



AIR ENTRAINMENT IN PUBLIC WATER SUPPLY

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Every summer it seems I get many inquiries and complaints about air in the water from public water supplies and their customers. Many operators spend a lot of time scratching their heads trying to figure out the cause of these complaints. There can be many causes of this irritating condition.

This is called Air Entrainment and occurs randomly in public water supply distribution systems. First of all, all water contains dissolved oxygen. In drinking water this can be as high as 2 percent. When the cool ground water is pumped from the well into the treatment plant, distribution system or storage facility, the water temperature warms and releases air. This occurs most often in summer because as the water warms it releases more air than cold water does. In vented storage tanks the air is vented to the atmosphere through the storage tank vent. But in many systems the treated well water is pumped directly into the distribution system. When this occurs, the dissolved air has nowhere to vent and the collection of these air bubbles creates air pockets in the pressurized distribution system. Some of this air is released when it reaches the vented storage tank, but some of this air will likely reach your customers faucets and fixtures. When this happens you will likely receive a phone call or two complaining about air. Generally speaking, you can assure your customers that your system maintains positive pressure and the air has not been caused by a leak in the distribution system. Although it is possible to introduce air during a major repair of the distribution system, flushing of the water mains can help release unwanted air.

Another cause of air entrainment complaints can be the customers own hot water heaters. Improperly vented household plumbing and hot water heaters can be the cause of many of these complaints. The relief valve on the hot water tank may also be malfunctioning. The installation of a gallon sized pressure tank will allow for expansion within the hot water system and can go a long way to help relieve this problem.

Last but not least, the public water supply should check that the well pump is not the cause of excess air in the system. A leak on the suction side of the pump or above the check valve on a submersible, can introduce air into the distribution system. Make sure that you are not over pumping your well and drawing

the water column in the well casing too low. Also make sure that your air-release valve is functioning properly. If you do not have an air release valve installed at the wellhead or well house, you may consider the addition of one.

By reducing the air trapped within your system, you will most certainly reduce complaints, and continue to provide the best "Quality on Tap". 💧💧💧

