NORTHWEST PULP&PAPER

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Andrea Matzke
Water Quality Division
Oregon Department of Environmental Quality
811 Sixth Avenue
Portland, Oregon 97204

RE: NWPPA Comments on Proposed Revised Water Quality Standards for Human Health Toxic Pollutants; and Revised Water Quality Standards Implementation Policies

Dear Ms. Matzke:

Introduction

Northwest Pulp and Paper Association (NWPPA) represents pulp and paper mills in Oregon, Washington and Idaho. NWPPA has participated extensively for the past six years in the various processes leading up to the proposed revisions. At the outset of this process, NWPPA identified issues that would need to be addressed and we believe DEQ failed to adequately address our issues in the proposed rulemaking.

NWPPA conditionally supported the proposal to increase the stringency of the Oregon water quality standards based on a higher fish consumption rate *provided that adequate implementation measures would be included with the proposal to address anticipated issues.* DEQ has had a number of years and incurred extensive public processes directed at implementation issues but in the end did not include sufficient measures in the proposal.

*For these reasons, NWPPA **opposes** the proposed revisions.*

NWPPA supports the Oregon Water Quality Standards Group (OWQSG) and the comments submitted by Michael Campbell. As NWPPA is supporting the more legal/technical comments of OWQSG, NWPPA confines these comments to the rationale for our position and the more practical concerns with respect to the proposal. NWPPA offers some recommendations to address unresolved issues.

Practical Concerns

> *Oregon is proposing to adopt **the most stringent statewide water quality criteria** in the nation derived from a fish consumption rate of 175 grams per day. Oregon's proposal is **at least 10 times higher than most states have adopted**, thus exceeding by far any statewide criteria. As such they will entail issues that have not been commonly experienced in state water quality regulatory programs.*

NWPPA members will be directly affected by the proposed revised water quality standards for human health toxics. As a result of the proposed revisions, we will have additional requirements in our NPDES permits that will trigger excessively high treatment technology costs and transaction costs for permit processing without the certainty that the standards are achievable.

1. <u>The Proposed Water Quality Standards Will Create Implementation Issues That DEQ Does Not Have Experience Addressing and That DEQ is Not Offering Sufficient Solutions</u>

Oregon's proposal is at least 10 times higher than most states have adopted, thus exceeding by far any statewide criteria. As such they will entail issues that have not been commonly experienced in state water quality regulatory programs. Some of these issues were identified by NWPPA very early in the process, in the 2006-7 timeframe. The concerns NWPPA raises for the formal record are not new and we have raised these in detail over the past several years. These may be summarized as follows:

- Many Oregon waters will not comply with the proposed standards due to high background levels of naturally occurring earth metals due to the state's geologic history as a volcanic area.

- Many Oregon waters will not comply with the proposed standards for some human caused pollutants that have become ubiquitous in the environment due air deposition and other activities outside the state and country. These activities are, for the most part, not subject to the proposed standards or in some cases even our federal Clean Water Act.

- In many cases, there will not be effective treatment technology or cost-effective treatment technology (or both) to remove very trace quantities of these substances and pollutants.

- Achievability of standards is a question of both feasibility and costs. If the standards are unattainable, ultimately the facility will not be able to operate. Oregon jobs are at risk both at the facility and as well as the indirect jobs supported by the operation.

a. EQC Directed That Effective Implementation Measures Be Included; However The DEQ Has Not Adequately Done So

In October 2008 the Environmental Quality Commission directed DEQ to prepare draft water quality standards for human health toxics based on 175 grams per day and *directed that effective implementation measures be included in the rules.*

The directive was aimed at providing solutions to problems such as those listed above and to avoid mis-directing public and private resources to fruitless endeavors that would not provide meaningful environmental benefit. For example, it is not meaningful to the environment to require a discharger to clean up its discharge to better than natural background. Nor is it meaningful for the DEQ to waste public resources addressing such scenarios. Similarly it is not meaningful to address very trace quantities of human caused pollutants that have become ubiquitous in state waters due to activities beyond the scope of the federal and state water quality laws. For example, combustion by-products enter the water through air deposition and account for an increasing burden to the state waters.

b. NWPPA's Conditional Support of an Increased Fish Consumption Rate Was Contingent on Availability of Effective Implementation Measures; However the Measures Included are Insufficient

NWPPA conditionally supported the proposal to increase the fish consumption rate to 175 grams per day *provided that* effective implementation measures would be included to address the types of problems described above.

Unfortunately, the proposed rules do not include effective implementation measures. The sole measure to provide relief from meaningless or irrational application of the proposed standards is a provision for variances. Oregon has not successfully processed a variance in the history of its water programs. Furthermore, it must be remembered that variances are a short-term solution and are not intended to be indefinite. This concept fundamentally does not work in a situation where it may never be achievable or meaningful to remove naturally occurring earth metals or substances that are ubiquitous background pollutants.

The other provisions for background pollutants are too limited to be of value in addressing what will be a widespread problem for the regulated community.

NWPPA reminds DEQ that any water body not meeting the new standards must be listed as impaired and very specific legal consequences follow under the Clean Water Act. To have limited and ineffective implementation issues to address the unique issues Oregon will face will create a legal nightmare, not to mention an excessive cost burden for the regulated community.

The DEQ can and must do a better job of providing effective implementation measures and demonstrating that it can handle the administration of these rules.

2. NWPPA Remains Concerned That DEQ Greatly Underestimates the Costs and Has Not Incorporated Newer Information

a. Technology Costs

NWPPA appreciates the efforts of the DEQ to provide a cost estimate for implementation of the proposed rules in the form of the, *Cost Of Compliance With Water Quality Criteria For Toxic Pollutants For Oregon Waters*, by Science Applications International Corporation, ("2008 SAIC Report"); however, NWPPA remains concerned that DEQ has not re-evaluated costs in light of specific information submitted by NWPPA during the development of the proposed rules. NWPPA strongly asserts that DEQ has underestimated the costs of the proposed rule and is in error in not incorporating more specific engineering analyses that have been provided.

NWPPA commissioned HDR Engineering, Inc. in 2008 to perform a literature review of the types and costs of technologies that are theoretically available to treat pulp and paper mill effluent to meet these new and greatly more stringent standards. In 2011, NWPPA commissioned an update to this analysis to 2010 dollars. Summaries of both the 2008 and 2011 HDR reports are attached.

In short, the available technologies are:

- Co-precipitation
- Nanofiltration
- Reverse Osmosis

The treatment costs on a per mill basis may be summarized as follows:

- Initial capital investment: $19 – 119 million
- Annual Operating and maintenance costs: $ 4 – 31 million
- Annualized costs (10 years at 7%): $10 – 35 million

The range in costs is due to mill variability and the fact that a technology may have a high capital investment cost but lower annual operating and maintenance cost and vice versa.

Also, it must be emphasized that a mill will incur specific costs that are not included in the above ranges. These include the cost of energy that are site-specific. Mill specific costs could well double the above estimated ranges.

These high costs are not affordable in this economy, not to mention the incongruity of applying such a large scale resources of time and money to remove substances such as naturally occurring earth metals that are present in Oregon waters.

b. Costs of Pollution Minimization Plans/Monitoring and Variances

NWPPA commissioned an evaluation of the costs of the Pollution Minimization Plan (PMP) and monitoring as part of the 2011 HDR Engineering Update Report. The proposed rule revisions include PMP as one of the requirements of obtaining a variance or other implementation measures that may be included in the final rules. The objective of a PMP is to describe and implement activities that could reduce the amount of a particular pollutant or substance from reaching the receiving water. The PMP would include monitoring and other reporting functions.

The cost of only one aspect of obtaining a variance, a PMP, would be approximately $99,000 (see attached HDR 2011 Update Report at page 3.) There are multiple other work items and engineering analyses with associated costs that would be needed to obtain a variance for an industrial facility.

In addition, the legal costs for a variance application are estimated at $200,000 or more per mill application based on actual experience in Oregon for our industry.

DEQ's SAIC Report grossly underestimates the cost of obtaining a variance by stating that the cost per facility would be approximately $35,000 to $300,000 with minimal costs associated with renewal.

NWPPA specifically disputes the $25,000 compliance cost estimate for the Pope and Talbot Inc., Halsey pulp mill (facility now named Cascade Pacific Pulp) in the SAIC Report in Appendix A, pages A-107 to 113. Based on our engineering study noted above, the compliance cost estimate should be orders of magnitude higher. Also, since variances are currently intended as a short-term measure, costs associated with renewal could actually increase as additional justification could be required.

3. NWPPA Remains Concerned That The Available Treatment Technologies Are Untested On Large Scale Operations and Thus Are Not Currently Achievable

Whether the standards are achievable is a question of both affordability as discussed above and effectiveness of the technology. The technologies discussed above are unproven for pulp and paper mill effluents, meaning it is not certain that these very large expenditures would result in meeting the standards. For this reason, manufacturers will not necessarily offer performance assurances.

The technologies discussed above are in the research and development stage (bench testing and pilot projects) but have not been demonstrated to be effective on large scale effluents with a high organic load such as typical of a pulp and paper mill.

There is a great deal of uncertainty in moving technology from bench scale testing and/or pilot projects to practical application. For example, a mill in the Pacific Northwest has been engaged in trying to find an advanced treatment technology for phosphorous to meet a requirement that exceeds tertiary treatment. The mill has spent over $10 million on pilot projects and has yet to demonstrate that the technology would be effective on its particular effluent.

In conclusion, the HDR 2008 Report (p. 3) notes:

> *"While costs are significant, there is no certainty at this time that the (revised water quality standards) could be met using existing technology. Steps forward should first ensure that technologies are available for meeting more stringent (water quality standards) before significant capital investments are made.*

NWPPA Recommendations

A. The Rate and the Risk Level

> *If Oregon adopts fish consumption rate of 175 grams per day, then the associated risk level should be 1 x 10 (–5). EPA allows a range of risk levels from 1 x 10(–4) to 1 x 10(–6).*

Formerly, Oregon derived its human health criteria by using EPA's national fish consumption rate of 17.5 grams for the general population based on a risk level of 1 in a million or 1 x 10(–6). The newer higher fish consumption rate of 175 grams per day is based on the top 5% of the subset of the population which are high fish consumers.[1] Thus it is a higher rate than consumed by nearly all of the state's residents and most subsistence and tribal members. In fact a consumption rate of 175 grams per day represents approximately 0.1% of fish consumers.[2]

The DEQ compounds the stringency of the resulting water quality standards by retaining not only a very high consumption rate, but also retaining a very low risk level. EPA guidance allows a range of risk levels from 1 x 10(–4) to 1 x 10(–6). The resulting criterion based on high-end fish consumption combined with the relative risk of 1 x 10(–6) results in protecting the majority of fish consumers at a risk level of 1 x 10(–8)!

EPA guidance allows states to make reasoned decisions about the appropriate risk level for deriving water quality criteria taking into account a variety of factors that might not easily be addressed in the algebraic equation for deriving water quality criteria.

Factors to support a mid-range risk level of 1 x (10–5) exist in Oregon and should be incorporated in DEQ's thinking. In considering such factors, EPA guidance states:

> *"Levels of actual human exposures from consuming contaminated fish vary depending upon a number of case-specific factors. These factors include type of fish species consumed, type of fish tissue consumed, tissue lipid content, consumption rate and pattern, and food preparation practices. In addition, depending on the spatial variability in the fishery area, the behavior of the fish species, and the point of application of the "reference ambient concentration" or criterion, the average exposure of fish may be only a small fraction of the expected exposure at the point of application of the criterion….. However, with most fish, selective cleaning and removal of internal organs, and sometimes the*

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[1] The 95th percentile adult consumption rate from the Columbia River Inter-Tribal Commission fish consumption study (CRITFC 1994).

[2] EPA *Technical Support Document for Water Quality-based Toxics Control* (1991) EPA/505/2-90-001 states that 165 grams per day represents the 99.9th percentile of the US population.

> *body fat as well, from edible tissues, may result in removal of much of the lipid material in which bioaccumulative contaminants tend to concentrate."*[3]

EPA guidance for establishing state water quality standards specifies fish consumption rates incorporates general assumptions about the proportion of consumption from different types of fish (different trophic levels) that are not necessarily true for Oregon or Oregon's high fish consumers. Bioaccumulation factors (BAFs) differ substantially for different trophic levels, depending on the specific species consumed within a given trophic level, and are dependent on the physical and chemical characteristics of the water body that the fish spend most of their lives in.

As a practical matter, what this means is that if the majority of high fish consumers are consuming salmon (a relatively clean trophic level) that spend only a fraction of their time in fresh water regulated by the proposed criteria and most of their lives feeding in the ocean, then it is overly protective to combine a high fish consumption rate with a risk factor of 1 x 10(–6). In contrast if the majority of high fish consumers were eating only bottom-dwelling catfish that spent all their lives in contaminated fresh water, a different argument could be made.

Therefore, revision of the national criteria to incorporate a regional or local consumption rate is not as straightforward as a simple substitution of consumption rate with local data. The trophic-level breakout must also be considered and, with it, the BAFs associated with those trophic levels for local waters and species.[4]

Secondly, as a practical matter these more stringent water quality standards will be primarily applicable through NPDES permits to point sources that account for almost negligible quantities of the pollutants of concern or are receiving them in their in-take waters. These facilities could be required to remove trace quantities of natural substances and other background pollutants at exorbitant costs. It is not clear that regulation of these sources to such a degree will produce any health benefit. In fact even if these facilities ceased operation entirely, the gains to water quality or human health may be imperceptible. For example, DEQ staff studies show that almost all of the mercury and PCBs in the Willamette River are due to long-range transport of air pollutants and source contributions outside the control of point sources [5]

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[3] Ibid.

[4] U.S. EPA. 2000. Methodology for deriving ambient water quality criteria for the protection of human health. EPA-822-B-00-004. U.S. Environmental Protection Agency, Office of Water. States: For example, the national consumption rate of 17.5 g/day incorporated into ambient water quality guidance assumes a trophic-level breakout of 3.8, 8.0, and 5.7 g/day for trophic levels 2, 3, and 4, respectively.

[5] See Hope, Bruce K., *A Mass Budget of Mercury in the Willamette River Basin, Oregon*, USA. Water, Air, and Soil Pollution. Vol. 161, Numbers 1-4, February 2005, pp. 365-382. See also, Hope, Bruce K., *An Assessment of Anthropogenic Source Impacts on Mercury Cycling in the Willamette Basin, Oregon, USA*. Science of the Total Environment. Vol. 356, Issues 1-3, 1 March 2006, Pages 165-19. See also, Hope,

In sum, the rationale of a risk level of 1 x 10(–5) includes:

- It is within the mid-range of acceptable risk for high consumers;
- Oregon has state-specific factors that are different from EPA's default assumptions; and
- As a practical matter, the combination of high fish consumption rate with an overly conservative risk level will result in prohibitively costly requirements with little gained in health benefits.

B. DEQ Should Meet the Challenge of Demonstrating the Revised Water Quality Standards can be Administered Without Causing Widespread Economic Disruption

In addition to adjustment of the risk level, NWPPA recommends that DEQ do more to demonstrate the feasibility of the implementation of the proposed water quality criterion. As stated above, Oregon is planning to adopt the most stringent statewide water quality standards in the nation. These standards will result in practical problems that neither the DEQ nor other states have much experience in addressing. It should not fall on the first several NPDES permit holders to try to resolve statewide issues in the course of renewing their individual permits. DEQ must provide more of a platform of knowledge and context for these renewals.

NWPPA recognizes that not all conceivable problems can be anticipated, however, we believe the categories of problems are well established. NWPPA recommends that DEQ undertake the following to provide a framework that includes economic and social costs and precedent for addressing the anticipated categories of issues.

1. DEQ should develop and adopt a pilot variance for both a major municipal and major industrial NPDES permit renewal as case studies as to how the new variance language will work and what type of information is needed to support such application.

2. DEQ should develop a multi-discharger variance language for situations where a many sources are similarly situated with respect to background pollutants in their in-take waters. The DEQ should itself propose the first multi-discharge variance for PCBs preferably statewide, but at a minimum for dischargers on the Willamette and Columbia Rivers. PCBs are recommended as the subject of the first multi-pollutant variance because PCBs are shown to be ubiquitous using EPA's Method 1638.

3. DEQ should identify pollutants and waters where the human health criteria will be naturally exceeded, for example, naturally occurring earth metals. For the identified waters where there are NPDES permit holders,

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Bruce K., *A Model for the Presence of Polychlorinated biphenyls (PCBs) in the Willamette River Basin (Oregon).* Environmental Science & Technology. 42(16): 2008, pp. 5998-6006.

DEQ should evaluate whether and to what extent the criteria are attainable. If the criteria cannot be attained due to natural background levels, then DEQ should revise the criteria on a site-specific basis to reflect natural background.

4. DEQ should delay the effective date of the more stringent human health criteria until March 1, 2013 or one year after EPA approval, whichever is later. This time should be utilized to develop the information in 1-3 above.

To show more specifically how DEQ should accomplish these objectives, NWPPA is attaching House Bill 2007, which sets forth a specific process for DEQ to demonstrate that it has sufficient strategies to implement the revised water quality standards.

In sum, NWPPA believes that it is incumbent on DEQ to do more than just adopt the most stringent statewide standards in the nation. DEQ must also show that the standards can be implemented and offer practical solutions to do so.

Thank-you for consideration of these comments.

Sincerely,

Llewellyn Matthews,
Executive Director

ATTACHMENTS

1. Rulemaking comments of Michael Campbell on behalf of the Oregon Water Quality Standards Group
2. HDR Engineering Inc., August 2008 Report to the NWPPA: "Increasing the Fish Consumption Rate: Report of Fiscal Impact to Select Northwest Pulp and Paper Mills." Executive Summary
3. HDR Engineering, Inc., January 2011 Addendum to August 2008 Report, "Increasing the Fish Consumption Rate: Report of Fiscal Impact to Select Northwest Pulp and Paper Mills." Executive Summary
4. Oregon 2011 Regular Legislative Session; House Bill 2007, introduced on behalf of Northwest Pulp and Paper Association