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

ILLEGIBLE

March 3, 1965

Shell Oil Company
P. O. Box 1509
Midland, Texas

Attention: Mr. W. R. Fairchild

COPY

Gentlemen:

Administrative Order NSL-19

Reference is made to your application dated January 28, 1965, wherein you request authority to commingle Antelope Ridge-Pennsylvanian and Antelope Ridge-Devonian gas and condensate production from your Antelope Ridge Unit in Sections 27, 28, 33, and 34, Township 23 South, Range 34 East, and Sections 3 and 4, Township 24 South, Range 34 East, Lea County, New Mexico, after separately metering the high- and low-pressure gas and condensate from each pool (and participating area). The wet stream from each well will also be continuously metered prior to commingling.

We assume that the gas derived from the stabilizer will be allocated back to the Pennsylvanian and Devonian pools in the proportion that the liquid metered downstream from each of the low-pressure separators bears to the total liquids going into the stabilizer. Further, that the gas, gasoline, and LPG obtained downstream from the dehydrator, absorber, and fractionator will also be allocated back to each participating area in the proportion that each one is calculated to contribute.

The regional supervisor from the United States Geological Survey previously approved the original plan which you submitted November 13, 1964. The Commissioner of Public Lands for the State of New Mexico has now approved the plan as amended.

Pursuant to the authority granted me under the provisions of Rule 303 (b) and Rule 309-B of the Commission Rules and Regulations, you are hereby authorized to commingle the production from the aforesaid pools and participating areas in the above-described manner. Provided, however, that the installation shall be operated in accordance with the provisions of the Commission Manual for the Installation and Operation of Commingling Facilities. You are also requested to notify the Hobbs District Office of the Commission at such time as the installation is complete in order that an inspection may be made of the installation prior to putting it in operation.

Very truly yours,

A. L. Porter, Jr.
Secretary-Director

ALP:DSN:sg

cc: Oil Conservation Commission - Hobbs
Oil & Gas Engineering Committee - Hobbs
United States Geological Survey - Roswell
Commissioner of Public Lands - Santa Fe
Oil & Gas Accounting Commission - Santa Fe
Case File 2719

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

SHELL OIL COMPANY
PETROLEUM BUILDING
P. O. BOX 1509
MIDLAND, TEXAS

December 23, 1964

Subject: Commingling Gas and Liquid Production from Devonian Wells Antelope Ridge Unit

Oil Conservation Commission (3)
State of New Mexico
P. O. Box 2088
Sante Fe, New Mexico

Gentlemen:

We refer to our letter of November 13, 1964 requesting an exception to Rules 303a and 309a and to your reply of December 8, 1964 which authorized the commingling of production from Devonian wells 27-1 and 34-1.

Well 4-1 mentioned in our letter as a Pennsylvanian completion is now being reworked to make it a dual Pennsylvanian and Devonian producer. The Pennsylvanian production will be handled as at present through separate low temperature recovery facilities with the gas being metered directly to sales and the liquids run to separate storage.

We desire to commingle the Devonian production from 4-1 with the production from the two Devonian wells, 27-1 and 34-1. Facilities and procedures for metering and testing the new well production will be identical to those outlined for the other two wells, and ownership is common. We are, therefore, requesting administrative approval to commingle the production from Devonian wells, 27-1, 34-1, and 4-1, all in the Antelope Ridge Unit.

Yours very truly,

W R Fairchild

WRF:SAS

W. R. Fairchild

cc - United States Department of the Interior
Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

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

December 8, 1964

COPY

Shell Oil Company
P. O. Box 1509
Midland, Texas

Attention: Mr. W. R. Fairchild

Gentlemen:

Reference is made to your letter dated November 13, 1964, wherein you request an exception to Rules 303 (a) and 309-A of the Commission Rules and Regulations to permit the commingling of Devonian production from your Antelope Ridge 27-1 and 34-1 wells and Pennsylvanian production from your Antelope Ridge 4-1 well.

Inasmuch as the ownership of the zones is not common throughout, due to a difference in participating areas, it will not be possible for the Commission to administratively approve the commingling. As per telephone conversation between Mr. Nutter of this office and Mr. Fairchild of your office of December 8, 1964, the matter of commingling will be set for hearing early in January.

In the meantime Shell Oil Company is authorized to commingle the production from the two Devonian wells prior to separation, continuously metering the wet stream ahead of the first stage Devonian separator.

Very truly yours,

A. L. Porter, Jr.
Secretary-Director

ALP:DSN:sg

cc: Oil Conservation Commission - Hobbs
Oil & Gas Engineering Committee - Hobbs
United States Geological Survey - Roswell
State Land Office - Santa Fe

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

December 8, 1964

Shell Oil Company
P. O. Box 1509
Midland, Texas

Re: Antelope Ridge Unit
Lea County, New Mexico

Attention: Mr. W. R. Fairchild

Gentlemen:

Pursuant to your letter dated October 20, 1964, regarding the commingling of Oil and Gas Production from both the Pennsylvanian and Devonian Formations on the Antelope Ridge Unit Area, Lea County, New Mexico.

We approve your request for the commingling of the Devonian production, wells No. 27-1 and 34-1.

However, the Pennsylvanian production from Well No. 4-1 is not the same participating area nor the the same ownership, so we will not approve commingling of the Pennsylvanian with the Devonian at the present time.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:
Ted Bilberry, Director
Oil & Gas Department

ESW/mmr/v
cc: New Mexico Oil Conservation Commission
Santa Fe, New Mexico
Attention: Mr. Dan Nutter

SHELL OIL COMPANY
PETROLEUM BUILDING
P. O. BOX 1509
MIDLAND, TEXAS

November 13, 1964

Subject: Exception to Rules 303a and 309a
Antelope Ridge Field Unit, Lea
County, New Mexico

Oil Conservation Commission (3)
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

We should like to request an exception to Rules 303a and 309a of the New Mexico Rules and Regulations in order that we may commingle gas and liquid production from different wells and production zones in the Antelope Ridge Field Unit.

Attached is a copy of our letter to the United States Department of the Interior, Geological Survey, and the Commissioner of Public Lands, State of New Mexico, requesting their approval of our plans for commingling production. This letter describes our proposed plans. A reproduction of the letter received from the USGS in answer to our letter is also attached.

Liquid hydrocarbons produced from the Devonian formation are sour, have an API gravity of 59° after stabilization and are produced at a rate of approximately 25.1 barrels per million cubic feet of gas. The value of the Devonian condensate, as presently marketed by truck, is $2.64 per barrel (for 55° API or higher gravity).

Liquid hydrocarbons produced from the Pennsylvanian reservoir are sweet, have an API gravity of 50° to 51° as sold from storage after recovery in the low temperature separation equipment now in operation. They are produced at a rate of 6.2 barrels per million cubic feet of gas. The value of the Penn condensate is $2.72 to $2.74 per barrel depending upon its exact gravity. Under present method of condensate recovery, the vapors off the low stage (60#) separator are flared and vapors from weathering of the unstabilized condensate are lost to atmosphere from the storage tanks.

Commingling as proposed will cause a reduction in the price of the Penn condensate because commingled condensate gravity will normally exceed 55° API. However, process calculations show that this reduction will be offset by the value recovered from the vapors otherwise lost to the atmosphere from storage tanks. In addition, as part of our Antelope Ridge Field facilities, a pipe line will be installed to deliver the liquids into a crude gathering system. Condensate prices will then be $.09 per barrel higher than from the present market.

Liquid production from the gas processing plant is expected to range from 15 to 20 barrels per million cubic feet of gas processed depending on the relative quantity of Devonian and Penn gas handled. (The Devonian is higher in recoverable light liquid hydrocarbons.) About 4.0 barrels will be natural gasoline which we propose to meter into common storage with the well condensate and pump into the Shell Pipe Line Company crude gathering line. The balance, about 11 to 16 barrels/MMCF, will be sold as an LPG product to tank trucks at the plant. The price for the commingled condensate (55° API or over) and for the natural gasoline, based on present postings, will be $2.73 per barrel.

We feel that efficient operation of the unit together with maximum conservation of both oil and gas can best be met by commingling the well streams as proposed in our letter noted above. We believe that the metering and testing procedures discussed and shown on the drawings attached will be adequate to accurately allocate oil and gas produced to the producing well and well formation. Reduction in the price of Pennsylvanian condensate because of gravity increase will be compensated by increased efficiency in both liquid and vapor recovery.

We shall appreciate your approval of this request for an exception to Rules 303a and 309a so that we may proceed with our plans to commingle and efficiently treat and process oil and gas from the several wells in the Antelope Ridge Unit.

Yours very truly,

W. R. Fairchild

W. R. Fairchild
Chief - Gas Engineering

WHF:BAK

Attachments

WRF

IN REPLY REFER TO:

'61 NOV 16 AM 8 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Drawer 1857
Roswell, New Mexico 88201

November 4, 1964

Shell Oil Company
P. O. Box 1507
Midland, Texas

Attention: Mr. W. R. Fairchild

Gentlemen:

Your letter of October 20, requests approval to commingle production from the Morrow formation with Devonian production in the Antelope Ridge unit area.

The method of commingling described by the diagram attached to your letter is hereby approved.

All meter proving tests should be scheduled so that our Hobbs office is notified in sufficient time to be represented at the calibration.

Sincerely yours,

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

RECEIVED
NOV 5 1964
GAS DEPARTMENT
MIDLAND

'64 Nov 16 AM 8 4

October 20, 1964

Subject: Antelope Ridge Unit, Lea County, New Mexico - Commingling of Oil and Gas Production

United States Department of the Interior
Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands
State of New Mexico
Santa Fe, New Mexico

Gentlemen:

We are with this letter requesting your approval of plans and facilities proposed, and outlined herein, for commingling oil and gas production from Devonian formation wells and Pennsylvanian formation wells in the Antelope Ridge unit.

To date there are three wells in the unit: 4-1 completed in and produced for several months from the Pennsylvanian formation into separate tankage through low temperature separation equipment; 27-1 completed in and producing from the Devonian formation through a liquid stabilization and gas sweetening unit into separate tankage; and 34-1 completed in the Devonian formation but not yet connected into the treating plant. (Flow line, heater and metering equipment will be installed within the next two weeks.) In addition, well 4-1 is scheduled for early work-over to make it a dual producer - Devonian and Penn.

The Penn zone in 4-1 will eventually be connected into the processing plant. It is now used as a stand-by gas source in case the treater is out of operation.

A diagram of our field facilities is attached. Each formation from each well will be flowed to the plant as a separate stream and will be metered. The stream will be connected to a header from which, by valving, it can be run to liquid stabilization, gas treating and processing or to a test separator for actual determination of the gas-oil ratio.

We propose at six-month intervals to flow each incoming stream into the test separator for a 24-hour test. The test measurements together with the continuously measured flow in each incoming line will permit allocation of condensate production back to the producing well and formation.

To determine the allocation of liquids recovered in the processing plant, we propose to run a fractionation analysis (Pod or equivalent) on the gas streams off the test separator. These analyses with the metered gas volume from the test separator and the continuously metered flow in each incoming line will enable us to allocate the LPG and natural gasoline recovery to each drainage point.

Additional meters provided in the plants will supply measurements needed to make correct distribution of fuel gas between the treater and processing plant.

The plot of the 6-section Antelope Ridge Unit attached to this letter shows that both the Pennsylvanian and Devonian pools are within the boundaries of the unit which Shell Oil Company operates. Also shown are the current participating areas for each zone.

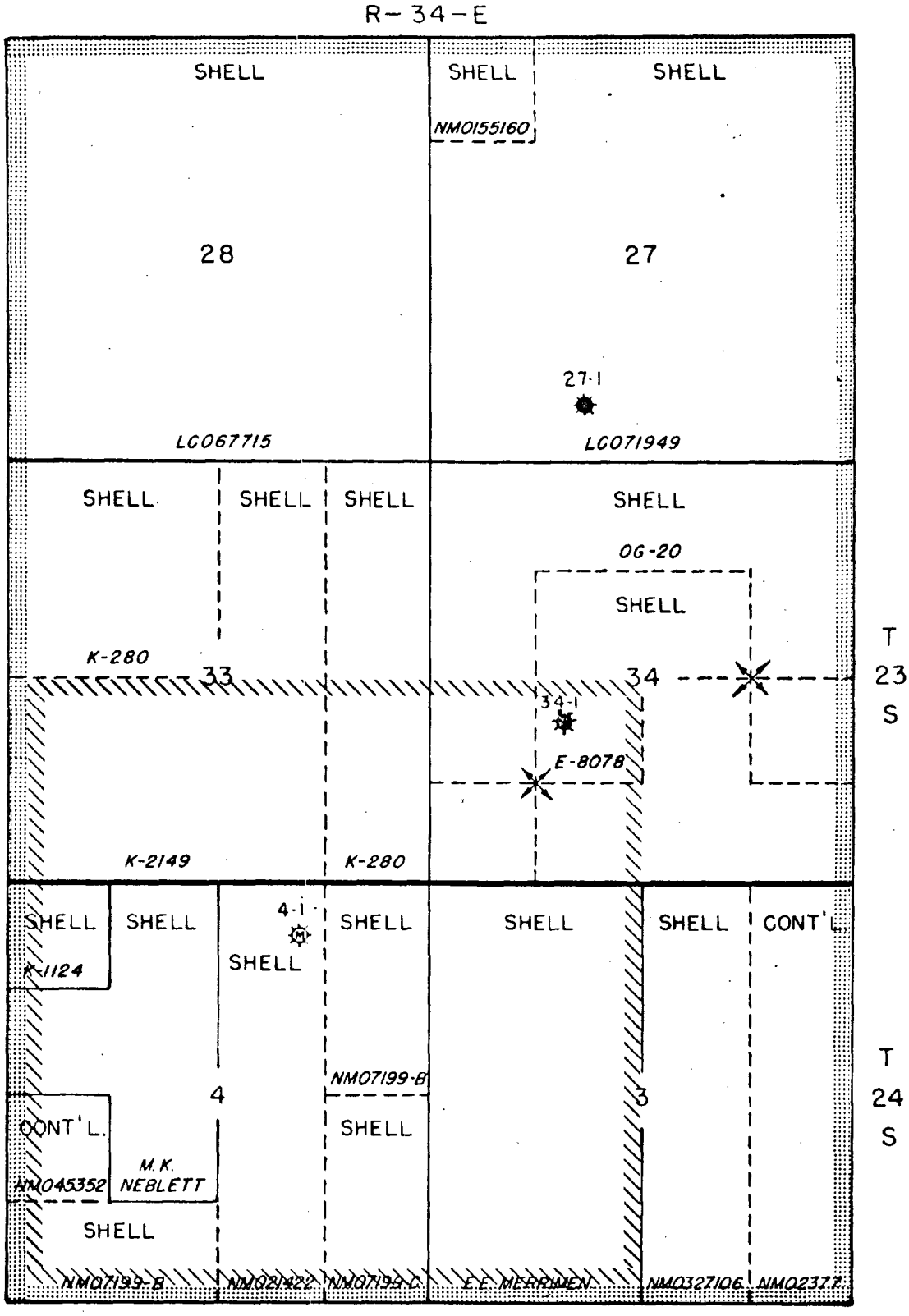
Efficient operation of the unit production facilities with maximum conservation of natural resources will only be obtained by commingling the liquids and gas. This will permit stabilization of all condensate for minimum vapor loss in the stock tanks and processing of all gas and vapors for recovery of natural gasoline and LPG.

We shall appreciate your approval of our plans and facilities for commingling and measuring the Antelope Ridge Unit production. Your letter of approval, if received, will be reproduced and forwarded to the NMOCC with our request for an exception to Rules 303 (a) and 309 (a).

Yours very truly,

W. R. Fairchild
Chief - Gas Engineering

WRF:BAK



ANTELOPE RIDGE UNIT
SCALE: 1" = 2000'

LEGEND

PENNSYLVANIAN PARTICIPATING AREA

UNIT BOUNDARY AND DEVONIAN PARTICIPATING AREA

① DRILLING

Ⓜ MORROW

● DEVONIAN

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE