 19, 1981
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Ref: Item VIII & IX of C-108

Geological Data
Injection Zones
for
Gulf Oil Corporation's
Lea "ZD" State Well No. 1

Seven Rivers - 3945-4710' (765')

This formation is predominately dolomite with thin, five to ten foot zones of sandy dolomite in the lower half.

Queen - 4710-5035' (325')

This formation is composed of top and basal sandstone members separated by a dolomite section. The top member, the Knight sandstone, is a porous and permeable section approximately 70' thick while the basal member, the Penrose sandstone, is a porous and permeable section 37' thick.

Grayburg - 5035-5270' (235')

This formation is dolomite with two sand lenses showing porosity and permeability. The sand lenses are 35' and 20' thick.

San Andres - 5270-6310' (1040')

The San Andres formation is a dolomite with porous and permeable zones five to twenty feet thick.

Delaware Sand - 6310-7645' (355')

This formation is composed of fine-grained sandstone with thin layers of black shale and argillaceous limestone. The main porosity and permeability zone in this sandstone is from 6376-88'.

Proposed stimulation of these injection zones will be acidization with 20% HCL acid (and fracturization only if necessary) to initially achieve injection rates and pressures as approved by the OCD.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 9A
CASE NO. 7412
Submitted by GULF OIL CORP.
Hearing Date 19 November 1981

EXHIBIT 9A
CASE #7412
November 19, 1981

Geological Data
Fresh Water Aquifers
in area of
Gulf Oil Corporation's
Lea "ZD" State Well No. 1

The Lea "ZD" State Well No. 1 is located three miles north of the Mescalero Ridge which is the boundary between aquifers of different geologic ages.

South of the Mescalero Ridge are the Chinle and Santa Rosa (Triassic Age) aquifers. To the north, in the vicinity of the Lea "ZD" State Well No. 1, are the Ogallala (Tertiary Age) and occasional Quaternary channel and depression - filled aquifers. The more important aquifer is the Tertiary-Age Ogallala formation.

The Ogallala is a semi-consolidated fine-grained calcareous sand capped with a thick layer of caliche. It contains some clay, silt, and gravel. The base of this sand and the top of the Red-beds is at 200 feet by gamma-ray log measurement.

The Red-beds are un-differentiated Permian or Triassic Age and are composed of red shale and red silty sandstone. No wells are known to be bottomed in the Red-beds, but could probably yield very small quantities of high sulfate water (Ground-Water Report 6, U.S.G.S., 1961). The shale portions of the Red-beds retard the interchange of water between the evaporite-bearing rocks of the Permian and the overlying sandstone aquifers.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 9B
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 9B
CASE #7412
November 19, 1981

Ref: Item XII of C-108

Gulf Oil Corporation
Lea "ZD" State Well No. 1
Unit M, Section 30, T-18-S, R-35-E
Lea County, New Mexico

Affirmative Statement

Gulf Oil Corporation has examined available geological and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 11
CASE NO. 7412
Submitted by GULF OIL CORP
Hearing Date 19 November 1981

EXHIBIT 11
CASE #7412
November 19, 1981

Dockets Nos. 38-81 and 39-81 are tentatively set for December 2 and December 16, 1981. Application for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - THURSDAY - NOVEMBER 19, 1981

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

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

ALLOWABLE: (1) Consideration of the allowable production of gas for December, 1981, from fifteen prorated pools in Lea, Eddy and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for December, 1981, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 7410: Application of B.O.A. Oil & Gas Company for two unorthodox oil well locations, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 2035 feet from the South line and 2455 feet from the East line and one to be drilled 2455 feet fron the North line and 1944 feet from the East line, both in Section 31, Township 31 North, Range 15 West, Verde-Gallup Oil Pool, the NW/4 SE/4 and SW/4 NE/4, respectively, of said Section 31 to be dedicated to said wells

CASE 7356: (Continued from October 21, 1981, Examiner Hearing)

Application of S & I Oil Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the W/2 SW/4 of Section 12, Township 29 North, Range 15 West, Cha Cha-Gallup Oil Pool, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7411: Application of Viking Petroleum, Inc., for an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 330 feet from the North and East lines of Section 12, Township 11 South, Range 27 East, the NE/4 of said Section 12 to be dedicated to the well. (This case will be dismissed).

CASE 7412: Application of Gulf Oil Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Lower Yates, Queen, San Andres and Delaware formations in the open hole interval from 4375 feet to 7452 feet in its Lea "ZD" State Well No. 1 located in Unit M of Section 30, Township 18 South, Range 35 East, Air-Strip Field.

CASE 7413: Application of Gulf Oil Corporation for Directional Drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill its Arnott Ramsey Well No. 12, the surface location of which is 500 feet from the South line and 1400 feet from the East line of Section 32, Township 25 South, Range 37 East, to a bottomhole location within 150 feet of a point 500 feet from the South line and 800 feet from the East line of Section 32, Township 25 South, Range 37 East, Langlie Mattix Pool, the SE/4 SE/4 of said Section 32 to be dedicated to the well.

CASE 7414: Application of Gulf Oil Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of the Drinkard and Wantz-Granite Wash production in the wellbore of its Pugh Well No. 10, located in Unit C of Section 14, Township 22 South, Range 37 East.

CASE 7415: Application of Gulf Oil Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of the Tubb and Drinkard production in the wellbore of its T. B. Andrews Well No. 3, located in Unit J of Section 32, Township 22 South, Range 38 East.

CASE 7379: (Continued from October 21, 1981, Examiner Hearing)

Application of JEM Resources, Inc., for vertical pool extension and special GOR limit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the vertical extension of the Cave-Grayburg Pool to include the San Andres Formation, and the establishment of a special gas-oil ratio limit for said pool to 6000 to one or, in the alternative, the abolishment of the gas-oil ratio limit in said pool, all to be effective October 1, 1981.

CASE 7407: (Continued from November 4, 1981, Examiner Hearing)

Application of Mesa Petroleum Company for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Abo formation underlying the NE/4 of Section 23, Township 5 South, Range 24 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7416: Application of El Paso Natural Gas Company for pool creation and redelineation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to contract the horizontal limits of the Jalmat Gas Pool by deleting therefrom all lands in Township 26 South, Range 37 East. Applicant also proposes to contract the horizontal limits of the Rhodes Yates - Seven Rivers Oil Pool by deleting therefrom all of the gas productive lands in the North end thereof and to create the Rhodes Yates-Seven Rivers Gas Pool comprising all such deleted lands. Applicant further proposes the deletion of certain oil productive lands from said Rhodes oil pool and the extension of the Scarborough Pool to include said lands. Applicant further proposes to contract the horizontal boundaries of the Rhodes Gas Storage Unit to delete certain lands and wells not participating in the Rhodes Gas Storage Project and to withdraw without restriction all gas remaining in the newly created Rhodes Gas Pool.

CASE 7417: (This case will be dismissed.)

Application of Northwest Pipeline Corporation for 13 non-standard gas proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for 13 non-standard Pictured Cliffs gas proration units ranging in size from 142.39 acres to 176.77 acres and each comprised of various contiguous lots or tracts in Sections 4,5,6,7, and 18 of Township 31 North, Range 7 West. Said proration units result from corrections in the survey lines on the North and West sides of Township 31 North, Range 7 West and overlap seven non-standard Mesaverde proration units previously approved by Order No. R-1066.

CASE 7418: Application of Morris R. Antweil for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the West Nadine-Drinkard Pool including a special gas-oil ratio of 6,000 to one.

CASE 7419: Application of Morris R. Antweil for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the West Nadine-Blinebry pool including a special gas-oil ratio of 4,000 to one.

CASE 7420: Application of Southland Royalty Company for two unorthodox oil well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of two previously drilled wells, the first being 760 feet from the South line and 660 feet from the East line of Section 5 the other being 660 feet from the North and West lines of Section 9, both in Township 19 South, Range 35 East, both to be plugged back to the Scharb-Bone Springs Pool, the S/2 SE/4 of Section 5 and the N/2 NW/4 of Section 9, respectively, to be dedicated to the wells.

CASE 7421: Application of Doyle Hartman for compulsory pooling, unorthodox well location and non-standard spacing unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying a 120-acre non-standard spacing unit consisting of the S/2 SW/4 and the NW/4 SW/4 of Section 3, Township 20 South, Range 37 East, to be dedicated to a well to be drilled at an unorthodox location 2,310 feet from the South line and 330 feet from the West line of Section 3. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 7422: Application of Conoco, Inc. for dual completion and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Southeast Monument Unit Well No. 121, to produce oil from the Skaggs Grayburg and an undesignated Paddock pool through parallel strings of tubing. Applicant further seeks approval of the unorthodox location of said well 1310 feet from the North line and 1330 feet from the West line of Section 19, Township 20 South, Range 38 East, the NE/4 NW/4 of said Section 19 to be dedicated to the well.

CASE 7423: Application of Conoco, Inc., for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority for three companies to institute a cooperative waterflood project in the Blinebry oil and gas pool by the injection of water into the Blinebry formation through 13 injection wells located on leases operated by Conoco, Shell Oil Company, and Southland Royalty Company, in Sections 33 and 34, Township 20 South, Range 38 East, and Sections 2 and 3, Township 21 South, Range 37 East.

CASE 7424: Application of Rice Engineering and Operating, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Lower San Andres formation in the perforated interval from 4300 feet to 4852 feet in its Eunice-Monument Eumont SWD "G" Well No. 8, located in Unit G of Section 8, Township 20 South, Range 37 East.

CASE 7425: Application of H. L. Brown, Jr. for compulsory pooling and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the top of the San Andres formation to the base of the Pennsylvanian formation underlying the S/2 of Section 36, Township 16 South, Range 37 East, to be dedicated to a well to be drilled at an unorthodox location 554 feet from the South and West lines of said Section 26, provided that in the event the subject well encounters production in the Casey-Strawn Pool and/or the West Knowles-Drinkard Pool, the lands pooled would be the W/2 SW/4 of said Section 26. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7426: Application of Phillips Petroleum Company for Amendment of Division Order No. R-5897 and certification of a tertiary recovery project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the Amendment of Division Order No. R-5897, to include the injection of carbon dioxide in the previously authorized pressure maintenance project in the East Vacuum Grayburg-San Andres Unit, for conversion of existing injectors to water/carbon dioxide injection, and for certification to the Secretary of the IRS that the East Vacuum Grayburg-San Andres Unit Project is a qualified tertiary oil recovery project.

CASE 7427: Application of Belco Petroleum Corporation for a special allowable, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an adjustment to the manner in which allowables are calculated for wells in the South Carlsbad-Morrow Gas Pool in order to grant relief to the over-produced status of its Douglas Com. Well No. 1 located in Unit H of Section 7, Township 22 South, Range 27 East, said well being subject to shut-in being more than six times its allowable over-produced. In the alternative, applicant seeks to make up the over-production at a rate less than complete shut-in by curtailing production from the well to 80 percent of its top allowable until it is back in balance.

CASE 7428: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, and extending certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico.

(a) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the North Antelope Ridge-Wolfcamp Gas Pool. The discovery well is J. C. Williamson Triple A Federal Well No. 1 located in Unit F of Section 10, Township 23 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 10: N/2 and N/2 SW/4

(b) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Diamondtail-Wolfcamp Pool. The discovery well is the Superior Oil Company Triste Draw Federal Well No. 1 located in Unit J of Section 14, Township 23 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 32 EAST, NMPM
Section 14: SE/4

(c) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Bone Spring production and designated as the North Grama Ridge-Bone Spring Pool. The discovery well is the Hunt Oil Company State 4 Well No. 1 located in Unit T of Section 4, Township 21 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 34 EAST, NMPM
Section 4: SW/4

(d) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Grassland-Wolfcamp Pool. The discovery well is C. F. Qualia State 23 Well No. 1 located in Unit K of Section 23, Township 15 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 15 SOUTH, RANGE 34 EAST, NMPM
Section 23: SW/4

(e) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Bone Spring production and designated as the North Lusk-Bone Spring Pool. The discovery well is Petroleum Development Corporation Shelly Federal Com. Well No. 1 located in Unit H of Section 5, Township 19 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 5: NE/4

(f) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the McMillan-Atoka Gas Pool. The discovery well is Southland Royalty Company Pecos River 21 Federal Com Well No. 1 located in Unit K of Section 21, Township 19 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 27 EAST, NMPM
Section 21: S/2

(g) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Springs-Morrow Gas Pool. The discovery well is Jake L. Hamon State 33 Com Well No. 1 located in Unit I of Section 33, Township 20 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 26 EAST, NMPM
Section 32: E/2
Section 33: All

(h) EXTEND the Antelope Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 11: All
Section 15: N/2

(i) EXTEND the Baldridge Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 24 EAST, NMPM
Section 14: N/2

(j) EXTEND the Bear Draw-Queen-Grayburg-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 29 EAST, NMPM
Section 28: N/2 SE/4

(k) EXTEND the Bluitt-Wolfcamp Gas Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH RANGE 37 EAST, NMPM
Section 10: SE/4

(l) EXTEND the Buffalo Valley-Pennsylvanian Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 15 SOUTH, RANGE 27 EAST, NMPM
Section 4: All

(m) EXTEND the Bunker Hill-Penrose Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 13: SE/4 SW/4

(n) EXTEND the Burton Flat-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPM
Section 35: W/2

(o) EXTEND the Eagle Creek-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 25 EAST, NMPM
Section 27: N/2

TOWNSHIP 18 SOUTH, RANGE 25 EAST, NMPM
Section 1: All

(p) EXTEND the Golden Lane-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 29 EAST, NMPM
Section 9: S/2

(q) EXTEND the Kennedy Farms-Upper Pennsylvanian Gas Pool in Eddy County, New Mexico to include therein:

TOWNSHIP 17 SOUTH, RANGE 26 EAST, NMPM
Section 34: N/2
Section 35: N/2

(r) EXTEND the North Mason-Delaware Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 26 SOUTH, RANGE 32 EAST, NMPM
Section 8: S/2 S/2

(s) EXTEND the West Osudo-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 35: N/2

(t) EXTEND the West Parkway-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 29: W/2

(u) EXTEND the Peterson-Mississippian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 4 SOUTH, RANGE 33 EAST, NMPM
Section 29: NE/4

(v) EXTEND the POW-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 26 EAST, NMPM
Section 4: S/2

(w) EXTEND the Saunders-Permo Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 32: NE/4

(x) EXTEND the Scharb-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 35 EAST, NMPM
Section 8: NE/4

(y) EXTEND the East Siete-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 31 EAST, NMPM
Section 10: NE/4

(z) EXTEND the Teague-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM
Section 27: NW/4

(aa) EXTEND the Tom-Tom-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM
Section 28: SE/4

(bb) EXTEND the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico to include therein:

TOWNSHIP 18 SOUTH, RANGE 29 EAST, NMPM
Section 21: All

(cc) EXTEND the North Young-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 9: NE/4

SUBJECT: REMARKS CONCERNING CASE #7412 (Gulf Oil Corp.)

FROM: Jerry Sexton (Dec. 1, 1981)

Gulf Oil Corp.	Lea YH St #1	Injection interval not covered with cement behind 5½"
Gulf Oil Corp.	Lea YH St #2	Intermediate not set to injection interval Injection interval not covered behind 5½"
Gulf Oil Corp.	Lea YH St #3	Intermediate not set to injection interval Injection interval not covered behind 5½"
Gulf Oil Corp.	Lea YH St #4	Intermediate not set to injection interval Injection interval not covered behind 5½"
Gulf Oil Corp.	Lea 30 St #1	Plugged OK
Bob L. Johnson	Sinclair St #1	No plug at 8 5/8" shoe 245 feet of injection interval not covered by cement plugs
Bass Enterprises	Airstrip St #1	Water would migrate between 9 5/8" & 7"
Amoco Prod. Co.	State HR #2	Plugged OK
Amoco Prod. Co.	State HR #2Y	Plugged OK

From Jerry Sexton

Gulf Oil Exploration and Production Company

J. M. Thacker
GENERAL MANAGER PRODUCTION
SOUTHWEST DISTRICT

P. O. Drawer 1150
Midland, TX 79702

October 26, 1981

State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Case 7412

Attention: Mr. Joe D. Ramey

Re: Examiner Hearing
November 19, 1981

Gentlemen:

This letter will confirm our request to schedule the following on your Examiner Hearing Docket of November 19, 1981.

1. Downhole commingling of Tubb-Drinkard production in the wellbore of No. 3 T.R. Andrews well located in Unit J, 1980' FS&EL Sec. 32, T-22-S, R-38-E, Lea County, New Mexico.

2. Downhole commingling of Drinkard-Wantz Granite Wash production in the wellbore of Hugh Well No. 10, located in Unit C, 950' FNL and 2290' FWL, Sec. 14, T-22-S, R-37-E, Lea County, New Mexico.

3. Directionally drilling of Arnott Ramsay (NCT-B) Well No. 12, the surface location being 500' FSL and 1400' FEL in Unit O, Sec. 32, T-25-S, R-37-E, and a bottomhole location to be within a 150' radius of a point 500' FSL and 800' FEL in Unit P, Sec. 32, T-25-S, R-37-E, Langlie Mattix Pool, Lea County, New Mexico.

4. Disposal of produced saltwater in the approximate open hole interval 4375' - 7452' of the lower Yates, all of the Queen, San Andres and Delaware formations in Lea "ZD" State No. 1 located 990' FSL and 380' FWL, Sec. 30, T-18-S, R-35-E, Lea County, New Mexico.

Very truly yours,

F.H. Martin
Technical Manager

CFK/js

cc: New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88240

Called in by Chuck Kaltezer 10/26

Gulf

Downhole comm: Tb & Dr (gas; oil & gas)
T.R. Andrews #3 J 32-22S-38E Lea

downhole comm. Dr - Wantz Gr Wash (oil 441 MCF; 20:1 60 MCF)
Hugh #10 C-14-22S-37E Lea

directional drill
Arnott Ramsey #12 (NCT-B)
surf loc 500' FSL 1400' FEL
"O" 32-25S-R37E
bottomhole within 150' of a point
500' FSL 800' FEL
"P" 32-25S-37E
Langlie Mattix

R-6657
May 20,
A67021
Gulf
Box 1150

✓ disp. of prod salt water
open hole int 4375 - 7452
lower Yates, Q, SA, & Delaware
Lea ZD State No. 1
~~loc 990' FSL 330' FWL~~
Unit M Sec 30-T18S-R35E Lea
Air Strip Bone Spring Fld

Rough Marbie Orders

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

RUPP M.S.

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7412

Order No. R-6859

APPLICATION OF GULF OIL CORPORATION FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on November 19, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____ day of November, 1981, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Gulf Oil Corporation, is the owner and operator of the Lea "ZD" State Well No. 1, located in Unit M of Section 30, Township 18 South, Range 35 East, NMPM, Air-Strip Field, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Lower Yates, Queen, San Andres and Delaware formations, with injection into the open hole interval from approximately 4375 feet to 7452 feet.

(4) That within one-half mile of the proposed disposal well are at least five producing wells in which the long string has not been cemented across the injection interval. ~~and one~~

(5) That said wells could serve as conduits for migration of the injected water to other zones or could be subject to corrosion or casing collapse as a result of such injection.

(6) That the Bob L. Johnson Sinclair State Well No 1 located in Unit K of said Section 30 is not plugged in such a manner as to preclude the movement of injected fluid out of the injection zone to other zones.

injected waters from the _____ formation.

(7) That because the fluids to be injected may be able to move out of the injection interval and because such injection may result in damage to nearby wells the application for approval of a salt water disposal well should be denied.

IT IS THEREFORE ORDERED:

(1) That the applicant, Gulf Oil Corporation, ~~is hereby authorized~~ to utilize its Lea "ZD" State Well No. 1, located in Unit N of Section 30, Township 18 South, Range 35 East, NMPM, Air-Strip Field, Lea County, New Mexico, to dispose of produced salt water into the Lower Yates, Queen, San Andres and Delaware formations, ~~injection to be accomplished through tubing installed in a packer set at approximately _____ feet, with injection into the open hole interval from approximately 4376 feet to 7452 feet;~~ OH in the open hole interval from 4375 feet to 7452 feet is hereby denied.

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert

(2) Jurisdiction