417

EXHIBIT "D"
TABLE NO. 1
San Juan 30-5 Unit - Dakota Gas Production
Rio Arriba County, NEW MEXICO

Gas Volumes in MCF @ 14.73 psia & 60°

Prepared by
Approved By

RECEIVED
APR 22 1981
OIL CONSERVATION DIVISION
SANTA FE

Unit-Well No.	LOCATION	Cumulative Production to 12/1/75	1976	1977	1978	Jan. 1979	Feb. 79	March 79	April 79	May 79	June 79	Year to Date 1/1/79 7/1/79	Cum. Production 7/1/79
6	Sec 19 30N 5W	0 D&A	----	----	----	----	----	----	----	----	----	----	----
27	Sec 20 30N 5W	207245(NE)	7875	11750	9318	497	275	906	506	820	625	3629	239817
28	Sec 23 30N 5W	0 D&A	----	----	----	----	----	----	----	----	----	----	----
37	Sec 8 30N 5W	306030	54808	46120	44100	4423	2967	3497	2772	3040	3926	20625	471683
39	Sec 7 30N 5W	Id July 77		31125	36375	2117	858	2604	2810	5358	2552	16299	83799
47	Sec 17 30N 5W	Id July 77		48758	78542	3097	4936	7752	6442	5569	4613	32409	159709
	ELIMINATED ACREAGE												
Carson #1	Sec 1 30N 5W (All of)	294637	39696	54690	45099	3563	3420	3909	3518	4032	3482	21924	456046
Catdraw #1	Sec 4 30N 5W (Part of)	160688	7875	11750	9318	-0-	-0-	-0-	-0-	-0-	-0-	-0-	189631
Schalk 54-1	Sec 2 30N 5W (All of)	82790	45533	47265	41791	3503	2477	3539	3370	2998	3071	18958	236337
Schalk 55-1	Sec 3 30N 5W (Part of)	51951	19653	17675	13985	1190	953	1225	1173	1156	943	6640	109904
Schalk 57-1	Sec 12 30N 5W (Part of)	124274	65708	64927	64666	5145	4029	4641	5731	3989	4816	28351	347926

EXHIBIT "B"

SAN JUAN 30-5 UNIT
Rio Arriba County, New Mexico

Geologic Report
Dakota Producing Interval

First and Second Expansions
of the Dakota Participating Area

GENERAL INFORMATION

The San Juan 30-5 Unit is located along the central eastern margin of the productive portion of the San Juan Basin. The unit has a total of 20,092.24 acres in Township 30 North, Range 5 West. All or parts of Sections 1, 2, 3, 4, and 12 totaling 2,392.56 acres have been eliminated from the unit.

Within the unit area, the "Dakota Producing Interval" has been tested in seven (7) wells, resulting in two (2) plugged and abandoned wells (#6 and #28), one (1) non-commercial gas well (#27) and three (3) commercial gas wells (#37, #39 and #47). A fourth gas well, the Coastline Petroleum #1-57 Schalk Well was discussed in the Initial Dakota "A" Participating Area.

The "Dakota Producing Interval", as defined by the New Mexico Oil Conservation Commission in Order No. R-1670-C, Rule 25, is the interval "from the base of the Greenhorn to a point 400 feet below the base of said formation and consisting of the Graneros formation, the Dakota formation and the productive upper portion of the Morrison formation".

Included in the report are two (2) maps and a stratigraphic cross section entitled Exhibit "C". Exhibit "C", Figure #1, shows the subsurface structure of the Dakota interval using sea level as the datum plane, the top of the Graneros as the mapping horizon and a contour interval of ten (10) feet. Present structural control indicates only minor flexuring through the area under consideration. Regional strike is NW - SE and regional dip is approximately 50 feet per mile to the Northeast. It is apparent that stratigraphy, rather than structure, controls the accumulation of hydrocarbons within the Dakota Producing Interval in the San Juan 30-5 Unit.

To date, the producing sands within the Dakota Producing Interval are restricted to the Upper Dakota Marine Sand (Dakota "A" Sand) and the Middle Dakota (Dakota "B" Sands). There are no sands developed within the Graneros interval and the Lower Dakota sands (Basal Dakota or Dakota "C" Sands) are apparently water wet.

The Upper Dakota Marine Sand (Exhibit "C", #2) is a littoral marine sand with environmental characteristics of destructive deltaic to off-shore bar. Porosity, grain size and sorting generally increase upward. The Middle Dakota Interval (including Dakota "B" Sands) represents a paludal facies with well developed

fluviatile channel sand interbeds. These sands tend to be siliceous and generally have very limited porosity.

It is the geologic opinion of the leasehold owners of the Dakota formation (Phillips Petroleum Company and Amoco Production Co.) and of the unit operator (Northwest Pipeline Corporation) that expansion of the Dakota Participating Area in this unit can only be inferred from the development of the Upper Marine Dakota Sand. This unit can be mapped and the limits of the productive reservoir can be logically extrapolated with the mechanical well log data available.

The productive capacity of the Middle Dakota sands, on the other hand, is apparently limited to those areas where random natural fractures enhance the transmissivity of these low porosity, low intergranular permeability sands. To date, no predictive model is available with which to extrapolate the productive reservoir within these Middle Dakota Sands.

Using geological inference, we believe that the ten (10) foot contour interval on Exhibit "C", #2, (Isopach map of the Upper Marine Sand), best outlines the area which should be included within the Dakota Participating Area in the San Juan 30-5 Unit. Exhibit "C", #3, is a stratigraphic cross section showing the nomenclature used in this report.

Exhibit "D", Table I is a tabulation of the Dakota gas production from the unit. The cumulative production through June 30, 1979 is shown. The San Juan 30-5 Unit has produced a total of 955,008 MCF from the Dakota as of July 1, 1979.

FIRST EXPANSION OF THE DAKOTA PARTICIPATING AREA

Effective Date: July 1, 1975

Proposed Acreage: Township 30 North, Range 5 West, N.M.P.M.
Section 7: N/2 (320 Acres)

The First Expansion of the Dakota Participating Area is based on interpretation of the well logs and the initial test results of the Northwest Pipeline Corporation San Juan 30-5 Unit #39 Well. From this data, it is inferred that the proposed acreage is capable of producing unitized substances in commercial quantities from the Dakota Producing Interval.

> The Northwest Pipeline #39 Well is located 1830' from the North line and 1700' from the East line of Section 7, Township 30 North, Range 5 West, N.M.P.M., Rio Arriba County, New Mexico. The well was spudded July 4, 1975 and reached the total depth of 7860' on July 16, 1975. The Dakota Producing Interval was perforated as follows: 7697-7722', 7740-7748', 7766-7784'; and 7812-7822'. The perforated intervals were treated with 500 gallons of 7 1/2% hudrochloric acid solution, then hydraulically fractured with 46,000 pounds of sand and 70,000 gallons of water. The Absolute Open Flow potential of 1703 MCF/day was established on July 30, 1975. The seven (7) day shut-in pressures were 2754 psia on the tubing and 2761 psia on the casing.

On the basis of this well, the N/2 of Section 7 (320 acres) is recommended as the First Expansion of the Dakota Participating Area.

SECOND EXPANSION OF THE DAKOTA PARTICIPATING AREA

Effective Date: August 1, 1975

Proposed Acreage: Township 30 North, Range 5 West, N.M.P.M.
Section 7: S/2
Section 17: W/2
Section 18: E/2 (960.00 Acres)

The Second Expansion of the Dakota Participating Area is based on interpretation of the well logs and the initial test results of the Northwest Pipeline Corporation's San Juan Unit #47. From this data, it is inferred that the proposed acreage is capable of producing unitized substances in commercial quantities from the Dakota Producing Interval.

> The Northwest Pipeline #47 Well is located 1450' from the South line and 970' from the West line of Section 17, Township 30 North, Range 5 West, N.M.P.M., Rio Arriba County, New Mexico. The well was spudded on July 20, 1975 and reached the total depth of 7945' on July 31, 1975. The Dakota Producing Interval was perforated with one shot per foot as follows: 7794', 7800', 7808', 7816', 7846', 7862', 7878', 7886', 7914 and 7924'. The perforated intervals were treated with 800 gallons of 7 1/2% hydrochloric acid solution, then hydraulically fractured with 43,000 pounds of sand and 30,000 gallons of water. The Absolute Open Flow potential of 2468 MCF/day was established on August 19, 1975. The seven (7) day shut-in pressures were 2643 psia on the tubing and 2645 psia on the casing.

On the basis of this well, the S/2 of Section 7, W/2 of Section 17 and the E/2 of Section 18 (960 acres) is recommended for inclusion in the Dakota Participating Area as the Second Expansion.