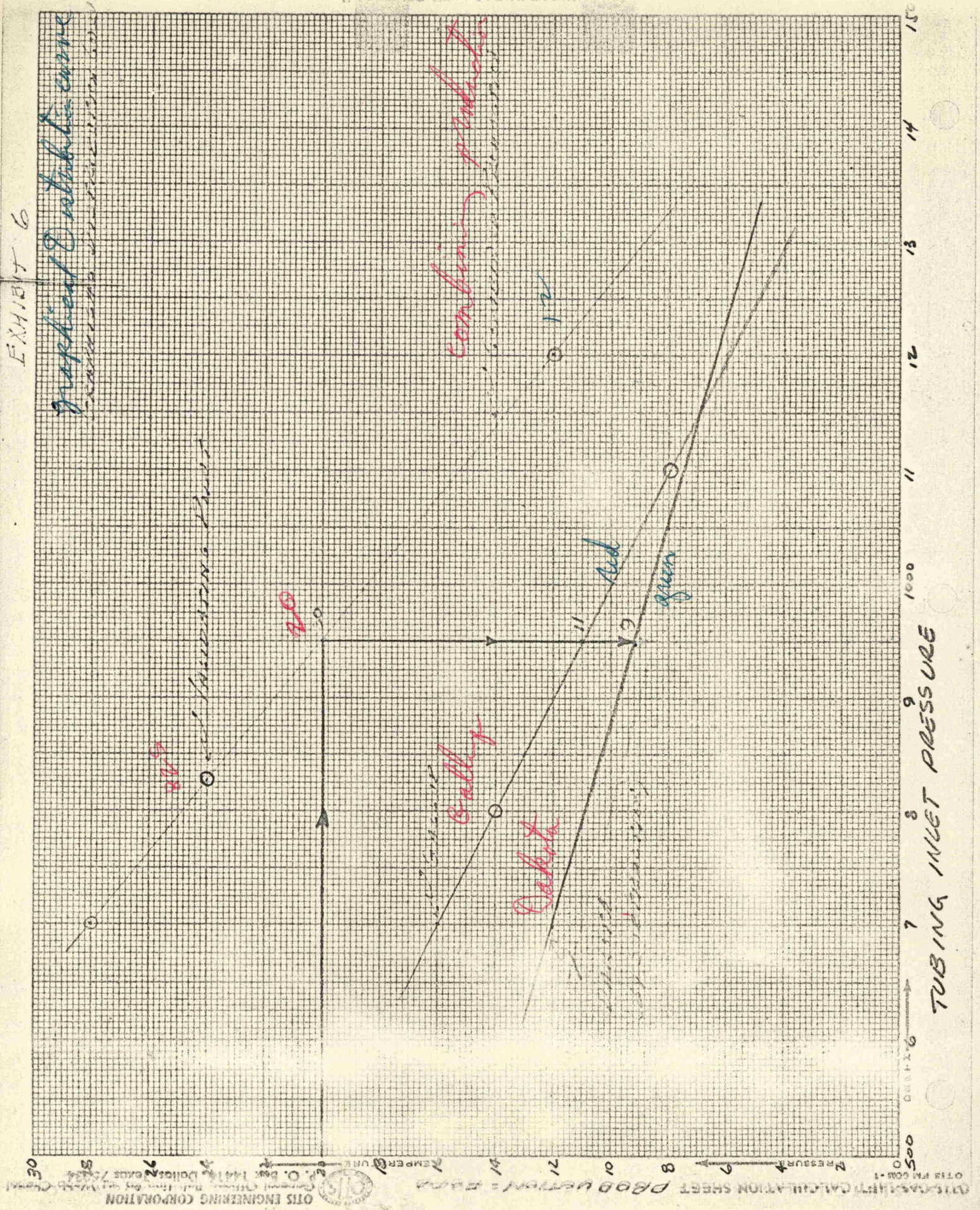


Graphical Data Line curve



DATA REQUIREMENTS FOR SURFACE COMINGLING INSTALLATIONS

Average Daily Oil Production for 90-Day Period:

Jicarilla 28 Well No. 1	<u>Gallup</u>	<u>Dakota</u>
May	13 BOPD	8 BOPD
June	13 BOPD	5 BOPD
July	10 BOPD	8 BOPD

Top Unit Allowable: Gallup - 124 BOPD

Dakota - 164 BOPD

Crude Purchaser: Llaves Pipeline Ltd. - Farmington, New Mexico

Royalty Interest Owner: Jicarilla Apache Tribe

Liquid Hydrocarbon Gravities: Gallup - 44.4° API

Dakota - 48.4° API

Comingled Liquid Hydrocarbon Gravity - 46° API

Comingled gravity on adjacent lease (Jicarilla 22) over a six-month period has averaged 45.3° API.

Value of 44.4° API Crude = \$2.35 per barrel

Value of 48.4° API Crude = \$2.35 per barrel less \$.08 = \$2.27

Value of 46° API Crude = \$2.35 per barrel less \$.02 = \$2.33

Anticipated Producing Rates: Gallup - 14 BOPD

Dakota - 8 BOPD

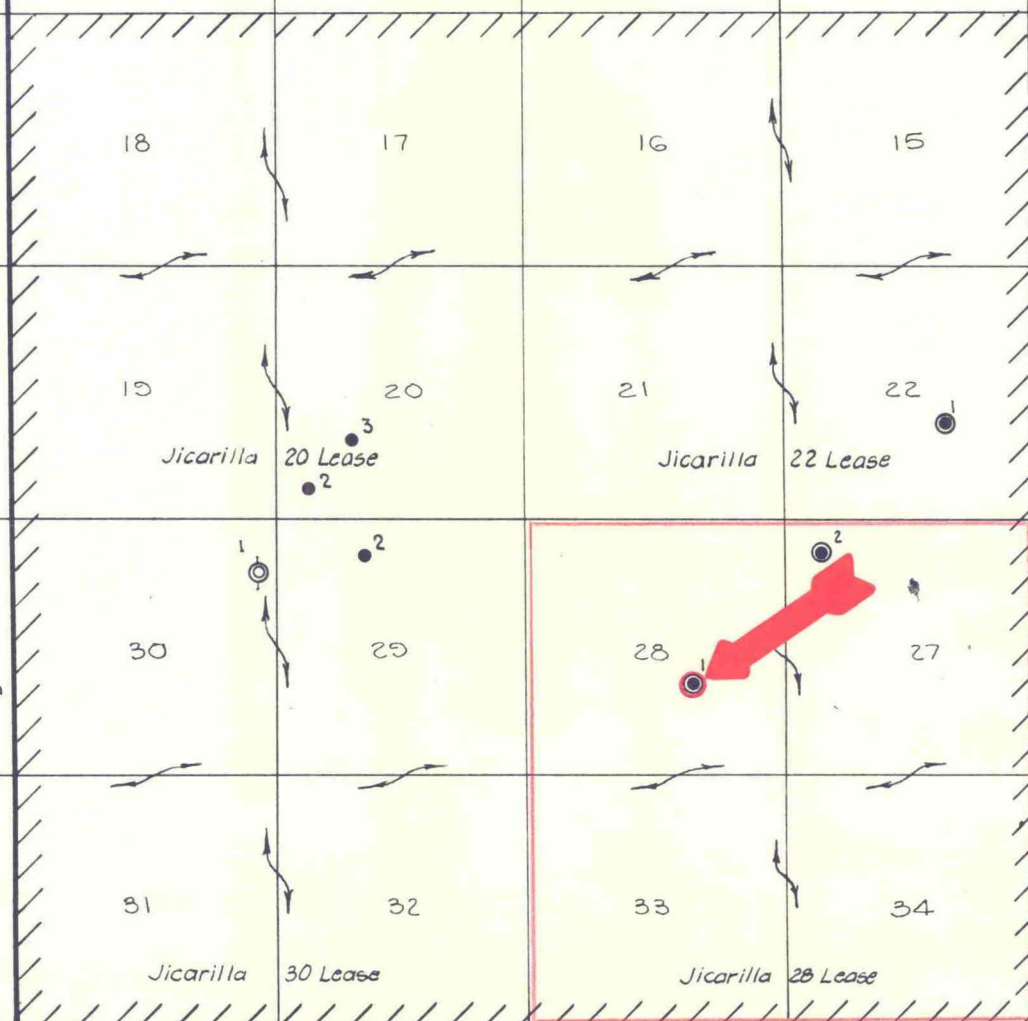
Value Calculations: Gallup 14 BOPD x \$2.35 = \$32.90

Dakota 8 BOPD x \$2.27 = 18.16

Total Separate Value = \$50.06/Day

Comingled Value - 22 BOPD x \$2.33 = \$51.26/Day

The value of the comingled production will not be less than the value of the production from each common source of supply.

T
25
NNorthwest
16-2Johnston
1-1Johnston
3-9Northwest
15-11

LEGEND

- GALLUP OIL WELL
- ⊙ DAKOTA - GALLUP DUAL COMPLETION

CONTINENTAL OIL COMPANY
PRODUCTION DEPARTMENT

DRAWN _____

CHECKED _____

APPROVED _____

SCALE 1" = 4000'

DATE _____

SHEET _____ OF _____

FILE NO.

WEST LINDRITH BLOCK
Rio Arriba Co., New Mexico

Case 3112

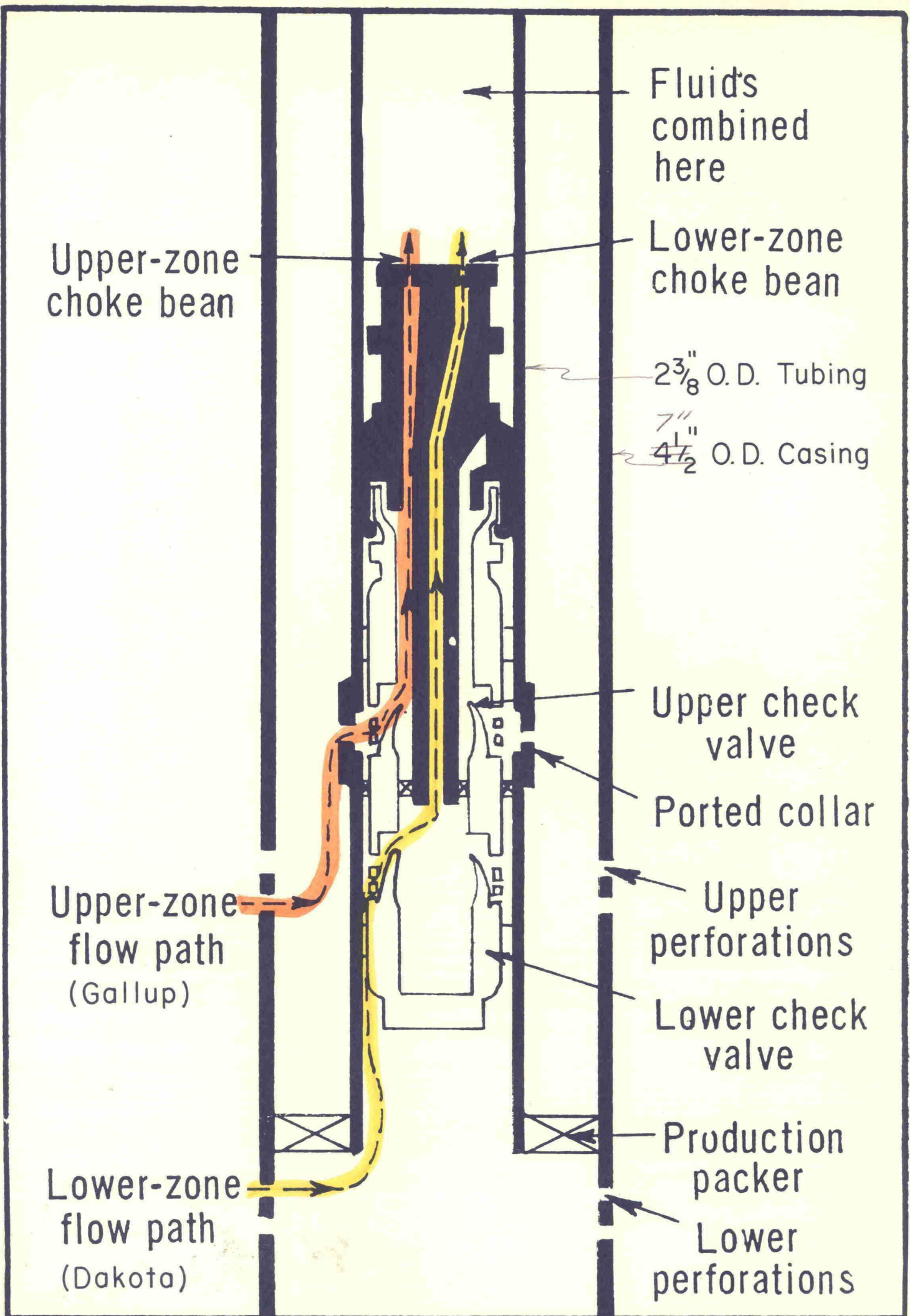


FIGURE NO. 7

Schematic diagram showing installation of Otis "Dual flow choke assembly" for dual zone downhole commingling.

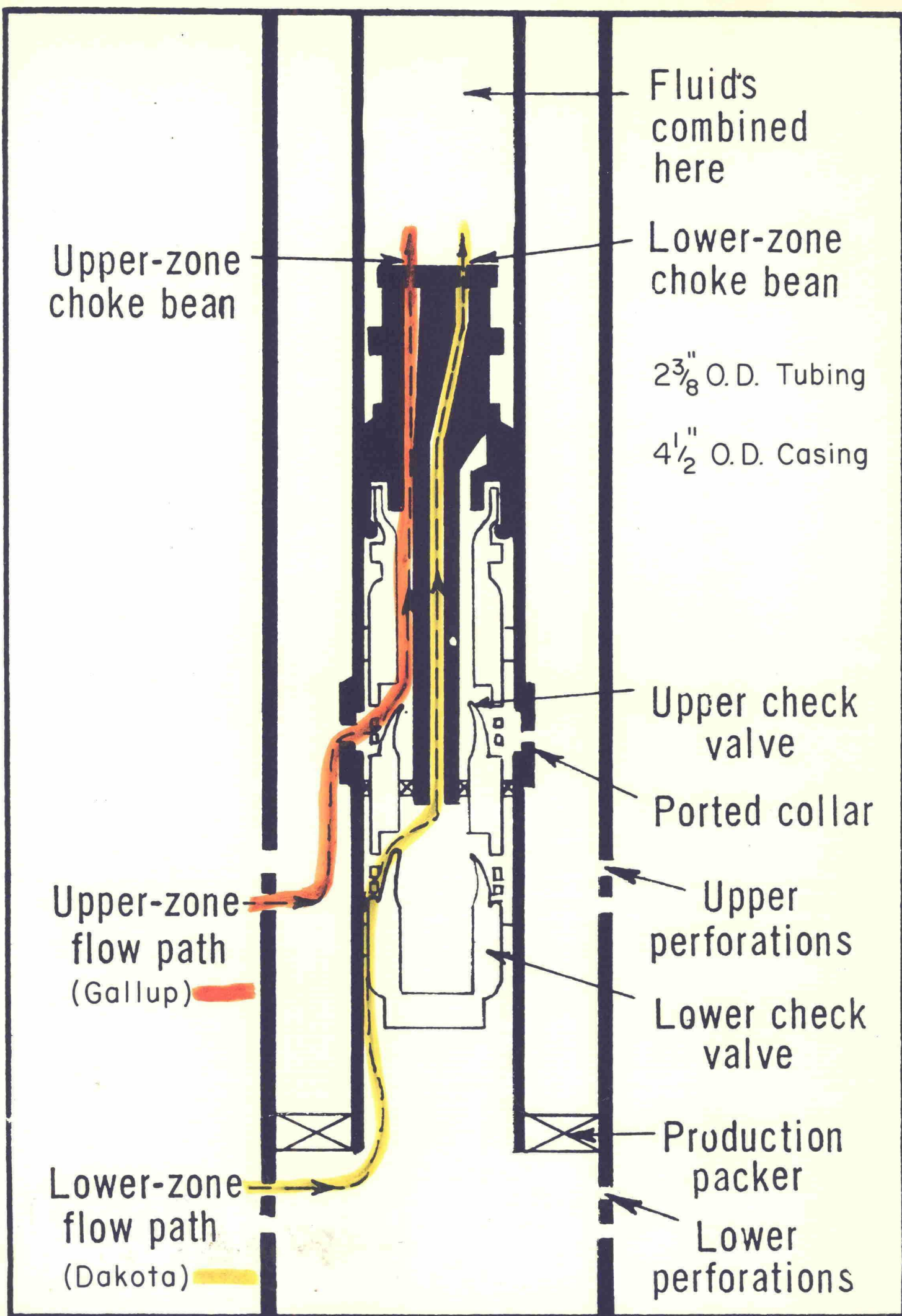
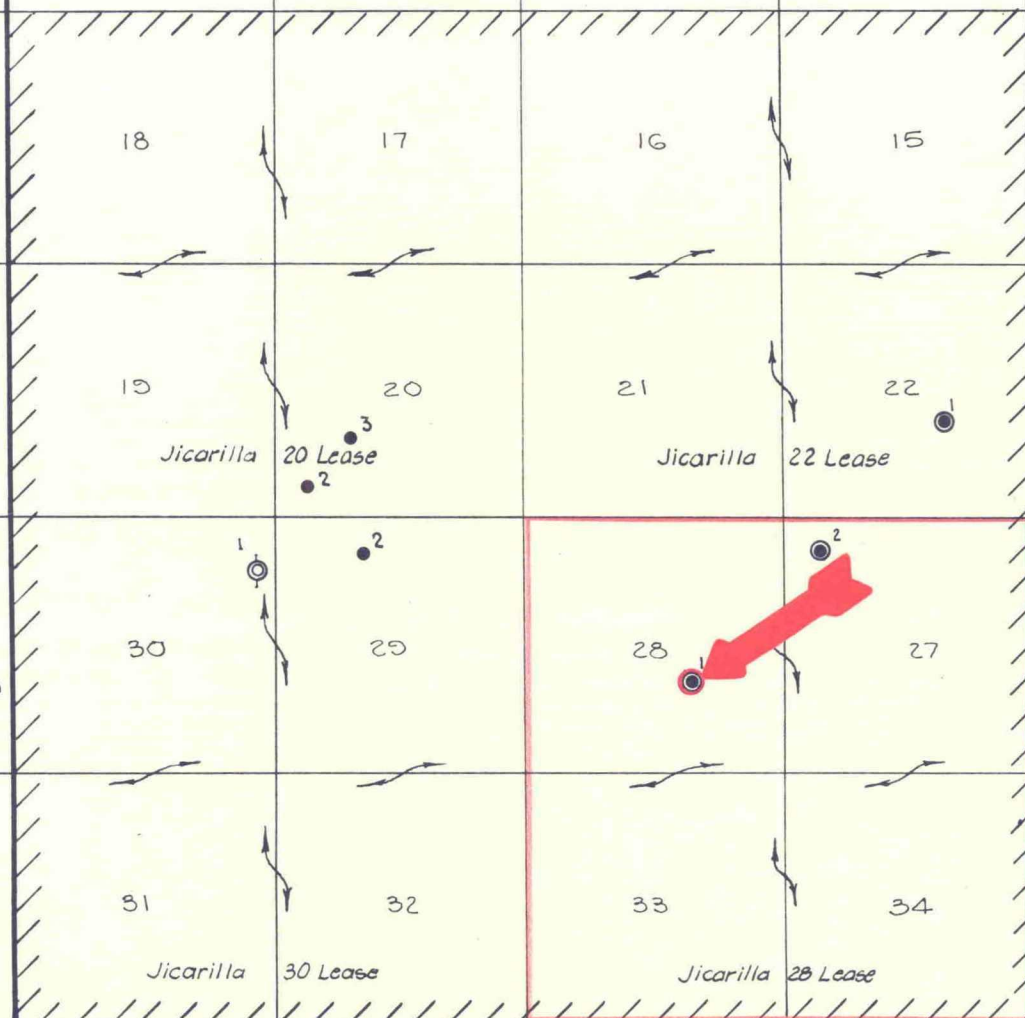


FIGURE NO. 7

Schematic diagram showing installation of Otis "Dual flow choke assembly" for dual zone downhole commingling.

T
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FORE EXAMINER UTZ

CONSERVATION COMMISSION

EXHIBIT NO. 1

E NO.

3112

Northwest
16-2Johnston
1-1Johnston
3-3Northwest
15-11

LEGEND

- GALLUP OIL WELL
- ⊙ DAKOTA - GALLUP DUAL COMPLETION



CONTINENTAL OIL COMPANY



PRODUCTION DEPARTMENT

DRAWN _____
 CHECKED _____
 APPROVED _____

SCALE 1" = 4000'
 DATE _____
 SHEET _____ OF _____

FILE NO.

WEST LINDRITH BLOCK
 Rio Arriba Co., New Mexico

DATA REQUIREMENTS FOR SURFACE COMMINGLING INSTALLATIONS

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Jicarilla 28 Well No. 1	<u>Gallup</u>	<u>Dakota</u>
May	13 BOPD	8 BOPD
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July	10 BOPD	8 BOPD

Top Unit Allowable: Gallup - 124 BOPD
Dakota - 164 BOPD

Crude Purchaser: Llaves Pipeline Ltd. - Farmington, New Mexico

Royalty Interest Owner: Jicarilla Apache Tribe

Liquid Hydrocarbon Gravities: Gallup - 44.4° API
Dakota - 48.4° API

Commingled Liquid Hydrocarbon Gravity - 46° API

Commingled gravity on adjacent lease (Jicarilla 22) over a six-month period has averaged 45.3° API.

Value of 44.4° API Crude = \$2.35 per barrel

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Anticipated Producing Rates: Gallup - 14 BOPD
Dakota - 8 BOPD

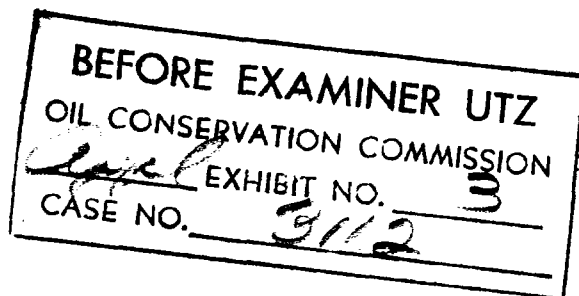
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Dakota 8 BOPD x \$2.27 = 18.16

Total Separate Value = \$50.06/Day

Commingled Value - 22 BOPD x \$2.33 = \$51.26/Day

The value of the commingled production will not be less than the value of the production from each common source of supply.



DATA REQUIREMENTS FOR SURFACE COMINGLING INSTALLATIONS

Average Daily Oil Production for 90-Day Period:

Jicarilla 28 Well No. 1	<u>Gallup</u>	<u>Dakota</u>
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The value of the commingled production will not be less than the value of the production from each common source of supply.

ILLEGIBLE

PRODUCTION ALLOCATION
JICARILLA 28 WELL NO. 1
(Based on subtraction method allocation test)

EXHIBIT NO. 5

OIL ALLOCATION

$$\text{Dakota} = \frac{9.3 \text{ bbls.}}{25 \text{ bbls.}} \times \text{Gross Commingled Production}$$

$$\text{Gallup} = \text{Gross commingled production} - \text{Dakota allocated production}$$

Example:

$$\text{Total commingled production} = 750 \text{ bbls.}$$

$$\text{Dakota allocation} = \frac{9.3}{25} \times 750 \text{ bbls.} = 278 \text{ bbls.}$$

$$\text{Gallup allocation} = 750 \text{ bbls.} - 278 \text{ bbls.} = 472 \text{ bbls.}$$

GAS PRODUCTION

$$\text{Commingled GOR} = 6599 : 1$$

$$\text{Dakota GOR} = 9216 : 1$$

Example

$$\text{Theoretical Total Gas Production} = 6599 (750 \text{ bbls.}) = 4949 \text{ MCF}$$

$$\text{Theoretical Dakota Gas Prod.} = 9216 (278 \text{ bbls.}) = 2562 \text{ MCF}$$

$$\text{Theoretical Gallup Gas Production (Difference)} = 2387 \text{ MCF}$$

$$\text{Actual Gas Sales} = 4635 \text{ MCF}$$

$$\text{Lease Use} = 450 \text{ MCF}$$

$$\text{Actual Total Gas} = 5085 \text{ MCF}$$

$$\text{Dakota Gas Allocation} = 5085 \times \frac{2562}{4949} = 2629 \text{ MCF}$$

$$\text{Gallup Gas Allocation (Difference)} = 5085 - 2629 = 2456 \text{ MCF}$$

$$\text{Dakota GOR} = \frac{2629}{278} \text{ MCF} = 9457$$

$$\text{Gallup GOR} = \frac{2456}{472} \text{ MCF} = 5203$$

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

472 EXHIBIT NO. 5

CASE NO. 3112

5

JICARILLA 28 WELL NO. 1
 COMBINED PRODUCTION PERFORMANCE - 1963-1964
 GALLUP (PUMP) - DAKOTA (PLUNGER LIFT)

20 YEARS BY MONTHS 47 6843
 X 3 LOG CYCLES
 KEUFFEL & ESSER CO.

BOPD

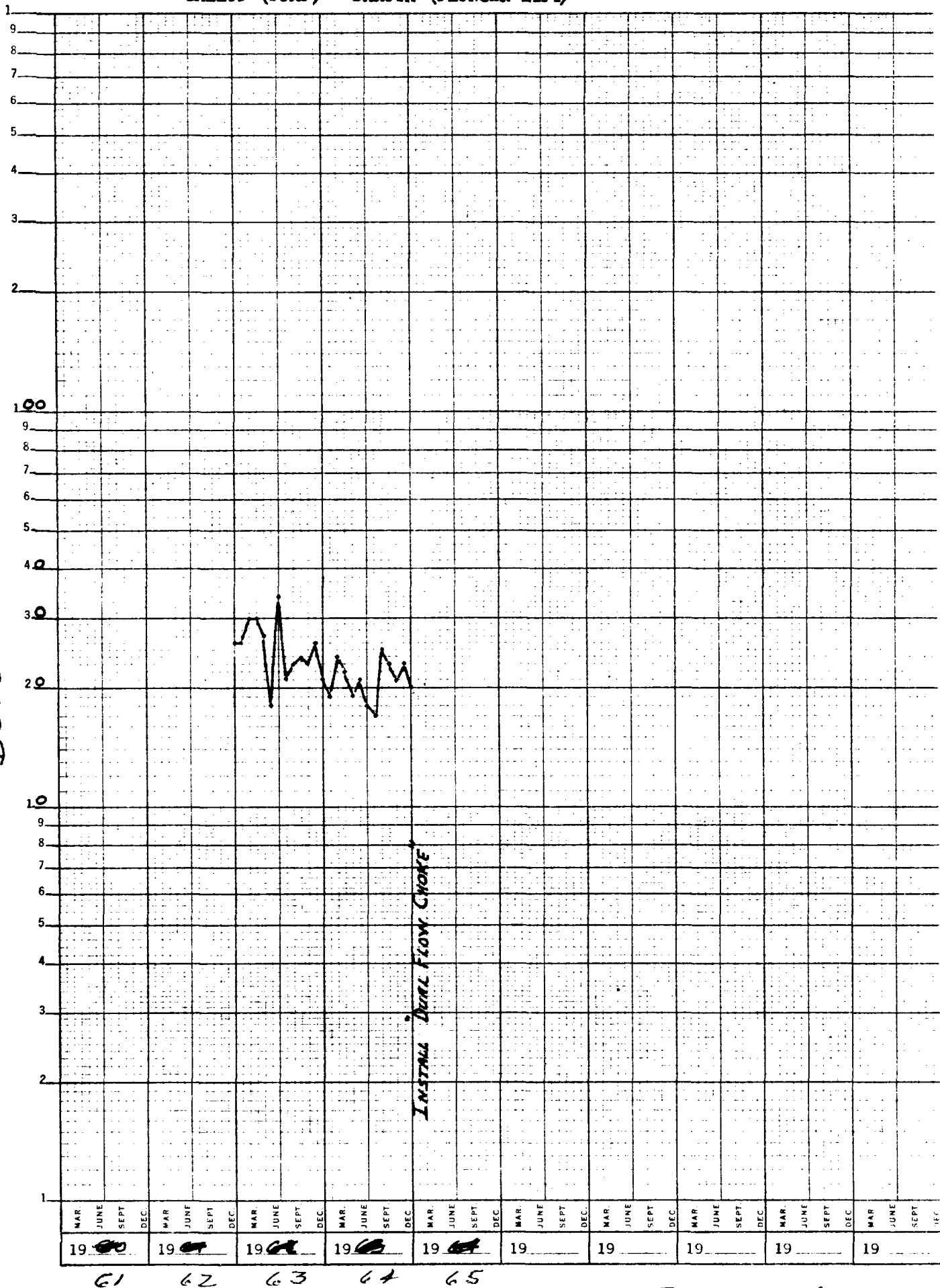


EXHIBIT No. 6

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
apt EXHIBIT NO. 6
CASE NO. 3115

ESTIMATED WELL COSTS
JACKSON CALUM-DACOTA DUAR

EXHIBIT NO. 7

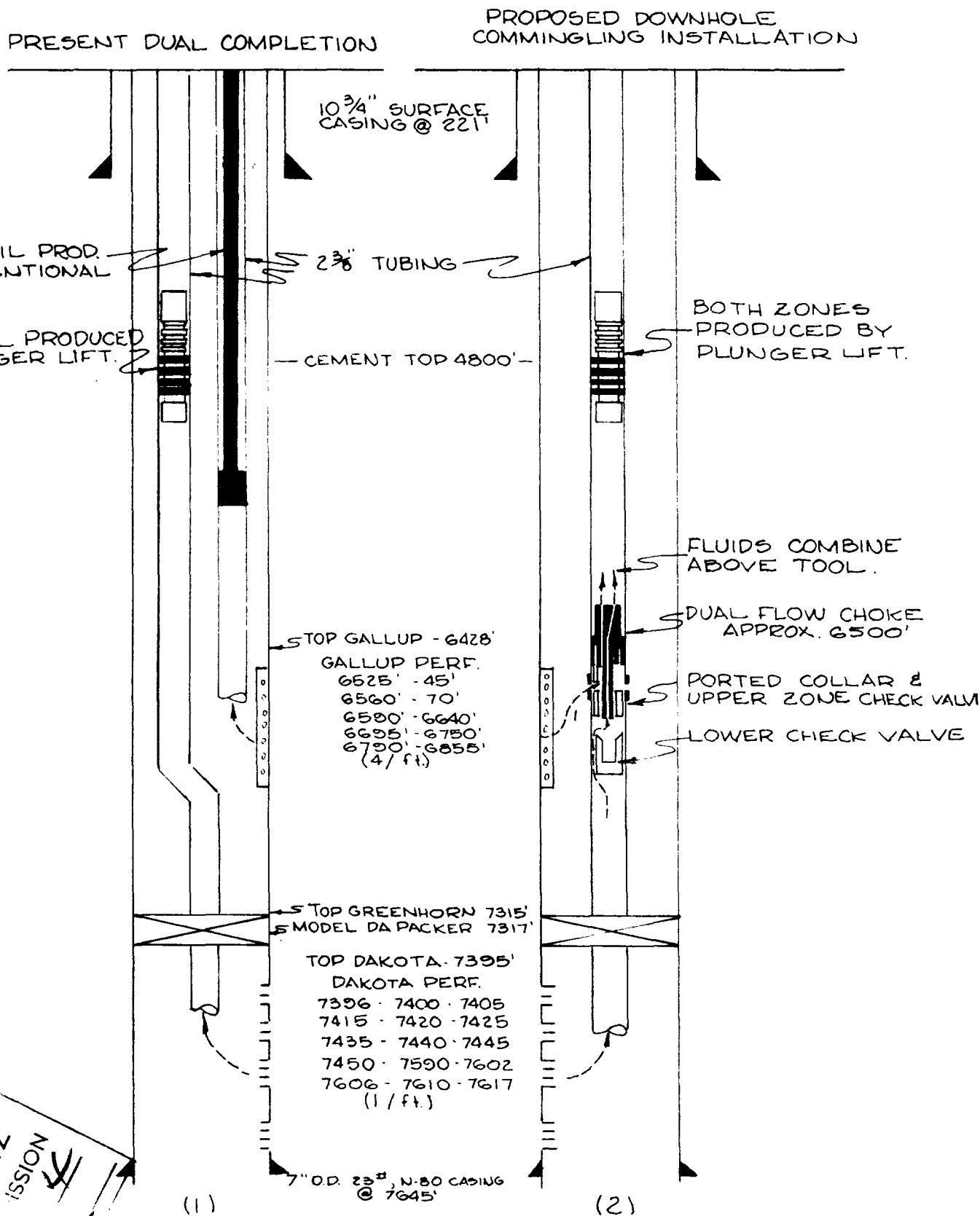
Conventional Dual

Conmingled Dual

7800' - 7" Casing	\$ 26,400	7800' - 4 1/2" Casing	\$11,700
13500' - 2 3/8" Tubing (G-D)	10,100	7000' - 2 3/8" Tubing	5,300
Casing-Tubing head, valves	4,500	Csg.-Tubing head, valves, etc.	2,900
Conventional pumping unit		Plunger equipment and	
w/gas engine (G)	7,500	"Dual Flow Choke"	2,500
6500' rods (G)	4,300	-	-
Bottom hole pump (G)	600	-	-
Intangible Drilling Costs	65,900	Intangible Drilling Costs	63,400
Contract Labor	4,000	Contract Labor	2,000
Production Equipment	8,000	Production Equipment	4,000
Surface Conmingling Equip.	2,000	-	-
Sales Taxes	1,800	Sales Taxes	800
Miscellaneous	1,000	Miscellaneous	500
	\$136,100		\$93,100

Difference - \$43,000

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
apls EXHIBIT NO. 7
CASE NO. 3112

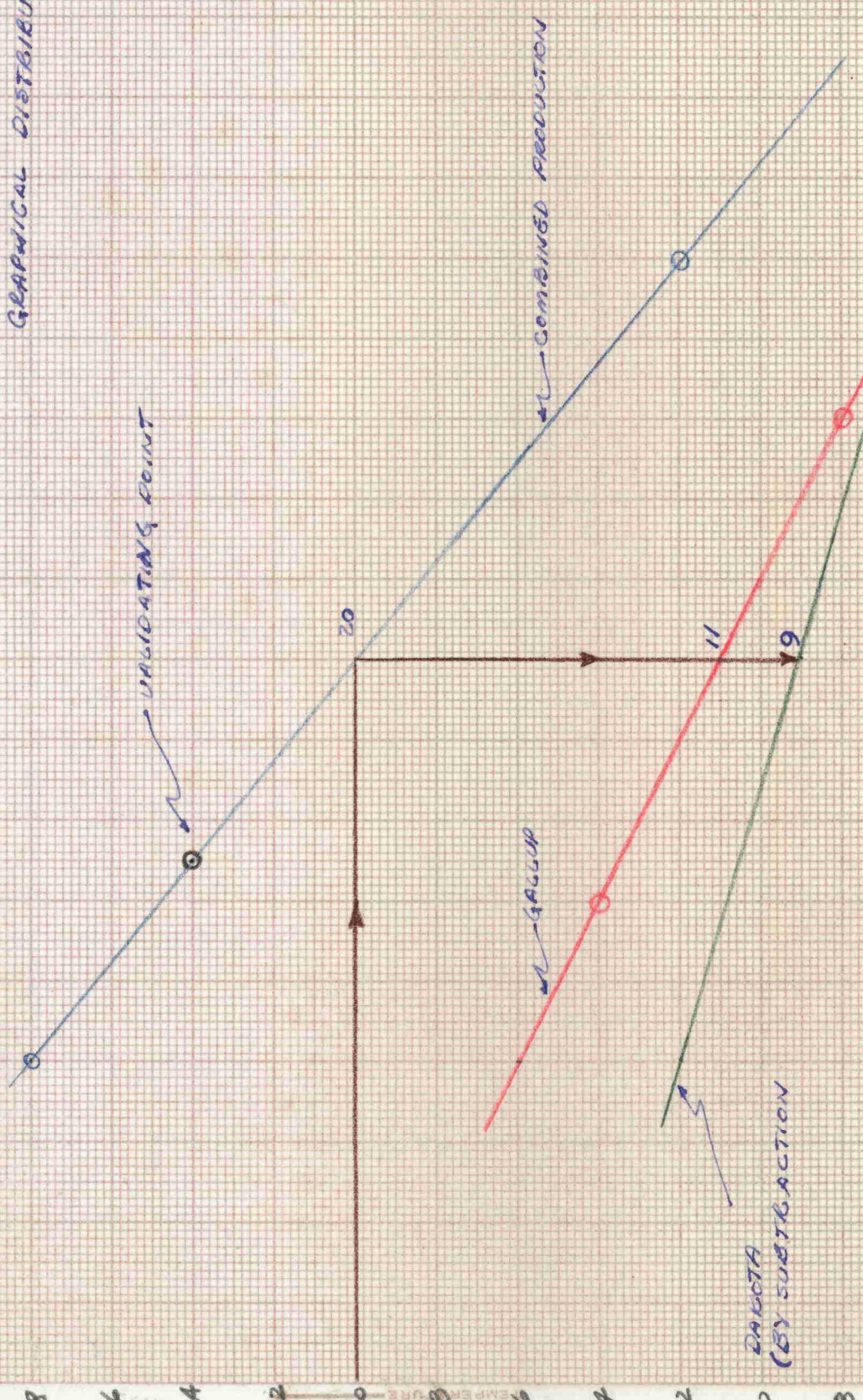


JICARILLA 28 WELL No. 1

SCHEMATIC DIAGRAM SHOWING PRESENT CONVENTIONAL DUAL GALLUP DAKOTA COMPLETION (1) AND PROPOSED INSTALLATION OF "DUAL FLOW CHOKE ASSEMBLY" DUAL ZONE DOWNHOLE COMMINGLING (2).

BEFORE EX
OIL CONSERVATION
CASE NO. 3112
UTZ
MISSION
4

GRAPHICAL DISTRIBUTION CURVE



BEFORE EXAMINER UTZ
 CIL CONSERVATION COMMISSION
 EXHIBIT NO. 6
 CASE NO. 3112

TUBING INLET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Drawer 1857
Roswell, New Mexico 88201

IN REPLY REFER TO:

RECEIVED	
DURANGO PROJ.	
SEP 25 1964	
OFFICE MGR.	<i>B</i>
September 21, 1964	<i>W</i>
ASST. MGR.	<i>W</i>
DIST. ENG.	<i>W</i>
<i>CAG</i>	<i>B</i>

Continental Oil Company
P. O. Box 3312
Durango, Colorado

Attention: Mr. H. D. Haley

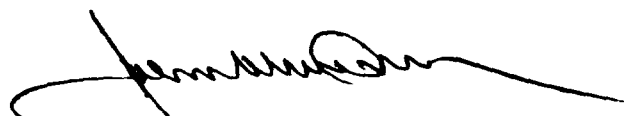
Gentlemen:

Your letter of August 11, with attachments, requests approval to commingle oil production from the Gallup and Dakota formations in your well No. 28-1 Jicarilla Apache on Jicarilla tribal Contract No. 66.

According to the system, as outlined in your proposal, communication between the reservoirs will be accomplished by the use of a downhole separation tool. By additional information submitted in a separate letter on September 8 you state the production from each reservoir will be allocated through the testing of each zone by manually blanking off one zone in the separation tool and producing the other zone. Form 9-361, Lessee's Monthly Report of Sales and Royalty, must show all computations used in the calculation of oil volume for each formation.

The method you propose for the downhole commingling is hereby approved. Any change in the system must be approved by this office.

Sincerely yours,


JOHN A. ANDERSON
Regional Oil & Gas Supervisor

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<i>CAG</i>	EXHIBIT NO. <u>8</u>
CASE NO.	<u>3112</u>