

dearnley, meier & mc cormick

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Wednesday, May 9, 1973

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco Inc. for a unit
agreement, Eddy County, New Mexico.

and

IN THE MATTER OF:

Application of Texaco Inc. for a
waterflood project, Eddy County,
New Mexico.

Case No. 4963

Case No. 4964

BEFORE: Daniel S. Nutter,
Examiner

TRANSCRIPT OF HEARING

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, a manager might notice that sales are declining or that customer satisfaction is low. Once a problem is identified, the next step is to define it more precisely. This involves determining the scope of the problem, its causes, and its effects. For instance, a manager might define a sales decline as a 10% drop in revenue over the last quarter, caused by a decrease in the number of new customers and a loss of existing customers. The third step is to analyze the problem. This involves gathering data, identifying patterns, and testing hypotheses. For example, a manager might analyze sales data to see if there is a seasonal trend or if the decline is concentrated in certain regions. The fourth step is to generate solutions. This involves brainstorming ideas, evaluating alternatives, and selecting the best solution. For instance, a manager might consider increasing marketing efforts, improving customer service, or offering discounts. The fifth step is to implement the solution. This involves putting the chosen solution into action and monitoring its progress. For example, a manager might launch a new advertising campaign and track sales over time. The final step is to evaluate the results. This involves comparing the actual outcomes with the expected outcomes and determining whether the problem has been solved. For instance, a manager might compare sales after the advertising campaign with sales before the campaign to see if there was an improvement.

2. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, a manager might notice that sales are declining or that customer satisfaction is low. Once a problem is identified, the next step is to define it more precisely. This involves determining the scope of the problem, its causes, and its effects. For instance, a manager might define a sales decline as a 10% drop in revenue over the last quarter, caused by a decrease in the number of new customers and a loss of existing customers. The third step is to analyze the problem. This involves gathering data, identifying patterns, and testing hypotheses. For example, a manager might analyze sales data to see if there is a seasonal trend or if the decline is concentrated in certain regions. The fourth step is to generate solutions. This involves brainstorming ideas, evaluating alternatives, and selecting the best solution. For instance, a manager might consider increasing marketing efforts, improving customer service, or offering discounts. The fifth step is to implement the solution. This involves putting the chosen solution into action and monitoring its progress. For example, a manager might launch a new advertising campaign and track sales over time. The final step is to evaluate the results. This involves comparing the actual outcomes with the expected outcomes and determining whether the problem has been solved. For instance, a manager might compare sales after the advertising campaign with sales before the campaign to see if there was an improvement.

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1 MR. NUTTER: We will call next Cases Numbers 4963
2 and 4964.

3 MR. CARR: Case 4963, application of Texaco Inc.
4 for a unit agreement, Eddy County, New Mexico. Case 4964,
5 application of Texaco Inc. for a waterflood project, Eddy
6 County, New Mexico.

7 MR. KELLY: Mr. Examiner, I am Booker Kelly of
8 White, Koch, Kelly and McCarthy, appearing on behalf of the
9 applicant, and we have marked our exhibits, Mr. Examiner, and
10 consolidated them for purposes of testimony. I have one
11 witness and ask that he be sworn.

12 KENNETH L. PETERS,
13 a witness, having been first duly sworn according to law, upon
14 his oath, testified as follows:

15 DIRECT EXAMINATION

16 BY MR. KELLY:

17 Q Would you please state your name, position, and employer?

18 A My name is Kenneth Peters, I am employed with Texaco,
19 Incorporated, in Hobbs, New Mexico, as District
20 Production Engineer.

21 Q And you have previously qualified as an expert witness
22 in your field before this Commission?

23 A Yes, sir, I have.

24 Q What does Texaco seek by these two applications?

25 A Texaco seeks permission to unitize 1,800 acres located

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1 in portions of Sections 27, 26, 29, 31, 32, 33, and 34,
 2 all in Township 18 South, Range 30 East, Eddy County,
 3 New Mexico, consisting both of State and Federal lands;
 4 and the proposed unit will consist of a total of 45
 5 acres located in the Benson Queen Grayburg North Field,
 6 and that Texaco seeks to initiate secondary recovery
 7 operations in the subject unit by converting 21 producing
 8 wells to injection, and also Texaco seeks authority to
 9 expand the unit area and to drill and/or convert
 10 additional wells in the proposed unit prior to response
 11 without hearing and notice, subject to administrative
 12 approval of the Commission, and that the requested
 13 proposed secondary recovery project be authorized and
 14 governed by provisions of Rules 701, 702, and 703, the
 15 Oil Commission's directives.

16 Q All right. First, going to the Unit Agreement, is
 17 Exhibit Number 1 a copy of the proposed Unit Agreement?

18 A Yes, sir, it is.

19 Q Would you show the Examiner where the unit area is
 20 defined by a plat and by legal description?

21 A Exhibit A of the proposed Unit Agreement is in the rear
 22 of this Unit Agreement and it defines the proposed unit
 23 by 15 individual tracts; and, on Page 2 of the Unit
 24 Agreement, Section 2, the unit area is defined,
 25 containing 1,800 acres, more or less, in Eddy County,

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author details the various methods used to collect and analyze the data. This includes both manual and automated processes. The manual process involves reviewing each entry individually, while the automated process uses software to identify patterns and anomalies.

The third section describes the results of the analysis. It shows that there are several areas where the data is inconsistent or incomplete. These areas need to be addressed to ensure the overall accuracy of the records.

Finally, the document concludes with a series of recommendations. These include implementing stricter controls over data entry, improving the quality of the source documents, and conducting regular audits to catch any errors early on.

1 New Mexico, both of State and Federal lands.

2 Q There is no fee land here, is that right?

3 A That is correct.

4 Q What is the unitized formation?

5 A The unitized formation is in Section 2, Paragraph G,
6 Page 2, and it's defined as the stratigraphic interval
7 of the Guadalupian series of the Permians, known as the
8 Queen Formation, and that's on the PGAC Acoustic Gamma
9 Ray Log dated 9/29/63, in Texaco's L.A. Fanning "B" Well
10 Number 7, and that's located 980 feet from the south and
11 west lines, Township 18 South, Range 30 East, and this is
12 found between the depths of 2,250 feet and 2,339 feet,
13 an interval of 589 feet.

14 Q Will Texaco be the unit operator?

15 A Yes, sir, they will.

16 Q What percentage does Texaco own of this unit?

17 A Texaco will operate the unit with 75 percent working
18 interest in this unit. Exhibit B defines the 15
19 individual tracts and the summary at the last page of
20 Exhibit B clearly defines the working interest owners.

21 Q Have all the working interest owners agreed to this Unit
22 Agreement?

23 A To date, there is 100 percent interest owner working
24 interest signed up and 99.15 percent of the overriding
25 royalty interest has been signed up.

1 Q How do you stand with your basic royalty estate and the
2 Federal Government?

3 A The Federal Government has tentatively approved the Unit
4 Agreement, as well as the Commissioner of Public Lands,
5 by letters dated October 4, 1972, and October 16, 1972,
6 respectively. And, this subject agreement is similar to
7 others that have previously been approved by the
8 Commission.

9 Q Now, going to the waterflood aspects of the case, you
10 have a plat marked Exhibit 2 which defines both the unit
11 and the waterflood area?

12 A Yes, sir, in Exhibit 2, the 1,800-acre proposed unit is
13 outlined in the dashed line and the proposed injection
14 wells are shown with a triangle around them. There will
15 be 21 injection wells and 24 producing wells. The
16 pattern will be an 80-acre 5-spot, and secondary recovery
17 will recover an additional 1,669,000 barrels of
18 secondary oil. And, this unit will reach a peak rate of
19 2,800 barrels of oil per day, which will occur 18 months
20 after commencing injection; and there are no other
21 waterfloods in this field.

22 Q Is there any other producing zone in this field?

23 A No, sir, there are not.

24 Q These are all single completions?

25 A Yes, sir, that's correct.

1 Q And all of the proposed injection wells and producing
2 wells are now drilled?

3 A Yes. There is no tentative development drilling plan.

4 Q Now, going to Exhibit 3, your structure map, would you
5 explain that project?

6 A The structure map is a structural contour on the top of
7 the Queen sand and it is in 20-foot intervals. Basically,
8 the first commercial production in the Benson Queen
9 North Field was from the Simms and Reece McClay Well
10 Number 1, and that was completed September 1, 1954, and
11 production was derived from the Upper Queen Formation of
12 Guadalupian series of the Permian Age. The Benson Queen
13 North Field is located in the back-field reef area of
14 the Capitan Reef Front. Locally, the field is a
15 stratigraphic trap, limited by an up-dip porosity and
16 permeability pinch-out towards the northwest, and the
17 structure is monoclinal feature dipping to the southeast,
18 and the producing formation itself is composed of fine
19 to medium grained dolomitic and anhydritic, and
20 development has been on a 40-acre spacing of an average
21 producing depth of 2,950 feet and producing mechanism is
22 solution gas dry.

23 As of March 1, 1973, the production records listed
24 of 47 wells producing from the Benson Queen North Field,
25 and the cumulative oil production to March 1, 1973, was

1 1,418,718 barrels of oil, which amounts to 93 percent
2 of the ultimate primary. The estimated remaining
3 primary reserves as of September 19 to March 1, 1972,
4 or 1973, is 98,000 barrels; and during February 1973,
5 the field produced 143 barrels of oil per day and 76
6 barrels of water per day, with an average GOR of 1136.

7 MR. NUTTER: Average approximate was 143?

8 THE WITNESS: Yes, sir, that's correct, barrels of
9 oil per day.

10 Q (By Mr. Kelly) You've got all of the wells in this Queen
11 Pool, then, except two, is that right?

12 A Yes, sir, that is correct.

13 Q Where are the wells located?

14 A Those other two wells are located on properties to the
15 east of the proposed unit.

16 Q And have all the offset operators been notified of this
17 application?

18 A Yes, sir, they have.

19 Q Who are they, do you know?

20 A The offset operators are Owen F. Featherston, and
21 Franklin, Astin and Faire, Incorporated; both of Roswell,
22 New Mexico.

23 Q Now, you have Exhibit Number 4, which is your current
24 pro-well production figures?

25 A Yes, Exhibit Number 4 lists the current producing rate

...the ... of ...

1 allowables for the North Benson Queen Grayburg for the
2 month of February 1973, and this is a list of the 47
3 wells giving the allowable, the oil, the water, and the
4 GOR on a monthly basis; and during this month, the
5 average per well rate was 5 barrels of oil per day, 3
6 barrels of water per day, with the same GOR of 1136.
7 This indicates that the production has reached an
8 advanced stripper state.

9 Q Now, Exhibit Number 5 is a typical diagrammatic sketch for
10 one of your injection wells, is that correct?

11 A Yes, this depicts the casing program with the surface
12 casing, the amount of cement used, the cement being
13 either circulated. This is circulated on both strings.
14 The perforated interval and also the injection interval.
15 On all of the 21 proposed injection wells, plastic-coated
16 tubing with a Packer will be set above the interval. The
17 tubing casing annulus will be loaded with inhibited water
18 and a pressure gauge will be placed on the surface to
19 monitor the injection.

20 Q Is there any fresh water near the surface?

21 A No, there is no fresh water in the area.

22 Q And there is no other production zones up structure, as
23 I understand it?

24 A That is correct.

25 Q Do you feel that this installation will prevent migration

The first part of the document discusses the importance of maintaining accurate records.

It is essential to ensure that all data is properly documented and stored.

This includes keeping track of dates, times, and locations of observations.

Consistent record-keeping allows for better analysis and interpretation of results.

Proper documentation is also crucial for transparency and accountability.

By following these guidelines, you can ensure the integrity of your research.

The second part of the document covers the methods used for data collection.

These methods include direct observation, interviews, and surveys.

Each method has its own strengths and limitations, and should be chosen accordingly.

It is important to use a variety of methods to gather comprehensive data.

Combining different approaches can provide a more complete picture of the phenomenon.

The third part of the document discusses the analysis of the collected data.

This involves identifying patterns, trends, and relationships within the data.

Statistical analysis is often used to quantify these relationships and test hypotheses.

Qualitative analysis is used to explore the underlying meanings and contexts of the data.

Both types of analysis are essential for a thorough understanding of the data.

The final part of the document covers the reporting of the research findings.

This involves presenting the results in a clear and concise manner.

Effective reporting includes a clear introduction, a detailed methodology, and a thorough discussion.

Conclusions should be based on the evidence presented and should address the research objectives.

References should be included to acknowledge the work of other researchers in the field.

Appendices can be used to provide additional information that supports the main findings.

Overall, the document provides a comprehensive guide to conducting research and reporting the results.

By following these guidelines, you can ensure the quality and reliability of your research.

Thank you for reading this document. We hope it has been helpful to you.

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1 of any fluids to any other zone?

2 A Yes, sir.

3 Q What is the source of your water that you will be
4 injecting?

5 A Texaco will seek commercial sources of water in the
6 area. Negotiations are currently under way with two
7 commercial firms.

8 Q How about your injection rate?

9 A The initial injection rate will be 385 barrels of water
10 per day per well at approximately 2,500 psi.

11 Q Now, Exhibit Number 6 is the tabulation of all of the
12 characteristics that you have shown on the diagramatic
13 form for each well, is that correct?

14 A Yes, sir, that is correct, for all 21 wells, giving the
15 surface casing, the depth, the cement used, and the
16 production casing, and also the total depth and the
17 injection interval of each well.

18 Q And Exhibit Number 7 is the actual footage location of
19 each proposed injection well?

20 A Yes, sir, Exhibit Number 7 depicts the exact legal
21 location of these 21 proposed injection wells.

22 Q Do you feel that the granting of these applications will
23 allow you to recover oil that would otherwise be left in
24 place, Mr. Peters?

25 A Yes, sir, that's true.

1 Q Do you think that the application will have any adverse
2 effects on the correlative rights of others?

3 A No, sir, it will not.

4 Q Were Exhibits 1 through 7 prepared by you or under your
5 supervision?

6 A Yes, sir, they were.

7 MR. KELLY: We would move the introduction of those
8 exhibits at this time, and that concludes our Direct Examination.

9 MR. NUTTER: Texaco's Exhibits 1 through 7 will be
10 admitted in evidence.

11 CROSS-EXAMINATION

12 BY MR. NUTTER:

13 Q Mr. Peters, all of these wells are equipped with casing
14 throughout the pay, is this correct?

15 A Yes, sir, that is correct.

16 Q And in each instance, the Packer will be set immediately
17 above the uppermost perforation in the well?

18 A Yes, sir, that is correct, and one joint of tubing, as
19 close as possible.

20 Q Have you calculated your total water needs initially?
21 It would be 21 times 380, but I thought you might have
22 the figure.

23 A 8,000.

24 Q What was that?

25 A 8,000 barrels of water per day.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

PHYSICAL CHEMISTRY

LECTURE NOTES

1954

BY

ROBERT W. CROMBIE

AND

ROBERT W. CROMBIE

- 1 Q This will come from a commercial source?
- 2 A Yes, sir, that is correct.
- 3 Q Of course, when you start producing water, you will
- 4 reinject that?
- 5 A Yes, sir, we will.
- 6 Q Now, I think you said that the unit contained all of the
- 7 wells except two. Aren't there three wells out at the
- 8 east end there, or are those producing from another pool?
- 9 A The proration records indicate that there are only two
- 10 other wells outside of our proposed unit. Proration
- 11 records as of February '73 show that there were a total
- 12 of 47 wells.
- 13 Q Which two wells were the ones that --
- 14 A I don't have those designated. I can check that and
- 15 furnish the information.
- 16 Q Apparently, one of those three wells must be shut-in and
- 17 isn't indicated on the map.
- 18 A Yes, sir, that is correct.
- 19 Q At any rate, you've essentially got all of the North
- 20 Benson Queen Pool under a unit here?
- 21 A Yes, sir.
- 22 Q And will be flooding the entire pool, almost?
- 23 A Yes, sir, that's correct.
- 24 Q Were those people given an opportunity to come into the
- 25 unit and chose not to do so?

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1 A Yes, sir, that is correct.

2 MR. NUTTER: Are there further questions of the
3 witness?

4 (No response.)

5 MR. NUTTER: He may be excused. Do you have
6 anything further, Mr. Kelly?

7 MR. KELLY: Nothing, Mr. Examiner.

8 MR. NUTTER: Does anyone have anything they wish to
9 offer in Case 4963 or 4964?

10 (No response.)

11 MR. NUTTER: We will take the case under advisement.

12

13 R E P O R T E R ' S C E R T I F I C A T E

14 I, JOHN DE LA ROSA, a Court Reporter, do hereby certify
15 that the foregoing and attached Transcript of Hearing before the
16 New Mexico Oil Conservation Commission was reported by me; and
17 that the same is a true and correct record of the said
18 proceedings to the best of my knowledge, skill and ability.

19

20

John De La Rosa

COURT REPORTER

21

22

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 4963-4964
held by me on 5/9, 19 73

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[Signature], Examiner
New Mexico Oil Conservation Commission

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25I N D E XWITNESSPAGE

KENNETH L. PETERS

Direct Examination by Mr. Kelly

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Cross-Examination by Mr. Nutter

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E X H I B I T SOFFEREDADMITTED

Texaco's Exhibits 1 - 7

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