

# Semi-Passive Bioreactor Design



Traditional Bioreactors utilize a substrate that contains the carbon and energy source as part of the matrix. Once carbon sources are depleted treatment efficiency decreases, metals are precipitated within the matrix. Plugging and short-circuiting also decrease treatment efficiency over time.



## IWT “Semi-Passive Systems”

- Carbon source is added to the influent.
- Metals are precipitated outside the bioreactor.
- Flushing capability is built into the matrix.
- Provides a sustainable system in which sulfate reducing activity can be controlled.

IWT designs are proven at multiple sites with varying chemistry and flow characteristics. They extend bioreactor system lifetime and reduce or eliminate the need to replace the substrate for sites containing moderate to high metal concentrations and sulfate. At sites with low metal concentrations we have designed completely passive systems with no need for electricity.



*Labor, maintenance, and energy savings are realized while providing a remote site solution that is effective at treating water in harsh conditions throughout the year.*

*IWT’s Anaerobic Sulfate-Reducing Bioreactor is an evolution in sustainable semi-passive treatment of acid mine drainage.*

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