CASE 2030. Applicant [illegible]
for permission to [illegible]
Abo Pool production [illegible] wells
[illegible].

Case No.

2030

Application, Transcript,
small Exhibits, Etc.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO

R-1716

June 21, 1967

COPY

Pan American Petroleum Corporation
P. O. Box 63
Hobbs, New Mexico

Attention: Mr. V. E. Staley

Gentlemen:

Reference is made to your letter dated June 12, 1967, requesting an extension for the meter proving frequency for the commingling meter serving the State "BX" Lease in your Empire Abo Storage System IV, Empire-Abo Pool, Eddy County, New Mexico.

Inasmuch as the tabulation and the graphic depiction of past meter proving factors for the subject meter (Serial No. 181518) indicate reliable performance, you are hereby authorized to place the subject meter on a 90-day calibration period.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSR/esr

cc: Oil Conservation Commission - Artesia

FORM 470 2-57

PAN AMERICAN PETROLEUM CORPORATION

Box 268
Lubbock, Texas
June 28, 1960

Case 2030

File: WJS-5539-541.113 x 986.510.1

Subject: Commingling and LACT Hearing
Various State Leases
Empire Abo Pool
Eddy County, New Mexico

Mr. A. L. Porter, Jr. (2)
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

We respectfully request that the New Mexico Oil Conservation Commission set on an early docket a hearing wherein Pan American Petroleum Corporation can present application for approval to commingle in a central battery the production from various State leases in the Empire Abo Pool of Eddy County, New Mexico, and to install and operate an automatic custody transfer unit to handle that commingled production. The State leases to be served by the proposed central battery and LACT unit are as follows:

State Lease No.	Description of Acreage
647	NE/4 NW/4 Sec. 5, T-18-S, R-28-E
B-3823-1	N/2 NE/4 Sec. 5, T-18-S, R-28-E
B-2029	NW/4 NW/4 Sec. 4, T-18-S, R-28-E
B-11538-1	SW/4 SE/4 Sec. 32, T-17-S, R-28-E
B-2071-14	E/2 SE/4 Sec. 32, T-17-S, R-28-E
E-1717	NW/4 SE/4 Sec. 32, T-17-S, R-28-E
B-5862-19	N/2 NW/4 Sec. 32, T-17-S, R-28-E
E-6945-1	SW/4 NW/4 Sec. 32, T-17-S, R-28-E
B-10021-5	SW/4 NE/4 Sec. 31, T-17-S, R-28-E
647-322	W/2 SW/4 Sec. 31, T-17-S, R-28-E
B-7966-16	NE/4 SW/4 Sec. 31, T-17-S, R-28-E

Attached hereto is a lease plat of that portion of the Empire Abo Pool which shows the location of the above described leases and the proposed central battery and LACT installation.

7-15-60

Yours very truly,

A. J. Inderrieden

A. J. Inderrieden
District Engineer

AHG:es

GOVERNOR
JOHN BURROUGHS
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
MURRAY E. MORGAN
MEMBER

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

P. O. BOX 871
SANTA FE

August 9, 1960

Mr. Kirk Newman
P. O. Box 867
Roswell, New Mexico

Re: Case No. 2030
Order No. ~~R-1746~~
Applicant:

~~Dan American Petroleum Corp.~~

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 _____
Artesia OCC X
Aztec OCC _____

Other _____

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. 2030
Order No. R-1746

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR PERMISSION TO COMMINGLE
THE PRODUCTION FROM ELEVEN SEPARATE
LEASES, AND FOR PERMISSION TO INSTALL
AN AUTOMATIC CUSTODY TRANSFER SYSTEM,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 27, 1960, 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 9th day of August, 1960, 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 is the owner and operator of the following-described State leases, located in Eddy County, New Mexico:

Lease No. 647, comprising the NE/4 NW/4 of Section 5, Township 18 South, Range 28 East.

Lease No. B-3023-1, comprising the N/2 NW/4 of Section 5, Township 18 South, Range 28 East.

Lease No. B-2029, comprising the NW/4 NW/4 of Section 4, Township 18 South, Range 28 East.

Lease No. B-11538-1, comprising the SW/4 SE/4 of Section 32, Township 17 South, Range 28 East.

Lease No. B-2071-14, comprising the E/2 SE/4 of Section 32, Township 17 South, Range 28 East.

Lease No. E-1717, comprising the NW/4 SE/4 of Section 32, Township 17 South, Range 28 East.

Lease No. B-5862-19, comprising the N/2 NW/4 of Section 32, Township 17 South, Range 28 East.

Lease No. E-6945-1, comprising the SW/4 NW/4 of Section 32, Township 17 South, Range 28 East.

Lease No. B-10021-5, comprising the SW/4 NE/4 of Section 31, Township 17 South, Range 28 East.

Lease No. 647-322, comprising the W/2 SW/4 of Section 31, Township 17 South, Range 28 East.

Lease No. B-7966-16, comprising the NE/4 SW/4 of Section 31, Township 17 South, Range 28 East.

(3) That the applicant proposes to commingle the Empire-Abo Pool production from each of the above-described leases into a common battery to be located on the said State lease No. B-11538-1, after separately metering the liquid production from each lease.

(4) That water and/or emulsion presently constitutes less than one per cent of the total production from any such lease.

(5) That in the event that water and/or emulsion should constitute one per cent or more of the total production from any such lease, the applicant should install adequate continuous-sampling facilities to determine the amount of water and/or emulsion produced from each lease, or should eliminate such water and/or emulsion from the individual lease production prior to commingling.

(6) That the State beneficiary is the same under all of the subject leases, but there is a diversity in overriding royalty interests.

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

(8) 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 that adequate safety features are incorporated therein.

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

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, be and the same is hereby authorized to commingle the production from the Empire-Abo Pool from all wells presently completed on the following-described State leases in Eddy County, New Mexico, after separately metering the liquid production from each lease:

Lease No. 647, comprising the NE/4 NW/4 of Section 5, Township 18 South, Range 28 East.

Lease No. B-3823-1, comprising the N/2 NE/4 of Section 5, Township 18 South, Range 28 East.

Lease No. B-2029, comprising the NW/4 NW/4 of Section 4, Township 18 South, Range 28 East.

Lease No. B-11538-1, comprising the SW/4 SE/4 of Section 32, Township 17 South, Range 28 East.

Lease No. B-2071-14, comprising the E/2 SE/4 of Section 32, Township 17 South, Range 28 East.

Lease No. E-1717, comprising the NW/4 SE/4 of Section 32, Township 17 South, Range 28 East.

Lease No. B-5862-19, comprising the N/2 NW/4 of Section 32, Township 17 South, Range 28 East.

Lease No. E-6945-1, comprising the SW/4 NW/4 of Section 32, Township 17 South, Range 28 East.

Lease No. B-10021-5, comprising the SW/4 NE/4 of Section 31, Township 17 South, Range 28 East.

Lease No. 647-322, comprising the W/2 SW/4 of Section 31, Township 17 South, Range 28 East.

Lease No. B-7966-16, comprising the NE/4 SW/4 of Section 31, Township 17 South, Range 28 East.

PROVIDED HOWEVER, That in the event that water and/or emulsion should constitute one per cent or more of the total production from any such lease then the applicant shall notify the Secretary-Director of the Commission and shall, subject to the approval of the Secretary-Director, install adequate continuous-sampling facilities to determine the amount of water and/or emulsion produced from each lease, or shall eliminate such water and/or emulsion from the individual lease production prior to commingling.

(2) That the applicant be and the same is hereby authorized

to install automatic custody transfer equipment to handle the said commingled production from all wells located on the above-described leases.

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 on each lease, and a monthly tabulation indicating the per cent of emulsion and/or water produced by each well shall be filed with the Commission.

PROVIDED FURTHER, That the applicant shall install high level safety shut-in switches in the storage tanks which will shut-in the wells at the wellhead in the event of malfunction of the equipment.

PROVIDED FURTHER, That the flowlines used in the automatic custody transfer system shall be high pressure tubing which has been tested to at least 1500 psi.

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 all 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.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

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

esr/

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date July 28, 1960

CASE NO. 2030 HEARING DATE DSN Santa Fe, 9 a.m. 7/27

My recommendations for an order in the above numbered case(s) are as follows:

Approve the application of Pan American Petroleum Corporation to commingle the production from several state leases and transfer said production by means of an LACT unit in the Empire-Abo field in Eddy County, New Mexico.

Make provision that applicant shall install adequate facilities to determine the amount of water or emulsion produced from each lease on a continuous basis, when said water or emulsion consists of 1 per cent or more of the total production from any lease or that such water or emulsion shall be eliminated from the stream prior to commingling the production from that lease with that of any other lease.

Staff Member

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 27, 1960.

IN THE MATTER OF:

APPLICATION OF PAN AMERICAN PETROLEUM CORPORATION for permission to commingle the Empire-Abo Pool production from eleven separate State leases in Townships 17 and 18 South, Range 28 East, Eddy County, New Mexico. Applicant further seeks permission to install automatic custody transfer facilities to handle said commingled production.

CASE NO. 2030

BEFORE:

Hon. Daniel S. Nutter, Examiner.

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: Next case will be Case 2030.

MR. PAYNE: Case 2030. Application of Pan American Petroleum Corporation for permission to commingle the Empire-Abo Pool production from eleven separate State leases.

MR. NEWMAN: Kirk Newman, of Atwood and Malone, Roswell, New Mexico, representing the applicant. We have one witness. Let the record show the witness has already been sworn.

*****

A L B E R T H. G R E E N, a witness, called by the Applicant, having been previously sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. NEWMAN:

Q Will you state your name, and your employment, please, sir?

A My name is Albert H. Green; employed by Pan American Petroleum Corporation as a petroleum engineer, Lubbock, Texas.

MR. NEWMAN: We will presume the witness' qualifications remain acceptable for this case?

MR. NUTTER: Yes, sir.

Q (By Mr. Newman) We have what will be designated as the Applicant's Exhibit 1, which has certain attachments thereto.

(Whereupon, Applicant's Exhibit 1 marked for identification.)

Q Mr. Green, would you refer to attachment 1 of Exhibit 1, and state to the Commission what that exhibit shows?

A Attachment 1 of Exhibit 1 is a lease plat, which shows the location of the proposed central battery Lact facilities to serve that acreage which is outlined by broken or dashed purple lines.

Q What quarter quarter section is the central battery located?

A Central Lact is located in the Southwest Quarter of Section 27, Township 17, Range 28 East.

Q For the purposes of the record, would you briefly state the descriptions of the lands to be covered by these State of New Mexico leases, which are described in your application?

A The acreage description is as follows: Includes the SW/4 NE/4 of Section 31, the W/2 SW/4 of Section 31, the NE/4 SW/4 Section 31, the N/2 nw/4 Section 32, the SW/4 NW/4 of Section 32, the E/2 SE/4 of Section 32, the NW/4 SE/4 of Section 32, the SW/4 SE/4 of Section 32, all of the preceding in Township 17 South, Range 28 East; and the NW/4 NW/4 of Section 4, the N/2 NE/4 of Section 5, and the NE/4 NW/4 of Section 5, the latter being in the Township 18 South, Range 28 East.

Q Are the lease numbers of the State of New Mexico, Oil and Gas leases, shown on your plat?

A Yes, sir, they are in each quarter quarter, or each lease, the State Lease number is shown.

Q And what institution of the State is beneficiary under all of these leases?

A The common school.

Q Do you have any other remarks in connection with this exhibit?

A No, sir, no other remarks pertaining to attachment 1.

Q Would you now refer to what is designated as Attachment 2 of Exhibit 1, and state what that attachment shows, please?

A Attachment 2 of Exhibit 1 is a schematic flow drawing which shows the proposed storage system serving those leases which I have just enumerated.

Q Is this schematic drawing of this system, does it show that the system to be installed is substantially the same as

other systems previously approved by the Commission, and for which application has been made in the preceding case?

A Yes, sir, for all the collecting equipment is identical.

Q Would you trace your flow through this system?

A Flow from each well passes through an individual well flow-line, through individual well automatic flow control valves, and into the lease production headers which are marked item "A". From the individual lease production headers, flow passes through the individual lease separators, the individual lease production meters, and then the flow is commingled and passes into the Lact unit surge tank, which is marked item "D". From the surge tank, flow passes through the Lact, the components of which are pipeline pumping, the strainer "H", the deaerator "I", the B. S. and W. monitor "J", the diverting valve "K", the pipeline sampling point "L", the positive displacement meter "M", the back-pressure valve "N", past the prover tank and prover loop connections "O", and through a back-flow connection valve marked item "P".

If production is of unmerchantable quality, the flow passes directly through the Lact. In the event that the B. S. and W., item "J", detects the presence of unmerchantable oil, flow is diverted from the pipeline into the resurgical tank, item "Q". Here, again, as in the previous case, water or production is very small, and when unmerchantable oil is collected in the resurgical tank, it will be chemically treated, ... the water drawn off, and the treated oil returned to the Lact unit surge tank, which

is item "D".

Q What type flow lines are used in this system?

A The flow lines connecting the wells to this central battery are high pressure tubing, designed to withstand 3,000 pound pressures.

Q Is that substantially in excess of your top pressures, shut-in pressures on this well?

A Yes, sir, it is.

Q Is there any means, through the use of this system, whereby physical waste of oil would occur?

A No, sir.

Q Is there any possibility that physical waste would be prevented by the use of this system, rather than by the conventional system?

A We believe that hydrocarbons can be -- excuse me -- the waste of hydrocarbons can be reduced by such installation, because there is less residence time for the crude to be held in storage tanks, prior to delivery to the pipeline.

Other than the reduction in hydrocarbon waste, there also will be a savings in labor provided by these facilities not only to the producer, but to the pipeline and these facilities will effect a substantial reduction in capital investment for the operator.

Q Are the facilities of this system such that the production from the individual leases could be accurately gauged in

order that correlative rights of the various leasehold royalty overriding owners can be protected?

A Yes, sir.

Q Do you have any further remarks in connection with this exhibit?

A No, sir.

Q Was the entire exhibit, including the commentary included therein, and attachment therein, prepared by you or under your direction?

A Yes, sir.

MR. NEWMAN: We would like to offer the Exhibit Number 1, with attachments.

MR. NUTTER: They will be accepted. Does anyone have any further questions of this witness?

CROSS-EXAMINATION

BY MR. PAYNE:

Q Does this proposed delivery have any significance with respect to the one you testified to in the previous case?

A The only difference of any significance is the fact this particular installation is not to be set up for individual well testing. The reason for that being that no lease has more than two wells. We feel that with the wells of the type which we now have, or which are now completed, that with no more than two wells per lease, the well testing can be accomplished with existing type facilities, which are proposed without setting up special or

separate well testing facilities.

MR. NUTTER: Would this involve the shutting in of one well?

A That is right.

Q (By Mr. Payne) These leases are not continuous, are they?

A No, sir, they are not. We have right-of-way for those across that acreage where it is necessary to lay flow lines.

Q What will the longest distance be?

A I believe approximately one and a half miles will be the longest flow line.

Q Your flow line on your "B" --

A "B" lease, which is in the W/2 SW/4 of 31, will have the longest flow lines.

MR. PAYNE: Thank you.

QUESTIONS BY MR. NUTTER:

Q What is the capacity of the surge tank?

A The tanks will be either four or five hundred barrel tanks.

Q Both of them?

A Yes, sir, that is our current plans.

Q Now, normally, your resurgical tank would be empty, or approximately empty?

A Normally, the resurgical tank will be empty.

Q You have available storage in the surge tank from the high level flow on up to the top?

A Yes, sir.

Q What do you have there, approximately, 200 barrels?

A Let's see, that is -- just one second -- Yes, sir, that is correct, a little more than 200.

Q This line that connects these two tanks is a restricting overflow line?

A That is correct. Your existing, that line is a 6-inch line so as to easily handle the production into that tank.

Q Now, if your Lact fails to deliver oil, the production would either go into the surge tank, in the remaining capacity, and then overflow into the resurgical tank, or go into the resurgical tank directly, and flow back into the surge tank, is that correct?

A Yes, sir. And in the event the Lact does not deliver oil, on signal from the working level in the surge tank, the surge tank fills into, flows in the resurgical tank, and fills that tank until the maximum high level float switch is tripped. When the fluid level reaches that point, then that switch causes each individual well flow control valve to shut in.

Q At the inlet to the separator?

A At the inlet to the separator.

Q Then you rely on your 3,000 pound tubing to hold the wells?

A To prevent waste.

Q What kind of meter is it that you propose to use in this

installation and the difference in the one we had in the previous case?

A In both cases, all meters are the positive displacement type.

Q What type?

A A. O. Smith.

Q What about the gas that is produced at these various separators? Is that commingled prior to metering, or separate sales?

A The gas will be separately metered to achieve proper allocation.

Q Would the same thing hold true in this instance as you stated in the previous instance, that when you commence making free water or emergent, you would install heaters upstream from there and make compressions, continuously sample the production?

A That is correct.

Q What application of emergent over water are you making in this estimation?

A I am -- well, less than one percent also.

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

(No response.)

MR. NUTTER: You may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further?

MR. NEWMAN: No, sir.

MR. NUTTER: Does anyone have anything further in Case 2030?

(No response.)

MR. NUTTER: We will take the case under advisement.

*****

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, LLEWELYN NELSON, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS My Hand and Seal, this the 2nd day of August, 1960, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Llewelyn Nelson
NOTARY PUBLIC.

My Commission Expires:

June 14, 1964.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2030, heard by me on 7/27, 1960.

, Examiner
New Mexico Oil Conservation Commission

I N D E X

NUMBER	EXHIBIT	MARKED FOR IDENTIFICATION	OFFERED	RECEIVED
App.#1	Lease plat	2	6	6

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS
DL = Day Letter
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PLEASE SEND TRANSCRIPT OF THE FOLLOWING TWO NEW MEXICO HEARINGS AS SOON AS POSSIBLE: PAN AMERICAN CASES 2028 AND 2030, BOTH HELD 7-27-60. BILL THE LUBBOCK PRODUCING DEPT. BOX 268=

MEIL S WHITMORE DIST SUPT PAN AMERICAN PETROLEUM CORP LUBBOCK TEXAS..

THE COMPANY WILL APPRECIATE S... ...TIONS FROM ITS PATRONS CONCERNING ITS SERVICE

[redacted]

PAN AMERICAN PETROLEUM CORPORATION

CENTRAL BATTERY AND AUTOMATIC CUSTODY
TRANSFER FACILITIES
STORAGE SYSTEM IV - EMPIRE ABO POOL
EDDY COUNTY, NEW MEXICO

NEW MEXICO OIL CONSERVATION COMMISSION
EXAMINER HEARING
JULY 27, 1960

EXHIBIT

Case 2030

PAN AMERICAN PETROLEUM CORPORATION

CENTRAL BATTERY AND AUTOMATIC CUSTODY
TRANSFER FACILITIES
STORAGE SYSTEM IV - EMPIRE ABO POOL
EDDY COUNTY, NEW MEXICO

NEW MEXICO OIL CONSERVATION COMMISSION
EXAMINER HEARING
JULY 27, 1960

IX. ATTACHMENTS

1. Lease Plat - Proposed Storage System IV

2. Schematic Flow Drawing - Proposed Storage System IV

3. Pipeline Company Letter of Approval of Automatic Custody Transfer Facilities Storage System IV

4. Commissioner of Public Lands, State of New Mexico, Letter of Approval, Commingling and LACT, Storage System IV

EXHIBIT

PAN AMERICAN PETROLEUM CORPORATION

CENTRAL BATTERY AND AUTOMATIC CUSTODY
TRANSFER FACILITIES
STORAGE SYSTEM IV - EMPIRE ABO POOL
EDDY COUNTY, NEW MEXICO

NEW MEXICO OIL CONSERVATION COMMISSION
EXAMINER HEARING
JULY 27, 1960

CONTENTS

I. INTRODUCTION

Pan American Petroleum Corporation respectfully submits this exhibit in support of its request to the Oil Conservation Commission of the State of New Mexico for:

1. Approval to commingle in a central battery, to be located in SW/4 SE/4 Section 32, T-17-S, R-28-E and to be designated Storage System IV, the production from the following eleven Pan American operated State Leases in the Empire Abo Pool of Eddy County, New Mexico:

State Lease Number	Pan American Lease Name	Description
B-10021-5	CC	SW/4 NE/4 Sec. 31, T-17-S, R-28-E
647-322	BE	W/2 SW/4 Sec. 31, T-17-S, R-28-E
B-7966-16	BM	NE/4 SW/4 Sec. 31, T-17-S, R-28-E
B-5862-19	AE	N/2 NW/4 Sec. 32, T-17-S, R-28-E
E-6945-1	BV	SW/4 NW/4 Sec. 32, T-17-S, R-28-E
B-2071-14	BO	E/2 SE/4 Sec. 32, T-17-S, R-28-E
E-1717	BP	NW/4 SE/4 Sec. 32, T-17-S, R-28-E
B-11538-1	BG	SW/4 SE/4 Sec. 32, T-17-S, R-28-E
B-2029	BC	NW/4 NW/4 Sec. 4, T-18-S, R-28-E
B-3823-1	BH	N/2 NE/4 Sec. 5, T-18-S, R-28-E
647	BK	NE/4 NW/4 Sec. 5, T-18-S, R-28-E

2. Approval to install and operate automatic custody transfer facilities at the site of the central battery to handle the commingled production from the State leases listed above.

Attachment No. I is a plat showing the location of the above described State leases and the proposed central battery and LACT unit installation. The installation of these facilities to accurately record the volumes of lease produced crude and automatically transfer that crude to pipeline custody will:

1. Conserve natural resources in the form of light hydrocarbons which are lost from produced crude oil to the atmosphere during conventional tank gauging operations at which time accumulated light ends escape from the tanks and others flash from the stored oil to the atmosphere.

2. Substantially reduce the crude oil residence time in the storage tanks thereby lessening vapor losses by way of normal tank venting or breathing.

3. Conserve manpower and improve lease operations by substantially reducing tank battery attendance time which will in turn release lease operating personnel and pipeline personnel for performance of other duties.

4. Release those monies in excess of the cost of LACT equipment which would otherwise be invested in conventional lease storage facilities for use in finding and developing additional oil reserves in the State of New Mexico.

II. CENTRAL BATTERY EQUIPMENT

In addition to the piping, valves, separators, tanks, etc. that make up a conventional tank battery, the proposed central battery will be equipped with individual automatic well flow control valves, individual lease production meters and an emergency high level float switch in one of the interconnected storage tanks to shutin all wells connected to the central battery in the event of an emergency high fluid level in the storage tanks.

Initially, the lease production separators and meters will also be utilized for well test purposes. At the present time all wells to be connected to the central battery are making top allowable and no lease will have more than two wells. Under these circumstances all wells can be tested without loss of allowable production without the installation of special or separate well test facilities.

III. LACT UNIT EQUIPMENT

The positive displacement meter LACT unit to be installed at the proposed Storage System IV central tank battery is basically the same as the four other NMOCC approved LACT units Pan American now has in operation in the Empire Abo Pool. The LACT unit will include a pipeline pump; a strainer; an air eliminator; a BS&W monitor; a valve to divert unmerchantable oil into a recycle tank for further treating; a proportional pipeline sampler; a temperature compensated positive displacement meter (equipped with net barrels counter, set-stop counter, electric impulse transmitter to pace the pipeline sampler and a fail-safe safety shut-down switch) a back pressure valve to assure that the line to and from the meter is packed with oil at a pressure in excess of the vapor pressure of the metered liquid; a calibrated meter prover tank; a back flow check valve and a LACT unit control panel.

IV. CENTRAL BATTERY AND LACT UNIT OPERATION

Operation of the central battery and LACT unit is described below and can be followed by reference to the schematic flow drawing

included as Attachment 2.

Oil production will flow from each well through individual high pressure flowlines into the tank battery area and then through the individual well automatic flow control valves and into the respective lease production or well flowline headers (A). From the individual lease headers (A) the oil flows through the respective lease production separators (B) and meters (C) into a common header where production from the several leases is for the first time commingled. From this point the commingled stream flows into the LACT unit surge tank (D). When the oil level in the surge tank (D) reaches the high working level float switch (E), the pipeline pump (G) is automatically started. Oil then passes through strainer (H), air eliminator (I) and the BS&W monitor (J). If the oil is of merchantable quality as determined by the BS&W monitor (J), flow continues through the diverting valve (K), sampling point (L), PD meter (M), back pressure valve (N), check valve (P) and on to the pipeline past the meter prover tank (O). When sufficient oil has been transferred to the pipeline to lower the fluid level in surge tank (D) to the low working level float switch (F), power is automatically shut off to the pipeline pump (G) and the transfer of oil to the pipeline is stopped. When the fluid level in the surge tank (D) returns to the high working level float switch (E), automatic transfer of oil to pipeline custody again takes place.

In the event the BS&W monitor (J) detects unmerchantable oil, valve (K) will close to the meter run and direct the flow of oil into the recycle tank (Q). When the BS&W content of the oil entering the LACT unit returns to a satisfactory range as determined by the BS&W monitor (J), the diverting valve (K) will close to the recycle tank and again direct the flow of oil to the LACT meter run and to the pipeline. Any unmerchantable oil which is collected in the recycle tank (Q) will be chemically treated in the tank to break the oil-water emulsion. Following this, water will be drawn from the tank bottom, and the treated oil will be returned to the pipeline surge tank (D) by recycle pump (R).

V. PIPELINE OIL SAMPLING

A composite representative sample of all oil delivered to the pipeline will be obtained by the sampler (L). The positive displacement meter (M) will be equipped with an electric impulse transmitter which will cause the electrically driven sampler pump to extract proportionate samples of all oil passing through the meter. Collection of the composite sample will be accomplished in a vapor proof container for

subsequent testing by a representative of the pipeline company. Calibration of the BS&W monitor and adjustment of the treating procedure will be made on the basis of the analysis of the composite sample.

VI. LEASE PRODUCTION AND LACT UNIT METER PROVING

Individual proving of the lease production meters (C) will be accomplished by closing a normally open block valve (Y) and opening a normally closed block valve (X) to direct the lease production into the meter prover tank (O). The metered volume will then be compared to the prover tank gauged volume. The oil accumulated in the prover tank (O) during meter proving tests will be returned by way of the recycle pump (R) to the pipeline surge tank (D). For added flexibility piping will be installed so that the lease production meters (C) can also be proved by flowing oil through the meters into the calibrated recycle oil tank (Q).

The LACT unit positive displacement meter will be proven by directing the flow of oil from the LACT unit into the meter prover tank (O). The metered volume will then be compared to the prover tank gauged volume. When excessive meter error is indicated by this procedure, immediate action will be taken to return the meter to a condition that will guarantee the desired measuring accuracy.

The meter prover tank (O) will be constructed to conform to API standards. The inside surfaces of the tank will be plastic coated to prevent corrosion and the adherence of crude products, thereby maintaining the prover tank calibration.

VII. PROTECTIVE FEATURES

The LACT unit will be checked periodically by the producer's representative to assure satisfactory operation. In addition, the following features will be built into the LACT system to protect the royalty owner, the producer, and the pipeline and to prevent waste.

1. During normal operation no oil can be delivered to the pipeline from this battery without first passing through the positive displacement meter (M).

2. The inlet and outlet valves on the LACT unit side of the meter prover tank (O) will be closed and equipped with pipeline company seals during normal operations.

This will prevent inadvertent by-passing of the LACT unit meter and transfer of non-recorded volumes of oil to the pipeline during the lease production meter proving operation.

3. The positive displacement meter (M) will be equipped with set stop controls to prevent over production.

4. The positive displacement meter (M) will be equipped with a non-resettable barrels counter to maintain a positive record of the quantity of oil delivered to the pipeline.

5. The back pressure valve (N) will hold a positive pressure on the meter (M) thereby insuring proper conditions for accurate measurement.

6. The positive displacement meter (M) will be equipped with a safety switch which is geared to the counter shaft. In the event the shaft rotation stops due to shaft failure, the safety switch will assume a position that will cause power to the pipeline pump (G) to be shut off thereby preventing the delivery of non-recorded volumes of oil to the pipeline.

7. All oil produced into the Storage System IV central battery will be monitored for BS&W content and only that oil of merchantable quality will be delivered to the pipeline.

8. Performance of the BS&W monitor (J) will be checked by the manual determination of sample BS&W content at the end of each sample collection period.

9. The sampler (L) will collect and store under pressure, a representative composite sample of all oil delivered to the pipeline. Periodically, the sample thus collected will be analyzed for BS&W content and gravity by a representative of the pipeline.

10. In the event of failure of the low working level float switch (F) the fluid level in the surge tank (D) will be drawn down to the point at which vapors will be drawn into the pipeline pump suction. Because the pump (G) will then lose suction, flow through the

meter (M) will immediately drop below the pre-determined rate range and the safety switch built into the meter will cause the power to be shut-off to the pipeline pump.

11. In the event of failure of high working level float switch (E) the pipeline pump will not be energized by the rising fluid level in the surge tank (D). Subsequently, the incoming oil will rise to the point where it will overflow through an equalizing line into the recycle tank (Q). With continuing production into the tanks, the oil level in the recycle tank will rise and actuate the emergency high level float switch (S) which will in turn cause all of the flow control valves to close and shutin all wells connected to the central battery. All well flowlines will be constructed to withstand pressures in excess of wellhead shutin pressures.

VIII. TAMPER PROOF DESIGN OF LACT UNIT

The BS&W monitor controller will be locked against tampering and the block valves on the LACT unit side of the proving tank will be sealed at all times except during proving runs by authorized personnel.