

**WETWELL AERATION & MIXING SYSTEMS**

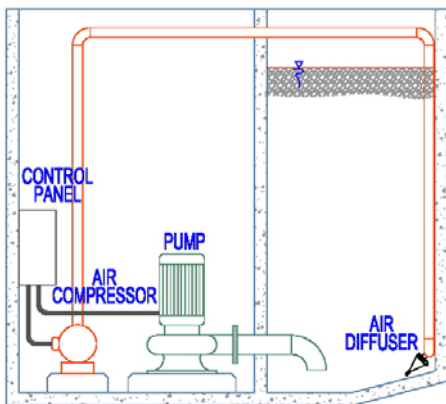
**“Maintaining Aerobic Conditions within  
Extended Storage Raw Wastewater Wetwells”**



Wastewater transfer stations contain wetwells designed to retain a sufficient volume of wastewater to allow the transfer pumps to run through their recommended duty cycles for optimal service life of the pumps. This storage period is also magnified for systems designed to handle future expansion and initially have an over-designed storage volume. Storage of raw wastewater for any period of time poses several problems because the solution contains a large amount of active micro-organisms both aerobic and anaerobic type. The percentage of each of these types is dependent upon the type of environment they are exposed and the duration of exposure. Without a supply of dissolved oxygen equal to the uptake rate of the aerobic demand the wastewater will move into an anaerobic state and even become septic if retained for extended periods. This environment will cause the production of off gas by-products such as methane and hydrogen sulfide gases which are odorous and even combustible at higher concentrations.



Holding raw wastewater in a quiescent chamber will also result in stratification and separation of floatable solids (fats, oils & grease - FOG). These materials will remain floating on the surface because most pumping systems have a low level shut-off point and cannot remove the entire contents of the storage wetwell. This can result in a requirement for installing mechanical removal equipment or implementing manual removal practices.



Providing an intermittent aeration and mixing system will eliminate these problems. Coarse bubble diffusion provides adequate transfer rates for oxygen demand and also produces higher agitation of the wastewater at the surface point to break-up the FOG layer and blend these materials into the wastewater solution. The diffusers can be located near the wetwell floor to re-suspend heavier solids that may cause pump inlet bridging and clogging; the diffusers must be durable in construction to withstand the high turbulence conditions produced by the pump suction. The operation of the aeration and mixing system can be integrated with the pump controls to operate periodically on a timer basis and also just prior to every pump cycle. The system should be set to not operate during pump cycles to prevent air entrainment through the pump.

Tideflex Coarse Bubble Diffusers are constructed of heavy duty elastomer and are specifically designed for these harsh environment applications. The check valve design will also prevent wastewater, organics, and grease from entering the air distribution piping when the system is off-line therefore preventing clogging of the piping system.

**Unique Performance Features**

- Eliminate Volatile Odors
- Re-entrain Floatables & FOG
- Re-suspend Settled Solids
- Prevent Clogging of the System

*Tideflex Technologies / Red Valve Company holds the patent for elastomer duckbill diffusers and their incorporation into a multiport diffuser piping system. Any suppliers of systems incorporating duckbill diffusers would need authorization from Tideflex Technologies / Red Valve Company. Soliciting of systems incorporating Tideflex diffusers by others without the consent of Tideflex Technologies constitutes intent to violate the patent protection of this product and is subject to the penalties defined within the Patent Protection Laws of the United States.*

US Patent No. 6,016,839 / 6,193,220 / 6,372,140 / 6,702,263  
Canada Patent No. 2,366,252 / 2,385,902; United Kingdom Patent No. 2,326,603