WA CAFO Permit Fact Sheet

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Contact: Friends of Toppenish Creek, 509-874-2798

Are WQBELs in Ecology's 2023 NPDES permit for CAFOs Adequate? What are WQBELs?

The authors of the Clean Water Act recognized there are situations in which technology based controls are not enough to limit discharges and clean up polluted waters. When this happens, the CWA requires more stringent measures – Water Quality-Based Effluent Limitations or WQBELs.

The Real World

Suppose I want to wash and process fruit next to a creek that has a stream flow of one cubic foot per second = 360 cu feet per hour = 8,640 cubic feet per day. This is not a lot of water. Suppose I want to discharge one cubic foot per second of wash water during maximum operation of my fruit processing plant and the discharge contains toxic pesticides and herbicides.

My first step when applying for a permit is to describe the treatment I will use to remove some of these chemicals from the wastewater before discharging into the stream. The actions I propose to take are Technology-Based Effluent Limitations or TBELs.

If the proposed TBELs do not demonstrate adequate water protection, then regulators will look at the concentration of pollutants already in the creek and decide how much more can be added without exceeding water quality standards. The regulators will establish discharge limits based on water quality in the receiving waters (the creek). These are Water Quality-Based Effluent Limitations (WQBELs).

My project becomes more difficult if there are already elevated levels of pesticides and herbicides in the stream. Regulators may issue a permit that says I

can only discharge a certain amount of each chemical per day to the stream. These are called Waste Load Allocations (WLAs). Depending on the water quality in the stream, regulators may or may not allow me to discharge at all.

Water Quality Standards & Criteria

Washington establishes water quality standards for surface water based on a three part approach:

1. Determine designated uses such as fishing, swimming, drinking water supply, and aquatic life for each water body. Different uses require different levels of protection. You can find the list of designated uses here: WAC 173-201A-600 (freshwater); WAC 173-201A-610 (marine waters). You can find the designated uses for specific waterbodies at WAC 173-201A-602 and WAC 173-201A-612.
2. Develop numeric and narrative water quality criteria. Numeric criteria are typically allowable concentrations of specific pollutants. The states' water quality criteria are listed in WAC 173-201A-200 – 260. Narrative criteria describe the desired water quality goal, by preventing the presence of toxics in toxic amounts and protecting aesthetic values. WAC 173-201A-260(2)
3. Antidegradation means that discharges that would lower the quality in a water body are not allowed, except in specific circumstances that benefit the public. WAC 173-201A-300 – 330.

Water quality can be assessed by sampling water, sediment, fish tissue, and habitat.

Ecology has established numeric surface water quality standards for over 120 toxic chemicals such as arsenic, mercury, DDT, chlorpyrifos, and parathion.

Ecology has established standards for conventional pollutants such as temperature, dissolved oxygen, pH, dissolved gasses, bacteria, and turbidity. Evaluating these factors involves a variety of measurements.

Non-conventional pollutants include those pollutants not classified as conventional pollutants or toxics. Some nonconventional pollutants are chemical oxygen demand (COD), total organic carbon (TOC), nitrogen, and phosphorus. Not all have assigned standards.

Ecology has tested over 200 water bodies, mostly lakes, mostly in the 1990's, for total phosphorous. A few lakes have Total Maximum Daily Loads (TMDLs) for phosphorous.

Ecology has tested one body of water, a lake, for total nitrogen.

Ecology has tested nearly 400 water bodies for Ammonia – N, a toxic chemical that harms fish. There are TMDLs for Ammonia-N for Mill Creek in Walla Walla County and the Duwamish Waterway in King County. There are multi-parameter TMDLs for about two dozen waterways where Ammonia-N may be a contributing factor.

Washington has not established surface water quality criteria for Nitrate-N. Low Dissolved Oxygen levels may be used to indicate problems with Nitrate-N.

FOTC believes there is much room for improvement regarding WA water quality standards for the nutrients phosphorous and nitrogen.

Setting Water Quality Based Effluent Limits

As we discussed in the last Fact Sheet, Ecology issued general permits, such as the CAFO permits, "shall apply and insure compliance with . . . [t]echnology-based treatment requirements and standards reflecting all known, available, and reasonable methods of prevention, treatment, and control required under RCW 90.48.010, 90.48.520, 90.52.040, and 90.54.020[.]" WAC 173-226-070. In addition, the permit must include water quality-based effluent limits ("WQBELs") when "such limitations are necessary to comply with chapter 173-200 [groundwater water standards] and/or 173-201A WAC [surface water quality standards] for the majority of the dischargers intended to be covered under the general permit." WAC 173-226-070(2)(b).

A permit writer must conduct a "reasonable potential" analysis to evaluate whether a facility's discharge will cause, has the reasonable potential to cause, or will contribute to a violation of water quality standards. 40 C.F.R. 122.44(d)(1)(ii), (iv). If, based on this analysis, the permit writer determines that there is a reasonable potential that a discharge will contain the pollutant in excess of water quality standards, the NPDES permit must include an effluent limitation for that pollutant. 40 C.F.R. § 122.44(d)(1)(iii).

Such WQBELs must "control all pollutants or pollutant parameters which the department determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion of state ground or surface water quality standards." WAC 173-226-070(2)(b). To these ends, WQBELs must, in relevant part, include [a]ny more stringent limitations or requirements, including those necessary to:

> 1) Meet water quality standards, sediment quality standards, treatment standards, or schedules of compliance established pursuant to any state law or regulation under the Clean Water Act;
>
> 2) Meet any other applicable federal law or regulation;
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> 3) Comply with any Clean Water Act cleanup plan developed for the receiving water,[1] or any other state plan for protecting water quality; and
>
> 4) Prevent or control pollutant discharges from plant site runoff, spillage or leaks, sludge or waste disposal, or materials handling or storage.
>
> From WAC 173-226-070(3).

WQBELs in Ecology's 2023 NPDES permits for CAFOs

Ecology's current NPDES permit for CAFOs addresses Water Quality-Based Effluent Limitations (WQBELs) in section S.3. Here is what the permit says:

> S3. DISCHARGE LIMITS
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> Discharges conditionally authorized by this permit must not cause or contribute to a violation of water quality standards. Discharges not in compliance with these standards are not authorized. The Permittee must also be in compliance with other discharge limits (e.g. special condition S4. Manure Pollution Prevention) in order for discharges to be conditionally authorized.

As the Washington Court of Appeals correctly noted, the previous iteration of the CAFO permits—which included language similar to what is quoted above—allowed activities that would result in the violation of water quality standards. "[s]tate water quality standards must be 'enforced through meaningful limitations'

[1] We will talk more about this requirement in the next Fact Sheet.

in federal NPDES permits." *Washington State Dairy Fed'n v. State*, 18 Wn. App. 2d 259, 298 (*quoting American Paper Inst., Inc. v. U.S. Envtl. Prot. Agency*, 996 F.2d 346, 350 (D.C. Cir. 1993)). Friends of Toppenish Creek and our partners are back in court, again asking whether the new permits meet this requirement.

Thank you for reading.

Friends of Toppenish Creek

You have received this Fact Sheet because you are on a list of potentially interested parties. If you do not want to receive further information, please contact Jean Mendoza at jeanrmendoza@icloud.com

Glossary:

Ambient water quality: Refers to the conditions and properties of a surface water of the state as determined by the results of water samples, measurements, or observations.

Antidegradation: A policy developed and adopted as part of a state's water quality standards that ensures protection of existing uses and maintains the existing level of water quality where that water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This policy also includes special protection of water designated as Outstanding National Resource Waters.

Biochemical Oxygen Demand (BOD): A measurement of the amount of oxygen used by the decomposition of organic material, over a specified time (usually 5 days) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

Chemical Oxygen Demand (COD): A measure of the oxygen-consuming capacity of inorganic and organic matter present in wastewater. COD is expressed as the amount of oxygen consumed in mg/L. Results do not necessarily correlate to the biochemical oxygen demand (BOD) because the chemical oxidant can react with substances that bacteria do not stabilize.

Conventional Pollutants: Pollutants typical of municipal sewage, and for which publicly owned treatment works typically are designed to remove; defined by

Federal Regulation (§ 401.16) as BOD, TSS, fecal coliform bacteria, oil and grease, and pH.

Designated Uses: Those uses specified in water quality standards for each waterbody or segment whether they are being attained (§ 131.3). Examples of designated uses include cold and warm water fisheries, public water supply, and irrigation.

Effluent Limitation: Any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean

Effluent Limitations Guidelines (ELGs): A regulation published by the Administrator under CWA section 304(b) to adopt or revise effluent limitations.

Load Allocation: The portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loads should be distinguished.

Maximum Daily Effluent Limitation (MDL): The highest allowable daily discharge of a pollutant.

Nonconventional Pollutants: All pollutants that are not included in the list of conventional or toxic pollutants in Part 401. Includes pollutants such as chemical oxygen demand (COD), total organic carbon (TOC), nitrogen, and phosphorus.

Nutrients: Chemical elements and compounds found in the environment that plants and animals need to grow and survive. Nutrients include compounds of nitrogen (nitrate, nitrite, ammonia, organic nitrogen) and phosphorus (orthophosphate and others), both natural and man-made.

pH: A measure of the hydrogen ion concentration of water or wastewater; expressed as the negative log of the hydrogen ion concentration in mg/L. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic.

Total Suspended Solids (TSS): A measure of the filterable solids present in a sample.

Total Maximum Daily Load (TMDL): The sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If best management practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.

Wasteload Allocation (WLA): The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution.

Water Quality Criteria: Elements of state water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use

Water Quality Standards (WQS): Provisions of state or federal law that consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based on such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water, and serve the purposes of the CWA.

Water Quality-Based Effluent Limitation (WQBEL): An effluent limitation determined by selecting the most stringent of the effluent limits calculated using all applicable water quality criteria (e.g., aquatic life, human health, wildlife, translation of narrative criteria) for a specific point source to a specific receiving water.

Definitions are taken directly from the U.S. EPA NPDES Permit Writers Handbook, available at https://www.epa.gov/sites/default/files/2015-09/documents/pwm_app-a.pdf and from chapter 173-201A WAC