CASE 6666: YATES PETROLEUM CORPORATION
FOR A DUAL COMPLETION, DOWNHOLE
COMMINGLING, AND SALT WATER DISPOSAL,
EDDY COUNTY, NEW MEXICO

Case Number

6088

Application

Transcripts.

Small Exhibits

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

May 16, 1980

Yates Petroleum Corporation
207 South Fourth Street
Artesia, New Mexico 88210

Case 6088

Attention: Mr. Johnny M. Morgan

Gentlemen:

This is with reference to your letter of April 16, 1980, wherein you request approval to retain your Mitchell "IN" Well No. 2 located in Unit I, Section 23, Township 17 South, Range 25 East, Eddy County, New Mexico, as a dual completion with the East Eagle Creek Atoka-Morrow perforation shut-in while disposing of water into the Devonian formation.

This office has no objection to this proposal providing you install a pressure gauge on the tubing-casing annulus and conduct a suitable tracer survey at least once yearly.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

YATES PETROLEUM CORPORATION
207 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 746-3558

April 16, 1980

Mr. Joe Ramey, Secretary-Director
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Subject: Yates Petroleum Corporation, Mitchell "IN" No. 2,
Unit I, Section 23, T17S, R25E, Eddy County, New Mexico

File

Dear Sir:

Yates Petroleum Corporation was authorized (Order No. R-5602) to complete its Mitchell "IN" well No. 2, located in Unit I of Section 23, Township 17 South, Range 25 East, NMPM, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced water into the Devonian formation, with injection into the perforated interval from 8879-9362 feet. Disposal began May 5, 1978. We did not get our pipeline connection for gas sales until December 1978 and the gas well was placed on production in January 1979. The gas production was disappointing as we were unable to sustain flow up the tubing-casing annulus. We ceased disposal in January 1979, when Devonian SWD well was TA'd allowing the Morrow to be produced up the tubing, gas sales were maintained at commercial volumes until Febraury 1980.

The Morrow gas well is now at its economic limit. We asked by letter dated February 3, 1980 that we be allowed to return the Devonian to SWD status as provided for in the original order dated December 27, 1977. Under the authority granted by Division Rule 70313 (2) Yates Petroleum was granted authority to reinstitute salt water disposal into the Devonian provided that upon discontinuance of production from the East Eagle Creek Atoka-Morrow Gas Pool, the Atoka-Morrow perforations be squeeze cemented and the casing-tubing annulus be loaded with an inhibited fluid, and a pressure gauge or approved leak detection device be attached to the annulus in order to determine leakage in the casing, tubing or packer.

Case 3772
4-28-80

Tubing
Orvid

Yates Petroleum now asks that they be allowed to retain the present East Eagle Creek Atoka-Morrow perforations, without squeeze cementing. We feel that a leak in the casing, tubing or packer could be detected using a pressure gauge and periodic radioactive tracer surveys. We foresee the possibility of utilizing the Atoka-Morrow interval for disposal of produced water, though we

only 1 copy
to Phin 2 mi/us

at least
1 to 2 times a year

do not intend to seek your approval of disposal status for the Atoka-Morrow at this time, we do request that we be allowed to retain the present perforations, temporarily abandoned, in the casing tubing annulus. Yates Petroleum Corporation is the only operator within a two mile radius of the subject well.

Yours truly,

YATES PETROLEUM CORPORATION

Johnny M. Morgan
Production Superintendent

JMM/ob

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

February 18, 1980

Case 6088

Yates Petroleum Corporation
207 South Fourth Street
Artesia, New Mexico 88210

Attention: Johnny Morgan

Gentlemen:

Under the authority granted me by Division Rule 703 B(2) Yates Petroleum Corporation is hereby granted authority to reinstitute salt water disposal into the Devonian formation in its Mitchell "IN" Well No. 2 located in Unit I of Section 23, Township 17 South, Range 25 East, Eddy County, New Mexico.

Said well shall continue to be bound by all provisions of Division Order No. R-5602 which originally authorized its use for salt water disposal purposes. Further, upon discontinuance of production from the East Eagle Creek Atoka-Morrow Gas Pool, the Atoka-Morrow perforations shall be squeeze cemented, the casing-tubing annulus shall be loaded with an inhibited fluid, and a pressure gauge or approved leak detection device shall be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

Yours very truly,

C O P Y

JOE D. RAMEY
Director

JDR/fd

YATES PETROLEUM CORPORATION
207 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 746-3558

S. P. YATES
PRESIDENT
MARTIN YATES, III
VICE PRESIDENT
JOHN A. YATES
VICE PRESIDENT
W. HARPER
SEC.-TREAS

February 13, 1980

Mr. Joe Ramey, Secretary-Director
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Subject: Exception to NMOCC Rule 703B(1)

Dear Sir:

Under the provisions of NMOCC Rule 703B (2) Yates Petroleum Corporation seeks an exception to NMOCC Rule 703B(1) for its Mitchell "IN" well No. 2.

Yates Petroleum Corporation was authorized (Order No. R-5602) to complete its Mitchell "IN" well No. 2, located in Unit I of Section 23, Township 17 South, Range 25 East, NMPM, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced water into the Devonian formation, with injection into the perforated interval from 8879-9362 feet. Disposal began May 5, 1978, we did not get a pipe line connection from gas sales until December 1978 and the gas well was placed on production in January 1979. The gas sales were disappointing and we were unable to maintain flow up the casing-tubing annulus. We ceased disposal in January 1979 when the Devonian SWD well was TA'd allowing the Morrow gas well to be produced through the tubing. The Morrow interval is now at the economic limit and we now ask that we be allowed to return the Devonian to SWD status as provided for in the original order No. 5602, dated December 27, 1977.

My thanks,

YATES PETROLEUM CORPORATION

Johnny M. Morgan
Production Superintendent

JMM/ob

YATES PETROLEUM CORPORATION
207 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 746-3558

February 13, 1980

Mr. Joe Ramey, Secretary-Director
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Subject: Exception to NMOCC Rule 703B(1)

Dear Sir:

Under the provisions of NMOCC Rule 703B (2) Yates Petroleum Corporation seeks an exception to NMOCC Rule 703B(1) for its Mitchell "IN" well No. 2.

Yates Petroleum Corporation was authorized (Order No. R-5602) to complete its Mitchell "IN" well No. 2, located in Unit I of Section 23, Township 17 South, Range 25 East, NMPM, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced water into the Devonian formation, with injection into the perforated interval from 8879-9362 feet. Disposal began May 5, 1978, we did not get a pipe line connection from gas sales until December 1978 and the gas well was placed on production in January 1979. The gas sales were disappointing and we were unable to maintain flow up the casing-tubing annulus. We ceased disposal in January 1979 when the Devonian SWD well was TA'd allowing the Morrow gas well to be produced through the tubing. The Morrow interval is now at the economic limit and we now ask that we be allowed to return the Devonian to SWD status as provided for in the original order No. 5602, dated December 27, 1977.

My thanks,

YATES PETROLEUM CORPORATION

Johnny M. Morgan
Production Superintendent

JMM/ob

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. 6088
Order No. R-5602

APPLICATION OF YATES PETROLEUM
CORPORATION FOR A DUAL COMPLETION,
DOWNHOLE COMMINGLING, AND SALT WATER
DISPOSAL, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 16, 1977, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 27th day of December, 1977, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Yates Petroleum Corporation, seeks approval for the downhole commingling of East Eagle Creek Atoka-Morrow, Eagle Creek-Strawn and Eagle Creek Permo-Penn production in the wellbore of its Mitchell "IN" Well No. 2 located in Unit I of Section 23, Township 17 South, Range 25 East, Eddy County, New Mexico, and to dually complete said well in such a manner as to permit disposal of produced salt water into the Devonian formation thru tubing and production of the aforesaid commingled zones thru the casing-tubing annulus.

(3) That the applicant's request for dismissal of that portion of this case concerning downhole commingling should be approved.

(4) That the applicant seeks authority to complete said Mitchell "IN" Well No. 2, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced salt water into the Devonian formation, with injection into the perforated interval from approximately 8879 feet to 9362 feet.

(5) That the injection should be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 8840 feet. That the water to be disposed of in said well should be continuously treated to prevent corrosion or the tubing should be plastic lined; and the well should be inspected at least weekly in order to detect any failure of the downhole or surface injection equipment.

(6) That the injection well or system should be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1776 psi.

(7) That the operator should notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(9) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Yates Petroleum Corporation, is hereby authorized to complete its Mitchell "IM" Well No. 2, located in Unit I of Section 23, Township 17 South, Range 25 East, NMPM, Eddy County, New Mexico, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced water into the Devonian formation.

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall annually provide the supervisor of the Commission's Artesia district office with evidence demonstrating the continued separation of the Morrow producing zone from waters injected into or being injected into the Devonian formation.

(2) That the injection shall be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 8840 feet.

(3) That the water to be injected shall be continuously treated to prevent corrosion or the tubing shall be plastic-lined.

(4) That the applicant shall inspect the well at least once each week in order to detect any failure of the downhole or surface injection equipment.

(5) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1776 psi.

(6) That the operator shall notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(7) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

(8) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(9) That that portion of the application in this case for approval of the downhole commingling of East Eagle Creek Atoka-Morrow, Eagle Creek-Strawn and Eagle Creek Permo-Pennsylvanian production is hereby dismissed.

(10) 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

PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

jr/

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION :
OF YATES PETROLEUM CORPORATION FOR :
DUAL COMPLETION AND SALT WATER : CASE NO. 6088
DISPOSAL, EDDY COUNTY, NEW MEXICO :
:

APPLICATION

COMES NOW YATES PETROLEUM CORPORATION, by its attorneys, and in support hereof, respectfully states:

1. Applicant is the operator of the Pennsylvanian system underlying:

Township 17 South, Range 25 East, N.M.P.M.

Section 23: E/2

in Eddy County, New Mexico, upon which it has drilled its Mitchell "IN" No. 2 Well, at a location 2,030 feet from the South line and 660 feet from the East line of said Section 23.

2. Applicant proposes to dually complete its Mitchell "IN" No. 2 Well to produce gas from the Pennsylvanian formation of the East Eagle Creek Morrow, Eagle Creek Strawn, and Eagle Creek Permo Penn, and to dispose of water through the tubing into the Devonian formation.

3. A diagrammatic sketch of the proposed conventional dual completion in accordance with Rule 112-A of the Commission Rules and Regulations is hereto attached; that the mechanics of the proposed dual completions are feasible in accordance with good conservation practices; and will otherwise prevent waste and protect correlative rights.

Case 6088

4. To the best of applicant's knowledge and belief there will be no opposition to this application. Attached is the data concerning the well within one-half mile of Yates Petroleum Corporation's Mitchell "IN" No. 2 Well. Also attached hereto are the items required by Rule 701-B.

WHEREFORE, applicant prays:

A. That this application be set for hearing before an examiner and that notice of said hearing be given as required by law.

B. That upon hearing the Commission enter its order granting permission to applicant to conventionally dual complete its Mitchell "IN" No. 2 Well for the production of gas from the Pennsylvanian formation of the East Eagle Creek Morrow, Eagle Creek Strawn, and Eagle Creek Permo Penn, and that the Commission permit the disposal of water in the Devonian formation through the tubing.

C. And for such other and further relief as may be just in the premises.

YATES PETROLEUM CORPORATION

By: [signature] John W. Carson

LOSEE & CARSON, P.A.
P. O. Drawer 239
Artesia, New Mexico 88210

Attorneys for Applicant

ARTESIA

MIDLAND © MAP

AIRPORT

Artesia Airport
City of Artesia

City of Artesia

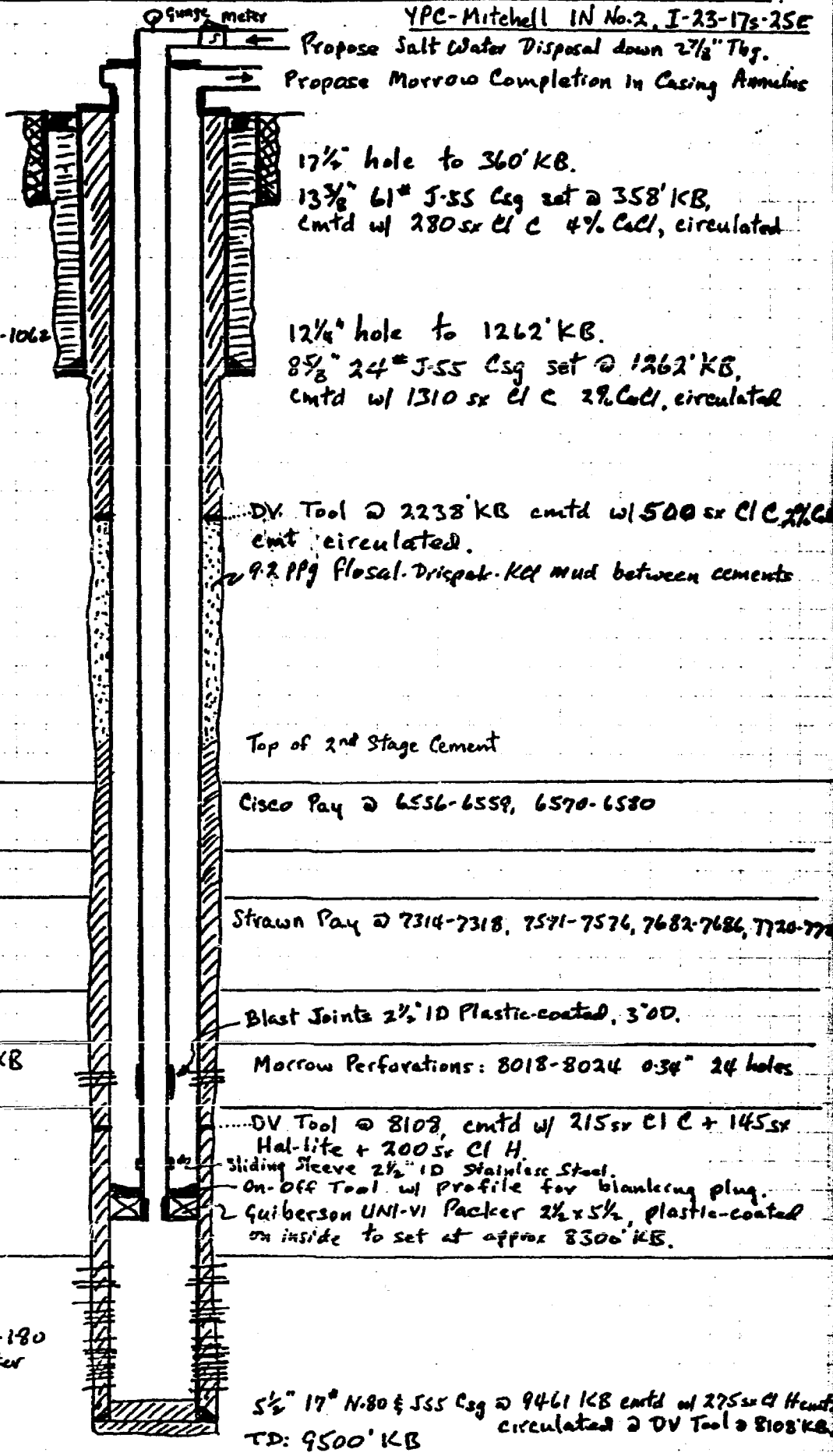
Lease

Case Loop

Case 6088

Diagrammatic Sketch of Proposed Dual Gas Producer & Water Disposal

YPC-Mitchell IN No.2, I-23-17s-25E



Case 6088

1342-A

HALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVISION
LOVINGTON, NEW MEXICO 88260

LABORATORY WATER ANALYSIS

No. W77-754

To Yates Petroleum Corroration

207 S. 4th Street

Artesia, New Mexico

Date 9-14-77

Submitted by

Date Rec. 9-13-77

Well No. Mitchell IN #2 Depth Formation Devonian

County Eddy Field Source DST #1

	Sampler	Circ. Sub.	Tor Recovery	Pit Sample
Resistivity	0.221 @ 74°F.	0.208 @ 74°F.	0.214 @ 74°F.	0.208 @ 74°F.
Specific Gravity	1.031	1.032	1.031	1.032
pH	6.9	7.2	6.9	7.5
Calcium (Ca)	2,300	1,500	2,100	1,500 *MPL
Magnesium (Mg)	330	120	150	120
Chlorides (Cl)	23,000	24,000	23,000	24,000
Sulfates (SO_4)	2,950	3,400	3,000	3,400
Bicarbonates (HCO_3)	855	17,900	1,165	24,500
Soluble Iron (Fe)	Trace	Nil	Trace	Nil

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: Brewer

cc:

HALLIBURTON COMPANY

By W. L. Brewer
CHEMIST

NOTICE

Case 6088

ENJAY CHEMICAL COMPANY

Houston Chemical Plant
8230 Stedman, Houston, Texas 77029

April 12, 1973

WATER ANALYSIS

SAMPLE DESCRIPTION: Produced water from Gissler SWD tank (Eagle Creek Field) submitted for routine correlation and stability to $CaCO_3$. Sample taken 4-5-73

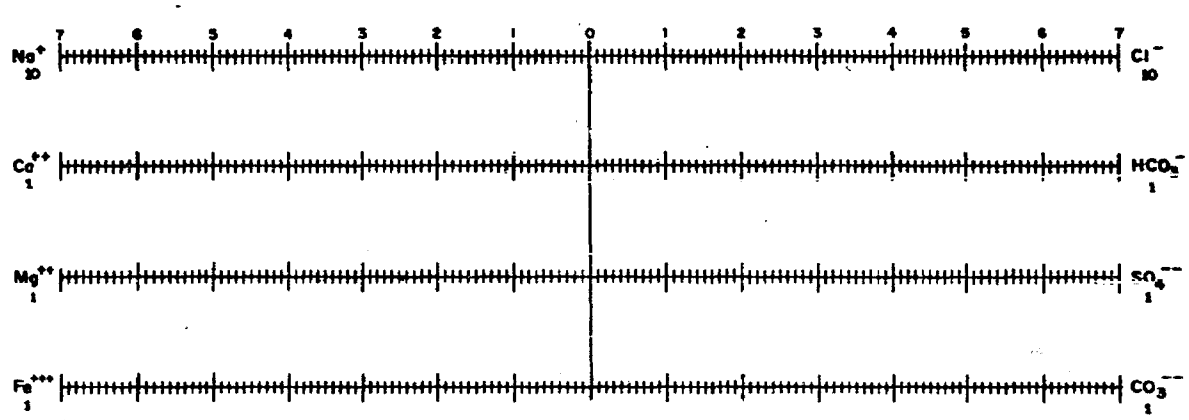
COMPANY: Yates Petroleum Corporation
STSR NUMBER: #47371
REQUESTED BY: Harold Langen

DATE RECEIVED: 4-9-73
ANALYZED BY: T. C. Crawford

	Mg/L	Meq/L
Sodium	95,405	4,148.0
Calcium	2,280	114.0
Magnesium	802	66.0
Chloride	149,850	4,225.8
Sulfate	4,368	90.9
Bicarbonate	695	11.4
Carbonate	0	0.0
Hydroxide	0	0.0
TOTAL	253,400	
Dissolved Iron		
Total Iron	0.66	0.0

pH	7.3
Specific Gravity at 60 °F.	1.1608
Resistivity, ohms/m @ 77°F.	0.057
	Mg/L
Oil Content	
Organic Matter	
Hydrogen Sulfide	110
Total Alkalinity, as $CaCO_3$	570
Supersaturation, as $CaCO_3$	65

WATER PATTERN (Stiff Method)



Meq/LITER

Remarks:

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
November 16, 1977

EXAMINER HEARING

IN THE MATTER OF:

Application of Yates Petroleum Corporation for a dual completion, downhole commingling, and salt water disposal, Eddy County, New Mexico.

CASE 6088

BEFORE: Richard L. Stamets, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: Lynn Teschendorf, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

For the Applicant: A. J. Losee, Esq.
LOSEE & CARSON
Attorneys at Law
300 American Home Building
Artesia, New Mexico

I N D E X

EXHIBIT INDEX

MR. STAMETS: Call next case, Case 6088.

MS. TESCHENDORF: Case 6088, application of Yates Petroleum Corporation for a dual completion, downhole commingling, and salt water disposal, Eddy County, New Mexico.

MR. LOSEE: A. J. Losee, appearing on behalf of the applicant and I have one witness, Mr. Mahfood, who was previously been sworn and testified.

MR. STAMETS: The record will show that Mr. Mahfood was sworn and has been qualified.

EDDIE M. MAHFOOD

was called as a witness by the applicant, and having been first duly sworn, testified upon his oath as follows, to-wit:

DIRECT EXAMINATION

BY MR. LOSEE:

Q You are Eddie Mahfood and you live in Artesia, New Mexico, and you are employeed as an engineer by Yates Petroleum Corporation?

A Yes.

Q Would you explain the purpose of the application in Case Number 6088?

A We wish to dual complete this well prior to injection to dispose of water, of produced water, and part as a producer,

the gas field.

Q. You no longer desire to produce the Eagle Creek Strawn and the Eagle Creek Permo-Penn and commingle those downhole with a Atoka Morrow at this time?

A. I think it would be better to separate it at this time.

Q. As I understand there is already administrative procedures for you where you can downhole commingle them?

A. Right. We have completed the well in the Morrow and it will be the Eagle Creek Atoka Morrow at two and three quarter million per day. I would not advise Yates to attempt to do any more completions in that well bore.

Q. Until after they --

A. Until after the Morrow has declined to some low further activity.

Q. Please turn to what has been marked as Exhibit Number One and explain what is shown by this exhibit?

A. Exhibit One is a lease map showing the location of the well. We are dedicating, of course, the east half and the well is an unorthodox location.

Q. Is there any producing or plugged and abandoned wells within one half mile of this well which has penetrated the Devonian formation?

A. No.

Q. And it is the Devonian where you propose to inject the salt water?

A. That's correct.

Q. Please turn to what has been marked as Exhibit Two and explain what is shown on this sketch.

A. Exhibit Two is a diagrammatic sketch of the proposed dual completion showing the gas completion in the annulus and the injectivity down the tubing into the Devonian.

There is a packer with a blanking plug set at eighty-eight forty and right now the Morrow is completed in the tubing but it is not reflected on this diagram.

What we proposed to do is to kill the Morrow and run plastic lined tubing and set it in the packer at eighty-eight forty and remove the blanking plug and inject the produced water for disposal down the plastic coated tubing below the packer at eighty-eight forty in the perforations in the Devonian which are eighty-eight seventy-nine to ninety-three sixty-two.

The Morrow, will produce up the annulus and we have the last joint across the Morrow at eighty-eight oh one to eighty-eight twenty-four and have a sliding sleeve perhaps thirty feet above the packer.

Q. Where is the cement in this well behind the pipe?

A. This well was cemented in three stages. The first stage went around the casing shoe and the bond log shows it came from eighty-one seventy to eighty-three seventy and there might be cement in that interval but there is no bonding.

At eighty-three -- at eighty-one seventy to fifty-nine hundred feet there is good bonding. The DV2 is at eighty-one oh eight. So, it is possible that there is cement all of the way to the DV2. That's the first stage.

The second stage was cemented at fifty-nine hundred feet and then there is mud and the DV2 which was at twenty-two seventy-eight and from there to surface is cemented.

Q. Let me ask you, looking at this proposed treatment of this well would you have any way to -- at the surface -- to monitor and determine whether there was any communication between the tubing and the casing -- tubing annulus?

A. The immediate indication would be loading of the annulus with water which would kill the Morrow, of course.

If there is any communication you know it immediately because the gas completion would be affected.

Q. And your Morrow would quit producing gas?

A. That's correct.

Q. All right. Turn to what has been marked as Exhibit Three and briefly explain what is shown on this exhibit?

A. Exhibit Three are portions of the electric log. There are two logs on this sheet here and on the left side is the compensating neutron density log and on the right is the dual laterolog.

It shows the interval, the Devonian interval, which was drill stem tested and in which we are going to inject

our produced water from the San Andres field.

Shown on the top of the Morrow, in the Morrow perforations, which incidentally I said earlier, the Morrow gave up two point seven-five million a day.

I have the pay shown on this strip log here and it carries, in addition, some Cisco pay which I failed to show on the strip log.

Q. But you don't propose to produce that Strawn and Cisco at this time?

A. No, not at this time.

Q. All right. Turn to what has been marked as Exhibit Four and identify it?

A. Exhibit Four is a water analysis done from a drill stem test in the Devonian. The first column is the sampler and is nothing but formation water. Immediately above the sampler was the circ sub which could have been very diluted but it is pretty near all formation water.

Then, we have top recovery which would be a dilution or it could have been a dilution with the pit or the drilling fluid.

The pit sample, of course, is the sample on the extreme right.

Q. Does it reflect whether or not this water is potable in the Devonian?

A. This is not potable water. It has twenty-three

thousand chlorides and I haven't computed the total solids there but I would estimate the total solids there to be forty thousand to fifty thousand parts per million.

Q. Turn to Exhibit Five and explain what is shown on this water analysis?

A. Exhibit Five is an analysis of produced water and it is from the Eagle Creek Field. It was taken from the present disposal well and it gives the lease.

The column Mg over L, that is milligrams per liter is approximately equal to the parts per million. You will notice the chlorides from the San Andres is approximately one hundred thousand parts per million and the total solids is two hundred fifty-three parts per million. There is some iron in there.

Q. Do you think that water from this San Andres field is compatible with the water encountered in the Devonian?

A. I cannot see any problems because of the dilution that is taking place with the Devonian. It would help injectivity, if anything.

Q. What quantity of water do you -- does Yates propose to inject into this Devonian?

A. At the present time the Eagle Creek Field is producing in the neighborhood of two hundred and fifty barrels a day.

This well is capable of three thousand or better a day. But I suspect that after we have been disposing in

this for awhile the activity in the Eagle Creek will increase because the San Andres, itself, gives a fairly bit of water and the water produced from the Eagle Creek now is what is being recycled through the disposal in the San Andres so we treat those wells once a week.

Q. What would be the maximum water you think you would need to dispose in this well?

A. Well, I would rather not commit myself but the well is capable of three thousand barrels a day at a pressure not to exceed seventeen sixty at the surface.

Q. And you won't exceed that pressure at the surface?

A. Right.

Q. Will the approval of this application avoid the drilling of unnecessary wells and otherwise prevent waste?

A. Yeah, it would -- we need another disposal system like this to dispose of the San Andres because of the recycling which is expensive and hazardous for shallow water, too.

Q. Were Exhibits One through Five prepared by you?

A. Yes.

MR. LOSEE: We move their introduction.

MR. STAMETS: These exhibits will be admitted.

MR. LOSEE: I have no further questions at this time.

CROSS EXAMINATION

BY MR. STAMETS:

Q. What does the Morrow make in the way of liquids?

A. Mr. Examiner, I did not make a calculation but we -- on a drill stem test it made -- I have it written down here -- seventy-six hundred feet -- okay. The tube was open -- the information that was furnished was it was open for one hundred and twenty and it should have been one hundred and eighty -- but on examining the drill stem test chart I cannot see where the tube was ever shut in and so I would say that it was open a total of three hundred and thirty minutes and at that time it produced seven -- hundred and six feet of salt water with the pressure being thirty-six oh five, which is pretty near -- well you know -- well, it was still flowing, apparently, after that period of time but none the less it is seventy-six oh nine feet which is a tremendous flow.

Q. Is that from the Morrow?

A. No, that is from the Devonian.

Q. The Morrow is what I was concerned with. How much in the way of liquids are being produced from the Morrow.

A. The Morrow makes -- it does make liquid condensate, only.

Q. That's what I was getting at.

A. I am sorry. I mis --

Q. Will you be able to effectively and efficiently

produce the Morrow from the annulus without tubing because of the liquid production?

A. I would say yes. Our experience in the Morrow is that the pressure drops so much it just is making condensate.

Q. If the hole starts to load up with liquids do you have any option on how you might be able to produce that?

A. We can unload the annulus by setting a blanking plug in the packer and opening the sliding sleeve and swabbing the well.

Q. The sliding sleeves are notorious leakers when you move them.

What about the possibility of running a string of small diameter tubing down besides this two and a half in order to get the liquids off?

A. That would be rather difficult because we plan to put two and seven-eighths tubing or three inch tubing -- I am not sure which we had set up on this.

Q. Your exhibit shows three inch O.D. but that's on this last joint.

A. Okay. Anyway, there is five and a half casing in the well. So, it would have to be a rather thin string -- a macaroni string like one inch or something like that to get into that annulus space there.

It is not very feasible.

Q. Do you plan to do anything else besides running

that plastic coated tubing to try to prevent corrosion in this injection well?

A. The injected water, of course, is treated for iron sulfide and bactericides -- treated with bactericides -- and we put it, in fact, in the fluid.

The packer is already plastic coated and other than that I don't see where we could have any corrosion. The annular part would have been contacted with the Morrow gas and, in fact, all of the Pennsylvanian gas would be sweet gas and not corrosive.

Q. There is some concern on my part what might happen if you sprung a leak in that tubing and the Morrow gas which might be left in the ground in case the formation was damaged by such water --

A. Mr. Examiner, I can only say that we are very anxious not to lose any of that gas. We would make every effort -- if there was solution and it would up and die -- it would be sudden if there is a leak and we would immediately want to correct it.

Q. Three hundred and fifty barrels of water a day is a pretty good bunch of water for what -- what is your unattended period of time on the weekend or a holiday?

A. I think -- if we had to shut this injection down on the weekends, for instance, we could put everything into the San Andres disposal well. We could make that condition.

Q. I was thinking of the situation where the well went bad after your pumper was there on a Firday. When is the next time anybody is going to be around to check it, this three hundred and fifty barrels of water, is that every day?

A. Every day.

Q. That's weekends included?

A. Yes, we check those gas wells every day.

Q. Okay. Nonetheless, if this water did get out of the tubing it could severly damage the Morrow could it not?

A. Yes, it could.

Q. Where are the Devonian perforations, again?

A. Eighty-eight seventy-nine to ninety-three sixty-two.

Q. Okay. Now, this, I believe you said, was the only well which had been drilled to the Devonian?

A. Within a half mile. There is one that was drilled to the Devonian but it is about a mile and a half away and it was plugged back with cement and completed in the Morrow.

Q. It's a mile and a half away -- and you indicated that there was a zone on the five and a half which indicated no bonding? What was the depth of that, again?

A. The broken bond was at eighty-one seventy to eighty-three seventy which is five hundred, almost, above our packer. That would be one hundred and fifty feet below the Morrow perforations.

Q. Now, what kind of pressure are you anticipating using on this well for injection purposes?

A. Well, we will plan to use the existing equipment that we have which is not capable of going over a thousand pounds.

But we could -- a point two gradient would be seven hundred and sixty pounds and if we had to we could get some additional equipment out there.

Q. Three point two if you measured to the top of the perforations would be something like sixteen hundred and twenty-four -- and a pressure limitation like that would be adequate for your purposes?

A. Yes.

Q. How long do you think -- have you made any projections on how long that Morrow well might last in there?

A. From experience in there I would say two and a half or maybe three years.

Q. Are you going to have any trouble plugging the Morrow zone when the well is abandoned if you are still using this for water injection?

A. No. There shouldn't be any problem but after the Morrow is gone we will probably want to perforate the Strawn and the Cisco.

Q. What would you do, run some kind of a blanking plug down there, inside, inside the tubing packer?

A. On the top of the Morrow we could set a blanking plug and pull off the packer and drop some sand on top of the blanking plug and come up and freeze the Morrow and clean it out and wash the sand off of the blanking plug and back into the disposal well.

Q. And you could inspect your tubing during that kind of an operation as well?

A. That's correct, yes.

Q. I see.

A. Incidentally, there are some tools, now, that go down and check the tubing in holes. I am not suggesting that we need to, but --

Q. We are interested in that sort of thing since we have had problems in certain areas with these.

A. I want to show you that we are concerned, too, we don't want to lose that Morrow.

Q. Do you have some literature on those tools?

A. There is in the -- well, let's see, I was in Lubbock a week or so ago, ten days or so ago, and who was it that had that -- Dial-a-Log was advertising that tool -- most of these well companies have it --

MR. STAMETS: Any other questions of the witness? He may be excused. Anything further in this case? The case will be taken under advisement and if there is nothing further the hearing is adjourned.

(THEREUPON, the witness was excused and the case was concluded.)

REPORTER'S CERTIFICATE

I, SIDNEY F. MORRISH, a Certified Shorthand Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Sidney F. Morrish, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6058, heard by me on 11-16, 1977.

New Mexico Oil Conservation Commission, Examiner

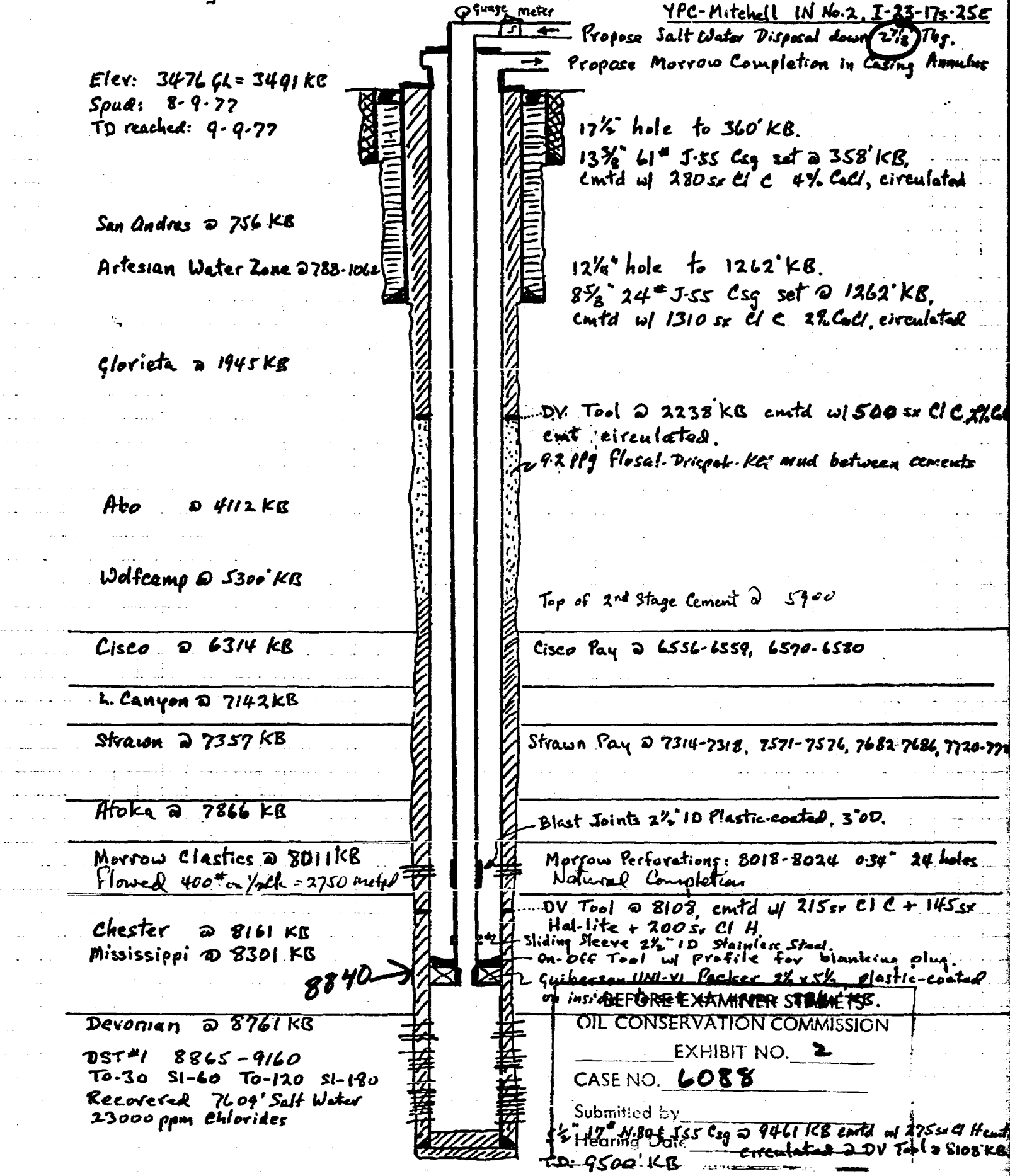
BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO.
CASE NO. 6088

ARTESIA

MIDLAND MAP

Diagrammatic Sketch of Proposed Dual Gas Producer & Water Disposal

YPC-Mitchell IN No.2, I-23-17s-25E



BEFORE EXAMINER STAMETS.
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 6088
Submitted by
Hearing Date

1342-A

HALLIBURTON DIVISION LABORATORY
HALLIBURTON SERVICES
MIDLAND DIVISION
LOVINGTON, NEW MEXICO 88260

LABORATORY WATER ANALYSIS

No. W77-754

To Yates Petroleum Corroration

207 S. 4th Street

Artesia, New Mexico

Date 9-14-77

Submitted by _____ Date Rec. 9-13-77

Well No. Mitchell IN #2 Depth _____ Formation Devonian

County Eddy Field _____ Source DST #1

	Sampler	Circ. Sub.	Top Recovery	Pit Sample	
Resistivity	0.221 @ 74°F.	0.208 @ 74°F.	0.214 @ 74°F.	0.208 @ 74°F.	
Specific Gravity	1.031	1.032	1.031	1.032	
pH	6.9	7.2	6.9	7.5	
Calcium (Ca)	2,300	1,500	2,100	1,500	*MPL
Magnesium (Mg)	330	120	150	120	
Chlorides (Cl)	23,000	24,000	23,000	24,000	
Sulfates (SO_4)	2,950	3,400	3,000	3,400	
Bicarbonates (HCO_3)	855	17,900	1,165	24,500	
Soluble Iron (Fe)	Trace	Nil	Trace	Nil	

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 6088
Submitted by
Hearing Date

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: Brewer

cc:

HALLIBURTON COMPANY

By W. L. Brewer
CHEMIST

NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or omission, resulting from such report or its use.

ENJAY CHEMICAL COMPANY

Houston Chemical Plant
8230 Stedman, Houston, Texas 77029

April 12, 1973

WATER ANALYSIS

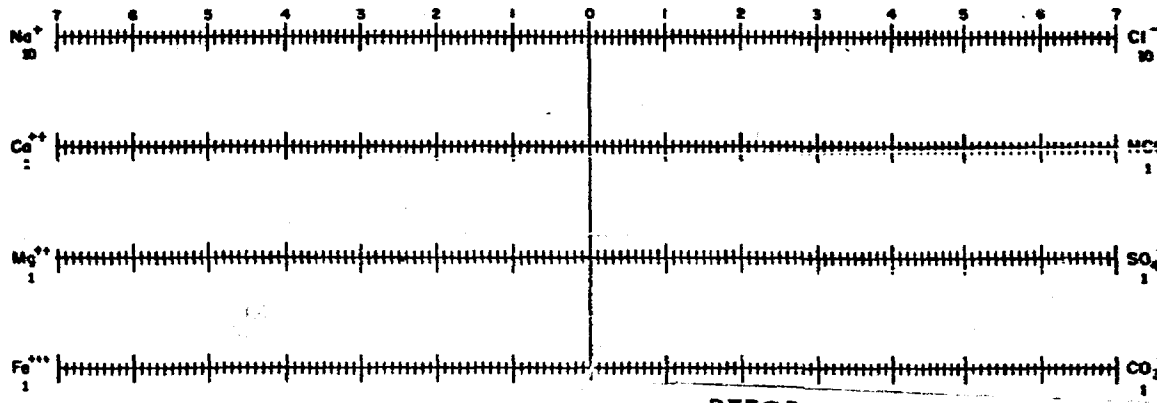
SAMPLE DESCRIPTION: Produced water from Gissler SWD tank (Eagle Creek Field) submitted for routine correlation and stability to $CaCO_3$. Sample taken 4-5-73

COMPANY: Yates Petroleum Corporation
STSR NUMBER: #47371
REQUESTED BY: Harold Langen
DATE RECEIVED: 4-9-73
ANALYZED BY: T. C. Crawford

	Mg/L	Meq/L
Sodium	95,405	4,148.0
Calcium	2,280	114.0
Magnesium	802	66.0
Chloride	149,850	4,225.8
Sulfate	4,368	90.9
Bicarbonate	695	11.4
Carbonate	0	0.0
Hydroxide	0	0.0
TOTAL	253,400	
Dissolved Iron		
Total Iron	0.66	0.0

pH	7.3
Specific Gravity at 60 °F.	1.1608
Resistivity, ohms/m @ 77°F.	0.057
	Mg/L
Oil Content	
Organic Matter	
Hydrogen Sulfide	110
Total Alkalinity, as $CaCO_3$	570
Supersaturation, as $CaCO_3$	65

WATER PATTERN (Stiff Method)



Remarks:

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 6088
Submitted by
Hearing Date

Docket No. 37-77

CASE 6061: (Continued from October 12, 1977, Examiner Hearing)

Application of Yates Petroleum Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for its Stinking Draw Unit Area comprising 2,881 acres, more or less, of Federal and State lands in Township 21 South, Range 22 East, Eddy County, New Mexico.

CASE 5983: (Continued from October 12, 1977, Examiner Hearing)

Application of Yates Petroleum Corporation for the amendment of Order No. R-5445, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5445 to provide for a 200 percent risk factor for drilling the unit well rather than 20 percent. Said order pooled the N/2 of Section 19, Township 20 South, Range 25 East, Eddy County, New Mexico.

CASE 6072: (Continued from October 26, 1977, Examiner Hearing)

Application of Harvey E. Yates Company for pool creation and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Canyon production for its Travis Deep Unit Well No. 2, located in Unit G of Section 13, Township 18 South, Range 28 East, Eddy County, New Mexico, and the promulgation of special rules therefor, including a provision for 80-acre spacing.

CASE 6086: Application of Yates Petroleum Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the E/2 of Section 21, Township 17 South, Range 26 East, Eddy County, New Mexico, 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. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6087: Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Ralph Nix "IT" Well No. 1 to be located 660 feet from the South line and 990 feet from the East line of Section 13, Township 20 South, Range 24 East, Eddy County, New Mexico, the S/2 of said Section 13 to be dedicated to the well.

CASE 6088: Application of Yates Petroleum Corporation for a dual completion, downhole commingling, and salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of East Eagle Creek Atoka-Morrow, Eagle Creek-Strawn and Eagle Creek Permo-Penn production in the wellbore of its Mitchell "IN" Well No. 2 located in Unit I of Section 23, Township 17 South, Range 25 East, Eddy County, New Mexico, and to dually complete said well in such a manner as to permit disposal of produced salt water into the Devonian formation thru tubing and production of the aforesaid commingled zones thru the casing-tubing annulus.

CASE 5981: (Continued from October 12, 1977, Examiner Hearing)

Application of W. A. Moncrief, Jr., for pool creation and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of an oil pool for Upper-Pennsylvanian production for his State Well No. 1 located in Unit E of Section 26, Township 16 South, Range 33 East, Lea County, New Mexico, and the promulgation of special rules therefor, including a provision for 80-acre spacing.

CASE 6076: (Continued from October 26, 1977, Examiner Hearing)

Application of E. L. Latham, Jr., Roy G. Barton, Jr., and R. L. Foree for a gas well curtailment and gas pool prorationing, Chaves County, New Mexico. Applicants, in the above-styled cause, seek an order temporarily shutting in, or limiting production from the La Rue and Muncy Nola Well No. 1, located in Unit O of Section 8, Township 14 South, Range 28 East, Sams Ranch Grayburg Gas Pool, Chaves County, New Mexico. Applicants further request that the Commission institute gas prorationing in said pool retroactively to date of first production and direct the gas purchaser(s) in said pool to take ratably from all wells in said pool.

OIL CONSERVATION COMMISSION

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

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

December 27, 1977

Re: CASE NO. 6088
ORDER NO. R-5602

Mr. A. J. Losee
Losee & Carson
Attorneys at Law
Post Office Box 239
Artesia, New Mexico 88210

Applicant:

Yates Petroleum Corporation

Dear Sir:

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

Yours very truly,

Joe D. Ramey

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other

DRAFT
RLS/jr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 6088
Order No. R-5602

APPLICATION OF YATES PETROLEUM CORPORATION FOR A DUAL COMPLETION, DOWNHOLE COMMINGLING, AND SALT WATER DISPOSAL, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 16, 1977, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____ day of November, 1977, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Yates Petroleum Corporation, seeks approval for the downhole commingling of East Eagle Creek Atoka-Morrow, Eagle Creek-Strawn and Eagle Creek Permo-Penn production in the wellbore of its Mitchell "IN" Well No. 2 located in Unit I of Section 23, Township 17 South, Range 25 East, Eddy County, New Mexico, and to dually complete said well in such a manner as to permit disposal of produced salt water into the Devonian formation thru tubing and production of the aforesaid commingled zones thru the casing-tubing annulus.

(3) That the applicant's request for dismissal of that portion of this case concerning downhole commingling should be approved.

(4) That the applicant seeks authority to complete said Mitchell "IN" Well No. 2, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced salt water into the Devonian formation, with injection into the perforated

interval from approximately 8879 feet to 9362 feet.

(5) That the injection should be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 8840 feet. That the water to be disposed of in said well should be continuously treated to prevent corrosion or the tubing should be plastic lined; and the well shall be inspected at least weekly in order to detect any failure of the downhole or surface injection equipment.

8879
2
1775.8

(6) That the injection well or system should be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1776 psi.

(7) That the operator should notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(9) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Yates Petroleum Corporation, is hereby authorized to complete its Mitchell "IN" Well No. 2, located in Unit I of Section 23, Township 17 South, Range 25 East, NMPM, Eddy County, New Mexico, as a dual completion (conventional) to produce gas from the East Eagle Creek Atoka-Morrow Gas Pool through the casing-tubing annulus and to dispose of produced water in to the Devonian formation.

PROVIDED HOWEVER, that the applicant shall complete, operate,

and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall annually provide the supervisor of the Commission'a Artesia district office with evidence demonstrating the continued separation of the Morrow producing zone from waters injected into or being injected into the Devonian formation.

(2) That the injection shall be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 8840 feet.

(3) That the water to be injected shall be treated continuously to prevent corrosion or the tubing shall be plastic-lined.

(4) That the applicant shall inspect the well at least once each week in order to detect any failure of the downhole or surface injection equipment.

(5) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1776 psi.

(6) That the operator shall notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(7) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

(8) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(9) That jurisdiction .....