

Total Dissolved Gas

Rule

Beneficial Use Support Status - Use of Data Regarding pH, Turbidity, Dissolved Oxygen, and Temperature (IDAPA 58.01.02.054.03)

In making use support determinations, the Department may give less weight to departures from criteria in Section 250 for pH, turbidity, dissolved oxygen, and temperature that are infrequent, brief, and small if aquatic habitat and biological data indicate to the assessor that aquatic life beneficial uses are otherwise supported. Unless otherwise determined by the Department, “infrequent” means less than ten percent (10%) of valid, applicable, representative measurements when continuous data are available; “brief” means two (2) hours or less; and “small” means conditions that avoid acute effects. Subsection 054.03 only applies to use of this data for determination of beneficial use support status. Subsection 054.03 does not apply to or affect the application of criteria for any other regulatory purpose including, but not limited to, determining whether a particular discharge or activity violates water quality standards.

Gas Supersaturation (IDAPA 58.01.02.300)

***01. Applicability of Gas Supersaturation Standard.** The Director has the following authority:*

- a. To specify the applicability of the gas supersaturation standard with respect to excess stream flow conditions; and*
- b. to direct that all known and reasonable measures be taken to assure protection of the fishery resource; and*
- c. To require that operational procedures or project modifications proposed for compliance for dissolved gas criterion do not contribute to increased mortalities to juvenile migrants or impose serious delays to adult migrant fishes.*

{Break in continuity}

***03. Gas Supersaturation Control Program.** Owners or operators of proposed water impoundment facilities subject to excessive spilling which can result in supersaturated water conditions must submit to the Department for approval a program for the detection and control of gas supersaturation. The program must include, but is not limited to*

- a. Time schedules for construction or installation of supersaturation control features and devices; and*

b. When required by the Department, a monitoring and reporting system insuring that supersaturated conditions are detected and reported to the Department.

Discussion

Total dissolved gas (TDG) is similar to pH, turbidity, dissolved oxygen and temperature, which are discussed in this section of the rule. In other words, all five of these parameters are typical constituents of water quality that have a “normal” state which is quite variable and in which some waters may naturally exceed the numeric criteria. TDG below waterfalls can, for example, exceed 110% saturation. They are also similar in that they may become problematic if they depart too far from normal.

Section 054.03 and the older section 300 (Gas Supersaturation) in some ways attempt to achieve the same thing, by allowing for occasional exceedances of set numeric criteria if no harm to aquatic life uses is occurring as a result of those exceedances; thus, the consolidation of these two similar sections has merit.

On the other hand, there are unique situations which arise with TDG that do not arise with pH, turbidity, dissolved oxygen and temperature. High TDG is often associated with spill from high dams, and can create adverse conditions for aquatic life; however, spill from dams may be involuntary (i.e. a result of the need to create space is a reservoir to provide for flood control or from high inflows overwhelming the capacity to store water and prevent high spill). There are also situations in which spill is desired to provide cooler water downstream for the benefit of aquatic life, occasionally creating high TDG in the process.

The current gas supersaturation language clearly provides flexibility to address excess stream flow (e.g., flooding conditions). This flexibility is provided through authority to the Director, implying the Director must intervene in each situation. In practice, this has been a rather cumbersome means of providing flexibility. Furthermore, the language in section 300 does not clearly accommodate spill that would cause excess TDG, but cooler water, to benefit aquatic life.

A possible solution is to incorporate the intent of the older section 300 into section 054.03. Another solution would be to modify section 300 to include spills aimed to benefit aquatic life and set thresholds, like the 10% frequency in 054.03, for accommodation, so that intervention by the Director is not required in every situation.