

CASEY (STRAWN) FIELD CALCULATIONS

MINIMUM DRAINAGE AREA

The volumetric equation for ultimate recovery is:

$$\text{ULTIMATE RECOVERY} = \frac{7758 \times A \times H \times \emptyset \times (1-S_w) \times \text{R.F.}}{B_o}$$

Solved for drainage area:

$$\text{ACRES (drainage)} = \frac{\text{Ultimate Recovery} \times B_o}{7758 \times H \times \emptyset \times (1-S_w) \times \text{R.F.}}$$

From log calculations, literature and fluid properties:

	$\emptyset$ (%) min-max	H (ft.) min-max	S_w (%) min-max	R.F. (%) min-max	Ult. Rec. (MBO) min - max	B_o (bbl/bbl) min - max
West Knowles No. 4	6 - 13	21 - 59	12 - 30	12 - 25	665 - 865	1.4 - 1.6
Shipp '27' No. 1	6 - 8	12 - 55	7 - 22	12 - 25	400 - 470	1.4 - 1.6
Shipp '34' A No. 1	10 - 14	22 - 24	35 - 70	12 - 25	262 - 380	1.4 - 1.6
Shipp '34' A No. 2	6 - 10	16 - 28	6 - 32	12 - 25	262 - 380	1.4 - 1.6

For minimum acreage drained: $\text{ACRES} = \frac{\text{Ultimate recovery} \times B_o}{7758 \times H \times \emptyset \times (1-S_w) \times \text{R.F.}}$ use min # in numerator
use max # in denominator

West Knowles No. 4 minimum drainage area = $\frac{665,000 \times 1.4}{7758 \times 59 \times .13 \times (1-.12) \times .25} = 71 \text{ ACRES}$

Shipp '27' No. 1 minimum drainage area = $\frac{400,000 \times 1.4}{7758 \times 55 \times .08 \times (1-.07) \times .25} = 70 \text{ ACRES}$

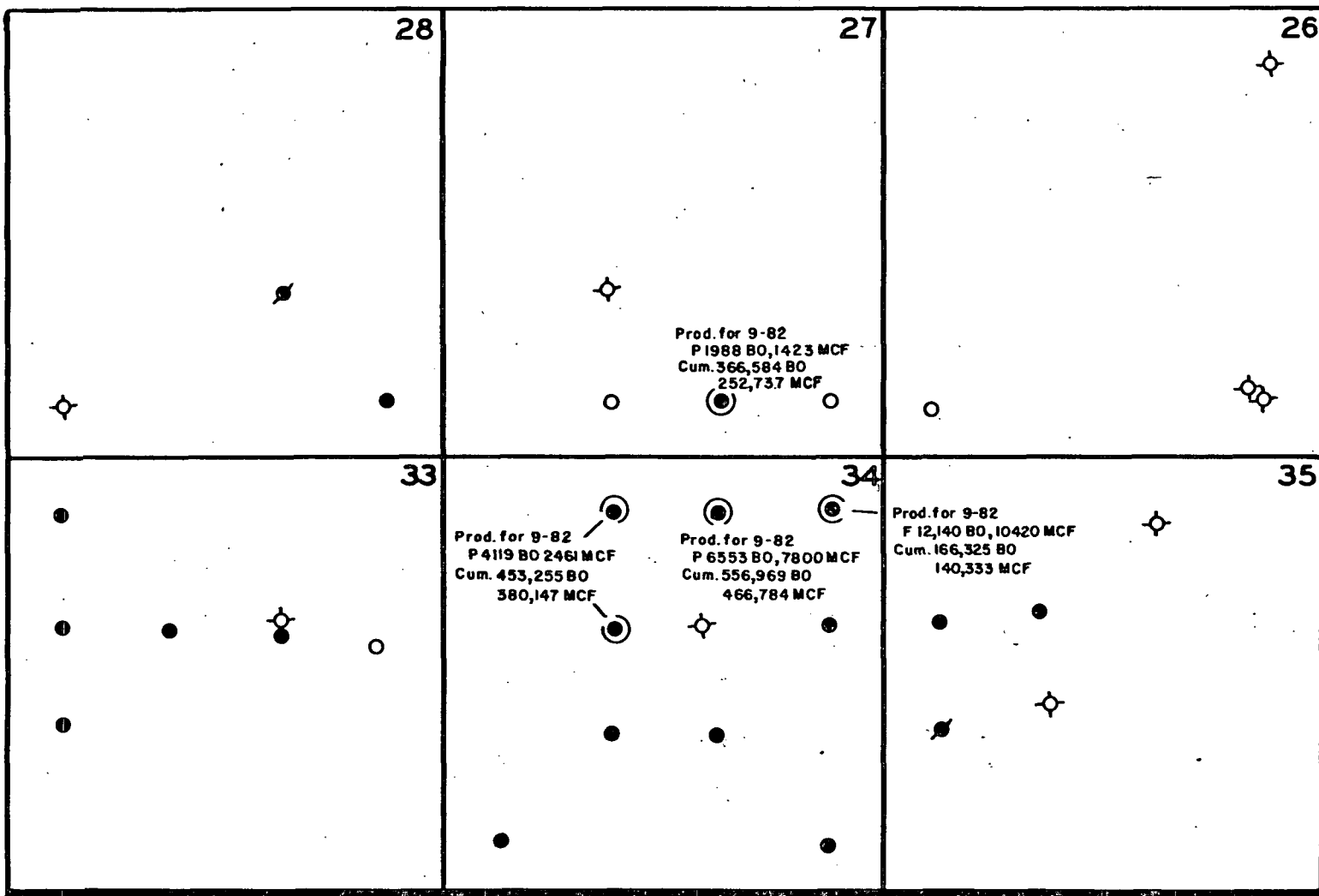
Shipp '34' A No. 1 minimum drainage area = $\frac{262,000 \times 1.4}{7758 \times 24 \times .14 \times (1-.35) \times .25} = 86 \text{ ACRES}$

Shipp '34' A No. 2 minimum drainage area = $\frac{262,000 \times 1.4}{7758 \times 28 \times .10 \times (1-.06) \times .25} = 72 \text{ ACRES}$

EX 16

JMR
11-17-82

T. 16 S. - R. 37 E.



PRODUCTION MAP

Cum. as of 10-1-82

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