

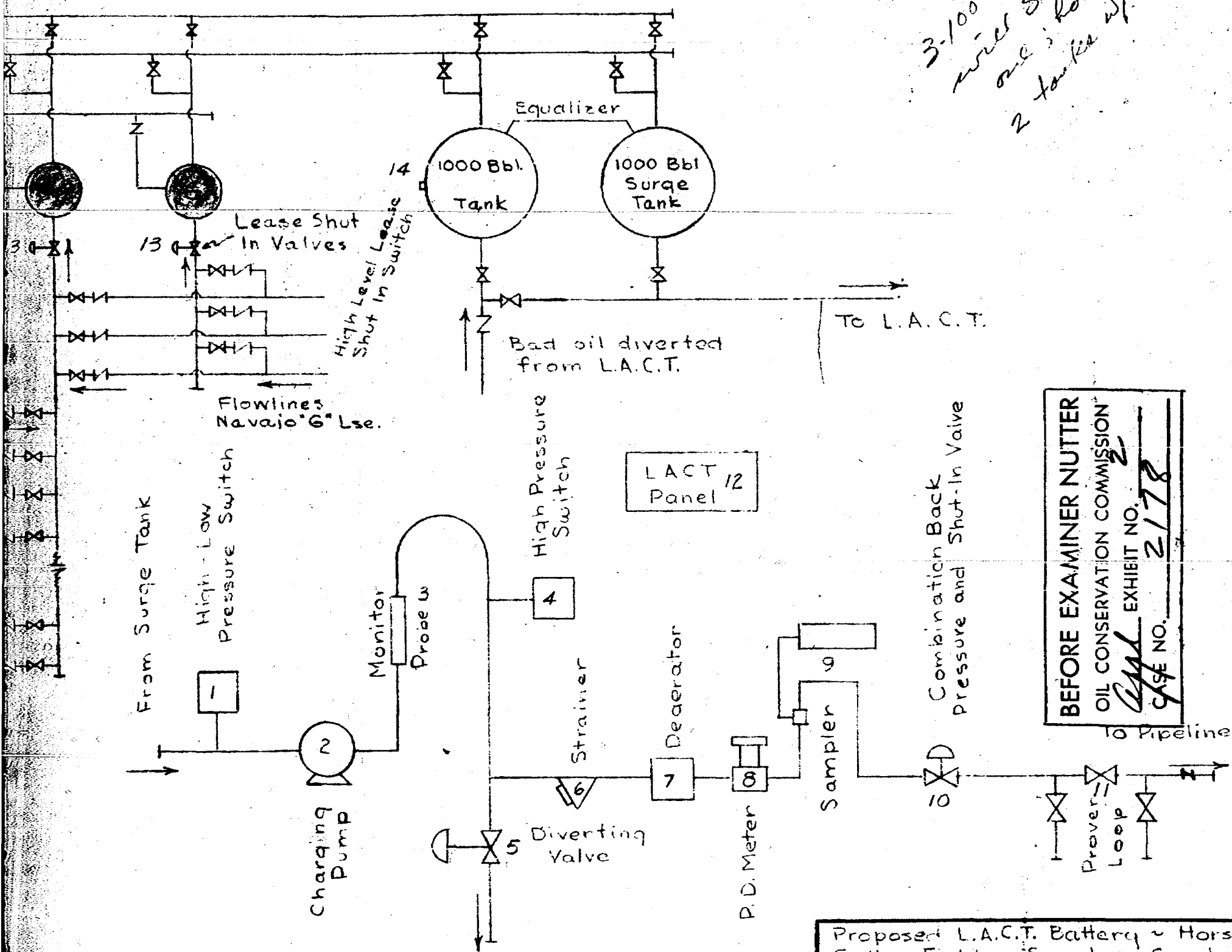
CASE 2178: Application of HUMBLE  
for permission to commingle from  
wells on Navajo "F", "G" and "M"  
Lease.

*Amendment  
to R-1406  
or supersede*

Case No.

2178

Application, Transcript,  
Small Exhibits, Etc.



BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 2  
CASE NO. 2178

Proposed L.A.C.T. Battery ~ Horseshoe  
Gallup Field ~ San Juan County, N.M.  
~ Navajo Tribe of Indians "F", "G", & "M"

HUMBLE OIL & REFINING COMPANY  
ENGINEERING DIVISION

DRAWN LNP  
CHECKED  
APPR.

SCALE None  
DATE 1/10/61  
REVISED

FILE NO.

Exhibit 2

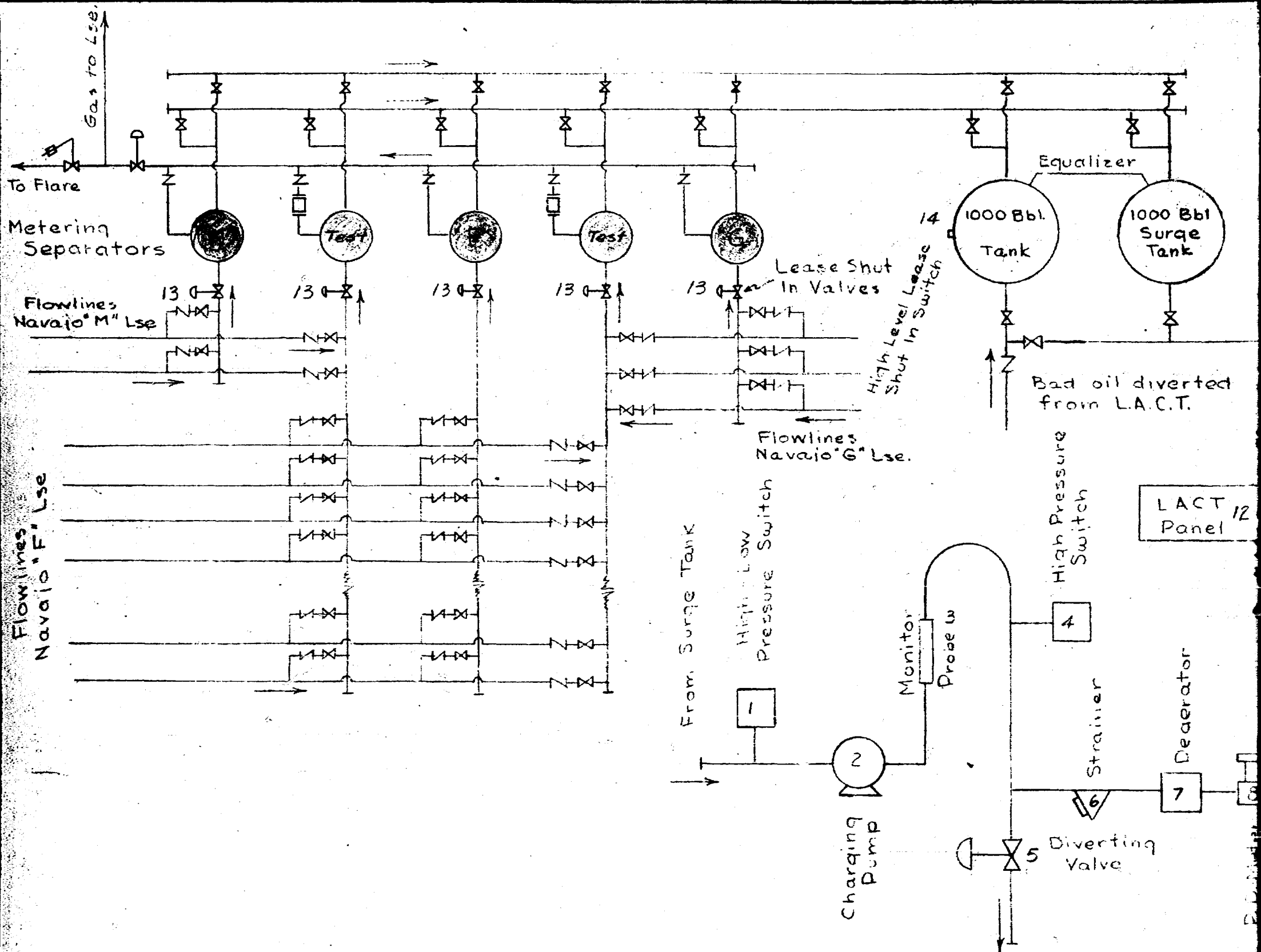
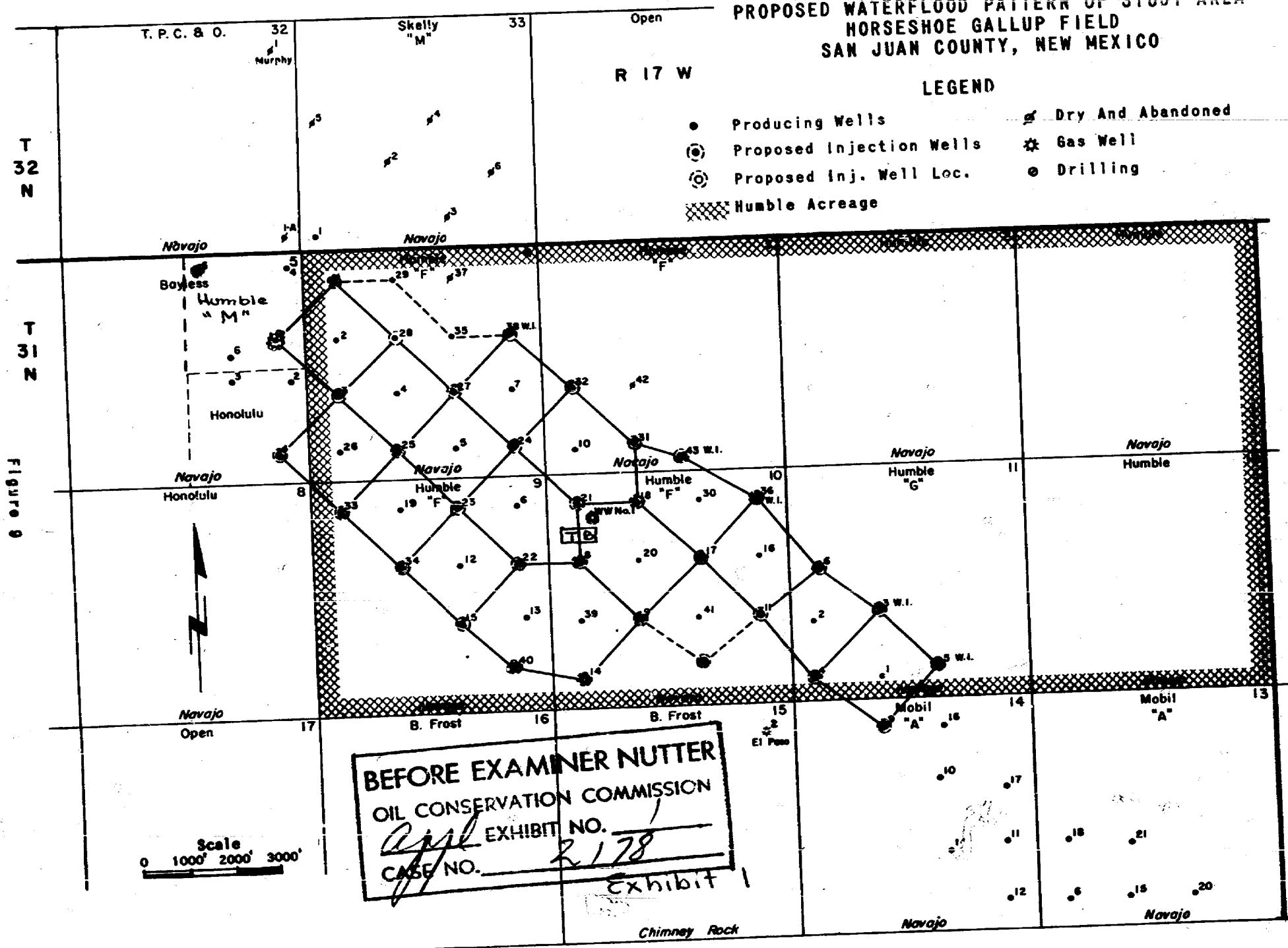


Exhibit 2

PROPOSED WATERFLOOD PATTERN OF STUDY AREA  
HORSESHOE GALLUP FIELD  
SAN JUAN COUNTY, NEW MEXICO

LEGEND

- Producing Wells
- ⊙ Proposed Injection Wells
- ⊙ Proposed Inj. Well Loc.
- ▨ Humble Acreage
- ⊘ Dry And Abandoned
- ✱ Gas Well
- ⊙ Drilling



DRAFT

RSM/esr  
February 13, 1961

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. 2178  
Order No. R-1874

2/13 APPLICATION OF HUMBLE OIL & REFINING  
COMPANY FOR PERMISSION TO COMMINGLE  
THE PRODUCTION FROM SEVERAL SEPARATE  
LEASES, AND FOR AN AUTOMATIC CUSTODY  
TRANSFER SYSTEM, SAN JUAN COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 8, 1961, at Santa Fe, New Mexico, before Daniel S. Nutter Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this \_\_\_\_\_ day of February, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, 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, Humble Oil & Refining Company, is the owner and operator of the following-described leases located in Township 31 North, Range 17 West, NMPM, San Juan County, New Mexico:

Navajo "F" Lease, consisting of all of Sections 3, 4, 9, and 10

Navajo "G" Lease, consisting of all of Sections 1, 2, 11, and 12

Navajo "M" Lease, consisting of the NE/4 of Section 5.

(3) That the applicant proposes to commingle the Horseshoe-Gallup Oil Pool production from all wells presently completed or hereafter drilled on the above-described leases.

(4) That by Order No. R-1406 authorization was granted to commingle the production from the above-described Navajo "G" and Navajo "F" Leases, which order should now be superseded.

(5) That the applicant further proposes to install an automatic custody transfer system to handle the commingled production.

(6) That the previous use of automatic custody transfer equipment, similar to that proposed by the applicant, has shown that such equipment is a reliable and economic means of transferring the custody of oil and that the use of such equipment should be permitted, provided adequate safety features are incorporated therein.

(7) That approval of the subject application will neither cause waste nor impair correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Humble Oil & Refining Company, is hereby authorized to commingle the Horseshoe-Gallup Oil Pool production from all wells presently completed or hereafter drilled on the following-described leases in Township 31 North, Range 17 West, NMPM, San Juan County, New Mexico:

Navajo "F" Lease, consisting of all of Sections 3, 4, 9, and 10

Navajo "G" Lease, consisting of all of Sections 1, 2, 11, and 12

Navajo "M" Lease, consisting of the NE/4 of Section 5.

(2) That Order No. R-1406 is hereby superseded.

(3) That the applicant is hereby authorized to install automatic custody transfer equipment to handle said commingled production.

PROVIDED HOWEVER, That the applicant shall install adequate facilities to permit the testing of all wells located on the above-described leases at least once each month to determine the individual production from each well.

PROVIDED FURTHER, That in order to prevent the overflow and waste of oil in the event the automatic custody transfer system fails to transfer oil to the pipeline, the applicant shall add

additional storage facilities from time to time, as it becomes necessary, to store the production which will accrue during the hours that said leases <sup>are</sup> ~~are~~ unattended, or in the alternative, shall so equip the existing facilities as to automatically shut-in the lease production at the wellhead in the event the storage facilities become full.

IT IS FURTHER ORDERED:

That all meters used in the above-described automatic custody transfer system shall be operated and maintained in such a manner as to ensure an accurate measurement of the liquid hydrocarbon production at all times.

That meters shall be checked for accuracy at least once each month until further direction by the Secretary-Director.

That meters shall be calibrated against a master meter or against a test tank of measured volume and the results of such calibration filed with the Commission on the Commission form entitled "Meter Test Report."

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

PROVIDED FURTHER, That if <sup>the</sup> applicant finds it necessary to add treating facilities to the proposed installation and/or, <sup>if applicant</sup> should ~~remove~~ plan to remove one of the 1000-barrel tanks ~~in the~~ from the proposed installation, ~~it~~ <sup>he</sup> shall notify the Santa Fe office of the Commission of the proposed modification of the installation and shall accompany such notification by a schematic drawing of the ~~in the~~ installation as proposed.



121-1000  
J. M. HERVEY 1874-1953  
HIRAM M. DOW  
CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
GEORGE H. HINKLE, JR.  
HOWARD C. BRATTON  
S. B. CHRISTY IV  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD

LAW OFFICES  
HERVEY, DOW & HINKLE  
HINKLE BUILDING  
ROSWELL, NEW MEXICO  
January 6, 1961

*Jan 21/78*  
TELEPHONE MAIN 2-6510  
POST OFFICE BOX 547

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

IN RE: APPLICATION OF HUMBLE OIL & REFINING COMPANY  
FOR AN AMENDMENT TO ORDER R-1406 TO INCLUDE ADDITIONAL  
ACREAGE FOR THE COMMINGLING OF PRODUCTION FROM SEPARATE  
LEASES IN HORSESHOE-GALLUP OIL POOL AND PERMISSION TO  
PRODUCE MORE THAN 16 WELLS INTO A COMMON TANK BATTERY,  
AND FOR PERMISSION TO INSTALL AN AUTOMATIC CUSTODY  
TRANSFER SYSTEM

Comes now Humble Oil & Refining Company and requests that  
permission be granted to do the following:

1. Commission Order R-1406 approved the commingling of  
production from the Horseshoe-Gallup Pool from Humble's  
Navajo "F" Lease composed of Sections 3, 4, 9 and 10,  
Twp. 31 North, Rge. 17 West, and Humble's "G" Lease com-  
posed of Sections 1, 2, 11 and 12, Twp. 31 North, Rge.  
17 West.

It is now requested that Order R-1406 be amended to include  
Humble's Navajo "M" Lease composed of the NE $\frac{1}{4}$  Section 5, Twp.  
31 North, Rge. 17 West, N.M.P.M.

2. Permission is requested to install an automatic custody  
transfer system to handle all of the production from the  
above described Navajo "F" "G" and "M" leases in the Horse-  
shoe-Gallup pressure maintenance project, which was author-  
ized by Order R-1745 and expanded by administrative order  
PMX No. 1.

It is requested that this matter be set down for hearing  
before an examiner at the earliest possible date.

Very truly yours,

HERVEY, DOW & HINKLE

*Howard C. Bratton*  
Howard C. Bratton

*Decker*  
*Mailed*  
*1-30-61*  
HCB:lm

cc: Henry E. Meadows  
Humble Oil & Refining Co.  
Midland, Texas

OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date 2/10/61

CASE 2178

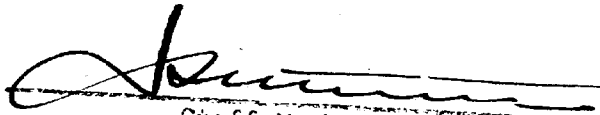
Hearing Date 9 am 2/8/61 DSN@SF

My recommendations for an order in the above numbered cases are as follows:

Enter an order authorizing ~~himself~~ to  
commingle production from Horsehoe Gallup  
Oil Pool underlying Navajo F, Navajo G  
& Navajo M leases, ~~etc~~ and to transfer  
custody by means of ACT.

Order R-1404 authorizing commingling  
between G & F less and should  
be superseded.

Provide usual order w/ monthly  
meter test requirement,

  
Staff Member  
Examiner

No. 4-61

DOCKET: EXAMINER HEARING - WEDNESDAY, FEBRUARY 8, 1961

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Oliver E. Payne, Attorney, as alternate examiner:

- CASE 2171: Application of Amerada Petroleum Corporation for permission to commingle the production from several separate pools and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the production from the Justis-Blinebry, Justis-Drinkard, Justis-Fusselman, and an undesignated 5000 foot pay zone from all wells presently completed or hereafter drilled on the Ida Wimberley Lease comprising portions of Sections 24, 25 and 26, Township 25 South, Range 37 East, Lea County, New Mexico. Applicant further seeks permission to install an automatic custody transfer system to handle said commingled production.
- CASE 2172: Application of Rice Engineering & Operating, Inc. for a salt water disposal well. Applicant, in the above-styled cause, seeks an order authorizing the disposal of produced salt water through its Gulf Houston Well No. 1, located 1980 feet from the South and East lines of Section 19, Township 12 South, Range 38 East, Lea County, New Mexico, with injection to be in the Devonian formation in the interval from 12,200 feet to 12,500 feet.
- CASE 2173: Application of Yates Petroleum Corporation for an order force-pooling a 322.4-acre gas proration unit in the Atoka-Pennsylvanian Gas Pool. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Atoka-Pennsylvanian Gas Pool in the S/2 of Section 21, Township 18 South, Range 26 East, Eddy County, New Mexico. Interested parties include J. N. Hawkins, J. W. Potter, William H. Swearingen, Smith B. Crane, Frank F. Coon, A. F. Escobar, Olive E. Harrison, Pan American Petroleum Corporation, Mayme Ressinger, J. R. Raymond, Isabell Gallegos, Alice Heck Martin, Maze Heck Pinnell, Wave Heck Hill.

- CASE 2174: Application of Yates Petroleum Corporation for an order force-pooling a 322.2-acre gas proration unit in the Atoka-Pennsylvanian Gas Pool. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Atoka-Pennsylvanian Gas Pool in the N/2 of Section 28, Township 18 South, Range 26 East, Eddy County, New Mexico. Interested parties include William H. Swearingen, Alice Heck Martin, Maze Heck Pinnell, Wave Heck Hill, J. W. Potter, James W. Hall and Mrs. Lucille Ruddell South.
- CASE 2175: Application of Sunray Mid-Continent Oil Company for an oil-oil dual completion utilizing two strings of casing. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its State "Y" Well No. 1, located in Unit G, Section 32, Township 18 South, Range 31 East, Eddy County, New Mexico, in such a manner as to permit the production of oil from the Culwin-Yates Pool and the production of oil from the North Shugart Queen-Grayburg Pool through parallel strings of 2 7/8-inch casing cemented in a common well bore.
- CASE 2176: Application of Honolulu Oil Corporation for a pressure maintenance project. Applicant, in the above-styled cause, seeks an order authorizing it to install a pressure maintenance project in the Horseshoe-Gallup Oil Pool by the injection of water into the Gallup formation through its Navajo Well No. 4, located in the SE/4 SE/4 of Section 5, Township 31 North, Range 17 West, San Juan County, New Mexico. Applicant further seeks the adoption of special rules governing the operation of said project.
- CASE 2177: Application of Phillips Petroleum Company for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to install an automatic custody transfer system to handle the Corbin-Abo Pool production from all wells presently drilled or hereafter completed on the Eilliams Federal Lease comprising portions of Sections 33 and 34, Township 17 South, Range 33 East, Lea County, New Mexico.
- CASE 2178: Application of Humble Oil & Refining Company for permission to commingle the production from several separate leases and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the

CASE 2178: (Cont.)

Horseshoe-Gallup Oil Pool production from all wells presently completed or hereafter drilled on the Navajo "F" lease, comprising all of Sections 3, 4, 9, and 10, the Navajo "G" lease, comprising all of Sections 1, 2, 11 and 12, and the Navajo "M" lease, comprising the NE/4 of Section 5, all in Township 31 North, Range 17 West, San Juan County, New Mexico. Applicant further seeks permission to install an automatic custody transfer system to handle said commingled production.

CASE 2179:

Application of Drilling and Exploration Company, Inc. for approval of the Mescalero Ridge Unit Agreement. Applicant, in the above-styled cause, seeks approval of the Mescalero Ridge Unit Agreement, which unit embraces 7521 acres of Federal and State lands in Township 19 South, Range 34 East, Lea County, New Mexico.

CASE 2180:

Application of Great Western Drilling Company for an order force-pooling a 40-acre proration unit in the Eumont Gas Pool. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Eumont Gas Pool in the SE/4 NE/4 of Section 32, Township 19 South, Range 37 East, Lea County, New Mexico. Interested parties include Dr. Hans May, B. A. Bowers, Estate of George F. Henneberry, William R. Kershaw, C. B. Neal, Fred Manley, Mae Williams, and W. L. Crutchfield.

CASE 2181:

Application of Gulf Oil Corporation for approval of the Hackberry Hills Unit Agreement. Applicant, in the above-styled cause, seeks approval of the Hackberry Hills Unit Agreement, which unit embraces 13,920 acres in Townships 21 and 22 South, Ranges 25 and 26 East, Eddy County, New Mexico.

**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. 2178  
Order No. R-1874**

**APPLICATION OF HUMBIE OIL & REFINING  
COMPANY FOR PERMISSION TO COMMINGLE  
THE PRODUCTION FROM SEVERAL SEPARATE  
LEASES, AND FOR AN AUTOMATIC CUSTODY  
TRANSFER SYSTEM, SAN JUAN COUNTY,  
NEW MEXICO.**

**ORDER OF THE COMMISSION**

**BY THE COMMISSION:**

This cause came on for hearing at 9 o'clock a.m. on February 8, 1961, at Santa Fe, New Mexico, before Daniel S. Matter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 15th day of February, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Matter, 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, Humble Oil & Refining Company, is the owner and operator of the following-described leases located in Township 31 North, Range 17 West, NEMN, San Juan County, New Mexico:

Navajo "F" Lease, consisting of all of Sections 3, 4, 9, and 10

Navajo "G" Lease, consisting of all of Sections 1, 2, 11, and 12

Navajo "M" Lease, consisting of the NE/4 of Section 5.

(3) That the applicant proposes to commingle the Horseshoe-Gallup Oil Pool production from all wells presently completed or hereafter drilled on the above-described leases.

CASE No. 2178  
Order No. R-1874

(4) That by Order No. R-1406 authorization was granted to commingle the production from the above-described Navajo "G" and Navajo "F" Leases, which order should now be superseded.

(5) That the applicant further proposes to install an automatic custody transfer system to handle the commingled production.

(6) That the previous use of automatic custody transfer equipment, similar to that proposed by the applicant, has shown that such equipment is a reliable and economic means of transferring the custody of oil and that the use of such equipment should be permitted, provided adequate safety features are incorporated therein.

(7) That approval of the subject application will neither cause waste nor impair correlative rights.

**IT IS THEREFORE ORDERED:**

(1) That the applicant, Humble Oil & Refining Company, is hereby authorized to commingle the Horseshoe-Gallup Oil Pool production from all wells presently completed or hereafter drilled on the following-described leases in Township 31 North, Range 17 West, NEPM, San Juan County, New Mexico:

Navajo "F" Lease, consisting of all of Sections 3, 4, 9, and 19

Navajo "G" Lease, consisting of all of Sections 1, 2, 11, and 12

Navajo "H" Lease, consisting of the NE/4 of Section 5.

(2) That Order No. R-1406 is hereby superseded.

(3) That the applicant is hereby authorized to install automatic custody transfer equipment to handle said commingled production.

**PROVIDED HOWEVER,** That the applicant shall install adequate facilities to permit the testing of all wells located on the above-described leases at least once each month to determine the individual production from each well.

**PROVIDED FURTHER,** That in order to prevent the overflow and waste of oil in the event the automatic custody transfer system fails to transfer oil to the pipeline, the applicant shall add additional storage facilities from time to time, as it becomes necessary, to store the production which will accrue during the hours that said leases are unattended, or in the alternative,

-3-  
CASE No. 2178  
Order No. R-1874

shall so equip the existing facilities as to automatically shut-in the lease production at the wellhead in the event the storage facilities become full.

PROVIDED FURTHER, That if the applicant finds it necessary to add treating facilities to the proposed installation and/or if applicant should plan to remove one of the 1000-barrel tanks from the proposed installation, it shall notify the Santa Fe office of the Commission of the proposed modification of the installation and shall accompany such notification by a schematic drawing of the installation as proposed.

IT IS FURTHER ORDERED:

That all meters used in the above-described automatic custody transfer system shall be operated and maintained in such a manner as to ensure an accurate measurement of the liquid hydrocarbon production at all times.

That meters shall be checked for accuracy at least once each month until further direction by the Secretary-Director.

That meters shall be calibrated against a master meter or against a test tank of measured volume and the results of such calibration filed with the Commission on the Commission form entitled "Meter Test Report."

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
EDWIN L. MECHEM, Chairman

  
E. S. WALKER, Member

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

OUT/



GOVERNOR  
JOHN BURROUGHS  
CHAIRMAN

State of New Mexico  
Oil Conservation Commission

LAND COMMISSIONER  
MURRAY E. MORGAN  
MEMBER



P. O. BOX 871  
SANTA FE

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

Mr. Edward Bratten  
Harvey, Dow & Hinkle  
Box 547  
Bernalillo, New Mexico

Re: Case No. 2178  
Order No. B-1874  
Applicant:

Humble Oil & Refining Co.

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

ir/

Carbon copy of order also sent to:

Hobbs OCC X  
Artesia OCC X  
Aztec OCC X

Other \_\_\_\_\_

HUMBLE OIL & REFINING COMPANY

1961 FEB 17 10 1 23

Hobbs, New Mexico  
February 16, 1961

*File 2178*

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

Dear Mr. Porter:

During the recent Examiners' Hearing of Case No. 2178 (Com-mingling and LACT for the Navajo "F", "G", and "M" leases, Horse-shoe Gallup Pool, San Juan County, New Mexico) you questioned our witness, Mr. Lee Perry, concerning the gas flare indicated on our Exhibit 2.

In January, 1961, we flared approximately 3891 Mcf of gas for the three leases, or about 125 Mcf/day. About 58 Mcf/month was used on the lease. Oil production for January was about 494 B.O.P.D. In December, 1960, gas flared was about 64 Mcf/day, gas used was 20 Mcf/day, and oil produced was about 418 B.P.D. During December gas en-gines on all pumping units were replaced with electric motors.

Although several parties have in the past shown interest in the availability of gas, we now know of no definite plans to build a gas plant in the Horseshoe Gallup Field, and it is doubtful if a connec-tion could be justified in any case due to the small volume of gas being produced. This matter will continue to receive close observa-tion, and when a connection is available we will certainly take ad-vantage of it.

Our Durango, Colorado, Office will be in charge of our opera-tions in the Four Corners Area in the future. The District Super-intendent is Mr. B. M. Bradley and Mr. Jim Flatt, whom you met at the Hearing, is the District Engineer. The Durango District mailing address is Box 3082, Durango, Colorado, if you have any further questions.

Yours truly,

HUMBLE OIL & REFINING COMPANY

*R. R. Alworth*  
R. R. ALWORTH  
District Superintendent

LNP/mcb

cc: Mr. R. R. McCarty, Midland, Texas, Attn: Mr. H. E. Meadows  
Mr. B. M. Bradley, Durango, Colo., Attn: Mr. Jim Flatt

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
February 8, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Humble Oil & Refining Company for permission to commingle the production from several separate leases and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the Horseshoe-Gallup Pool production from all wells presently completed or hereafter drilled on the Navajo "F" lease, comprising all of Sections 3, 4, 9, and 10, the Navajo "G" lease, comprising all of Sections 1, 2, 11 and 12, and the Navajo "M" lease, comprising the NE/4 of Section 5, all in Township 31 North, Range 17 West, San Juan County, New Mexico. Applicant further seeks permission to install an automatic custody transfer system to handle said commingled production.

Case  
2178

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Hearing will come to order, please. Next case will be Case No. 2178.

MR. MORRIS: Application of Humble Oil & Refining Company for permission to commingle the production from several separate leases and for an automatic custody transfer system.

MR. BRATTON: Howard Bratton, appearing on behalf of the applicant. We have one witness, and I ask that he be sworn.

(Witness sworn.)

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



LEE PERRY

called as a witness, having been previously duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, by whom you are employed, and in what capacity?

A I am Lee Perry. I work for Humble Oil and Refining Company in the Hobbs District as a Senior Engineer.

Q Are you familiar with the application in Case 2178 and the area involved therein?

A Yes, sir.

Q Have you previously appeared before this Commission as an expert witness?

A I have.

Q Mr. Perry, will you state the purpose of this application, referring first to Exhibit No. 1, state the purpose of the application with reference to that exhibit?

A Order R-1406 in May of 1959 granted Humble permission to commingle production from our Navajo Tribe "F" and "G" leases in the Horseshoe-Gallup, and to produce more than 16 wells into the central battery on the Navajo "F" lease. These leases, "F" and "G" leases are the four section leases shown on Exhibit 1. The "G" lease is Sections 1, 2, 11 and 12, Township 31 North, Range 17 West. The "F" lease is sections 3, 4 and 9 and 10, same township. We have since

DEARNLEY-MEIER REPORTING SERVICE, Inc.

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ALBUQUERQUE, NEW MEXICO



DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CN 3-6691

ALBUQUERQUE, NEW MEXICO

purchased adjoining productive land which we call the Navajo "M" Lease. We now wish to amend Order 1406 to allow us to commingle production from the "M" Lease with the Navajo "F" and "G". We also wish permission to use custody transfer for production to the central battery of the "G" and, if necessary, we would want permission to produce more than 16 wells, including the "M" Lease, into the central battery.

Q Referring to Exhibit No. 1, your previous leases covered by R-1406 are outlined in yellow there?

A Yes, and with the cross-hatching around them.

Q Then, so far as commingling, you just want to add the 160 acres in the NE/4 of Section 5?

A That's right.

Q Now, describe what else is shown on the Exhibit No. 1.

A This is the same plat that was used for the water flood hearing, I believe, or a similar plat, and the injection wells are shown in red on this plat, and would answer some previous questions of this morning's testimony. The pump station is shown in green there, at water well No. 1 in the NW/4 of Section 10, and the central tank battery where we are now commingling production from the "F" and "G" Leases is shown right below the pump station.

Q With reference to the commingling application, is there any reason why the Navajo "M" production should not be commingled with that from the other two Navajo leases?

A No, sir. Production is from the same pool, Horseshoe-



Gallup; ownership of these leases and royalty is common, the Indians, and the leases are all contiguous. The U.S.G.S. has approved our proposal by a letter dated January 30, 1960, from Mr. John Anderson.

Q What are the advantages of commingling?

A Since this is a waterflood operation the pumper is going to have to stay at the pump station a good deal of the time, and the central tank battery, as you see, is adjacent to that pump station. The roads in this area are pretty hard to get over a good part of the year, and this would be a time saving for the pumper and for our maintenance crews. In addition, automatic custody transfer could not be justified or we can't justify it for the little "M" lease which we are asking to be added to the commingling area. However, for the commingled production it would save considerable and automatic custody transfer would save considerable in tankage and in labor, and probably some in weathering loss.

Q What are the producing characteristics of the wells on the Navajo "M" Lease?

A Wells 2, 4 and 6 are the producing wells. They are pumping wells, producing from about 1150 feet. The December production averaged nine barrels of oil per day per well with no water. At peak waterflood production they will make an estimated 300 barrels of oil per day.

Q Referring to your Exhibit No. 2, Mr. Perry, would you explain with reference to how you propose to account for the production from the separate leases?

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



DEARNLEY-MEIER REPORTING SERVICE, Inc.

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A If you will look at the upper part of Exhibit 2, upper left-hand part, a metering separator is provided for each of the three leases, and is shown in red. The manifold would be built so that all wells could be tested, with two metering separators provided for this purpose, shown in blue. From the test separators production could be routed to either tank so that we can check calibrate those test separators periodically. This hook-up would allow the pumper to have two test separators with which to test, get the monthly well tests on the 16 wells on the "F" Lease. The 16 wells would constitute something of a problem if he had to test them through one test separator.

Q Going on to the automatic custody transfer part of your application, Mr. Perry, would you explain the advantages of that and what your proposal is?

A The estimated peak production from the three leases is about 2500 barrels of oil per day, which would require a minimum of eight 1,000-barrel tanks for conventional operation. We now have three 1,000-barrel tanks in the central battery, and would salvage one of these when automatic custody transfer is started. With good experience we feel one 1,000-barrel tank would be adequate. The savings in labor and weathering loss we mentioned before. The equipment that we intend to use is shown in schematic form there in the lower right-hand part of Exhibit 2. We would use a conventional skid-mounted automatic custody transfer unit similar to several units already installed in the Farmington area. We recently had a



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hearing on the Navajo "L," Cha Cha-Gallup, and Order R-1835 approved a very similar unit.

At the bottom right, if you will follow through there, I will go through our unit. At the left-hand end of the ACT is a high-low pressure-operated liquid level controller which starts and stops the charging pump (2), and opens and closes the combination valve (10), at preset high and low levels in the surge tank. This same operation could be accomplished by float switches on the tanks or other means. With the charging pump running, oil would proceed through the usual equipment on the skid from the charging pump to the pipeline connection on the right if the oil is good. Should the BS & W monitor detect bad oil, diverting valve (5) would open, returning the bad oil to the tank for manual treatment. Later on, when the water shows up in these wells, we will probably install a treater and it will all be routed through the treater.

An equalizer line between the tanks and emergency high-level shut-in switch (14) are provided, and when the tanks are filled the switch would close the shut-in valves (13) over on the upstream of the separators, shutting in all production to prevent waste in the event of equipment malfunction or bad oil.

Q Is this system practically identical to any others of Humble's or of other operators in New Mexico?

A It is, yes, sir. We have one in the Empire-Abo Field that is practically identical to this, and we have the one I mentioned previously in the Cha Cha-Gallup Field.





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Q In your opinion is this system reliable and safe?

A Yes, sir. We will provide a corrosion-resistant meter with fail-safe device. The automatic valves involved are all normally closed so in the event of power failure or other malfunction the automatic custody transfer unit as well as the lease would be shut in. Flow lines will be tested to insure wellhead pressures could be contained.

Q Has this system been approved by the pipeline company?

A Yes, sir.

Q Mr. Perry, go through once again your storage, and why you feel that you don't need storage above what you have proposed here.

A The storage we have here would probably be -- well, say, for instance, if we cut it down to one 1,000-barrel tank, we would have eight hours storage, but with the waterflood operation we will have a pumper on that lease every day, so that we couldn't have over maybe eight hours shut in time in the event of malfunction of equipment or bad oil going back to the surge tank. The shut-in valves would prevent overflow of the tanks in any event. It would not have waste in that form.

Q You would test your flow lines to be sure they could take the pressures involved?

A That's right.

Q Is there anything else you care to explain in connection with the proposed installation?



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A I believe not.

Q Were Exhibits 1 and 2 prepared by you or under your supervision?

A They were. We might add, we have a letter from the U.S.G S. I believe I already said that we have a letter approving this proposal.

MR. BRATTON: We would offer Applicant's Exhibits Nos. 1 and 2.

MR. NUTTER: Humble's Exhibits 1 and 2 will be entered in evidence.

MR. BRATTON: We have nothing further.

MR. NUTTER: Any questions of Mr. Perry?

BY MR. PAYNE:

Q Mr. Perry, I notice on your schematic you have a little arrow saying "to flare." Can you tell me how much gas is being flared from this pool?

MR. BRATTON: If the Commission please, we will furnish that information.

THE WITNESS: I will be glad to get it for you. However, I would hate to guess at it.

Q (By Mr. Payne) Inasmuch as you have already instituted your pressure maintenance project I presume the amount of gas being produced is becoming less and less rather than greater and greater?

A It should be.

BY MR. PORTER:



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Q Is there a gasoline plant in the Horseshoe-Callup Field now?

A If there is the line hasn't gotten to us, Mr. Porter.

Q I believe that someone has installed one.

A It seems to me I remember it. I am sorry, but the gas problem, I am not on top of it.

Q If gas were produced in appreciable amounts it probably could be sold?

A We certainly will do that as quickly as we can, as soon as the connection can be provided. We don't particularly care to waste that gas. It brings in good money.

BY MR. NUTTER:

Q Mr. Perry, the normal flow of oil from the separators is into the tank that is labelled "1,000 barrel tank", is that right?

A 1,000-barrel surge tank.

Q Normal flow is into the surge tank?

A Yes, sir.

Q The other tank is a storage tank?

A As long as we have that second tank here the valve on the header between the two tanks (right above the "B" in bad oil) would be shut, closed in, where the bad oil would come back from the diverting valve, back into the left-hand 1,000 barrel tank. We would use that as a storage tank for any bad oil we might get and for testing other things.

Q You mentioned that there was a possibility you could



operate this thing with one 1,000-barrel tank. Is it your intention to have two, however?

A No. I think probably when we put in a treater -- and we are forced to put in a treater because we are starting to produce water-- I think the second 1,000-barrel tank could be taken out and we could operate nicely without it. When I was talking of having something like eight, ten hours, storage, that was what I was referring to. With the two 1,000-barrel tanks there we have almost a full day's storage.

Q If you had to install a treater and take out one of the tanks, that would constitute quite a different mechanical hook-up than you have here?

A I believe not, sir. You would come off the diverting valve, No. 5, go directly to the treater, which would probably be installed up here between our test separators in that header, say between our test separators and the tanks. We would put in a treater there, and we would divert back to our line into the treater. In other words, it would go back, the bad oil would go back and go into the line upstream of the treater. If I may I will draw on this and pass it up there. That might clarify that, sir. I believe that is a common system where you have -- so far, actually, I haven't run into a case where we have a treater and an automatic custody transfer, but that would be my idea of the common system just coming off the diverting valve into the line upstream of your treater, treat before it goes back to the surge tank, treat or re-



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treat. You might have to put some frills on that if you had real bad oil to recirculate it, possibly.

Q But, at the present time the bad oil from the diverting valve (5) just comes back into the storage tank to be manually treated?

A Yes, sir.

Q You mentioned that in the event that the 1,000-barrel storage tank should become full, I presume this high level lease shut-in switch marked Item No 13 on that tank closes in the lease shut-in valves?

A Yes, sir.

Q These are pumping wells, are they not?

A Yes, sir.

Q When you have a pressure build-up in the line, what happens then?

A We would put a little mercury switch, pressure switch, at the wells which would shut down the pumping unit.

Q So your pumping unit will be shut down?

A They would be shut down some way or other, or just close off the electrical power to all pumping units.

Q You don't have high level and low level switches in the surge tank; instead, you use a high-low level switch?

A Yes. That was to me, until the previous hearing on the Cha Cha-Gallup a new thing. What it does is to save the cost of installing flanges in the tank and saves us the cost of one switch.



It is about a \$250 savings over the two float switches.

Q Is the high-low pressure switch as reliable as the high-low level float switches?

A We feel it is. We are watching it very carefully, the one on the Navajo "L". We are really looking at it there, and I believe it will be. It has quite a few advantages. The float switches have their own problems in that you can get a build-up on those floats, paraffin build-up on the floats and they can give you considerable trouble themselves. There are several different designs of them, but all of them have a few troubles, and we feel like it is possible this will be even better.

Q What kind of a P.D. meter is used in this automatic custody transfer unit?

A We have, in the past, used Smith units, but I would hate to tie it down to that. I would hate to tie it down to brand.

Q Will it be a Smith or equivalent?

A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Perry? He may be excused. Do you have anything further, Mr. Bratton?

MR. BRATTON: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2178? We will take the case under advisement.

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STATE OF NEW MEXICO )  
 ) ss  
COUNTY OF BERNALILLO )

I, JUNE PAIGE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 15th day of February, 1961.

*June Paige*  
Notary Public - Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2178 heard by me on 2/8, 1961.  
*[Signature]*, Examiner  
New Mexico Oil Conservation Commission

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E X H I B I T S

<u>NUMBER</u>	<u>EXHIBIT</u>	<u>IDENTIFIED</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Ex.#1	Plat	2	8	8
Ex.#2	Diagram	5	8	8

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