

Distribution System Contamination

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Contamination of treated water in the distribution system has the potential to negate the improvements to water quality provided by an AguaClara plant. Intermittent distribution systems may create the conditions for the mechanisms which cause this contamination to occur. The most likely mechanisms of distribution system contamination are pipeline intrusion, cross contamination and inadequate household storage. Through proper operator training, effective regulation and installation of secure storage facilities and backflow prevention valves, these mechanisms can be prevented and safe water delivered to all AguaClara households.

Distribution System Contamination Prevention: Mechanisms and Solutions		
Mechanisms	Hypothesized Necessary Conditions	Proposed Best Practices
Household Storage: A household's water storage supply can be contaminated if hands, debris, animals or improperly washed utensils are dipped into the storage tank	- Lack of faucets - Open tank	Sealed tank with adequate household plumbing
Cross Contamination: Negative pressure transients in pipes or privately attached pumps can suck contaminated water from household storage systems or other connections into the distribution system.	- Intermittent supply - Submerged outlets - Connection to contaminated source (ground water, contaminated storage water...) - Negative internal pipeline pressure	- Float valve in water tanks - Backflow prevention device - Prohibition against private pumps - Proper operator training
Pipeline intrusion: May occur when there is a leak or other type of pathway and the internal pressure of the pipeline drops below external hydrostatic pressure, sucking contaminants into the system.	- Booster pumps attached to system - Large pressure transients (Pump shutdown, sudden valve closure...) - High water table - Contaminated soil profile	- Elevated storage tanks - Prohibition against private pumps - Proper operator training - First flush system in household distribution tanks - Check valves at household outlets
Bacterial Growth inside the pipeline: Potentially may occur if there was a constant, stagnant volume of water kept inside a pipeline for extended periods of time (unlikely)	- Constant water level - Stagnant water	- Regularly use distribution system - Usually, a little excess chlorine is dosed to prevent growth in the distribution lines

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See also:

[Village Supply Team](#)
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C h a l l e n g e s	Tasks	Symposium	Final Presentation	Final Report
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