

CASE 4652: Application of GULF OIL
CORP. FOR A WATERFLOOD EXPANSION,
LEA COUNTY, NEW MEXICO.

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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
February 2, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Gulf Oil Corporation)
for a waterflood expansion, Lea)
County, New Mexico.)

Case No. 4652

BEFORE: Elvis A. Utz,
Alternate Examiner.

TRANSCRIPT OF HEARING

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TRANSCRIPT OF HEARING

1 MR. UTZ: Case 4652.

2 MR. HATCH: Case 4652: Application of Gulf Oil
3 Corporation for a waterflood expansion, Lea County, New Mexico.

4 MR. KASTLER: If the Examiner please, I am Bill
5 Kastler from Midland, appearing on behalf of the Gulf Oil
6 Corporation.

7 Our witness today is P. W. Moran, Jr.

8 Our exhibits are here, and one of them should be stamped
9 for your purposes. They are in a brochure and loose.

10 (Whereupon the Applicant's exhibits were marked for
11 identification.)

12 MR. UTZ: I believe I asked for other appearances.
13 Are there any?

14 You may proceed.

15 F. W. MORAN, JR.

16 a witness, having been first duly sworn according to law, upon
17 his oath, testified as follows:

18 DIRECT EXAMINATION

19 BY MR. KASTLER

20 Q State your name and occupation and employ.

21 A Frank W. Moran, Jr., District Reservoir Oil Superintendent,
22 Midland District, Midland, Texas.

23 Q Have you previously testified before the New Mexico Oil
24 Conservation Commission?

25 A Yes.

1 Q Are the witness' qualifications acceptable?

2 MR. UTZ: Yes, sir.

3 Q (By Mr. Kastler) Would you please outline the purpose of this
4 hearing?

5 A Gulf, as operator in the Central Drinkard Unit area seeks
6 authority to expand existing pilot water output to include
7 an additional fifteen wells, injection wells, and to also
8 enlarge the unit area to include three additional tracts.

9 Q When was the unit originally formed?

10 A The central in '69. It was authorized by the Commission by
11 order of No. R-2904 dated May 6th, 1965, and was for an
12 area consisting of 2,600 acres.

13 However, when the unit became effective on July 1st,
14 1965, three tracts, Nos. 10, 20, and 21 failed to qualify,
15 thus contracting the area to its present size of 2,260
16 acres.

17 This is shown by Exhibit No. 1, a plat of the unit
18 area.

19 These three tracts are in the shaded area.

20 Q When did water injection operations begin in the unit area
21 by Commission Order R-2909 dated May 10th, 1965?

22 A Water injection began into the six pilot wells on September
23 12, 1967. The principal reason or reasons for the long
24 delay in initiating injection was due to the protest that
25 evolved late in 1965 when we filed our water permit

1 application with the State Engineer's office for the use of
2 non-potable San Andres water in a flooding operation.

3 Our subsequent court hearing and later as a result of
4 a legislative act which excluded the San Andres water,
5 underlined the unit area from the declared underground
6 Basin--we were permitted to use San Andres water in our
7 pilot water flood project.

8 Q What type of a water flood pattern was used?

9 A Eighty acres, fifty spot pattern was used for the pilot
10 area and is shown on Exhibit 1 by the green outline.

11 Q Why was only a pilot operation attempted here?

12 A At the time of unitization there were no Drinkard water
13 floods in New Mexico and there was some doubt as to the
14 floodability of the Formation.

15 For this reason it was decided to pilot the water flood
16 project by using it on a few injection wells.

17 Q Briefly explain the results you have seen from the pilot
18 water flood.

19 A Referring to Exhibit No. 2, which shows the performance
20 history of the unit area before and after water injection
21 began, it would be seen that as a result of our injecting
22 water into six pilot wells we have succeeded in recovering
23 a significant amount of oil over and above the amount
24 expected without injection, thereby proving that water
25 flooding the Drinkard Formation was not only possible, but

1 is feasible.

2 Specifically, we have reduced the unit producing gas
3 oil ratio from a high of almost 3,000 cubic feet per barrel
4 to a low of slightly less than 8,000 cubic feet per barrel
5 and have increased unit oil production from a low of 183
6 barrels per day in June 1968 to a high of 417 barrels per
7 day in March, 1970. To November 1st, 1971, we have
8 recovered almost 150,000 barrels of additional oil due to
9 our pilot water flood project.

10 Q For the record, would you identify the wells which have
11 responded to water injection?

12 A Six wells have shown a water flood oil response.

13 Q Are you referring now to Exhibit 1 again?

14 A Yes, sir, I am. The two Center producers, Nos. 116 and 124
15 and Nos. 108 and 113, 122, and 128.

16 MR. UTZ: 118 was one of them?

17 THE WITNESS: No, sir. 128 and 108.

18 116 is a Center producer; 124 is a Center producer; and No.
19 108.

20 Q (By Mr. Kastler) 108, that is northwest?

21 A Northwest. 113.

22 MR. UTZ: That is one I missed. Where is it?

23 A It is one of the yellow wells on the east side there. And
24 122 and 128.

25 Q That has been proven, the Drinkard Formation can be

1 successfully water flooded--what does Gulf, as unit
2 operator, propose in regard to future operations?

3 A Our study of the pilot water flood performance indicates
4 that expansion of the pilot area to include additional
5 water injection wells will result in a recovery of
6 additional wells and will be of a profitable venture.

7 We propose to convert fifteen additional wells to the
8 water injection and to include an additional 320 acres into
9 the unit area.

10 Our Exhibit No. 1 we have identified these wells as
11 phase 1 expansion.

12 This, of course, does not include all of the wells
13 within the unit boundaries.

14 The remaining injection wells shown by the yellow
15 designation on Exhibit No. 1 are line wells and will be
16 converted after we obtain the necessary cooperation from
17 owners of offset acreage.

18 These wells are identified as Phase 2 expansion.

19 Q As distinguished from Phase 1 expansion?

20 A Yes.

21 Q Please explain the red designation shown on Exhibit No. 1.

22 A These are proposed cooperative water injection wells between
23 the central Drinkard unit and Wiser Oil Company Downs lease.
24 These are located in the southwest part of the unit area.

25 We are currently negotiating a lease line agreement

1 and a water sales contract with the Wiser Oil Company
2 whereby we will convert the Central Drinkard unit well No.
3 137 and 151, and they will convert their Down No. 1 in the
4 unit, which unit would sell them the necessary water for
5 their injection project.

6 Q Is the Downs No. 1 well located here in the northeast of
7 the southwest of Section 32?

8 A Yes, sir.

9 Q In regard to the yellow designation of the wells on this
10 exhibit, please elaborate on your plans for converting
11 these wells.

12 A As I have indicated previously, we will convert these wells
13 when we obtain offset operations. We have been contacted
14 with Shell Oil, who is considering the formation of a
15 Drinkard unit along the north boundary of the central
16 Drinkard unit, and Humble, who is studying the area along
17 the east boundary of the unit.

18 We have supplied both operators with data on our flow
19 performance, and they have appeared very receptive to
20 forming similar units along the south boundary.

21 Gulf would be the major operator of the proposed
22 Drinkard unit. We are now investigating the formation of
23 these units. This will, of course, take time.

24 Q How will the new wells, injection wells shown in lieu, be
25 equipped?

1 A The new ejectors will be--Exhibit No. 3 is a diagrammatic
2 sketch of a typical Central Drinkard unit water injection
3 well, and Exhibit No. 4 is a table showing pertinent data
4 for each well.

5 Q Do you have well logs of the proposed injectors?

6 A Yes, these are identified as Exhibit No. A through 50.

7 Q Mr. Moran, would you please refer to Exhibit No. 3?

8 A Yes, sir.

9 Q And briefly outline what is shown on that exhibit?

10 A Exhibit No. 3 is--the outer yellow is a diagrammatic sketch
11 of the typical water injection well.

12 It shows the installation of the three strings of
13 casing, how they are cemented.

14 It also indicates that the tuck casing annulus will be
15 loaded in with inhibited water.

16 The proposed straining of tuck will be internally
17 coated, will be in addition to the water that will be used.
18 It will also show the total depth of the well, the amount
19 of open hole interval, and further point out the fact that
20 the anticipated injection volume per well will be 1,000
21 barrels per day and the water source that will be used to
22 inject into this typical well will be produced water plus
23 make-up water from the existing pilot flood wells and the
24 San Andres water, that which we have expected to develop
25 elsewhere in the unit area.

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1 Q In referring to the word typical have you used the average
2 or the mean, or just how do you arrive at that designation?
3 A Well, it means in essence what it says. It is an average
4 type typical well.
5 Some wells are, of course, in regard to the completion
6 department, some of course will be, of course, cased through
7 the interval.
8 Others will be open hole, but this is a typical
9 example. Wells will be equipped very similar to this.
10 MR. UTZ: They will all be tubed?
11 A Yes.
12 Q Where a typical well is not typical would the injection be
13 through perforated intervals rather than in an open hole
14 interval?
15 A Yes, sir.
16 Q And would the injection rate be less than 1,000 per day
17 typical rate or would it be greater; or would you have any
18 --are you able to make a comment on that?
19 A Other than the fact we anticipate that the average injection
20 volume will be 1,000 barrels per day per day well.
21 Q At the average?
22 A Yes.
23 Q Rather than the typical; that is an average injection?
24 A Yes.
25 Q Mr. Moran, would you refer to Exhibit No. 4 and briefly

1 state what is shown thereon, without going in too much
2 detail, but illustrate the meaning of the various columns?

3 A This exhibit, of course, lists all of the proposed injection
4 wells.

5 In the case of the two tracts that are not in the
6 existing area, it identifies the owner of the wells in
7 these outside tracts. It lists the surface casing
8 intermediate casing, the production casing, the amount of
9 it in the hole, how it was cemented, and the position of
10 the cement tops.

11 In addition, it also shows the injection intervals,
12 either open hole or per interval, and also shows the depth
13 of tubing and tacker setting.

14 Q Is this information or this data on Exhibit No. 4 useful in
15 referring to Exhibit No. 5A through 50 for the purpose of
16 showing on the log or ascertaining where the log cement
17 levels are situated, the circulating depth, etc.?

18 A Yes, sir. You can take these logs--with Exhibit 4 you can
19 identify the zones that we planned to inject the water.

20 Q And, again, you have referred to Exhibit No. 3 at the
21 outset as being the typical or the norm of your type of
22 completion?

23 A That is correct.

24 Q Now, Mr. Moran, earlier in your testimony you mentioned
25 that San Andres water is being used in the pilot water

1 flood operation.

2 Do you plan to also use San Andres water in the
3 expanded area?

4 A Yes. We are now using produced water and brackish San
5 Andres water from a water supply well located in the unit
6 area.

7 We plan to drill another San Andres water supply well
8 in the unit area, and both wells, along with anticipated
9 future produced water volumes, should supply all of the
10 injection water wells needed for the expansion.

11 Q How much water will be injected into each new injection
12 well?

13 A Approximately 1,000 barrels per day per well.

14 Q What will be the maximum well head injection pressure?

15 A Initially water will be injected by vacuum in the maximum
16 well head pressure, and it should be in the range of 2,000
17 to 3,000 psi.

18 Q What will be the injection interval?

19 A Water will be injected into both the open hole and perfor-
20 ated interval of the Drinkard Formation found at an average
21 depth of 6,500 feet.

22 Q Do you have any other exhibits to present?

23 A Yes, Exhibit No. 6 is a tabulation of the statistical
24 production and injection data, and is the same data that
25 is shown graphically by Exhibit No. 2.

1 Q In Exhibit 2 it is graphic in form and in Exhibit No. 5
2 tabular?

3 A Yes, sir.

4 Q Is this application, in your opinion, in the interest of
5 prevention of waste and protection of correlative rights?

6 A Yes.

7 Q Were exhibits 1 through 6 prepared by you or at your
8 direction and under your supervision?

9 A Yes.

10 Q What is the current status of the subsequent joinders
11 covering tracts 10, 20, and 21?

12 A We already have full working interest on owner commitment
13 of all three tracts.

14 Originally we received all royalty owners gratification
15 in tract 20 and 21, but only about a 70 per cent response
16 in tract 10.

17 There are at the present time additional royalties
18 owner supports being solicited by Mobil.

19 The operator of Tract 10, but even if they fail to
20 secure the required 75 per cent gratification, they may
21 execute an indemnification agreement and still commit this
22 tract.

23 As it has been for some years since the royalty
24 owners in Tract 20 and 21--all but one of whom have interests
25 in other tracts--consent to unitization, Atlantic Richfield

1 as operator of those tracts is currently in the process of
2 obtaining commitments.

3 We hopefully anticipate that sufficient response will
4 be received on or about March 1st, 1972.

5 Q Have you consulted with the office of Oil & Gas in the
6 State Lane Office?

7 A Yes.

8 Q Have you explained that in substance this enlargement of
9 the unit area will amount to a slightly smaller percentage
10 of a slightly larger volume of oil so that overall the
11 participants will realize a net gain?

12 A Yes.

13 Q After this was explained, do you understand that Gulf has
14 tentatively approval of the proposed enlargement as required
15 by the unit agreement?

16 A Yes. When the instruments which provide effective equipment
17 of these tracts are supplied we expect to obtain the
18 formal approval of the Commissioner of Public Lands.

19 Q This completes our questions on direct testimony, and at
20 this time I would like to move that Exhibits 1 through 6
21 be admitted into evidence.

22 MR. UTZ: Without objection, Exhibits 1 through C will
23 be tendered in the record of this case.

24 Any questions of the witness?

25 CROSS-EXAMINATION

1 BY MR. UTZ

2 Q Mr. Moran, I am not sure that you mentioned in your
3 testimony--it is rather hard to listen and look at the same
4 time--the status of the producing wells in this area.

5 Are they predominantly marginal?

6 A Yes, sir, with the exception of the, of course, of the
7 wells that are responding to injection, practically all of
8 the wells have producing rates of oil in less than ten
9 barrels a day. Some of them are five or less.

10 Q This jump in production, oh, about October, November of '69,
11 is that a result of this project?

12 A Yes, it certainly is.

13 Q You have stated how much additional water flood oil you
14 have already produced--how much do you anticipate that you
15 will produce out of the unit?

16 A We expect from the unit area that we are trying to expand
17 additional recovery of 7,600,000 barrels of oil.

18 Q I presume that you feel that this will prevent waste if you
19 get this 7,000,000 barrels of oil?

20 A Yes, sir.

21 Q On your diagrammatic sketch, I believe it was Exhibit 3,
22 how do you propose to detect leaks at the surface?

23 A Well, I can't tell exactly how. Of course, our area people
24 will undertake that particular test procedure, but I am sure
25 that the procedure we are now using in the pilot wells use

1 in the expanded portion--I can't tell you exactly what that
2 will be.

3 Q But you will have means, whether it is a gauge or a valve
4 which is left open, to determine when a well is leaking?

5 A Yes.

6 Q In the lease?

7 A Yes.

8 MR. UTZ: The witness may be excused.

9 (Recess.)

10 MR. UTZ: The hearing will come to order, please.

11 MR. LOPEZ: Mr. Examiner, my name is Owen Lopez,
12 associated with the law firm of Montgomery, Federici, Andrews,
13 Hannahs & Morris, Santa Fe. I have one witness.

14 MR. UTZ: I don't believe we have called the case yet,
15 have we?


16 We didn't call it before.
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1 STATE OF NEW MEXICO)
2) ss.
3 COUNTY OF BERNALILLO)

4 I, RICHARD STURGES, a Certified Shorthand Reporter, in and
5 for the County of Bernalillo, State of New Mexico, do hereby
6 certify that the foregoing and attached Transcript of Hearing
7 before the New Mexico Oil Conservation Commission was reported
8 by me; and that the same is a true and correct record of the
9 said proceedings to the best of my knowledge, skill and ability.

10
11 
12 Certified Shorthand Reporter

13
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15
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19
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21
22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the Premier hearing of Case No. 4652
25 heard by me on Feb 2, 1972
 , Executive
New Mexico Oil Conservation Commission

I N D E XWITNESSPAGE

FRANK W. MORAN, JR.

Direct Examination by Mr. Kastler

3

Cross-Examination by Mr. Utz

15

E X H I B I T SAPPLICANT'SMARKEDOFFERED AND
ALMITTED

Exhibit No. 1

14

4

Exhibit No. 2

14

5

Exhibit No. 3 and 4

14

9

Exhibits 5A through 50

9

Exhibit No. 6

12



OIL CONSERVATION COMMISSION

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

February 8, 1972

GOVERNOR
BRUCE KING
CHAIRMAN
LAND COMMISSIONER
ALEX J. ARMijo
MEMBER
STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

Mr. Bill Kastler
Gulf Oil Corporation
Post Office Drawer 1150
Midland, Texas 79701

Re: Case No. 4652
Order No. R-4256
Applicant:
GULF OIL CORPORATION

Dear Sir:

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

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC *

Artesia OCC

Aztec OCC

Other State Engineer Office

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. 4652
Order No. R-4256

APPLICATION OF GULF OIL
CORPORATION FOR A WATERFLOOD
EXPANSION, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 2, 1972, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 8th day of February, 1972, 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, Gulf Oil Corporation, seeks authority to expand its waterflood project in the Central Drinkard Unit Area, Drinkard Pool, by the injection of water into the Drinkard formation through 15 additional injection wells in Sections 28, 29, 31, 32, and 33, Township 21 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed expansion of the waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

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CASE NO. 4652
Order No. R-4256

(5) That the subject application should be approved and the expanded project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Gulf Oil Corporation, is hereby authorized to expand its waterflood project in the Central Drinkard Unit Area, Drinkard Pool, by the injection of water into the Drinkard formation through the following-described wells in Township 21 South, Range 37 East, NMPM, Lea County, New Mexico:

<u>Central Drinkard Unit Well No.</u>	<u>Unit</u>	<u>Section</u>
111	G	28
107	G	29
162	K	29
164	M	29
121	O	29
135	A	31
151	I	31
131	A	32
133	C	32
137	E	32
139	G	32
149	I	32
141	E	33
143	G	33
147	K	33

(2) That the expanded waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the expanded waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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

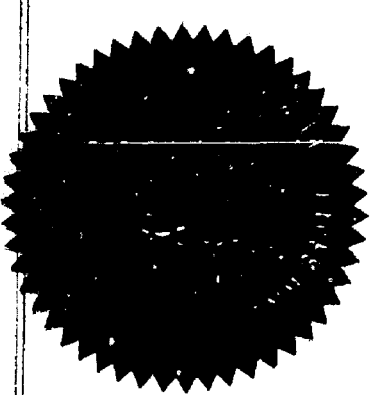
-3-

CASE NO. 4652

Order No. R-4256

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



Bruce King
BRUCE KING, Chairman

Alex J. Armiijo
ALEX J. ARMIJO, Member

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

S E A L

dr/

4652

Heard 2-2-72

Rec. 2-2-72

Grant Gulf permission to convert 15 wells located as listed on application to water injection wells in their Central Drinkard ~~Water~~ Waterflood project. All wells are to be completed w/ ~~Int. Completed~~ Coated tubing. Inert fluid in the annulus & a means at the surface of determining leakage into the annulus.

John D. [Signature]

DOCKET: EXAMINER HEARING - WEDNESDAY - FEBRUARY 2, 1972

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

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

CASE 4497 (Reopened):

In the matter of Case 4497 being reopened pursuant to the provisions of Order No. R-4102, which order established special rules and regulations for the Twin Lakes-San Andres Pool, Chaves County, New Mexico, including provisions for the classification of oil and gas wells and the establishment of a gas-oil ratio limitation of 4,000 cubic feet of gas for each barrel of oil. All interested persons may appear and show cause why the gas-oil ratio limitation should not be reduced and why the special rules and regulations should not be discontinued.

CASE 4652: Application of Gulf Oil Corporation for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Central Drinkard Unit Area Waterflood Project, Drinkard Pool, by the injection of water through 15 additional wells in Sections 28, 29, 31, 32, and 33 of Township 21 South, Range 37 East, Lea County, New Mexico.

CASE 4653: Application of Odessa Natural Corporation for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Dakota formation underlying the E/2 of Section 36, Township 26 North, Range 11 West, Basin-Dakota Pool, San Juan County, New Mexico. Said acreage to be dedicated to a well to be drilled to the Dakota formation at a location 1600 feet from the North line and 1,000 feet from the East line of said Section 36. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for the supervision of said well.

CASE 4654: Application of Midwest Oil Corporation for two-nonstandard gas spacing units and well locations, Eddy County New Mexico. Applicant, in the above-styled cause, seeks approval for two 299-acre gas spacing units comprising the N/2 and the S/2 of Section 6, Township 18 South, Range 29 East, undesignated Morrow gas pool, Eddy County, New Mexico. Said N/2 to be dedicated to a well located at an unorthodox location 1830 feet from the North line and 1639

feet from the West line. Said S/2 to be dedicated to a well to be drilled at an unorthodox location 1980 feet from the South and West lines.

CASE 4655: Application of Western Oil Producers, Inc. for two non-standard gas proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 320-acre non-standard gas proration units in an undesignated Devonian gas pool, the first comprising the NE/4 of Section 31 and the NW/4 of Section 32, Township 20 South, Range 36 East, Lea County, New Mexico, to be dedicated to applicant's State M Well No. 1 located 1980 feet from the North line and 660 feet from the West line of said Section 32. The second unit would comprise the SE/4 of Section 31 and the SW/4 of Section 32 and would be dedicated to a well to be drilled 1650 feet from the South line and 660 feet from the West line of said Section 32.

CASE 4656: Application of Western Oil Producers, Inc. for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill an undesignated Devonian gas well at an unorthodox location 990 feet from the West line of Section 29, Township 20 South, Range 36 East, Lea County, New Mexico, and 660 feet from the side boundary of the proration unit, which would comprise the S/2 of said Section 29.

CASE 4563: (Continued from the January 5, 1972 Examiner Hearing) Application of Corinne Grace for special gas-oil ratio limitation and pressure maintenance project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce her State Well No. 1 located in Unit A of Section 1, Township 15 South, Range 29 East Double L-Queen Pool, Chaves County, New Mexico, with no gas-oil ratio limitation, strip the liquids, and institute a pressure maintenance project by the injection of all said gas back into the producing formation through her State Well No. 2 located in Unit B of said Section 1. Applicant further seeks to transfer an oil allowable from said Well No. 2 to said Well No. 1.

CASE 4619: (Continued from the January 5, 1972, Examiner Hearing) Application of Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 25, Township 22 South, Range 26 East, which acreage is within one mile of the South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to

Examiner Hearing - February 2, 1972

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Docket No. 3-72

(Case 4619 continued)

be drilled to the Morrow formation at a location 1980 feet from the North and East lines of said Section 25. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges of supervision of said well.

CASE 4620: (Continued from the January 5, 1972, Examiner Hearing)
Application of Corinne Grace for compulsory pooling. Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 24, Township 22 South, Range 26 East, which acreage is in the vicinity of the South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled to the Morrow formation at a location 1980 feet from the North and East lines of said Section 24. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

EXHIBITS FOR
WATERFLOOD EXPANSION OF
THE CENTRAL DRINKARD UNIT
LEA COUNTY, NEW MEXICO

OIL CONSERVATION COMMISSION HEARING

CASE NO. 4652

FEBRUARY 2, 1972

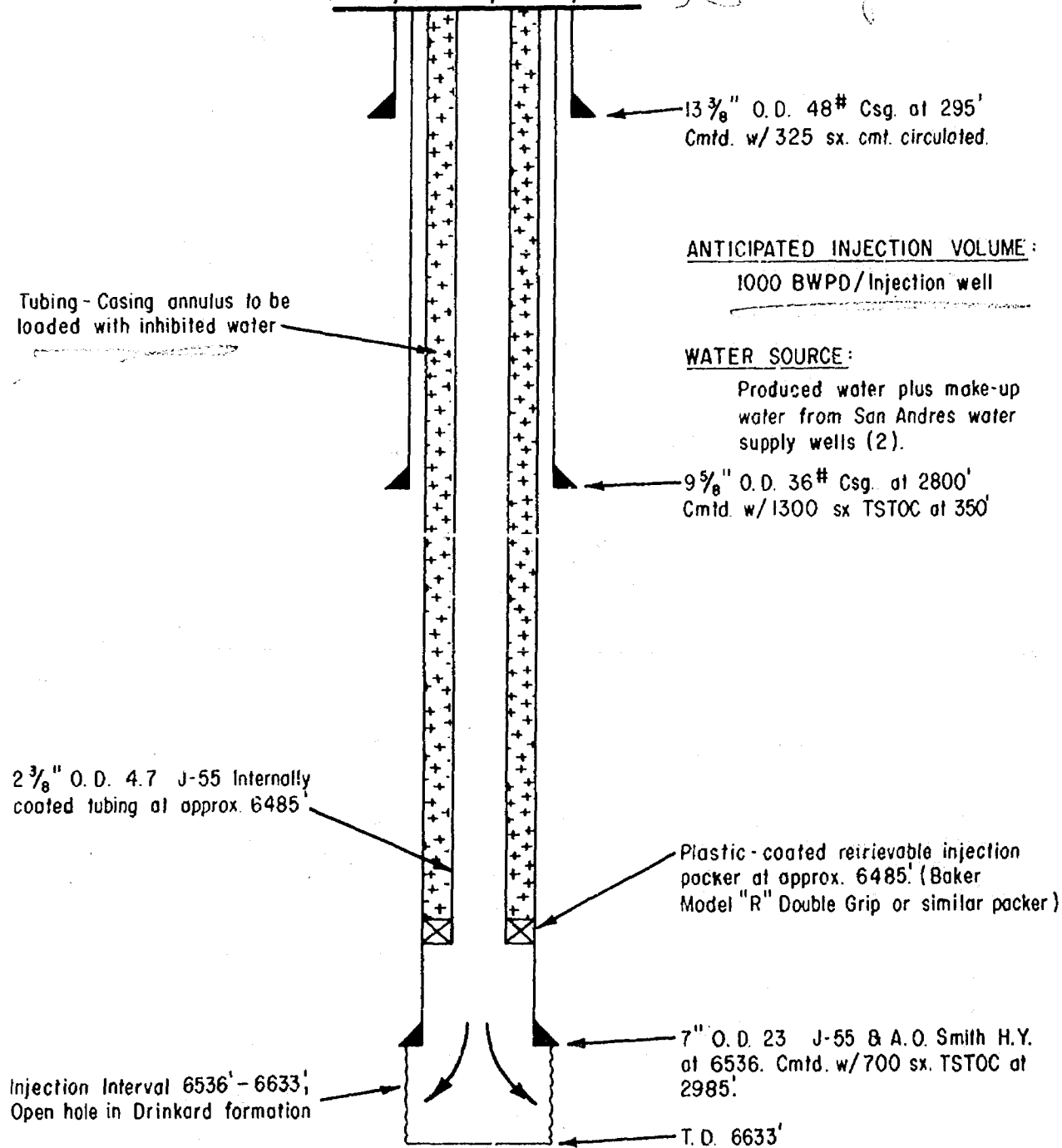
BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. <i>14652</i>
CASE NO. <i>14652</i>

BEFORE	7
OIL	7
CASE NO.	

DIAGRAMMATIC SKETCH

TYPICAL WATER INJECTION WELL PHASE I EXPANSION - CENTRAL DRINKARD UNIT WATERFLOOD PROJECT LEA COUNTY, NEW MEXICO

CDU Well No. 139
Unit G, Sec. 32, T-21-S, R-37-E



Case No. 4652
Exhibit No. 3
February 2, 1972

INJECTION WELL DETAIL
 IKARD UNIT - PHASE I EXPANSION
 LA COUNTY, NEW MEXICO

INTERMEDIATE CASING				PRODUCTION CASING				INJ. INTERVALS	
Depth	Cement	Cmt. Top	Size	Depth	Cement	Cmt. Top	Gross Perf. And/Or OH Top	Brm.	*Tubing & Packer Set @
2850'	1300 sx	1405'	7"	6490'	700 sx	2575'	6490'	6620'	6440'
2836'	1000 sx	Circ. (Calc)	7"	6530'	250 sx	5057' (Calc)	6530'	6654' PB	6500'
2780'	1000 sx	800'	5-1/2"	6629'	300 sx	2829'	6554'	6609'	6500'
2796'	1000 sx	756'	5-1/2"	6627'	400 sx	2769'	6530'	6620'	6480'
3595'	200 sx	Circ. (Calc)	4-1/2"	6624'	400 sx	2725'	6530'	6617'	6480'
2800'	1300 sx	1175'	7"	6530'	700 sx	2850'	6510'	6622'	6460'
2826'	1500 sx	390'	5-1/2"	6631'	500 sx	2990'	6535'	6618'	6485'
2850'	1300 sx	550'	7"	6500'	700 sx	2250'	6500'	6624'	6450'
2866'	1000 sx	Circ. (Calc)	5-1/2"	6487'	300 sx	4710' (Calc)	6487'	6620'	6370'
2829'	1500 sx	875'	5-1/2"	6600'	500 sx	3530'	6538'	6597'	6490'
2800'	1300 sx	350'	7"	6536'	700 sx	2985'	6536'	6633'	6485'
3600'	400 sx	2105' (Calc)	5-1/2"	6502'	775 sx	1600'	6502'	6620'	6450'
3650'	275 sx	990' (Calc)	5"	6630'	250 sx	1710' (Calc)	6510'	6590'	6460'
3810'	875 sx	540' (Calc)	5-1/2"	7592'	855 sx	2930'	6510'	6600'	6460'
2729'	1000 sx	1550'	5-1/2"	6556'	350 sx	4550'	6497'	6590'	6450'

el "R" Retrievable Double Grip (or equivalent) Type Packers.

TABLE I

CASE NO. 4652
 EXHIBIT NO. 4
 February 2, 1972

TABLE I
PERFORMANCE HISTORY
CENTRAL DRINKARD UNIT
DRINKARD POOL
LEA COUNTY, NEW MEXICO

<u>Month and Year</u>	<u>Oil Bbls.</u>	<u>Water Bbls.</u>	<u>Gas MCF</u>	<u>GOR CF/B</u>	<u>Water Inj. Bbls.</u>	<u>Wellhead Inj. Pressure PSI</u>
<u>1965</u>						
January	7,647	874	145,550	19,009		
February	7,041	709	119,890	17,027		
March	8,222	732	154,660	18,811		
April	7,117	616	131,030	18,411		
May	7,225	733	145,155	20,091		
June	6,059	570	120,159	19,831		
July	6,976	249	142,922	20,488		
August	7,956	457	177,664	22,331		
September	7,624	354	174,857	22,935		
October	7,442	356	175,190	23,541		
November	7,723	332	174,724	22,624		
December	7,638	647	168,427	22,051		
Yearly	88,670					
Accumulated	9,225,855					
<u>1966</u>						
January	8,146	518	158,437	19,449		
February	7,194	547	156,955	21,817		
March	7,876	628	160,664	20,399		
April	7,210	543	177,954	24,682		
May	7,244	645	159,518	22,021		
June	7,309	297	189,314	25,901		
July	7,081	284	198,604	28,047		
August	6,750	502	187,102	27,719		
September	7,065	518	182,323	25,809		
October	7,324	500	187,342	25,579		
November	7,099	386	171,602	24,173		
December	7,695	537	163,496	21,247		
Yearly	87,993					
Accumulated	9,313,848					

Case No. 4657

Exhibit No. 6

February 2, 1972

TABLE I

<u>Month and Year</u>	<u>Oil Bbls.</u>	<u>Water Bbls.</u>	<u>Gas MCF</u>	<u>GOR CF/B</u>	<u>Water Inj. Bbls.</u>	<u>Wellhead Inj. Pressure PSI</u>
<u>1967</u>						
January	7,257	487	158,238	21,805		
February	7,169	497	151,305	21,105		
March	7,416	546	172,128	23,210		
April	7,663	539	178,916	23,348		
May	7,322	524	195,209	26,661		
June	8,173	488	223,950	27,401		
July	8,277	455	243,216	29,385		
August	7,891	468	222,197	28,158		
September	6,721	149	174,845	26,015	102,782	452
October	6,907	417	181,062	26,214	180,068	379
November	7,310	416	195,788	26,784	186,748	467
December	6,838	318	190,462	27,853	187,968	688
Yearly	88,944				657,566	
Accumulated	9,402,792				657,566	
<u>1968</u>						
January	6,878	367	185,184	26,924	179,519	728
February	6,740	299	177,948	26,402	136,805	665
March	6,899	376	187,787	27,219	159,104	698
April	6,162	347	180,497	29,292	180,571	848
May	6,460	380	194,712	30,141	185,982	822
June	5,499	67	185,428	33,720	170,117	824
July	5,895	110	182,099	30,890	161,498	896
August	5,960	114	181,493	30,452	185,055	896
September	5,786	117	172,122	29,748	179,229	908
October	6,060	93	176,270	29,087	171,042	898
November	6,135	85	180,830	29,475	172,353	896
December	6,128	56	162,922	26,586	189,396	937
Yearly	74,602				2,070,671	
Accumulated	9,477,394				2,728,237	

TABLE I

<u>Month and Year</u>	<u>Oil Bbls.</u>	<u>Water Bbls.</u>	<u>Gas MCF</u>	<u>GOR CF/B</u>	<u>Water Inj. Bbls.</u>	<u>Wellhead Inj. Pressure PSI</u>
<u>1969</u>						
January	6,696	173	147,812	22,077	162,071	972
February	5,724	217	134,046	23,418	148,297	948
March	6,369	432	144,105	22,626	148,899	931
April	7,379	300	150,596	20,409	133,228	971
May	8,346	964	159,595	19,122	163,901	952
June	8,177	1,556	147,718	18,065	140,288	969
July	7,002	2,274	150,537	21,499	153,859	1,036
August	7,290	1,945	148,324	20,346	158,923	1,066
September	8,046	2,356	146,905	18,258	148,589	1,058
October	9,625	1,965	155,943	16,202	153,743	1,047
November	10,588	2,342	152,377	14,391	119,348	921
December	10,900	2,274	153,754	14,106	146,817	1,011
Yearly	96,142				1,777,963	
Accumulated	9,573,536				4,506,200	
<u>1970</u>						
January	12,075	2,209	152,354	12,617	148,573	1,025
February	10,283	7,013	137,038	13,327	132,038	1,034
March	12,748	7,124	138,612	10,873	144,486	1,044
April	12,485	8,102	140,721	11,271	138,022	1,070
May	12,567	8,071	128,577	10,231	136,098	1,090
June	11,615	5,779	121,183	10,433	104,840	1,027
July	11,326	6,389	126,406	11,161	113,675	972
August	11,431	5,563	125,399	10,970	114,595	1,037
September	10,920	6,235	114,727	10,506	127,580	1,132
October	11,926	5,752	115,628	9,695	131,865	1,140
November	11,480	6,606	102,230	8,905	126,781	1,134
December	12,357	6,164	95,591	7,736	128,875	1,112
Yearly	141,213				1,547,428	
Accumulated	9,714,749				6,053,628	

TABLE I

<u>Month and Year</u>	<u>Oil Bbls.</u>	<u>Water Bbls.</u>	<u>Gas MCF</u>	<u>GOR CF/B</u>	<u>Water Inj. Bbls.</u>	<u>Wellhead Inj. Pressure PSI</u>
<u>1971</u>						
January	11,420	6,667	115,809	10,141	128,940	1,128
February	10,551	6,685	101,524	9,622	112,993	1,141
March	11,461	9,314	116,801	10,191	119,207	1,164
April	10,406	7,928	115,318	11,082	115,796	1,171
May	9,762	9,397	87,939	9,008	118,414	1,168
June	9,127	9,119	116,836	12,801	108,084	1,162
July	8,747	8,741	73,143	8,362	89,699	1,162
August	8,683	12,785	120,980	13,933	108,549	1,271
September	9,365	13,819	71,206	7,603	88,789	1,312
October	9,361	13,578	115,535	12,342	93,998	1,283
November					96,225	1,300

Gulf Oil Company - U.S.

EXPLORATION AND PRODUCTION DEPARTMENT
MIDLAND DISTRICT

RECEIVED
JAN 10 1972

CONSERVATION COMM.
SANTA FE
P. O. Drawer 1150
Midland, Texas 79701

W. B. Hopkins
DISTRICT MANAGER

J. A. Hord
DISTRICT EXPLORATION
MANAGER

J. L. Pike
DISTRICT PRODUCTION
MANAGER

H. E. Braunig, Jr.
DISTRICT PRODUCTION
MANAGER

M. B. Moseley
DISTRICT SERVICES MANAGER

January 7, 1972

Case 4652

Oil Conservation Commission
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr.

Re: Application of Gulf Oil Corporation
for Enlargement of the Central Drinkard
Unit Project, Lea County, New Mexico.

Gentlemen:

Gulf Oil Corporation requests an Examiner Hearing to consider the enlargement of the Central Drinkard Unit Waterflood Project, Lea County, New Mexico.

In support of this application the following facts are submitted:

(1) The Central Drinkard Unit Agreement was approved by the Commission by Order No. R-2904 dated May 6, 1965 (Case No. 3240), said Unit Agreement consisting of 2,600 acres, more or less.

(2) The Central Drinkard Waterflood Project was approved by the Commission by Order No. R-2909 dated May 10, 1965 (Case No. 3241), by which a pilot waterflood project was authorized utilizing six injection wells.

(3) Following the approval of the Central Drinkard Unit Agreement and Waterflood Project the Unit became effective on July 1, 1965 as to 2,280 acres rather than 2,600 acres by reason of the noncommitment of Tract Nos. 10, 20 and 21.

(4) By reason of recent negotiations Tract Nos. 10, 20 and 21 are now being committed to the Central Drinkard Unit Agreement with the result that said Unit Agreement will be enlarged to the original 2,600 acres contemplated by the Unit Agreement.

Drinkard
Gulf Oil Corporation, as the Unit Operator of the Central Drinkard Unit, now proposes to expand this project by injecting water into that portion of the Tubb formation which is described as the unitized formation through 15 wells in Sections 28, 29, 31, 32 and 33, Township 21 South, Range 37 East, Lea County, New Mexico as shown on the attached plat.



A DIVISION OF GULF OIL CORPORATION

DOCKET MARKED

Date 1-20-72

Oil Conservation Commission
State of New Mexico
Attention: Mr. A. L. Porter, Jr.
January 7, 1972
Page 2

(5) The proposed injection wells, all in Township 21 South,
Range 37 East, Lea County, New Mexico are described as follows:

Section 28

CDU Well No. 111, Unit G ✓

Section 29

CDU Well No. 107, Unit G ✓
CDU Well No. 162, Unit K ✓
CDU Well No. 164, Unit M ✓
CDU Well No. 121, Unit O ✓

Section 31

CDU Well No. 135, Unit A ✓
CDU Well No. 151, Unit I ✓

Section 32

CDU Well No. 131, Unit A ✓
CDU Well No. 133, Unit C ✓
CDU Well No. 137, Unit E ✓
CDU Well No. 139, Unit G ✓
CDU Well No. 149, Unit I ✓

Section 33

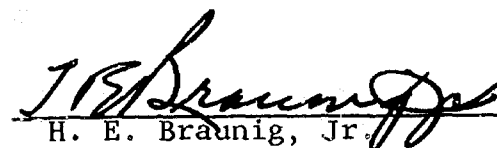
CDU Well No. 141, Unit E ✓
CDU Well No. 143, Unit G ✓
CDU Well No. 147, Unit K ✓

15 WVK

(6) Applicant proposes to use the same plan for equipping these
injection wells as previously approved for the Central Drinkard Unit
Waterflood Project.

Respectfully submitted,

GULF OIL CORPORATION


H. E. Braunig, Jr.

WVK:ejl

Attachment

cc: Commissioner of Public Lands
State of New Mexico
Santa Fe, New Mexico 87501
New Mexico Oil Conservation Commission
Hobbs, New Mexico 88240
Working Interest Owners, Central Drinkard Unit

DRAFT

GNH/dr

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. 4652

Order No. R-4256

APPLICATION OF GULF OIL CORPORATION
FOR A WATERFLOOD ~~PROJECT~~ EXPANSION, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 2, 1972,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter *EAU*

NOW, on this day of February, 1972, 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, Gulf Oil Corporation,
seeks authority to ^{*expand its*} ~~institute a~~ waterflood project in the Central
Drinkard Unit Area, Drinkard Pool,
by the injection of water into the Drinkard formation
through 15 additional injection wells in Sections 28, 29, 31, 32 and 33
Township 21 ~~North~~, South, Range 37 ~~West~~, East,
NMPM, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced
state of depletion and should properly be classified as "stripper"

^{*expansion of the*}
(4) That the proposed waterflood project should result in

(5) That the subject application should be approved and the ^{expanded} project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Gulf Oil Corporation, is hereby authorized to ^{expand its} ~~institute a~~ waterflood project in the Central Drinkard Unit Area, Drinkard Pool, by the injection of water into the Drinkard formation through the following-described wells in Township 21 ~~North~~, South, Range 37 ~~West~~, East, NMPM, Lea County, New Mexico:

<u>Central Drinkard Unit Well No.</u>	<u>Unit</u>	<u>Section</u>
111 ✓	G ✓	28 ✓
107 ✓	G ✓	29 ✓
162 ✓	K ✓	29 ✓
164 ✓	M ✓	29 ✓
121 ✓	O ✓	29 ✓
135 ✓	A ✓	31 ✓
151 ✓	I ✓	31 ✓
131 ✓	A ✓	32 ✓
133 ✓	C ✓	32 ✓
137 ✓	E ✓	32 ✓
139 ✓	G ✓	32 ✓
149 ✓	I ✓	32 ✓
141 ✓	E ✓	33 ✓
143 ✓	G ✓	33 ✓
147 ✓	K ✓	33 ✓

tions.

(4) 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.

Case Number
4657

Application

Transcripts

Small Exhibits

ETC.