

CASE 4506: Application of ATLANTIC
RICHFIELD COMPANY FOR SALT WATER
DISPOSAL, LEA COUNTY, NEW MEXICO.

Case Number

4506

Application

Transcripts.

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 24, 1971

EXAMINER HEARING

IN THE MATTER OF:

Application of Atlantic Richfield
Company for salt water disposal,
Lea County, New Mexico.

Case No. 4506

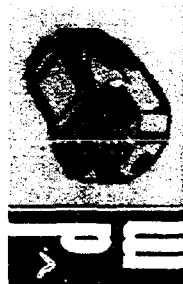
BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

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1 MR. UTZ: Case 4506.

2 MR. HATCH: Application of Atlantic Richfield Company
 3 for salt water disposal, Lea County, New Mexico.

4 MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant,
 5 Cox and Eaton, Roswell, appearing on behalf of Atlantic
 6 Richfield. We have one witness and seven exhibits.

7 (Witness sworn.)

8 (Whereupon, Exhibits 1 through 7 were marked for
 9 identification.)

10 L. C. HUDRY,

11 having been first duly sworn, testified as follows:

12 DIRECT EXAMINATION

13 BY MR. HINKLE:

14 Q State your name, your residence and by whom you are
 15 employed.

16 A L. C. Hudry; live in Roswell, New Mexico; work for
 17 Atlantic Richfield.

18 Q What is your occupation with Atlantic Richfield?

19 A Operation engineer.

20 Q Are you a graduate petroleum engineer?

21 A Yes.

22 Q Have you previously testified before the Oil Conservation
 23 Commission?

24 A Yes, sir.

25 Q You have qualified as a petroleum engineer?

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- 1 A Yes, sir.
- 2 Q Your qualifications are a matter of record with the
- 3 Commission?
- 4 A Yes, sir.
- 5 Q Are you familiar with the application of Atlantic
- 6 Richfield in this case?
- 7 A Yes, sir.
- 8 Q What is Atlantic Richfield seeking to accomplish?
- 9 A Atlantic Richfield request permission to utilize its
- 10 Eidson "C" WN Number 3 Well as a salt water disposal well.
- 11 The well is located 1980 feet from the west line and 2310
- 12 feet from the north line in Unit F, Section 26, Township
- 13 16 South, Range 35 East, Lea County, New Mexico.
- 14 Q Have you prepared or has there been prepared under your
- 15 direction certain exhibits for introduction in this case?
- 16 A Yes, sir.
- 17 Q And these are the exhibits which have been marked from
- 18 1 through 7?
- 19 A Yes, sir.
- 20 Q Refer to Exhibit 1 and explain this to the Examiner.
- 21 A Exhibit Number 1 is a circle, two-mile circle, indicating
- 22 the wells that are within that circle and the wells that
- 23 are marked in red are the present wells that are producing
- 24 from the Penn Formation.
- 25 The one well which is indicated in green is the one

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1 well that is producing from the Wolfcamp and the rest of
2 the wells, which are indicated in blue, have either produced
3 from the Penn or the Devonian and are now plugged and
4 abandoned or temporarily abandoned.

5 Q How many wells does Atlantic Richfield own in the Shoe
6 Bar Pool?

7 A We have four wells in this Shoe Bar Field.

8 Q That's the Shoe Bar-Penn Pool, is it not?

9 A Yes, sir.

10 Q Where are they located with reference to your proposed
11 injection well?

12 A If we will look at Exhibit Number 2, which is a map
13 contoured on top of the Penn, the red arrow designates
14 our proposed Number 3 Well which we propose to use for
15 salt water disposal well.

16 The other 3 wells which are left in the field, which
17 we operate, are the Eidson A Number 3 which is southwest
18 of the Number 3 Well, the Eidson A Number 4, which is
19 south of the Number 3 Well and the Ramco Well which is in
20 Section 35, way at the lower end of the structure.

21 Q What is the status of the Number 3 Well which you propose
22 to convert to an injection well?

23 A The Number 3 Well is at the point where we will have to
24 prematurely abandon the well due to the amount of water
25 that is being produced from the well in relation to the

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1 oil and there are no remedial operations for this well
 2 that will go ahead and decrease the amount of water that
 3 it is producing. It is presently in the Penn Formation
 4 and we propose to use that same well for a disposal well.

5 Q Have you made a tabulation of the quantities of water
 6 which are being produced?

7 A Yes, sir.

8 Q Refer to Exhibit 3 and explain that.

9 A Exhibit Number 3 indicates the minimum amount of water to
 10 the maximum amount of water that we anticipate disposing
 11 of into our Number 3 Well. It ranges from sixty barrels
 12 of water per day to a maximum of five hundred.

13 We believe that the production of water that we will
 14 have to dispose of will be in the range of one hundred
 15 barrels per day which we anticipate to put away in the
 16 well by gravity and this will be a closed system.

17 Q What do you mean by closed system?

18 A So that no air will get to the water.

19 Q Now, refer to Exhibit 4 and explain this.

20 A Exhibit Number 4 is a diagrammatic sketch of the Eidson
 21 "C" WN Number 3 Well which we propose to use for a dis-
 22 posal well. It indicates the casing size, the amount of
 23 cement, the top of the cement, where we propose to place
 24 a permanent packer and the tubing casing annulus will be
 25 loaded with an inhibited fluid.

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1 Q With a gauge put on the annulus?
 2 A Installed on the annulus.
 3 Q Do you have any further comments with respect to Exhibit
 4 Number 4?

5 A No, sir.

6 Q Refer to Exhibit Number 5 and explain what this is.

7 A Number 5 is a log of the Eidson "C" WN Number 3 Well
 8 which indicates the top of the Pennsylvanian Formation
 9 at 10,278 with the present perforations that are now
 10 existing in the well.

11 Now, we propose to utilize the present set of
 12 formations, but we are asking to be able to dispose of
 13 from the top of the Penn to the T. D. of the well which
 14 is all in the Pennsylvanian Formation.

15 Q Have you had a water analysis made on the water which is
 16 to be produced and disposed of?

17 A Yes, sir. We have water from the Eidson A Lease and also
 18 from the Eidson C Lease and the waters are very compatible.

19 Q Are these shown by Exhibits 6 and 7?

20 A Yes, sir. Six and 7 indicate that the chloride content is
 21 over 90,000 and it is not fit for either humans or cattle.

22 Q What does Exhibit Number 7 show?

23 A Exhibit Number 7 is a water analysis of the Eidson C
 24 Lease and this is the lease that we intend to dispose --
 25 propose to dispose of water into.

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1 Q In your opinion, would the approval of this application
 2 be in the interest of conservation, prevention of waste
 3 and protect correlative rights?

4 A Yes, sir. By utilizing this well for a disposal well,
 5 we will be able to produce the rest of the wells that are
 6 in the field to a much higher water cut than we are able
 7 to right now and thus we will be able to get more oil from
 8 the remaining wells instead of prematurely abandoning them
 9 due to a high water cut.

10 Q Do you have anything else you would like to present to the
 11 Commission?

12 A At this time I would like to state that we did not propose
 13 to plastic coat the tubing because the remaining life that
 14 is left for the remaining wells is very short. It's in
 15 the range of three to four years and we are trying to
 16 minimize the amount of expense that will be involved to
 17 dispose of water.

18 Now, we have -- there is no disposal system in this
 19 area right here but there is disposal systems farther away
 20 where we would either have to pipe to or haul water to.
 21 Now, we are hauling water and the cost per barrel is
 22 thirty-eight cents per barrel to haul the water away and
 23 this is where it is catching us because when the water
 24 cut gets excessive in relation to the amount of oil that
 25 is being produced, then we will have to prematurely

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1 abandon the well.

2 MR. HINKLE: We would like to offer in evidence the
 3 Exhibits 1 through 7.

4 MR. UTZ: Without objection, Exhibits 1 through 7
 5 will be entered into the record of this case.

6 MR. HINKLE: That's all we have.

7 CROSS EXAMINATION

8 BY MR. UTZ:

9 Q Mr. Hudry, did you state whether you are going to load
 10 the annulus with an inert fluid?

11 A Yes, sir, we did, with an inhibited fluid.

12 Q You are going to use a gauge at the surface?

13 A Yes, sir.

14 Q I notice on the five and a half-inch from the top to the
 15 cement at 8082 to the bottom of the eight and five-
 16 eighths at 4866, there is no cement behind that casing.
 17 How old is this casing?

18 A This, I don't know.

19 Q Have you tested the well; do you know whether the casing
 20 is in good shape or not?

21 A The casing, as far as we know, is in excellent condition.

22 Q And the same question in regard to the 2,000 feet
 23 approximately on the eight and five-eighths casing?

24 A This, we believe to be in good shape to go ahead and take
 25 care of our needs without having water come in from an

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1 outside source through the casing.

2 Q At any rate, with your annulus loaded and a gauge at the
3 surface --

4 A We should be able to tell.

5 Q -- you should be able to tell? This injection, according
6 to your structure map, will be low on the structure?

7 A Yes, sir.

8 MR. UTZ: Other questions? The case will be taken
9 under advisement.

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I N D E XWITNESSPAGE

L. C. HUDRY

Direct Examination by Mr. Hinkle

2

Cross Examination by Mr. Utz

8

E X H I B I T S

Nos. 1 through 7

2

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1 STATE OF NEW MEXICO)
) ss
 2 COUNTY OF BERNALILLO)

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

9
 10 Glenda Burks
 11 Court Reporter

22 I do hereby certify that the foregoing is
 23 a complete record of the proceedings in
 24 the hearing of Case No. 45,86,
 25 held by me on July 28, 1974.
 _____, Secretary
 New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

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

March 4, 1971

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

Mr. Clarence Hinkle
Hinkle, Bondurant, Cox & Eaton
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Re: Case No. 4505, 4506, 4507

Order No. R-4112, R-4113, R-4114

Applicant:

ATLANTIC RICHFIELD COMPANY

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 x

Artesia OCC _____

Aztec OCC _____

Other State Engineer Office - Santa Fe

(R-4112 -Bureau of Land Management -- Santa Fe)

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. 4506
Order No. R-4113

APPLICATION OF ATLANTIC RICHFIELD
COMPANY FOR SALT WATER DISPOSAL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 24, 1971, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of March, 1971, 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, Atlantic Richfield Company, is the owner and operator of the Eldson "C" WN Well No. 3, located in Unit F of Section 26, Township 16 South, Range 35 East, NMPM, Shoe Bar-Pennsylvanian Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Pennsylvanian formation, with injection into the perforated interval from approximately 10,278 feet to 10,442 feet.

(4) That the injection should be accomplished through 2-inch tubing installed in a packer set at approximately 10,250 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to

-2-

CASE No. 4506
Order No. R-4113

the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

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

IT IS THEREFORE ORDERED:

(1) That the applicant, Atlantic Richfield Company, is hereby authorized to utilize its Eidson "C" WM Well No. 3, located in Unit F of Section 26, Township 16 South, Range 35 East, NMPM, Shoe Bar-Pennsylvanian Pool, Lea County, New Mexico, to dispose of produced salt water into the Pennsylvanian formation, injection to be accomplished through 2-inch tubing installed in a packer set at approximately 10,250 feet, with injection into the perforated interval from approximately 10,278 feet to 10,442 feet;

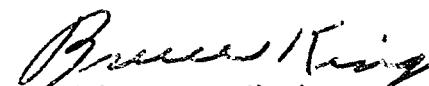
PROVIDED HOWEVER, that the casing-tubing annulus shall be filled with an inert fluid and that a pressure gauge shall be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

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


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

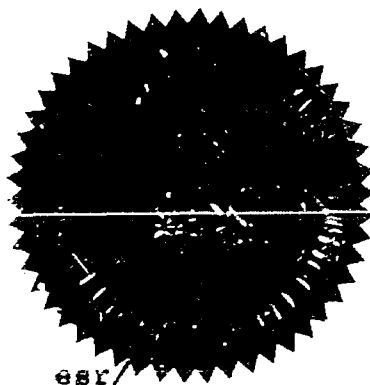
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


BRUCE KING, Chairman

ALEX J. ARMIJO, Member

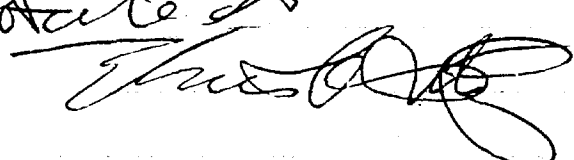

A. L. PORTER, Jr., Member & Secretary



Case 4506

Heard ~~2~~ 2-24-71

Rec. 2-26-71

Grant Atlantic permission to
convert ~~these~~ Edison 'C'
WN #3 F-26-16-35 - Shoe - Bar Lenn.
Injection shall be ~~10,000~~ thru
perfs. from 10,321-357 into the
Perm. fm. Packer should be set
at approx. 10,250. Annulus to be
filled with inert fluid w/ pressure
gauge at the surface. 2" tubing
~~shall~~ may not be externally
plaster coated.
This 

3. A 480-acre non-standard gas proration unit comprising the W/2 and the NE/4 of Section 13, Township 23 South, Range 36 East, to be dedicated to Texas Pacific State "A" Account 1 Wells Nos. 20, 21, and 22.
4. A standard 640-acre gas proration unit comprising all of Section 11, Township 22 South, Range 36 East, to be dedicated to Texas Pacific State "A" Account 2 Wells Nos. 14, 36, and 42.
5. A 480-acre non-standard gas proration unit comprising the E/2 of Section 8, and the SW/4 of Section 9, Township 22 South, Range 36 East, to be dedicated to Texas Pacific State "A" Account 2 Wells Nos. 38, 43 and 56.

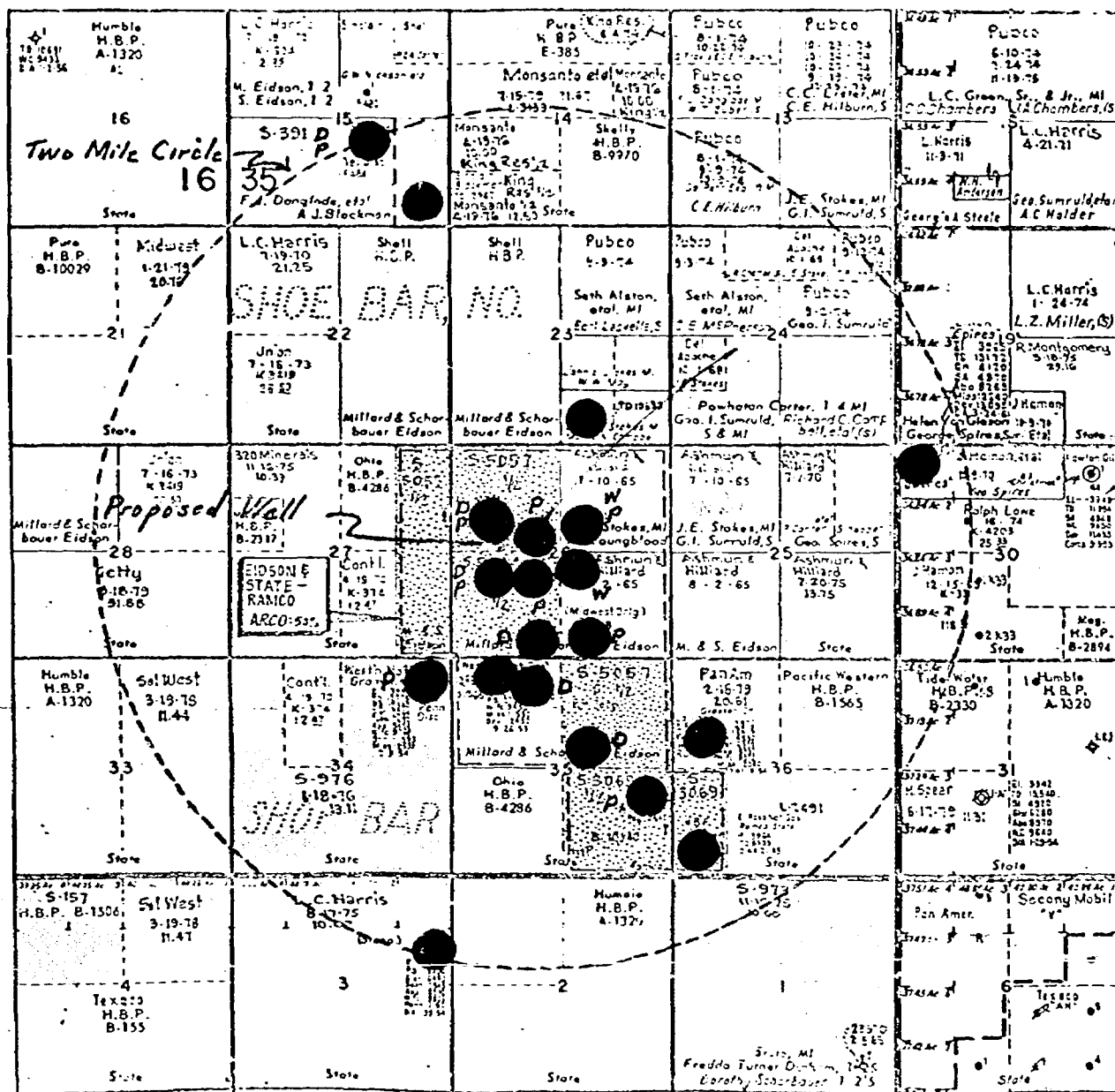
CASE 4504: Application of Humble Oil & Refining Company for the reinstatement of cancelled underproduction, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the general rules and regulations for prorated gas pools of Southeastern New Mexico promulgated by Order No. R-1670, as amended, to permit the reinstatement of underproduction accumulated by its Greenwood Well No. 11 located in Unit I of Section 9 and its Penrose Well No. 1 located in Unit B of Section 13, Township 22 South, Range 37 East, Blinbry Gas Pool, Lea County, New Mexico, and cancelled January 1, 1971.

CASE 4505: Application of Atlantic Richfield Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates-Seven Rivers formation in the perforated interval from 2978 feet to 3350 feet in its Federal Well No. 2 located in Unit N of Section 9, Township 20 South, Range 33 East, West Teas Yates-Seven Rivers Pool, Lea County, New Mexico.

CASE 4506: Application of Atlantic Richfield Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Pennsylvanian formation in the perforated interval from 10,278 feet to 10,442 feet in its Eidson "C" WN Well No. 3 located in Unit F of Section 26, Township 16 South, Range 35 East, Shoe Bar-Pennsylvanian Pool, Lea County, New Mexico.

CASE 4507: Application of Atlantic Richfield Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation in the perforated interval from 13,690 feet to 13,726 feet in its Lea State 396 Well No. 3 located in Unit G of Section 35, Township 15 South, Range 36 East, Dean-Devonian Pool, Lea County, New Mexico.

CASE 4502: Application of Samedan Oil Corporation for special pool rules and pool extension, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the East Morton-Wolfcamp-Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units. Applicant further seeks extension of the horizontal boundaries of said pool to include the following.



- Penn. Producer
- Wolfcamp Producer
- P/A or T.A.
- D Devonian
- P Penn
- W Wolfcamp

R 35 E
 EIDSON C 3
 SWD W
 SHOE BAR FIELD
 ATLANTIC RICHFIELD

R 36 E
 BEFORE EXAMINATION
 OIL COMPANY
 CASE NO. 4506

Exhibit 1

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Atlantic Richfield Company		ADDRESS P. O. Box 1978, Roswell, New Mexico 88201			
LEASE NAME Eidson "C" WN	WELL NO. 3	FIELD Shoe Bar Penn	COUNTY Lea		
LOCATION UNIT LETTER <u>F</u> ; WELL IS LOCATED <u>1980</u> FEET FROM THE <u>West</u> LINE AND <u>2310</u> FEET FROM THE <u>North</u> LINE, SECTION <u>26</u> TOWNSHIP <u>16-S</u> RANGE <u>35-E</u> NMPM.					
CASING AND TUBING DATA					
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8	400	350	circ.	--
INTERMEDIATE	8-5/8	4866	1825	2390	temp. survey
LONG STRING	5-1/2	10,428	350	8082	temp. survey
TUBING	2	± 10,250	NAME, MODEL AND DEPTH OF TUBING PACKER Baker 415 D ± 10,250		
NAME OF PROPOSED INJECTION FORMATION Penn (Cisco)		TOP OF FORMATION 10,278		BOTTOM OF FORMATION 10,442	
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLES? Perforations		PROPOSED INTERVAL(S) OF INJECTION 10,278-10,442	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Oil		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No. O.H. comp.	
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH O.H. 10,428 to 10,442 with 50 sacks cement					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA Unknown		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA wolfcamp 10,164		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA Devonian 12,687	
ANTICIPATED DAILY INJECTION VOLUME (BBL.)	MINIMUM 60	MAXIMUM 500	OPEN OR CLOSED TYPE SYSTEM Closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Gravity - pressure	APPROX. PRESSURE (PSI) 0-1200#
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -			WATER TO BE DISPOSED OF Yes	NATURAL WATER IN DISPOSAL ZONE Yes	ARE WATER ANALYSES ATTACHED? Yes
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL					
<div style="border: 2px solid black; padding: 5px; display: inline-block;">BEFORE EXAMINER UTZ OIL CONSERVATION COMMISSION EXHIBIT NO. <u>3</u> CASE NO. <u>4506</u></div>					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		SURFACE OWNER		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)		PLAT OF AREA		ELECTRICAL LOG	
				DIAGRAMMATIC SKETCH OF WELL	

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

(Signature)

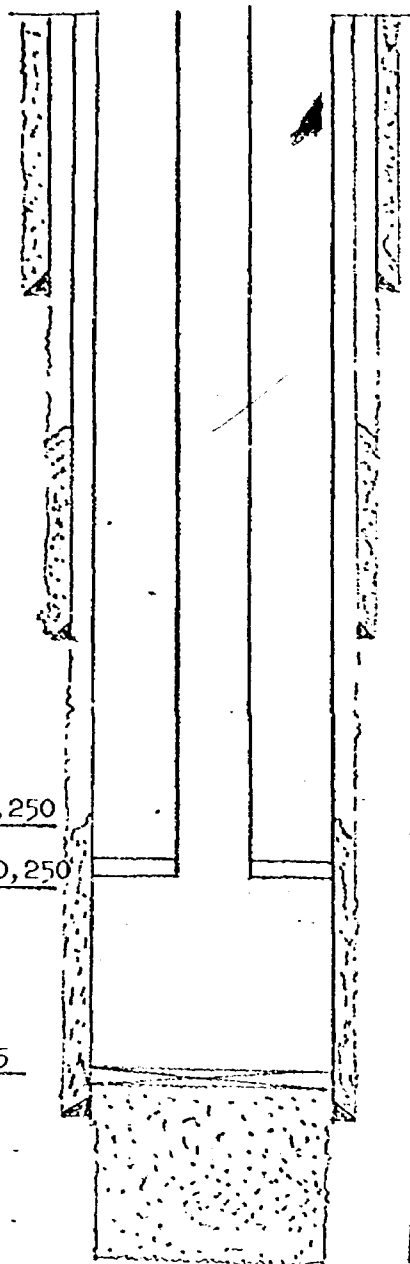
(Title)

(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

EXHIBIT 3

Handwritten notes:
 13-3/8" csg. @ 400'
 8-5/8" csg. @ 4866'



Proposed 2" tbg. ± 10,250
Proposed pkr. ± 10,250

C.I. Retainer @ 10,385
O.H. sqz. off

TD 10,442

Cmt. Circ.

13-3/8" csg. @ 400'
cmtd. w/350 sax

Top of cmt. 2390'

8-5/8" csg. @ 4866'
cmtd. w/1825 sax

Top of cmt. 8082'

10,321 } Existing perf.
 10,357 } Sel. perf.

5 1/2" csg. @ 10,428'
cmtd. w/350 sax

ATLANTIC RICHFIELD
 EIDSON "C" WN #3
 Lea County, N.M.

BEFORE ME
 CH. CLERK
 CASE NO. 4506

DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

WATER ANALYSIS REPORT

TO: ATLANTIC RICHFIELD
BROADMOOR CENTER
HOBBS, NEW MEXICO

LABORATORY NO.: HOBBS
DATE: 1/15/71

WELL NAME + NO.: EIDSON A
FIELD: SHOE BAR
COUNTY: LEA
SAMPLE PT.: TREATER

DEPTH: 10400 FT
FORMATION: PENN
STATE: NEW MEXICO
SAMPLE ID: WATER

DISSOLVED SOLIDS

OTHER PROPERTIES

CATIONS	MG/L	MEQ/L		
SODIUM, NA	50383	2186	PH =	6.50
CALCIUM, CA	6000	299	SP GR =	1.102
MAGNESIUM, MG	1824	150	RESISTIVITY=	.8000
ANIONS				
CHLORIDES, CL	92542	2609		
SULFATES, SO4	1125	23		
BICARBONATES, HCO3	182	2		

THE CALCIUM SULFATE STABILITY INDEX IS -15.90

A NEGATIVE NUMBER INDICATES THE SCALE IN SOLUTION DOES NOT EXCEED THE SATURATION VALUE AND SHOULD NOT PRECIPITATE.

REMARKS AND RECOMMENDATIONS:
WELLS 3 AND 4

J.C. BARTON

BEFORE EXAMINER USE
OIL CONSERVATION DIVISION
EXAMINER NO. 6
CASE NO. 4506

EXHIBIT NO. 6

ANALYSIS BASED ON API RECOMMENDED PROCEDURE

DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

WATER ANALYSIS REPORT

TO: ATLANTIC RICHFIELD
BROADMOOR CENTER
HOBBS, NEW MEXICO 88240

LABORATORY NO.: HOBBS
DATE: 1/15/71

WELL NAME + NO.: EIDSON C
FIELD: SHOE BAR
COUNTY: LEA
SAMPLE PT.: WELLHEAD

DEPTH: 10442 FT
FORMATION: PENN
STATE: NEW MEXICO
SAMPLE ID: WATER

DISSOLVED SOLIDS

OTHER PROPERTIES

CATIONS

MG/L MEQ/L

SODIUM, NA
CALCIUM, CA
MAGNESIUM, MG

51062 2216
6199 309
1824 150

PH = 6.20
SP GR = 1.106
RESISTIVITY = .0000

ANIONS

CHLORIDES, CL
SULFATES, SO4
BICARBONATES, HCO3

93961 2649
1100 22
182 2

THE CALCIUM SULFATE STABILITY INDEX IS -15.31

A NEGATIVE NUMBER INDICATES THE SCALE IN SOLUTION DOES
NOT EXCEED THE SATURATION VALUE AND SHOULD NOT PRECIPITATE.

REMARKS AND RECOMMENDATIONS:
WE; #3

J.C. BARTON

BEFORE EXAMINER USE
OIL CONSERVATION DIVISION
EXHIBIT NO. 7
CASE NO. 4506

EXHIBIT NO. 7

ANALYSIS BASED ON API RECOMMENDED PROCEDURE

CLARENCE E. HINKLE
W. E. BONDURANT, JR.
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR
C. D. MARTIN
PAUL J. KELLY, JR.

LAW OFFICES
HINKLE, BONDURANT, COX & EATON
600 HINKLE BUILDING
POST OFFICE BOX 10
ROSWELL, NEW MEXICO 88201

TELEPHONE (505) 822-8510

MIDLAND, TEXAS OFFICE
521 MIDLAND TOWER
(915) MU 3-4891

February 19, 1971

Oil Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Gentlemen:

We enclose herewith application of Atlantic Richfield Company for approval of salt water disposal in the Shoe Bar Penn Pool, which has been placed on the examiner's docket for February 24 as Case No. 4506.

Yours very truly,

HINKLE, BONDURANT, COX & EATON

By Clarence E. Hinkle
CH

CEH:cs
Enc.

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF ATLANTIC RICHFIELD)
COMPANY FOR APPROVAL OF THE CON-)
VERSION OF ITS EIDSON "C" WELL WN)
NO. 3 LOCATED IN UNIT F, SECTION)
26, TOWNSHIP 16 SOUTH, RANGE 35)
EAST, LEA COUNTY FOR THE PURPOSE)
OF DISPOSING OF PRODUCED SALT WATER)
IN THE PENNSYLVANIAN FORMATION IN)
THE SHOE BAR PENN POOL THROUGH PER-)
FORATIONS FROM 10,278 FEET TO 10,442)
FEET.)

Case No. 4506

Oil Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Comes Atlantic Richfield Company, acting by and through the undersigned attorneys, and hereby makes application for approval of the conversion of its Eidson "C" Well WN No. 3 located in Unit F, Section 26, Township 16 South, Range 35 East, Lea County for the purpose of disposing of produced salt water in the Pennsylvanian formation in the Shoe Bar Penn Pool through perforations from 10,278 feet to 10,442 feet, and in support thereof respectfully shows:

1. Atlantic Richfield is the owner of certain oil and gas leases embracing the SE $\frac{1}{4}$ NW $\frac{1}{4}$ and N $\frac{1}{2}$ SW $\frac{1}{4}$ Section 26, Township 16 South, Range 35 East, N.M.P.M. That applicant is the owner of 3 wells located on said lands producing from the Shoe Bar Penn Pool, Lea County. There is attached hereto, made a part hereof and for purposes of identification marked Exhibit "A", a structural plat contoured on top of the Cisco formation showing the location of said 3 wells. Atlantic Richfield is also the owner of a fourth well producing from the extreme southeast portion of the Shoe Bar Penn Pool located in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 35, Township 16 South, Range 35 East which is also shown on said plat. All of said wells are in the stripper stage of production and are on the borderline of becoming uneconomical to operate. At the present time the water being produced from said wells is being hauled for disposal.

2. Applicant's Eidson "C" WN No. 3 well located 1980 feet from the west line and 2310 feet from the north line of Unit F, of said Section 26 is at a point where the volume of water produced in relation to the volume of oil is going to necessitate abandonment of the same. Rather than abandon the well, applicant is desirous of converting the same to a salt water disposal well, and to use the same perforations from which oil is presently being produced for the purpose of injection of water. There is attached hereto, made a part hereof and for purposes of identification marked Exhibit "B", a diagrammatic sketch of said well showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated intervals, tubing strings, including diameters and setting depths, together with the location of the packer to be used.

3. Applicant is of the opinion that the injection of water into the presently producing formation will not be harmful to the other producing wells and, if anything, may help the same, and that such injection will be in the interests of conservation and the prevention of waste and will tend to protect correlative rights. In the event the injection of water into the present perforations should prove to be difficult, applicant would like the order approving the conversion of said well to an injection well to provide that said well may be deepened a few feet and water injected in the open hole into the Pennsylvanian formation.

4. There is filed herewith an electrical log of the proposed injection well.

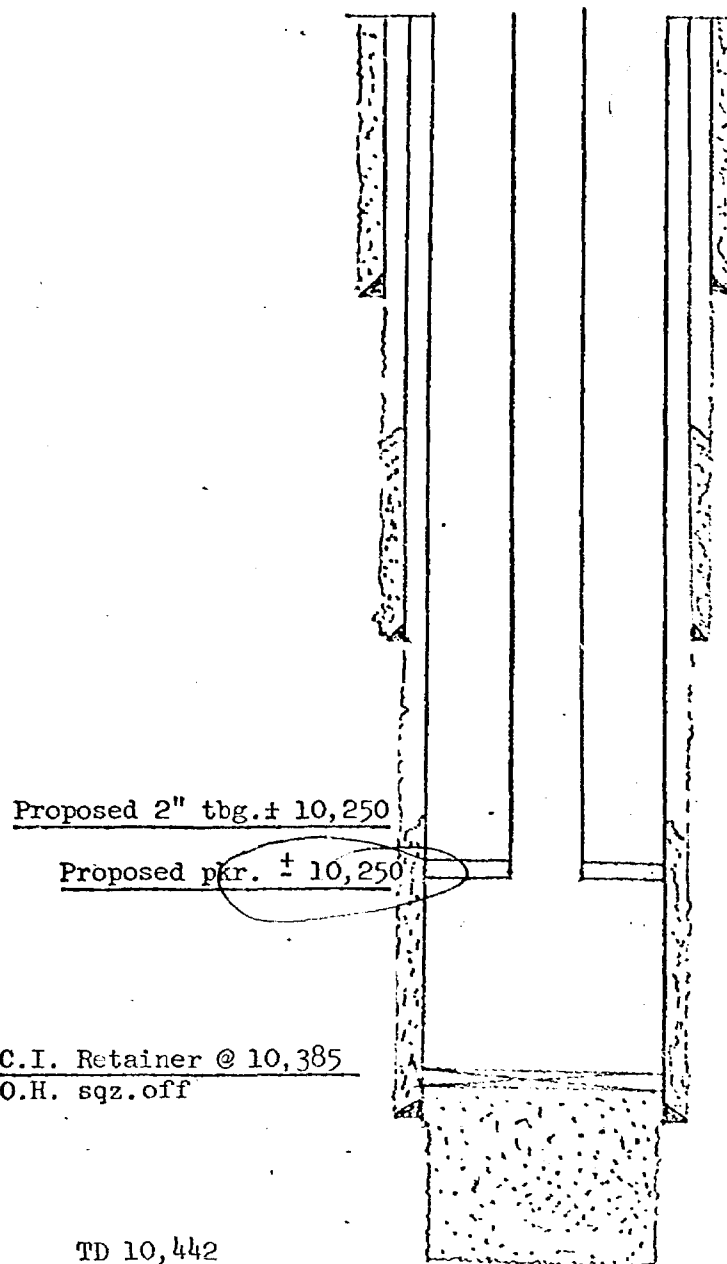
5. Applicant requests that this matter be included on the docket for the next examiner's hearing.

Respectfully submitted,

ATLANTIC RICHFIELD COMPANY

By 

Member of the Firm of
HINKLE, BONDURANT, COX & EATON
P.O. Box 10
Roswell, New Mexico 88201
Attorneys for Applicant



Cmt. Circ.

13-3/8" csg. @ 400'
cmtd. w/350 sax

Top of cmt. 2390'

8-5/8" csg. @ 4866'
cmtd. w/1825 sax

Top of cmt. 8082'

10,321) Existing perf.
) Sel. perf.
 10,357)

5 1/2" csg. @ 10,428'
cmtd. w/350 sax

C.I. Retainer @ 10,385
O.H. sqz.off

TD 10,442

ATLANTIC RICHFIELD
 EIDSON "C" W#3
 Lea County, N.M.

EXHIBIT "B"

DRAFT

GMH/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

So

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

[Signature]
CASE No. 4506

Order No. R-4113

APPLICATION OF ATLANTIC RICHFIELD
COMPANY FOR SALT WATER DISPOSAL,
LEA COUNTY, NEW MEXICO.

[Signature]
Ver-3-1-1

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 24, 1971,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 3rd day of March, 1971, 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, Atlantic Richfield Company,
is the owner and operator of the Eidson "C" WN Well No. 3,
located in Unit F of Section 26, Township 16 South, Range
35 East, NMPM, Shoe Bar-Pennsylvanian Pool, Lea
County, New Mexico.

(3) That the applicant proposes to utilize said well to
dispose of produced salt water into the Pennsylvanian
formation, with injection into the perforated interval
from approximately 10,278 feet to 10,442 feet.

(4) That the injection should be accomplished through
2-inch ~~plastic lined~~ tubing installed in a packer set at

approximately 10250 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus ~~or the annulus left open~~ at the surface in order to determine leakage in the casing, tubing, or packer.

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

IT IS THEREFORE ORDERED:

(1) That the applicant, Atlantic Richfield Company, is hereby authorized to utilize its Eidson "C" WN Well No. 3, located in Unit F of Section 26, Township 16 South, Range 35 East, NMPM, Shoe Bar-Pennsylvanian Pool, Lea County, New Mexico, to dispose of produced salt water into the Pennsylvanian formation, injection to be accomplished through 2-inch tubing installed in a packer set at approximately 10,250 feet, with injection into the perforated interval from approximately 10,278 feet to 10,442 feet;

PROVIDED HOWEVER, ~~that the tubing shall be plastic lined,~~ that the casing tubing annulus shall be filled with an inert fluid, and that a pressure gauge shall be attached to the annulus ~~or the annulus left open~~ at the surface in order to determine leakage in the casing, tubing, or packer.

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

(3) 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.

Unidentified
Jan. 22nd

Richfield

concession 1st St 396 #3
G 35 15 S 36 E 1st

disposition 1st SW

Dev farm Dean

perf int 13690 - 13726'

Richfield

Eilson "C" WN#3

F 26 16 S 35 E 1st

dis 1st SW
Penny

Shoe Box Penny

perf int 10278 to 10442