

DAVE HOLMES, P.E.

# WATER LEAK LOCATORS

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## LEAKS

### COST OF LEAKS

<u>SIZE OF HOLE</u>	<u>GALS/MIN</u>	<u>GALS/DAY</u>	<u>GALS/YR</u>	<u>COST /YR</u>
● (0.1 INCH)	2.1	3,012	1,099,246	\$ 549
● (0.2 INCH)	8.4	12,047	4,396,983	\$ 2,198
● (0.3 INCH)	18.8	27,105	9,893,211	\$ 4,947
● (0.4 INCH)	33.5	48,186	17,587,930	\$ 8,794

ABOVE BASED ON 60 PSI AND \$0.50 / 1000 GALS. PUMPING COST. IF LEAK IS ESCAPING INTO A SANITARY MAIN, THESE COSTS WILL MORE THAN DOUBLE. (NUMBERS WILL VARY SLIGHTLY DUE TO ROUNDING).

### ESTIMATING LEAK LOSSES:

#### FOR CIRCULAR HOLES:

$$GPM = 27 D^2 \sqrt{P}$$

where GPM = GALLONS PER MINUTE

D = DIAMETER OF HOLE ( inches)

P = STATIC PRESSURE (psi)

A = AREA OF CRACK (sq. inches)

#### FOR CRACKS & JOINTS:

$$GPM = 23 A \sqrt{P}$$

#### FROM DRIPS:

1 DRIP PER SECOND = 0.006 GPM

5 DRIPS PER SECOND = STEADY STREAM = 0.03 GPM

1 CUP ( 8 OZ. ) PER MINUTE = 0.062 GPM

1 BEER / POP CAN (12 OZ.) PER MINUTE = 0.094 GPM

Note: above formulas & figures are only estimates but they're "close nuff" for the person in the trench