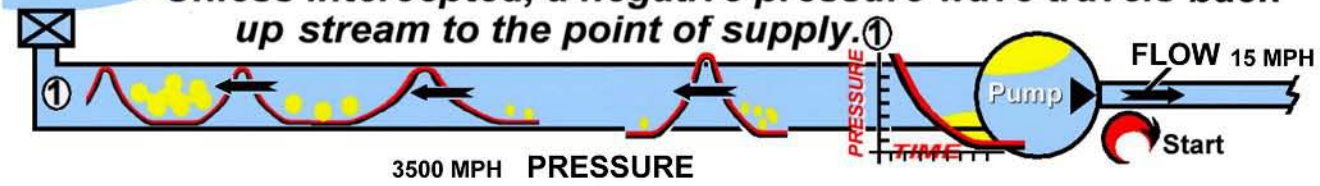
SUCTION SIDE PULSATION,

The Problem *Absorbed Air or Gas*

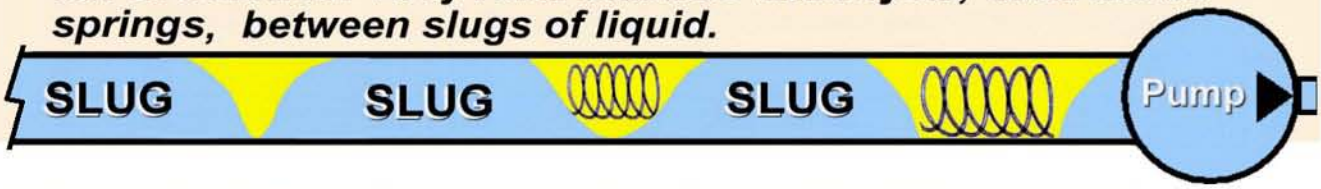
"Started" for Recip. Pumps means each suction stroke.

When a pump is started, there is an instant pressure fall at the pump end of the system.

Unless intercepted, a negative pressure wave travels back up stream to the point of supply.①



The sudden pressure reduction causes gasses to come out of solution. They form bubbles which join, then act as springs, between slugs of liquid.



The slugs are excited into oscillation by the rebounding negative wave. The slugs then alternately slam then starve the pump suction. The higher the pressure the harder the slam.

AIR / GAS OUT OF SOLUTION

Excited mass oscillation between two springs

If the pump has suction check valves ②, they are knocked open when they should be closing. *see "VE" below*

MASS VELOCITY THE FORCE FROM THE MASS VELOCITY OF THE SLUGS IS MORE THAN CHECK+SPRING

DO NOT INCREASE FORCE/PRESSURE

Volume is good, force is bad.

When you are thirsty, you lift and pour the liquid in, you don't force a pressurized hose down your throat !

The biggest enemy of good volumetric efficiency for a recip. pump, is too much pressure on the suction side

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"VE" **Volumeric efficiency falls, and pulsation shakes the pipes.**

Which causes even more Pressure Pulsation. *see Page 8 item A.*

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