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**Cc:** [mann.laurie@epa.gov](mailto:mann.laurie@epa.gov)  
**Subject:** Comment on WAC 173-201A-240 Toxics Substances Criteria  
**Date:** Friday, February 27, 2015 6:06:29 AM  
**Attachments:** [CLARKS CREEK A PLAUSIBLE EXPLANATION.docx](#)

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Dear Ms. Niemi,

To the substances listed in Table 240 Toxics Substances Criteria should be added Alkalinity, Aluminum and Iron. Both Alkalinity and Iron are listed in USEPA Quality Criteria for Water, 1986 and are necessary Criteria to assure aquatic life protection in receiving waters. Whereas Aluminum is not listed in USEPA Quality Criteria for Water, 1986 Aluminum as a toxicant was addressed in USEPA's Ambient Water Quality Criteria for Aluminum - 1988.

The USEPA Criteria for Alkalinity is 20 mg/L or more of CaCO<sub>3</sub> to protect freshwater aquatic life except where natural concentrations are less. It is currently acknowledged that surface water runoff that is conveyed to streams, wetlands and lakes is a major factor in the degradation of their water quality. Precipitation and resultant surface water runoff does not have alkalinity in concentrations that meet USEPA's Criteria for Alkalinity and therefore should not be discharged without treatment to raise alkalinity prior to discharge into streams, wetlands and lakes. Currently the City of Lakewood discharges surface water runoff from nearby roads into an 11 acre depression that when filled with surface water runoff is called Carp Lake without any treatment to raise alkalinity prior its discharge into this depression. As a result the alkalinity of the water in so called Carp Lake varies from 10 to 14 mg/L CaCO<sub>3</sub> depending upon the amount of surface water runoff discharged into the lake (as determined by precipitation) which is significantly below the USEPA Criteria for Alkalinity. Carp Lake has no connection with groundwater or streams that flow into the lake. It is merely a depression that sits on the private property of abutting residences and as such functions as a detention and infiltration pond for the City of Lakewood. The low alkalinity of the surface water contained in this depression has led to serious water quality problems which have lowered the property value of homes surrounding this private pond. Yet its classification as a wetland prevents its property owners from taking action to address water quality problems caused by the low alkalinity surface water being conveyed onto their private property by the City of Lakewood. The USEPA's Criteria for Alkalinity should be incorporated into Table 240 Toxics Substance Criteria.

The USEPA Criteria for Iron to protect freshwater aquatic life is 1.0 mg/L. Groundwater entering West Edmond Marsh in the City of DuPont contains iron in concentrations greater than 3.5 mg/L as a result discharging groundwater that has been polluted by flowing through an historic and abandoned dump site located just up gradient of West Edmond Marsh. The TMDL study that was recently done on Clarks Creek flowing through the City of Puyallup failed to recognize that the low dissolved oxygen, sedimentation and excessive elodea aquatic plant growth characteristic of the alluvial flood plain reach of Clarks Creek is the direct result of iron laden discharges of surface and ground water from the City of Puyallup's groundwater inundated storm water drainage system which includes Meeker Ditch. See the attached for details. Table 240 Toxics Substances Criteria should recognize iron as a USEPA listed toxic

substance when its concentration in groundwater (or surface water runoff) discharging into any stream, wetland or lake exceeds 1.0 mg/L.

The USEPA Criteria for Aluminum should be incorporated into Table 240 Toxic Substances Criteria since Aluminum ions in very low concentrations are toxic to aquatic life. At the present time hundreds of tons of alum (aluminum sulfate) are being applied to lakes throughout the State of Washington (e.g. Seattle's Green Lake) to inactivate and precipitate soluble reactive phosphorus. Whereas the hope is that the free aluminum ions released upon the introduction of aluminum sulfate into a water body will combine with in lake hydroxyl ions to form insoluble aluminum hydroxide and thus not be toxic to freshwater aquatic life the reality is that with increasing acidification of our freshwater bodies aluminum hydroxide will be dissolved into the soluble ionic and toxic form of aluminum. When this happens many of our alum treated lakes will become toxic to freshwater aquatic life forms and future generations will wonder why WDOE ever allowed the practice of discharging large quantities of toxic aluminum sulfate into waters of the State. USEPA's Ambient Water Quality Criteria for Aluminum - 1988 should be incorporated into Table 240 Toxics Substances Criteria.

In conclusion: Toxics Substances Criteria for Alkalinity, Aluminum and Iron should be incorporated into WAC 173-201A-240 Table 240.

Don Russell