



MARATHON OIL COMPANY

PRODUCTION - UNITED STATES AND CANADA

HOUSTON DIVISION

J. O. TERRELL COUCH
DIVISION ATTORNEY

JOHN H. BEVAN, JR.
WARREN B. LEACH, JR.
JACK FARISS
ATTORNEYS

SOUTHERN NATIONAL BANK BUILDING
P. O. BOX 3128
HOUSTON, TEXAS 77001

October 14, 1965

Mr. A. L. Porter, Jr.
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

RE: Application to Dispose of Salt Water
by Injection into a Porous Formation

Dear Mr. Porter:

Attached in triplicate please find New Mexico Oil Conservation Commission Form C-108--Application to Dispose of Salt Water by Injection into a Porous Formation. The proposed disposal well is the Marathon-Federal Well No. 1 located in Section 24, Township 21 South, Range 23 East, Eddy County, New Mexico.

Marathon Oil Company respectfully requests that this application be considered and granted administratively in accordance with the provisions of the Commission's Rule No. 701-C. Marathon anticipates that there may be a necessity to commence salt water disposal operations in the Indian Basin Area as early as the first part of December, 1965. For this reason Marathon respectfully requests that even though no objection to this application has been received by the New Mexico Oil Conservation Commission, that this application be placed on the docket of the next Examiner's hearing which we understand is scheduled to be held on November 3, 1965. In the event the 15-day period provided for in Rule 701-C should expire without an objection to this application having been received by the Commission, Marathon would request that the hearing be cancelled in order that the application could be granted administratively, assuming the Secretary-Director is satisfied that all of the requirements of Rule 701 have been satisfied.

In accordance with Rule 701-C, a true and correct copy of the enclosed application and attachments thereto are being sent by registered mail to the Office of the New Mexico State Engineer, Santa Fe, New Mexico, as well as to all offset operators and the surface owner.

Mr. A. L. Porter, Jr.

New Mexico Oil Conservation Commission -2-

October 14, 1965

This application is submitted by Marathon Oil Company, as Operator of the Indian Basin Gas Plant, with knowledge and approval of the parties interested in such plant. A mailing list of all interested parties known to Marathon is attached hereto.

Respectfully submitted,

MARATHON OIL COMPANY

By:


Warren B. Leach, Jr.

WBL:CH

Encs.

AIR MAIL

cc: Office of the New Mexico State Engineer
P. O. Box 1079
Santa Fe, New Mexico

MAILING LIST OF PARTIES INTERESTED IN MARATHON OIL COMPANY'S
APPLICATION DATED OCTOBER 14, 1965, TO DISPOSE OF SALT WATER
BY INJECTION INTO A POROUS FORMATION--MARATHON-FEDERAL WELL
NO. 1, SECTION 24, T-21-S, R-23-E, EDDY COUNTY, NEW MEXICO

California Oil Company
P. O. Box 1249
Houston, Texas 77001
Attn: Mr. V. L. Taylor

Capitan, Inc.
P. O. Box 19598
Dallas, Texas 75219
Attn: Mr. Joe A. Warren

Cities Service Oil Company
Natural Gas Liquids Dept.
P. O. Box 300
Tulsa, Oklahoma

Mr. Robert N. Enfield
P. O. Box 80
Roswell, New Mexico

Mr. Robert G. Hanagan
P. O. Box 1737
Roswell, New Mexico

Mr. L. C. Harris
P. O. Box 1714
Roswell, New Mexico

Mr. Tom L. Ingram
P. O. Box 1757
Roswell, New Mexico

Mr. Curtis R. Inman
P. O. Box 737
Midland, Texas

International Oil & Gas Corp.
P. O. Box 427
Artesia, New Mexico 88210
Attn: Mr. R. J. Davenport

Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City, Oklahoma
Attn: Mr. P. K. Smith

Ralph Lowe
P. O. Box 832
Midland, Texas
Attn: Mr. H. L. Landua

Richard T. Lyons
1602 First City National Bank Bldg.
Houston, Texas 77002

Monsanto Company
1300 Main Street
Houston, Texas 77002
Attn: Mr. W. M. Wilson

Mr. J. Hiram Moore
Suite 517
201 Wall Building
Midland, Texas

Northern Natural Gas Producing Co.
P. O. Box 1600
Hobbs, New Mexico 88240
Attn: Mr. G. W. Barb

Penroc Oil Corporation
P. O. Box 1004
Midland, Texas
Attn: Mr. E. Brace Wigzell

Phillips Petroleum Company
Natural Gas and Gasoline Dept.
Partlesville, Oklahoma
Attn: Mr. C. L. Boles

Mr. Randolph M. Richardson
P. O. Box 819
Roswell, New Mexico

Shell Oil Company
P. O. Box 1509
Midland, Texas
Attn: Mr. E. W. Burch

Sinclair Oil & Gas Company
P. O. Box 1740
Midland, Texas
Attn: Mr. F. C. Rogers

Southern Petroleum Exploration
P. O. Box 1451
Roswell, New Mexico 88201
Attn: Mr. E. C. Hicks
Mr. Marion F. Spitler
825 Petroleum Club Building
Denver, Colorado

Sun Oil Company
P. O. Box 2880
Dallas, Texas 75221
Attn: Mr. P. L. Sullivan

Texas Pacific Oil Company
P. O. Box 747
Dallas, Texas 75221
Attn: Mr. L. B. Jeffers

The Atlantic Refining Company
P. O. Box 696
Lovington, New Mexico
Attn: Mr. G. E. Caraway

The Pure Oil Company
P. O. Box 671
Midland, Texas
Attn: Mr. J. R. Weylen

Mr. John H. Trigg
P. O. Box 520
Roswell, New Mexico

Union Oil Co. of California
619 West Texas Avenue
Midland, Texas
Attn: Mr. G. W. Coombes

Warren Petroleum Corporation
P. O. Box 1589
Tulsa, Oklahoma 74102
Attn: Mr. J. R. Sherman

Yates Petroleum Company
309 Carper Building
Artesia, New Mexico

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

OPERATOR Marathon Oil Company		ADDRESS P. O. Box 220, Hobbs, New Mexico			
LEASE NAME Marathon Federal (Formerly Operated by Sinclair)		WELL NO. 1	FIELD Undesignated		COUNTY Eddy
LOCATION UNIT LETTER <u>K</u> ; WELL IS LOCATED <u>1650</u> FEET FROM THE <u>South</u> LINE AND <u>1650</u> FEET FROM THE <u>West</u> LINE, SECTION <u>24</u> TOWNSHIP <u>21S</u> RANGE <u>23E</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	125	200	Circ.	-
INTERMEDIATE	9 5/8	2250	1560	Circ.	-
LONG STRING	4 1/2	9650	1250 sx. thru perms. 4495' 1175	4860	circulated to surface Temperature Sur.
TUBING	2 3/8	2500	NAME, MODEL AND DEPTH OF TUBING PACKER Johnston 101-S @ approx. 2450'		
NAME OF PROPOSED INJECTION FORMATION Paddock			TOP OF FORMATION 2185 (+1600)		BOTTOM OF FORMATION 3080 (+705)
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLES? Perforations	PROPOSED INTERVAL(S) OF INJECTION 2534' to 2540'; 2571' to 2577'; 2719' to 2726'		
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Gas production from Morrow and/or Cisco Canyon formations				HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? Yes
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH 9336-42' & 9526-34' - squeezed w/100 sx., 7496-7506' - squeezed w/95 sx.					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 1905		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA None		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA Approx. 6200'	
ANTICIPATED DAILY INJECTION VOLUME (BBLs.) 382	MINIMUM Unknown	MAXIMUM Unknown	OPEN OR CLOSED TYPE SYSTEM Closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Unknown	APPROX. PRESSURE (PSI) Unknown
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? No
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) W. H. Shafer, Queen Rt., Carlsbad, New Mexico					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Ralph Lowe, Box 832, Midland, Texas					
Sinclair Oil & Gas Co., Box 1920, Hobbs, New Mexico					
Also 1 copy to USGS					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		SURFACE OWNER Yes		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL Yes	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)		PLAT OF AREA Yes		ELECTRICAL LOG Yes	
				DIAGRAMMATIC SKETCH OF WELL Yes	

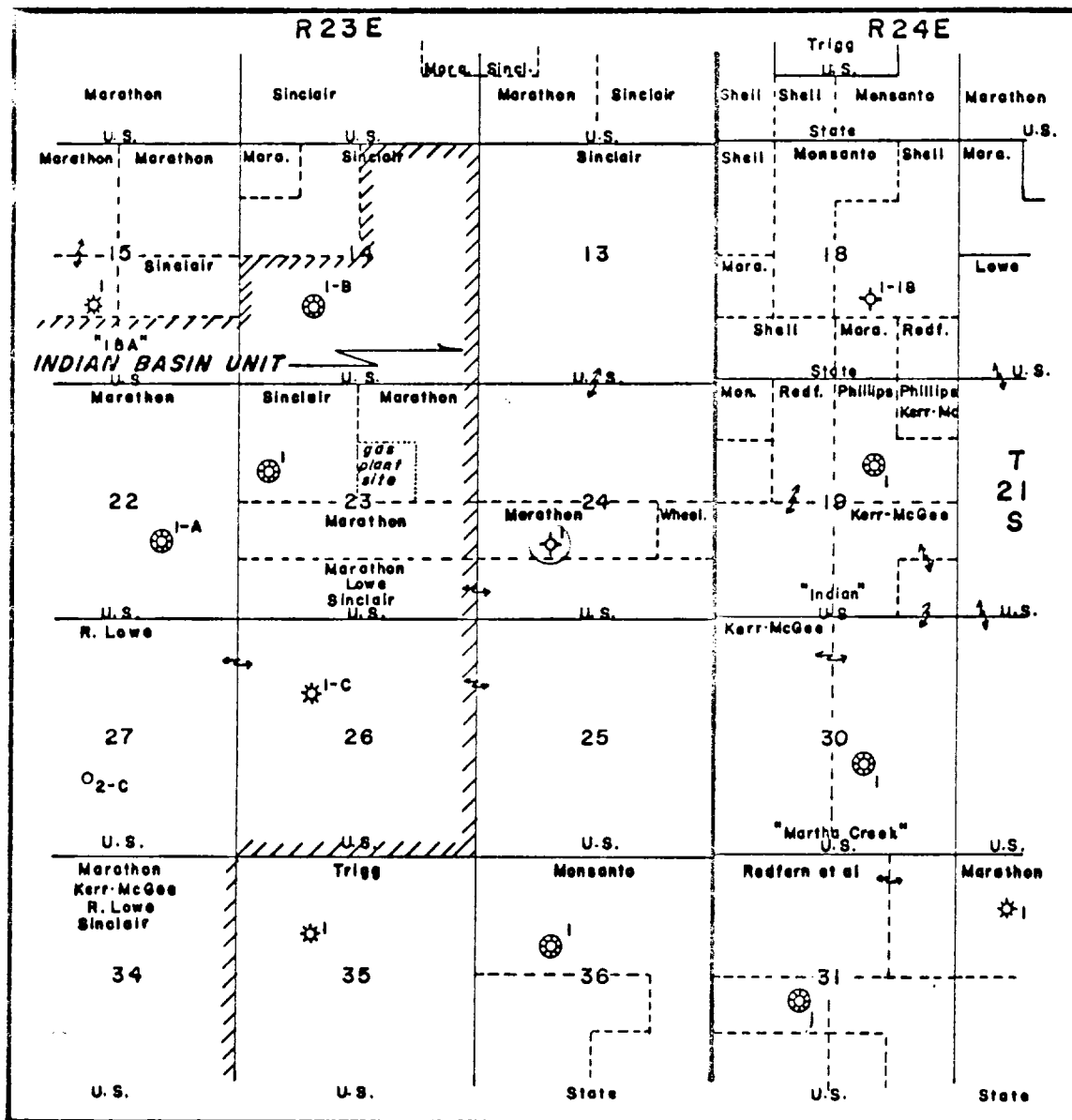
I hereby certify that the information above is true and complete to the best of my knowledge and belief.


 (Signature)

 Petroleum Engineer
 (Title)

 October 5, 1965
 (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.

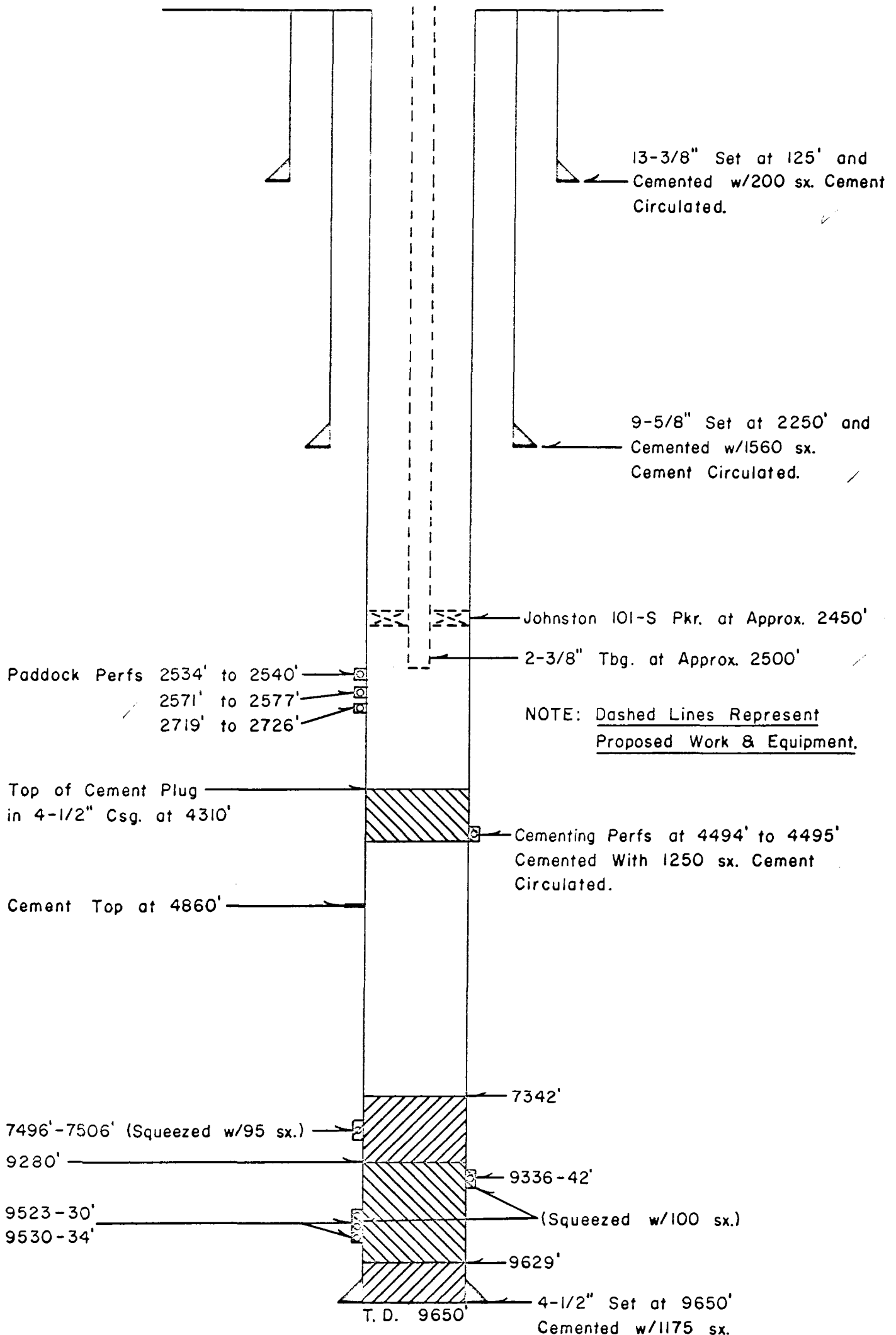


MARATHON OIL COMPANY
 "Plat of Indian Basin Gas Plant
 Proposed Disposal Well"
 INDIAN BASIN AREA
 Eddy Co., New Mexico
 SCALE: 1" = 4000' 10-5-65

LEGEND

- ★ UPPER PENN GAS
- ⊗ UPPER PENN & MORROW GAS
- PROPOSED DISPOSAL WELL

MARATHON OIL COMPANY
 "Diagrammatic Sketch of Proposed Disposal Well"
 Marathon Federal, Well No. 1
 INDIAN BASIN AREA
 Eddy Co., New Mexico
 Scale: None





STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

**S. E. REYNOLDS
STATE ENGINEER**

October 22, 1965

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, NEW MEXICO 87501

MAILED
'65 OCT 25 AM 8 00

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Marathon Oil Company which seeks Commission approval to dispose of salt water into a porous formation through their Marathon-Federal Well No. 1 located in Sec. 24, T. 21 S., R. 23 E. The water to be disposed into this well will be water produced with gas in the Indian Basin area. The Paddock formation is the zone in which the disposal is to be made. The available analyses of the produced waters indicate that it is of better quality than the water now contained in the Paddock formation. However, since actual production has not started, it is highly probable that the quality of the produced water will change.

On a temporary basis, this office offers no objection to the granting of the application provided monthly analyses of the water to be disposed are submitted starting with the commencement of production and continuing for a period of 6 months. It is possible that the chemical quality of the produced water will stabilize after 6 months of production and a decision can be rendered at that time as to whether any objection should be entered by this agency.

If the chemical quality of the produced water should deteriorate to the extent that it is lower quality than the Paddock water within the 6-month monitoring period, this office would object to continued disposal of the water into the Paddock zone. If the chemical quality of the produced water continues to be better than the Paddock water at the end of the 6-month period, then the frequency of sampling and analyzing the water could be reduced and if any stabilization of the chemical quality is established the monitoring could cease.

These conditions will require that jurisdiction be retained until

such time as chemical quality of the produced water reaches a stabilized state.

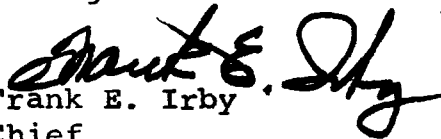
MAINE
'65 OCT 25 AM 6 00

Yours truly,

FEI/ma
cc-Marathon Oil Co.
F. H. Hennighausen

S. E. Reynolds
State Engineer

By:


Frank E. Irby
Chief
Water Rights Div.

MEMORANDUM

State Engineer Office
Santa Fe, New Mexico
June 19, 1967

TO F. H. Hennighausen & R. B. Collins

FROM Frank E. Irby

SUBJECT Disposal of water produced with gas in Indian Basin
Gas Field by Marathon Oil Company

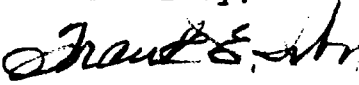
Reference is made to correspondence on the above subject under the following dates:

May 15, 1967, May 17, 1967, May 22, 1967 and May 23, 1967. Please advise me promptly as to the status of this matter.

If Marathon has not favorably responded to your letter of May 22nd, then it is my opinion that this matter should be referred to the Oil Conservation Commission for action, since they are the State Agency authorized to control the disposal of waters produced with oil and gas.

FEI/ma
cc-Oil Conservation Commission

Yours truly,


Frank E. Irby

MAIN OFFICE 01

'67 JUN 20 AM 8

KEY:

R. S. [illegible] Supervisor

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in the Indian Basin and several
samples were taken at the collection
sites. Samples were analyzed.

April 6 samples:	12,435 sp. c.
May 2 samples:	19,435 sp. c.

Previous to Marathon Oil Company's application to the Oil Conservation Commission for approval of disposal of produced water into the Fortwell Zone of the Fort Worth Basin, several tests were made of the water in the proposed disposal zone. The analysis of water recovered on these tests, by this office and by the Marathon Oil Company, indicated the chloride content of the water in the disposal zone to be about 1900 ppm. This test of chloride content has been accepted by this office and also by Mr. J. H. Barber, District Engineer for Marathon Oil Company, as the correct one as to whether the produced water was suitable for irrigation or not.

Samples of the injected water were collected by this writer in May, July, August and November of 1967 and analyzed in this office, with the exception of one of 1000 ppm. No samples were taken in 1967 until April 5.

The system now being designed into the Padlock Zone of the Tuba
 installation is of a nature which
 would require approval of the
 project, and should be
 approved.

Mr. Barker advised this was
verification, that the bullet
gun and that the Southern
April 26, 1967, by telephone con-
firmed water to be injected looked
they would discontinue their

May 12, 1967

8 MA 81 YAH

010110 MIA

Frank Mayberry, Chief, Water Rights Division

Indian Reservation

Analysis of water being produced with gas in the Indian Reservation and being disposed of by injecting it into the Padlock Zone of the Yaso Formation through a well located in the SW 1/4 of Section 24, Township 23 South, Range 23 East, N.M.P.M., by the Marathon Oil Company.

Samples of water, produced with gas in the Indian Reservation and disposed of by Marathon's Gas Plant, were taken at the collection point on April 6 and May 2, 1967. These samples were analyzed in this office, the results are:

April 6 sample:	6000 ppm cl	18,410 sp o.
May 2 sample:	6000 ppm cl	19,448 sp o.

Reference to Marathon Oil Company's application to the Oil Conservation Commission for approval to dispose of produced water into the Padlock Zone of the Yaso Formation, several tests were made of the water in the proposed disposal zone. The analysis of water, recovered on these tests, by this office and by the Marathon Oil Company, indicated the chloride content of the water in the disposal zone to be about 3000 ppm. This 3000 ppm chloride content has been accepted by this office and also by Mr. John Barber, District Engineer for Marathon Oil Company, as the criteria as to whether the produced water was suitable for injection or not.

Samples of the injected water were collected by this office in May, 1967, and analyzed in this office. The analysis of these samples indicated a chloride content of over 3000 ppm. No samples were taken on April 6.

The water now being injected into the Padlock Zone of the Yaso Formation is of a poorer quality than the formation water as tested before approval of the disposal project. and should be considered.

Mr. Barber advised this writer on April 26, 1967, by telephone conversation, that the quality of produced water to be injected looked good and that the Marathon Oil Company would discontinue this

COPY

Frank E. Isby

May 13, 1967

... would ... this office to advise ...
... the injected water.

In view of the ... Marathon Oil Company ...
... John Barlow and ...
... this can achieve the ...
... of produced water ... through
the Oil Conservation Committee, it may be proper to refer this
through this office.

R. B. Collins, Jr.,
Basin Supervisor

FME

RBO:ler

1967 MAY 16 AM 8:16
STATE ENGINEER OFFICE
SANTA FE, N.M.

C
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P
Y

May 12, 1967

-2-

Frank E. Levy

sanitary program and would depend on this office to advise them of any serious change in the quality of the injected water.

In view of the co-operative attitude of Marathon Oil Company it is felt that a letter from this office to John Barber and possibly a telephone conversation concerning this can achieve the desired results. However, since the approval to dispose of produced water came through the Oil Conservation Commission, it may be proper to refer this through that office.

R. B. Collins, Jr.,
Basin Supervisor

SANTA FE N.M.
CIVIL ENGINEER OFFICE
1967 MAY 16 AM 8:18

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REC-107

MAIN OFFICE OF

MAY 17 1967

May 17, 1967

F. H. Hennighausen & R. B. Collins

Frank E. Irby

Disposal of water produced with gas in Indian Basin
gas field by Marathon Oil Company.

Reference is made to your memorandum of May 15, 1967 on the above
subject.

It is suggested that you proceed to contact Mr. Barber as suggested
in the last paragraph of your memorandum and see if the problem can
be handled in this manner. In the meantime, I will forward to the
Oil Conservation Commission a copy of your memorandum and my memo-
randum in order that they be fully advised with regard to this
operation.

FRI/ma
Oil Conservation Comm.

Yours truly,

Frank E. Irby

8 MA 21 1967

WYOM OFFICE

May 17, 1967

F. H. Henningshausen & R. E. Collins

Frank E. Irby

Disposal of water produced with gas in Indian Basin
gas lifted by Marathon Oil Company.

Reference is made to your memorandum of May 15, 1967 on the above
subject.

It is suggested that you proceed to contact Mr. Barber as suggested
in the last paragraph of your memorandum and see if the problem can
be handled in this manner. In the meantime, I will forward to the
Oil Conservation Commission a copy of your memorandum and my memo-
randum in order that they be fully advised with regard to this
operation.

Very truly,
Oil Conservation Comm.

Yours truly,

Frank E. Irby



STATE OF NEW MEXICO
STATE ENGINEER OFFICE
SANTA FE

S. E. REYNOLDS
STATE ENGINEER

May 17, 1967

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, NEW MEXICO 87501

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

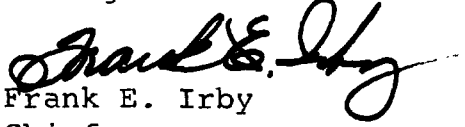
Enclosed herewith is a copy of R. B. Collins' memorandum to me dated May 15th and my reply dated May 17th, for your information.

If any discussion of this matter appears advisable to you, please contact me.

FEI/ma
encl.

Yours truly,

S. E. Reynolds
State Engineer

By: 
Frank E. Irby
Chief
Water Rights Div.

5F

1967 MAY 23 AM 10:07

Liby

STATE ENGINEER OFFICE
SANTA FE, N.M.

May 22, 1967

C
O
P
Y

Marathon Oil Company
P. O. Box 220
Hobbs, New Mexico

Attention: Mr. John R. Barber

Dear John:

Samples of water produced with gas in the Indian Basin Gas Field and disposed of by the Marathon Oil Company by injection into the Paddock Zone of the Yeso Formation were taken at the collection tank on April 6 and May 3, 1967. These samples were analyzed in this office. The results were:

April 6 sample:	6000 ppm cl	18,410 sp c.
May 3 sample:	6000 ppm cl	19,440 sp c.

At the time Marathon Oil Company made application to dispose of the produced water in the above mentioned formation. This office agreed to make no protest to the Oil Conservation Commission as long as the injected water was of no worse quality than that found in the formation. Our records indicated that the formation water contained approximately 3000 ppm cl and this has been used as a criteria for judging the quality accepted to be disposed of in this zone.

Please advise this office as to what efforts you will make to improve the quality of the water being injected into the Paddock Zone of the Yeso Formation.

Yours truly,

R. B. Collins, Jr.
Basin Supervisor

RBC*1cr
cc: Santa Fe



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

May 23, 1967

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, NEW MEXICO 87501

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, N. M.

Dear Mr. Porter:

Attached hereto is a copy of a letter which Mr. R. B. Collins wrote to Marathon Oil Company under date of May 22, 1967 pertaining to disposal of brines in the Indian Basin gas field.

FEI/ma
encl.

Yours truly,

S. E. Reynolds
State Engineer

By:

Frank E. Irby
Frank E. Irby

Chief

Water Rights Div.

FEI