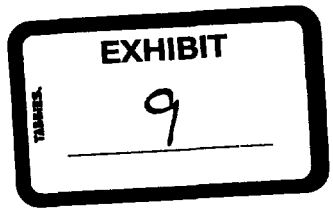

Carson #2

Monthly Gas Production Allocation Formula

General Equation

Qt = Qnb + Qmv

WHERE: Qt = TOTAL MONTHLY PRODUCTION (MCF/MONTH)

Qnb = NIOBARA (nb) MONTHLY PRODUCTION
Qmv = MESAVERDE (mv) MONTHLY PRODUCTION (MCF/MONTH)

MESAVERDE (MV) FORMATION PRODUCTION FORMULA IS:

Qmv = Qmvi X e^{-(Dmv) X (t)}

WHERE: **Qmvi** = INITIAL MV MONTHLY FLOW RATE (CALCULATED FROM FLOW TEST)

Dmv = MESAVERDE MONTHLY DECLINE RATE CALCULATED FROM:

Dmv = (Qmvi -Qmvabd)/Np(mv)
See Determination of Qmvi and MV Estimated Ultimate Recovery (Np(mv)) Qmvabd = 300 MCF/M

WHERE: **Np(mv)=** **MESAVERDE** ESTIMATED ULTIMATE RECOVERY (EUR)

Np(mv) = P X 0.93 MMCF/PSI X RF**
P* = INITIAL RESERVOIR PRESSURE (SIBHP)
RF = RECOVERY (FIELD ANALOGY: = .95
** DETERMINED FROM MATERIAL BALANCE (FIELD ANALOGY) AND VOLUMETRIC RESERVES (LOG ANALYSIS)

By calculating Np(mv) from SIBHP and determining Qmvi, Dmv can then be calculated utilizing the previously described parameters. See derivation of Dmv, item (c) on page 4.

THUS: **Qnb = Qt - Qmvi X e^{-(Dmv) X (t)}**
WHERE: **(t) IS IN MONTHS**

REFERENCE: Thompson, R.S., and Wright, J.D., "Oil Property Evaluation", Pages 5-2. 5-3, 5-4.

CARSON #2

DETERMINATION OF Qmvi:
(INITIAL MESAVERDE MONTHLY PRODUCTION)

Qmvi = Qt(1) X Qmv(p) / {Qmv(p) + Qnb (p)}

WHERE:

Qt(1) = FIRST MONTH TOTAL PRODUCTION (MCF)

Qnb(p) = FINAL NIOBARA FLOW TEST (MCFPD)

Qmv(p) = FINAL MESAVERDE FLOW TEST (MCFPD)

CARSON #2

EXAMPLE DETERMINATION OF:

(a) Np(mv)	MV EUR
(b) Qmvi	INITIAL MV MONTHLY FLOW RATE
(c) Dmv	MV MONTHLY DECLINE RATE

(a) DETERMINATION OF Np(mv)

Np(mv) = 0.93(MMCF)PSI) X P*(PSI) X Rf

P* = 1132 (FROM SIBHP)

Np(mv) = 0.93 MMCF/PSI X 1132 PSI X 0.95

Np(mv) = 1000 MMCF

(b) DETERMINATION OF Qmvi

Qmvi = Qt(1) x {Qmv(p)/(Qmv(p) + Qnb(p))}

Qt(1)=	9,500 MCF	1st MONTH TOTAL PRODUCTION
Qmv(p)=	200 MCF/D	MV FLOW TEST
Qnb(p)=	100 MCF/D	NB FLOW TEST

Qmvi = 9,500 MCF/M X {200 MCF/D/(200 MCF/D+100 MCF/D)}

Qmvi = 6,333 MCF/M

(c) DETERMINATION OF Dmvi

Dmv = (Qmvi - Qmvabd)/Nmv

Qmvabd = 300 MCF/M

Dmv = (6,333 MCF/M - 300 MCF/M)/(1,000,000MCF)

Dmv = 0.006/M

THUS: Qnb = Qt(MCF/M) - 1,000,000 (MCF/M) x e^{-(0.010(1/M)) X t(M)}