# 4 STEP DOSING SIPHON CHECK LIST

1) Does siphon produce the required network discharge?
2) Does siphon produce the required minimum dose required by the network?
3) Does siphon achieve the minimum residual head (squirt height)?
   3.1) How far will minimum dose be backed up the force main?
   3.2) What length on this % slope is required for squirt height to be achieved?
   3.3) Is Step 3.1 > Step 3.2 ?
4) What is the slope gradient profile? Does it affect the squirt height?

FORMULAS TO EXECUTE STEPS:

1) $Dia^2$ x √Head x 12 x # HOLES = _____GPM for network discharge
(the square of Dia. of orfice in inches) x (square root of squirt height in feet) x (the constant 12) x # of orifice holes = GPM
Does siphon at least produce network discharge? Too much?

2) (inches of drawdown) x (volume of tank in gallons per inch) = ______Gallons of dose
Determine Tank's Volume per Inch: (L-6") X (W-6") X 7.48 ÷ 12 =_____Gals per Inch (GPI)
Is he minimum network dose met by the siphon drawdown in the specified tank?

3.1) (Dose Vol. – (Lateral Vol. + ½ Discharge Rate)) ÷ Vol./Ft of force main =_____ LF

3.2) Height of Squirt in feet ÷ % slope =______ LF

3.3) Step 3.1 ought to be at least 2X greater than Step 3.2!

5) Site visit required to measure for the gradient! Do not assume a uniform gradient!

See page two for design example >

DESIGN EXAMPLE:

*250 LF of 1" laterals with 1/8" holes on 3 ft on center with 5 ft squirt and 2" siphon with 4" drawdown in a 1,000 gallon tank (20 gals/in) with 100 LF of 3" force main on 15 % slope to dispersal laterals.*

1) $(0.125)^2$ inches x √5 ft x 12 x (250 ÷ 3) holes = <u>35</u> gpm network discharge

2) 4 inch drawdown x 20 gal/inch tank volume = <u>80</u> gal dose

3.1) 80 gal dose - (10 gals + 18 gals) ÷ 0.367 gal/LF = <u>142</u> LF in 3" force main

3.2) 5 FT squirt ÷ 0.15 ground slope = <u>33</u> LF will achieve 5 ft head

3.3) 142 LF ≥ (2 X 33 LF) OK!

5) Gradient Profiles: