ORR Recommendation R-14

Subject: Boron Standard for Groundwater (R 299.5744)

Recommendation: Amend R 299.5744 to use the drinking water standard as the criteria for boron. Prior to determining to the applicability of the drinking water standard at a site, the pathway must be reviewed to determine if the impacted portion of the receiving waters is being used for purposes of irrigation. If the impacted portion of the receiving waters is being directly used for irrigation, then a lower standard may be set at the discretion of the DEQ to protect potentially sensitive crops.


Appendix A
No. R-14
Subject: Boron Standard for Groundwater (R 299.5744)
Regulation: R 299.5744
Remedy: ☐ Process ☒ Rules ☐ Statute
Background/Issue: The use of 500 ug/l boron, a phytotoxicological standard based on celery leaf damage, as the Part 201 drinking water standard instead of the actual drinking water standard of 1900 ug/l should be discontinued. This lower standard puts dischargers statewide in remedial action when there is no threat to drinking water and there is almost always no celery farm to protect.

Proposed Solution: Amend R 299.5744 to use the drinking water standard as the criteria for boron. Prior to determining to the applicability of the drinking water standard at a site, the pathway must be reviewed to determine if the impacted portion of the receiving waters is being used for purposes of irrigation. If the impacted portion of the receiving waters is being directly used for irrigation, then a lower standard may be set at the discretion of the DEQ to protect potentially sensitive crops.

Rationale for Change/Additional Comments: The current standard of 500 ug/l was set based on a study that showed damage to certain crops (celery, beans, onions, grapes, and fruit trees) when irrigation water was used with boron concentrations above 500 ug/l. Other crops, such as corn, thrive with irrigation water with higher concentrations of boron as boron is a nutrient for these plants. It is a rare circumstance that industrial groundwater discharges are used for irrigation purposes. It is rarer still for these discharges to be used for irrigation water for sensitive crops. Consequently, it makes sense to use the drinking water standard for boron for the vast majority of groundwater discharges. It does not make sense to set the standard at the lowest recommended level, but to reserve that determination only when irrigation is being applied. If irrigation is being applied, the DEQ has the discretion to set a lower standard based on the expected use of that irrigation water, including the potential for crop rotation.