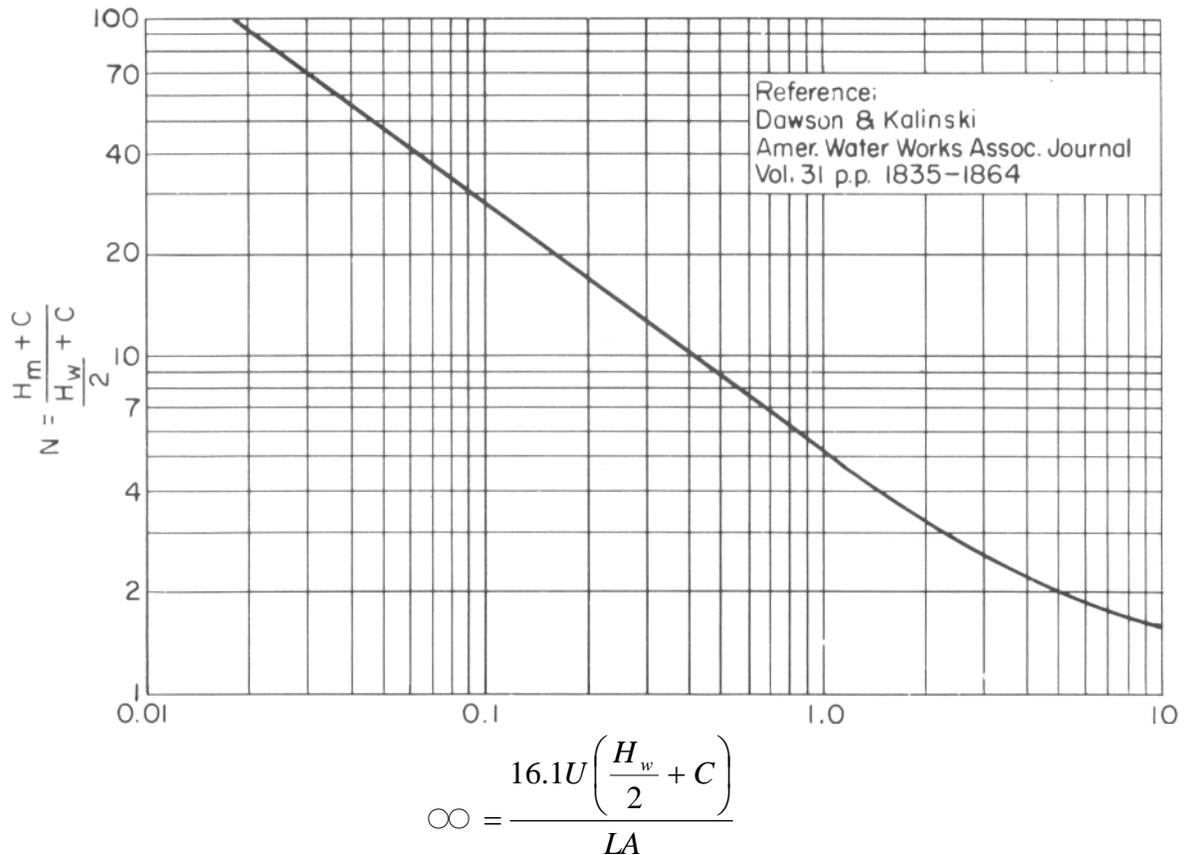


FIGURE I
VOLUME OF CLOSED AIR CHAMBERS



	Elevation	C
U = Volume of Air Chamber in cu. ft.	0	33.9
L = Length of Pipe Line in feet	2000	31.5
A = Cross sectional area of pipe in sq. ft.	4000	29.2
H _m = Maximum allowable pressure in ft.	6000	27.2
H _w = Working pressure of pipe in feet	8000	25.3
C = Normal air pressure in feet of water	10000	23.5

Assumptions:

1. Velocity when check valve closes is 2.0 ft./sec.
2. Pressure in air chamber when check valve closes is 1/2 working pressure.

Example:

Elev. = 4000'

H_m = 360'

H_w = 120'

L = 2000'

A = 0.766² (12" dia. 14ga.)

Then:

$$N = \frac{360 + 29.2}{\frac{120}{2} + 29.2} = 4.4$$

From curve:

$$OC = 1.3$$

$$U = \frac{oc LA}{16.1 \left(\frac{H_w}{2} + C \right)}$$

$$\frac{1.3 \times 2000 \times 0.766}{16.1 \left(\frac{120}{2} + 29.2 \right)} = 1.4 \text{ cu. ft.}$$