

## Questions and Answers

### Use and Implementation of the Copper Biotic Ligand Model (BLM)

For information related to the copper water quality standard please visit [DEQ's Water Quality Standards for Toxic Pollutants](#) webpage.

#### Will 24 hour averages be used for evaluating acute criteria?

DEQ rules specify that the acute criterion is a 1-hour average. See "TOPIC 6: Metrics for the Criteria" contained in [Item G](#) from the staff report provided to the Environmental Quality Commission.

#### If I can meet defaults, why am I required to sample for input parameters?

DEQ rule language specifies that defaults are to be used for situations when no data is available, not as a substitute for collecting the information required to determine compliance with the standard. The defaults are there due to EPA requirements for a back-stop in situations where parameter data is not available, not as a substitute for collecting the required parameters. For major dischargers, in future permit cycles once a relationship has been verified, specific conductance may be used in lieu of listed ions.

#### What percent values will be used for default action inputs?

See OAR 340-041-8033 Table N-2:

Region	DOC percentile	Alkalinity and Ions percentile
Willamette	20 <sup>th</sup>	20 <sup>th</sup>
Coastal	20 <sup>th</sup>	20 <sup>th</sup>
Cascades	20 <sup>th</sup>	20 <sup>th</sup>
Eastern	15 <sup>th</sup>	15 <sup>th</sup>
Columbia River	20 <sup>th</sup>	20 <sup>th</sup>

Additionally, DEQ specified a percentile of the best available data in the rule so that could be recalculated in the future as more data becomes available. It is not intended that every applicant recalculate these percentiles for their specific site. They are meant to be applied to the large georegions identified in such a way as to provide for consistent results when using the Copper BLM as part of a performance-based standard. The current values for the defaults at these percentiles are contained in a document called "[Implementation of the Freshwater Aquatic Life Water Quality Standards for Copper](#)" and copied below.

This document is available on [DEQ's Freshwater Aquatic Life Water Quality Standards for Copper](#) webpage.



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<b>Regional default input values PARAMETERS</b>	<b>Cascades</b>	<b>Coastal</b>	<b>Columbia River</b>	<b>Eastern</b>	<b>Willamette Valley</b>
<b>Dissolved Organic Carbon (mg/L)</b>	0.51	0.83	1.41	1.35	1.25
<b>Calcium (mg/L)</b>	2.6	4.2	15.9	5.5	6.3
<b>Magnesium (mg/L)</b>	0.88	1.48	4.06	2.36	2.20
<b>Sodium (mg/L)</b>	1.9	4.3	3.7	4.4	4.2
<b>Potassium (mg/L)</b>	0.39	0.46	0.93	1.43	0.70
<b>Sulfate (mg/L)</b>	0.25	1.90	9.88	1.31	2.02
<b>Chloride (mg/L)</b>	0.59	3.14	1.64	0.82	3.60

DEQ will maintain the information contained in the table above.

**Are the default action inputs from endnote N meant to indicate specifically which parameters need to have dissolved analysis? For example, temperature and pH don't require dissolved analysis but they are in the table.**

DEQ will be updating the "[Implementation of the Freshwater Aquatic Life Water Quality Standards for Copper](#)" document to clarify, temperature and pH should be measured in the ambient samples at time of sampling, and that alkalinity and ions are measured as dissolved. This will also be part of Schedule B of the permit.

**What are TSS sampling requirements that will help complete partitioning in the estimation or conversion of metal parameters?**

DEQ will run total values vs dissolved values in the reasonable potential analysis for a more conservative analysis. The permittee may provide translation factors based on their own total and dissolved analysis. In some cases, there are already state-specific translation factors that are part of the rule which will be used when necessary. This approach will also be in line with DEQ methods for Hardness-based metals, where the criterion is expressed as dissolved but the permits will specify limits in total metal. In the absence of adequate information to produce a reliable conversion from total to dissolved copper, using the value for total copper to generate criteria is more conservative and is allowable. The rule language and implementation information already have language to support using total if no dissolved information is available.

DEQ recommends that TSS samples be taken concurrently with copper BLM input parameters.

**Do small facilities, or facilities with a high dilution ratio need to sample for input parameters? Our facility's dilution ratio is so high that there is no possible way we could have reasonable potential for copper.**

Yes, you must still sample. However, a minor domestic facility discharging to a stream where copper is NOT part of a 303(d) listing would NOT need to sample for copper BLM inputs. Additionally, minor industrial facilities will be subject to copper BLM sampling based on the SIC code of the business and/or waste water characterizations listed in permit applications.

**Will DEQ develop guidance for sample collection for ambient parameters?**

DEQ has not developed guidance for ambient sampling and does not have any current plans to generate any sampling guidance for ambient or effluent sample collection. This is an identified need internally and externally to ensure quality data is collected and delivered that will support permit development. In the near future, DEQ will be updating an ambient sampling Q&A that was previously published on the external website. This will be shared with all interested parties when it becomes available.

**Where does DEQ do filtering for dissolved metals, in the lab or in the field? Where should we be doing it?**

DEQ follows sample techniques listed in the federal register (40 CFR part 136.3 Table II, Footnote 7):

*“For dissolved metals, filter grab samples within 15 minutes of collection and before adding preservatives. For a composite sample collected with an automated sampler (e.g., using a 24-hour*

*composite sampler; see 40 CFR 122.21(g)(7)(i) or 40 CFR Part 403, Appendix E), filter the sample within 15 minutes after completion of collection and before adding preservatives. If it is known or suspected that dissolved sample integrity will be compromised during collection of a composite sample collected automatically over time (e.g., by interchange of a metal between dissolved and suspended forms), collect and filter grab samples to be composited (footnote 2) in place of a composite sample collected automatically.”*

### **Why did DEQ pick 24 sample requirement to represent a paired data set?**

Due to variability in local water chemistry conditions, there needs to be enough data to capture the most sensitive or bioavailable conditions. The data should capture both seasonal and inter-annual variability which must be balanced with the length of a permit cycle. DEQ will evaluate data sets less than 24 and greater than 12 for appropriate representation of seasonal and inter-annual variability on a case by case basis. For all data sets less than 12, DEQ will implement interim methodologies which includes the use of defaults and estimated values.

### **If I only have conductivity for my metals, does that count as paired data?**

For the purposes of the copper BLM, using the conductivity regressions to estimate the concentration of alkalinity and ions does not significantly affect the accuracy of the criteria values, therefore conductivity regressions may be used in a paired reasonable potential analysis. However, DEQ expects to require facilities to measure the full suite of copper BLM input parameters until DEQ has a larger data set and can ensure the accuracy of the regression equations for various water chemistry conditions. Also, please note that the conductivity regressions are not sufficiently sensitive to estimate concentration of alkalinity and ions for any other purposes, so the regression equations should not be used to estimate any of the parameters for applications other than as input parameters for the copper BLM model.

### **What is the timing on roll out of the short term implementation? Long term?**

In the short term, DEQ will be renewing permits and performing copper reasonable potential analyses using available data. In some cases this data may be minimal and require substitution of parameters or the use of default values as BLM inputs which can result in a conservative analysis. In the long term, DEQ's intentions are to notify permittees at least two years prior to permit renewal that they will be required to perform the copper BLM monitoring. DEQ will also include copper BLM monitoring in permit renewals so that a current set of data can be used for subsequent renewals. DEQ recommends that permittees sample for input parameters voluntarily until an official request has been made by DEQ.

### **Can ACWA provide support with EPA and others regarding the paired data reasonable potential analysis for copper using the BLM?**

ACWA and others are more than welcome to submit comments directly to EPA or DEQ in regards to implementation of the water quality standard for copper. DEQ will consider all available options for implementation. DEQ will provide the best method for implementation that is most protective of water quality in Oregon as determined by the copper implementation team and DEQ management.

Please contact Jeff Navarro at 503-229-5257 or [navarro.jeffrey@deq.state.or.us](mailto:navarro.jeffrey@deq.state.or.us)

### **What if I cannot meet limits that are developed after reasonable potential analysis?**

Standard approaches for alternate permitting methods will be implemented as they are with all effluent limits that cannot be met. In some cases the permit may be issued with a compliance schedule consisting of a interim limit equal to current performance, and a final effluent limit set to take effect after a series of reduction, planning and construction milestones takes place.

### **Can I have a compliance schedule for monitoring?**

During development of a compliance schedule, the permittee may include time for additional monitoring as part of their planning component. However, a compliance schedule may not be used for monitoring alone.

### **Can there be a tiered approach for collecting data like I have for other permit parameters?**

This approach would need to be considered on a case by case basis and discussed with DEQ permit writers and management.

### **Why enforce or mandate monitoring if my permit is expired?**

Monitoring is required to support the next permit renewal. In the absence of site specific data, a less accurate analysis and a more conservative analysis is performed during the permit renewal. DEQ's goal is to use the best data set possible in order to take advantage of the science built into the BLM and perform a more accurate analysis of each discharge.

### **What is DEQ doing when only total metals data is available?**

DEQ will use substitution methods listed in OAR 340-041-8033 Table N-2, and the "[Implementation of the Freshwater Aquatic Life Water Quality Standards for Copper](#)" document.

Measurements of the total fraction of both the input parameters and copper can be used as inputs to the copper BLM. Using total fraction, especially for dissolved organic carbon and copper, will result in more conservative analysis.

### **Anti-backsliding – when does it come into use? If I get a limit based on defaults or non-paired data set, does anti-backsliding apply if I get better data?**

The implementation or exclusion of anti-backsliding will be handled on a case by case basis with DEQ permit writer, manager and legal personnel.

### **Can multiple facilities collect ambient data together? Can facilities use ambient data from one location?**

Yes, multiple facilities can pool resources for collecting ambient data. However, any ambient data used for inputs into the copper BLM must be representative of the discharge location. Where facilities are in close proximity, the permittees must show that the data is representative of the receiving body for each specific discharger. Ambient data should reflect conditions immediately upstream of each discharger's effluent.

### **Can DEQ share blank and completed reasonable potential analysis worksheets with the public?**

Yes, a PDF of each reasonable potential analysis report will be in the fact sheet once the permit is issued. Completed spreadsheets are in the permit file and available for inspection upon request. Blank versions of the reasonable potential analysis workbook will be publically available once an interim and final process for implementation is complete.

### **What information did DEQ use to establish "default" dissolved organic carbon effluent concentrations?**

See [Appendix D of Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model](#)<sup>1</sup>

### **Which version of the copper BLM should be used?**

DEQ is will continue to use BLM version 2.2.3, which will be the version used to generate IWQC for all evaluations of reasonable potential. Permit applicants may use any version of EPA's BLM tool for their own information.

### **Can the source code for the BLM software be obtained for review?**

DEQ recommends that interested stakeholders contact EPA directly.

### **Can BLM inputs be left blank? What if there is no data?**

When doing a model run, the BLM inputs cannot be left as a blank or zero because they will cause a division by zero in the model calculations and return errors. When data is missing, DEQ will use the conductivity equations, the regional default values listed in the implementation document (dissolved organic carbon, alkalinity, ions), a representative value (temperature, pH), or model defaults (Humic Acid, Sulfide) as indicated by rule.

### **Can a facility use regression values instead of geo-region defaults?**

Refer to endnote N(1) in regards to the substitution method for alternate BLM input values.

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<sup>1</sup> USEPA Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model (EPA 820-R-15-106; March 2016)

**If I have 24 effluent and 12 ambient data sets, do I have a paired data set?**

Only under the condition that the 12 ambient data sets also have 12 concurrent effluent data sets and the data represents seasonal and inter-annual variation.

**Accessibility**

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email [deqinfo@deq.state.or.us](mailto:deqinfo@deq.state.or.us).