



DATE October 1, 2015
TO MDNR- Water Protection Program
FROM Steve Taylor, MO-AG
Subject Preliminary DRAFT comments on proposed WQS/NNC rule and rationale document

1. The rule, with justification from the rationale document, appear to transfer water treatment costs. MDNR sets a 10 µg/L screening value partially based on taste and odor issues. MDNR suggests that “taste and odor problems would cease when chl-a concentrations are maintained at a level below 10 µg/L.” MDNR does not differentiate between source, raw, and finished drinking water. EPA’s “Do Not Drink” recommendation is 1.6 µg/L. EPA states that “treatment strategies can be implemented easily and quickly to provide immediate response to any cyanotoxins detected in raw or finished water and prevent cyanotoxins from breaking through into treated water”. EPA states that if drinking water reaches 1.6 µg/L, water utilities should adjust existing treatment to reduce the concentration to below 0.3 µg/L as soon as possible. Microcystins should be the primary concern of a drinking water NNC. Chl-a is an indicator of nutrient levels which are one of several factors in formation of microcystins. A chl-a level of 40 µg/L or more for raw water (not source water) with site-specific criteria as needed should be considered.

2. In matters of policy, MDNR points to MDC and states that the MDNR/MDC goal is not to maximize sport fish harvest but that the goal is ‘maintenance of sport fisheries’. MDNR/MDC policy should not be to not maximize sport fish harvest. In matters of research, MDC/MU (Michaletz, Obrecht, Jones, 2012) say the following: growth and size structure of sport fishes usually improved with increasing lake fertility, first-year growth of black crappies increased with chlorophyll concentrations up to a threshold of ≈ 100 µg/L, sport fish biomass and harvest tend to increase with fertility, substantial reductions in nutrient inputs have led to declines in sport fisheries in some lakes, and that caution should be used when reducing nutrient input into lakes. MDC/MU researchers do also say that harmful effects of high nutrient concentrations on sport fish populations may occur in hypereutrophic lakes (hypereutrophic defined as chl-a levels >75.0 µg/L). This data would seem to support a general statewide criteria of 60 µg/L or more, particularly for the Plains. In unique Ozark areas and special case plains lakes, site-specific criteria could be developed.

3. Describing the sampling process as a ‘minimum of four (4) representative samples per year’ should be removed. The rule should specify ‘one representative sample must be collected during May, June, July, and in the month of August.’ The rule should specifically state where the sample is taken and it should distinguish lakes where drinking water is a use. The rule could state “for lakes where drinking water use is not applicable, a representative source water sample of the water column of the epilimnetic layer shall be taken. If an epilimnetic layer does not exist, a representative source water sample shall be taken in a water column defined by where an epilimnetic layer historically has existed. For lakes where uses include drinking water, a representative raw water sample shall be taken.”

4. The concept of screeners could be helpful if the screeners are well-defined, and, if the purpose correlates to the screener values. The proposed rule state a lake that exceed screening

values ‘does not clearly indicate impairment or lack of impairment’ and will “receive monitoring until such time as a determination can be made concerning their impairment status”. Impairment status should be determined solely by whether a criterion value is exceeded. The proposed rule should state that exceeding a screener value will result in the lake receiving increased attention in order to avoid impairment. Screeners should serve to identify lakes that are at serious risk of impairment. The long term screener should be an indicator of a chronic level of on-going elevated levels of nutrients and the short-term screener should indicate a more acute level, taking into account short-term events that may just only temporarily elevate levels with no other consequences. With this methodology, the short term screener value should be greater than the criteria value. The long term screeners should indicate a trend and should be set just below criteria in order to trigger action before triggering criteria.

5. The rule allows the screener value/weight of evidence evaluation process to also determine impairment. Putting aside objections to this process as described in #4 above, it should be noted that this evaluation process is not adequately described in the rule. Given that much of the success of the rule may very well hinge on this concept, it would be very appropriate to include more text in the rule itself objectively describing this process. A general definition and description of “epilimnetic excursions from dissolved oxygen or pH criteria” and the levels of DO and pH that are cause for concern should be objectively described. Regarding “excessive levels of mineral turbidity that consistently limit algal productivity,” clarification is needed relating a turbidity/sediment criteria and NNC. The rule needs to better describe how turbidity relates to nutrient criteria & evaluation of lake for aquatic impairment from nutrients and what levels are cause for concern.

6. Again, the rule and document appear to be written to transfer water treatment cost. Weight of evidence evaluation for drinking water supplies is more applicable to issues addressed by the MDNR PDWP branch. With that said, more objective description of ‘impacts on water treatment operations’, ‘excessive’ disinfection, and ‘unacceptable aesthetics’ are needed. MDNR should reference EPA’s “Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water” (June 2015) as well as AWWA’s “A Water Utility Manager’s Guide to Cyanotoxins”. EPA recognizes that “the formation of algal blooms is dependent upon a number of environmental conditions, including the presence of nutrients, climate, and stratification of the water source”. EPA “provides a stepwise approach PWSs could use to inform their decisions on whether and how to monitor and (or) treat for microcystins.” EPA believes its guidelines are more representative than WHO and EPA has stated that WHO will re-evaluate their guideline based on EPA’s assessments. Based on this, reference to WHO should be deleted. Missouri will ultimately be forced to utilize EPA guidance.

7. A general observation regarding the term ‘weight of evidence’ (WofE). WofE is a term that has been used for many years in MDNR’s NNC meetings. WofE should be better defined in the rule. In some cases, WofE refers to specific, objective measures that utilizes a statistical quantitative method. In other instances, WofE infers subjective considerations such as in a court of law were weight of evidence measures credible proof. The vagueness of the proposed rule description of the WofE evaluation does not help in defining what is exactly meant here by the use of the WofE term.