CASE 5728: PENNZOIL CO. FOR AN EXCEPTION TO ORDER NO. R-3221, LEA COUNTY, NEW MEXICO

CASE NO.

5728

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC.

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

Re: CASE NO. 5728
ORDER NO. R-5258

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

Applicant:

Pennzoil Company

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
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other

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. 5728
Order No. R-5258

APPLICATION OF PENNZOIL COMPANY FOR
AN EXCEPTION TO ORDER NO. R-3221, AS
AMENDED, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 4, 1976, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 31st day of August, 1976, 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, Pennzoil Company, is the owner and operator of the Mescalero Ridge Unit Well No. 1, located in Unit M of Section 20, Township 19 South, Range 34 East, NMPM, Quail Ridge-Morrow Pool, Lea County, New Mexico.

(3) That Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground

water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicant seeks as an exception to the provisions of the aforesaid Order (3) to permit the disposal of salt water produced by applicant's above-described well into an unlined surface pit located in Unit M of said Section 20.

(7) That there is fresh water in the vicinity of the above-described unlined pit for which a present or reasonably foreseeable beneficial use is or will be made.

(8) That there is a probability that the beneficial use of said fresh water would be impaired by contamination from the disposal of salt water into the unlined surface pit as requested by the applicant.

(9) That the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of Pennzoil Company for an exception to Order (3) of Commission Order No. R-3221, as amended, to dispose of water produced in conjunction with the production of gas and condensate from its Mescalero Ridge Unit Well No. 1, located in Unit M of Section 20, Township 19 South, Range 34 East, NMPM, Quail Ridge-Morrow Gas Pool, Lea County, New Mexico, in an unlined surface pit located in the vicinity of said well is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

PHIL R. LUCERO, Chairman

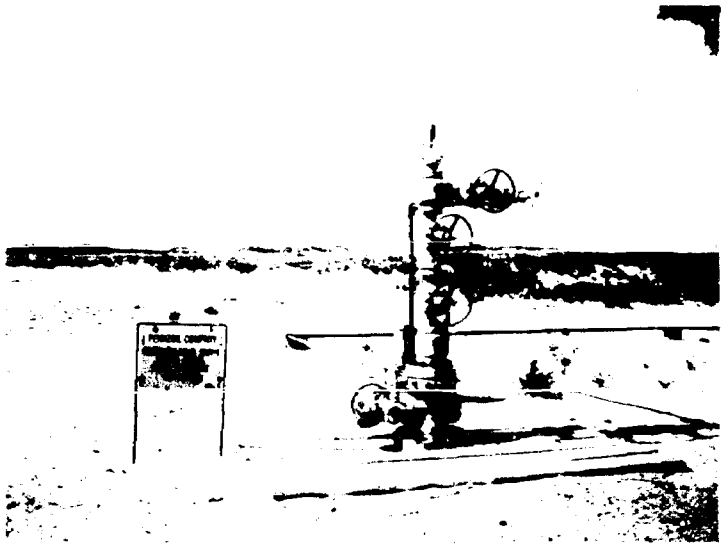
EMERY ARNOLD, Member

JOE D. RAMEY, Member & Secretary

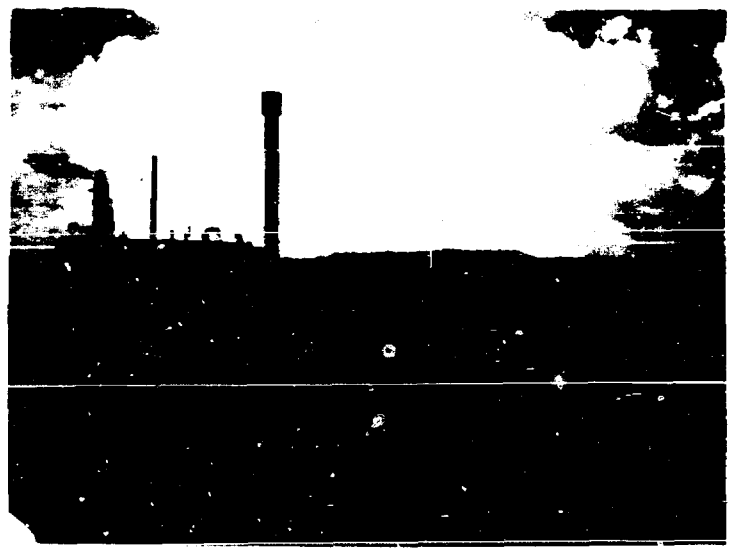
S E A L

jr/

MESCALERO RIDGE UNIT NO. 1
LEA COUNTY, NEW MEXICO

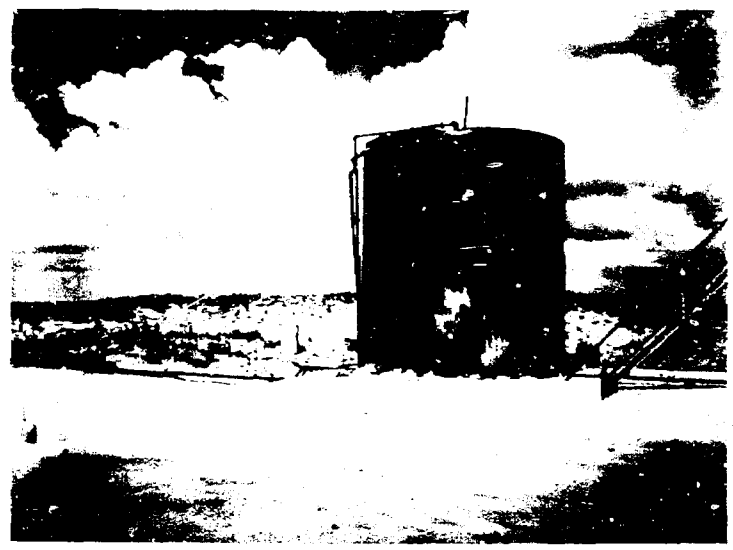


1. LOOKING NORTH

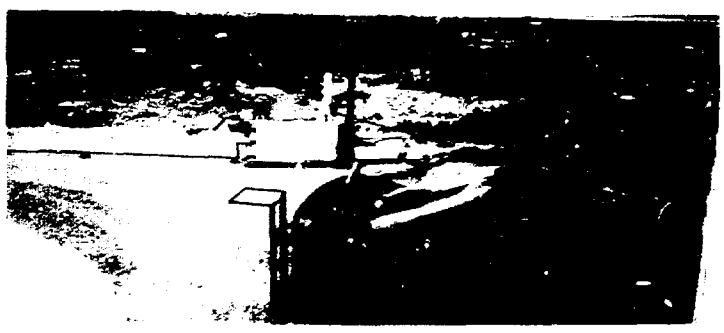


2. LOOKING NORTHEAST

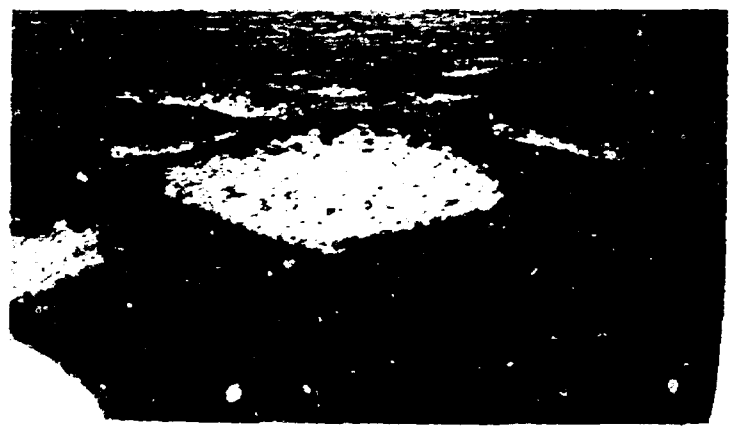
3. LOOKING SOUTH



4. LOOKING EAST



5. NORTH FROM TOP OF TANK BATTERY



6. EAST FROM TOP OF TANK BATTERY

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 4, 1976

EXAMINER HEARING

IN THE MATTER OF:

Application of Pennzoil Company for an exception to Order No. R-3221, Lea County, New Mexico.

CASE 5728

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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

For the Applicant: Jason W. Kellahin, Esq.
KELLAHIN & FOX
Attorneys at Law
500 Don Gaspar
Santa Fe, New Mexico

I N D E X

EXHIBIT INDEX

MR. NUTTER: We will call Case Number 5728.

MR. CARR: Case 5728, application of Pennzoil Company for an exception to Order No. R-3221, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin. Kellahin and Fox, appearing for the applicant and we have one witness.

(THEREUPON, the witness was duly sworn.)

J. C. RANEY

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

DIRECT EXAMINATION

BY MR. NUTTER:

Q. Will you state your name, please?

A. J. C. Raney.

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

A. I'm employed by Pennzoil Company as a Petroleum Engineer.

Q. Where are you located?

A. In Midland, Texas.

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

A. Yes, I have.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q. (Mr. Kellahin continuing.) Mr. Raney, are you familiar with the application of Pennzoil in Case Number 5728?

A. Yes, sir.

Q. What does the applicant propose in this case?

A. We request approval for an exception to Order R-3221 to permit the use of an unlined pit to dispose of produced water in the Mescalero Ridge Unit No. 1 located in Section 20 of 19 South, 34 East, Lea County, New Mexico.

Q. Are you personally familiar with the area involved in this application?

A. Yes, sir.

Q. Have you been on the ground and examined it yourself?

A. Yes, sir.

Q. Now, referring to what has been marked as Exhibit Number One, would you identify that exhibit, please?

A. Yes, sir, this is the water analysis of the produced water that the Mescalero Ridge Unit No. 1 produces in conjunction with the gas and condensate.

Q. Is this a recent analysis?

A. Yes, sir.

Q. It was made in June of this year was it not?

A. Yes, sir, June 30th.

Q. Now, are there any water supplies in the vicinity of your proposed disposal pit?

A. The closest known water is a windmill that is located approximately two-and-a-half miles west on what is known as the Smith Ranch.

Q. And its location will be shown on a later exhibit, will it not?

A. Yes, sir.

Q. Do you have a water analysis from that windmill?

A. Yes, sir, that is Exhibit Number Two. It is a complete water analysis of the windmill or well water there. The water analysis shows the composition of this water and attached to the back of that is excerpts from the Groundwater Report Number Six put out by the New Mexico State Bureau of Mines and on the last page this shows the chemical standards as set by the U. S. Department of Public Health.

Q. Now, according to those standards is this potable water?

A. No, sir, it is not for human consumption.

Q. Do you know whether it is being used for any purpose at the present time?

A. The only purpose that we know of in talking to the rancher of the Smith Ranch is for cattle and in the five or six years I have been working on this lease I have never seen

any cattle around our lease at all.

Q. Now, in the five or six years that you have been working there are you out on the lease frequently?

A. Approximately on an average of once every two months or more often.

Q. If cattle were being grazed in the area is it likely that you would see them?

A. Yes.

Q. And in the five years you haven't seen any?

A. No, sir.

Q. Now, referring to what has been marked as Exhibit Number Three, would you identify that exhibit, please?

A. Exhibit Number Three is a geological map of southern Lea County that is marked as Plate One. This is a structure map contoured on the surface elevation and the Pennzoil well is noted in 19, 34 with a red arrow. It shows the location of the well. In the area of this well the structure dips to the southwest towards what is known as the Laguna Gatuna salt lakes and towards Halfway Bar.

Q. So the surface drainage would be towards these salt lakes?

A. Yes, sir, this is where the water is currently being hauled and disposed of at a cost of approximately sixty-two cents per barrel.

Q. As I understand it you are disposing of the water in

the Laguna Gatuna?

A. Yes, sir, through a trucking company.

Q. And if the water is going to migrate on the surface at all would it go in the direction of Laguna Gatuna?

A. Yes, sir, to the southwest.

Q. Now, referring to what has been marked as Exhibit Number Four, would you identify that exhibit, please?

A. It is noted as Plate Two. This also comes from the Groundwater Report Number Six. It is a structure map contoured on top of the Tertiary, Quaternary and Triassic rocks in the area and over in 19, 33 you will note a windmill there approximately two-and-a-half miles west of the Pennzoil Mescalero Ridge Unit No. 1.

Q. Is that the windmill on which you just gave the water analysis?

A. Yes, sir. As can be noted the structure dips to the southwest again in this area where our well is located and the proposed pit. This area is contoured on top of the Triassic and the structure dips towards the southwest, towards the Laguna Gatuna salt lakes where the current water is being disposed of by truck.

Q. Now, on account of the nature of the underground structure and the surface contours, in your opinion would water in your pit if it migrated, migrate toward the windmill?

A. No, sir, it would tend more to migrate towards the

southwest towards the Laguna Gatuna salt lakes.

Q. What is the nature of the surface of this area?

A. This is shown on the next exhibit which is Exhibit Number Five and the soil is loose blow sand and it is only partially covered with shinnery oak. This is a series of Polaroid photographs and all of the exhibits that you have are pictures or Xerox pictures of that but this does tend to show the type of vegetation and general terrain in the area.

Q. Now, you say it is blow sand so if you put water on the surface would it go immediately underground or would it go slowly?

A. Our experience in the general area is that some of it will percolate down but a big majority of the water because of the climate in that area is going to evaporate but that that does percolate down is going to percolate in the subsurface drainage just to the southwest.

Q. And will putting water in a surface pit as you propose to do, damage any underground water supply?

A. It will not further damage the water supply in that area, in my opinion.

Q. Now, have you examined the area to determine if there are any surface ponds or dams in any arroyos to create soft water?

A. There are none that can be seen on the surface. We have driven six or eight miles around this thing and we've

got wells on back to the north.

Q. So in your opinion will any damage to any surface water occur?

A. No, sir.

Q. Have you contacted the United States Geological Survey in connection with your proposal?

A. Yes, sir, that is Exhibit Number Six. That is a letter that was written ~~through~~ to the Hobbs office ~~to~~ of the USGS on July 14th requesting their approval and also notifying them of this hearing.

Q. What will be the dimensions of your proposed pit?

A. We propose to construct a pit that will be approximately one hundred feet by one hundred feet by four feet deep and will be fenced by a five-strand barbed wire fence with steel posts set in concrete and the pit will be diked to prevent water leaving the enclosed area.

Q. What volume of water will you put in the pit?

A. Between one hundred and one hundred and twenty barrels a day and all of this water is produced from the Mescalero Ridge Unit No. 1 and that is the only well that will be served by this pit.

Q. And it will be immediately adjacent to the well?

A. Yes, sir.

Q. Will the pit, as you propose, handle the volume of water you are talking about?

A. Yes, sir.

Q. Now, you say the water is presently being trucked, what is the cost of trucking?

A. At the current time the charges are sixty-one, point six cents per barrel which is running us about two thousand dollars a month to haul this.

Q. What is the production from this well?

A. We are making one-and-a-half million cubic feet of gas, about eighty barrels of condensate and a hundred to a hundred and twenty barrels of water per day.

Q. In your opinion will granting permission to dispose of water on the surface prolong the productive life of your well?

A. Yes, it will prevent waste and the economic limit will be extended about ten times because out of twenty-two hundred dollars operating costs, two thousand of this is for hauling the water.

Q. So that will result in the ultimate recovery of more oil and gas than would otherwise be recovered?

A. Yes, sir.

Q. Were Exhibits One through Six prepared by you or under your supervision?

A. Yes, sir.

MR. KELLAHIN: At this time I would like to offer into evidence Exhibits One through Six, inclusive.

MR. NUTTER: Pennzoil's Exhibits One through Six will be admitted into evidence.

(THEREUPON, Pennzoil's Exhibits One through Six were admitted into evidence.)

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Raney, on your Exhibit Number Four, southwest of your Mescalero Ridge Unit Well No. 1 is a well at approximately Section 31 of Township 19 South, Range 34 East. Also the Commission's records indicate there may be two wells in Section 31 of that Township which would be southwest of your well and with respect to Exhibit Number Three, in the direct line of the surface drainage from the Mescalero Unit to the Laguna Gatuna. Do you know the status of those two wells that are in Section 31?

A. You are talking about the one in 19, 34 that shows the 66?

Q. Yes, the one that has the 66.

A. Yes, that well is plugged and abandoned. That's the only well we found other than one over in 19, 33.

Q. Which is the one that has the four thousand parts per million?

A. Yes, that shows ninety-three P over one, oh, one. Yes, sir, that is the only well we have been able to find out

there. We did find this other one but it is capped. It didn't have a windmill, no structure nor any kind of pumping equipment on it at all and we made a search out there. There is one way up north there, it shows a 29 with a question mark, that well's not there either.

Q. So there is no active windmill then southwest of your Mescalero Ridge No. 1?

A. No, sir, not that we can find on the surface anywhere out there and talking to the rancher when we got these water samples over here on this one in 19, 33, this is the only one that we could find anywhere.

Q. Did he know anything about those wells over in 33?

A. No, sir, he didn't and he didn't know of any wells out there. This little report that I mention, Report Number Six, this was made I believe in 1961 and these wells, the well in 19, 33 was not included in there.

Q. It was included on their map, though, when they made the report?

A. Yes, but there was not a water analysis of that water. That was what I was looking for primarily to find out what had gone on over the last fifteen years.

Q. Did you ask the rancher about this well down here in Section 31?

A. Over in 19, 34, yeah, and we found it ourselves, it's right by a road going in through there.

Q. What did he say about it?

A. He said it had been plugged as long as he had been there and as far as that, I don't know how long he has been there. But we couldn't find any more out there other than this one over in 19, 33 because we wanted to find out what kind of water is being produced in the area. I would have liked to have gone out five or six miles but this one shown down here in 20, 34, that's a way down south of the --

Q. Where it says, one, forty?

A. Yeah, that's down in the Lea-Bone Springs Field area. If there is a windmill out there we couldn't find it.

Q. You went down there looking for that one too?

A. Yes, sir.

Q. Apparently there are some old wells out there that have been abandoned for one reason or another and they are not producing anymore?

A. Yes, and with the type of vegetation, as you get further south there you get into a little bit of mesquite but up north here ninety percent of the land is covered, that is covered with shinnery oak.

Q. This location is actually two or three miles southwest of the edge of a ridge that comes across through there, right?

A. Yes, it's off the caprock.

Q. Mescalero Ridge is what it is called?

A. Yes.

Q. And this is down in the bottom below that ridge?

A. Yes.

MR. NUTTER: Are there any other questions of Mr. Raney.

MR. KELLAHIN: I have one more, please.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Raney, did you make any inquiries as to the value of shinnery oak for grazing?

A. Yes, sir, I called the county agent in Midland and he said that it was only eaten a very short period of time, just prior to the time it becomes toxic and as far as food value to cattle or wildlife it has little or no value.

Q. And that is predominantly what the cover of this area is?

A. Yes, sir.

MR. KELLAHIN: That's all the questions I have.

MR. NUTTER: If there are no further questions of this witness -- oh, Mr. Ramey?

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Raney, I assume on looking at your Exhibits One

and Two, the water analysis, that we can add up the trace elements and get the totai hardness or thereabout.

A. Yes. If you want me to get that I can get it through a commercial lab, both of these waters if you would like that. Normally these service company labs don't normally run the hardness.

Q. What you are looking at roughly from the windmill the total dissolved solvents are seven thousand?

A. Yes, sir, as compared to around thirty-six or thirty-seven.

Q. In your disposed water?

A. Yes, sir.

Q. What do they do in the area for water?

A. For human consumption?

Q. Yes.

A. What they did at the Smith ranch, they hauled their water for human consumption.

Q. Are there potash mine water lines ailable for water in this area?

A. I don't know. A company that Pennzoil owns has a line coming across not too far from the Mescalero Ridge itself, you know, the ridge or caprock and I don't know if they allow those people to buy water. It's good fresh water from up on the caprock.

Q. Are you aware that the Water Quality Control Commission

and the State Engineers say waters of less than ten thousand total dissolved solids must be protected from further contamination?

A. No, sir.

MR. RAMEY: No other questions.

MR. NUTTER: If there are no further questions of this witness he may be excused.

(THEREUPON, the witness was excused.)

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, sir, that's all.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 5728? We will take the case under advisement.

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. 5728, heard by me on 8/4, 1976.

New Mexico Oil Conservation Commission, Examiner

Form O-11B (rev. 2-76)

SAMPLE NO. _____

THE WESTERN COMPANY

Hobbs, New Mexico

Service Laboratory
Midland, Texas
Phone 683-2781 Day
Phone 683-4162 Night

Service Laboratory
Oklahoma City, Oklahoma
Phone 840-2771 Day
Phone 751-5470 Night

WATER ANALYSIS

County Eddy

Field Ranch Windmill

Operator Pennzoil

Well Smith Ranch

Depth Unknown

Formation

PENNZOIL
DEC 06 1976
MIDLAND

Date Sampled 7-2-76

Date Received 7-2-76

Submitted By J. C. Raney

Worked By Chuck Kelley

Other Description

CHEMICAL DETERMINATIONS as parts per million

Density 1.00

pH 7.0

Iron None

Hydrogen Sulfide None

Sodium and Potassium 1,587

Bicarbonate 366

Calcium 800

Sulfate

Magnesium 121.5

Phosphate

Chloride 4,000

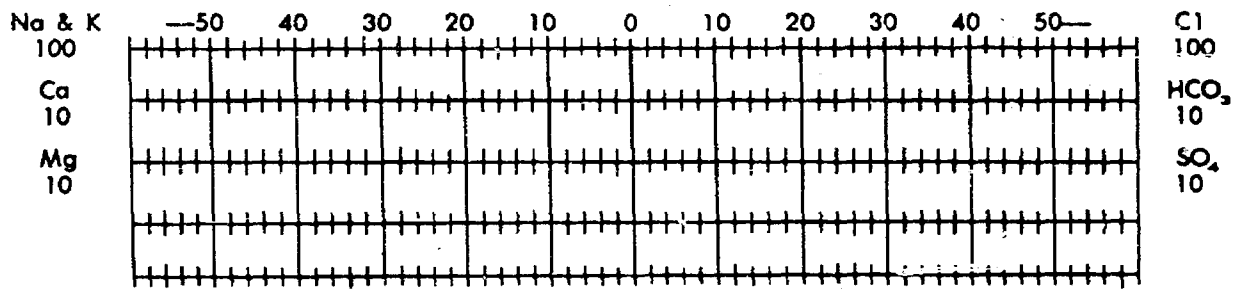
as Sodium Chloride

TOTAL ppm

Resistivity _____ ohm-meters

Remarks:

for Stiff type plot (in meq./1.)



Per _____

31 19 31

NW SW [illegible]

.131
[illegible] [illegible]/60 [illegible]

2nd well
1/12/71 [illegible]

NE SW NE
.232 1/12/71
not [illegible]
[illegible]

Sec.
19/33 26
NE NE SE [illegible]

Quality of Water

Rain water, having been distilled by natural processes, is relatively pure. Once water is in contact with the land surface, however, the water begins to dissolve organic and inorganic matter; and as the water moves through an aquifer, it dissolves rock materials. Ground water in arid and semiarid areas commonly contains enough dissolved mineral matter to limit its usefulness.

Among the most common chemical substances found in ground water are silica (SiO_2), iron (Fe), calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), carbonate (CO_3), bicarbonate (HCO_3), sulfate (SO_4), chloride (Cl), fluoride (F) and nitrate (NO_3). Of these, the bulk generally is distributed among calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, and chloride. The concentrations of silica, fluoride, and nitrate generally are a minor part of the dissolved solids, and for some purposes sodium and potassium are grouped together and treated as one. Similarly, carbonate and bicarbonate may be grouped together.

The chemical characteristics of a water may be identified through study of the concentration and relative abundance of the principal ions it contains. Table 8 gives analyses of water from wells in the southern Lea County area, and Table 9 gives analyses of water pumped from oil wells.

Other characteristics commonly reported in chemical analyses of water samples are dissolved solids, specific conductance, hardness, pH, and percent sodium. A brief explanation of these characteristics follows.

Most of the dissolved-solids concentrations presented in Tables 8 and 9 are computed values for the total mineral constituents of the water sample, based on the constituents determined in the analysis, except that bicarbonate has been reported as carbonate. The dissolved-solids content can be determined directly by evaporating a sample to dryness at 180°C. A rough measure of the dissolved-solids concentration is provided by the specific conductance, which expresses the ease with which an electrical current can be passed through the water. The conductance depends directly on the amount and nature of the dissolved solids; thus no information on the chemical nature of the dissolved mineral matter is obtained from the specific-conductance measurement. For water in the Triassic, Tertiary, and Quaternary rocks in southern Lea County, the dissolved-solids concentration is approximately equal to the specific conductance at 25°C multiplied by a factor of 0.65.

Hardness of water is attributable to the presence of alkaline earth cations, which in natural waters are principally calcium and magnesium. It is an indication of soap-consuming power of the water. The cations that cause hardness can combine with certain anions to form troublesome deposits in boilers and other heat-exchange equipment.

From Ground-Water Report 6
Geology & Ground-Water Conditions
in Southern Lea County, N. M.

The pH value of an aqueous solution represents the hydrogen-ion concentration of the solution and ranges from 0 to 14. Ordinarily a value of 7.0 is considered neutral; values below 7.0 indicate acid solutions; and values above 7.0 indicate alkaline solutions. The pH values reported for many of the analyses given in Table 8 are questionable because of the long period of storage between time of collection and time of analysis, during which the pH can and does change. (The bicarbonate concentrations reported are subject to the same conditions.)

Percent sodium indicates the amount of sodium relative to the other cations present in the water and is useful in classifying the water for irrigation purposes. Inasmuch as all the analyses shown in Table 8 show the combined concentrations of sodium and potassium, the sodium percentages indicated include potassium also. However, since the ratio of potassium to sodium probably is very small, the figures shown under "percent sodium" probably are only slightly high.

The concentration of chemical constituents in water (tables 8 and 9) is expressed in ppm (part per million) and epm (equivalents per million). A part per million is a unit weight of a substance in a million unit weights of solution. Equivalents per million is a measure of the reactive weights of different ions. The atoms of the different elements have different relative weights which are know as atomic weights. The atomic weight of chlorine is 35.46 and that of sodium is 22.997. By dividing the atomic weight of sodium into the atomic weight of chlorine it can be seen that the chloride ion is 1.54 times heavier than the sodium ion. Hence, to form the simple compound of sodium chloride, in which each atom (or ion) of sodium combines with an atom of chlorine to form a single molecule of salt, the quantities required, in terms of weight, would be 1 part sodium to 1.54 chlorine. In such proportions there are equal numbers of sodium and chloride ions; that is, they are chemically equivalent. The concentration of a substance, in equivalents per million, is determined by dividing its concentration in parts per million by its chemical combining weight. The chemical combining weight is the atomic weight of the ion divided by its valence.

Usually, chemical analyses are reported in parts per million, but it is frequently more convenient for interpretative purposes to compare waters in terms of equivalents per million. In Tables 8 and 9 the concentrations of the different constituents are given in both terms. Some analyses by commercial laboratories express concentrations in grains per gallon. This expression can be converted into parts per million by multiplying by 17.12.

CHEMICAL STANDARDS FOR WATER USE

The U.S. Public Health Service (1946) sets up criteria for the quality of drinking water to be used on common carriers used in interstate traffic. These recommended limits have gained wide acceptance as stand-

ards against which to measure water quality, although they are somewhat conservative when applied in an area such as southern Lea County, where much of the ground water is mineralized. Recommended maximum concentrations (U.S. Public Health Service, 1946) for selected chemical constituents are as follows:

	PPM
Iron and Manganese	0.3
Fluoride	1.5*
Magnesium	125
Zinc	15
Chloride	250
Sulfate	250
Dissolved solids	500†

Numerous analyses in Table 8 exceed those limits with respect to one or more constituents. Although some of these samples reflect natural conditions, many appear to be contaminated. This aspect will be discussed in the section on brine contamination of shallow ground water.

Chemical requirements for industrial uses of water vary according to the industry, but requirements are most rigid where water is used in food, paper, or other chemical-process industries. The two most common industrial uses for water in southern Lea County are for cooling and boiler feed. Excessive concentrations of dissolved solids are troublesome in water used for cooling, inasmuch as the process of evaporation, by which cooling takes place, removes water in the chemically pure vapor state, leaving behind the dissolved matter in greater concentration than before.

The chemical-quality requirements of boiler feed water depend to a great extent on the operating pressure and design of the boiler system. High operating pressures impose very strict tolerance limits; for example, suggested tolerance limits for systems operating at more than 400 psi specify a concentration of dissolved solids of 50 ppm or less. Low-pressure systems, operating at less than 150 psi can use water having a dissolved-solids concentration of 500 to 3,000 ppm ([Calif.] State Water Pollution Control Board, 1957, p. 129). Nearly all the ground water sampled in southern Lea County requires some treatment to make it suitable for use as boiler feed water.

CHEMICAL CHARACTERISTICS OF GROUND WATER IN SOUTHERN LEA COUNTY

The dissolved chemical constituents in ground water reflect, to a great extent, the lithologic characteristics of the aquifer because presumably the water is in chemical equilibrium with the rock material with which it is in intimate contact. Differences in lithology will give

* Mandatory limit.

† Unless water of better quality is not available, in which case a total solids content of 1,000 ppm may be permitted.

Dockets Nos. 23-76 and 24-76 are tentatively set for hearing on August 18 and September 1, 1976. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 4, 1976

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

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

CASE 5726: Application of Cities Service Oil Company for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the North Burton Flats-Wolfcamp Gas Pool and an undesignated Canyon pool in the wellbore of its State CT Well No. 1, located in Unit I of Section 16, Township 20 South, Range 28 East, Eddy County, New Mexico.

CASE 5727: Application of Big "6" Drilling 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 Bone Springs formation through the perforated interval from 10,062 feet to 10,119 feet in its Ora Jackson "A" Well No. 1 located in Unit M of Section 5, Township 19 South, Range 35 East, Scharb-Bone Springs Pool, Lea County, New Mexico.

CASE 5728: Application of Pennzoil Company for an exception to Order No. R-3221, Lea County, New Mexico. Applicant, in the above-styled cause, seeks, as an exception to the provisions of Commission Order No. R-3221, permission to dispose of, in an unlined pit, produced salt water from its Mescalero Ridge Unit Well No. 1, located in Unit M of Section 20, Township 19 South, Range 34 East, Quail Ridge-Morrow Pool, Lea County, New Mexico.

CASE 5729: Application of Penroc Oil Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the N/2 of Section 33, Township 19 South, Range 28 East, Eddy County, New Mexico, to be dedicated to applicant's Angell Ranch Well No. 1 to be drilled at an orthodox location in Unit B of said Section 33 to test the Morrow formation. 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 5730: Southeastern New Mexico nomenclature case calling for the creation and extension of certain pools in Eddy, Chaves, and Lea Counties, New Mexico:

a) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the Mid Bell Lake-Morrow Gas Pool. The discovery well is the Continental Oil Company Bradley "A" Well No. 1 located in Unit F of Section 19, Township 23 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 19: W/2

b) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the East Burton Flat-Morrow Gas Pool. The discovery well is the Texas Oil and Gas Corporation Superior Federal Well No. 1 located in Unit G of Section 8, Township 20 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM
Section 4: W/2
Section 8: All
Section 9: All
Section 16: All
Section 17: All
Section 18: All

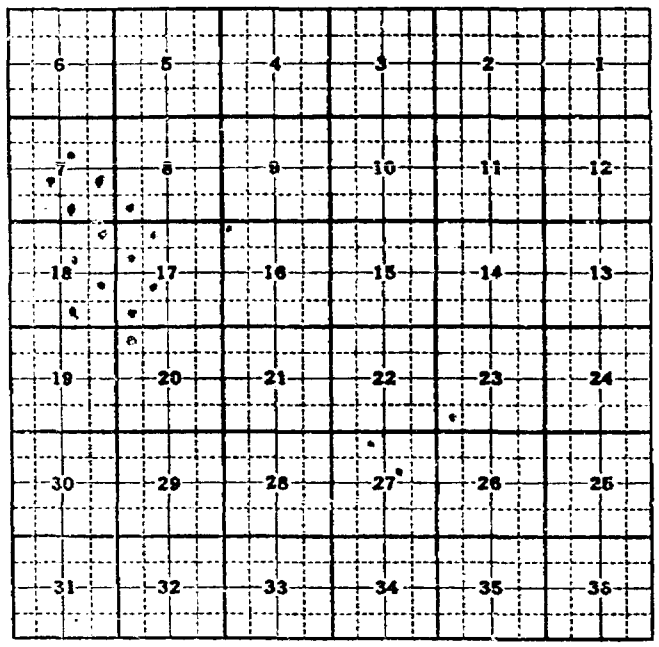
c) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the East Burton Flat-Strawn Gas Pool. The discovery well is the Texas Oil and Gas Corporation Yates Federal Well No. 1 located in Unit N of Section 8, Township 20 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 29 EAST, NMPM
Section 8: S/2

Name

Address Ph.

Remarks:



T ..... R ..... State or County .....

MEMO TO: Mr. Dan S. Nutter
Oil Conservation Commission
Santa Fe, New Mexico

FROM: John W. Runayn
Oil Conservation Commission
Hobbs, New Mexico

DATE: August 11, 1976

SUBJECT: MARK SMITH RANCH

I took two water samples from Mr. Smith's windmill at ranch house and one from Pennsoil's lease. One sample was sent to United Chemical of Hobbs for complete analysis and I ran one sample from windmill and the sample from Pennsoil's lease. Results are attached.

In an interview with Mr. Smith and his wife, he stated that the water from the windmill at the house is used for both stock and house use. They do bring in water for drinking, but the windmill water is used for all other household uses, such as washing, dishes, bathing, etc.

He also stated that in the past he has drilled for water in all directions from the ranch house for additional outlying water for his cattle but has met with negative results.

He stated that if the water at his house becomes contaminated where his cattle can not drink it, and they can not use it, he would be practically ruined. The only source of water would be to run a pipe line to the caprock, six miles to the northeast in order to get good water, and this would be extremely expensive, a prohibitive cost to him.

In April 1970, a report was made by me for Case No. 4336 and the results of this report has not changed appreciably.

(1) The water at the ranch house is a "perched water" situation.
(2) The local geologic structure of the area as noted from "The Ground Water and Geology of Lea County - Bulletin 6" shows that the near surface formations tilt down to the west due to the slumping that created Laguna Plata and Gatuna. Water that is put into a pit on the Pennzoil lease would move in the direction of Mr. Smith's house, instead of the normal southeast direction (regional dip).
(3) Also, note there is a SWD well located in Section 28, T19S, R34E, less than 2 miles from Pennzoil lease, east. There are now several P&A wells in the area located much closer to the Pennzoil lease that might have SWD possibilities.

I feel that any water put into pit(s) northeast of the ranch house could possibly cause eventual contamination of the local "perched water" in the area. The sand dune area around Mr. Smith's house is the main source recharge to the local water source during periods of rainfall.

Respectfully submitted,

John W. Runyan

John W. Runyan, Geologist District I

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: Mr. Mark Smith Well No. #1

Land Status: ☐ State ☐ Federal ☒ Fee

Well Location: Unit I, Section 26, T 19 S - R 33 E Lea County

(NE of NE of SE Sec. 26 -- Smith Ranch House)

Type Well: Windmill * Depth: 101 feet.

Well Use: Stock and house use

Sample Number: #2 Date Taken: Aug. 11, 1976 (John W. Runyan)

Specific Conductance: 2200 m/ohms

Total dissolved Solids: 2024 PPM.

Chlorides: 284.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☒ None ☐ Low ☐ Med. ☐ High

_____ : _____

Date Analized: August 11, 1976 By: John W. Runyan N.M.O.C.C.

Remarks: * Windmill also has submergible pump as secondary back up -- depth to water 93 feet.

50 ml sample = 71.0 factor x 4.0 ml titration = 284.0 ppm cl.

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

Well Ownership: Penzoil Oil Company Well No. #1

Land Status: [X] State [ ] Federal [ ] Fee

Well Location: Unit M, Section 20, T. 19 S - R 34 E Lea County

Quail Ridge Unit #1

Type Well: Oil Well Depth: ____ feet.

Well Use: Sample taken from salt water storage tank

Sample Number: #3 Date Taken: August 11, 1976
John W. Runyan

Specific Conductance: _____ m/ɔ

Total dissolved Solids: _____ PPM.

Chlorides: 20,732.0 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: [ ] V. low [ ] Low [ ] Med. [ ] High

Sulfides: [X] None [ ] Low [ ] Med. [ ] High

_____ : _____

Date Analized: August 11, 1976 By: John W. Runyan
N.M.O.C.C.

Remarks: Couldn't get the rate of produced water. Took water sample from valve at bottom of produced salt water holding tank at battery.

5.0 ml sample = 710.0 factor x 29.2 ml titration = 20,732 ppm cl.

KE-TONE

UNITED CHEMICAL CORPORATION

[illegible]
[illegible]
HOBBS, N.M. & [illegible]
[illegible]

PHONE
505-
393-7751

TO: New Mexico Oil Conservation

DATE 8-11-76

PLANT Mark Smith Ranch

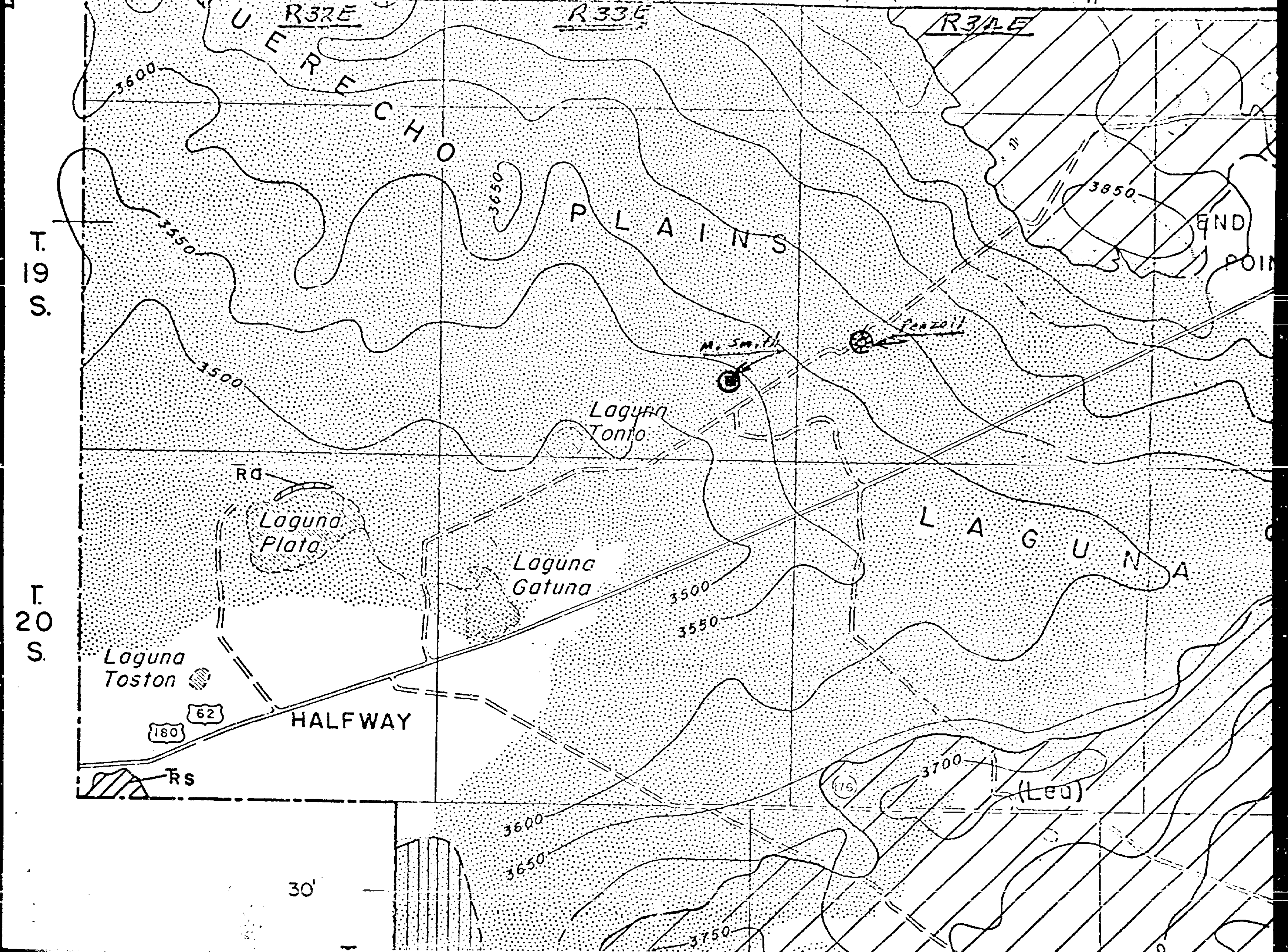
REMARKS & RECOMMENDATIONS

Windmill at house

SAMPLE SOURCE							
pH	7.8						
Total Hardness as $CaCO_3$ (PPM)	624						
Calcium as $CaCO_3$ (PPM)	332						
Magnesium as $CaCO_3$ (PPM)	292						
Total Phosphate as PO_4 (PPM)	0						
Orthophosphate as PO_4 (PPM)	0						
Polyphosphate as PO_4 (PPM)							
M Alkalinity as $CaCO_3$ (PPM)	212						
P Alkalinity as $CaCO_3$ (PPM)	0						
Chloride as Cl (PPM)	286						
Total Dissolved Solids (PPM)	2,095						
Sulfate as SO_4 (PPM)	800						
Sulfite as SO_3 (PPM)							
Iron as Fe (PPM)	0.06						
Silica as SiO_2 (PPM)	75						
Carbon Dioxide as CO_2 (PPM)							
Chromate as CrO_4 (PPM)	0						
Specific Conductance (mmhos)							
Concentrations Chloride							
Concentrations Hardness							
Specific Gravity	1.002						

MODERN BUSINESS FORMS INC. LR

"KE-TONE Makes Water Work"


R32E
R33E
R34E
U E R E C H O
P L A I N S
3600
3650
3550
3500
3850
END
M. Smith
Laguna Tonto
Rd
Laguna Plata
Laguna Gatuna
Laguna Toston
L A G U N A
T. 19 S.
T. 20 S.
62
180
HALFWAY
Rs
3700
(Leu)
3600
3650
3750
30'

Form O-11B (rev. 2-76)

SAMPLE NO._____

THE WESTERN COMPANY

Hobbs, New Mexico

Service Laboratory
Midland, Texas
Phone 683-2781 Day
Phone 683-4162 Night

Service Laboratory
Oklahoma City, Oklahoma
Phone 840-2771 Day
Phone 751-5470 Night

WATER ANALYSIS

County Eddy

Field Ranch Windmill

Operator Pennzoil

Well Smith Ranch

Depth Unknown

Formation

PENNZOIL
JUL 06 1976
MIDLAND

Date Sampled 7-2-76

Date Received 7-2-76

Submitted By J. C. Raney

Worked By Chuck Kelley

Other Description

CHEMICAL DETERMINATIONS as parts per million

Density	1.00	pH	7.0
Iron	None	Hydrogen Sulfide	None
Sodium and Potassium	1,587	Bicarbonate	366
Calcium	800	Sulfate	
Magnesium	121.5	Phosphate	
Chloride	4,000	as Sodium Chloride	

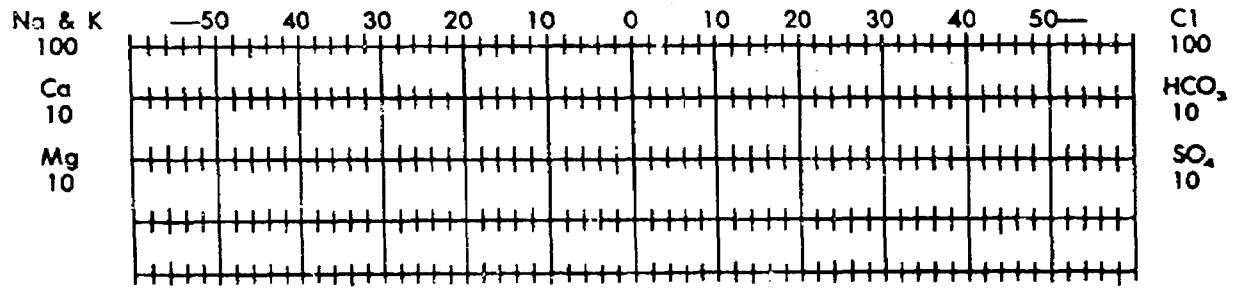
TOTAL ppm _____

Resistivity _____ ohm-meters

Remarks:

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pennzoil EXHIBIT NO. 2
CASE NO. 5728

for Stiff type plot (in meq./l.)



Per _____

Quality of Water

Rain water, having been distilled by natural processes, is relatively pure. Once water is in contact with the land surface, however, the water begins to dissolve organic and inorganic matter; and as the water moves through an aquifer, it dissolves rock materials. Ground water in arid and semiarid areas commonly contains enough dissolved mineral matter to limit its usefulness.

Among the most common chemical substances found in ground water are silica (SiO_2), iron (Fe), calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), carbonate (CO_3), bicarbonate (HCO_3), sulfate (SO_4), chloride (Cl), fluoride (F) and nitrate (NO_3). Of these, the bulk generally is distributed among calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, and chloride. The concentrations of silica, fluoride, and nitrate generally are a minor part of the dissolved solids, and for some purposes sodium and potassium are grouped together and treated as one. Similarly, carbonate and bicarbonate may be grouped together.

The chemical characteristics of a water may be identified through study of the concentration and relative abundance of the principal ions it contains. Table 8 gives analyses of water from wells in the southern Lea County area, and Table 9 gives analyses of water pumped from oil wells.

Other characteristics commonly reported in chemical analyses of water samples are dissolved solids, specific conductance, hardness, pH, and percent sodium. A brief explanation of these characteristics follows.

Most of the dissolved-solids concentrations presented in Tables 8 and 9 are computed values for the total mineral constituents of the water sample, based on the constituents determined in the analysis, except that bicarbonate has been reported as carbonate. The dissolved-solids content can be determined directly by evaporating a sample to dryness at 180°C. A rough measure of the dissolved-solids concentration is provided by the specific conductance, which expresses the ease with which an electrical current can be passed through the water. The conductance depends directly on the amount and nature of the dissolved solids; thus no information on the chemical nature of the dissolved mineral matter is obtained from the specific-conductance measurement. For water in the Triassic, Tertiary, and Quaternary rocks in southern Lea County, the dissolved-solids concentration is approximately equal to the specific conductance at 25°C multiplied by a factor of 0.65.

Hardness of water is attributable to the presence of alkaline earth cations, which in natural waters are principally calcium and magnesium. It is an indication of soap-consuming power of the water. The cations that cause hardness can combine with certain anions to form troublesome deposits in boilers and other heat-exchange equipment.

From Ground-Water Report 6
Geology & Ground-Water Conditions
in Southern Lea County, N. M.

The pH value of an aqueous solution represents the hydrogen-ion concentration of the solution and ranges from 0 to 14. Ordinarily a value of 7.0 is considered neutral; values below 7.0 indicate acid solutions; and values above 7.0 indicate alkaline solutions. The pH values reported for many of the analyses given in Table 8 are questionable because of the long period of storage between time of collection and time of analysis, during which the pH can and does change. (The bicarbonate concentrations reported are subject to the same conditions.)

Percent sodium indicates the amount of sodium relative to the other cations present in the water and is useful in classifying the water for irrigation purposes. Inasmuch as all the analyses shown in Table 8 show the combined concentrations of sodium and potassium, the sodium percentages indicated include potassium also. However, since the ratio of potassium to sodium probably is very small, the figures shown under "percent sodium" probably are only slightly high.

The concentration of chemical constituents in water (tables 8 and 9) is expressed in ppm (part per million) and epm (equivalents per million). A part per million is a unit weight of a substance in a million unit weights of solution. Equivalents per million is a measure of the reactive weights of different ions. The atoms of the different elements have different relative weights which are know as atomic weights. The atomic weight of chlorine is 35.46 and that of sodium is 22.997. By dividing the atomic weight of sodium into the atomic weight of chlorine it can be seen that the chloride ion is 1.54 times heavier than the sodium ion. Hence, to form the simple compound of sodium chloride, in which each atom (or ion) of sodium combines with an atom of chlorine to form a single molecule of salt, the quantities required, in terms of weight, would be 1 part sodium to 1.54 chlorine. In such proportions there are equal numbers of sodium and chloride ions; that is, they are chemically equivalent. The concentration of a substance, in equivalents per million, is determined by dividing its concentration in parts per million by its chemical combining weight. The chemical combining weight is the atomic weight of the ion divided by its valence.

Usually, chemical analyses are reported in parts per million, but it is frequently more convenient for interpretative purposes to compare waters in terms of equivalents per million. In Tables 8 and 9 the concentrations of the different constituents are given in both terms. Some analyses by commercial laboratories express concentrations in grains per gallon. This expression can be converted into parts per million by multiplying by 17.12.

CHEMICAL STANDARDS FOR WATER USE

The U.S. Public Health Service (1946) sets up criteria for the quality of drinking water to be used on common carriers used in interstate traffic. These recommended limits have gained wide acceptance as stand-

ards against which to measure water quality, although they are somewhat conservative when applied in an area such as southern Lea County, where much of the ground water is mineralized. Recommended maximum concentrations (U.S. Public Health Service, 1946) for selected chemical constituents are as follows:

	PPM
Iron and Manganese	0.3
Fluoride	1.5*
Magnesium	125
Zinc	15
Chloride	250
Sulfate	250
Dissolved solids	500†

Numerous analyses in Table 8 exceed those limits with respect to one or more constituents. Although some of these samples reflect natural conditions, many appear to be contaminated. This aspect will be discussed in the section on brine contamination of shallow ground water.

Chemical requirements for industrial uses of water vary according to the industry, but requirements are most rigid where water is used in food, paper, or other chemical-process industries. The two most common industrial uses for water in southern Lea County are for cooling and boiler feed. Excessive concentrations of dissolved solids are troublesome in water used for cooling, inasmuch as the process of evaporation, by which cooling takes place, removes water in the chemically pure vapor state, leaving behind the dissolved matter in greater concentration than before.

The chemical-quality requirements of boiler feed water depend to a great extent on the operating pressure and design of the boiler system. High operating pressures impose very strict tolerance limits; for example, suggested tolerance limits for systems operating at more than 400 psi specify a concentration of dissolved solids of 50 ppm or less. Low-pressure systems, operating at less than 150 psi can use water having a dissolved-solids concentration of 500 to 3,000 ppm ([Calif.] State Water Pollution Control Board, 1957, p. 129). Nearly all the ground water sampled in southern Lea County requires some treatment to make it suitable for use as boiler feed water.

CHEMICAL CHARACTERISTICS OF GROUND WATER IN SOUTHERN LEA COUNTY

The dissolved chemical constituents in ground water reflect, to a great extent, the lithologic characteristics of the aquifer because presumably the water is in chemical equilibrium with the rock material with which it is in intimate contact. Differences in lithology will give

* Mandatory limit.

† Unless water of better quality is not available, in which case a total solids content of 1,000 ppm may be permitted.

Form O-11B (rev. 2-76)

SAMPLE NO._____

THE WESTERN COMPANY

Hobbs, New Mexico

Service Laboratory
Midland, Texas
Phone 683-2781 Day
Phone 683-4162 Night

Service Laboratory
Oklahoma City, Oklahoma
Phone 840-2771 Day
Phone 751-5470 Night

WATER ANALYSIS

PENNZOIL
JUL 07 1976
MIDLAND

County	Eddy	**Date Sampled**	6-30-76
Field	Quail Ridge Morrow	**Date Received**	6-30-76
Operator	Pennzoil	**Submitted By**	Lloyd Murphy
Well	Mescalero Ridge Unit # 1	**Worked By**	Chuck Kelley
Depth		**Other Description**	
Formation	Morrow		

CHEMICAL DETERMINATIONS as parts per million

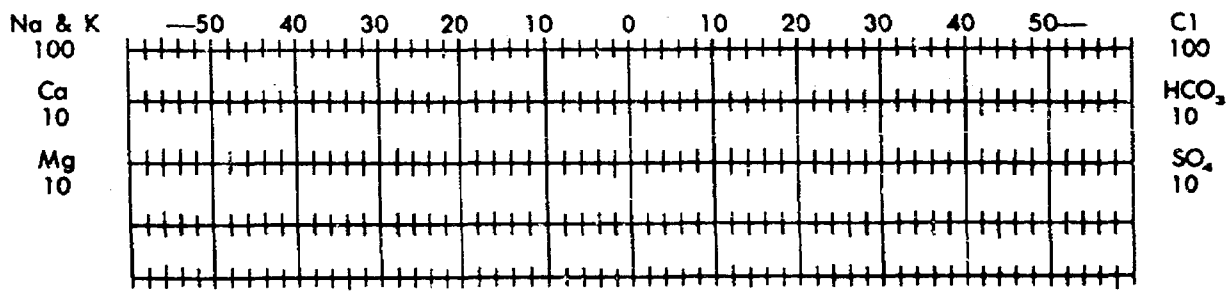
Density	1.025	**pH**	7.0
Iron	Very faint trace	**Hydrogen Sulfide**	None
Sodium and Potassium	13,064	**Bicarbonate**	1,098
Calcium	880	**Sulfate**	None
Magnesium	316	**Phosphate**	
Chloride	22,000	**as Sodium Chloride**	

TOTAL ppm _____

Resistivity _____ ohm-meters

Remarks:

for Stiff type plot (in meq./1.)



Per _____

PENNZOIL COMPANY
POST OFFICE DRAWER 1828 • MIDLAND, TEXAS 79701 • PHONE (915) 682-7316

July 14, 1976

Mr. Arthur Brown
U. S. Department of the Interior
Geological Survey
P. O. Box 1157
Hobbs, New Mexico

Re: Exception to "No Pit" Order
Unit M, Sec. 20, T-19-S, R-34-E
(Lease NM 014013)
Lea County, New Mexico

Dear Sir:

Pennzoil Company respectfully requests approval to use an unlined pit for the disposal of produced water. The Pennzoil Mescalero Ridge Unit No. 1 located 660' FS&WL of Section 20, T-19-S, R-34-E currently produces between 100 and 120 barrels of water plus 80 barrels of condensate and 1,500 MCF of gas is the only well which would be served by this pit.

In support of this request, the following data is submitted:

1. A complete Water Analysis of the produced water that will be disposed into the pit.

2. A complete Water Analysis of the nearest produced surface water (windmill). This windmill is located approximately 2-1/2 miles west of the Pennzoil Mescalero Ridge Unit #1. It should be noted this water is not potable for human consumption when compared to the U. S. Public Health Service "Chemical Standards for Water Use" table of recommended maximum concentrations for selected constituents. (Table attached copied from Ground Water Report No. 6 by the New Mexico Bureau of Mines & Mineral Resources dated 1961).

3. A Geological map of Southern Lea County (Plate 1). This is a structure map contoured on the surface elevations. As can be seen, the surface drainage is to the southwest toward the Laguna Gatuna Salt Lakes from the Pennzoil Mesclaero Ridge Unit #1. The Laguna Gatuna Salt Lakes are located

Ex. 6

approximately 7-1/2 miles from the Mescalero Ridge Unit #1 and is the current disposal system which our produced water is transported to by truck for a total cost of $0.616 per barrel.

4. A Ground-Water map of Southern Lea County, New Mexico (Plate 2). This is a structure map contoured on top of the Tertiary, Quaternary and Triassic Rocks. The area around the Mescalero Ridge Unit #1 is mapped on top of the Triassic Rock. As can be seen, the subsurface drainage is to the southwest toward the Laguna Gatuna Salt Lakes where produced brine is disposed.

In my opinion, the granting of this approval will not further damage the surface water in this area and will not violate the correlative rights of anyone. The granting of this approval will extend the life of this well and improve the recovery of gas that would be wasted and left in the reservoir. Without approval of this request, premature abandonment would result due to the high water hauling cost.

The proposed pit will be 100' x 100' x 4' and will have a five (5) strand barb wire fence with steel post set in concrete. The pit will be diked to prevent water from leaving the enclosed area.

The soil around the Pennzoil Mescalero Ridge Unit #1 is a loose blow sand that is only partially covered with shinnery that has little or no food value to livestock. Attached is a series of Polaroid pictures that shows the type of soil and vegetation in the area.

A hearing before the New Mexico Oil Conservation Commission is scheduled on Wednesday August 4, 1976 in Santa Fe to request their approval on this matter and you are invited to attend this hearing.

If you need any additional information or data concerning this request, please feel free to call.

Yours very truly,

J. C. Raney

J. C. Raney
Advanced Petroleum Engineer

JCR:tb
Enclosures

Case 5728

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF PENNZOIL COMPANY FOR AN EXCEPTION
TO ORDER NO. R-3221, LEA COUNTY,
NEW MEXICO

A P P L I C A T I O N

Comes now Pennzoil Company and applies to the Oil Conservation Commission of New Mexico for an exception to the provisions of Commission Order No. R-3221, as amended, to permit the surface disposal of produced water in an unlined surface pit in the Quail Ridge Morrow field, and in support thereof would show the Commission:

1. Applicant proposes to dispose of water produced from its Mescalero Ridge Unit No. 1 well, located in Unit M, Section 20, Township 19 South, Range 34 East, N.M.P.M., Lea County, New Mexico, in an unlined surface pit.

2. The Mescalero Ridge Unit No. 1 well is a gas well, and produces approximately 100 to 120 barrels of water per day, together with approximately one and one half million cubic feet of gas, and 80 barrels of condensate.

3. There is no supply of fresh water in the vicinity of the subject well, and proposed pit location, the nearest water supply being a well approximately two and one half miles west, which well produces water containing 4,000 ppm chlorides.

4. Applicant has made an extensive survey, and finds no other water wells in the area, nor is fresh water encountered in any formation in the vicinity of the well.

Case 5728

5. Surface drainage pattern is such that produced water cannot migrate to contaminate any supply of fresh water, whether surface water or underground water, and no stock tanks or other temporary or permanent water facilities exist in the area or would be affected by the surface disposal.

6. Water from the well is presently being trucked to a disposal site at considerable expense to applicant.

7. Approval of this application will prolong the economic life of the well, permit the recovery of gas and condensate over a longer period of time, and will prevent waste. No damage will occur to the surface or underground, and the correlative rights of no owner will be affected.

WHEREFORE applicant prays that this application be set for hearing before the Commission or the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission enter its order approving the surface disposal as applied for.

Respectfully submitted,

PENNZOIL COMPANY

By Jason W. Kellahin

KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

Case 5728

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF PENNZOIL COMPANY FOR AN EXCEPTION
TO ORDER NO. R-3221, LEA COUNTY,
NEW MEXICO

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Case 5728

5. Surface drainage pattern is such that produced water cannot migrate to contaminate any supply of fresh water, whether surface water or underground water, and no stock tanks or other temporary or permanent water facilities exist in the area or would be affected by the surface disposal.

6. Water from the well is presently being trucked to a disposal site at considerable expense to applicant.

7. Approval of this application will prolong the economic life of the well, permit the recovery of gas and condensate over a longer period of time, and will prevent waste. No damage will occur to the surface or underground, and the correlative rights of no owner will be affected.

WHEREFORE applicant prays that this application be set for hearing before the Commission or the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission enter its order approving the surface disposal as applied for.

Respectfully submitted,

PENNZOIL COMPANY

By Jason W. Kellahin

KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

ROUGH DRAFT

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. 5728

Order No. R- 5258

APPLICATION OF PENNZOIL COMPANY

FOR AN EXCEPTION TO ORDER NO. R-3221,

AS AMENDED, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 4, 19____, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of ~~August~~, 19 76, 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, Pennzoil Company, is the owner and operator of the Mescalero Ridge Unit Well No. 1, located in Unit M of Section 20, Township 19 South, Range 34 East, NMPM, Quail Ridge-Morrow Pool, Lea County, New Mexico.

(3) That Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicant seeks as an exception to the provisions of the aforesaid Order (3) to permit the disposal of salt water produced by applicant's above-described well into an unlined surface pit located in Unit M of said Section 20.

(7) That there is fresh water in the vicinity of the above-described unlined pit for which a present or reasonably foreseeable beneficial use is or will be made.

(8) That there is a probability that the beneficial use of said fresh water would be impaired by contamination from the disposal of salt water into the unlined surface pit as requested by the applicant.

(9) That the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of ~~A Oil~~ Pennzoil Company for an exception to Order (3) of Commission Order No. R-3221, as amended, to dispose of water produced in conjunction with the production of gas and condensate from its Mescalero Ridge Unit Well No. 1, located in Unit M of Section 20, Township 19 South, Range 34 East, NMPM, Quail Ridge-Morrow Gas Pool, Lea County, New Mexico, in an unlined surface pit located in the vicinity of said well is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

~~BRUCE KING~~, Chairman

~~ALEX J. ARMIJO~~, Member

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

S E A L

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