The Spokane River, PCBs, and Water Quality Variances: A Citizens' Primer

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This document was prepared with the generous support of the Rose Foundation for Communities and the Environment

White Paper
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October 8, 2019

I. Background: What is the Problem Facing the Spokane River?

The Spokane River between Spokane Valley and Long Lake Dam contains a significant concentration of Polychlorinated Bi-phenyls ("PCBs"). PCBs are a group of persistent man-made compounds that permeate throughout the environment. Due to potential carcinogenic attributes and toxic effects to the immune, reproductive, nervous, and endocrine systems in people and other organisms[2], PCBs are classified by the Environmental Protection Agency ("EPA") as a "toxic pollutant"[3]. Commercial production of PCBs was banned in 1976 with the Toxic Substances Control Act; however, various manufacturing practices continue to produce inadvertent PCB byproducts. Additionally, PCBs bio-accumulate in fish populations and subsequently affect human health via fish consumption. PCBs have proved difficult to regulate and effectively prevent from entering the Spokane River due to the lack of technological capabilities to detect and eliminate PCBs. PCBs enter the Spokane River in a variety of ways, including through facilities that have permits to discharge pollutants under the Clean Water Act. Thus, most local facilities discharging effluent into the Spokane River require updated technology to be able to meet Washington's PCB standards.

In late April 2019, five of the industrial and municipal pollution dischargers into the Spokane River submitted applications to the Washington Department of Ecology ("Ecology")

[1] This document was prepared with the generous support of the Rose Foundation.
[2] *See* https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals/PCBs.
[3] 40 C.F.R. § 129.4(f).

requesting water quality standard ("WQS") variances for a period of up to 20 years.[4] Variances effectively implement a more lenient, time-limited pollution standard for the discharger. WQS variances have been executed in other states (such as Colorado and Montana) with varying degrees of success, but, as of this date, no WQS variance has been implemented in Washington. Most notably, ***no*** state has granted a WQS variance for ***toxic PCB*** pollutants. A WQS variance for PCBs in the Spokane River would set the precedent as the first WQS variance for toxic PCB pollutants in the United States. Therefore, for Washington to adopt effective PCB variances to combat this unique problem, it is essential to understand the nature, process, and pros/cons of WQS variances before progressing.

II. What are Water Quality Standards?

"Water quality standards (WQS) are provisions of . . . [law] that describe the desired condition of a water body and the means by which that condition will be protected or achieved."[5] States establish, revise, and review WQS for all of the State's waters[6], which then are approved by the EPA. The purposes of WQS are to protect public health and welfare, enhance the quality of water, and comply with the federal Clean Water Act ("CWA")[7]. A WQS is comprised of three components: (1) designated use(s); (2) criteria to protect the designated uses; and (3) an anti-degradation policy. The anti-degradation policy component is irrelevant to the application of WQS variances since a variance only affects the designated uses and criterion.

[4] Available at https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards/Updates-to-the-standards.
[5] *See* https://www.epa.gov/standards-water-body-health/what-are-water-quality-standards.
[6] 40 C.F.R. § 131.4(a).
[7] 40 C.F.R. § 131.2.

"Designated uses" describe the condition or use(s) to be made of the water (i.e. fishing, swimming, scenic viewing, trout spawning and rearing, etc.)[8]. When a state classifies designated uses for a waterbody, it must consider the use and value of the water for public water supplies, fish and wildlife protection, recreation, and the effects to downstream waters, including Tribes.[9] The criteria component protects the designated uses. Criteria establish numeric (or narrative) values to limit the amount of pollutant entering the waterbody in order to maintain that waterbody's use goals. These values are "based on sound scientific rationale," CWA guidance, and "contain sufficient parameters" to protect the uses.[10] For waters contaminated with toxic pollutants, Washington's Administrative Code requires numeric criterion to address protection of both aquatic life *and* human health[11]. Human health criteria are unique to toxic pollutants. In Washington, the human health criteria for consumption of water and organisms in waters containing PCBs is set at 7 picograms per liter ("pg/L") or 7 parts per quadrillion. To put this in perspective, six parts per quadrillion amounts to a little more than one-half of a square foot of the entire nation, including Alaska.

A proper WQS "serves the dual purposes of establishing the goals for a specific waterbody and serving as a regulatory basis for treatment controls and strategies."[12] Water quality standards are carried out through the execution of the National Pollutant Discharge Elimination System ("NPDES") permit program. NPDES permits "address water pollution by regulating point sources that discharge pollutants to waters of the United States."[13] Point sources are "any discernible, confined and discrete conveyance, such as a pipe, ditch, channel, tunnel,

[8] 40 C.F.R. § 131.2.
[9] 40 C.F.R. § 131.10(a)&(b).
[10] 40 C.F.R. § 131.11(a)(1) & 40 C.F.R. § 131.11(b)(1)-(2).
[11] WAC 173-201A-240.
[12] 40 C.F.R. § 131.2.
[13] *See* https://www.epa.gov/npdes/about-npdes.

conduit, discrete fissure, or container"[14] that provides a point of entry for pollutant(s) into the waterbody. Facilities (e.g. the industrial and municipal facilities on the Spokane River) with point source(s) are required to obtain a NPDES permit. The permit outlines precise restrictions and "limits on what [the facility] can discharge, monitoring and reporting requirements, and other provisions to ensure that the discharge does not hurt water quality or people's health."[15] Permits last no longer than five years,[16] but may be renewed. If renewed, the permit is prohibited from promulgating effluent limitations, conditions, or standards less stringent than those in the previous NPDES permit (i.e. anti-backsliding protections).[17]

III. What is a Water Quality Variance?

Various regulatory tools such as compliance schedules, use attainability analyses, and total maximum loads ("TMDLs")[18] exist to address WQS issues. A WQS variance is another tool which essentially modifies the designated uses and criteria of a waterbody for a limited time. Officially, a WQS variance is "a time-limited designated use and criterion for a specific pollutant(s) . . . that reflect the highest attainable condition during the term of the WQS variance."[19] Applied to PCBs in the Spokane River, a variance would legally adjust the 7 pg/L criteria to allow higher concentrations of PCBs in discharger effluent for qualified permittees.

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[14] *See* "What is a Point Source" at https://www.epa.gov/npdes/npdes-permit-basics.
[15] *See* "What is a NPDES Permit" at https://www.epa.gov/npdes/npdes-permit-basics.
[16] 40 C.F.R. § 122.46(a).
[17] 33 U.S.C. § 1342(o).
[18] A *compliance schedule* or "schedule of compliance" is "a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard." (33 U.S.C.A. § 1362(17)). A *use attainability analysis* is "a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors." (40 C.F.R. § 131.3(g)). A "Total Maximum Daily Load" is a numerical value that represents the highest amount of pollutant a surface water body can receive and still meet water quality standards." (*see* https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Total-Maximum-Daily-Load-process).
[19] 40 C.F.R. § 131.3(o).

In broad terms, an adopted WQS variance overlays the existing WQS and becomes the applicable standard "for purposes of the CWA" during the variance term.[20] Water quality standards "for purposes of the CWA" are minimum standards that must be used when implementing regulations dealing with the CWA.[21] Due to the CWA's vast scope, such regulations include granting federal permits and state certifications, identifying impaired waters, and implementing other regulatory tools (such as a TMDL). Although an adopted variance stands in place of the existing WQS (or "underlying WQS") the underlying WQS is not abandoned. The State must retain the underlying WQS during the variance term and reinstate the standard once the term expires, or the variance is discontinued (e.g. variance is not making proper progress).[22]

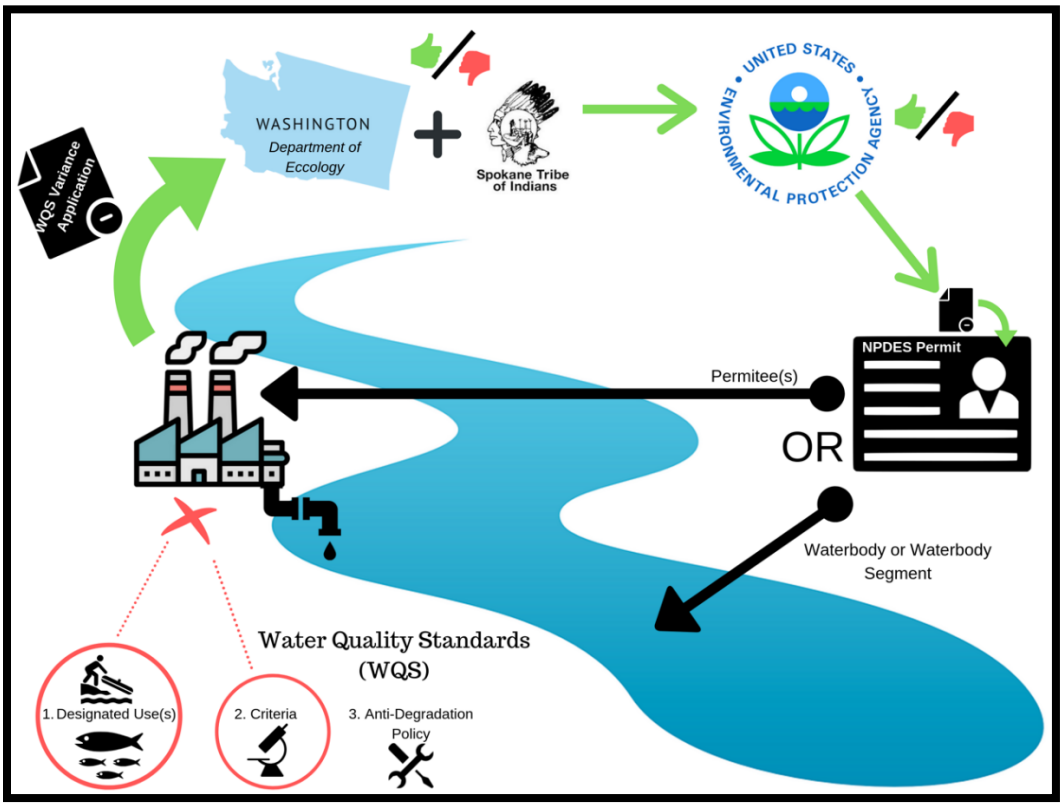
Granting variances in germane situations creates a flexible solution where permits, regulatory tools, and other means can be tailored to meet the demands of the impaired waterbody's WQS. Variances provide individualized attention to standard-lacking dischargers who would otherwise be forced to shut down. Instead, these dischargers maintain operations while simultaneously making progress towards full compliance. In this way, variances are designed to achieve the overall goal for the waterbody by allowing temporary leniency to certain facilities. However, if mismanaged or neglected, WQS variances will negate the current progress towards the underlying standard. Without precise and honest monitoring, a variance could let the permittee "kick the can down the road" in regard to meeting the underlying WQS for the term of the variance. In order to combat improper operations and narrow the application of variances to appropriate circumstances, the EPA and Ecology codified requirements and restrictions into the

[20] 40 C.F.R. § 131.14(a)(3).
[21] 40 C.F.R. § 131.21(d).
[22] 40 C.F.R. § 131.14(a)(2) & WAC 173-201A-420(1)(b).

variance application process. The process requires the applicant to fulfill Ecology's requirements as well as the EPA's.

IV. What is the Process to Obtain a Variance?

WQS Variance Process Flow Chart:



The process starts with the discharging facility filling out Ecology's variance application. "The decision to grant a variance is a formal rule making subject to a public and intergovernmental involvement process," which includes consulting "Indian tribes or other states that have jurisdiction over adjacent and downstream waters of the proposed variance."[23] Ecology then approves or denies depending on the application's accuracy and level of completion based on Washington Administrative Code ("WAC") 173-201A-420(3). Once approved, Ecology sends the application to the EPA for approval or denial based on the Code of Federal Regulations

[23] WAC 173-201A-420(4) & (4)(a).

(specifically 40 C.F.R. § 131.14(b)). If the application is approved on both levels, the applicant is granted a variance consistent with the parameters provided in the initial application which are implemented through that applicant's NPDES permit.

Due to the limited relevance of variances, before the applicant starts the application process, the applicant must first determine whether or not a variance is the proper tool for the waterbody's WQS issue. Variances for WQS are intended to be limited to two specific instances. The first instance is when the WQS (e.g. 7 pg/L for PCBs in the Spokane River) is expected to be attained by the end of the variance period.[24] If it is ***unknown*** whether the WQS can be obtained but there is an ***expectation*** that attainment is possible, a variance is adopted in order to pursue attainment goals. This first instance exposes the nuanced difference between a variance and other WQS regulatory tools. For instance, if the period needed to attain a WQS is ***known***, then a compliance schedule outlining the timeline and benchmarks for attainment is utilized instead of a variance. Likewise, if there is no ***expectation*** of meeting the WQS, then a variance is improper, and a use attainability analysis (a scientific assessment of the factors affecting the feasible attainment of the standard to find what level of use can be attained) is utilized instead.[25] The second instance for variance consideration occurs when the attainable use cannot be reliably determined.[26] Here, a variance is experimental in nature, as it is used to determine the impact and best use of the waterbody.

Conversely, "a state may not adopt WQS variances if the designated use and criterion addressed by the WQS variance can be achieved by implementing technology-based effluent

[24] WAC 173-201A-420(1)(a) & (c)-(e).
[25] 40 C.F.R. § 131.13(g) & 40 C.F.R. § 131.10(g).
[26] WAC 173-201A-420(1)(a) & (c)-(e).

limits required" under the CWA.[27] "At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under . . . [the CWA]" (e.g. dischargers can install a specific level of technology to meet the limitations).[28] When the waterbody is categorized as "impaired" under section 303 of the CWA, one such "imposition of effluent limits required under the CWA" is the use of TMDLs. A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources, that may be discharged to a water quality-limited water body. Portions of the TMDL ("wasteload allocations") are then assigned to each point source (i.e. discharging facility) to attain and maintain the WQS. The CWA established the TMDL process to provide for more stringent water quality-based controls when technology-based controls are inadequate to achieve WQS.[29] Many view the use of TMDLs as the CWA's primary method to alleviate impaired waters. In other words, variances are not applicable when other methods to WQS attainment are available; they are a last resort.

If an applicant establishes that a variance is appropriate, the variance is tailored to the situation. A variance can be discharger-specific (either applying to an individual facility or multiple facilities) or specific to a waterbody or waterbody segment. Either way, the WQS variance is applied only to the permittee or waterbody in the application. For example, it is possible to have multiple dischargers in a waterbody segment and only one receive a variance. Tailoring the variance to specific areas or dischargers eliminates chances of generating widespread leniency to the existing WQS. In order to accurately craft a variance, the application process must contain accurate information and properly address the three key elements of a variance.

[27] 40 C.F.R. § 131.14(a)(4).
[28] 40 C.F.R. § 131.10(d).
[29] 40 C.F.R. §130.7.

Element 1: Temporal Considerations

Recall that a variance is a "a time-limited designated use and criterion for a specific pollutant(s) . . . that reflect the highest attainable condition during the term of the WQS variance."[30] EPA and Ecology's regulations require that the variance be time-limited to prevent the variance's lenient standard from regressing or nullifying the progress of the underlying standard. A variance is not intended to create a new permanent WQS. The term of the variance should be the minimum time estimated to meet the underlying standard.[31] "If during the period of the variance it is determined that the designated use [of the underlying standard] cannot be attained, then a use attainability analysis will be initiated."[32]

In order to properly monitor the progress towards the underlying WQS attainment, an adopted variance shall have a provision allowing Ecology to reopen and modify any permits.[33] Additionally, there is a mandatory interim review of each variance at least once every five years after adoption. This process determines whether the conditions of the variance are met and evaluates the necessity of continuation. A variance can be shortened or terminated if the review shows the conditions/requirements of the variance have not been complied with or the WQS could be met with a shorter time frame based on new information.[34] Calculated initial terms and suitable interim reviews should (if correctly regulated) prevent prolonging attainment of the underlying WQS.

Element 2: Designated Use and Criteria

[30] 40 C.F.R. § 131.3(o).
[31] WAC 173-201A-420(5).
[32] 40 C.F.R. § 131.14(a)(4).
[33] WAC 173-201A-420(5).
[34] WAC 173-201A-420(8).

Variance applications submitted to the Department of Ecology require, at a minimum, information describing the variance term and: pollutant specific criteria and designated uses proposed to be modified, demonstration of non-feasibility, evaluation of alternatives, description and schedule of actions proposed to ensure underlying WQS are met, pollutant minimization plan for the specific pollutant (PCBs in this case), and additional information deemed necessary by Ecology.[35] This information is used to accurately determine the validity of a variance request. Precise and plentiful information allows Ecology and the EPA to customize the variance for the applicant in order to address the goals of the waterbody. Miscommunication or inaccurate information subtracts from the effectiveness of a variance since the applicant's initial application information is used in the required actions and schedule outlining measurable milestones for the permittee. Once a variance is adopted, the discharger is required to use adaptive management to fine-tune the actions, schedule, and milestones of the variance.[36]

Element 3: Highest Attainable Condition

The highest attainable condition (HAC) is a concept primarily addressed in the EPA's regulations regarding variances. Simply put, the HAC is the highest condition that must be maintained during the term of the WQS variance. This "highest condition" can come in different forms depending on the nature of the variance (discharger specific or waterbody specific) and the type of applicant. For example, for a discharger variance the HAC might require the highest: (1) attainable interim criteria (i.e. an estimation of the highest attainable ambient water quality); (2) interim effluent condition that reflects the greatest pollutant reduction achievable (i.e. the best quality effluent); or (3) if no additional feasible pollutant control technology can be identified,

[35] WAC 173-201A-420(3).
[36] WAC 173-201(A)-420(6)(d).

the highest interim criteria or effluent condition that reflects the greatest pollutant reduction achievable with the pre-existing installed technology.[37] The applicable HAC is applied based on the information submitted in the variance application. In order to obtain the optimal HAC and variance, it is strongly recommended that the applicant coordinate with Ecology.

V. How can the Public Participate in the Variance Process?

A WQS variance is a water quality standard that is subject to EPA review and approval or disapproval.[38] Accordingly, the decision to grant a variance is conditioned on formal rulemaking. Rulemaking requires Ecology to provide notice of the proposed variance(s) and allow for public participation via comment periods. In the case of the Spokane River PCB variances, Ecology started a State Environmental Policy Act ("SEPA") review which requires open public comment periods during various phases (scoping, draft EIS, etc). Along with public comment periods, rulemaking regulations require that Ecology consult with Indian tribes and states having jurisdiction over adjacent and downstream waters when making the decision to grant a variance. Ecology must also maintain and make public a list of dischargers that are covered under variances in effect.[39] The public is encouraged to consider the wide scope of issues when commenting on the effects of a variances during these periods. Ecology reads all comments when engaging in formal rulemaking. Information on comment periods and other rulemaking participation opportunities can be found on Ecology's website and other media.

VI. Are Variances Contentious?

Water quality standard variances are tools contemplated by the CWA, but their historic use is limited, and the results are varied. In Colorado, there are six adopted discharger-specific

[37] 40 C.F.R. § 131.14(b)(1)(ii).
[38] 40 C.F.R. § 131.14.
[39] WAC 173-201A-420(4).

variances regulating ammonia and selenium.[40] Barbara Bennett from the Colorado Department of Public Health and Environment presented on the success of these variances at the Spokane River Forum Conference on April 17, 2019. She stated that variances can be an effective "last resort" solution for difficult compliance problems but they require quality data, multi-party participation, and long-term engagement.[41]

Montana has also utilized WQS variances, but in the form of "automatic, general variances for entire sectors, applicable across the state."[42] The Upper Missouri Waterkeeper ("Upper Missouri") challenged Montana's "generalized" variances claiming they created an indefinite timetable and effectively delayed the achievement of the WQS criteria. The United States District Court for the District of Montana found in favor of Upper Missouri and held that the EPA's regulation was arbitrary and capricious because the EPA contradicted the term "attainable" in setting forth the term of the variance as "only as long as necessary to *achieve* the highest attainable condition." In essence, the EPA's variance regulations did not set proper benchmarks for obtaining the underlying WQS.[43] The case illustrates the need for narrowly tailored applications, precise regulations, and accountability when employing variances.

The current debate in Spokane on the Spokane River variance applications has also illustrated the contentious nature of variances. Many facilities on the Spokane River support the PCB variances since the technological and WQS requirements put the heavy burden of PCB clean up directly on the facilities. In an article for Spokane Public Radio, Ecology spokeswoman

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[40] Barbara Bennett, *Colorado's Experience with Discharger Specific Variances*, Spokane River Forum Conference (April 17, 2019), https://spokaneriver.net/wp-content/uploads/2019/04/SRFAgenda2019presentations.pdf.
[41] Barbara Bennett, *Colorado's Experience with Discharger Specific Variances*, Spokane River Forum Conference (April 17, 2019), https://spokaneriver.net/wp-content/uploads/2019/04/SRFAgenda2019presentations.pdf.
[42] Guy Alsentzer, *The Montana Nutrient Variance Boondoogle*, Spokane River Forum Conference (April 17, 2019), https://spokaneriver.net/wp-content/uploads/2019/04/SRFAgenda2019presentations.pdf.
[43] *Upper Missouri Waterkeeper v. U.S. Envtl. Prot. Agency*, 377 F.Supp. 3d 1156 (D. Mont. 2019).

Colleen Keltz stated, "[in] this case it's essentially realizing not all the technologies exist yet to reach the Clean Water Act standard for PCBs, and so we're going to recognize that and say OK you don't have to reach that today, but year by year, step by step, we're going to see those improvements that get us to that standard."[44] Conversely, Tom Soeldner, from the Upper Columbia River group of the Sierra Club says, "it's ironic the state is fighting proposed loosening of environmental rules on a federal level, while Ecology is at the same time loosening the PCB standards [through variances]."[45] Additionally, Jerry White, Jr., from the Spokane Riverkeeper, is quoted stating, "Our concern is the discharger variances open up the possibility for a 20-year [the term of most the variance applications] loosening where we never get back to the ultimate high standard that the EPA promulgated for Washington State."[46]

VII. Conclusion: What's Next?

As of the date of this paper, the five Spokane River variances have not progressed past the initial EIS scoping comment period. The debate on the applicability, safety, policy, understanding, and capability of variances as a solution for the Spokane River's PCB issue continues to grow. EPA and Ecology's regulations for WQS variances provide a framework to alleviate this unique problem. A properly executed discharger-specific WQS variance is narrowly tailored to address the technological, financial, and time-constraint concerns that face Spokane's important industrial and municipal facilities. Equally, underregulated variances with lacking control measures could derail any progress towards the Spokane River's water quality goals. As the first variance in Washington and the first toxic pollutant variance in the United States, the decisions made during the next steps will set significant precedent. Stakeholders on

[44] *See* https://www.spokanepublicradio.org/post/proposal-would-ease-limits-pcbs-spokane-river.
[45] *See* https://www.spokanepublicradio.org/post/proposal-would-ease-limits-pcbs-spokane-river.
[46] *See* https://www.spokanepublicradio.org/post/proposal-would-ease-limits-pcbs-spokane-river.

both sides, lawmakers, and the public are encouraged to sincerely evaluate the situation in order to best protect our river.

More Information About Variances

Resource Description	Source
• Department of Ecology's water quality listserv	⇒ http://listserv.ecology.wa.gov/scripts/wa-ECOLOGY.exe?A0=ECOLOGY-WATER-QUALITY-INFO
• Discharger-specific variance applications (under "Current rulemaking" section)	⇒ https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards/Updates-to-the-standards
• EPA's website on water quality standard variances	⇒ https://www.epa.gov/wqs-tech/water-quality-standards-variances
• Washington Administrative Code rules on WQS variances	⇒ https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-420
• Code of Federal Regulations rules on WQS variances	⇒ https://www.law.cornell.edu/cfr/text/40/131.14
• General information on water quality standards from Department of Ecology	⇒ https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards
• Website to provide comments during public rulemaking process	⇒ https://www.regulations.gov/
• Spokane Riverkeeper Website on Variances	⇒ https://www.spokaneriverkeeper.org/defend-the-clean-water-act
• Spokane River Regional Toxics Task Force website	⇒ https://srrttf.org/