

CASE 3155: Application of ATLANTIC
for a waterflood project, Eddy
County, New Mexico.

CASE No.
355

Application,
TRANSCRIPTS,
SMALL Exhibits
ETC.

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. 3155
Order No. R-2846

APPLICATION OF THE ATLANTIC REFINING
COMPANY FOR A WATERFLOOD PROJECT, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on December 15, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 21st day of December, 1964, 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, The Atlantic Refining Company, seeks permission to institute a waterflood project in the Shugart Pool in the Culwin Queen Unit Area by the injection of water into the Queen formation through six injection wells in Section 36, Township 18 South, Range 30 East; Section 31, Township 18 South, Range 31 East; Section 1, Township 19 South, Range 30 East; and Section 6, Township 19 South, Range 31 East, NMPM, Eddy 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 waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

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

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CASE No. 3155
Order No. R-2846

IT IS THEREFORE ORDERED:

(1) That the applicant, The Atlantic Refining Company, is hereby authorized to institute a waterflood project in the Shugart Pool in the Culwin Queen Unit Area by the injection of water into the Queen formation through the following-described wells:

| WELL | UNIT | SECTION | TOWNSHIP | RANGE |
|--------------------------------|------|---------|------------------|-------|
| Hondo State RD Well No. 5 | G | 36 | 18 South 30 East | NMPM |
| Hondo State RD Well No. 7 | M | 36 | 18 South 30 East | NMPM |
| Hondo State RD Well No. 2 | O | 36 | 18 South 30 East | NMPM |
| Trigg Federal Well No. 1 | M | 31 | 18 South 31 East | NMPM |
| O'Neill Federal "E" Well No. 2 | J | 1 | 19 South 30 East | NMPM |
| O'Neill Federal "G" Well No. 1 | L | 6 | 19 South 31 East | NMPM |

all in Eddy County, New Mexico.

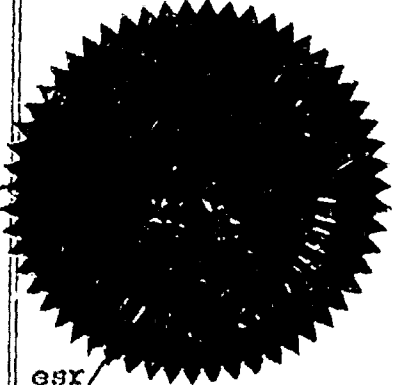
(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 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.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


Jack M. Campbell
JACK M. CAMPBELL, Chairman

E. S. Walker
E. S. WALKER, Member

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

Exhibit 3

WELL DATA CHALKWATER SAND UNIT

| WELL | COMPLETION DATE | 24 HR. INITIAL PRODUCTION | | DAILY PRODUCTION - SEPT 1964 | | |
|----------------------------|--------------------|------------------------------|-------|------------------------------|------------|-------|
| | | Oil | Water | Oil | Gas Ref | Water |
| Featherstone Fed. B-1 | 3-13-60 | 45 | 15 | | | |
| Yates (Hale & Hale) Fed. 1 | 1-6-60 | 48 | - | 3.9 | 2.0 | - |
| Yates (Hale & Hale) Fed. 2 | 1-1-60 | 42 | - | 3.9 | 2.0 | - |
| O'Neill - Fed. E-1 | 1-18-59 | 49 | - | 3.1 | 2.0 | 2.2 |
| O'Neill - Fed. E-2 | 5-14-59 | 29 | 12 | 3.2 | 2.2 | 2.2 |
| O'Neill - Fed. E-3 | 7-28-59 | 47 | 9 | 4.0 | 2.7 | 2.0 |
| O'Neill - Fed. G-1 | 1-14-60 | 22 | 33 | 2.8 | TSTM | 1.7 |
| Hondo State ED 1 | 4-11-59 | 52 | 2 | 2.0 | 0.7 | 1.5 |
| Hondo State ED 2 | 5-21-59 | 58 | 2 | 4.9 | 1.0 | 1.5 |
| Hondo State ED 3 | 7-1-59 | 62 | - | 5.0 | 1.5 | 1.5 |
| Hondo State ED 4 | 9-15-59 | 45 | - | 1.7 | 3.0 | 1.5 |
| Hondo State ED 5 | 4-16-60 | 86 | - | 0.5 | - | 1.5 |
| Hondo State ED 6 | 6-15-60 | 96 | - | 3.1 | 1.2 | 1.5 |
| Hondo State ED 7 | 8-18-60 | 62 | - | 2.9 | 0.7 | 1.5 |
| Hondo State ED 8 | 10-12-60 | 240 | - | 3.8 | 7.2 | 1.5 |
| Pure Fed. E-1 | 3-60 | 20 | ? | 3.1 | 2.8 | 20.0 |
| Trigg Fed. 1-31 | 9-5-59 | 46 | 5 | 0.8 | 3.2 | .8 |
| Texan (North Star) State 1 | 6-11-60 | 28 | 6 | 2.6 | TSTM | - |
| | | | | 51.3 | 32.2 | 28.4 |

inj rate - 2000

inj press - 2000

Source of - buy from Caprock

Atlantic Ex 3

C 3184-55

Atlantic Richfield Company North American Producing Division
New Mexico-Arizona District
Post Office Box 1978
Roswell, New Mexico 88201
Telephone 505 622 4041

W. P. Tomlinson
District Engineer

September 13, 1966

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

Attention: Mr. A. L. Porter

Re: Culwin Unit Waterflood
Order No. R-2845

Gentlemen:

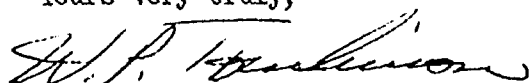
Atlantic Richfield Company started injecting water into the Culwin Unit Waterflood Project on September 1, 1966. Water is presently being injected into five wells in the Unit with injection being down tubing and below a packer.

The following table lists the injection wells along with the packer setting depth, depth of casing shoe, top of perforations and date injection started. This information indicates compliance with provisions of your letter dated December 21, 1964, on this subject.

| Well Name | Packer Setting Depth | Depth of Casing Shoe | Top of Perfs. | Date Injection Started |
|--------------------|----------------------------|----------------------------|---------------------|------------------------------|
| Culwin Unit No. 2 | 3084' | 3351' | 3124' | September 2 |
| Culwin Unit No. 7 | 3030' | 3092' | O.H. | September 8 |
| Culwin Unit No. 11 | 3064' | 3164' | 3110' | August 31 |
| Culwin Unit No. 17 | 3020' | 3256' | 3080' | September 2 |
| Culwin Unit No. 18 | 3056' | 3197' | 3102' | September 2 |

If any additional information is required please advise.

Yours very truly,



W. P. Tomlinson

WPT:jcb

cc: United States Geological Survey, Artesia, N.M.
New Mexico Oil Conservation Commission, Artesia, N.M.
State Engineer, Santa Fe, New Mexico



SEP 14 1966

File Case 3155

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

December 21, 1964

C
O
P
Y

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

Dear Sir:

Enclosed herewith is Commission Order No. R-2846, entered in Case No. 3155, approving the Atlantic Refining Company Culwin Unit Water-flood Project in the Shugart Pool.

Injection is to be through the six authorized injection wells which shall be equipped with tubing and packer, the packers being set within 100 feet of the uppermost perforation, or, in the case of open-hole completion, within 100 feet of the casing shoe.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 756 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

-2-

Mr. Clarence Hinkle

in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Enclosure

cc: Mr. Frank Irby
State Engineer Office
Santa Fe, New Mexico

Oil Conservation Commission:
Hobbs, New Mexico
Artesia, New Mexico

C
O
P
Y

MAIN OFFICE

Nov 2 AM 3:11

October 30, 1964

Mr. Clarence E. Hinkle
Attorney at Law
Hinkle, Bondurant & Christy
P. O. Box 10
Roswell, N. M.

DOCKET MAILED

Date 12-4-64

Dear Mr. Hinkle:

Receipt of your application on behalf of Atlantic Refining Company which seeks approval of the Culwin Queen Unit Water Flood Project is gratefully acknowledged.

I have noted that no information is given on the cementing job on Exhibit G above depth 3201 which is 121 feet below the proposed packer setting and that no information is given on the cementing of the casing above 3154 on the 4 1/2 inch casing for the well shown on Exhibit H. I would appreciate receiving any information that Atlantic Refining Company may have on these two points.

I am prepared to give clearance on the wells represented on Exhibits C, D, E and F at this time, provided they are constructed and equipped in the manner shown on Exhibits, but I will not be able to give clearance on the wells represented by Exhibits G & H until I have received the above mentioned information.

Very truly yours,

FBI/ma
Oil Conservation Comm.
Atlantic Ref. Co.
F. H. Hennighausen

S. E. Reynolds
State Engineer

By:

Frank E. Irby, Chief,
Water Rights Division

DOCKET MAILED

Date 11-13-64

DOCKET: EXAMINER HEARING - TUESDAY - DECEMBER 15, 1964

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 3154: (Continued from the November 24th examiner hearing)

Application of Atlantic Refining Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Culwin Queen Unit Area comprising 820 acres, more or less, of State and Federal lands in Townships 18 and 19 South, Ranges 30 and 31 East, Eddy County, New Mexico.

CASE 3155: (Continued from the November 24 examiner hearing)

Application of Atlantic Refining Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Shugart Pool in its Culwin Queen Unit Area by the injection of water into the Queen formation through six injection wells in Section 36, Township 18 South, Range 30 East, Section 31, Township 18 South, Range 31 East, Section 1, Township 19 South, Range 30 East, and Section 6, Township 19 South, Range 31 East, Eddy County, New Mexico.

CASE 3163: Application of Gulf Oil Corporation for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 120-acre non-standard gas proration unit comprising the E/2 SE/4 of Section 28, and the NE/4 NE/4 of Section 33, Township 21 South, Range 37 East, Blinbry Gas Pool, Lea County, New Mexico. Said unit to be dedicated to its J. N. Carson Well No. 6 located in Unit P of said Section 28.

CASE 3164: Application of Gulf Oil Corporation for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its W. A. Ramsay (NCT-A) waterflood project, South Eunice Pool, to include one additional water injection well to be located approximately 1320 feet from the South and West lines of Section 34, Township 21 South, Range 36 East, Lea County, New Mexico.

CASE 3165: Application of Sam Boren & Major & Giebel Oils for a non-standard proration unit, Lea County, New Mexico. Applicants, in the above-styled cause, seek approval of a 104.18 acre non-standard oil proration unit comprising all of lots 1 and 2 of Section 1, Township 11 South, Range 33 East, South Lane Pool, Lea County, New Mexico, to be dedicated to a well to be drilled within 150 feet of the center of said lot 1.

CASE 3166: Application of Tenneco Oil Company for four non-standard proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of the following four non-standard oil proration units in the South Lane Pool:

Unit No. 1, 93.61 acres comprising the E/2 SE/4 and Lot 1 of Section 6, dedicated to applicant's State "E" Well No. 1 located in Unit P of Section 6;

Unit No. 2, 93.24 acres comprising the W/2 SE/4 and Lot 2 of Section 6, dedicated to applicant's State "E" Well No. 2 located in Unit J of Section 6.

December 15th Examiner Hearing

Unit No. 3, 92.87 acres comprising the E/2 SW/4 and Lot 3 of Section 6, dedicated to applicant's State "F" Well No. 1 located in Unit K of Section 6;

Unit No. 4, 81.76 acres comprising Lots 4, 5, and 6 of Section 6, dedicated to a well to be drilled 100 feet North of the center of Lot 5 of Section 6, all in Township 11 South, Range 34 East, Lea County, New Mexico.

CASE 3167: Application of IMC Drilling Mud, a division of International Minerals and Chemical Corporation for an amendment of Rule 107. Applicant, in the above-styled cause, seeks an amendment to Rule 107 of the Commission Rules and Regulations to provide an administrative procedure whereby oil-base casing packing material could be used in lieu of a portion of the portland cement normally used in cementing oil well casing.

CASE 3168: Application of Jake L. Hamon for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres, Glorieta and Yeso formations through the open hole interval from 5000 feet to 9000 feet in its Fannye M. Holloway Well No. 1 located in Unit B of Section 13, Township 17 South, Range 38 East, South Knowles Devonian Pool, Lea County, New Mexico.

CASE 3169: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the E/2 of Section 14, Township 29 North, Range 11 West, San Juan County, New Mexico.

CASE 3170: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the E/2 of Section 8, Township 30 North, Range 13 West, San Juan County, New Mexico.

CASE 3171: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the S/2 of Section 23, Township 29 North, Range 11 West, San Juan County, New Mexico.

CASE 3172: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the S/2 of Section 21, Township 29 North, Range 10 West, San Juan County, New Mexico.

CASE 3173: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the S/2 of Section 31, Township 30 North, Range 12 West, San Juan County, New Mexico.

- CASE 3174: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the N/2 of Section 28, Township 29 North, Range 10 West, San Juan County, New Mexico.
- CASE 3175: Application of Pan American Petroleum Corporation for an amendment of Order No. R-2424, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Order No. R-2424, Special Pool Rules for Fowler Blinebry Pool to provide a limiting gas-oil ratio for oil wells in said pool of 6000 cubic feet of gas per barrel of oil.
- CASE 3176: Application of Texaco Inc. for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the triple completion (tubingless) of its C. C. Fristoe "b" (NCT-2) Well No. 9, located in Unit C of Section 35, Township 24 South, Range 37 East, Lea County, New Mexico, to produce oil from the Langlie Mattix, Justis Blinebry and North Justis Tubb-Drinkard Pools through 2-7/8 inch casing cemented in a common wellbore.
- CASE 3177: Application of Sinclair Oil & Gas Company for an amendment of Order No. R-1148, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-1148, which order authorized a 160-acre non-standard Tubb gas pool proration unit comprising the W/2 SW/4, SE/4 SW/4, and SW/4 SE/4 of Section 26, Township 21 South, Range 37 East, Lea County, New Mexico, to be dedicated to its J. R. Cone Well No. 1 located in Unit M of said Section 26. Applicant seeks the rededication of said unit and the allowable accrued thereto to its J. R. Cone Well No. 2 located in Unit L of said Section 26.
- CASE 3178: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) A Unit Area comprising 16,895 acres, more or less, of Federal, State and Fee lands in Townships 6 and 7 South, Ranges 25 and 26 East, Chaves County, New Mexico.
- CASE 3179: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) B Unit Area comprising 20,456 acres, more or less, of Federal, State and Fee lands in Township 7 South, Range 26 East, Chaves County, New Mexico.
- CASE 3180: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) C Unit Area comprising 15,081 acres, more or less, of Federal, State and Fee lands in Townships 7 and 8 South, Range 25 East, Chaves County, New Mexico.
- CASE 3181: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) D Unit Area comprising 15,925 acres, more or less, of Federal, State and Fee lands in Township 8 South, Ranges 25 and 26 East, Chaves County, New Mexico.

December 15th Examiner Hearing

- CASE 3182: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) E Unit Area comprising 12,323 acres, more or less, of Federal, State and Fee lands in Townships 8 and 9 South, Range 25 East, Chaves County, New Mexico.
- CASE 3183: Application of Shell Oil Company for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Comanche (San Andres) F Unit Area comprising 22,049 acres, more or less, of Federal, State and Fee lands in Townships 8 and 9 South, Ranges 25 and 26 East, Chaves County, New Mexico.
- CASE 2660: (Reopened and continued from the November 12, 1964 examiner hearing) In the matter of Case No. 2660 being reopened pursuant to the provisions of Order No. R-2348-A, which continued the original order establishing 80-acre proration units for the Middle Lane-Pennsylvanian Pool, Lea County, New Mexico, for an additional year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units. Midwest Oil Corporation also requests that the Middle Lane-Pennsylvanian Pool Rules, in addition to being made permanent, be amended to provide the definition of the vertical limits of said pool and the deletion of the fixed well location requirements as provided by said Order No. R-2348.
- CASE 3184: Application of Benson-Montin-Greer Drilling Corporation for an amendment of Order No. R-2565, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-2565 to permit the shutting-in of wells for interference tests, to permit the accumulation and transfer of back allowables for said shut-in wells, and to permit a transfer well to produce its own allowable plus a transferred allowable up to 100% of 1 top unit allowable for the Puerto Chiquito-Gallup Oil Pool at anytime during the period of one year after the original assignment of said allowable.

CLARENCE E. HINKLE
W. E. BONDURANT, JR.
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
MICHAEL R. WALLER

MAIN OFFICE 000

64 OCT 26 AM 8 11

LAW OFFICES
HINKLE, BONDURANT & CHRISTY
HINKLE BUILDING
ROSWELL, NEW MEXICO

October 23, 1964

OF COUNSEL: HIRAN M. DOW

TELEPHONE 622-6510
AREA CODE 505
POST OFFICE BOX 10

Oil Conservation Commission
Box 2088
Santa Fe, New Mexico

Gentlemen:

We enclose herewith three copies of application of The Atlantic Refining Company for approval of the Culwin Queen Unit Water Flood Project. We would like to have this application set down for the first examiner's hearing on which it can be included after proper notice.

Yours sincerely,

HINKLE, BONDURANT & CHRISTY

By 

CEH:cs
Enc.

cc: The Atlantic Refining Company - Roswell
cc: The Atlantic Refining Company - Dallas

DOCKET MAILED

Date 10-4-64

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF THE ATLANTIC REFINING COMPANY)
FOR APPROVAL OF THE CULWIN QUEEN)
UNIT WATER FLOOD PROJECT (SHUGART)
POOL), CONSISTING OF 820.44 ACRES)
IN TOWNSHIPS 18 AND 19 SOUTH,)
RANGES 30 AND 31 EAST, EDDY COUNTY,)
NEW MEXICO)

Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Comes The Atlantic Refining Company acting by and through the undersigned attorneys, and hereby makes application for approval of the Culwin Queen Unit Water Flood Project (Shugart Pool), Eddy County, New Mexico in accordance with Rule 701 of the rules of the New Mexico Oil Conservation Commission and in support thereof respectfully shows:

1. That applicant is in the process of forming a unit for the purpose of instituting and operating a secondary recovery project by the injection of water in the Queen zone or formation of certain lands within the Shugart Pool, Eddy County, New Mexico. That the proposed unit area, which is hereinafter referred to as the "project area", will consist of the following described lands, to-wit:

Township 18 South, Range 30 East,
Section 36 - $S\frac{1}{2}NE\frac{1}{4}$, $NE\frac{1}{4}SW\frac{1}{4}$, $S\frac{1}{2}SW\frac{1}{4}$, $SE\frac{1}{4}$

Township 18 South, Range 31 East,
Section 31 - $W\frac{1}{2}SW\frac{1}{4}$

Township 19 South, Range 30 East,
Section 1 - $NE\frac{1}{4}NW\frac{1}{4}$, $NE\frac{1}{4}$, $N\frac{1}{2}SE\frac{1}{4}$

Township 19 South, Range 31 East,
Section 6 - $W\frac{1}{2}NW\frac{1}{4}$, $NW\frac{1}{4}SW\frac{1}{4}$

containing 820.44 acres, more or less

That of the above described lands 460.44 acres are Federal lands and 360 are lands of the State of New Mexico,

2. That there is attached hereto a plat showing the outlines of the project area and the location of the proposed injection wells within the project area, as well as the location of all other wells within a radius of two miles from the project area and the formation from which each of said wells is producing or has produced. Exhibit "A" also indicates the lessees of the lands within the project area as well as within two miles of the same.

3. That there is filed herewith as Exhibit "B" copies of the electrical logs of all of the proposed injection wells within the project area except the Trigg Federal No. 1 well located in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 31, Township 18 South, Range 31 East, which well was not electrically logged, but is completed in the Queen zone or formation.

4. That there are also attached hereto as Exhibits "C", "D", "E", "F", "G" and "H" respectively diagrammatic sketches of each of the six injection wells shown on Exhibit "A" which includes diameters and setting depths of all casing strings, quantities and tops of cement, as well as perforated or open hole intervals, tubing strings, including diameters and setting depths, and the type and location of packers.

5. That there are eighteen producing wells at the present time producing from the Queen sand formation of the Shugart Pool within the project area, all of which have reached the advanced or stripper state of depletion, all producing an average of less than ten barrels per day. It is proposed to convert six of the producing wells to water injection wells as indicated on Exhibit "A" attached hereto.

That applicant proposes to obtain fresh water from the Caprock Water Company for injection into the six injection wells at a total combined rate of approximately 2,000 barrels per day. All water will be injected into the Queen sand formation and produced water will be re-injected when it occurs in sufficient quantities.

6. That a copy of this application with all exhibits has been mailed to the State Engineer of the State of New Mexico, Capitol Building, Santa Fe as of the date of this application.


7. That applicant requests that a project allowable be assigned to the Culwin Queen Unit Water Flood Project in accordance with the rules of the Commission and that the order of the Commission approving the project provide for administrative approval of expansion of the project and of any additional injection wells which may be required in connection therewith.

That applicant requests that a hearing on the within application be held before an examiner at the earliest possible date.


DATED this 23rd day of October, 1964.

Respectfully submitted,

THE ATLANTIC REFINING COMPANY

By 
Attorney

HINKLE, BONDURANT & CHRISTY

By 
Attorneys for Applicant
P.O. Box 10
Roswell, New Mexico

K-S
10X10 TO THE 1/4 INCH
KEUFFEL & ESSER CO.
ALBANY, N.Y.

359T-11G
MADE IN U.S.A.

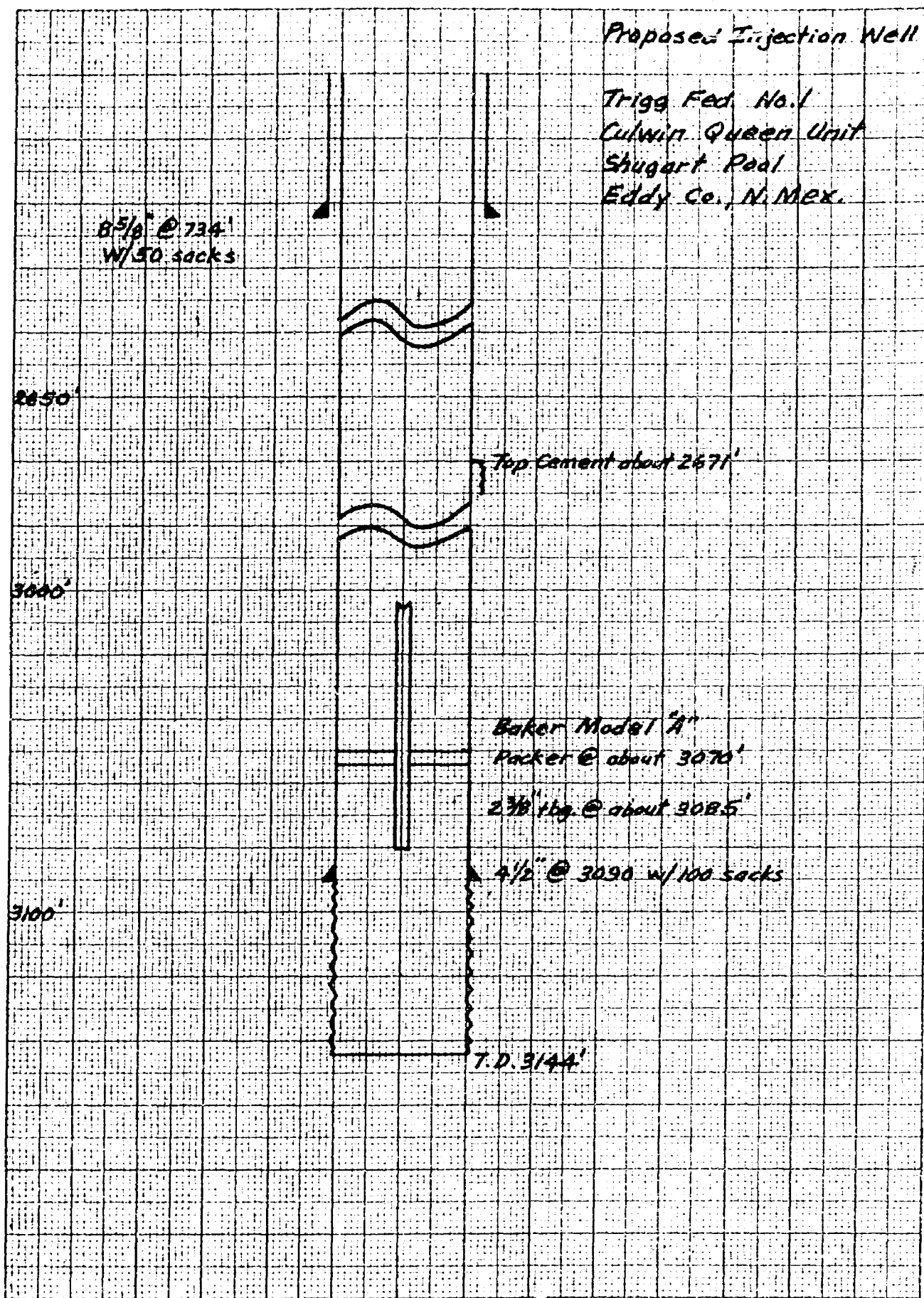


EXHIBIT "C"

K-E 10 X 10 TO THE 1/2 INCH 359T-11G
NEUFFEL & ENGER CO. MADE IN U.S.A.
ALUMINUM

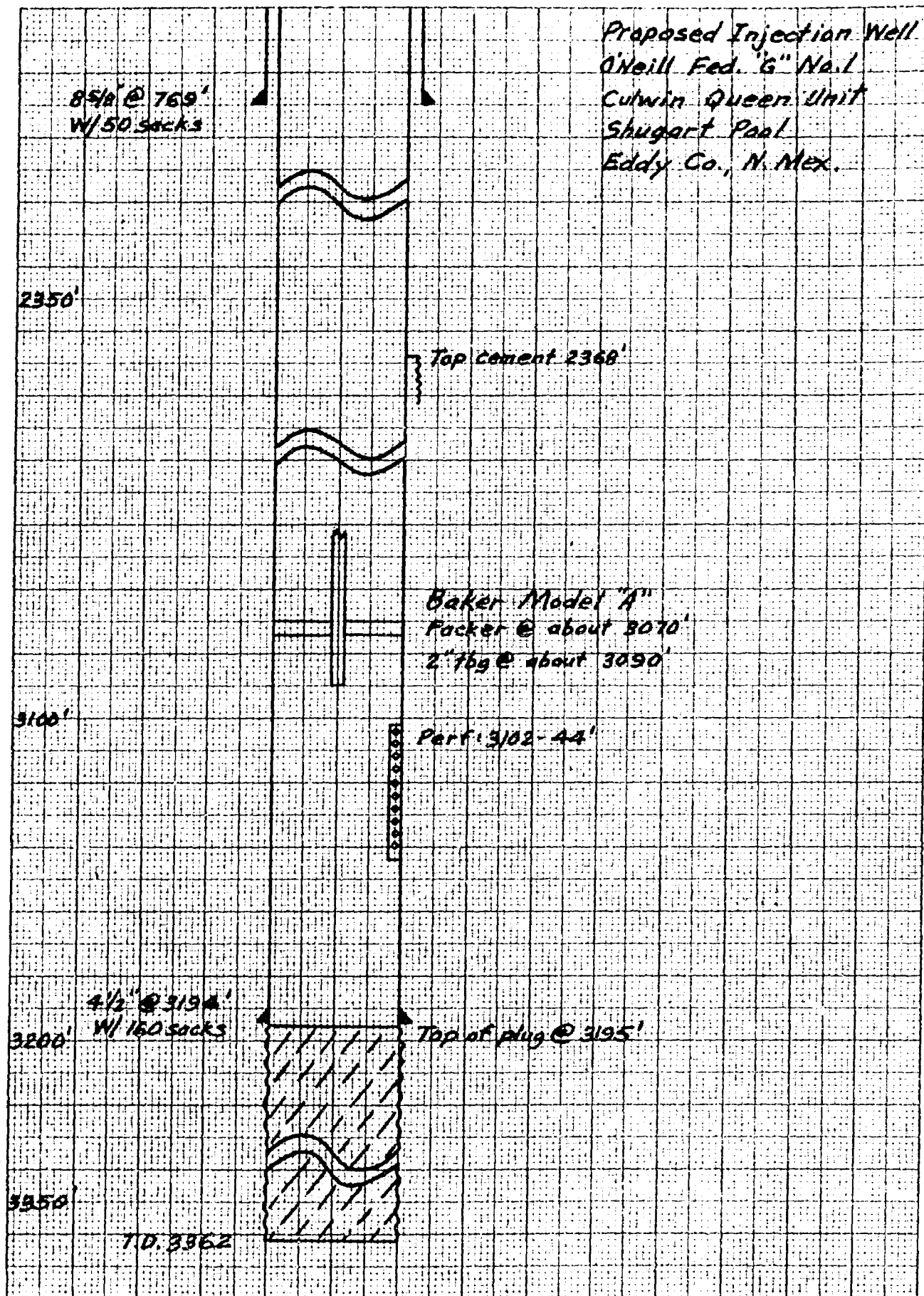


EXHIBIT "D"

K-E 10 X 10 TO THE 1/4 INCH 359T-11G
KEUFFEL & ESSER CO. MADE IN U.S.A.
ALUMINUM

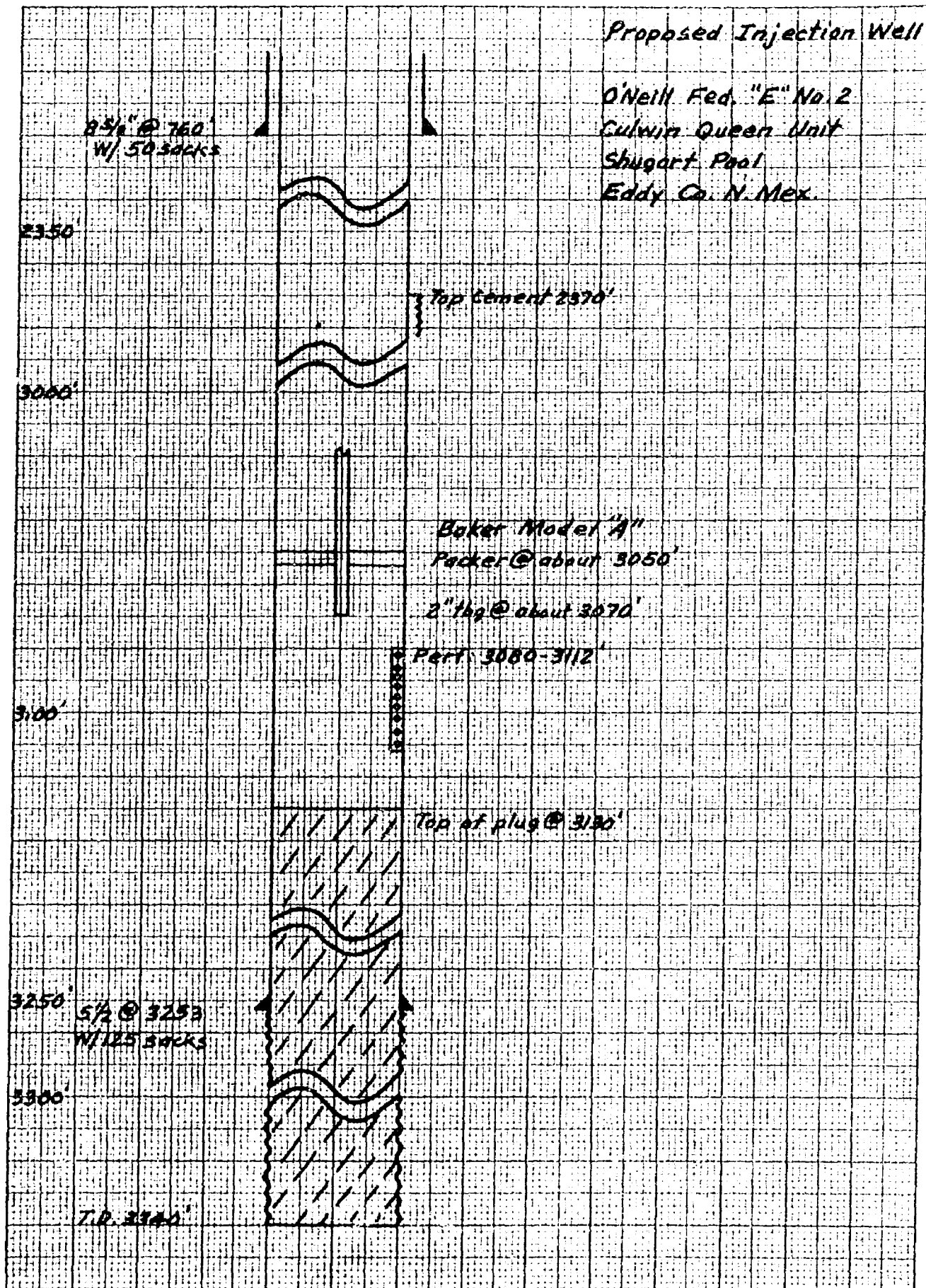


EXHIBIT "E"

K&E 10 X 10 TO THE 1/2 INCH 359T-11G
KEUFFEL & ESSER CO. MADE IN U.S.A.
ALBANY, N.Y.

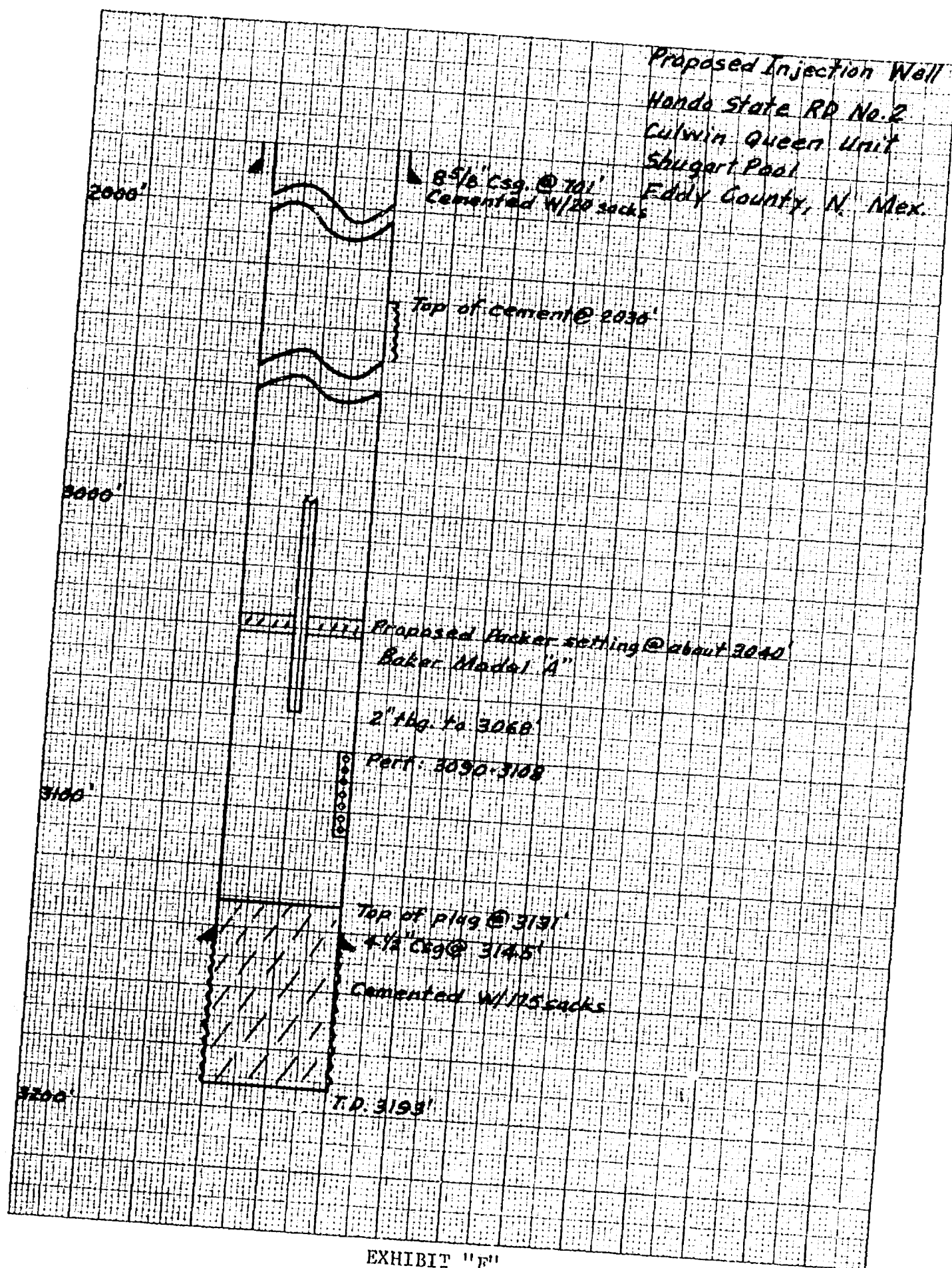


EXHIBIT "F"

10 X 10 TO THE 1/2 INCH 359T-11G
KEUFFEL & ESSER CO. MADE IN U.S.A.
ALBANY, N.Y.

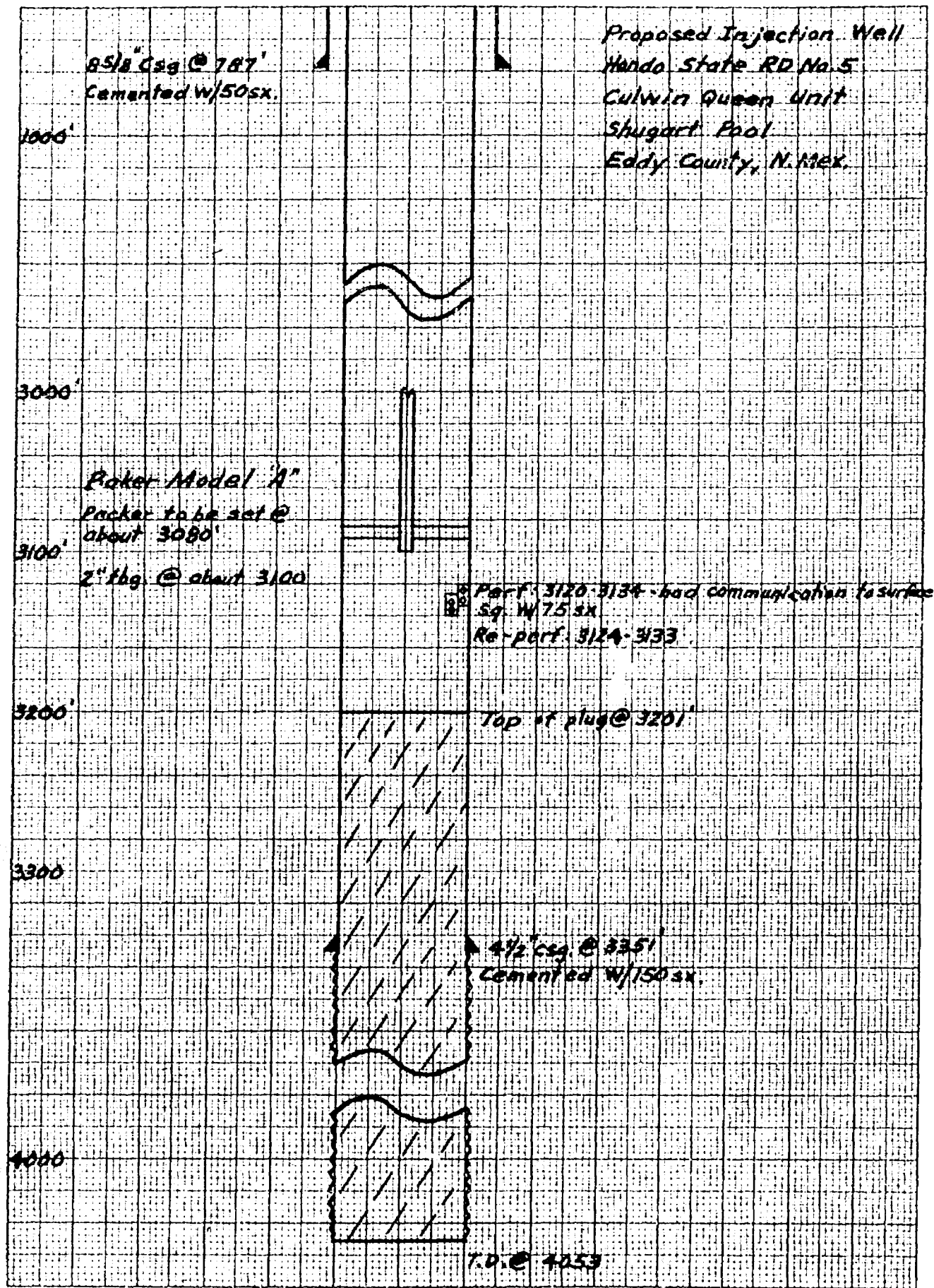


EXHIBIT "G"

K-Σ 10 X 10 TO THE 1/2 INCH 359T-11G
KEUFFEL & ESCHER CO. MADE IN U.S.A.
ALUMINUM

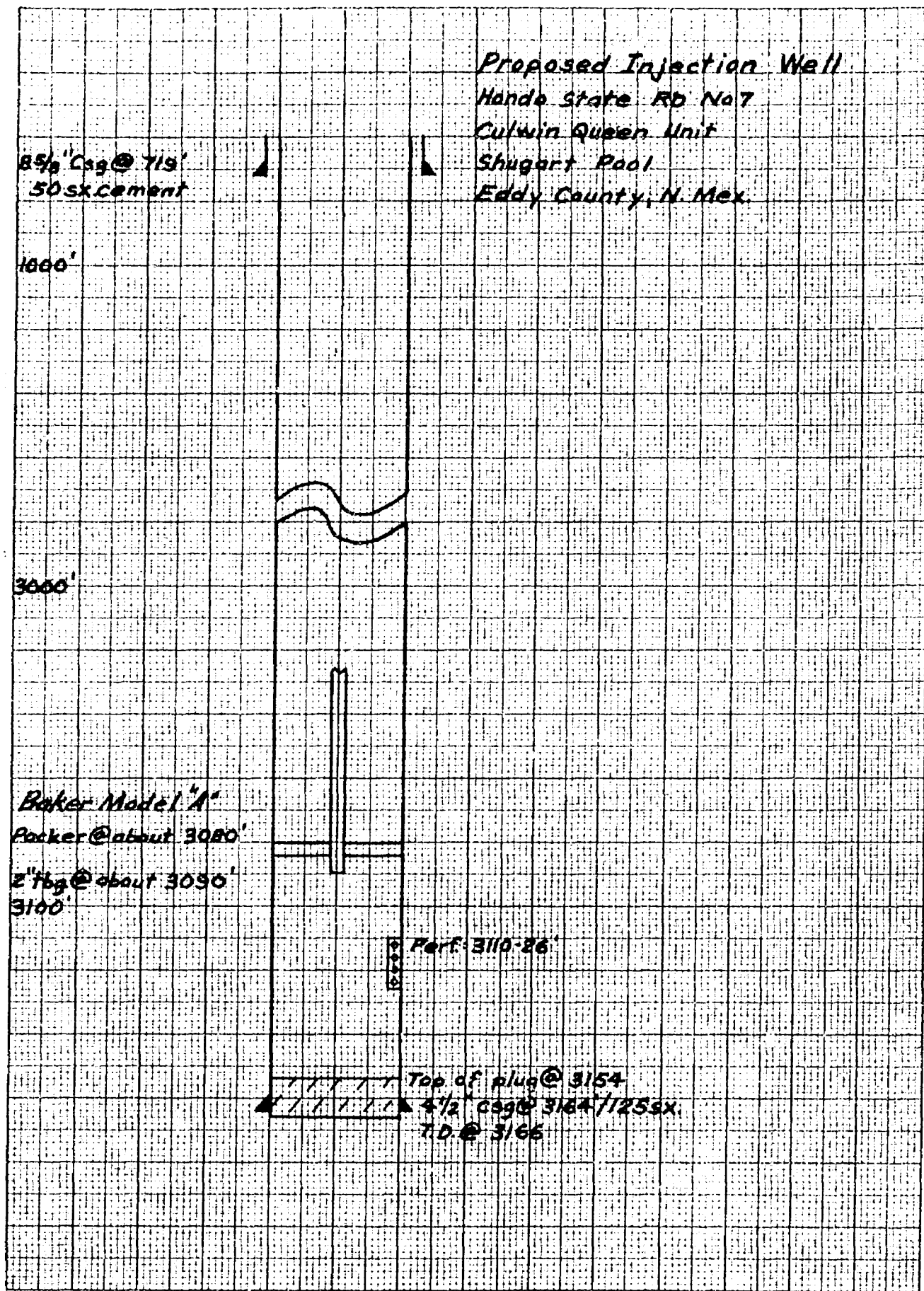


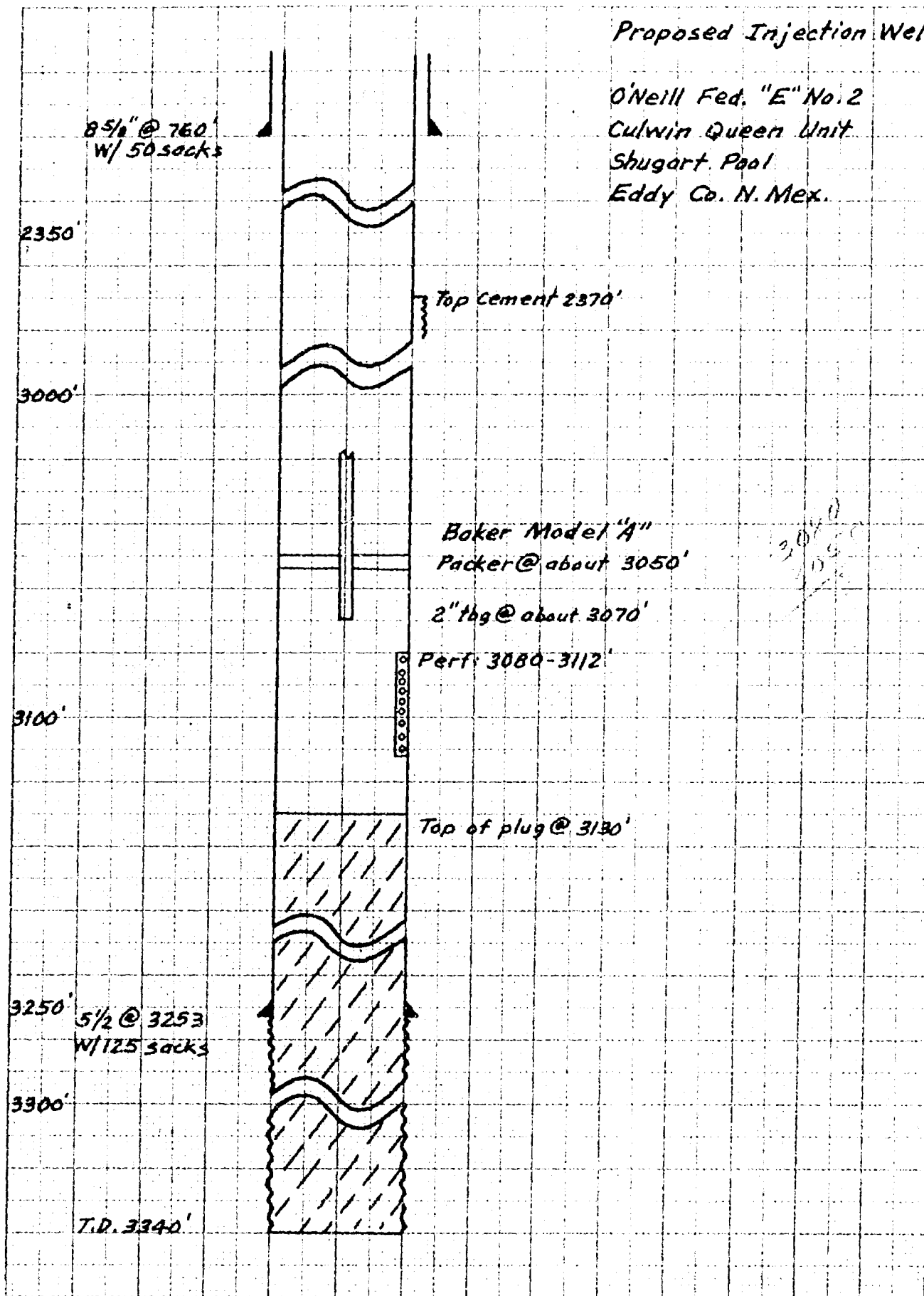
EXHIBIT "H"

PROPOSED INJECTION WELL

Exhibit 5 A

Proposed Injection Well

O'Neill Fed. "E" No. 2
Culwin Queen Unit
Shugart Pool
Eddy Co. N. Mex.



NO. 2 10X10 TO THE INCH 3507-11G
KELLEY & CO. INC.
HOUSTON, TEXAS

B

Proposed Injection Well
O'Neill Fed. "G" No. 1
Culwin Queen Unit
Shugart Pool
Eddy Co., N. Mex.

8 5/8" @ 769'
w/ 50 sacks

2350'

Top cement 2368'

Baker Model "A"
Packer @ about 3070'
2" tbg @ about 3090'

3100'

Perf. 3102-44'

4 1/2" @ 3194'
w/ 160 sacks

Top of plug @ 3195'

3200'

3350'

T.D. 3362

10 X 10 TO 100 INCH 350T-110
K-2 WESTERLY 6-11-50
RECORDED

3102-44'
3107-44'
3112-44'

C

Proposed Injection Well

Trigg Fed. No. 1
Culwin Queen Unit
Shugart Pool
Eddy Co., N. Mex.

8 5/8" @ 734'
w/ 50 sacks

2650'

Top Cement about 2671'

3080
50' 10"
20

3000'

Baker Model "A"
Packer @ about 3070'

2 7/8" tbg. @ about 3085'

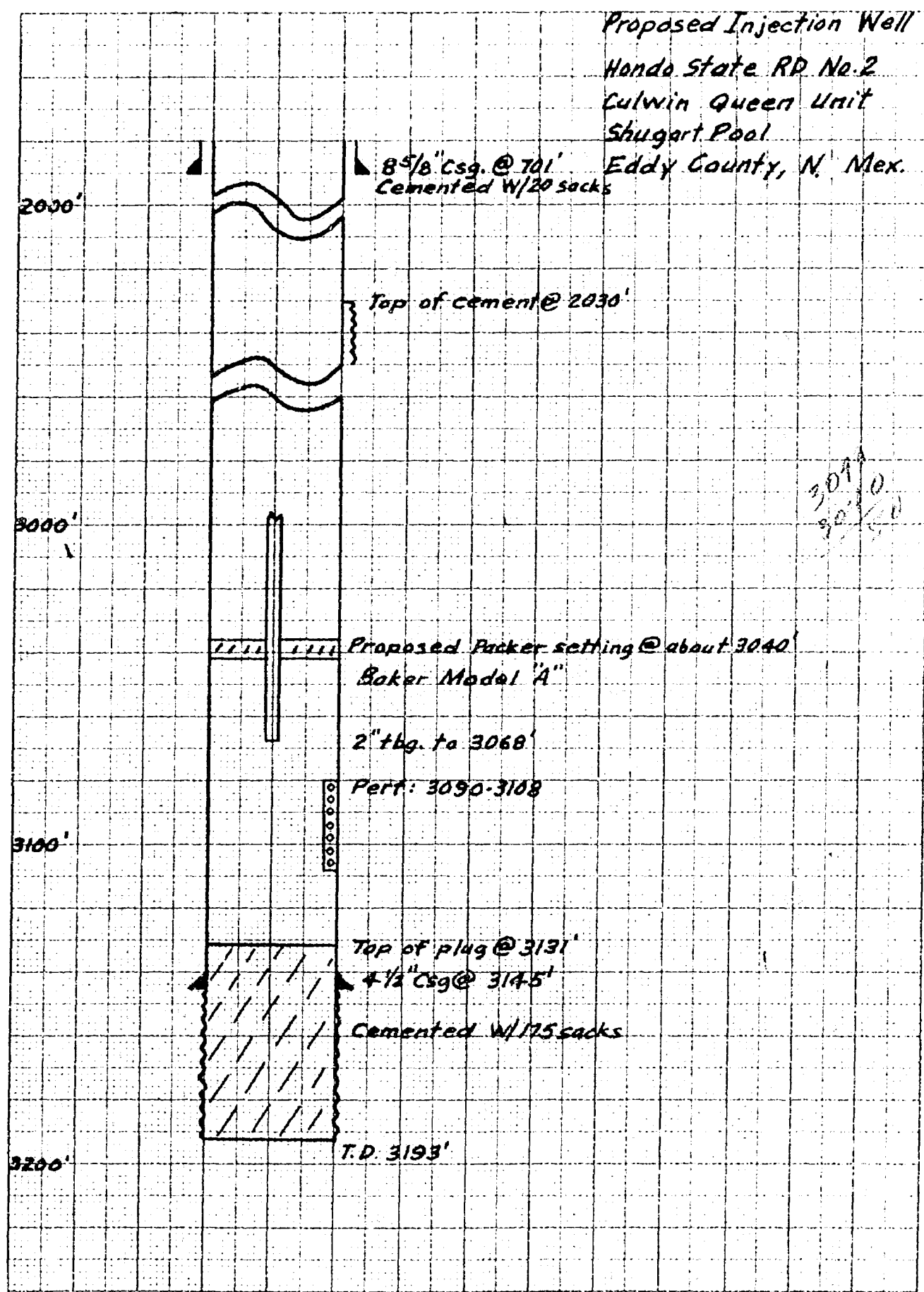
3100'

4 1/2" @ 3090 w/ 100 sacks

T.D. 3144'

K&S 10 X 10 TO THE 1/2 INCH 350T-116
KEUFFEL & ESSER CO. MAY 1952
ALBANY, N.Y.

D



NO. 10 X 10 TO THE INCH 350T-116
ALBANY, N.Y.

F

Culwin Queen Unit

Eddy County, N. Mex.

1000'

Estimated Top Cement 2800'

3000

| | |
|----|---|
| 31 | 0 |
| 20 | 8 |
| 20 | 0 |

2"fbg @ about 3090'

3100'

Perf. 370-26'

Top of plug @ 3154

4 1/2" csg @ 3164' / 125sx.

T.D. @ 3166

359T-110
10X10 TO THE BRANCH
ALBUQUERQUE, NM
ALBUQUERQUE

RECEIVED
NOV 11 1964

HINKLE, CLARENCE E. & SONS
HINKLE, NEW MEXICO

November 10, 1964

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

Dear Mr. Porter:

Reference is made to the application of Atlantic Refining Company submitted by Clarence E. Hinkle which seeks approval of the Culwin Queen Unit Waterflood Project and the conversion of the following wells to water injection:

Trigg Fed. No. 1
O'Neill Fed. "C" No. 1
O'Neill Fed. "E" No. 2
Hondo State RD No. 2
Hondo State RD No. 5
Hondo State RD No. 7

This office offers no objection to the granting of this application, provided the packers on the tubing strings are set well below the known tops of the cement surrounding the production casing in each well.

Yours truly,

S. E. Reynolds
State Engineer

FBI/ma
cc-C. E. Hinkle
Atlantic Refining Co.
F. H. Hennighausen

By:
Frank E. Irby
Chief
Water Rights Div.

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

EXHIBIT NO. 2

DATE 3/5/64

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 15, 1964

EXAMINER HEARING

IN THE MATTER OF:

APPLICATION OF ATLANTIC REFINING COMPANY FOR
A UNIT AGREEMENT, EDDY COUNTY, NEW MEXICO

Case No. 3154

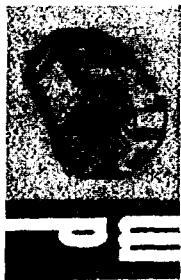
APPLICATION OF ATLANTIC REFINING COMPANY FOR
A WATERFLOOD PROJECT, EDDY COUNTY, NEW
MEXICO

Case No. 3155

BEFORE:

DANIEL S. NUTTER

TRANSCRIPT OF HEARING



MR. NUTTER: Call Case Number 3154--application of Atlantic Refining Company for a unit agreement, Eddy County, New Mexico.

MR. HINKLE: Clarence Hinkle, appearing on behalf of Atlantic Refining Company, of Hinkle, Bondurant & Christy, Roswell, New Mexico. We have two cases today, Number 3154 and Number 3155. We have one witness, and the testimony of this witness will overlap. For that reason we would like to have the two cases consolidated for the purpose of taking testimony.

MR. NUTTER: We will also at this time call Case Number 3155, being the application of Atlantic Refining Company for a waterflood project, Eddy County, New Mexico. Is there an objection to consolidation of the two cases for the purpose of taking testimony? ... The two cases will be consolidated.

MR. HINKLE: I'd like to have Mr. Trimble sworn.

R I C H A R D L. T R I M B L E thereupon was sworn, took the stand, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, please.

A Richard L. Trimble.

Q By whom are you employed?

A Atlantic Refining Company.

Q What is your position at Atlantic Refining Company?

A I am a special projects engineer working out of Roswell.

Q Have you ever testified before the New Mexico Oil Conservation Commission?

A No, I have not.

Q Are you a graduate petroleum engineer?

A Yes, I am.

Q Of what university?

A University of Pittsburgh in 1943.

Q With what degree?

A A BS degree in petroleum.

Q How long have you been employed by Atlantic Refining Company?

A Since 1951.

Q Have you held different positions with Atlantic Refining Company?

A Yes, I have been the district engineer at Houston; following that I was a senior production engineer in Dallas. More recently I have been working out of Roswell.

Q Are you familiar generally with oil development in southeastern New Mexico?

A Yes.

Q Are you familiar with the application of Atlantic in these cases which are under consideration?

A Yes, sir.

Q --Which cases are Number 3154 and Number 3155?

A Yes, sir.

Q Are you familiar with the development of the Culwin Queen area?

A Yes, I am.

Q Is that known as the Shugart Pool?

A Right.

Q Have you made a study of this particular pool?

A Yes, sir, I have.

MR. HINKLE: Are the witness's qualifications acceptable?

MR. NUTTER: Yes, sir, they are. Please proceed.

Q (MR. HINKLE) Mr. Trimble, would you refer to Atlantic's Exhibit 1 and explain to the Commission what this is--what it shows.

A Exhibit 1 is a plat showing outline of the proposed unit area for the Queen zone. It shows the ownership of leases both within the unit and outside the unit. It shows the locations of wells both within the proposed unit area and outside of the unit area, and the zones of completion of all wells within an area of about two miles.

Q Does it also show the proposed injection wells?

A Yes, sir, it shows in triangles within the proposed unit area the proposed injection wells.

Q Have you prepared a structural map of this particular

area?

A Yes, sir.

Q I refer to Atlantic's Exhibit Number 2, which purports to be a structural map, and will you explain that to the Commission.

A This is a structural map of the pool with contours drawn on top of the Queen zone. At the right-hand side of this map is an insert showing a typical well log with the top of the Queen zone marked and the base of the Queen zone marked. Also in red outline is shown the outline of the proposed Culwin Queen unit in red. In red triangles are shown the proposed injection wells. The injection well in the center of the unit is dashed in. It is a possibility for a later injection well, and we do not intend to inject into it initially.

Q Are there five proposed injection wells at the present time, and one in the future?

A Right.

Q In your opinion, are all of the wells within the proposed unit area producing from the same reservoir or pool?

A Yes, sir, they are. This has been demonstrated through performance of the individual wells, and also from cross-sectional studies we have made.

Q What are some of the characteristics of the Queen sand formation of the Shugart Pool?

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A The Queen formation is described as sandstone. It is very fine grain, slightly chromatic, slightly shaly sandstone. It has an average porosity of 14%; it has a permeability from less than one up to about ten millidarcies.

Q Has this same formation been successfully flooded in other areas?

A Yes, sir.

Q Why are the boundaries of the proposed unit area shown on Exhibit 2 been designated? Why did you select the boundary as you did.

A We chose this boundary because we feel that it pretty well follows the production limits of the Queen zone here, and also it is an area that is somewhat isolated from other Queen zone producers, and we thought it seemed to be the logical area.

Q Have all of the wells within the proposed unit area reached an advanced stage of completion at the present time?

A Yes, sir, they have.

Q Do you have any information as to the original potential of the wells within the proposed unit area upon completion, and their capacity to produce at the present time?

A Yes, sir. This is shown in Exhibit 3, which is well data on all 18 wells within the proposed Culwin unit. It shows the date of completion, the 24-hour initial production of oil and water, and shows the daily production as of September, 1964,

of oil, gas and water. The entire pool in September 1964 was producing about 51 barrels of oil, 32 NCF of gas and 28 barrels a day of water. The oil production is less than three barrels per well per day.

Q Are you familiar with the proposed unit agreement that has been filed with the application in this case?

A Yes, sir.

Q Who is designated in that unit agreement as the unit operator?

A Hondo Oil and Gas Company.

Q Is Hondo a wholly owned subsidiary of the Atlantic Refining Company?

A Yes.

Q Under the terms of the proposed unit agreement, what formations do you propose to unitize?

A We propose to unitize only the Queen zone as established by the Oil Conservation Commission as the Queen formation part of the Shugart Pool. This is also defined in the unit agreement as the Queen zone, found between depths of 3,060 to 3,120 in the Hondo Oil and Gas Company State RD 2, which well is located 1,860 feet from the east line and 540 feet from the south line of Section 36, Township 1, 18 South, Range 30 East.

Q Do you have a copy of that log?

A Yes, sir.

Q That is Exhibit 4?

A Yes.

Q Would you refer to Exhibit 4 and explain to the Commission the zone which you have testified to.

A Exhibit 4 is a gamma ray neutron log of Hondo Oil and Gas Company State RD 2, and it shows the top of the Queen sand at 3,060 feet and the bottom at 3,120 feet.

Q This well is specifically identified in the unit agreement?

A Yes, sir.

Q --For the purpose of making it certain as to the zone which is being unitized?

A Yes, sir.

Q In connection with the application for approval of the waterflood project, you attached to the application diagrammatic sketches of the proposed injection wells, showing the casing and where the tops were cemented and so forth?

A Yes, sir.

Q Do you have copies of these exhibits?

A Yes, sir, these are Exhibits 5A, B, C, D, E and F.

Q Are these the same exhibits which were attached to the application?

A These are the same, with the exception of Exhibits 5E and F, on which we have added the cement tops.

Q You did not have those available at the time the application was prepared?

A No, sir, we did not.

Q But they do now show that?

A Right.

Q Do you know whether or not the State Engineer has indicated that he has any objection to the use of the proposed injection wells?

A I understand that the State Engineer wrote a letter dated November 10, 1964 to the Oil and Gas Commission in which no objection was offered providing the packers were set on tubing and that packers were set below the top of known cement.

Q Is there any reason why this requirement of the State Engineer cannot be complied with?

A No, sir.

Q Do you propose to do that, in using these wells as injection wells?

A Yes, sir.

Q Have you prepared or caused to be prepared, a plat showing performance of wells which have been completed in the Queen sand in the proposed unit area?

A Yes, sir.

Q Referring to what I believe is Exhibit 6, will you explain what it shows.

A Exhibit 6 is a performance plat for all 18 wells within the Culwin Queen sand proposed unit, and shows the monthly oil production, cumulative oil production versus time, the number of completions, the gas ratio and the percent of water. The pool reached its full development in 1960. It reached the production peak of about 9,750 barrels of oil per month in 1960, and then immediately thereafter declined, and very rapid decline has taken place, and during September 1964 production was down to 1,674 barrels per month, which is about three barrels per day. All the wells are pumping. The cumulative production to 10-1-64 has been about 303,000 barrels of oil.

MR. NUTTER: What was the date?

A 10-1-64.

MR. HINKLE: Have you attempted to make an estimate as to probable recovery which might be expected by reason of the waterflood project?

A Yes, sir.

Q Would you give us those figures.

A We estimate 390,000 barrels of waterflood recovery.

Q Has this proposed unit area been approved by the USGS?

A Yes, sir, we have had some informal discussions with the Roswell office, and they offer no objection to the unit area.

Q In other words, they have informally approved the unit area, but the director of the USGS in Washington has not approved?

A Yes.

Q But you don't anticipate any difficulty in that regard?

A No.

Q Is the proposed form of unit agreement in substantially the same form as the forms heretofore approved by the director of the USGS and Commander of Public Lands where both federal and state lands have been involved?

A Yes, sir.

Q Have all lease-owners within the proposed unit been contacted with respect to joining in the unit agreement?

A Yes, sir.

Q What has been their attitude?

A They have all agreed to come into the unit.

Q Do you expect to have 100% commitment of the leases held within the area?

A Yes.

Q In your opinion, will the project be in the interest of conservation and prevention of waste?

A Yes.

Q In your opinion, will the agreement as to waterflood

project, protect correlative rights and promote the greatest recovery?

A Yes, sir.

MR. HINKLE: I'd like to offer into evidence Atlantic's Exhibits 1 through 6, inclusive.

MR. NUTTER: Atlantic's Exhibits 1 through 6, inclusive, in cases Number 3154 and 3155 will be admitted into evidence.

MR. HINKLE: That's all of our testimony.

MR. NUTTER: Are there any questions of Mr. Trimble? ...Mr. Trimble, you mentioned that you did have tentative approval from the USGS as to approval of the unit agreement?

A Yes, sir.

Q And I presume this would be inclusive of approval of the waterflood operation too?

A Yes, sir.

Q How about the State Land Office?

A As I understand, we have had informal discussion but nothing official from them as yet.

Q As to the waterflood or the unit?

A Either one.

Q You mentioned a letter of November 10th from the State Engineer. I have looked through the files of both these cases and I find a letter dated October 30th, in which he objected to a couple of these wells' casing or cementing program.

A correction was made of the situation to which he was objecting and another letter was written subsequent to that?

A Yes--here is a copy.

MR. NUTTER: I would appreciate a copy in the event we don't have one. Would you like to have that identified as an exhibit?

MR. HINKIE: We would like to offer in evidence Exhibit 7, being a letter from the State Engineer to Al Porter, Jr., under the date November 10, 1964.

MR. NUTTER: In this letter Mr. Frank Irby states, "This office offers no objection to granting of the application provided packers on the tubing strings are set well below known tops of cement surrounding production casing in each well." Is this your intent?

A Yes, sir.

Q On your Exhibit 5 you have the tops of cement indicated on seven of the wells, until we get to Number F. F is given as an estimated top--the others are strictly "top." Are the others temperature surveys?

A The others are temperature surveys. This was calculated top of cement.

Q How much cement was used on that string of casing?

A 2,125 sacks.

Q What would be the source of the water for the water-

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flood project?

A We intend to buy the water from Caprock, and as the flood progresses, to use produced water.

Q The water will be re-cycled?

A Yes, sir.

Q Do you have any estimate as to projection rates and pressures?

A We are designing a plant to handle 2,000 barrels a day at 2,000 pounds.

Q Initially you will start with the five wells around the field?

A Right, and depending upon performance, we may convert the center well to injection.

Q If you are going to be injecting 2,000 barrels a day it would be an average of 400 barrels per well per day?

A Right.

Q What is the formula for participation of the various tracts?

A It is based on ultimate primary recovery.

Q Is that the only parameter that is considered?

A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Trimble? ... He may be excused. Do you have anything further to offer, Mr. Hinkle?

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

MR. NUTTER: Does anyone have anything they want to offer in Cases Number 3154 and 3155? We will take the cases under advisement.

* * *

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, ELIZABETH K. HALE, Court Reporter and Notary Public, do certify that the foregoing transcript in Cases Number 3154 and 3155 is a true and accurate record of proceedings to the best of my knowledge, skill and ability.

Witness my hand and seal this 17th day of December, 1964.

Elizabeth K. Hale
Notary Public and Court Reporter

My commission expires:

May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3154-3155 heard by me on 12/15, 1964.

[Signature], Examiner
New Mexico Oil Conservation Commission

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
November 24, 1964

EXAMINER HEARING

IN THE MATTER OF:
APPLICATION OF ATLANTIC REFINING COMPANY
FOR A UNIT AGREEMENT, EDDY COUNTY, NEW
MEXICO

Case No. 3154 and
3155

BEFORE:
DANIEL S. NUTTER

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order. We will take the next case, Case Number 3154.

MR. DURRETT: Application of Atlantic Refining Company for a unit agreement, Eddy County, New Mexico.

MR. NUTTER: We will also call Case Number 3155.

MR. DURRETT: Application of Atlantic Refining Company for a waterflood project, Eddy County, New Mexico. If the Examiner please, I'd like to state for the record that we have received a letter from Mr. Clarence Hinkle, representing the applicant in this case, stating that there has been a delay in having the proposed unit area designated as an area logically subject to unitization. They accordingly request a delay or a continuance for this reason, to the last Examiner's hearing in December, which I believe will be the only hearing held in December.

MR. NUTTER: Cases Number 3154 and 3155 will be continued to the Examiner hearing at nine A. M. at this same place, before the same Examiner, on December 15, 1964.

* * *

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do certify that the proceedings in the foregoing cases, Numbers 3154 and 3155, were taken and transcribed by me and that the same

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PAGE 3

are true and correct to the best of my knowledge, skill and ability.

In witness whereof, my hand and seal of office this 28th day of December, 1964.

W. J. K. Hale
Notary Public and Court Reporter

My commission expires:

May 23, 1968.

I hereby certify that the foregoing is a complete record of the proceedings in an Examiner hearing of Case No. 3154-3155 held by me on 11/24, 1964.

[Signature] Examiner
New Mexico Oil Conservation Commission