AD HOC ADVISORY COMMITTEE MEETING SUMMARY
Triennial Review WQS
(Reassessment of six issues separated out from Triennial Review)
April 29, 2009

Welcome and Introductions

Advisory Committee Members and Alternates Present:

Chesapeake Bay Foundation (CBF): *Mike Gerel*
Dominion Power (DOM): *Judson White*
Department of Defense (DOD): *Dave Cotnoir*
U.S. Fish and Wildlife Service (USFWS): *Cindy Kane*
VA Association of Municipal Wastewater Agencies (VAMWA): *Jim Pletl, Jamie Mitchell, Dick Sedgely*
VA Department of Conservation and Recreation (DCR): *Charles Lunsford*
VA Department of Health (VDH)): *Ram Tripathi, Dwight Flammia*
VA Manufacturers Association: *Tom Botkins*
VA Coal Association (VCA): *John Heard, Thornton Newton*

DEQ Staff Present:
Alan Pollock (Facilitator), Alex Barron, David Whitehurst

Pollock made introductions and gave a brief review of the previous meeting (3/26/09)

Cyanide; potential for recalculation of criteria:

VAMWA Presentation of the WERF report given by James Pletl

DEQ Presentation given by Alex Barron

Discussion:

Freshwater Cyanide Criteria:
AB: For the freshwater cyanide criteria, when the entire updated data set was used to recalculate the criteria the differences between the current Virginia/EPA criteria values and those recommended by the WERF report were within a few percent of each other. The WERF report also presented the option of applying these criteria values to the "cold waters" or trout streams and developing a separate "warm water" criteria by deleting all the toxicity data for trout and salmon species. Using this approach, the warm water criteria would increase significantly; approximately doubling. This new approach would set a precedent in Virginia and it would be a departure from the EPA approach of not separating the toxicity data for coldwater and warm water species when calculating the criteria. EPA's standard approach is to keep all toxicity data for warm water species and salmonid species together in one data set to calculate the FAV and the criteria. If a trout species is especially sensitive, and the calculated criteria values would not be protective of that species, the criterion value is lowered to protect that important species.

Variability in toxicity values is recognized and EPA generally considers variability within a factor of two to three to be relatively normal for data for a species and only if the variability is greater than a factor of ten should the data be more carefully reviewed to determine whether some of the data should be considered outliers. There isn't much difference between the most sensitive warm water fish species and the most sensitive salmonid species. The most sensitive species, the rainbow trout is within a factor of two of the most sensitive warm water fish species and two other salmonids have mean LC_{50} values that are less than ten percent different from the next most sensitive warm water fish and individual LC_{50} values for these three species overlap. This amount of variation would normally not cause any comment. The toxicity data for any species can be viewed as surrogate data for other, untested species, including threatened and endangered species. There are recent reviews that have concluded that salmonid species can be considered similar in sensitivity to other sensitive warm water species. By using the complete data set, we can make an assumption that since no data have been excluded, the available data is representative of a wide variety of species and it is reasonable to assume that the criteria will also provide protection for any other species, including threatened and endangered species. If some of the toxicity data is excluded from the data set on the basis of coldwater or warm water habitats, that assumption becomes less supportable

USFWS: There is currently no empirical data for many T&E species or their surrogates. There could be negative effects on mussel species during the sensitive larval stage associated with host organisms (fish). USFWS and USGS have a draft document in progress regarding mussel larval stage toxicity. The document includes mussels and fish as well as a saltwater toxicity "biological evaluation". It may not be prudent to initiate a change in CN criteria at this time with this substantial document in development.

VMA Stated that VA WQS recognize different uses and has trout streams recognized as separate uses.
AB These are based on the special needs of trout for cold temperatures and higher dissolved oxygen, which are natural environmental conditions that different species of fish have adapted to live in. For toxic contaminants like cyanide, there aren't similar widespread environmental conditions that would influence evolutionary adaptations that could account for a predisposition for a difference in toxicity sensitivity between CW & WW species.

VAMWA Was there discussion during the study (USFWWS/USGS study) process regarding CW vs. WW sensitivity. Their understanding is that the study was undertaken to create a "research project" to help provide additional information and present options to help draft criteria. The possibility a warm water criterion for cyanide was presented as a possible option for consideration only. The main reason and focus for the WERF research project was the saltwater criteria with a small dataset and the influence of the most sensitive species, the rock crab.

<u>Saltwater Cyanide Criteria</u>:
AB A few concerns were raised concerning the saltwater data. Most of the new toxicity data for the crab genus (*Cancer*) were for Pacific species of this genus and all of these

were much less sensitive, greater than ten times less sensitive than the original data from EPA for an Atlantic species. There are some other new data for the same Atlantic crab species that are higher than the original EPA data, but these do not appear to have been published. DEQ and EPA would need to have the original reports and QA/QC supporting material for these new rock crab data in order to consider these for the basis for re-evaluating the saltwater criteria for cyanide. Another issue to be considered is the use of LC50 values based on death instead of EC50 values based on shell development for the new crab toxicity studies which raises concerns regarding appropriateness of basing criteria on LC50 data. EPA guidance indicates EC50 is the preferable approach to calculate an FAV for shellfish & crustaceans.

VAMWA: Noted that the documentation available for the original EPA data for the rock crab is very limited and provides little details.

DOD: Should the criteria be expressed as free CN?
AB: It is.

VMA: What is the number of VA CN impairments? Is it a major issue for VA?
AB: We do not have that information at the moment.

VAMWA The issue is whether or not there is a reasonable possibility to exceed the WQS for CN. If the WQS isn't correct a permittee may get an inappropriate limit. VAMWA will try to provide additional information regarding new cyanide toxicity data for the rock crab tests.

<u>JAMIE MITCHELL (VAMWA)</u> - <u>CADMIUM PRESENTATION</u>

VAMWA EPA/USGS has been asked by ID (Idaho?) to assist with cadmium criteria development.

USFWS USGS has been doing toxicity work with mussels and Cd.

<u>DEQ CADMIUM PRESENTATION</u> - very similar to VAMWA

Discussion:
There were discussions regarding the feasibility of developing separate criteria for coldwater and warm water, which were similar to the previous discussions regarding the cyanide criteria.

In general it was felt that the more recent USGA study appeared to be the more comprehensive and included the important information used in the earlier Chadwick study. Slight differences by USGS in treating the data and slight departures from the EPA criteria guidelines appeared to be reasonable and aimed at a more comprehensive review of the data. One of the issues discussed was the USGS report's final focus on the trout data and the lowering the final criteria concentration to protect cutthroat trout, an important game fish in Idaho.

VMA: Is the protection of cutthroat trout an important concern for Virginia?

AB It may not be necessary to use the species mean acute value for cutthroat trout as the basis for the final criterion in Virginia since this species does not exist here. It would be in keeping with the guidelines to leave the trout data as a genus mean value (2.02µg/L) for this trout genus, rather than lower it to the value for the most sensitive species, the cutthroat trout (1.50 µg/L).

USFWS There may also be new cadmium toxicity data for freshwater mussels and these should be considered in any re-evaluation of the criteria.

AB Suggested DEQ & VAMWA together look at GEI/USGS datasets
VAMWA Agreed.

AB Suggested that DGIF may want to weigh in (DGIF not present at meeting). Chadwick + USGS cadmium studies represent good literature search captures.

AEP Next month TAC will examine & discuss ammonia and copper issue.

USFWS will work on a presentation of those issues for next meeting.

VMA Asked that USFWS information be shared with the rest of the group prior to the May meeting.