NOMENCLATURE

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SYMBOL		UNIT
A	= area	sq.ft
B	= formation volume factor	-
C	= specific heat	$ft.s^2/lb$
d	= diameter	Ft
D	= depth	Ft
f	= friction factor	-
F	= fraction	-
g	= acceleration of gravity	$Ft/sec.^2$
gc	= gravitational constant	Ft/Ft
G	= mass flux rate	Lb/Ft sec.
H	= gas or liquid holdup	-
k	= ratio of specific heats Cp/Cv	-
L	= length	Ft
m	= mass	Lb.
M	= molecular weight	Lb
n	= moles	n
N_{Re}	= Reynolds number	-
N_{Fr}	= Froude number	-
N_{Lv}	= liquid velocity number	-
N_{gv}	= gas velocity number	-
N_d	= diameter number	-
N_L	= liquid viscosity number	-
P	= pressure	Psi
Y	= pressure ratio	-
W	= energy per unit mass	joule/ton
q	= volumetric flow rate-in-situ conditions	ft3/sec
q*	= volumetric flow rate - standard conditions	ft3/sec
Q	= volumetric flow rate - standard conditions	Bbls/d
R	= gas constant	FL/nt

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SYMBOL		UNIT
R_p	= producing gas oil ratio	scf/bbl
R_s	= solution gas oil ratio	scf/bbl
t	= time	Sec
T	= temperature	Deg. R
v	= velocity	Ft/Sec
V	= specific volume	Cu.Ft/Lb
w	= mass flow rate	Lb./Sec
X	= pressure ratio across choke P_2/P_1	-
y	= mole fraction	-
z	= compressibility factor	-

GREEK LETTERS

e	= roughness	Ft
γ	= specific gravity	-
del	= difference	-
θ	= angle	-
λ	= no slip liquid or gas holdup	-
μ	= viscosity	Cp
ρ'	= density standard conditions	Lb./Cu.Ft
ρ	= density - insitu conditions	Lb./Cu.Ft

NOMENCLATURE

SYMBOL	UNIT

SUBSCRIPTS

a = air

acc = acceleration

b = bubble point, bubble

B = bean or choke

c = critical

d = diameter, dissolved

el = elevation

f = friction

g = gas

gv = gas velocity

i = initial

k = kinetic energy

L = liquid

Lv = liquid velocity

m = mixture

n = no-slip

o = oil

pr = pseudo-reduced

pc = pseudo-critical

s = slip, sonic, solution

sc = standard conditions

sL = superficial liquid

sg = superficial gas

w = water

1 = up stream

2 = downstream