

On behalf on Nu-West Industries, Inc. (Nu-West), Arcadis U.S., Inc. (Arcadis) has prepared the following comments regarding Idaho Department of Environmental Quality's (IDEQ) Preliminary Draft Rule on updated selenium (Se) criteria for aquatic life use (Docket No. 58-0102-1701, Draft No. 1). These comments are in relation to information presented by IDEQ during the first negotiated rulemaking meeting on April 27<sup>th</sup>, 2017.

**Comment #1:** During the first negotiated rulemaking meeting on April 27<sup>th</sup>, 2017, IDEQ presented a bi-furcated option for the Se criterion to address surface waters in which sturgeon species are present or absent. We support this practical and logical approach to establishing appropriate Se standards that are based on actual watershed conditions within the State. This approach is in line with USEPA guidance for developing criteria based on resident aquatic life:

- a. Water quality criteria can be established to account for differences in sensitivity between resident species and those used to derive a criterion per U.S. EPA's Recalculation Procedure. In the general context of site-specific criteria, a "site" may defined at various scales, including: a state, a region, a watershed, a waterbody, or a segment of a waterbody. Thus, defining sites based on biogeographic areas in which sturgeon occur is consistent with USEPA guidance regarding site boundaries for criteria.
- b. The phylogeny of sturgeon makes them highly distinct from other fish species. Sturgeon are in the class *Chondrostei*, whereas other fish species in Idaho and those used to derive the USEPA (2016)<sup>1</sup> Se criterion are in the class *Teleostei* (Integrated Taxonomic Information System [ITIS]; <https://www.itis.gov/>). Therefore, sturgeon is a taxonomic outgroup and should not be considered as a surrogate to any fish in Idaho surface waters.
- c. A recalculated Se criterion without sturgeon is expected to protect other resident fish species. Excluding sturgeon, the recalculated egg/ovary (EO) value equals 19.0 mg Se/kg EO dw and the whole-body (WB) value equals 9.5 mg Se/kg WB dw. These values are less than the final chronic values (FCV) for the next most sensitive genera (i.e., *Lepomis*) presented in USEPA (2016). Species in the genus *Lepomis* are warm water fish species that typically do not occur in Idaho streams and rivers. Species in the family *Salmonidae* are the third most sensitive taxonomic group in USEPA (2016) and are common throughout Idaho surface waters. The USEPA (2016) FCVs for the most sensitive salmonid is 21.0 mg Se/kg EO dw (genus *Salmo*) and 11.6 mg Se/kg WB dw (genus *Oncorhynchus*), indicating that a recalculated Se criterion without sturgeon is protective of sensitive resident fish species.

**Comment #2:** An average or composite fish-tissue concentration, when multiple samples are collected, is appropriate to assess compliance with the tissue criterion because the assessment endpoint for the Se criterion is protection of fish populations. While USEPA's technical support

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<sup>1</sup> USEPA. 2016. Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016. EPA 822-R-16-006. Office of Water. Office of Science and Technology Washington, D.C. June.

documents on the implementation of the Se criterion are still draft, USEPA clearly recommends composite or average tissue concentrations be evaluated instead of individual fish. Furthermore, all toxicity data used to derive the Se criterion (and other ambient water quality criteria) involves deriving dose-response relationships on the average concentration for each treatment. Therefore, each EC<sub>10</sub> concentration represents an average concentration that causes a 10% effect. To reflect this in the current IDEQ Draft Rule, footnote No. 2 could be amended to state: *Frequency: Average or composite not to be exceeded.*

**Comment #3:** We recommend that IDEQ adopt a “Performance-Based Approach” to translating the Se tissue criterion to a site-specific water column value. Performance-based approaches provide a transparent, predictable, repeatable, and scientifically defensible procedure for the protection of designated uses, and are widely recognized and supported by USEPA as appropriate and sufficiently protective approaches for States to include in the adoption of water quality standards. Consistent with USEPA regulations and guidance (40 CFR Part 131; 65 Fed. Reg. 24641, at 24648 (Apr. 27, 2000<sup>2</sup>)), a performance-based approach would rely on the State adopting procedure(s) (*i.e.*, a criterion derivation methodology) rather than a specific outcome (*i.e.*, concentration limit for a pollutant) in its water quality standards to translate the fish tissue criterion concentration into a site-specific water concentration. For the Se criterion, the performance-based approach can be incorporated in Idaho Water Quality Standards by referencing the USEPA-approved procedures set forth in Appendix K of *Aquatic Life Ambient Water Quality Criteria for Selenium – Freshwater 2016* (USEPA 2016). While USEPA’s technical support documents on the implementation of the Se criterion are still draft, USEPA clearly supports the performance-based approach as an option for States to translate the Se tissue criterion into site-specific water column values. To reflect this in the current IDEQ Draft Rule, footnote No. 4 could be amended to state: *Site-specific water column values (30-day) are based on dissolved total Se in water and are derived using a performance-based approach from fish tissue values via mechanistic or bioaccumulation modeling methods in Appendix K of USEPA (2016).*

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<sup>2</sup> Federal Register. Vol. 65, No.82. Thursday, April 27, 2000 / Rules and Regulations.  
<https://www.gpo.gov/fdsys/pkg/FR-2000-04-27/pdf/00-8536.pdf>