

SECRET

-asa No.

2209

Application, Transcript,  
Small Exhibits, Etc.

## NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

7-3-58

## APPLICATION FOR DUAL COMPLETION

Field Name <b>Undesignated</b>		County <b>Lea</b>		Date <b>March 3, 1961</b>
Operator <b>Great Western Drilling Company</b>		Lease <b>Federal NM</b>		Well No. <b>1</b>
Location of Well	Unit <b>3</b>	Section <b>8</b>	Township <b>9-S</b>	Range <b>37-E</b>

1. Has the New Mexico Oil Conservation Commission heretofore authorized the dual completion of a well in these same pools or in the same zones within one mile of the subject well? YES \_\_\_\_\_ NO **X**
2. If answer is yes, identify one such instance: Order No. \_\_\_\_\_; Operator, Lease, and Well No.:

3. The following facts are submitted:	Upper Zone	Lower Zone
a. Name of reservoir	<b>San Andres - Glorieta</b>	<b>Lough "C"</b>
b. Top and Bottom of Pay Section (Perforations)	<b>4300 - 9400'</b>	<b>Perforations 9662-67', 9673-77', 9671-73'</b>
c. Type of production (Oil or Gas)	<b>Salt Water Disposal</b>	<b>Oil</b>
d. Method of Production (Flowing or Artificial Lift)	<b>Injection Zone</b>	<b>Artificial Lift</b>

4. The following are attached. (Please mark YES or NO)

- Yes** a. Diagrammatic Sketch of the Dual Completion, showing all casing strings, including size and setting, top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
- Yes** b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
- Yes** c. Waivers consenting to such dual completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.\*
- Yes** d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed, it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

<b>Santa Fe Pacific Ry. Co.</b>	<b>500 Park Street</b>	<b>Amarillo, Texas</b>
<b>Union Oil of California</b>	<b>Union Oil Bldg.,</b>	<b>Midland, Texas</b>
<b>John Kelly</b>	<b>Box 5671</b>	<b>Midland, Texas</b>
<b>Tenneco, Inc.</b>	<b>Box 3109</b>	<b>Midland, Texas</b>
<b>King, Warren &amp; Dye</b>	<b>Box 1505</b>	<b>Midland, Texas</b>
<b>L.B. Hodges</b>	<b>Box 671</b>	<b>Midland, Texas</b>

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES \_\_\_\_\_ NO \_\_\_\_\_. If answer is yes, give date of such notification \_\_\_\_\_.

CERTIFICATE: I, the undersigned, state that I am the **Chief Production Engineer** of the **Great Western Drilling Co.** (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

*John J. Hampton*  
Signature

- \* Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.
- NOTE: If the proposed dual completion will result in an unorthodox well location and/or a non-standard perforation unit in either or both of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

J. H. HERVEY 1874-1953  
HIRAM M. DOW  
CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
GEORGE H. HUNKER, 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  
February 10, 1961

TELEPHONE MAIN 2-6510  
POST OFFICE BOX 547

*File 2209*

Mr. A. L. Porter  
Executive Director  
Oil Conservation Commission  
Santa Fe, New Mexico

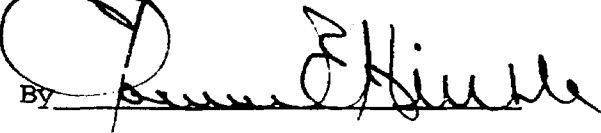
Dear Mr. Porter:

We enclose, in triplicate, Application of The Atlantic Refining Company for Approval of an Automatic Custody Transfer System in the Denton Wolfcamp and Denton Devonian Pools in connection with Atlantic's State "T" Lease, Lea County.

We would appreciate your setting this matter down to be heard at the next Examiner's hearing, if possible, and would appreciate your sending us a copy of the notice.

Yours sincerely,

HERVEY, DOW & HINKLE

By 

CEH:bc  
Encis.  
cc: Atlantic Ref. Co.

*Booked  
mailed  
g. m. h.  
g. m. h.*

OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date

2/17/41

CASE

2209

Hearing Date

9am 3/3/41 DSN@SF

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

Enter order approving Cunningham and LACT  
as requested. (With reservations)  
(Denton WC + Denton Dew)

Sam Dutton

Staff Member

Examiner

CASE 2208:

Application of Great Western Drilling Company for a water injection-oil producing dual completion and for an exception to Rule 107 (d). Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Federal NM Well No. 1, located in the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the injection of water into an interval from 4300 feet to 9400 feet and the production of oil from an undesignated Pennsylvanian pool. Applicant further seeks an exception to Rule 107 (d) to permit the setting of tubing in said well more than 250 feet above the top of the pay section.

CASE 2209:

Application of The Atlantic Refining Company for permission to commingle the production from two separate pools and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the oil production from the Denton-Wolfcamp and Denton-Devonian Pools from all wells presently completed or hereafter drilled on the State "T" Lease, comprising the SE/4 NW/4, E/2 SW/4 and SW/4 SW/4 of Section 2, Township 15 South, Range 37 East, Lea County, New Mexico. Applicant further seeks permission to install an automatic custody transfer system to handle said commingled production.

The following cases will not be heard before 1:00 P.M.

CASE 2210:

Application of Humble Oil & Refining 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 commingled production from the Eumont, Arrowhead and Langlie-Mattix Pools from all wells presently completed or hereafter drilled on the State "M" Lease, comprising portions of Sections 17, 18, 19, 20, 29 and 30, Township 22 South, Range 37 East, Lea County, New Mexico.

CASE 2211:

Application of Union Oil Company of California for an unorthodox water injection well location. Applicant, in the above-styled cause, seeks permission to locate a water injection well in the South Caprock Queen Unit, Caprock-Queen Pool, at an unorthodox location 1325 feet from the North line and 330 feet from the East line of Section 18, Township 15 South, Range 31 East, Chaves County, New Mexico.

26 1-1

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

APPLICATION OF THE ATLANTIC REFINING  
COMPANY FOR APPROVAL OF AN AUTOMATIC  
CUSTODY TRANSFER SYSTEM IN THE DENTON  
WOLF CAMP AND DENTON DEVONIAN POOLS  
AND FOR THE COMMINGLING OF THE PRO-  
DUCTION THEREFROM IN CONNECTION WITH  
ATLANTIC'S STATE "T" LEASE, LEA COUNTY,  
NEW MEXICO.

APPLICATION

TO THE NEW MEXICO OIL CONSERVATION COMMISSION:

COMES The Atlantic Refining Company and hereby makes  
application for the approval of an automatic custody transfer  
system in the Denton Wolfcamp and Denton Devonian Pools and  
for the commingling of production therefrom in connection with  
Atlantic's State "T" Lease embracing the following lands situ-  
ated in Lea County, New Mexico, to-wit:

Township 15 South, Range 37 East, N.M.P.M.

Section 2: SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$

Containing 160 acres, more or less,

and in support of such application respectfully shows:

1. That The Atlantic Refining Company is the owner  
of a certain Oil and Gas Lease issued by the State of New Mex-  
ico, acting by and through its Commissioner of Public Lands,  
embracing the 160 acres hereinabove described.
2. That there is attached hereto, made a part hereof  
and for purposes of identification marked Exhibit "A", a plat

showing the oil and gas lease hereinabove described, together with the producing wells located thereon producing from both the Denton Wolfcamp and Denton Devonian Pools, there being four wells producing from the Denton Wolfcamp Pool and four wells producing from the Denton Devonian Pool.

3. That the oil being produced from both the Denton Wolfcamp and Denton Devonian Pools is of substantially the same quality and gravity and is being marketed for the same base price, and the State of New Mexico is the owner of all royalty payable on account of said production.

4. Applicant proposes to commingle the production from the Denton Wolfcamp with the production from the Denton Devonian Pools produced from the wells located upon said leasehold interest or which may hereafter be completed upon the same after separately metering the production from each pool.

5. That Applicant proposes to install an automatic custody transfer system to handle said commingled production from all wells presently completed or which may hereafter be completed upon said leasehold interest.

6. That in the metering of the production from each pool prior to commingling, accurate metering devices will be used to insure an adequate measurement of the liquid hydrocarbon production at all times from each pool, and the automatic custody transfer system will include adequate facilities to handle the commingled production from all wells upon said



leasehold premises and will be installed in such a manner as to permit the testing of all of said wells at least once each month to determine the individual production from each well. That in order to prevent the overflow and waste of oil in the event the automatic custody transfer system should fail to transfer oil to the pipeline, Applicant proposes to provide adequate storage facilities or else to equip said facilities so as to automatically shut in the lease production at the well heads in the event storage facilities should become full. The automatic custody transfer facilities to be installed will be similar to those previously approved by the Commission.

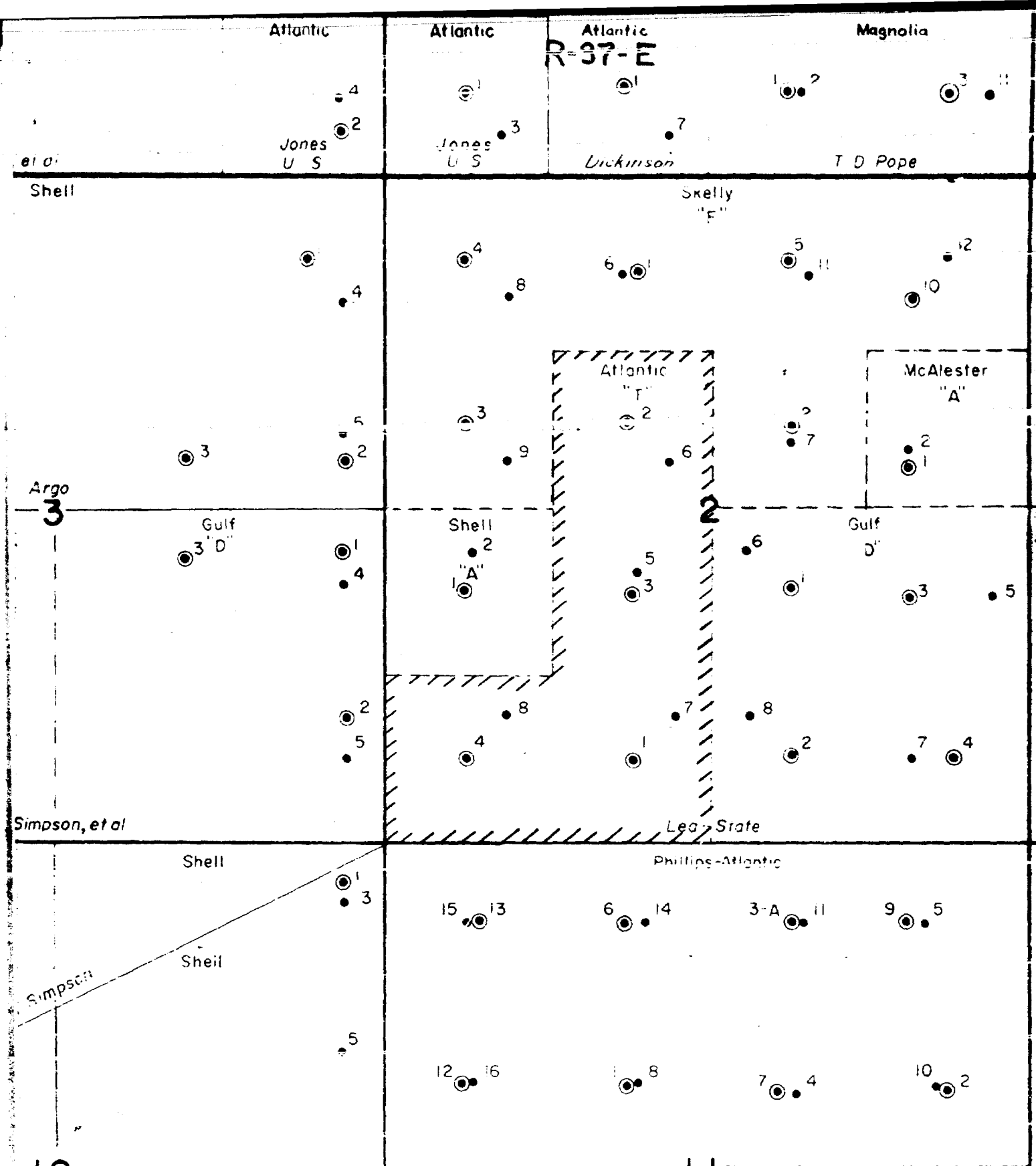
Respectfully submitted,

THE ATLANTIC REFINING COMPANY

By W.P. L. L. L.

HERVEY DOW & HINKLE

By [Signature]  
Roswell, New Mexico  
Attorneys for Applicant



LEGEND:

- - Wolfcamp
- ⊙ - Devonian

EXHIBIT A  
ATLANTIC STATE "T" LEASE  
DENTON WOLFCAMP AND DEVONIAN POOLS  
LEA COUNTY, NEW MEXICO

BEFORE THE  
 OIL CONSERVATION COMMISSION  
 Santa Fe, New Mexico  
 March 3, 1966

IN THE MATTER OF:

Application of The Atlantic Refining Company for permission to commingle the production from two separate pools and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the oil production from the Denton-Wolfcamp and Denton-Devonian Pools from all wells presently completed or hereafter drilled on the State "T" Lease, comprising the SE/4 NW/4, E/2 SW/4 and SW/4 SW/4 of Section 2, Township 15 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  
 2209

BEFORE:

Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: Case 2209.

MR. MORRIS: Application of The Atlantic Refining Company for permission to commingle the production from two separate pools and for an automatic custody transfer system.

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

(Witness sworn.)

HAROLD T. FROST, JR.

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

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PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



AS FOLLOWS:

DIRECT EXAMINATION

BY MR. BRATTON:

Q State your name, address, and occupation, please.

A Harold T. Frost, Jr. I am production engineer for Atlantic Refining Company in Midland, Texas.

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

A I have.

Q Are you familiar with the area and the matters concerned in Case 2209 before the Commission?

A Yes, sir.

Q Referring to your Exhibit A, the plat of the area, will you explain the location of the area and the nature of the request in this case, Mr. Frost?

A We are requesting permission here to commingle production from the Wolfcamp and Devonian Pools on our State "T" Lease, shown on the plat. This lease comprises the SE/4 of the NW/4, E/2 of the SW/4 and the SW/4 of the SW/4 of Section 2, Township 15 South, Range 37 East.

Q On the plat that is marked as Exhibit No. 1, are the wells involved depicted there?

A The wells are depicted, the four Wolfcamp wells and the four Devonian wells are depicted with a small circle around the location.

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Q Is there anything else you care to point out in connection with that plat?

A We are also seeking permission to install an automatic custody transfer system to transfer the oil to the pipeline.

Q In connection with the commingling of this production have you prepared a summary of production data showing the gravities and the selling prices of the oil separately and commingled?

A Yes, sir.

Q We ask that be marked as Exhibit No. 2, and will ask you to explain what it shows?

A We have listed here the average production from each zone for the months of July through December of 1960. We also show the gravity of the Devonian crude over a three-month period to be 45.2 and the average gravity of the Wolfcamp at 33.8. We have calculated the average gravity of the combined crude to be 44.9 degrees. With the selling price of the crudes we do not anticipate any loss will result.

Q Actually there would be a little increase in overall revenue, would there not?

A Yes, according to our calculations there will be an increase in the revenue from the Devonian due to removing the penalty for 45 gravity oil.

Q Referring, Mr. Frost, to your statement which you have prepared as Exhibit No. 3 in this case, and the attached figures, will you explain, first, the proposed commingling operation?



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Figure 1 shows the schematic of the proposed method of commingling. We have flow lines from each well coming into a test manifold. From there, each well may be produced into the test separator or into a separator for the Devonian, or a separator for the Wolfcamp. Check valves prevent commingling ahead of the separators. On the outlet of each separator we propose to install a meter and a sampler, and then combine the three streams into a common treating system. At such time as the water production becomes too high for accurate metering we can add a free water knockout ahead of the meter and sampler. From the common treating system we produce into our power oil tanks, from which the produced oil over flows into the stock tank. From the power oil tanks we will draw our power oil for our hydraulic pumping through a battery of triplexes. On the discharge of the triplexes we will have a meter for each zone plus a test meter for testing individual wells. From the surge tank we will go into the custody transfer unit.

Q Referring to your proposed LACT unit, refer to your figure No. 2 and explain what it shows?

A This starts out with a surge tank. It has a low level and high level control switches to control transfer of the oil. The transfer pump delivers oil to the pipeline. Following that is a BS & W monitor and a three-way three-position diverting valve. At any time the crude contains more BS & W than is permitted by the pipeline, delivery to the pipeline will be automatically stopped and the crude will be routed back through the treating system.



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Delivery to the pipeline will be recommenced whenever the crude meets pipeline specifications. Following the diverting valve is a strainer to remove any solid particles that might interfere with meter accuracy. Then, we have a sampler that is pulsed by the counter on the meter so that the samples obtained will be proportional to the amount of oil passed through the system. The samples will be contained in a pressure-type container. P.D. meter will be equipped with set stop counter to prevent overrunning a scheduled monthly allowable of the lease. This counter must be manually reset each month. The meter will also be equipped to stop transfer of oil in the event of a meter failure or if the flow rate drops below the preset minimum. This is also a lock-out function and must be manually reset. We have a four valve meter proving loop, two in-line valves with a vent valve between. A back pressure valve maintains pressure in the system above the vapor pressure of the crude, and a check valve prevents any back flow from the pipeline to the system.

Q How about your control panel; is there anything you care to explain with reference to it beyond what is contained in your statement?

A The low level switch holds all circuits in the custody transfer system locked out until the oil level returns to the high level switch. At this time the pump will start and transfer oil again. Manual override will be provided to start the system if the level is between the two switches in the surge tank. We will pro-



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vide an overflow tank in addition to the surge tank to be of sufficient capacity to handle all production during unattended operation in the event of failure of the transfer system.

Q Have you obtained the approval of the pipeline purchaser?

A Yes, they are agreeable to this custody transfer system.

Q That is depicted in Atlantic's Exhibit No. 4, letter from Gulf?

A From Gulf Refining Company.

Q Is there anything else you care to explain in connection with either your proposed commingling or proposed ACT unit?

A Maybe I better go back on the commingling and explain the allocation of oil. The custody transfer system will meter the total production from the lease during the month. We will meter all power oil used in the hydraulic pumping system by reservoir. We will obtain a metered volume of produced oil, water and power oil from each reservoir. We will also obtain samples proportionate to the rate of flow in each reservoir. From these meter readings we can then determine the amount of oil production from each reservoir. All meters will be capable of being calibrated against a test tank at any time.

Q Is there anything further you care to explain in connection with any of these exhibits, Mr. Frost?

A I believe not.

Q Were Atlantic's Exhibits 1 through 4 prepared by you or under your supervision?





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A Yes, sir.

MR. PRATTON: We offer Atlantic's Exhibits 1 through 4 in evidence.

MR. MUTTER: Atlantic's 1 through 4 will be admitted in evidence.

MR. PRATTON: We have nothing further at this time.

BY MR. PAYNE:

Q What is the total daily production from these two pools?

A The oil?

Q Yes, sir.

A It is about a thousand barrels per day.

Q How much storage do you have?

A You mean under the proposed system?

Q Yes.

A We will have two 1,000 barrel tanks plus the additional storage in our two power oil tanks.

Q What is the maximum unattended period on this well?

A About 16 hours per day.

Q In the event of a malfunction, you are using your additional storage capacity to produce that oil; you are producing it into your additional storage?

A That's correct.

Q And you don't shut the wells in at the header, or at the wellhead?

A There is no provision for least shut in. They will pro-



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duce into additional storage.

Q Are all your lines above ground?

A To the best of my knowledge, they are. I am not real positive of that.

Q A I understand if you are going to meter the production before separation; is that right?

A No, after separation, before treating for water removal.

Q You meter it before water removal or afterwards?

A Before water.

Q That is why your total oil is the metered volume times the percent oil?

A Yes, sir.

Q Does power oil shrink?

A I would think it would not. The shrinkage would have already taken place in the power oil tanks.

Q If it did shrink you might end up producing too much from either pool?

A That could be. At the present time all of the Wolfcamp are on pump and two of the Devonian are on pump. All will be hydraulic pumps.

Q Are any of the wells marginal?

A I believe one of the Wolfcamp wells is marginal.

Q Is there any way under your proposed installation that oil could inadvertently be coming from the Wolfcamp and be credited to the Devonian, or vice versa?



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A No.

Q How about through this calibration line?

A It would already have been metered there. The only place I can see would be if the pumper gets mixed up on which zone he is testing through the test separator.

Q Has Atlantic considered the possibility of using a portable test separator rather than having the actual installation?

A We hadn't considered that in this case because all of the separators are already installed.

Q It is possible, then, that oil from one zone could be credited to another if he turned the wrong one, or when he was testing?

A If he wrote down the wrong zones on his test.

Q Are these fluids corrosive?

A They are not considered very corrosive, no, sir.

Q You don't propose to install corrosion resistant meters?

A No, sir.

BY MR. NUTTER:

Q Mr. Frost, the lines in the battery that are indicated on this exhibit, Figure No. 1 here, are these all of the lines that will be installed?

A I don't show the gas lines on here.

Q Are these all of the lines that will be carrying oil?

A That should be all of them.

Q You show this calibration line coming in right in the



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Middle of the meter. What does that actually look on?

A That is a needle on there. That should come from downstream of the meter.

Q In other words, that ties in just downstream of the meter?

A Yes, sir.

Q What type of meters will those be?

A On the separators?

Q Downstream from the separator.

A The Devonian, it will be a turbine-type meter. Actually, both of them will be turbine-type meters.

Q Would you go into a turbine-type meter a little bit, please?

A It is basically, I consider it, similar to a P.D. meter except that it has a much higher capacity than a P.D. meter.

Q It is not actually a positive displacement meter though?

A No, it is not. It is a turbine set in the line. and then there are various mechanisms to convert the speed, rotation of the turbine, into barrels or gallons or whatever measurement is desired.

Q The density of the fluid would affect the number of rotations a turbine would have as the fluid passed through it, would it not?

A I think it would somewhat. I don't think it would as much as it will in a P.D. meter. It is based more on velocity of flow through it.



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Q It would be a function of volume and density, wouldn't it?

A Yes.

Q This oil has not been treated yet when it passes through this meter, so it does have water in it?

A Water and oil.

Q Water plus dead power oil?

A And produced oil.

Q You mention that the set-stop counter which would be on the ACT unit would prevent the loss from over-producing its allowable. Is there any set-stop counter anywhere on that that would prevent either of the zones from overproducing its allowable?

A No, sir.

Q These turbine-type meters, are they non-reset meters?

A No. They were strictly a registering meter.

Q Can they be reset?

A Yes, they can. The counter on those will be essentially the same as the types used on the P.D. meters on custody transfer units without the non-reset feature.

Q You said you would have available space in your power oil tanks in event of a malfunction of the ACT. The power oil tanks normally are operating rather full and overflow from the power lines; that goes into the surge tank?

A Yes, sir. They will have about two to three feet in the top which is not full.



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Q The overflow tank out here at the APT is normally empty?

A It will normally be empty.

Q And the surge tank has capacity from the high level switch on up to the top of the tank, normally?

A Yes, sir.

Q The least amount of storage it has is from the high level switch on up?

A That is the minimum. Normally it will be more than that.

Q What level in this surge tank will the high level switch be installed?

A That will be in the center of the tank.

Q So you would have approximately 500 barrels of storage in there, and a thousand barrels in the overflow tank, total of 1500 and your production per day is approximately a thousand. Is this attended seven days a week, sir?

A Yes, sir.

BY MR. PAYNE:

Q Do you intend to complete any more wells on this lease?

A At the present time I don't know of any intentions to drill any more wells.

BY MR. NUTTER:

Q All the 40's have a Wolfcamp and Devonian producer on them, don't they?

A Yes, sir.

MR. NUTTER: Any further questions of Mr. Frost?



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BY MR. MORRIS:

Q Your sampling procedure here is a pretty integral part of figuring the production of a well, is it not?

A Yes.

Q You state samples are to be taken at regular intervals. That is a statement here in Exhibit 3. I just wanted a little clarification of what you meant by regular intervals?

A The sampler will be paced by the counter on the meter, so that the sample will be proportional to the amount of fluid passing through the meter.

BY MR. NUTTER:

Q Are you referring to the sampler on the ACT or packer?

A I was talking then about the production meters. Actually, it would be true of all of them.

Q They are all pulsated by the meter itself.

MR. PAYNE: It is not continuous sampling, then?

MR. NUTTER: Continuous intermittent?

A If we have continuous flow it would be continuous sampling.

MR. NUTTER: Anything further of this witness? Do you have anything, Mr. Bratton? Witness may be excused. Does anyone have anything they wish to offer in Case 2209? Take the case under advisement and call 2210.



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 10th day of March, 1961.

*June Paige*  
 Notary Public - Court Reporter

My Commission expires:

May 11, 1964.

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ALBUQUERQUE, NEW MEXICO

PHONE CH 3-6691





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ALBUQUERQUE, NEW MEXICO

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EXHIBITS

<u>NUMBER</u>	<u>EXHIBIT</u>	<u>IDENTIFIED</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Ex.#1	Plat	2	7	7
Ex.#2	Production Data	3	7	7
Ex.#3	Statement	3	7	7
Ex.#4	Letter	6	7	7

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 2209,  
heard by me on 3-3, 1961.

James, Examiner,  
New Mexico Oil Conservation Commission



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. 2209  
Order No. R-1910

APPLICATION OF THE ATLANTIC REFINING  
COMPANY FOR PERMISSION TO COMMINGLE  
THE PRODUCTION FROM TWO SEPARATE POOLS,  
AND FOR PERMISSION TO INSTALL AN AUTO-  
MATIC CUSTODY TRANSFER SYSTEM, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 3, 1961, at Santa Fe, New Mexico, before Daniel S. Rutter, 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 22nd day of March, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Rutter, 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, is the owner and operator of the State "T" Lease, comprising the SE/4 NW/4, the E/2 SW/4 and the SW/4 SW/4 of Section 2, Township 15 South, Range 37 East, NMPM, Lea County, New Mexico.
- (3) That the applicant seeks permission to commingle, after separate measurement, the production from the Denton-Wolfcamp and the Denton-Devonian Pools from all wells presently completed or hereafter drilled on the above-described State "T" Lease.
- (4) That the applicant further proposes to install an automatic custody transfer system to handle said commingled production.
- (5) 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

-2-

CASE No. 2209  
Order No. R-1910

should be permitted, provided adequate safety features are incorporated therein.

(6) That inasmuch as an industry committee has been appointed to study all phases of commingling and to recommend minimum standards to prevent abuses thereof, it may be that this installation, at a later date, will have to be altered to conform to such standards as the Commission may prescribe.

IT IS THEREFORE ORDERED:

(1) That the applicant, The Atlantic Refining Company, is hereby authorized to commingle, after separate measurement, the production from the Denton-Wolfcamp and Denton-Devonian Pools from all wells presently completed or hereafter drilled on the State "T" Lease, comprising the SE/4 NW/4, the E/2 SW/4 and the SW/4 SW/4 of Section 2, Township 15 South, Range 37 East, NMPM, Lea County, New Mexico.

PROVIDED HOWEVER, That it may be that this installation, at a later date, will have to be altered to conform to such standards as the Commission may prescribe.

(2) 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 lease 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 lease is unattended, or in the alternative, shall either so equip the existing facilities as to automatically shut-in the lease production at the wellhead in the event the storage facilities become full, or test the flow-lines to a pressure of at least  $1\frac{1}{2}$  times the shut-in pressure of the wells.

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.

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CASE No. 2209  
Order No. R-1910

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.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



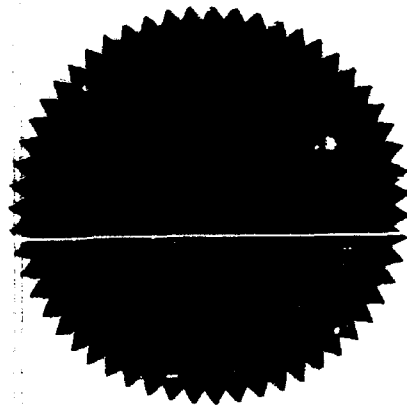
EDWIN L. MECHEM, Chairman



E. S. WALKER, Member



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



esr/

GOVERNOR  
EDWIN L. MECHEM  
CHAIRMAN

State of New Mexico  
Oil Conservation Commission

LAND COMMISSIONER  
E. S. JOHNNY WALKER  
MEMBER

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

P. O. BOX 871  
SANTA FE

March 23, 1961

Mr. Howard Bratton  
Harvey, Dow & Hinkle  
P. O. Box 10  
Roswell, New Mexico

Re: Case No. 2209  
Order No. R-1910  
Applicant:  
Atlantic Refining Company

Dear Sir:

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

Very truly yours,

*A. L. Porter, Jr.*  
A. L. PORTER, Jr.  
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x  
Artesia OCC         
Aztec OCC       

OTHER

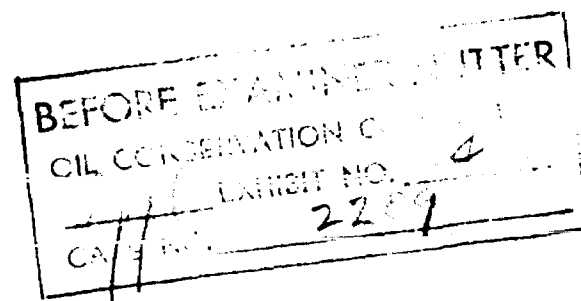


# GULF REFINING COMPANY

CRUDE OIL AND PRODUCTS PIPE LINE

P. O. DRAWER 1150 MIDLAND, TEXAS

March 2, 1961



Atlantic Refining Company  
P. O. Box 1610  
Midland, Texas

Attention: Mr. H. E. Bond

Gentlemen:

After review of your proposed installation of an automatic custody transfer unit on your State "T" lease, Denton Field, Lea County, New Mexico, we are agreeable to using such measurements to determine the volume run from your lease to the Gulf Refining Company's Gathering System, should this installation be approved by the New Mexico Conservation Commission.

Very truly yours,

GULF REFINING COMPANY

*R. L. Barker*

R. L. Barker  
District Superintendent

RLB/rs

MAR 2 1961  
MIDLAND

STATEMENT OF THE ATLANTIC REFINING CO.  
CONCERNING APPLICATION TO COMMINGLE  
PRODUCTION & INSTALL AUTOMATIC CUSTODY TRANSFER  
STATE "T" LEASE, DENTON FIELD  
LEA COUNTY, NEW MEXICO  
CASE NO. 2209

The Atlantic Refining Co. proposes to commingle production and install an automatic custody transfer system to handle Wolfcamp and Devonian production from all wells presently completed or hereafter drilled on the above leases. The equipment we plan to install is of the same general type previously approved by the Commission for installation in the State of New Mexico.

Attached is a plat showing the State "T" lease and location of the present tank battery. Also attached are two schematics of the proposed installation. Figure 1 covers the proposed method of commingling production; Figure 2 is a schematic of the proposed automatic custody transfer system.

At the present time we have four Devonian wells and four Wolfcamp wells. Two of the Devonian wells are flowing and two are being lifted by hydraulic pump. All four of the Wolfcamp wells are on hydraulic pump.

Figure 1

Power oil for the hydraulic pumps is obtained from two storage tanks. A battery of triplex pumps pumps the power oil to the various wells. The power oil is metered to each pool separately. A third meter is used for individual well tests.

Total production (oil, water and spent power oil) passes through a meter and sampler following a separator. A separator, meter, and sampler are provided for each pool plus a third separator, meter and sampler for individual well tests. The produced fluid is commingled in a common treating system after being measured and samples obtained from each pool separately. Clean power oil from the treaters enters two power oil tanks. Net oil production over flows into a surge tank and is sold to the pipe line through the automatic custody transfer unit. The net oil production from each pool is determined by subtracting the power oil from the total produced oil. The total produced oil is the metered volume times the percent oil in the sample obtained. At such time as water production is large enough to cause inaccurate metering a free water knockout can be installed between the separator and meter. All meters can be calibrated at any specified interval.

Figure 2

Oil will be transferred to the pipe line from a surge tank after being metered separately from each zone on each lease. Components of the LACT unit in flow order are as follows:

1. Pump: An electrically driven pump maintains a pressure in the metering system above the vapor pressure of the crude. It provides a constant flow rate through the system to insure meter accuracy.
2. BS&W Monitor: A BS&W monitor actuates a diverting valve which stops delivery to the pipe line when the water content reaches a predetermined amount. Delivery to the pipe line is restored when merchantable oil is present in the monitor probe.
3. Diverting Valve: A 3-way 3-position valve when actuated by the BS&W monitor stops delivery to the pipe line and diverts the crude through the treaters.
4. Strainer: A strainer removes any foreign particles which may interfere with the operation of the meter.
5. Sampler: Samples of the crude are taken at regular intervals during each period of transfer to the pipe line. The samples will be stored in a vapor proof container for gravity and BS&W measurement. The sampler is actuated by electrical impulses from the meter. This will give samples proportional to the amount of oil transferred.
6. Oil Meter: A positive displacement meter is used to measure the volume of oil transferred. This meter is equipped with a temperature compensator, non-reset counter registering barrels, tenths, and hundredths. The counter registers the amount of oil transferred corrected to 60° F.
7. Meter Proving Loop: A four valve proving loop will permit calibration of the oil meter at any time. This proving loop has a bleed valve between double in-line block valves to insure that no oil by-passes the calibration equipment.



8. Back Pressure Valve: The back pressure valve maintains a constant pressure in the meter. This pressure is above the vapor pressure of the crude.
9. Check Valve: A check valve prevents any backflow of oil from the pipe line to Atlantic's equipment.

A control panel, located on the skid, performs the following functions:

1. Stops booster pump on low surge tank level and holds all circuits locked out until the oil level returns to the high level switch. Starts the pump at the high level in the surge tank. A manual override permits starting the pump between level switches.
2. Divert crude to treaters due to high BS&W content.
3. A set-stop counter prevents overrunning of the scheduled monthly allowable. It must be manually reset each month.
4. Stops transfer of oil on a signal from the set-stop counter. Prevents further transfer until the set-stop counter is reset.
5. Stops transfer of oil on a meter failure or if the flow rate drops below a present minimum. This is a lockout function and must be manually reset.
6. The control panel door can be sealed by the pipe line company. One overflow tank is provided in case the custody transfer unit is shutdown due to a malfunction. This tank is large enough to store all production during unattended operation.

The positive displacement meter can be calibrated jointly by the pipe line company and The Atlantic Refining Co. The meter can be calibrated by either a master meter or a test tank.

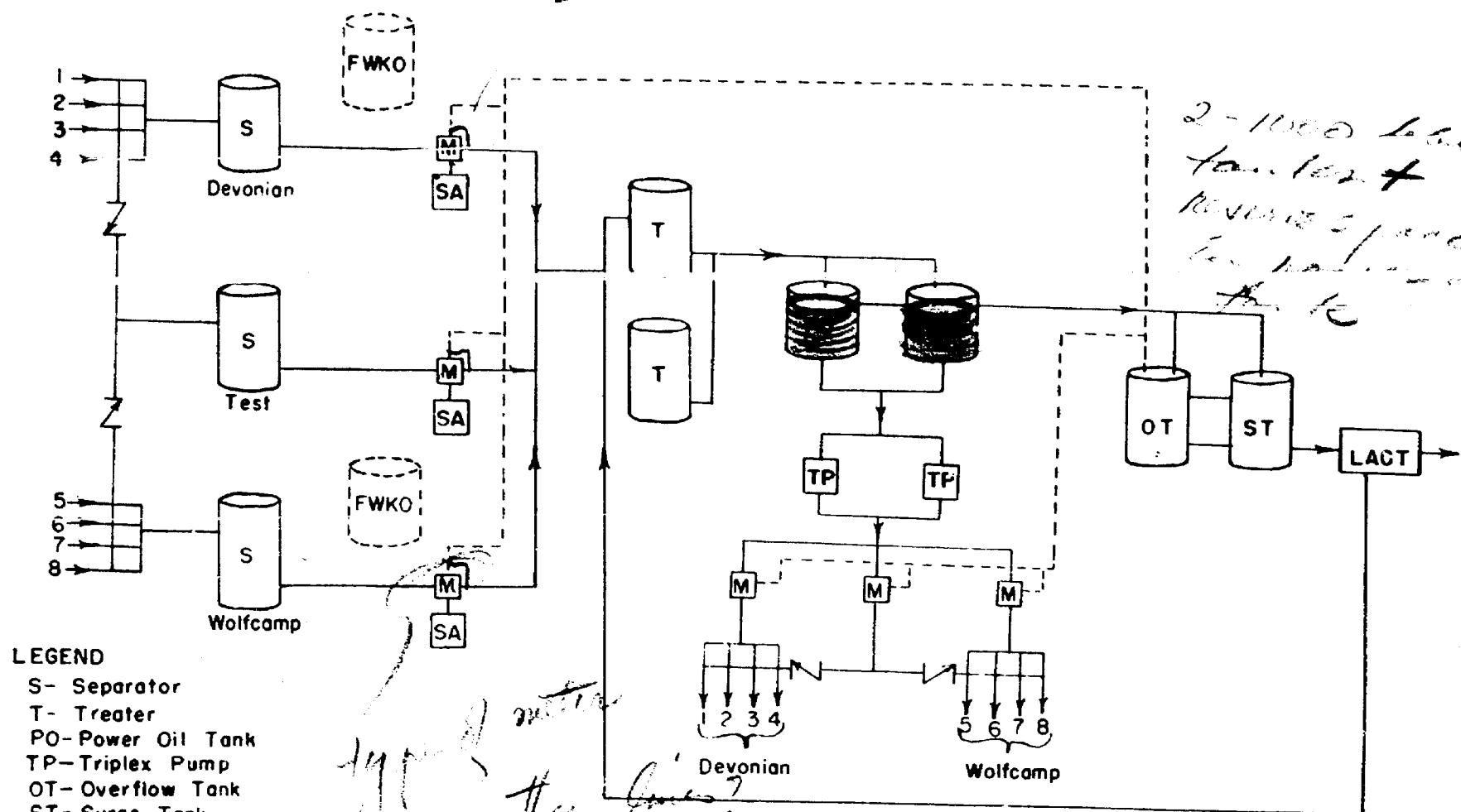


FIGURE I  
PROPOSED COMMINGLED PRODUCTION  
THE ATLANTIC REFINING CO.  
STATE "T" LEASE  
DENTON FIELD, LEA COUNTY, NEW MEXICO

# LEGEND

- |                            |                        |
|----------------------------|------------------------|
| 1- Surge Tank              | 8- Sampler             |
| 2- Pump & Motor            | 9- P D Meter           |
| 3- Thermometer             | 10- Meter Proving Loop |
| 4- Pressure Gauge          | 11- Back Pressure      |
| 5- BS&W Monitor            | 12- Check Valve        |
| 6- Bad Oil Diverting Valve | A- Low Level Switch    |
| 7- Strainer                | B- High Level Switch   |

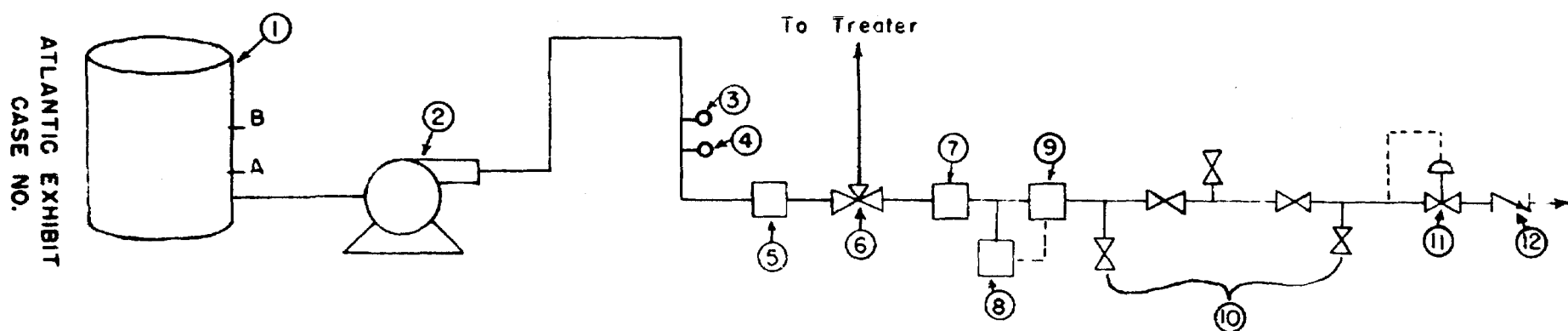


FIGURE 2  
PROPOSED AUTOMATIC CUSTODY TRANSFER  
THE ATLANTIC REFINING CO.  
STATE "T" LEASE  
DENTON FIELD, LEA COUNTY, NEW MEXICO

SUMMARY OF PRODUCTION DATA  
ATLANTIC STATE "T" LEASE, DENTON FIELD

	Denton Devonian (4 wells)			Denton Wolfcamp (4 wells)		
	Oil BOPD	Gas MCFD	Water BWPD	Oil BOPD	Gas MCFD	Water BWPD
1960, July	753	765	318	166	33	19
August	729	732	336	250	77	31
Sept.	761	631	282	212	51	21
Oct.	718	711	282	180	26	17
Nov.	761	738	320	182	11	8
Dec.	766	723	283	232	57	25

Base Price - \$3.01/bbl.

Average gravity of Devonian oil over three-month period: 45.2°

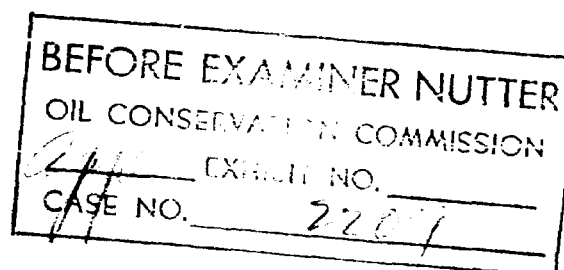
Selling price of 45.2° oil: \$2.99/bbl.

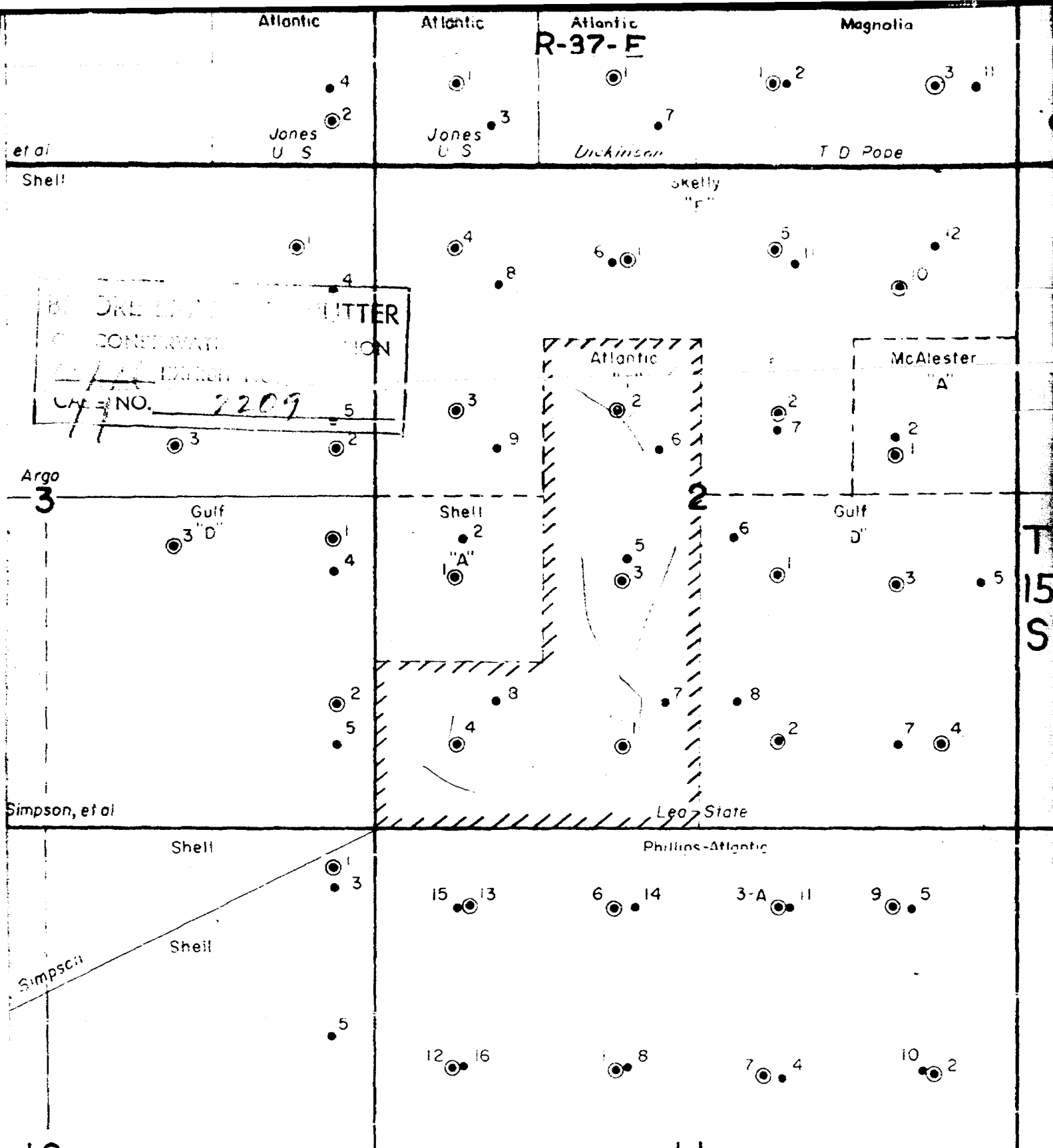
Average gravity of Wolfcamp oil over three-month period: 43.8°

Selling price of 43.8° oil: \$3.01/bbl.

Average gravity of Devonian and Wolfcamp oil if mixed: 44.9°

Selling price of 44.9° oil: \$3.01/bbl.





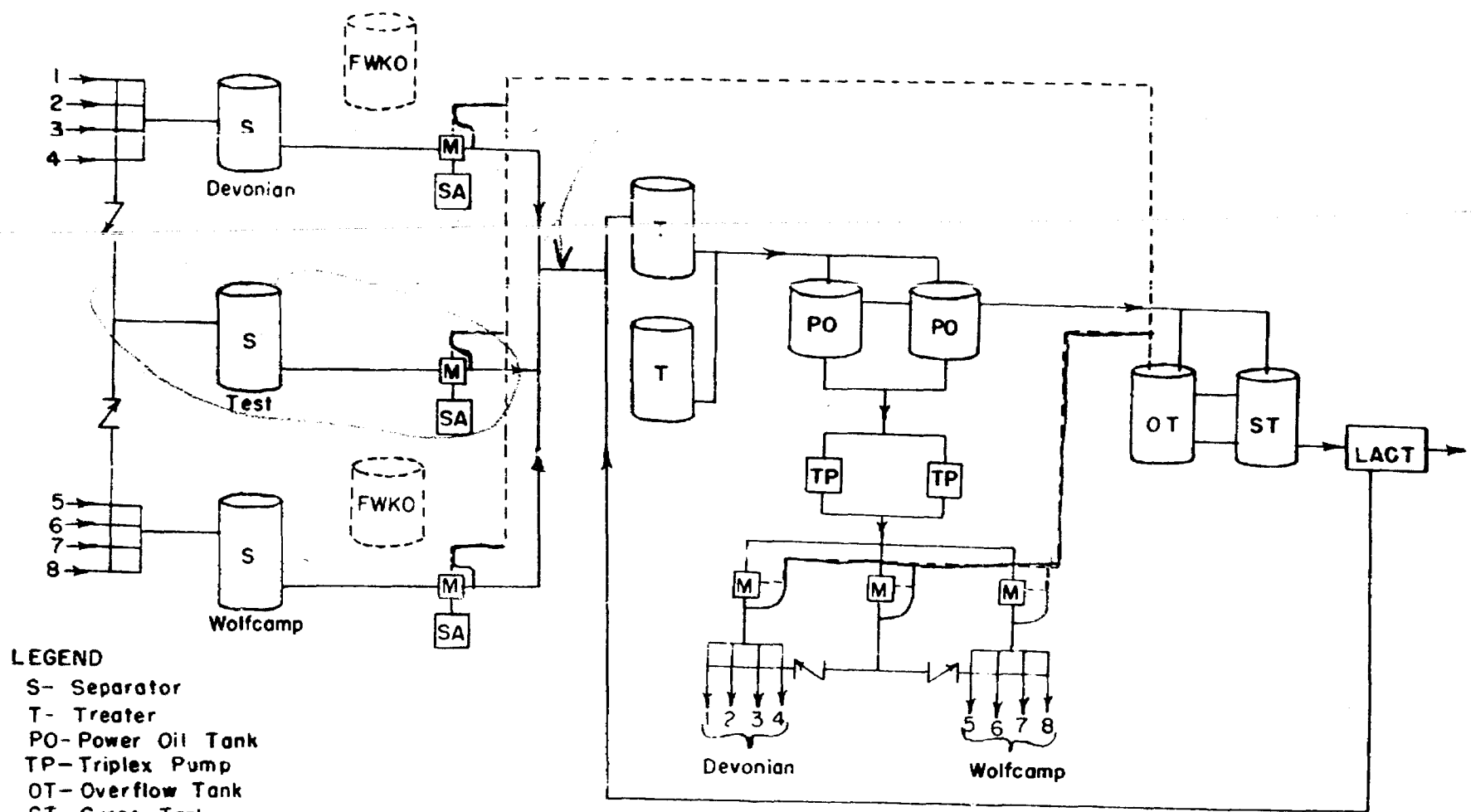


FIGURE I  
 PROPOSED COMMINGLED PRODUCTION  
 THE ATLANTIC REFINING CO.  
 STATE "T" LEASE  
 DENTON FIELD, LEA COUNTY, NEW MEXICO

# LEGEND

- |                            |                        |
|----------------------------|------------------------|
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| 6- Bad Oil Diverting Valve | A- Low Level Switch    |
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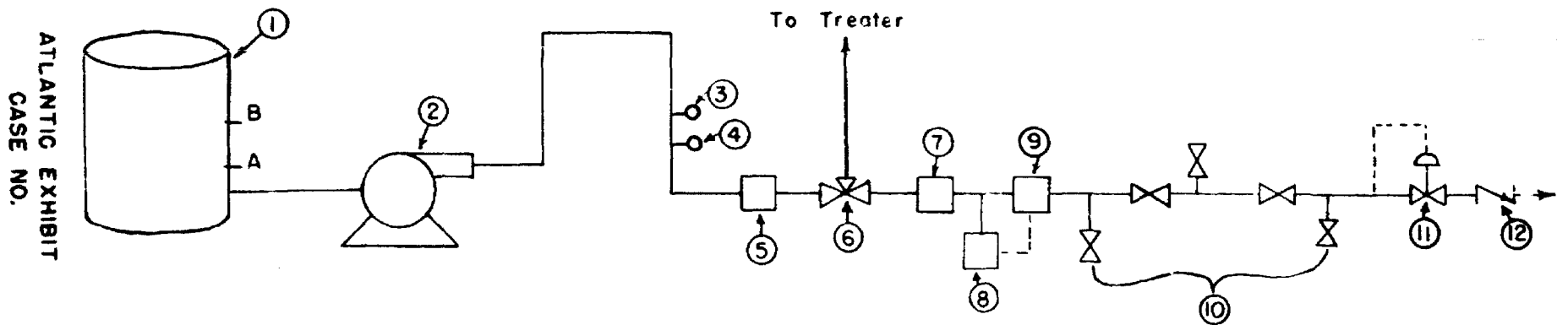


FIGURE 2  
PROPOSED AUTOMATIC CUSTODY TRANSFER  
THE ATLANTIC REFINING CO.  
STATE "T" LEASE  
DENTON FIELD, LEA COUNTY, NEW MEXICO

*DMW*  
*3/17*  
DRAFT

RSM/esr  
March 17, 1961

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

*3/20*  
*3-20-61*  
*3/21*  
IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 2209

Order No. R- 1916

APPLICATION OF THE ATLANTIC REFINING  
COMPANY FOR PERMISSION TO COMMINGLE  
THE PRODUCTION FROM TWO SEPARATE POOLS,  
AND FOR PERMISSION TO INSTALL AN AUTO-  
MATIC CUSTODY TRANSFER SYSTEM, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 3, 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 March, 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, The Atlantic Refining Company, is the owner and operator of the State "T" Lease, comprising the SE/4 NW/4, the E/2 SW/4 and the SW/4 SW/4 of Section 2, Township 15 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks permission to commingle, after separate measurement, the production from the Denton-Wolfcamp and the Denton-Devonian Pools from all wells presently completed or hereafter drilled on the above-described State "T" Lease.

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



(5) 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.

(6) That inasmuch as an industry committee has been appointed to study all phases of commingling and to recommend minimum standards to prevent abuses <sup>thereof</sup>, it may be that this installation, at a later date, will have to be altered to conform to such standards as the Commission may prescribe.

IT IS THEREFORE ORDERED:

(1) That the applicant, The Atlantic Refining Company, is hereby authorized to commingle, after separate measurement, the production from the Denton-Wolfcamp and Denton-Devonian Pools from all wells presently completed or hereafter drilled on the State "T" Lease, comprising the SE/4 NW/4, the E/2 SW/4 and the SW/4 SW/4 of Section 2, Township 15 South, Range 37 East, NMPM, Lea County, New Mexico.

PROVIDED HOWEVER, That it may be that this installation, at a later date, will have to be altered to conform to such standards as the Commission may prescribe.

(2) 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 lease 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 lease is unattended, or in the alternative, shall either so equip the existing facilities as to automatically shut-in the lease production at the wellhead in the event the storage facilities become full, or test the flow-lines to a pressure of at least  $1\frac{1}{2}$  times the shut-in pressure of the wells.

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 herein-above designated.