Potential siphoning situation affecting the injection rate of the proportional dispenser

**Background:** The design of the Dosatron injector does not allow for the injection rate to exceed the ratio it is set at if it is installed in the proper fashion (it can inject less for example if the seals are worn or if the product injected is very viscous).

However, if the injector is placed in a line where a siphon occurs, then this siphon can force the chemical up through the Dosatron and up the line or down the line, depending where the vacuum is created.

In these situations, the accuracy of the injector is no longer warranted and high concentration of chemicals can be found before or after the unit.

The following three examples outline how a siphon can occur in a line:

**Example 1:**
The top level of the stock solution is higher than the level of the inlet and outlet of the unit (similar to siphoning gas out of the tank of a car).

**Example 2:**
Water is being used on the same line feeding the Dosatron and the line downstream from the Dosatron is shut “off” (by a valve or a check valve).

*Note:* This is true even if there is a shut solenoid valve placed before the inlet of the injector as most solenoids do not prevent liquids from flowing back through them.

**Example 3:**
The water is shut off prior to the Dosatron (with a valve or solenoid valve) and liquid is draining downstream from the unit.

**Comments:**
There could also be a combination of two or more of these examples. In all of these scenarios, the chemical will be forced through the injector and through the line until atmospheric pressure releases the vacuum effect. These situations, not inherent to the unit, can be prevented by installing the injector properly and using the appropriate equipment in the line.
Solving the problem:

Solution for example 1:
Lower the top level of the stock tank so it is below the inlet and outlet of the injector.

Note: If the chemical tank is too large to realize this configuration, you may need to install a secondary holding tank equipped with a simple float valve system.

Solution for example 2:
The installation of a vacuum breaker device, or an air relief valve prior to the inlet of the unit, will allow air to enter the water line and break the siphon that is caused from water passing through a tee upstream from the unit. This will stop the pulling of water/solution backwards toward the tee in the same upstream. Atmospheric pressure will stop the vacuum effect and therefore stop the siphon.

Solution for example 3:
The installation of a vacuum breaker device or an air relief valve after the outlet of the unit will allow air in the line if a siphon is created by the draining of the downstream line. Atmospheric pressure will stop the vacuum effect and therefore stop the siphon.

Note: There may be a need to accommodate for all 3 situations in some installations. When connecting a Dosatron either to the public water supply or to its own water source, you must respect the regulations in force concerning protection of the water source.